

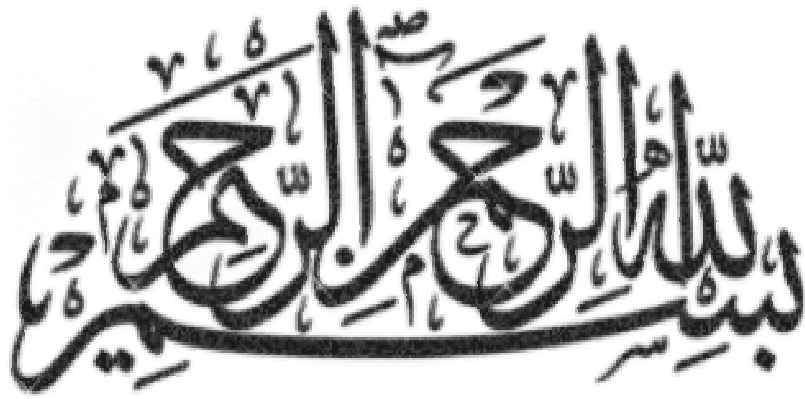
**Certified Translator Program  
CTP**

# **Research Tools for Specialized Terminologies**

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**The first term  
Unit four**

**2012**



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# **Preface**

This book will provide new translators of terminology with the information they will need to practice their profession, regardless of the area of specialization in which they may be called upon to work. It was designed and organized with a view to giving easy access to the key aspects of terminology work and to providing a guide to the steps that must be taken to deliver a product to users of specialized terminology.

Language professionals hired by communications, writing or translation services to carry out terminology research will find information on work procedures and tools, as well as on the types of products that can be created and delivered. Those interested in learning more will find, at the end of this publication, a basic bibliography on the theory and practice of terminology, as well as supplementary references.

So in this paper we will find some information about the use of terminology in the translation process. We hope it be useful to those students who wish to be certified as translators.

**My best wishes of luck  
The author**

## **Lesson one**

# **What is terminology?**

The first meaning of the word terminology is “the set of special words belonging to a science, an art, an author, or a social entity,” for example, the terminology of medicine or the terminology of computer specialists. The same term, in a more restrictive sense, means “the language discipline dedicated to the scientific study of the concepts and terms used in specialized languages.” General language is that used in daily life, while a specialized language is used to facilitate unambiguous communication in a particular area of knowledge, based on a vocabulary and language usage specific to that area.

The terminologist is a specialist in this discipline, just as a lexicographer is a specialist in lexicography, the “discipline dedicated to the collection and study of the forms and meanings of the words of a given language.” Incidentally, the resemblance of these two disciplines is reflected in the recent use of the term “specialized lexicography” as a synonym of terminology.

Terminology is part of applied linguistics, a science that includes work in specialized lexicography, specialized translation, technical writing, and language teaching. In

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fact, these four professional applications of linguistics are closely related: specialized translation requires mastery of specialized bilingual or multilingual terminologies; technical writing consists of using these terminologies in monolingual discourse; the teaching of specialized languages focuses on their acquisition by the student; and the institutional practice of comparative terminology and of its phrase logical component takes place in a translation environment, as illustrated by the Translation Bureau over the past thirty years. This intertwining of disciplines explains why terminologists who have studied linguistics, acquired experience in translation or technical writing, or specialized in a particular subject area, are considered especially valuable. Their knowledge of the concepts specific to a given area of specialization and of the terminology used is very advantageous.

Terminology work requires a number of abilities, such as:

- The ability to identify the terms that designate the concepts that belong to a subject field
- The ability to confirm the usage of the terms in pertinent reference documents
- The ability to describe concepts concisely
- The ability to distinguish correct usage from improper usage

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- The ability to recommend or to discourage certain usages with a view to facilitating unambiguous communication.

When specialized knowledge is transferred between language communities, the delimitation of concepts is not always identical in a given pair of languages. In comparative terminology, the process of term identification reveals any discrepancies, as proper designations may not be found in one of the languages. In such cases, the terminologist's role is to describe the gaps and propose designations to fill them. In order for the proposed term to be acceptable and valid, it must be based on sound knowledge of the target language's rules of lexical formation, must be harmoniously integrated into the existing set of terminology, and must be clearly presented as the terminologist's proposal.

In monolingual terminology, the appearance of a new concept, whether it is borrowed from another area of specialization or created as a completely new entity, may lead to a proliferation of synonymous terms. In such cases, the terminologist's role is to identify these terms and prepare single-concept terminology case files with a view to standardizing usage. Parallel or conflicting usage is often studied by terminology standardization boards or terminology approval boards which issue official language

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notices that inform the user community of the preferred terms.

These boards generally work within a company or a professional association at the national or international level, and are almost always composed of terminologists and subject-field specialists. All information required to understand the concept and to use the related terminology properly (preferred terms, synonyms, spelling variants, syntactic variants, abbreviations) is organized in the form of a terminology standardization file, which includes excerpts called textual supports. A definition gives the semantic characteristics that distinguish one concept from all others; a context is a quoted text that illustrates the definition; usage samples and phraseologisms show how the terms are used; notes or observations provide further information regarding usage of the terms in discourse; and references indicate the sources of the textual supports.

All of the collected information is analyzed, filtered, structured, and condensed into a terminology record. The main components of the record include the subject field to which the concept belongs, the languages dealt with, the terms, their usage labels and their textual supports. The development of data banks and the Internet has facilitated the collection of terminology records into



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electronic files that are accessible on-line or off-line for consultation by users or for content management by authorized terminologists.

Management of terminological content by subject field of activity takes into account user needs and, on an ongoing basis, reflects the evolution of the specialized concepts and language usage within the field. The goal of content management is to ensure that the coherence and freshness of the information stored is maintained by adding, deleting and modifying data. Management facilities allow the delivery of terminological products such as bilingual glossaries, vocabularies, monolingual or multilingual phraseological dictionaries, and terminology standards.

Also they said about the definition of terminology that ``Terminology is the study of and the field of activity concerned with the collection, description, processing and presentations of terms, i.e. lexical items belonging to specialized areas of usage of one or more languages." The field of Terminology is not independent as a discipline. Terminology though traced back for some decades got a more theoretical and methodological background in the past years. Terminology is an interdisciplinary field of research because it is highly influenced by the activities and methods of the areas it serves. In the mean time, terminology is very much influenced by computer science

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and the possibilities of collecting lexical data by means of computers. Earlier terminology was a problem of engineers needing concepts for naming new technical items. Now linguists claim it to be another dimension of lexicology and lexicography. Terminology has become a specialized aspect of computational linguistics and information science.

Terminology is a polysemous word that can refer to: a collection of terms belonging to a special subject field; an activity, i.e. the set of practices and methods used for the collection, description and presentation of terms; a theory, i.e. the set of premises, arguments and conclusions required for explaining the relationships between concepts and terms which are fundamental for a coherent activity of collecting, describing and presenting terms.

## **Two Perspectives**

From a concept-oriented perspective - taking the concept as initial point - terminology can be defined as:

"A group of concepts of a specialized area and their associated signs" (Felber/Budin, 1989:5).

In contrast, the term-oriented perspective offers definitions such as:

"The items which are characterized by special reference within a discipline are the 'terms' of that

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discipline, and collectively they form its 'terminology'; those which function in general reference over a variety of sublanguages are simply called 'words', and their totality the 'vocabular'" (Sager, 1990:19).

No matter which perspective is chosen it is important to highlight that both definitions refer to specialized areas and specialized languages (in contrast to common language) and precisely this fact is what sets the limits between terminology and lexicography.

There is no doubt about the increasing importance of terminology in our society today. Terminology plays an important role in many different fields such as standardization, translation, technical documentation, and software localization.

