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A Collaborative Approach to the Teaching of

Terminology Management

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Abstract:

In this article, we aim to present a basic collaborative didactic proposal for the integration of terminology skills into the training of professional translators, focusing on a project-oriented and concept-system-based approach to translation-oriented terminography. To do so, we will first identify and define the main concepts from the discipline of terminology. Secondly, we will highlight the main elements of the important relationship between terminology, specialized communication, and specialized translation. Thirdly, we will specifically focus on the concept "concept" to introduce the notion of "concept system." Finally, we will build on the idea of a concept system to introduce a knowledge-oriented, collaborative approach to the teaching of terminology and terminology management within translator training programs.

Contents:

1   Introduction

In a professional environment dominated by highly specialized global communication, expert knowledge is essential to high quality translation and interpreting services. This expert knowledge refers to subject area knowledge and specialized language, or LSP (language for special purposes) skills as well as to technical, sub-cultural communicative competence. In the context of LSP translation and interpreting, the availability of and the speedy access to pre-processed and reliable bi- or multilingual specialized information are of utmost importance. The role of translation in the creation, recording, and dissemination of expert knowledge across linguistic, cultural, and domain-specific borders is often stressed by practitioners and scholars alike, yet the topic of terminology and multilingual terminology management—central to the globalization and global exploitation of knowledge—is some-times treated as marginal in the professional world and at times in academia as well.

This negligence is most visible in industry publications on technical, or specialized, translation. Blinded by the bright lights of the localization paradigm, the language industry is often too busy pointing out the productivity-enhancing and cost-cutting qualities of their translation memory and content management systems, while at the same time choosing to ignore the quality-enhancing, yet more time-intensive benefits of thorough, translator-based, and translation-oriented terminology management, or reducing translation to a simple, linguistic process of string replacements at the word level. In localization industry discourses, terminology has become a forgotten, almost invisible art, reduced to the quasi-automatic extraction and recycling of bilingual, two-column tables that are then sold as glossaries or even term databases.

To be fair to the industry though, it needs to be said that over the past two decades scholars in Translation Studies have also often chosen to address the 'sexier' issues of localization (if they have chosen to address this at all) over the traditional, sometimes moth-eaten world of documentation and terminology.

This orientation, or misorientation, is also reflected in the training of future translators and interpreters. In university programs worldwide, terminology courses are competing with and are often replaced by courses in translation memory systems and software and website localization. In curricula where terminology management and terminology documentation

(which is now sometimes called terminology mining) are still present, they are usually not fully integrated into directly related courses such as technical translation or contextual studies. In many cases, terminology courses are reduced to introductory sessions on terminology management applications like SDL Trados MultiTerm or crossTerm, unconnected to translation practice, translation theory, and terminology studies.

If, however, we see terminology as closely related to and essential for specialized multilingual communication, then a holistic and more in-depth approach to the teaching of terminology and terminology management is called for.

Such an approach starts from the premise that translation is a knowledge-based activity (see Austermühl 2001) and acknowledges the need to combine what Don Kiraly calls "trans*lation* competence" and "trans*lator* competence" (2000: 12, emphasis ours). Translation competence, according to Kiraly, is "competence in mediating texts effectively between languages" (ibid.). "Translator competence," on the other hand, involves the translator joining various new communities that have developed as a result of the professionalization of the field. These communities include "educated users of several languages, those conversant in specialized technical fields, and proficient users of traditional tools and new technologies for professional interlingual communication purposes" (ibid.: 13).

Terminological competence is translator competence. A high level of terminological competence does not only allow access to the above-mentioned professional communities but also helps to achieve professional acceptance and respect from the members of these communities. Carried out within a professional environment dominated by computer-assisted and domain-specific translation, terminology management—implemented as multilingual knowledge management—becomes a central element of translator competence and consequently of academic translator training as well.

In the following, we aim at presenting a basic didactic proposal of how to increase the integration of terminology skills into the training of professional translators, focusing on a theoretically-founded, project-oriented, and collaborative approach to terminology management. To do so, we will first identify and define the main concepts from the discipline of terminology. Secondly, we will highlight the main elements of the important relationship between terminology, specialized communication, and specialized translation.

Thirdly, we will specifically focus on the concept "concept" to introduce the notion of "concept system." Finally, we will build on the idea of a concept system to introduce a knowledge-oriented, collaborative approach to the teaching of terminology and terminology management within translator training programs.

2   Key Concepts in Terminology and Terminology Management

In the following, we will describe and define some key concepts from the fields of terminology studies and terminology management, i.e. we are trying to establish a terminology of terminology.

2.1   Meanings of Terminology

Given that terminology is a discipline that occupies itself with precision and the avoidance of ambiguity, it is actually quite ironic to see that it often seems rather chaotic when it comes to defining its own key concepts. Take the term "terminology," for example. According to the perspective and interest of the observer, terminology can actually have three different meanings.

First, terminology can be understood as a shortened version of Terminology Studies, i.e. a subfield of Applied Linguistics. Sager (1990: 2), for example, defines terminology as "the study and the field of activity concerned with the collection, description, processing and presentation of terms," a perspective very similar to that of Sue Ellen Wright and Gerhard Budin who, in the preface to their two-volume *Handbook of Terminology Management*, define terminology as "the scholarly study of the concepts and terms found in special languages" (Wright and Budin 1997: 327). A third definition, from a report on terminology published by UNESCO, even introduces the term "terminology science" as a synonym of terminology, describing it as "the subject field that investigates the structure, formation, development, usage and management of the terminologies in various subject fields, and that prepares the methodological foundation for many applications" (UNESCO 2005: 3).

