REFLECTIONS ON THE ROLE AND DESIGN OF ONLINE DICTIONARIES FOR SPECIALISED TRANSLATION

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Abstract

This article is an updated and modified version of a Spanish article published in MonTi 6 (cf. Tarp 2014a). It deals with specialised translation dictionaries. Based on the principles of the function theory, it analyses the different phases and sub-phases of the translation process from a lexicographical perspective and shows that a translation dictionary should be much more than a mere bilingual dictionary if it really pretends to meet its users' complex needs. Thereafter, it presents a global concept of a translation dictionary which includes various mono- and bilingual components in both language directions. Finally, the article discusses, by means of two concrete online projects, how this concept can be applied on the Internet in order to develop high-quality translation dictionaries with quick access to data that are still more adapted to the needs of each translator.

Resumen

Este artículo es una versión modificada y actualizada de un artículo escrito en español y publicado en MonTi 6 (cf. Tarp 2014a). Trata de los diccionarios especializados de traducción. Basado en los principios de la teoría funcional, analiza las diversas fases y subfases del proceso traductivo desde una perspectiva lexicográfica mostrando que un diccionario de traducción, si realmente pretende resolver las complejas necesidades de sus usuarios, debe ser mucho más que un simple diccionario bilingüe. A continuación presenta un concepto global de diccionario de traducción que incluye diversos componentes mono- y bilingües en ambas direcciones entre las dos lenguas en cuestión. Finalmente, el artículo discute, mediante dos ejemplos concretos, como este concepto puede aplicarse en Internet con el fin de desarrollar diccionarios de traducción de alta calidad y rápido acceso a datos adaptados cada vez más a las necesidades de cada traductor.

> "Dictionaries are the product of the evolution of human civilization and the development of human society. The needs from society and culture are the catalyst for the inception and development of lexicography. Owing to the strong and persistent influence of ontological language studies, previous research is mainly limited to dictionaries proper, and dictionary compilation viewed as a purely linguistic activity… It is frequently apparent in their research that more emphasis is laid on the parts than on the whole, that more attention is paid to the isolated analysis of cases than to theoretical generalizations, and that more consideration is given to accumulation of practical experiences than to formulation of lexicographical theories." (Heming Yong & Jing Peng 2008: 5)

1. Introduction

In a very interesting overview article on the past and present relation between lexicography and translation, and after mentioning some of the characteristics of each of them as well as some of their differences, Calvo Rigual & Vittoria Calvo (2014: 42) write:

> Interest in the sister discipline is evidenced in a number of ways, both from qualitative and quantitative perspectives. Lexicographers have shown concern for meeting translators' needs in the best way possible. Translators have often regretted how inappropriate lexicographical resources are for their needs, but have failed to provide specific suggestions for improvement to lexicographers. A fluent dialogue between the two parties, undoubtedly doomed to understand each other, has been missing. In this sense, it is important to highlight that lexicographers have traditionally been more interested in doing so. Among studies that address both disciplines there is a lack of bidirectionality. In fact, studies about the use of dictionaries in Translation are an overwhelming majority. Studies on the use of Translation or translations in Lexicography are notably scarce.

It is difficult to disagree with the general picture drawn by the two scholars. However, there may be some powerful arguments in favour of the bewailed "lack of bidirectionality", inasmuch as lexicography and translation are two different disciplines, the first of which deals with tools conceived to assist different types of user engaged in different types of activity (among them, translators) whereas the second does not have the reciprocal role (translation of dictionaries is not recommendable). Furthermore, being separate disciplines, each of them should necessarily develop their own system of theories, methods and techniques which cannot be taken over uncritically without being submitted to an analysis in order to determine what can be used as it is, what can be used only after being modified and adapted, and what has to be rejected. This is a basic criterion of methodology common to all disciplines considered to be independent in their own right.

The methodology mentioned is also the one used in this paper which will discuss how lexicography can assist translation of specialised texts. With this objective, it will dissect the translation process from a lexicographic perspective. Admittedly, such an approach is rarely adopted in the lexicographical literature where one of the many engrained and frequently repeated myths about translation dictionaries is the one treating them as almost synonymous to bilingual dictionaries, cf. Bergenholtz et al. (1997), Burkhanov (1998), Hartmann & James (2001), Marello (2003), among others. This contribution will argue that the relation between lexicography and translation is much more complex, as already claimed by Piotrowski (1994), one of the few lexicographers who have studied this problem in a more complete manner.

The paper is embedded in the lexicographical function theory, according to which dictionaries and other lexicographical works are information tools. The theory stipulates that the different types of information need which potential users of these tools may experience in different situations should be the ones which, at the end of the day, determine the characteristics of a lexicographical project. This means that user needs are not viewed as something vague

floating in the air, but as clear and definite needs shaped not only by the characteristics of a specific type of user, but also – and above all – by the specific situation or context where there occur. In this respect, the function theory regards lexicography as a separate discipline with its own system of theories, methods, techniques etc. Simultaneously, it stresses its big interdisciplinary vocation which, historically, has expressed itself in the relation which dictionaries, during the past four millennia, have had to almost any area of human activity, cf. Tarp (2008) and Fuertes-Olivera & Tarp (2014).