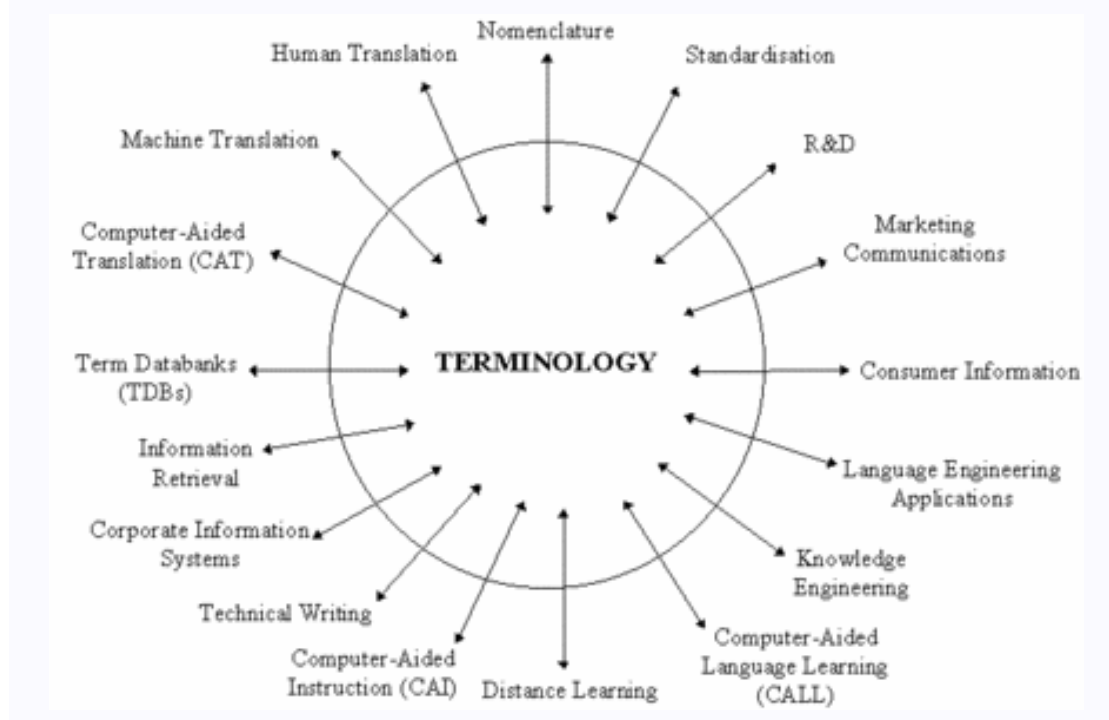
It would suffice to have a look at any subject field to discover the increasing need for specialized vocabularies (terminologies) because, for example, of the growing specialization and increasing innovation in all fields. It is often the case that new terminology does not exist in the target language or culture and translators must create it. Or those translations are to be done from one source language into many target languages, which implies solving terminology problems in the source language in order to create multilingual terminologies. Finally,

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terminology is essential when several translator teams all over the world work in the same translation/localization project and quality is a sine qua non.

Though little information is available regarding the return on investment (ROI) of terminology management, it is a fact that accurate and complete terminology improves the productivity of translators, technical writers and, in consequence, the productivity of companies as well. This was for example evidence of a study conducted at J.D. Edwards in 1998:

"The results of this study indicate that in the J.D. Edwards environment, changing an unmanaged term in the translation memory for software and documentation cost approximately USD 2000 in just one language" (Martin and Karsch 2001: 19).



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In order to understand the three basic concepts in terminology (object, concept and term) let us use as example the term "hammer".

The concept of "hammer", represented by the term and also by the sign "hammer", does not refer to a specific hammer, but more to a general idea, perception or understanding of all objects that have certain characteristics in common - such as being "a handtool consisting of a handle with a head of metal or other heavy rigid material" commonly used for striking or pounding - and therefore can be classified under the concept "hammer". The object hammer is the item as it is.

One of the most concise and clear representations of the relation between object, concept and term or sign is the so called Semiotic triangle, proposed first by the American linguists Ogden and Richards in 1923.

The elements of the semiotic triangle can be defined as follows:

**Object:** "any part of the perceivable or conceivable world." [ISO 1087] Objects can be material (e.g. a certain house, Tower Bridge) or immaterial (speed, pain, freedom, process). [cf: DIN 2330, p. 3]

**Concept:** "A unit of thought constituted through abstraction on the basis of properties common to a set

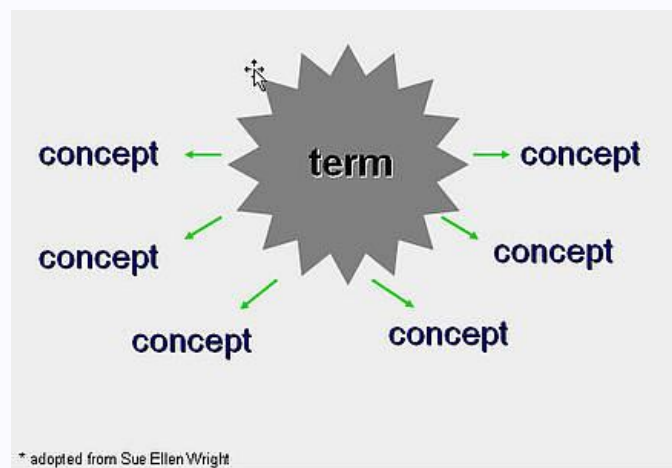
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of objects. The semantic content of a concept can be re-expressed by a combination of other and different concepts, which may vary from one language or culture to another". [ISO 5963:1985]

**Term:** "Designation of a defined concept in a special language by a linguistic expression." [ISO 1087]

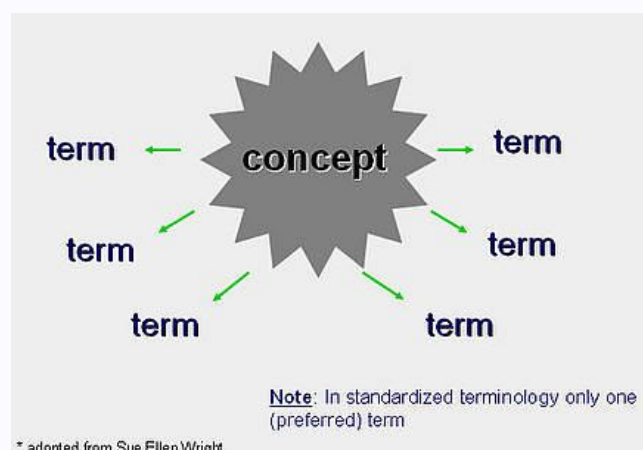
In terminology there are two approaches:

**Term-oriented (semasiological):** form-based, common structure of dictionaries and encyclopedias, several concepts per entry



Term-oriented approach

**Concept-oriented (onomasiological):** not form-based, one concept per entry



## **One term-oriented entry**

Let us suppose that we are preparing a terminology database from a term-oriented (semasiological) approach where German is the source language and English the target one. The German term we need to include is "Bank" which has two equivalents in English ("bank" and "bench") corresponding to different concepts ("finance institution" and "seating device").

If we follow a term-oriented approach, we will have only one entry in German for "Bank" which will contain the two possible concepts in English - bank (finance) and bench (furniture) (as shown in our graphic).

This would imply that the language direction of our database cannot be reversible because the English "bank" referring only to "finance institution" is not equivalent to the German "Bank" referring to both, "finance institution" and "seating device".

Neither the English "bench" referring only to a piece of furniture can be equivalent to the German "Bank" referring to both concepts, again, "finance institution" and "seating device".

## **Two concept-oriented entries**

The other way round, if we prepare the same terminology database but from a concept-oriented approach, where

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the concept is the starting point, we will have two entries in German: one for "Bank" as finance institution and another one for "Bank" as seating device.