The pluralization of the term terminology that is present in this definition points to a second meaning of terminology. Here, terminology is synonymous with nomenclature, referring to a set of "standardized" terms from a specific domain. The International Standardization Office

(ISO) defines nomenclature as a "system of terms which is elaborated according to pre-established naming rules" (ISO 2000). In medicine, examples include the International Classification of Diseases (w[1]), or the Systematized Nomenclature of Medicine (w[2]).

A third interpretation of terminology—one that translators generally encounter when dealing with terminology—sees terminology as the specialized vocabulary, i.e. a set of all the terms (i.e. specialized words and word combinations), standardized or not, belonging to a specific domain. The difference of this third definition of terminology to nomenclature is the fact that it also includes non-standardized terms, thus reflecting a less normalized yet more pragmatic use of specialized language. The International Standardization Organization thus defines terminology as a "set of designations belonging to one special language" and designations as "representation[s] of a concept by a sign which denotes it" (ISO 2000).

We will return to the notions of concept and designation later, but first we will try to clarify the relationships and the differences existing between the concepts i) terminology and terminography; ii) lexicography and lexicology; and iii) terminography and lexicography.

2.2 Terminology vs. Terminography vs. Lexicology vs. Lexicography

As we have seen, the term "terminology" is often used to refer to the study of concepts and their designation. We could say it is more theoretical. Terminography is more practical. Marie Claude L'Homme defines terminography as the "acquisition, compilation and management of terms" (L'Homme 2004: 15), and for Sue Ellen Wright and Gerhard Budin terminography is "the recording, processing and presentation of terminological data acquired by terminological research" (Wright and Budin 1997: 327) Efficient terminography is of course hardly possible without solid terminology.

The concepts lexicology and lexicography exhibit a similar relationship to terminology and terminography. While lexicology is generally referred to as "die Wissenschaft vom Wortschatz" (DIN 2342 1992: 5), and as "the study of words and the relations between words (semantical relations), and the whole lexicon" (Wikipedia Contributors 2008), lexicography refers to the "structured representation of the lexicon" (ibid.).

When it comes to data compilation, there is basically no significant difference between specialized lexicography and terminography. The main differences between the two

approaches become apparent when we look at the representation of lexicographical and terminological data in print or electronic form.

Let us take a look at the term *chip*, for example. In a dictionary, the entry (or entries) for *chip* would look as follows.
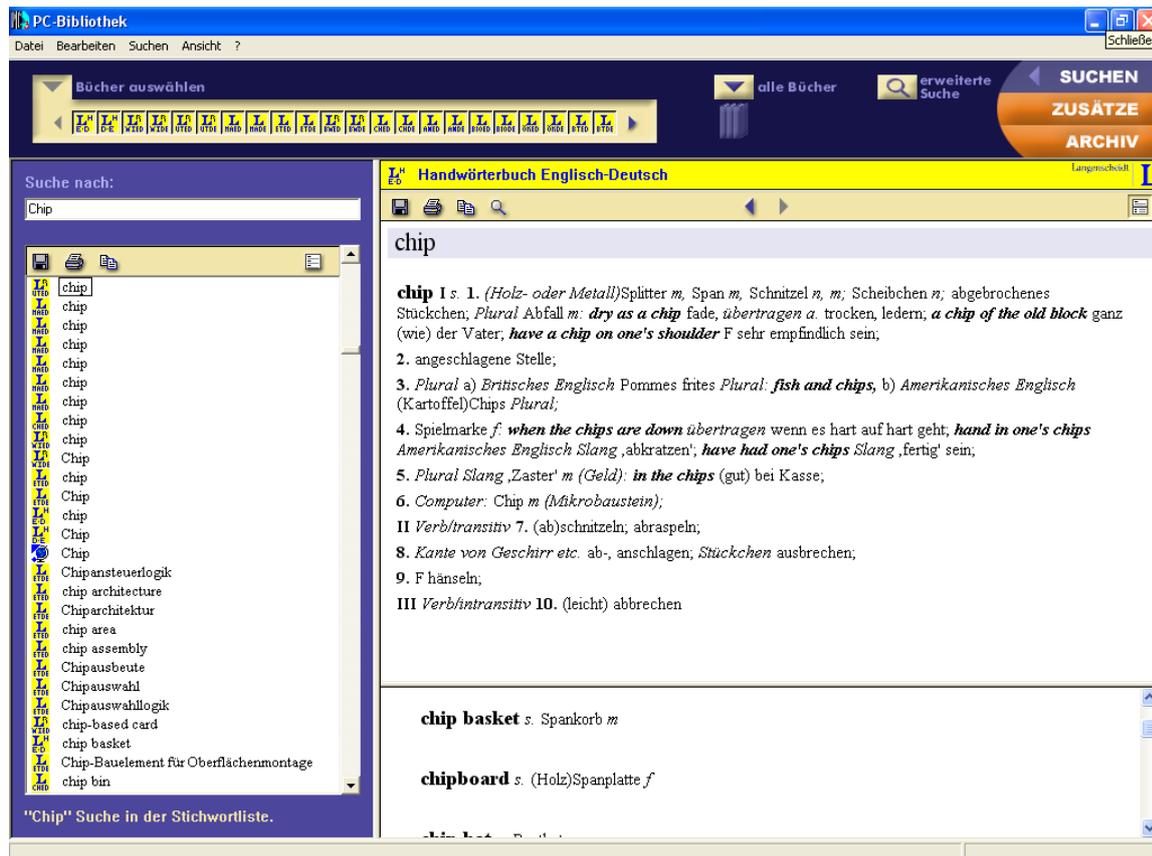