On the other hand, translation theory – or theories – has developed vertically during the past decades reflecting the complexity of the translation process with all its practical and cognitive-mental phases and sub-phases, cf. Snell-Hornby et al. (1992), Bassnett (2001), Gerzymisch-Arbogast et al. (2008), among many others. It goes without saying that lexicography should be open-minded and inspired by these advances when it has to complete its own tasks and understand the translation process theoretically in terms of the conception of translation dictionaries. However, according to its basic criterion of methodology it cannot copy from another discipline without a critical reflection of its own.

What is relevant to lexicography is exclusively the phases and sub-phases of the translation process where lexicographically relevant needs may occur, i.e. information needs which may be met by consulting dictionaries and other lexicographical tools. Other phases, sub-phases and needs are irrelevant to lexicography. Hence, in the following we will study the translation process from the perspective of specialised lexicography which, due to its characteristics, has an even broader vision than general lexicography of the complex relation existing between lexicography and translation.

2. Phases and sub-phases of the translation process from a lexicographical perspective

It is a matter of course that the phases and sub-phases of the overall translation process may vary from translator to translator, from task to task. However, the role of theory is to give guidance to the practical production of dictionaries to be used by all translators performing translation tasks within the subject field in question, and in this respect it is evident that a well-conceived translation dictionary should cover all the phases relevant to the foreseen type – or types – of users. With this in mind, and based upon more than 25 years of experience as both a sworn translator and a teacher of specialised translation, Tarp (2013: 150) has suggested the following preliminary schema indicating three main phases and a number of sub-phases which cover the translation process in its full context seen from a lexicographical point of view:

1.   a pre-translation phase where the translator
   a.   prepares the translation studying relevant background material in order to get a general idea of the subject field in question,
   b.   reads the whole text in the source language;
2.   a translation phase (in the narrow sense of the word) where the translator
   a.   reads specific text segments in the source language,
   b.   transfers specific text segments from the source language to the target language,
   c.   reproduces specific text segments in the target language;
3.   a post-translation phase where the translator (or another person)
   a.   revises the translated text.

In all these phases and sub-phases, the translators may experience various types of need which require specific types of *lexicographical data* as well as allowance for specific types of *data access* in order to be satisfied. Before having a closer look at these phases and sub-phases, it seems logical to classify the various relevant categories of translator in order to have a more detailed idea of the needs they may experience in each of them.

3. User profile

Apart from the extra-lexicographical, pre-consultation context where they occur, the information needs relevant to lexicography are also shaped by the specific characteristics of the foreseen user group. One type of user with specific characteristics does not necessarily have the same needs as another type with other characteristics, even if they engage in exactly the same kind of translation task. By definition, any potential user of a lexicographical product has a large number of characteristics, of which only a few are lexicographically relevant, and even less are relevant in relation to a specific type of activity or situation. It is, for instance, lexicographically irrelevant that a person is red-haired, skinny, or choleric. In this respect, several parameters have to be taken into account in order to determine the lexicographically relevant user characteristics in terms of specialised translation. The most important of these are:

- Subject-field knowledge
- Comparative subject-field knowledge (in culture-dependent disciplines)
- Translation skills and experience
- General skills in the source language
- General skills in the target language
- LSP skills in the source language
- LSP skills in the target language

All these characteristics can be graduated in low, intermediate and high (layman, semi-expert and expert) in correspondence with the specific person engaged in specialised translation. Although there are no sharp dividing lines between them, there are basically three types of potential users performing specialised translation:

1. Trained translators
2. Translation students
3. Subject-field experts

Each of these types has their specific characteristics which determine types of information need they may experience in the respective phases or sub-phases of the translation process as well as the types of lexicographical data and access routes required to meet these needs.

The are two main categories of *trained translators*: those who have specialised within a certain field (e.g. accounting or legal translation), and those who are general (multi-field) translators. Both of them are expected to have highly developed translation skills and performance in the respective general languages but they will differ considerably in terms of knowledge of the subject field and LSP skills (including command of terminology and genre conventions, cf. Nielsen 2010). The former are supposed to possess fairly good LSP skills and they may also have reached a subject-field knowledge qualifying them as semi-experts; whereas the latter may be considered subject-field laymen with limited LSP skills and knowledge of terminology in both languages in terms of the subject field in question.

The *translation students*, here understood as students of specialised translation, will in most cases be characterised by medium to high LGP proficiency levels in the respective languages, whereas they will have insufficient (but increasing) translation skills combined with less developed LSP skills and low knowledge of the subject field.

The *subject-field experts* engaged in translation, but without a formal training in this discipline, will cover a broad spectrum of characteristics. By definition, they will have advanced LSP skills as well as high knowledge of the terminology in question, but not necessarily in both languages. In addition, some of them will have developed high-level translation skills whereas others will have skills similar to the translation students. As a rule, if a specific dictionary is

designed to assist both trained translators and students it will also cover the broad spectrum of needs occurring for this type of translator.

4. Possible needs in the different phases

According to the function theory, a lexicographical work may have four fundamental categories of function: 1) *communicative functions* when it is a question of assisting user having problems related to different types of communication (production, reception, translation and revision of text); 2) *cognitive functions* where the purpose is to assist users who need or want to improve their knowledge of something; 3) *operative functions* where the lexicographical work intends to help user in need of advices or instructions in order to perform a physical or mental action not directly related to communication; and 4) *interpretive functions* where the purpose is to assist user who wants to interpret a non-linguistic sign, symbol etc., cf. Tarp (2008) and Fuertes-Olivera & Tarp (2014). In his discussion about user manuals, Rodríguez Gallardo (2013) even proposes a fifth category, the *evaluative functions*, but it is still too early to determine whether it has relevance for dictionaries.