In this case, the language direction of our database will indeed be reversible, because the English "bank" referring only to "finance institution" will be equivalent to the German "Bank" referring only to "finance institution". In the same way, the English "bench" referring to "seating device" will be equivalent to the German "Bank" also referring to "seating device".

Why is a concept-oriented (onomasiological) terminology approach more adequate for translators?

Basically because they work with more than one language and:

Only concept-oriented entries can be mono-, bi- or multilingual multilingual terminology is only possible with concept-orientation generally the language direction is reversible; i.e. a concept-oriented entry can be accessed from all languages, which is not possible in a strictly term-oriented approach when working with terminology from a concept-oriented approach:

Collected terms are organized according to concepts each concept builds an entry, which contains all the terms that represent that concept

These terms can exist within one language (synonyms) or in different languages (equivalents in other languages)



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When a term corresponds to several concepts (homonyms), several entries must be created

### Terms can have different types of structures:

1. **Simple terms:** Terms consisting of only one stem with or without affixes, e.g. wireless, infrared, etc.
2. **Abbreviated terms:**
  - 2.1) Abbreviations: Abbreviated simple terms resulting from the omission of some of its letters
  - 2.1.1) Initialisms: Abbreviated complex terms or names made up of the first letters of the term elements (e.g. UEFA=Union of European Football Associations)
  - 2.1.2) Acronyms: Abbreviated complex terms made up of letters from the full form of a term strung together into a sequence pronounced only syllabically (e.g. UNICEF=United Nations Children's Fund)
3. **Complex terms:** Terms consisting of two or more stems with or without other term elements, e.g. bookmark, mother-in-law
4. **Compound terms:** Complex terms in which the elements have a fixed position within the term as a whole but are not linked by morphological devices, e.g. power button, communication adapter unit [Source: ISO 1087, p. 8]. It is important to keep in mind that terms are not restricted to nouns or noun

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phrases but can also be phrase logical units containing verb phrases.

The choice between a single-word or a multiword term depends on language conventions. Sometimes the equivalent of a single-word term in one language is a multiword in another language, e.g. molinillo (Spanish) and chocolate frother (English).

New terms are commonly required in all sciences and technologies when new objects or parts of objects are created and new processes come into play. The creation of terms is mainly based on existing text materials and it is carried out through processes such as:

Combining existing text materials ("neologism") – e.g. e-learning (from electronic learning), blogging (from Web and logging)

Derivation ("neologism") – by adding suffixes or prefixes e.g. to analyse, analysis, analytically

Creation of simple terms ("neologism") – e.g. in the computer field protocol, software, window

Creation of complex terms ("neologism") – e.g. video remote controller, instant keys, optical drive, etc.

Creation of short forms ("neologism") – CPU (for central processing unit), WLAN (wireless local area network)

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Adoption of terms from a different language ("borrowed terms") – e.g. casserole (from French meaning "saucepan" in English), ragout (from French meaning "ragout sauce" in English)

Adoption of terms from a different subject field ("borrowed terms") –e.g. mouse (from the computer and biology fields), port (from the antics' and computer fields)

To form compound and complex terms, Germanic and Slavic languages, for example, combine word elements in abstract sequences, whilst others such as Romance languages use explicit, logical linking elements (e.g. prepositions) to form multiword structures (Wright and Budin, 1997:14).

The importance of keeping - if possible - a clear, one-to-one relation between concept and term when classifying terms has often been addressed in the literature on terminology.

Things can be more complicated in practice. For example, two of the most common problems observed when trying to classify terms is that there are synonymy and homonymy relations among terms and both phenomena could be a tough nut to crack when trying to keep a one-to-one structure in a terminology database.

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In terminology, synonymy can be defined as the relation between different terms representing only one concept in one language, e.g. "sodium chloride" and "NaCl". Different terms are synonyms for example when their definitions have the same meaning - often one of the terms is used in general or by a specific user as the "preferred" term.

Considered also as synonyms are:

Terms with different spelling (hyphen, joining elements, etc.)

The term's full form compared to its short form

## Abbreviations of a term

### Acronyms

On the other hand, homonymy can be defined as the relation between terms and concepts in which identical terms represent different concepts, for example:

- Bark: sound made by a dog
- bark: outer covering of the stems of woody plants
- bark: sailing vessel

Among the sub-forms of homonymy there are:

a) **Homography**: case of homonymy in which the terms have the same written form, e.g.:

address (n) vs. (to) address (v)

record (n) vs. (to) record (v)

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b) **Homophony**: case of homonymy in which the terms have the same spoken form, e.g.:

blew vs. blue ("The wind blew" / "The sky is blue")

hear vs. here ("Did you hear?" / "I am here")

It is worth noting that there is also a difference between homonymy and polysemy seen from a diachronic perspective. We talk about homonymy if identical terms representing different concepts have different etymological origins. On the other hand, when a term gets several meanings during its diachronic development it is often called polysemous.

One should therefore avoid having an entry containing two definitions of two different concepts in a terminology database on one specific subject field, as the following example shows:

**Definition:** A set of user-defined instructions which a computer program executes. Usually used to customize the behavior of the application. Examples of scripting languages include Perl, JavaScript and VBScript

**Definition:** A collection of characters for displaying written text, all of which have a common characteristic that justifies their consideration as a distinct set. One script may be used for several different languages (for example, Latin script, which covers all of Western Europe). However, some written languages require multiple scripts, for example Japanese, which requires

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at least three scripts (the hiragana and katakana syllabaries, and the Kanji ideographs imported from China)

The goal when searching for terminology and collecting it consists of the systematic domain-oriented compilation of terms from corpora. There are different ways of searching for terminology, for example:

By using conventional resources (paper dictionaries, books, glossaries, etc.), or

By using the Internet. The Internet is one of the most important and often used information resources for translators because they can have access to online dictionaries, glossaries, data bases, general information resources, etc., they can use search engines to find information and even store their results (bookmarking them)

There are also two different strategies for searching and collecting terminology:

- manual
- automatic: by means of using Terminology Extraction Tools (TETs)

Manually searching and collecting terminology commonly involves: using conventional resources - such as paper dictionaries, glossaries, etc. collecting representative texts (corpora) in one or more languages and in the particular

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subject field identifying "terminological units" (terms) (which could possibly change their meaning in the text or be influenced by the context)

Establishing concepts' relationships, such as hierarchical (specific/generic=sheepdog/mammal, part/whole=motor/automobile) or associative (action/tool=sawing/saw, cause/effect=heavy rain/flooding)

Providing definition, context, grammar information, equivalents in other languages for the terms found

Automatically searching and collecting terminology normally involves:

- Using online resources, such as dictionaries, glossaries, databases, etc.
- compiling corpora (machine readable texts)
- extracting terminology (identification and extraction of term candidates (TCs))
- Evaluating/validating the results of TETs. Often resulting TCs are compared to existing terminological databases to distinguish known terms from unknown terms, and
- classifying of terminology according to classes and categories

## **Terminology and the multilingual information society**

This wide range of applications and products is all the more important given the current technological and political developments in Europe. The last few decades have been characterized by the exponential spread and implementation of the concept of "globalization". Although international activities and multinational trade existed well before this date, a new quality has recently emerged. Not only are raw materials sourced, and products sold, on a supranational scale, they are now increasingly developed, manufactured, marketed and sold for a global audience. Global competition and global co-operation - both of which presuppose global communication - are now common concepts. In the cultural arena, too, we can trace the development of what is often called the "global village", with greatly increased social and cultural contact, both active and passive.

At the same time, rapid technological development in general, and the rise of whole new fields and industries in particular, has led to shorter and shorter innovation cycles and to an exponential growth in knowledge and the need for its rapid and effective communication. Thus the total amount of specialist knowledge is currently thought to be



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doubling every five to fifteen years, depending on the area concerned.