Fig. 1: Dictionary Entry for the Term *Chip*

In a terminological database, the different meanings of the term would be represented by different terminological entries.
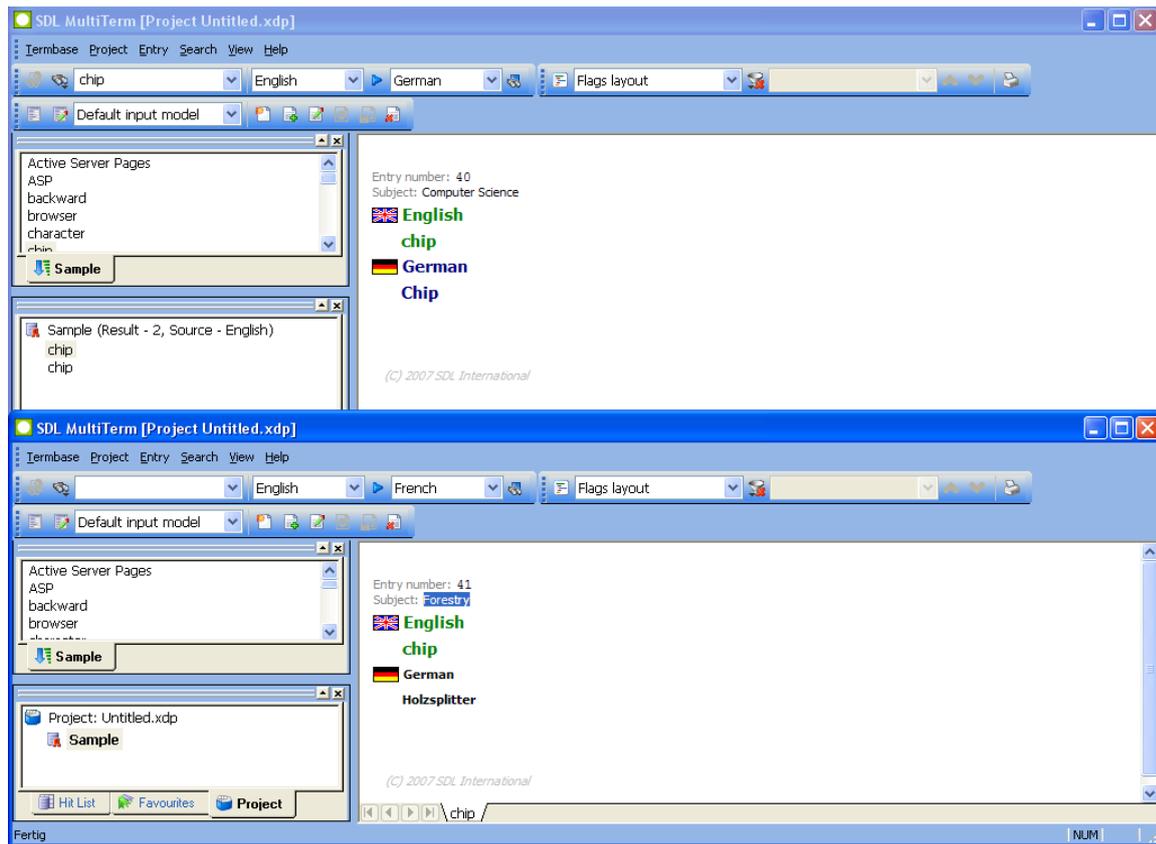
Fig. 2: SDL Termbase Entry for the Term *Chip*

As we can see, lexicography focuses on the semasiological representation of the word and its meaning, while terminography onomasiologically describes different concepts and their corresponding, different designations.

Another concept that frequently occurs in the context of terminology and technical translation is that of phraseology. Phraseology refers to an "entire set of fixed [or nearly fixed] phrases [i.e. a combination of at least two LSP elements] of a discipline" (Arntz, Picht and Meyer 2004: 34). Thus "ligament" would be a term, while to "tear a ligament" would be a phrase.

2.3   General vs. Specialized Language

Terminology is especially visible and consequential within the linguistic subsystem of specialized languages, also referred to as special purpose languages (SPLs) or languages for special purposes (LSPs). Specialized language refers to the language used by expert

communities, a language characterized by adherence to specific terminology and other domain-specific linguistic conventions. "SPL deviates to varying extents from general-purpose language. [...] GPLs [general purpose languages] are the languages of individual language communities, whereas SPLs are the specialized languages used by domain expert communities within a language community" (UNESCO 2005: 3). Members of these communities generally agree on their own linguistic conventions, which do not necessarily conform fully to GPL conventions (see ibid.: 1).

Specialized languages or specialized communication can be organized horizontally or vertically, and these orientations have a direct impact on the amount of terminology and the type of register used.

Horizontally, specialized communication can be organized according to different, usually not interconnected, domains such as medicine, computer science, or politics.