However, it is only the first two of the functions mentioned that are relevant to specialised translation, i.e. the *cognitive functions* when the translator needs background information about the discipline or subject field in question, and the *communicative functions* when the translator needs assistance in order to understand (reception), transfer, reproduce or revise of the specialised text in question. In this respect, it should be stressed that cognitive needs may not only show up in the pre-translation phase where the translator may require general information about the subject field, but also in the translation and even post-translation phases where the lack of specific knowledge may hamper and distort the translation process. Nielsen (2013), for instance, has shown that translators need such cognitive knowledge in order to successfully perform translation of highly specialised accounting texts. In the following, we will discuss the different types of lexicographical data which the translators may need in the pre-translation, translation and post-translation phases, respectively.

4.1 Pre-translation phase

In this phase, the translators may need:

1. a general and systematic introduction to the subject field or part of the subject field relevant to the task;
2. definitions of source-language terms;
3. explication of source-language words and expressions;
4. background information about specific phenomena, processes, things, and aspects related to the text.

Comment: Here it should be noted that the corresponding lexicographical data do not require a bilingual solution to be duly accessed but can easily be provided in a *monolingual dictionary* in the source language, a solution which is actually the best one when the source language is also the translators' mother tongue. Furthermore, the explications referred to in point 3 are, as a rule, only relevant when the source language is not the translator's mother tongue, and that they, in most cases, do not need to be dealt with in specialised dictionaries if there are already non-specialised dictionaries available explaining general words and expressions. Finally, it should also be noted that point 4 is only relevant for translation students and trained translators as the subject-field experts performing translation within their area are supposed to have this knowledge.

4.2 Translation phase

In this phase, the translators may need:

1. specific background information;
2. definitions of source-language terms;
3. equivalents of terms, colocations and fixed expressions;
4. equivalents of general words and expressions;
5. information about orthography, gender, inflection, syntactic properties, collocations and genre conventions in the target language.

Comment: Of all the points listed here, it is only the provision of equivalents (point 3 and 4) which compulsorily requires a *bilingual solution* whereas this solution is optional for the remaining data categories (and as was the case in the previous phase, the data of type 4 should not necessarily be provided in a specialised dictionary). The data of type 1 and 2 can also be furnished in a *monolingual dictionary* in the source language; just as the data of type 5 could be provided either in a *bilingual dictionary* from the source language to the target language, a *monolingual dictionary* in the target language or a *bilingual one* based upon this language. Frequently, the translators – and particularly the experienced ones – do not experience any problems when reading and transferring the text, but only when it comes to reproducing it in the target language (especially when this is not their mother tongue). In such cases, a bilingual dictionary from the source language to the target language would, in fact, not be able to provide assistance to the translators unless the whole translation process starting with text reception in the source language is reconstructed – a time-consuming reconstruction which the lexicographers cannot expect from professional translators as it may reduce their per-hour payment considerably.

4.3 Post-translation phase

It is an undeniable fact that this phase where the translated text is revised – by the translator, a third person or both of them – is one of the least studied in the lexicographic literature on translation dictionaries. This cannot but surprise, especially if on takes into account that revision of translated texts is a process taking place millions of times each and every day, cf. Tarp (2004a, 2008). A detailed study of the complex lexicographical needs which the professionals engaged in the revision and correction of translated texts would have indicated that there are six lexicographically relevant sub-phases: 1) reception of the original text; 2) reception of the translated text; 3) evaluation of the text transfer; 4) correction of the text transfer; 5) evaluation of the translated text; and 6) correction of the translated text. In this respect, Tarp (2007: 248) comments:

> Sin profundizar en cada una de estas subfases que se combinan y repiten según los hábitos de trabajo de cada actor, cabe subrayar que gran parte de las necesidades relativas a estas subfases son las mismas como las que tienen los traductores en las diferentes fases del proceso de traducción, pero como el texto a corregir o revisar está escrito en la lengua de destino y también precisan de entender este texto, tienen relativamente más necesidades relacionadas con esta lengua, necesidades que por su naturaleza sólo pueden cubrirse con un diccionario, monolingüe o bilingüe, que parte de la lengua de destino.
> [Without discussing each of these sub-phases which are combined and repeated according to the work habits of each translator, it should be stressed that a considerable part of the needs related to these sub-phases are the same as those experienced by the translators in the different phases of the translation process. However, as the text which has to be revised or corrected is written in the target language, they also need to understand this text, for which reason they have more needs related to this language, needs which by definition can only be met by a monolingual or bilingual dictionary based upon this language.]

Consequently, in this complex revision phase the translators or text revisers may need:

1. specific background information;
2. definitions of source-language terms;
3. explication of source-language words and expressions;
4. equivalents of terms, colocations and fixed expressions;
5. definitions of target-language terms;
6. information about orthography, gender, inflection, syntactic properties, collocations and genre conventions in the target language.

Comment: The satisfaction of these complex needs requires a *combination of lexicographical solutions*. The data of type 1, 2 and 3 could be provided either in a *monolingual dictionary* in the source language (best solution when it is the translators' mother tongue) or in a *bilingual one* from the source to the target language (best solution when the latter is the translators' mother tongue). The data of type 4 requires necessarily a *bilingual dictionary* from source language to target language, whereas the lexicographical data of type 5 and 6 could be furnished in either a *monolingual dictionary* in the target language or a *bilingual dictionary* taking the point of departure in this language.