This explosion in communication has been facilitated and driven by the computing and telecommunications revolutions, which have provided cheap processing power and new technologies for document processing. Vast databases can now be processed efficiently, and their contents transported effortlessly across national and geographical boundaries. Information is now commonly regarded as a fourth production factor alongside property, labor and capital. The number of intangible products is increasing rapidly, in contrast to the number of tangible ones. The practical effects of this can be seen, among other things, in the vast increase in the creation, capture, processing, storage, archiving, retrieval and subsequent evaluation of documents. For example, the Danzin Report estimated that the European economies (calculated before the latest enlargement of the European Union in January 1995) would spend 650 million ECU on this in 1994. Equally, the number of major different subject fields (or "domains") for which terminology exists is estimated at several hundred or many thousand, depending on the degree of detail of the classification system used. In turn, each of these domains contains between several hundred and over ten million (e.g. chemistry) terms, again depending on the granularity of the system. The number of terms in each of the highly developed languages is

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commonly estimated at 50 million, excluding product names, which account for roughly another 100 million terms.

A point to be remembered here is that specialist (and indeed general) communication is normally an iterative and multilinear process, since knowledge is generally created in an evolutionary process and in several different places at once. Thus potential sources of uncertainty and misunderstanding arise in the form of homonyms (i.e. words that are used to denote more than one concept) and synonyms (i.e. more than one word for the same concept). This problem is becoming particularly acute with the strong tendency to interdisciplinary in important modern scientific disciplines such as biotechnology, environmental science and materials science (it is a paradox that in this age of increasing specialization science is becoming more and more interdisciplinary). At the same time, the risks involved in failing to communicate unambiguously and in a timely manner have often increased dramatically (two classic examples of this are the aerospace and environmental industries).

For all these reasons, contents-based information management is a prerequisite for improving the efficiency of communication. In addition, it should be borne in mind that communication is not solely monolingual, especially not within Europe. In fact, there is a clear trend at the

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moment towards an increased awareness of multilingual issues, despite the predominance or at least lead function of English in the technical, business, economic, political and - to a lesser extent - cultural fields.

One factor influencing this trend is the concern of a number of national and regional governments to ensure the long-term viability of their official languages in the face of competition from English and to ensure equal access for all citizens and social and economic groupings to new ideas and other information. Other significant factors are product liability and similar consumer protection legislation, as well as a more general wish among enterprises in particular to increase efficiency by improving internal and external communication and information flows. In addition, consumer goods manufacturers in particular are discovering the competitive advantage which products can achieve (especially in saturated or highly competitive markets) when localized into the languages spoken by their target groups.

The importance of these developments for a multilingual political federation such as Europe with its eleven official working languages and countless lesser-used ones cannot be overemphasized. In fact, the European Commission sees itself as living in what it calls the Multilingual Information Society. Europe's dual position as a world

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player (and the original home of three world languages) and a multilingual collection of states means that effective multilingual communication on a vast scale is a prerequisite for both internal and external success. To quote only one statistic: the European Commission alone already has more than one million pages of text translated per year. Add to this the appropriate national figures for both the private and public sectors, and it soon becomes apparent that multilingual communication is already big business. However, it is equally clear that new, automatic methods and tools for multilingual information management (i.e. ones that go beyond current language-neutral ideas such as workflow, imaging and electronic document management) are urgently required if communication across linguistic, sector, regional and domain boundaries is to be optimized.

Since a great deal of this - specialist - communication relies on the vocabulary of a vast number of subject fields to convey its content, readily-accessible, up-to-date terminology will play an increasingly important role in (multilingual) information management in the 21st century.

## Exercise based on lesson one

- 1. What do you think about the term terminology and its definition?**

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- 2. What is the importance of terminology in the process of translation?**

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- 3. Translate this text into Arabic**

### **Genetically engineered trees quietly sprouting**

Biotechnology is coming to the forest and orchard. Scientists are planting genetically engineered trees in dozens of research projects across the country. They are working to create trees that grow faster, yield better

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wood, produce hardier crops, fight pollution, even serve as sentinels for detecting germ and chemical attacks. Environmentalists fear dangerous unintended consequences. "It won't be as widespread as agricultural biotechnology, but it could be much more destructive," said Jim Diamond of the Sierra Club. "Trees are what are left of our natural environment and home to endangered species."

The Sierra Club wants a moratorium on the planting of genetic engineered trees outdoors until the science is better understood. But the plea has been like a tree falling deep in the forest.

Tree researchers say their critics are missing all the ways that science can give nature a fighting chance against ravages natural and manmade.

Biotechnology, they say, may provide just what is needed to help reverse global deforestation and industrial pollution while satisfying increased demand for wood and paper products.

Already, biotechnology has been credited with saving Hawaii's \$14-million-a-year papaya industry. A virus had wiped out 40 percent of the crop and threatened to destroy the rest before seeds engineered to resist the virus were introduced in 1998. Now the industry is thriving again.

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About 230 notices of genetically engineered tree experiments have been filed with the Department of Agriculture since 1989, with about half since 2000. So far, papayas are the only approved engineered tree for market. The rest are still experimental.

Some researchers are infusing trees with genetic material taken from viruses and bacteria that helps them grow faster and fatter and yield better wood. Others are splicing mercury-gobbling bacteria genes into trees, enlisting nature to help clean polluted soil.

Still others are inserting foreign genes that might reduce the amount of toxic chemicals needed to process trees into paper.

Fruit-tree farmers are looking for hardier trees with less reliance on chemical bug and weed killers.

And the Pentagon even awarded Colorado State researchers \$500,000 this year to develop a pine tree or other plants that can change colors when exposed to a germ or chemical attack.

Many field trials are backed by paper and timber companies hoping to design trees that yield more wood and paper.

ArborGen LLC, a North Charleston, South Carolina-based biotechnology company whose backers include

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International Paper and MeadWestvaco Corp., said it has 50 field trials under way. Chief technology officer Maud Hinchee said the company's work could reduce reliance on national forests by creating faster-growing trees cultivated on industry plantations.

Poplar, eucalyptus, apple and coffee trees are among those being engineered. Researchers even hope to revive the cherished American chestnut, devastated a century ago by a tree-stunting blight that prevents them from growing higher than shrubs become before succumbing.

All this is being done today because of better understanding of tree genomes. The Dendrome Project at the University of California at Davis offers detailed genetic information on 100 trees on its Web site.

Except for the Hawaiian papaya, no genetically modified tree is expected to be commercialized for the next five to ten years. Trees grow much slower than crops, and genetic researchers need years to compare generations.

Could biotech trees crossbreed with their natural brethren and ruin forests' genetic diversity? The Sierra Club fears that, among other ecological consequences.

Researchers hope to placate critics by engineering sterility into their designer trees, so their effect on the



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environment can be contained. But that technology remains elusive.

Forestry researchers are proud of their work but have become cautious about disclosing where their genetically engineered trees are growing.

In June, three protesters were arrested after chaining themselves inside a UC-Davis science building to protest tree research. And two years ago, the Earth Liberation Front claimed responsibility for arson attacks in Seattle and Clatskanie, Oregon, that caused more than \$3.5 million in damage.

Oregon State University researcher Steven Strauss, who tends to a few thousand engineered trees, said some of the protesters' are virtually identical to those of scientists. After all, he is working to engineer poplars that are sterile.

"The violent guys just don't understand the science," he said. "Genetic engineering is not one thing, its a thousand things. But the extremes want to stop it all."

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# **Lesson Two**

## **Principles of terminology**

A common problem of terminology work is that the importance and indeed the very nature of terminology is poorly understood. Thus many people simply have no idea at all of what it is, while others, searching for an explanation of some sort, end up associating it with "thermal science" and hence radiators. Related professions in the communications field, such as translation and technical writing, will often be aware of the word without having precise knowledge of what it entails.