The vertical organization, or segmentation, of specialized communication mirrors the linguistic and domain-specific presuppositions of the communication partners and presents different levels of abstraction and different degrees of specialization. It is a reflection of the different degrees of knowledge existing among the participants of a communicative event. We thus differentiate between i) internal specialized communication, where experts talk to experts in the same domain; ii) interdisciplinary communication, with experts from one domain communicating with experts from a different domain; and iii) external specialized communication, i.e. experts communicating with lay people.

2.4   Functions of Terminology

Terminology is undeniably the major constituting element of specialized languages. Peter A. Schmitt calls terminology "compressed specialized texts" (Schmitt 1996: 303), a quote illustrating the essential role that terminology plays wherever and whenever domain-specific information and knowledge is "generated (e.g. in research and development); used (e.g. in specialized texts); recorded and processed (e.g. in databases); passed on (via training and teaching); implemented (e.g. in technology and knowledge transfer); or translated and interpreted" (UNESCO 2005: 2).

Terminologies, i.e. the collection of concepts, their corresponding designations, and additional information—have three major functions: i) they are the "basic elements carrying meaning in domain communication;" ii) they help organize "scientific-technical knowledge at the level of concepts;" and iii) they provide "access to other representations of specialized information and knowledge" (for example by providing precise key words for Internet searches) (see ISO 2004: 1).

These three pragmatic levels—basic elements of meaning, organization of knowledge, access to information—also highlight the relevance of terminology for training purposes, especially in technical translation classes (see below).

2.5   Concepts and Designations

In specialized communication—whether written or spoken—concepts constitute the "smallest units used to communicate specialized knowledge and information" (Galinski and Picht 1997: 42). These units "can be represented by verbal terms, nonverbal signs, alphanumeric characters or character strings, and a variety of hybrid forms" (ibid.). The generic term for these representations is "designation."

According to the ISO, "a concept is a unit of knowledge created by a unique combination of characteristics" (ISO 2000). We can distinguish between two main types of concepts: general concepts and individual concepts.

General concepts correspond to "two or more objects that form a group by reason of common properties" (ibid.). Here, a concept is a mental image, a subtraction of a group of concrete objects. Thus, the general concept "chair" does not, for example, refer to a specific, identifiable chair but represents an abstract representation of a chair based on the common characteristics of all chairs (i.e. four legs, seat, back).

An individual concept, on the contrary, corresponds to only one concrete object. In that sense it becomes basically a proper name. Thus, the concept of the "chair of St Peter" refers only to the *cathedra Petri* in Rome's St. Peter's Basilica.

A final concept to be addressed is that of "term." Here, we find two different definitions. (The concept "definition," by the way, is itself defined as the "verbal description of a

concept" [ISO 2000]). On the one hand, term refers to a designation, or more precisely "the verbal designation of a concept" (ibid.). On the other hand, "term" is seen as a larger entity, encompassing both the concept and its designation.

This brief introduction to the basic concepts in terminology serves as a foundation for the above-mentioned, more holistic and more in-depth approach to teaching terminology and terminology management as part of technical translator training. Understanding these concepts becomes important when we go beyond simply extracting words from specialized text and listing them in two-column tables, and start establishing bilingual terminologies based on the source and target designation of the same concept. Knowing about concepts and their relations to other concepts (see below) allows us to understand the place of a concept within its domain-specific context and to build knowledge patterns. These patterns can then become the basis of a terminological database serving as the main tool for multilingual terminography or terminology management.

2.6   Approaches to Terminography

Terminography is usually implemented in one of two general ways, descriptively or normatively. Normative, or prescriptive, terminography basically means that terminologists "invent" names for things that have just been invented, or to standardize inconsistent terminology. The aim of descriptive terminography is to "document all terms used to designate the concepts treated in a single discipline. It is not the purpose of this kind of terminology management to prescribe usage, but rather to document all the terms that occur or are suggested for a concept" (Wright 1997: 18). The standardization and homogenization of existing, conflicting terminology can be seen as a hybrid form of descriptive and normative terminography. Translators are primarily and almost exclusively concerned with descriptive, documentary terminography.

Translation-oriented terminography, i.e. the gathering, management, and retrieval of linguistic, cultural, and encyclopedic data, can generally be done in two ways: systematic or ad-hoc.

In the professional practice of many translators, terminography is often reduced to an ad-hoc activity, where, if at all, terms are manually or automatically transferred into a table, and equivalents of these terms are sought in reference works or on the Internet.

Unfortunately, teaching approaches to technical translation and terminology often do exactly the same. In the following, we would therefore like to propose a more systematic approach to teaching translation-oriented terminography, based on insights from terminology studies. In this approach, any terminographical work is based on so-called concept systems and will involve the co-operative construction of macro and micro concept systems.

3 Bringing Concept Systems into the Translation Classroom

3.1 Creating Concept Systems and Concept Plans

We will start off with another definition. A concept system is "a set of concepts structured according to the relations among them" (ISO 2000: 4). A concept plan is a graphical representation of a concept system.