4.4 Consequences

The above reflections have big consequences for the theory and practice of translation dictionaries. However, before embarking on this discussion it could be interesting to have a brief look at the results of already conducted user studies on translators and their use of dictionaries in order to see if they actually confirm these reflections.

5. Relevant evidence from user research

Many surveys published on translators' lexicographical behaviour are characterised by a number of problems in terms of the subject of this article. In most cases the studies deal with the needs that translators may have in relation to the translation of non-specialised texts. Therefore, they cannot be directly applied to specialised translation, where only a few relevant studies have been conducted, among them Tomaszcyk (1989), Duvå et al. (1992), Mackintosh (1998), Varantola (1998), and Nord (2002), to which should be added some studies carried out in the framework of terminography. Besides, almost all user research published so far suffers from a major methodological weakness, namely that the user needs are not analysed directly as they occur in the translation process but only indirectly as they are reflected in dictionary consultations or interpreted by the translators themselves. To this should be added that many of these studies are characterised by "an excess of percentages and decimals showing how often the informants are using one dictionary or another" (Tarp 2009: 292) although such data most often do not have any statistical significance whatsoever due to the very small number of informants consulted in almost all existing studies.

At the end of the day, what matters – or should matter – to scientific lexicography (in opposition to the commercial one) is not the number of consultations which the translators perform in order to search for specific data types but the different types of needs which they may experience during the translation process, even if they occur only one or a few times. A high-quality specialised translation dictionary should also provide assistance to the needs which only show up in one out of a hundred or even one out of a thousand consultations. If this is taken into consideration, then it is possible to pave the way through the many percentages and decimals in existing user studies in order to look for evidence relevant to the purpose of this article.

In the following we will first look at a few lexicographical studies concerned with both general and specialised translation. Except for the first of these studies (which is included for this reason), all the others only have one or, at the most, a few dozen informants for which reason their findings are without any statistically significance. However, as we shall see, this does not exclude that qualitative information can be extracted from them in order to verify or reject the reflections made in the previous section.

The studies confirm that translators do not only consult bilingual dictionaries; they also very frequently use monolingual ones either in the target language or the source language. This clearly indicates that they experience problems not only in the transfer sub-phase, but also in other sub-phases as described above. The studies also suggest that translators do not only have problems regarding specialised terms and expressions, but also in relation to general vocabulary.

The first survey to be discussed here was conducted by Yong & Peng (2007) among 195 students from South China universities performing translation of non-specialised texts between Chinese and English. In their conclusions, Yong and Peng (2007: 33) write:

> Translation from English into Chinese demands the use of English-Chinese dictionaries, but in the case of translation from Chinese to English, Chinese-English dictionaries are used, together with English-Chinese dictionaries. Translators may easily find English equivalents (usually more than one) for Chinese words and expressions, but they still need to turn to English-Chinese or English-English dictionaries from time to time to decide the right candidates and make sure about the idiomatic use of those translation equivalents.

The two Chinese scholars clearly show that their informants do not only have problems in the transfer sub-phase; they also seem to have various types of lexicographical needs related to the posterior sub-phase of text reproduction in the target language when this language is not their mother tongue. This is, of course, no surprise for anybody who have taught or performed translation but it gives proof to the hypothesis that bilingual dictionaries from source to target language are absolutely necessary and, at the same time, insufficient in terms of providing assistance to the whole translation process.

This finding can also be extended to specialised translation as shows the research published by Tomaszcyk (1989), Varantola (1998), and Nord (2002), among others. Especially interesting in this respect is a one-man study conducted by Tomaszczyk who recorded all the consultations which he himself made when translating a book on the industrial use of diamonds from Polish into English. Apart from being a translator, Tomaszczyk is also an internationally well-known lexicographer. The record shows that the Polish scholar, who then had 20 years of experience as a translator, performed a total of 691 consultations, many of which were made in the monolingual dictionaries. Almost half of these look-ups were not made in order "to learn something new", but "to confirm my own predictions". Tomaszcyk (1989: 179) himself concludes:

> Since what one looks up in such cases are L2 items (rather than L1 items and their L2 equivalents), it follows that in L1-L2 translations one can go a long way without a L1-L2 dictionary. This applies not only to general language problems but also to terminology, especially multiword combinations.

Similar conclusions can be drawn from a study performed by the German researcher Britta Nord who examined the sources consulted by a group of professional translators of legal texts. Her study revealed that a half of all these consultations were made in some form of bilingual dictionary whereas the informants in a quarter of all cases looked for information in monolingual dictionaries and encyclopaedias, and in the rest of the cases, in non-lexicographical sources (Nord 2002:175).

In a survey involving students translating economic texts, Duvå et al. (1992) discovered that the students' difficulties in terms of equivalents were, among other things, due to four "uncertainties", i.e. "uncertainty about the subject matter, uncertainty about the semantic

content of the words, uncertainty about the words' place in the universe, uncertainty about the usage of the words" (Duvå et al. 1992: 132). The three Danish scholars concluded that lack of background knowledge of the discipline was one of the main reasons explaining the problems observed in the translation process. This conclusion, which cannot be generalised due to the relatively low number of informants, suggests that *at least* some students do not only have *communicative needs*, but also *cognitive needs* when performing this kind of task. They need, in other words, the general and specific background information about the subject field discussed above. A similar conclusion was drawn from a study conducted among Finish translation students by Varantola (1998: 339) who concludes, among other things:

> Very often in the case of translators the information needs are deeper, covering longer contexts and specialised "world knowledge" that does not belong in a dictionary: these complicated and interdependent needs tend to merge into each other, making it difficult if not impossible for a single reference work, however complex, to satisfy them.