In fact, terminology is a many-faceted subject being, depending on the perspective from which it is approached and the affiliations of the person discussing it:

- a resource,
- a set of methodologies and procedures to be used in creating this resource,
- a factor in communication,
- a community of actors, and
- An academic discipline.

To avoid confusion during its work, in particular when talking to non-specialists, the POINTER Project adopted a

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pragmatic definition of the word. In the context of this document and the POINTER Terms of Reference, therefore, "terminology" (or, in the plural, "terminological resources") has been defined as:

- a structured set of concepts and their designations (graphical symbols, terms, phraseological units, etc.) in a specific subject field »

Three major points need to be made here:

- Firstly, proper terminology is concerned with the relationship between concepts, and between them and their designations, rather than with designations alone or with the objects they represent. This point is essential if quality is to be achieved, especially with synonyms and in multilingual environments.
- Secondly, a designation does not necessarily have to be a word or phrase, although it often is. Thus terminological resources may comprise symbols, drawings, formulae, codes, etc. as well as, or even instead of, words. This point is especially important given the move to multimedia systems.
- Thirdly, terminology is inextricably linked with specialist knowledge and hence with special languages or languages for special purposes (LSPs).

In addition, the word "structured" needs some explanation: it should be noted that, in practice,

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terminological collections may well contain not only well structured standardized terms and concepts, but also innovative, vague and unstructured conceptual and linguistic information.

This basic definition of terminology is supplemented in this Final Report by two other terms:

- terminology work - i.e. the work performed in the creation or documentation of terminological resources »

### **And**

- Terminological activities - a broader term which includes not only terminology work but also such areas as training, tool development, and organizational and administrative measures. »

### **Terminology and Lexicology, Terminography and Lexicography**

One particular area of confusion highlighted by the POINTER Project is that of the differences between terminology and lexicology, and terminography and lexicography. Not only many non-specialists, but even many individuals working in such fields as language engineering and translation frequently confuse these concepts, and it is hoped that the explanations given below will contribute to a clearer understanding of the distinctions between these fields of activity.

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While lexicology is the study of words in general, terminology is the study of special-language words or terms associated with particular areas of specialist knowledge. Neither lexicology nor terminology is directly concerned with any particular application. Lexicography, however, is the process of making dictionaries, most commonly of general-language words, but occasionally of special-language words (i.e. terms). Most general-purpose dictionaries also contain a number of specialist terms, often embedded within entries together with general-language words. Terminography (or often misleadingly "terminology"), on the other hand, is concerned exclusively with compiling collections of the vocabulary of special languages. The outputs of this work may be known by a number of different names - often used inconsistently - including "terminology", "specialized vocabulary", "glossary", and so on.

The work and objectives of lexicographers and terminographers are in many ways complementary, but there are a number of important differences which need to be noted.

### **Method, organization and presentation**

Dictionaries are word-based: lexicographical work starts by identifying the different senses of a particular word form. The overall presentation to the user is generally alphabetical, reflecting the word-based working method.



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Synonyms - different form same meaning - are therefore usually scattered throughout the dictionary, whereas polysemes (related but different senses) and homonyms (same form, different meaning) are grouped together.

While a few notable attempts have been made to produce conceptually-based general-language dictionaries - or "thesauri", the results of such attempts are bound to vary considerably according to the cultural and chronological context of the author.

By contrast, high-quality terminologies are always in some sense concept-based, reflecting the fact that the terms which they contain map out an area of specialist knowledge in which encyclopedic information plays a central role. Such areas of knowledge tend to be highly constrained (e.g. "viticulture"; "viniculture"; "gastronomy"; and so on, rather than "food and drink"), and therefore more amenable to a conceptual organization than is the case with the totality of knowledge covered by general language. The relations between the concepts which the terms represent are the main organizing principle of terminographical work, and are usually reflected in the chosen manner of presentation to the user of the terminology. Conceptually-based work is usually presented in the paper medium in a thesaurus-type structure, often mapped out by a system of classification (e.g. UDC) accompanied by an alphabetical index to allow

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access through the word form as well as the concept. In terminologies, synonyms therefore appear together as representations of the same meaning (i.e. concept), whereas polysemes and homonyms are presented separately in different entries.

In the electronic medium, similar considerations apply in principle to the organization of entries with reference to synonyms and polysemes/homonyms. However, the retrieval of data still operates at present largely through the term (or a component! of the term) rather than through the concept. Conceptually-based solutions for the representation and retrieval of data are being sought in the techniques of artificial intelligence.

Work organized conceptually may also be presented alphabetically, whereas the converse, i.e. the presentation of work originally organized according to the form of the word in a thesaurus-type structure, is highly problematic.

### **Lexical meaning**

In dictionaries, related but different senses (or "polysemes") of the same word form are usually presented within one entry, e.g. bridge (of a violin, crossing a river, over a gap in teeth); unrelated different senses ("homonyms") of the same word form are normally presented as separate head words or entries, e.g. pupil (of the eye) and pupil (in a school). Synonym

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relations are not always made explicit in dictionaries, and the division of word forms into different senses tends to vary considerably between dictionaries. This lack of clear division into senses reflects the "slippery" nature of general-language words, compared to the more precise nature of terminological meaning.

In terminologies, homonyms and polysemes within the same subject field are treated as separate entries in a terminology (because the definition of the concept is different), e.g. in Automotive Engineering emission (the process of emitting exhaust gases) and emission (the exhaust gases themselves). Homonyms and polysemes of other subject fields are excluded. Synonyms, on the other hand, are always included as a part of the same entry in a terminology (being alternative representations of the same concept), e.g. automotive catalyst, catalytic converter.

### **Grammar**

The "headwords" or rather "entry terms" in terminologies are all open-class words, i.e. nouns (the vast majority), some adjectives, verbs and adverbs. The headwords in general-language dictionaries cover all word classes, including so-called grammatical words such as modal auxiliaries (e.g. can, must), prepositions (e.g. on, with), articles (e.g. the, an), certain adverbs (e.g. very), and so on. In terminologies, such words may appear as a

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component of the term or be shown as a part of the term's phraseology (i.e. the usual pattern of its immediate linguistic environment), but never as independent entry terms.

### **Usage versus regulation**

Dictionaries of the general language are descriptive in their orientation, arising from the lexicographer's observation of usage. Terminologies may also be descriptive in certain cases (depending on subject field and/or application), but prescription (also: "normalization" or "standardization") plays an essential role, particularly in scientific, technical and medical work where safety is a primary consideration. Standardization is normally understood as the elimination of synonymy and the reduction of polysemy/homonymy or the coinage of neologisms to reflect the meaning of the term and its relations to other terms. Terminologies - the outcome of this work, often in electronic form as term bases - are then the principal means of dissemination. In other words, in certain circumstances, terminologists may attempt to regulate language (in this case, the vocabularies of special languages), whereas lexicographers describe the words of general language.

### **Levels of communication**

Lexicographers have at their disposal a number of "style labels" which aim to distinguish between, for instance, informal, slang, or vulgar expressions, archaisms, and so on. Terminologists also need to distinguish between different communicative situations, although in a rather different way. While traditional terminology work is concerned mainly with the terms which characterize communication between subject experts, a broader view also incorporates less abstract levels of communication, e.g. between technicians, or between expert and layperson (such as doctor-patient; lawyer-client). In high-quality terminography, such variants must also be labeled or assigned to a particular source in order to identify the appropriate communicative context for their use.

### **WHY TERMINOLOGY?**

A large majority of documents today are designed for specialist communication (including business and commercial texts). They are thus written in specialist language, 30-80% of which (depending on the particular domain and type of text in question) is composed of terminology. In other words, terminology (which as we have seen may also include non-linguistic items such as formulae, codes, symbols and graphics) is the main vehicle by which facts, opinions and other "higher" units of knowledge are represented and conveyed. Sound

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terminology work reduces ambiguity and increases clarity - in other words, the quality of specialist communication depends to a large extent on the quality of the terminology employed, and terminology can thus be a safety factor, a quality factor and a productivity factor in its own right.