There are two basic types of relations among concepts: hierarchical and non-hierarchical. Hierarchical relations are either of a generic or a partitive (meronymic) nature, whereas non-hierarchical relations include sequential, functional, and associative types. Let us look at some examples, taken from general medical terminology.
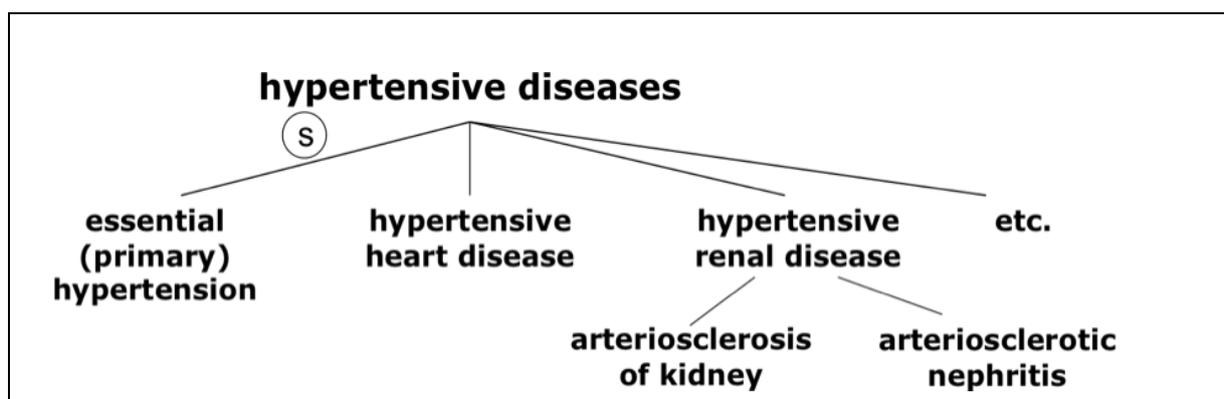

Fig. 3: Generic Concept Systems (w[3])

A generic relation, typically represented in a tree diagram, is that of a more general concept to a more specific one of the same type (this is also known as an "is a" relationship, as in the phrase "primary hypertension *is a* hypertensive disease").
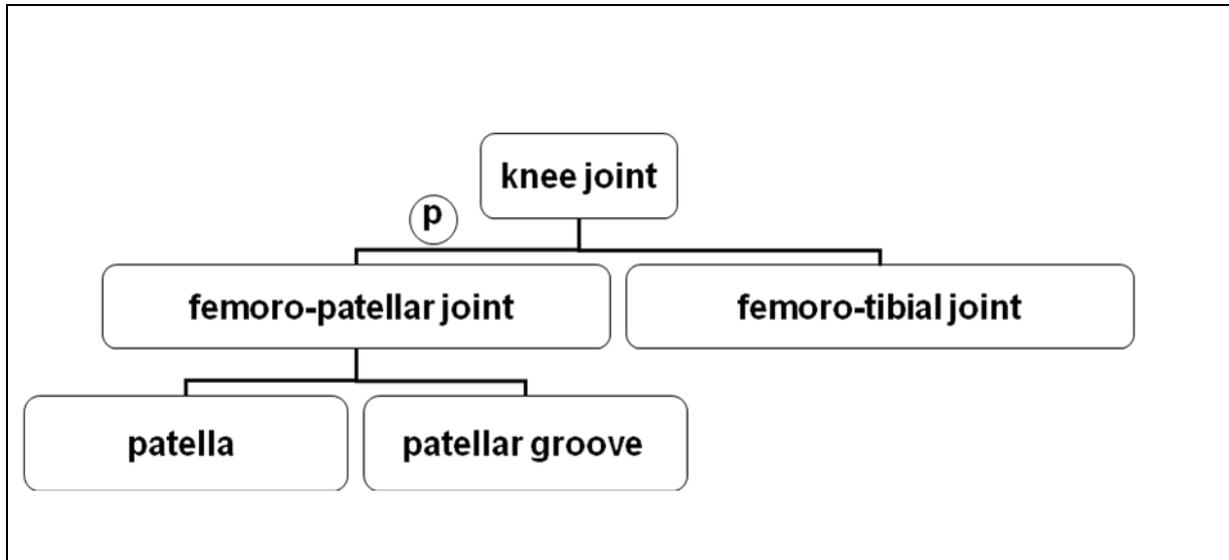

Fig. 4: Partitive Concept Systems (w[4])

In a partitive (or meronymic) relation, one of the concepts constitutes the whole and the other a part of that whole (also known as a "part of" relationship, as for example in the phrase "the patella is *part of* the knee joint"). As Figure 4 illustrates, partitive relations are often represented graphically in so-called bracket diagrams.

Non-hierarchical relations are less rigid than hierarchic ones, and can represent functional relations, e.g. cause and effect, or sequential relations between concepts, which can, for example, be represented in flowcharts (see Figure 5 on the next page).

Associative relations, finally, suggest a loose thematic connection between the concepts involved. This type of non-hierarchical relationship can be expressed in a Mind Map (see Figure 6).

Concept plans such as the ones shown above allow for the representation of hierarchical and non-hierarchical relations between terms in a graphical way. We can verbalize the relations represented by referring to more general concepts as hyperonyms, and to more specific terms as hyponyms. Associated concepts can be expressed by coordinate terms.