The Finish lexicographer wrote this comment in a period when digital dictionaries were still in their making. With the experience accumulated since then, the present situation is qualitatively different. We will later see how it is not only possible but also recommendable for a new generation of specialised online dictionaries to be designed to satisfy the broad range of information needs which their foreseen users may have. But first we will draw some conclusions from the previous discussion with a view to approaching a more global concept of what could and should be the specialised translation dictionary of the 21st century.

6. Complete schema of the phases and sub-phases relevant to lexicography

In section 2, we introduced a preliminary schema indicating the phases and sub-phases of the overall translation process relevant to lexicography. After the discussion in section 3, 4 and 5, we can now add further details and present the above schema showing the activities where translators may experience cognitive and communicative needs in relation to the three main phases of this process:

1. In the pre-translation phase
   a. general study of the subject matter
   b. text reception in the source language
   c. specific study of a topic related to the subject matter
2. In the translation phase
   a. text reception in the source language
   b. text transfer from source language to target language
   c. text reproduction in the target language
      i. *with* problems in the previous sub-phases
      ii. *without* problems in the previous sub-phases
   d. specific study of a topic related to the subject matter
3. In the post-translation phase
   a. revision of the translated text
      i. reception of the source-language text
      ii. reception of the target-language text
      iii. evaluation of the text transfer
      iv. evaluation of the target-language text
      v. correction of the target-language text
   b. specific study of a topic related to the subject matter

A dictionary which is aimed at providing real assistance to the translators of specialised texts should be designed to meet all the lexicographically relevant needs appearing in the various

phases and sub-phases of the overall translation process. This is not only a question of incorporating the right data into the dictionary but also of guaranteeing the easiest – and sometimes only possible – way of access to these data. This is a question of great importance to the global concept of what should be a specialised translation dictionary not only of name, but also of fact.

7. Access routes and global concept of a specialised translation dictionary

In the studies on dictionary use referred to in section 5, the informants consulted various types of monolingual and bilingual dictionaries in both languages and both language directions. Tomaszcyk (1989), for instance, informs that he consulted monolingual English dictionaries as well as bilingual Polish-English, English-Polish, Russian-English and English-Russian ones. Of course, some of these consultations could be attributable to the lack of more adequate dictionaries; this would probably be the case of the Russian-English and English-Russian dictionaries consulted. With a view to obtaining mayor logic, and taking into account the translator's mother tongue, in the following we will discuss which solutions are the most appropriate to the various types of needs showing up in the different phases and sub-phases of the translation process.

7.1 The best options

In section 4.1 it was stressed that translators who are subject-field laymen could benefit from a general and systematic introduction to the subject field or part of the subject field relevant to the translation task they are performing. Most so-called specialised translation dictionaries ignore completely this important need of their target users while others content themselves with referring to one or several external sources where the required information can be obtained. This last solution in not bad if such external sources actually exist and can be easily accessed, but an even better solution would be the integration of a special section dedicated to this theme. This has, for instance, been done by Gubba (1993, 1995) in his *Juridisk ordbog dansk-tysk* and *Juridisk ordbog tysk-dansk*, Kaufmann & Bergenholtz (1998) in their *Diccionario enciclopédico de ingeniería genética español-inglés* and *Encyclopedic Dictionary of Gene Technology English-Spanish*, and Fata (2005) in her *Ungarisch-Deutsches, Deutsch-Ungarisches Fachwörterbuch zur Rentenversicherung*. In this respect, many translators without specialised knowledge of the subject field would probably prefer that such an introduction was written in their mother tongue, although it could also be provided in both languages simultaneously as Kaufmann & Bergenholtz (1998) have done. This is valid for translation in both language directions. The systematic introduction could then be furnished either in a *monolingual solution* or a *bilingual solution* in one or the other direction.

The definitions of specific source-language terms as well as background information about specific phenomena which translators may need in any of the three main phases should also be provided in their mother tongue. Here, the *best option* is to provide these data in a *monolingual solution* in relation to L1-L2 translation and in a *bilingual one* in relation to L2-L1 translation. The *second best option* would be a bilingual solution in the first case and a *monolingual one* in the second case, respectively.

The *equivalents of terms, colocations and fixed expression* which may be required in the translation and post-translation phases should *necessarily* be supplied in a *bilingual solution* from source language to target language for translation in both directions.

The *explications of general source-language words and expressions* which the translator (or text reviser) may need in the pre- and post-translation phases are, as a rule, only relevant in translation from a non-native language. If it is considered necessary to deal with these needs in a specialised dictionary, the *best option* would then be to supply the corresponding data in a *bilingual solution* with equivalents in the mother tongue. By doing this, the dictionary would

also provide assistance to the need for *equivalents of general words and expressions* which may occur in the transfer sub-phase.