The communication of specialist knowledge and information, whether monolingual or multilingual, is thus irretrievably bound up with the creation and dissemination of terminological resources and with terminology management in the widest sense of the word. This process is not restricted to science and engineering, but is also vital to law, public administration, and health care, to quote just three examples. In addition, terminology plays a key role in the production and dissemination of documents, and in workflow. Terminology as an academic discipline offers concepts and methodologies for high-quality, effective knowledge representation and transfer. These methodologies can be used both by language specialists and by domain specialists after appropriate training. In addition, they form the basis for an increasing number of tools for the identification, extraction, ordering, transfer, storage and maintenance of terminological resources and other types of knowledge.

Terminological resources are also valuable in many other ways: as collections of names or other representations, as

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the object of standardization and harmonization activities, and as the input (or output) of a wide range of applications and disciplines, whether human or machine-based (see the Figure below). The range of applications to which terminology is of direct relevance was a primary motivating factor at the inception of the POINTER Project with its brief to analyze the situation of terminology in Europe, and to make concrete suggestions for a future infrastructure and activities.

## **Terminology management**

Goes further than pure analysis of the correct target terms. It leads to:

- a standardized, company-wide "language", which ultimately helps shape the corporate image in the source country and abroad;
- greater client confidence;
- improved quality of US and translated/localized products ;
- the ability to recycle terminology and documentation ;
- consistency among team members;
- consistency within products and among related products;
- substantial time and cost reduction;
- the preservation of previously completed work (categorization and archiving);
- reproducibility (not just repeatability);

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- painless product updates;
- improved communication among all those involved in a product, from development to market release;
- Terminology sharing with third parties and thus standardization.

Terminology Management plays an important part in knowledge management and is the key to clear and consistent language within and among all products of a company.

### **Reality check: Why isn't it done?**

- Unpredictable and therefore hard to schedule and to budget for.
- Who is going to pay for it?
- Clients don't understand the translation process and what it involves.
- Achievements or failures are hard to quantify.

### **Quantifying terminology management**

#### **How many products can you afford to have failed?**

Problem: How much does terminology management cost? In most companies it is done by people who do other jobs as well (technical writing, translation). It is therefore difficult to extract as an individual cost factor.



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One model suggests comparing terminology management to an industrial process. But tracking information and communication is more difficult than tracking a part in the manufacturing industry.

Fact: The transaction time associated with communication is an important productivity factor. About 50 - 70 % of transaction time is devoted to the dissemination of information (during every stage of the industrial process).

Intellectual set-up time: Handing a job from person A to person B including A explaining to B what the task is all about. (Not to be confused with "learning curve" which is the actual learning of the task by B.?)

The intellectual set-up time increases considerably without terminology management. A terminologist's job consists only of dealing with terminology. After an initial intellectual set-up time (s) he is usually familiar with the parameters and can solve terminological problems much faster than somebody who does other things at the same time. Studies have shown that the intellectual set-up time increases in the latter case, which makes the person less productive.

**Terminology is a production variable that needs to be managed.**

- A terminologist is usually in the middle of things.

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- Diplomacy and assertiveness are essential characteristics.
- High-level management support is extremely important so that the terminologist has the authority to "prescribe".

Ad-hoc terminology management is usually text-driven. The broader context may not be mentioned. Often concepts occur on various levels and the in-between is assumed by the author as "known". These "random domain extracts" are not random in the discourse of the text, but as a concept they may be unrelated. Example: A paper on flame-retardant chemicals in children's pajamas.

(The opposite of ad-hoc terminology management would be to systematically define the corpus which usually does not apply to individual translators and/or agencies.)

### **Terminology vs. lexicography**

It is very important to distinguish between terminology management and lexicography, even though the boundaries are increasingly fluid.

What is often misunderstood in this context is the difference between a word and a term. Terms can consist of one word or be made up of multiword strings. The distinguishing feature of a term is that it is assigned to a single concept (e.g. the term quality assurance), as opposed to a phrase logical unit which combines more

than one concept to express a complex situation (e.g. come up to quality requirements).

## **The role of the terminologist Classification of terminology**

### **Canonical form of term entry**

- Nouns are stated in the singular unless the noun is always or uniquely used in plural.
- Nouns are never accompanied by their respective articles. Use a special field for that.
- Capitalize only words that would ordinarily be capitalized (as they occur in the text).
- Verbs are entered in the infinitive form.
- Adjectives are entered in their base form.

### **Stages of terminology management**

- Product design and development
- Actual translation/localization phase
- Managing interdependencies
- Archiving

### **Challenges**

- Finding the right process.
- Managing legacy data: What can be reused, what needs to be discarded
- Supporting new languages for which a certain technology and its terminology may present a real challenge.

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- Neologisms
- Growing interdependence of glossaries in certain industries.
- Dealing with trademarked terms.
- The Internet, our new "live" medium: short deadlines and short life cycles.

## Exercise based on lesson Two

**1. What do you think about the principles of terminology?**

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**2. What do we mean by the term management of terminology?**

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**3. How can the process of terminology management be conducted?**

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#### **4. Translate this text into Arabic**

### **Emergency**

#### **The Two Faces of Urban Medicine**

"Call 911!" I shouted to my friend as I sprinted down the street. The young Caucasian male had been thrown fifteen yards from the site of impact and surprisingly was still conscious upon my arrival. "My name is Michael. Can you tell me your name?" In his late twenties, he gasped in response as his eyes searched desperately in every direction for help, for comfort, for assurance, for loved ones, for death, until his eyes met mine. "Flail chest", I thought to myself as I unbuttoned his shirt and placed my backpack upon his right side. "Pulse 98, respiration 28 short and quick. Help is on the way. Hang in there buddy." I urged. After assessing the patient, the gravity of the situation struck me with sobriety. The adrenaline was no longer running through my veins — this was real. His right leg was mangled with a compound fracture, and his left leg was also obviously broken. The tow-truck that had hit him looked as though it had run into a telephone pole. Traffic had ceased on the six-lane road, and a large crowd had gathered. However, no one was by my side to help. "Get me some blankets from that motel!" I yelled to a bystander and three people immediately fled. I was in

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charge. The patient was no longer conscious; his pulse was faint and respiration was low. "Stay with me, man!" I yelled. "15 to 1, 15 to 1", I thought as I rehearsed CPR in my mind. Suddenly he stopped breathing. Without hesitation, I removed my T-shirt and created a makeshift barrier between his mouth and mine through which I proceeded to administer two breaths. No response. And furthermore, there was no pulse. I began CPR. I continued for approximately five minutes until the paramedics arrived, but it was too late. I had lost my first patient.

Medicine. I had always imagined it as saving lives, curing ailments, alleviating pain, overall making life better for everyone. However, as I watched the paramedics pull the sheets over the victim's head, I began to tremble. I had learned my first lesson of medicine: for all its power, medicine cannot always prevail. I had experienced one of the most disheartening and demoralizing aspects of medicine and faced it. I also demonstrated then that I know how to cope with a life and death emergency with confidence, a confidence instilled in me by my certification as an Emergency Medical Technician, a confidence that I had the ability to take charge of a desperate situation and help someone in critical need. This pivotal incident confirmed my decision to pursue medicine as a career.

Of course healing, curing and saving is much more rewarding than trying and failing. As an EMT I was

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exposed to these satisfying aspects of medicine in a setting very new to me — urban medicine. I spent most of a summer doing ride-a-longs with the Ambulance Company in Houston. Every call we received dealt with Latino patients either speaking only Spanish or very little broken English. I suddenly realized the importance of understanding a foreign culture and language in the practice of medicine, particularly when serving an under-served majority. In transporting patients from the field to the hospitals I saw the community's reduced access to medical care due to a lack of physicians able to communicate with and understand their patients. I decided to minor in Spanish. Having almost completed my minor, I have not only expanded my academic horizons, I have gained a cultural awareness I feel is indispensable in today's diverse society.