Concept systems are the basis for bilingual terminography. Once established, concept systems from two languages can be merged—laid on top of each other, so to speak, in order to identify equivalences between the terms representing the same concept in the two different languages.
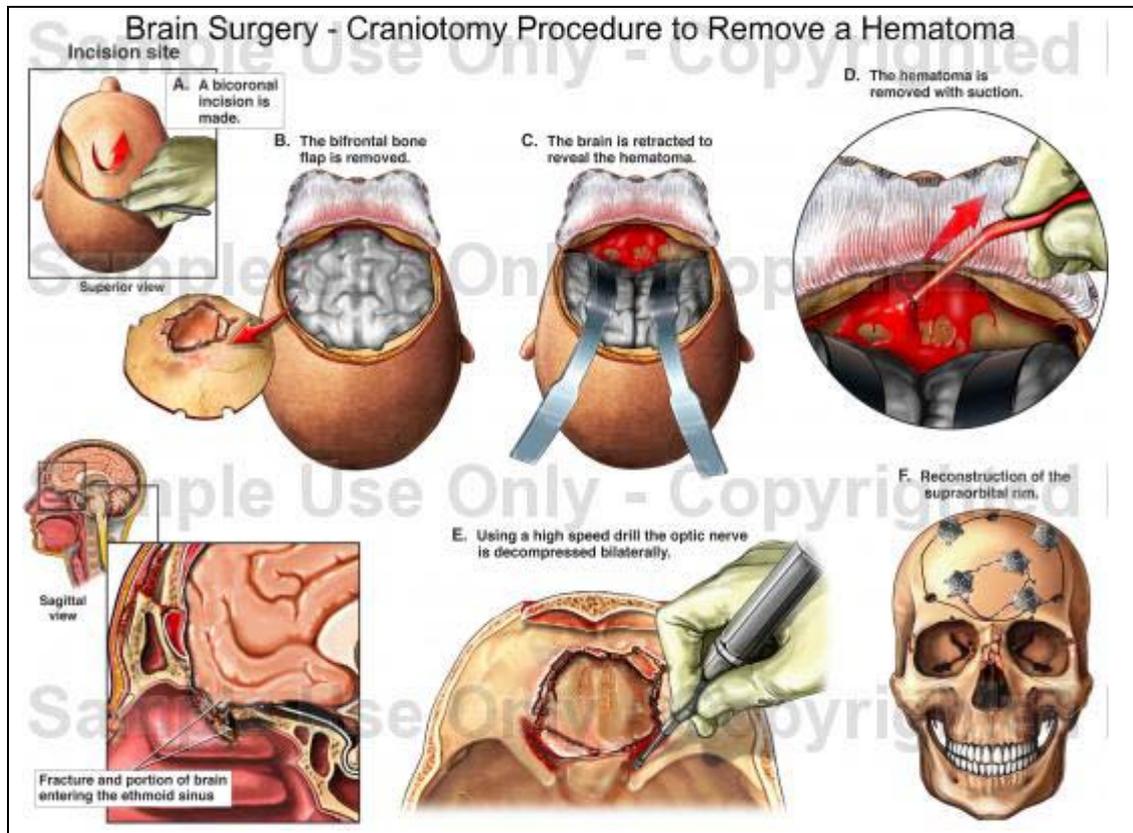

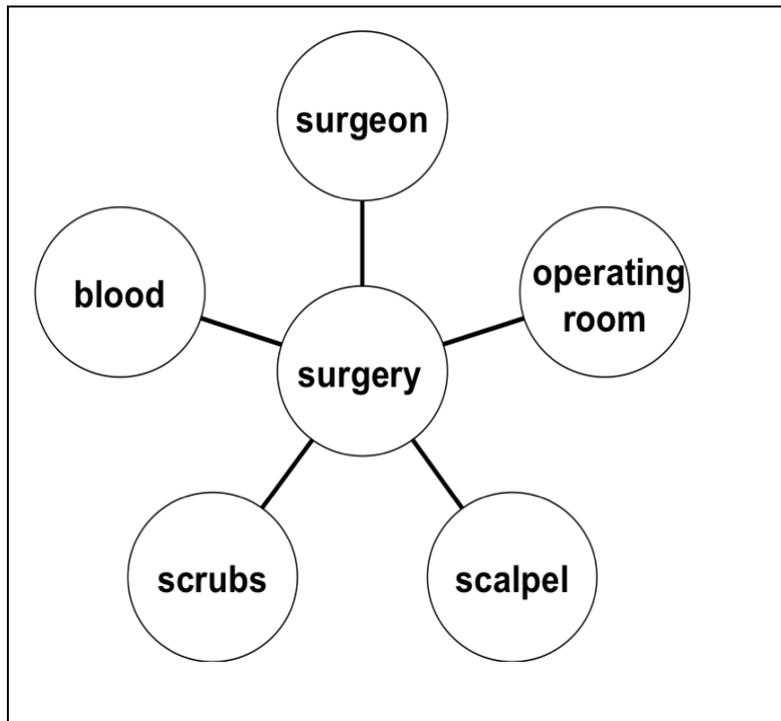Fig. 5: Sequential/Functional Concept Systems (w[5])

Fig. 6: Associative Concept Systems

The following example illustrates this approach and also allows us to compare systematic with non-systematic approaches to terminography.