As it has been argued above, the translators may need *information about orthography, gender, inflection, syntactic properties and genre conventions* in the target language both when they have experienced problems in the previous transfer sub-phase and when they have not experienced such problems. In the first case, the *best option* would be to place the corresponding lexicographical data in a *bilingual solution* from source language to target language, whereas it, in the second case, is *indispensable* to place these data in a *monolingual* (or *bilingual*) *solution based on the target language*. This last solution could also solve the same types of need when they show up in the post-translation phase.

Finally, the translator or text reviser may also need definitions of target-language terms in the post-translation phase. Here the *best option* is, on the one hand, a *monolingual solution* when the target language is also the translator's (or reviser's) mother tongue, and on the other, a *bilingual one from target language into source language* when the latter is the mother tongue.

7.2 The best global design of a specialised translation dictionary

The above reflections give proof the hypothesis that a specialised translation dictionary should be much more than a simple bilingual dictionary if it really pretends to respond to its foreseen users' needs for both provision of and easy access to the corresponding lexicographical data. In this respect, the *best overall design* of a dictionary conceived to assist its users in L1-L2 translation of specialised texts consists of the following *three components*:

- a monolingual L1 component
- a bilingual L1-L2 component
- a bilingual L2-L1 component

Similarly, the *best overall design* of a dictionary conceived to assist its users in L2-L1 translation of specialised texts consists of the following *two components*:

- a bilingual L2-L1 component
- a monolingual L1 component

In a printed environment, the ideal solution would be to print a series of three dictionaries for L1-L2 translation and another series of two dictionaries for L2-L1-translation. However, this is seldom feasible. Due to the relatively small number of potential users of specialised translations dictionaries within most subject fields – and language pairs – this would not be economically attractive for any publishing house unless the project is carried out with public funding. In such cases, a pragmatic – but theory-based – solution would be to opt for the *second best overall design* as it has also been discussed above, i.e. a combination of L1-L2 and L2-L1 components for L1-L2 translation and a combination of L2-L1 and L1 (alternatively L1-L2) components for L2-L1 translation.

With only a few minor lexicographical adjustments and additions this second best solution could be materialised in *a combined L1-L2/L2-L1 dictionary* conceived to assist users with *both mother tongues* performing translations in *both language directions*. The Hungarian-German, German-Hungarian *Fachwörterbuch zur Rentenversicherung* as well as the English-Spanish *Encyclopedic Dictionary of Gene Technology* and its Spanish-English counterpart *Diccionario Enciclopédico de Ingeniería Genética* are all examples which show that such a solution may not only be viable but also high-quality, cf. Bergenholtz et al. (1994), Tarp (2005), and Fata (2009).

However, in spite of the undeniable merits of these and similar dictionaries, it is no secret that they suffer from two main problems which cannot be solved satisfactorily in the printed environment. The first of these problems is the *additional look-ups* which the users frequently

have to make in other parts of the dictionary in order to find the required data. The second has to do with *information overload* in the sense that the translators in most specific consultations may encounter a certain amount of superfluous data which are irrelevant to their specific purpose. In both cases this may delay the consultation process and obstruct the proper retrieval of the information needed in each specific consultation. This is an inevitable problem in printed dictionaries which, however, can be easily avoided in the *online environment*.

8. Online dictionaries: new perspectives and possibilities

The gradual transition to the digital world started more or less two decades ago has been full of promises and disillusions. On the one hand, the accumulated experiences is now more than sufficient to convince us that we are going through a revolution not only in terms of the means of communication between lexicographer and user but also, and even more important, in terms of the expectations of reaching much more advanced forms of individualised satisfaction of user needs. On the other hand, it is surprising to see the conservatism with which most lexicographers and publishing houses have launched themselves into the Brave New Digital World which could easily have been the title of Aldous Huxley's famous book if it had been written today and not eight decades ago when the world experienced another big technological revolution.

A closer study of the dictionaries placed on the Internet during the past years will reveal that most visualised articles are almost exact copies of the corresponding articles in printed dictionaries. This is due to the fact that they are either digital versions of already printed dictionaries or new dictionaries moulded after the old printed dictionary forms. Little has been done to apply the new technologies in order to adapt the dictionaries even more to the users' needs in each type of situation or context, cf. Tarp (2011, 2012).

Of course, the alternative to this regrettable situation is not to let oneself be carried away by the new technologies and lose sight of the users and their real needs, but to make maximum use of these technologies under lexicographical control. In this respect, Bothma (2011) has shown that the digital technologies and techniques developed so far already make allowance for important steps towards dictionaries that are much more adapted to the specific needs of their foreseen users. It seems that it is the lack – or non-acceptance – of an advanced lexicographical theory that impedes many lexicographers from taking the steps into the brave new digital world. Without such a theory it is much more difficult – if not impossible – to incorporate the new technologies and techniques in the most adequate way.

Fuertes-Olivera & Tarp (2014) point to two types of dictionaries which may constitute the near future and more remote of lexicography, respectively, namely the *Model T Ford* and the *Rolls Royce*, both of them embedded in the lexicographical function theory. The main idea behind these two models is to avoid information overload and speed up the consultation process by giving the users quick access to the less possible amount of lexicographical data, i.e. exactly the types (qualitative criterion) and amount (quantitative criterion) of data needed to resolve their specific needs.

The *Model T Fords* only visualise the lexicographical data earmarked to solve the possible needs in relation to each function (determined by user type and activity), whereas the *Rolls Royces* apply more sophisticated techniques with a view to providing solutions much more adapted to the individual users and their specific needs in each consultation. Besides, and in order to ensure the necessary flexibility, the users of both types of dictionaries are allowed to resaddle in the middle of the consultation process if they discover additional needs, cf. Fuertes-Olivera & Tarp (2014).