Throughout my undergraduate years at Berkeley I have combined my scientific interests with my passion for the Hispanic culture and language. I have even blended the two with my interests in medicine. During my sophomore year I volunteered at a medical clinic in the rural town of Chacala, Mexico. In Mexico for one month I shadowed a doctor in the clinic and was concurrently enrolled in classes for medical Spanish. It was in Chacala, hundreds of miles away from home, that I witnessed medicine practiced as I imagined it should be. Seeing the doctor treat his patients with skill and compassion as fellow



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human beings rather than simply diseases to be outsmarted, I realized he was truly helping the people of Chacala in a manner unique to medicine. Fascinated by this exposure to clinical medicine, I saw medicine's ability to make a difference in people's lives. For me the disciplines of Spanish and science have become inseparable, and I plan to pursue a career in urban medicine that allows me to integrate them.

Having seen medicine's different sides, I view medicine as a multi-faceted profession. I have witnessed its power as a healing agent in rural Chacala, and I have seen its weakness when I met death face-to-face as an EMT. Inspired by the Latino community of Houston, I realize the benefits of viewing it from a holistic, culturally aware perspective. And whatever the outcome of the cry, "Call 911!" I look forward as a physician to experiencing the satisfaction of saving lives, curing ailments, alleviating pain, and overall making life better for my patients.

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## **Lesson three**

# **Methodology of terminology work**

### **What is Methodology?**

In terminology, all of the techniques and procedures adopted to achieve a specified goal (for example, the type of product or service to be delivered given the available resources, the client's expectations and the agreed-upon deadline) constitute the work methodology. The methodology must be established before the work is undertaken, although it can be modified during the course of the project. The purpose of this chapter is to provide a general methodological framework showing the main steps in terminology work:

- identify and evaluate specialized documentation
- delimit the subject field intended for terminological Analysis using a classification system
- establish the diagram of the concepts to be defined
- perform term extraction in original-language sources and mark pertinent textual supports
- establish the monolingual terminological base list from the concept diagram
- compile term-extraction results into single-concept terminology case files
- enter the terms from the base list and the related textual supports on records

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- revise the records to ensure respect of research, record completion, citation, and distribution rules in effect
- load the records into a database and proofread them to confirm conformity
- manage the terminological contents of the database to reflect the evolution of specialized knowledge, language usage, and user requirements
- extract data to provide the products requested by clients.

### Identify and Evaluate Specialized Documentation

A terminologist working in a department or a company may inherit an existing terminology database or may be asked to create one.

- If the database already exists, the terminologist must first become familiar with the collection of **sources** that were consulted to create the records, in order to evaluate their quality and timeliness and to fill in any gaps. The documents may include acts, regulations, departmental publications or glossaries, corporate handbooks and publications. The evaluation may be done after reading the documents and consulting resource persons such as document lists, the authors of the documents, **subject-field specialists**, and the creators, managers, and users of the database in question.
- If the terminologist must set up the terminology database, the first step related to documentation is to

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prepare a directory or inventory of sources to be scanned for terms, beginning with subject-field-related official documents and publications, existing databases and files, dictionaries, terminological works, and bibliographies. Preferably, this list will be computerized, and the titles will be coded so that they can be used during data entry and be recognizable or decodable by users during information retrieval. In large terminology data banks, this directory may in fact become a documentary database.

- In both cases, the Internet can be a very valuable resource accessed through search engines designed for individual queries (e.g. *FindSame*) or for thematic queries (e.g. *Vivísimo*). Document lists can provide computerized bibliographies, perform on-line reference searches and download documents or obtain them through interlibrary loans. Subject-field specialists and users can share their own knowledge of the available documentation and can provide informed opinions concerning the contents of the documentary database. They are themselves sources.

Newspapers and specialized periodicals often provide information about recent developments in a given subject field. The inventoried documentation and the opinions received are examined with a view to selecting those documents that are most representative of the subject field. On the basis of these texts, it is possible to adopt a subject-field classification system, establish a concept



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system, and extract terms to be recorded in the terminology database.

### **Documents are selected based on the following criteria:**

- Relevance of the terminology (precision, homogeneity, coherence) and number of defining elements in textual supports, from the point of view of the real or potential users targeted
- Nature of the text (specialized or educational, official or informal, monograph or periodical, encyclopedia, promotional material, etc.)
- Extent to which information is organized, taking into account peer evaluation, reputation of the author, of the series or of the editor in the targeted milieu, as well as the presence of glossaries and of indexes to concepts and to official titles appearing in the document
- Timeliness and completeness of the contents relative to the evolution of specialized knowledge in the subject field in question (copyright date, objectives stated in the document, up-to-date bibliography, recommendation by a recognized organization)
- linguistic quality of the documentation (grammar, vocabulary, style of an original-language text or of a translation).The documents selected as sources for future work are processed so that they meet the requirements of terminology database management

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- Source codes are created according to source-coding rules that apply to the entire database (alternatively, source titles can be recorded in full in such a way that they can still be recognized and processed by the software application)
- Source information is entered into the sources field of the terminology record according to the established record completion rules
- Source references are given for any quotation or any document consulted, in conformance with copyright laws
- Texts must be available for electronic processing or consultation in hard-copy form.

Permission must be obtained in writing from the publisher of a document before excerpts are cited in commercial terminological products, such as CD-ROMs and publications that are sold, and databases that are made available on-line through paid subscriptions. It is usually not necessary to obtain permission to cite an organization's in-house documentation when the organization is the owner of both the terminological product and the document cited. Delimit the Subject Field Intended for Terminological

### **Analysis Using a Classification System**

Delimitation of the subject fields to be dealt with in a database or during a subject-field research project should include the following activities:

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- identify in-house corporate activities, tools and products in the specialized documentation selected
- identify the target groups of these activities and products (consumers, clients, etc.), as well as their characteristics and needs
- Graphically represent the relationships between these activities and groups
- compare the result with the existing classification systems in the spheres of activity in question, and make improvements as required
- consult subject-field specialists to check the validity of the classification system
- respect the classification system in all database transactions and single- or multiple-term research activities. By examining the products and spheres of activity of a company, the terminologist can learn how the organization is structured and how activities are logically linked in the work flow. The structured set of the logical relationships identified constitutes the diagram of the concepts to be defined. The terminology units that designate them comprise the terminological base list to be studied. Perform Term Extraction in Original-Language Sources and

### **Mark Pertinent Textual Supports**

All of the texts providing information about one or more of the concepts identified in the concept diagram are scanned for terms, that is, they are read so that

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terminology units can be highlighted and their contexts (sentences, paragraphs) noted. If the textual corpus is available in hard copy, the terminologist can extract terms manually by highlighting them and marking the beginning and the end of each term's context so the data can subsequently be transcribed on a terminology record.

Another option is to have the text optically scanned in order to obtain an electronic version. Once the text is available in computer-readable form, it is possible to use a semi-automatic term-extraction software such as YVANHOÉ© or an automatic term-extraction software such as Nomino.

The result of term extraction (or scanning for terms) is an alphabetical list of the identified terms together with the corresponding context, and the reference to the source document, in coded or uncoded form, including the page number. When term extraction is performed in more than one source dealing with the same topic, the lists resulting from the sources scanned can be merged so that the best textual supports can be selected for a given concept. In order to note authentic usage, it is recommended that original-language sources in the source and target languages be scanned for terms first, followed by translated sources.