A translation agency provides a professional translator with an alphabetic list of terms in the source languages, automatically extracted from the source text, among them the following: anterior cruciate ligament, collateral ligament, cruciate ligament, lateral collateral ligament, ligament, medial collateral ligament, and posterior cruciate ligament.
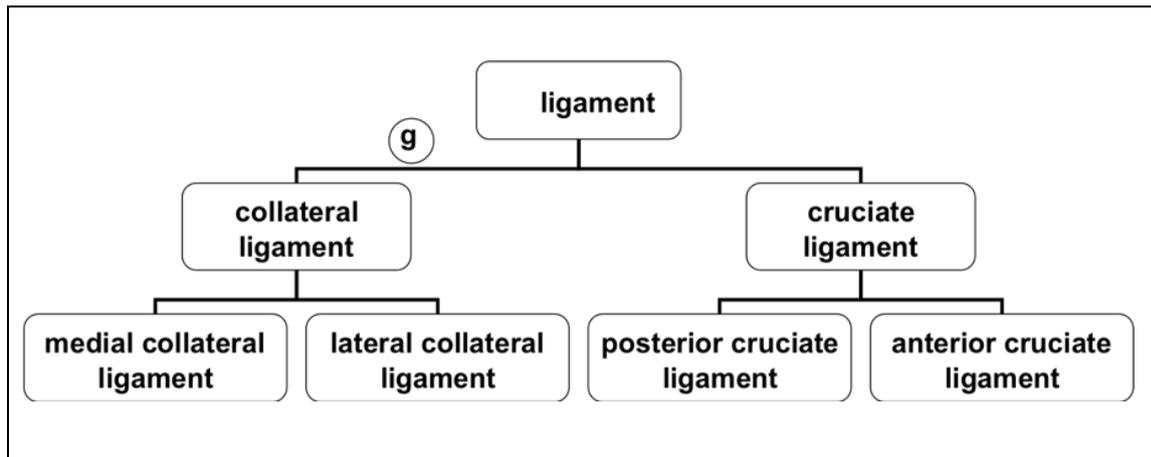
14

Fig. 7: English Concept System

In a widely-practiced approach, this list becomes the starting point for the translator's terminology research, most likely a simple process of looking up equivalents without any additional contextual or encyclopedic information. In such an approach—be it in professional practice or academic training—no real knowledge is gained. Conceptual differences, logical relations, possible synonymy relations, or even contradictions will hardly be identified.

A systematic approach would first establish a concept system of these terms, based on definitions of the terms and the relations between them (Figure 7). Only after a concept system has been established in one language would the other concept system, here in German (Figure 8), be created.
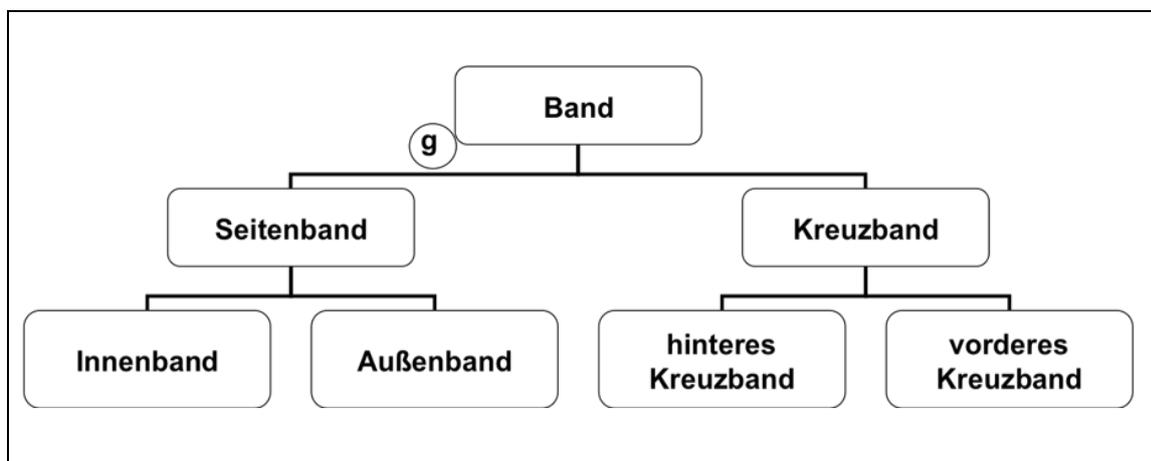

Fig. 8: German Concept System

In a last step, both concept systems would be merged (Figure 9), allowing for the identification of source and target text equivalents.
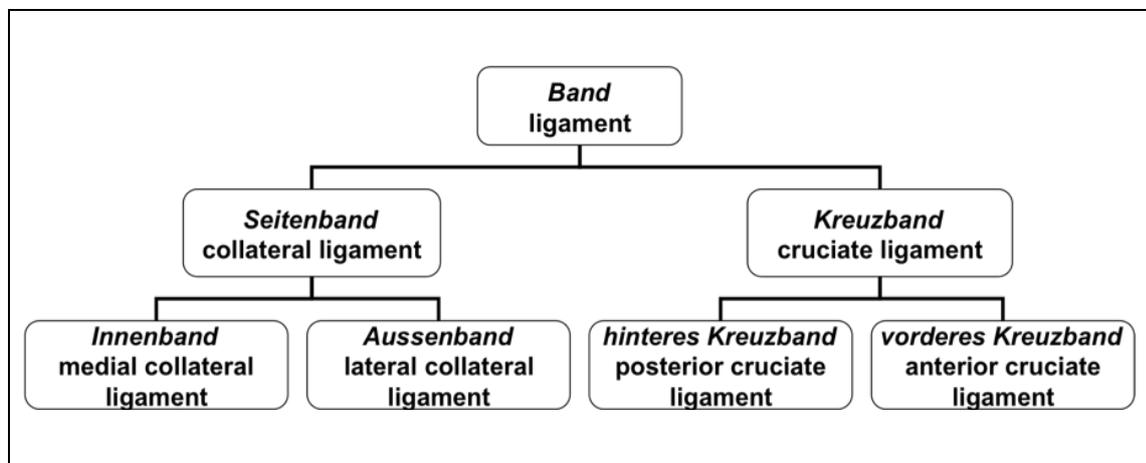

Fig. 9: English and German Concept Systems

3.2 Advantages in Didactic Settings

As we have seen, compiling multilingual, subject-area-specific information in concept systems has a number of didactic advantages. Firstly, concept systems help to organize and structure encyclopedic, linguistic, and translational knowledge, and thus serve as the basis of onomasiological glossaries and dictionaries. They also allow translators, including translation students and teachers, to test and revise the translator's domain-specific expertise. New knowledge can quickly be absorbed into existing knowledge structures, and definitions of concepts can be generated using the "genus proximum et differentia specifica" formula implicit in hierarchical concept systems and plans.