The lexicographical *Rolls Royce* is still a dream of the future whereas there are already a small but growing number of *Model T Fords*. These digital dictionaries are based upon a series of principles which can be applied in different ways as is the case with the *Accounting Dictionaries*, the *Diccionarios de Contabilidad* and the *Business Dictionary*, all of them

embedded in the function theory. In the following we will look at the two latter, of which the first already partially published on the Internet whereas the other still in the design phase.

9. First example: Accounting Dictionaries

The *Accounting Dictionaries* are composed by a series of monolingual and bilingual dictionaries (Danish, Danish-English, English and English-Danish), whereas the *Diccionarios de Contabilidad*, which we will discuss here, represent a further development of the principles guiding the former, cf. Fuertes-Olivera & Nielsen (2012) y Fuertes-Olivera (2013). In the user interface of these dictionaries, the foreseen users who are mainly defined as native Spanish-speaking translators and other people writing and reading about accounting, are initially given the option to access either a Spanish, a Spanish-English or an English-Spanish part where they are offered the following "search methods" which almost instantaneously direct them to the data adapted to their specific activity:

English-Spanish

Search **methods**

| Recepción | Traducción |
| Conocimiento | Frases y Expresiones |

Spanish-English

Search **methods**

| Recepción | Traducción |
| Conocimiento | Frases y Expresiones |

Spanish

Search **methods**

| Recepción | Producción |
| Encontrar un término | Conocimiento |

Illustration 1: Search methods offered in the Diccionarios de Contabilidad

If the user goes to the Spanish-English part and writes *valor nominal* in the search field followed by a click in the bottom *Recepción*, the following data will be visualized on the screen:

Illustration 2: Data generated by the bottom "Recepción"

If the user then clicks in the bottom *Traducción*, other relevant data appear:

Illustration 3: Data generated by the bottom "Traducción"

If the user activates the bottom *Frases y Expresiones*, the following data very much demanded by translators of accounting texts will be visualized:

Frases y Expresiones

nominal 2 *adjetivo*

Definition

Nominal significa actual, es decir algo que no está ajustado, por ejemplo a la inflación, sino que se expresa en términos monetarios actuales. Nominal se emplea para referirse al valor original (valor nominal o principal) de los títulos.

nominal *adjective*

Collocations

- valor nominal
  nominal value
- tasa nominal
  nominal rate
- el valor nominal de la acción
  the nominal value of the share
- el valor nominal de la participación accionarial
  the nominal value of the shareholding
- medir a valor nominal
  measure at nominal value
- capital social nominal
  nominal share capital
- estimar flujos de efectivo futuros en términos nominales
  estimate future cash flows in nominal terms
- tipo de interés nominal del bono
  nominal bond rate
- el nominal de la acción
  nominal share

Examples

- A 31 de diciembre de 2005 el valor nominal de los títulos de deuda con un vencimiento inferior a un año asciende a un millón de euros.
  At 31 December 2005 the nominal value of debt securities with a remaining duration to maturity of less than one year amounts to EUR 1 million.

Illustration 4: Data generated by the bottom "Frases y Expresiones"

If the user finally clicks on the bottom *Conocimiento*, all the previous data will be visualised together. As mentioned above, the *Diccionarios de Contabilidad* are so far only published partially and it is expected that further components and details will be added in the future.

10. Second example: Business Dictionary

In other Model T Fords it would be advantageous for the users to initially indicate their mother tongue, activity, and other relevant characteristics by means of interactive techniques. This could be done either *once and for all* when using a specific dictionary which then stores and remembers these data for future consultations (default solution), or *each time* the users start working on a new task, for instance translation of a specialised text. Based on this information, the system will then automatically calculate which data should be offered to the user in each case.

If cognition represents the need for specialised background information, then the reflections in the previous sections indicate that the user should *at least* be offered the following activity-orientated search options when starting a consultation based on either L1 or L2 in relation to L1-L2 or L1-L2 translation, respectively:

Search	L1-L2 translation	L2-L1 translation	Combination
In L1	Cognition (L1)	Cognition (L1)	Cognition (L1)
	Reception (L1)	Reception (L1)	Reception (L1)
	–	Reproduction (L1)	Reproduction (L1)
	Transfer (L1-L2)	–	Transfer (L1-L2)
In L2	Reproduction (L2-L1)	–	Reproduction (L2-L1)
	Cognition (L2-L1)	Cognition (L2-L1)	Cognition (L2-L1)
	Reception (L2-L1)	Reception (L2-L1)	Reception (L2-L1)
	–	Transfer (L2-L1)	Transfer (L2-L1)

Schema 1: Possible search options in a lexicographical Model T Ford

The above schema illustrates how relatively easy it is to combine a dictionary for L1-L2 translation with one for L2-L1 translation as the two of them share most search options giving access to activity-related data types. In addition, such a combined dictionary already contains the basic elements required to provide assistance for text production and reception in both languages. In this respect, the dictionary – or set of dictionaries – can offer quite a number of functions to their users. Although most online dictionaries do still not offer such a diversified service and, hence, do not qualify as Model T Fords, the real challenge today is little by little to leave the Model T Fords behind and take steps towards a more individualised satisfaction of user needs as it is expressed in the vison of a lexicographical Rolls Royce.