Parallel concept systems enable the identification of target-language equivalences through a comparison of source and target culture-oriented systems, and actively support the production of specialized texts. At the same time, the information represented in the concept systems allows translators to assess the quality of translation resources such as general or specialized dictionaries or Internet resources, while providing targeted access to online information through the use of terms as keywords.

With regard to establishing professional translation projects, a concept-based approach provides a basis for communicating with clients, experts, and colleagues. The system

approach also helps to ensure the completeness of the terminological coverage of a domain or sub-domain.

Finally, in a translation classroom, concept systems can serve as the basis for joint terminology projects (see below). An alphabetical list simply cannot offer that.

4   Working with Concept Systems – Teaching Approaches

An approach to bilingual terminography based on concept systems can be easily implemented in any translator training situation, be it in LSP/terminology, domain-specific, or technical translation classes.

As a preparatory step to data retrieval and data management, students could be encouraged to compile specialized corpora covering the subject areas and languages of their project (see Bowker 2003 for collaborative approaches to translation-oriented corpus creation). Furthermore, a terminological database, or termbase, needs to be designed and created so that any project-relevant data can be stored electronically. Where available, specialized terminology management systems can be applied (see Keller 2006 for an exhaustive description of terminology management systems). Otherwise, universal database systems such as MS Access can also easily be adapted to translators' needs

The setup of a collaborative terminology project is fairly straightforward, and would include at its beginning the identification of a macro concept system, i.e. a concept system covering a larger subject area (e.g. computer systems), and the subsequent identification of micro concept systems incorporating smaller, more specific sub-systems of subject area knowledge (e.g. input/output devices, data transmission, etc.). Both macro and micro systems should be graphically represented in a concept plan. One active, co-operative way of doing this would be to distribute the individual terms corresponding to the concept systems, printed large on A4 or letter-size sheets (file cards will be too small) along with some Scotch tape, and have students create a concept plan on the classroom blackboard, whiteboard, or walls. A more high tech, yet less fun solution would be to use mind mapping or chart software to create the plans.

Based on the individual micro systems, small groups of around three students each can then be assembled, with each group being responsible for covering their respective micro concept

system. This will involve a considerable amount of research on the part of the students and will include, among other things, the consultation of reference works and textbooks, Internet research, or even consultation with domain experts.

Based on the results of students' research and the work of the individual groups, the micro concept systems can then be merged into a large macro concept system. At this stage, the individual groups can engage in identifying any relations between their respective micro system terms. These relations can later be implemented as cross-references in the terminological database.

Now the project can move from a monolingual description of the subject area to a bi- or multilingual one with students creating micro concept plans in their B languages. Again, this stage will involve considerable research.

Merging the A and B language plans will allow the group to establish equivalence between the terms represented in the concept system. With the merger of the two (or more) concept systems, and with additional material such as definitions and context examples available as a result of the Internet and/or corpus searches, the terms are now ready for transfer into the terminological database.

Depending on the design of the database and the available data fields, students can now add additional information concerning the terms in their micro concept system into the termbase. This could include data such as subject field indicators, definitions of key terms, usage information, collocations, images, and administrative data.

An important consideration at this stage is the implementation of the termbase's medio-, or hyperlink, structure. Here, the relations identified during the creation of the monolingual micro and macro concept systems will help students add internal cross-references to super-, sub-, and co-ordinate terms, and to add external resources, such as websites, via hyperlinks.

Once all relevant data has been added to the group databases and all group databases have been merged into one large macro database using the database's import and export features, the terminological data is available for future use. This can include the publication of the database contents in the form of an online glossary or as a specialized electronic or print dictionary, resources that are now of course also available to students in technical

translation practice classes. Depending on whether the termbase used in the project is (or can be made) a part of a translation memory application, it can also be used for computer-based translation practice courses.

5   Conclusion

Translation, says Hans Vermeer, is the "application of understanding," of organized knowledge about the source text and context (1986: 305). Translation, especially technical translation, is very much a knowledge-based activity, and in providing translators with a theoretical and practical way of establishing that knowledge base, terminology and terminography play a most important role in the empowerment of translators. Translators will only fully make use of their hermeneutic "freedom to formulate," (Stolze 2003: 108), and will only be able to fully engage in the "creative give-and-take of intuition and cognition" that Paul Kußmaul (1998: 49) sees as the basis of successful translation, if they have gained an in-depth understanding of the source text, have drawn cross-cultural comparisons, and have the right tools to implement that knowledge in the target language. Solid, concept-based terminography will go a long way to providing the methodologies and the knowledge to achieve this, and a co-operative didactic approach to the teaching of terminography based on concept systems provides a rewarding and sustainable way of empowering both translation students and professionals.

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