There are already various techniques available which could be used for this purpose. Apart from mouse-sensible areas, pop-up windows, hypertexts, and links allowing for supplementary and additional data, another way to proceed is user-driven article design where the article model is interactively designed in terms of data types and structure with a view to adapting them even more to the individual needs and demands of the users. Bothma (2011), Heid et al. (2012), Prinsloo et at. (2012) and Fuertes-Olivera & Tarp (2014) discuss various of these and other techniques which open new and wide horizons for online lexicography in general and specialised translation lexicography in particular.

A dictionary which intends to use some of these techniques is the online *Business Dictionary* which, in spite of its title, aims at innovation instead of "business as usual". The dictionary is still in the construction phase and is expected to be accessible on the Internet in 2016 or, at the latest, in 2017. Its main purpose is to provide assistance to English and Spanish-speaking professionals, business people, civil servants, secretaries, translators, students and other potential users engaged in business and other type of professional communication. Apart from L1-L2 and L2-L1 translation, the situations to be covered by this e-tool are L2 text production, L2 text reception, and L1 text production for users with either Spanish or English as their mother tongue. This makes a total of *10 different lexicographical functions*:

1. To assist Spanish first-language speakers with text production in English
2. To assist Spanish first-language speakers with text reception in English
3. To assist Spanish first-language speakers with English-Spanish translation
4. To assist Spanish first-language speakers with Spanish-English translation
5. To assist Spanish first-language speakers with text production in Spanish
6. To assist English first-language speakers with text production in Spanish
7. To assist English first-language speakers with text reception in Spanish
8. To assist English first-language speakers with Spanish-English translation
9. To assist English first-language speakers with English-Spanish translation
10. To assist English first-language speakers with text production in English

In this respect, it should be mentioned that the *Business Dictionary* is not designed to assist L1 text reception in general as the foreseen target users are supposed to understand most of the L1 words and collocations included in the dictionary which, to a large extend, covers a grey area between general and specialised language. Only a relatively small number of terms considered to be difficult will be defined.

The overall concept is based on the function theory as well as a lexicographical study of the respective activities and the corresponding phases and sub-phases where potential users may experience lexicographically relevant needs (see, for instance, Tarp 2004b, 2013). These phases and sub-phases of the covered activities have been dissected, compared and combined following principles similar to the ones applied in the above schema 1. This analysis and subsequent synthesis result in a user interface with a total of ten inter-active search options where the users, with only one click, can define themselves together with the type of communicative activity for which they need assistance (see illustration 5)

Business Dictionary

– Diccionario de Comunicación Empresarial

Enter a Word… SEARCH

Haga clic en su problema para ser mejor atendido
Mi lengua materna es español y necesito ayuda para

❏ escribir un texto en inglés
❏ traducir un texto del español al inglés
❏ comprender un texto en inglés
❏ traducir un texto del inglés al español
❏ escribir un texto en español

Click on your problem in order to get better assistance
My first language is English and I need assistance

❏ to write a Spanish text
❏ to translate from English into Spanish
❏ to understand a Spanish text
❏ to translate from Spanish into English
❏ to write an English text

Illustration 5: User interface with interactive options allowing for data filtering

To each of the ten search options corresponds a master article with specific data categories. This gives a total of ten different master articles with different data categories included; cf. Tarp (2014b) for a detailed description of these categories. However, it should be stressed that the ten master articles do not reflect lexicographical functions as they are defined by the function theory. For instance, the term *translate* should here be understood in the narrowest possible sense of the word as mere text transfer by means of equivalents, whereas the function *translation* in the broad sense of the word as it has been discussed in this contribution requires several of the search options provided in order to be fully assisted.

In the design of the *Business Dictionary* it is foreseen that the information techniques *filtering*, *adaptive presentation*, and *reuse of external data by linking* will be applied. As such, the dictionary represents an example of a typical lexicographical Model T Ford taking the first modest steps towards a more personalised tool with individualisation of user needs satisfaction.

11. Conclusions

One of the authors of *Nordisk leksikografisk ordbok* (Nordic Dictionary of Lexicography), which is the result of a cooperation between lexicographers from various Nordic countries, had apparently a bad day when he or she defined *translation dictionary* as "a dictionary conceived for the transfer of a text from one or various languages into one or various languages", cf. Bergenholtz et al. (1997). Unfortunately, not even the best translation dictionary can transfer a text from one language into another; it can only assist the translator when he or she has certain types of problems related to such a transfer. Above all, it cannot substitute the experience and translation skills developed during many years of study and practice. If it is understood in this way, a dictionary may become a powerful, relevant and indispensable tool for the translator. But it should never be transformed into a time-consuming artifact which creates new doubts, problems and obstacles for the user.

In this contribution, we have discussed some of the problems related to this type of tool, and we have indicated some of the ways which can be followed in order to overcome the problems and supply the translators with still more useful lexicographical products. The discussion has been inspired by the initial quotation from Yong & Peng (2008) who relate dictionaries to the "needs from society and culture" and stress the importance of "theoretical generalizations" and the "formulation of lexicographical theories". The idea underpinning the contribution is that without an advanced theory of specialised translation dictionaries it will take even longer before translators have access to the lexicographical tools which they do not only need to do their job but also deserve because of the nobility of this job.

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BIONOTE / NOTA BIOGRÁFICA

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