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An exception to this approach arises when the terminologist must collect the terminology used in the bilingual documentation of a department or company. In this case, bilingual term extraction is performed in order to identify, concurrently, the terms and their contexts in both the source and target languages. In some terminology services, the translated equivalents are checked for authenticity by comparing them with the terms identified during term extraction in original-language texts. Such verification is not always possible in translation services where the terminology files usually allow the storage of source-language terms and their target language equivalents, but not the recording of textual supports or source references.

Manage the Terminological Contents of the Database to Reflect the Evolution of Specialized Knowledge, Language Usage, and User Requirements As a content provider, the terminologist responsible for a specialized subject field must manage his or her part of the database, keeping in mind the following factors:

- The status of the file (diagnosis of its strengths and weaknesses) compared to other similar terminology files, to the latest developments in the subject field and to the evolution of the specialized language in question

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- Priority needs expressed by users (in-house clients as well as clientele outside the department or company)
- Available human and physical resources (employees, collaborators, documentation, work tools, budget, etc.)
- Types of action necessary to perform content management, and the scope of these actions
- The steps to be taken and the time required to achieve the targeted goals.

Analysis of the contents of a terminology file may be done through spot checks using querying lists reflecting user requests and recent documentation (indexes, glossaries). It may also be done systematically for a selected topic (or theme), in which case records extracted from the database can be reviewed for completeness and terminological quality (accuracy of terms, presence of textual supports, presence of appropriate usage labels for synonyms, variants and abbreviations, etc.). The analysis may also reveal editorial discrepancies in such querying samples (presence of monolingual records in a bilingual terminology file, lack of source references, incorrect usage labels, typographical errors, omissions, etc.). The diagnosis delivered is used to determine the priority, scope and complexity of the actions (record creation, consolidation or deletion) to be planned for a given time frame.

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The priority of user needs can be determined through periodic surveys and feedback systematically requested by letter, e-mail, phone calls, meetings, etc.

The available resources, the types of action necessary, the steps included in content management, as well as their anticipated duration, may best be identified, prioritized, organized and managed using project-management methods, applied throughout the phases of identification, planning, execution, and retrospective evaluation.

### **Research of new terminology**

- Understanding the concept behind a new term and verifying that the concept exists in the target language as well.
- Finding out whether the US team who chose the new term had several possible options and why it decided in favor of one specific term. The reasons may also apply to other languages.
- Communicating with certain institutions, such as universities, government offices, etc., as to whether there are established translations for a concept in the target country or a set of target countries. Searching

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the Internet is often a good start for such an investigation.

- If translations exist, are they appropriate from a marketing perspective or are there issues, such as trademarks or regional nuances which make a term appropriate in one country, but not in another, as is often the case for Spanish.

This research can be quite time-consuming and good results often depend on US terminology being available at a very early stage. It doesn't have to be final, as long as the terminologist is involved and can follow the term selection process and ideally also provide feedback to US teams regarding the localizability of new US terms.

### **Priorities when time is limited**

What to concentrate on:

- Critical characteristics: product safety (subject-specific terminology)
- Significant characteristics: product features (subject-specific terminology)
- Minor characteristics: fixable at point of user; general language usage with few exceptions (such as a missing "not" in a sentence, which might lead to a safety issue)



## Exercise based on lesson Three

- 1. How does it work in the process of terminology?**

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- 2. what do we mean by the term methodology within terminology?**

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- 3. Mention an example of working on terminology in a database.**

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**Translate this text into Arabic**

**Electrical Engineering Essay**

Choosing a particular field of engineering can often be very difficult for the undergraduate engineering student. A field particularly interesting to me is the development of network devices and the transmission of information between networks. Whether it is designing faster and more efficient modem circuits or researching for better transmission of signals between Earth and satellites, this field would be both challenging and exciting. The Internet is one of the best examples of how this field has impacted society. Enormous amounts of information are now accessible to anyone, anywhere. From network interface card design to on-demand Internet processing, I believe the world of networking has endless opportunities for engineers to get involved and make it better.

Networking technology has become a necessity for affairs in government agencies, international corporations, banks, and the life of common citizens. This field has exploded over the last ten years. The need for better servers, faster signal transmission such as in fiber-optics, and secure online commerce are only a few examples which lead to various engineering opportunities. I think the impacts of this career would directly affect society,

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and its advances have already influenced the way we live our lives. People are electronically withdrawing and transferring money in their accounts, balancing their checkbooks online, shopping for groceries, and even ordering pizzas! Companies have cut costs on paper usage while helping to conserve trees. The government has sped up the tax process and cut costs for taxpayers by avoiding paper and allowing electronic tax filing. These are only a few examples of the direct impact this engineering field has had on society.

The information that is so easily accessible to anyone has put us in closer touch with people around the world. It is easier to communicate and exchange ideas. This may also allow people to become more open-minded to new ideas and different cultures. Another aspect will be the change that this technology will bring in the home. Families are already using this technology to communicate with distant relatives via email, online chat, or internet telephones. Families save on long distances calls, paper, and stamps. Of course, electronic communication is instantaneous compared to sending a form or letter through the postal system. Also, the information superhighway continues to enhance learning in the classroom. Students of all ages are able to research any topic and consult with other students who may be halfway around the world. The Internet is a wonderful source for teachers who may give homework assignments via the web and list hyperlinks to

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various online sources that have additional information. None of this would be possible without network technology and the many engineers who build it.

This technical field continues to have an impact on my life. For example, I use the Internet to call any regular telephone and talk to my hometown friends. The cost is considerably less than using a long distance provider, and I make international calls for the same cost as domestic calls. I have been able to keep in touch with friends back home in New Mexico as well as friends who go abroad. Also, I use Internet telephones for free PC to PC communication so that I can call people in Spanish-speaking countries and get one-on-one practice speaking the language with them. I also save time and money by paying my credit cards online. These few examples illustrate how the world-wide-web has already changed the way in which I do things. Improved baud rates, faster personal computers, and better network hardware are not only improving the quality of current applications, but they are also making it possible for engineers to do more than ever imaginable.

The future holds endless opportunities for this engineering field. I believe technology is advancing so rapidly that electronic communication will play a role in everything that we do. People will be able to listen to any radio station in the world, watch any movie with the click of a

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button, remotely control lights, air conditioning, and heating in homes and automobiles. Schools will depend on digital equipment to create worldwide classrooms. Students will be able to perform live interviews, visit distant cities through on-demand video, and experience cultural traditions with natives of any country. Previews of these kinds of applications are already amazing us by their capabilities. Again, none of this would be possible without the many engineers who have developed and improved the devices that make these things happen.

Careers in these networking fields continue to interest me, and I think I would find the work very exciting and rewarding. I am not familiar with particular kinds of electrical engineering fields within this broad career, but as that dreaded graduation day nears, I hope to learn more about this area and hopefully become an active part of it.

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## **Lesson Four**

# **Tools of terminology work**

As a professional terminologist and lexicographer, we can read with great interest the article written by Joost Oliver Zetsche entitled Tool Kit terminology Management. We can only underline the recommendations made by Joost for translators to conduct more terminology management work. The consistent use of terminology and terminology management are primary ingredients for maintaining consistency and quality in translations, particularly if a translator is specialized in a certain field or set of (related) fields.

### **Computerization of Specialized Content**

Over the past twenty years, the computer has become the main tool for accessing specialized knowledge and the favored means of transmitting scientific, technical, literary and artistic information. The process began with the computerization of catalogues held by libraries and large publishing houses, and with on-line access to documentary databases such as PASCAL. Computerized catalogues were followed by bibliographic CD-ROMs and database-querying terminals such as Electre, and electronic text corpora such as Frantext, the textual data bank held by the Institute national de la langue française.

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The computerized library led to the electronic library, in which a digitized copy of the holdings is made available to readers from computer-assisted reading stations installed in reading rooms. These are found in the Bibliothèque nationale de France, the National Library of Canada, the Library of Congress in Washington and the Bodleyan Library in Oxford (Ferrand: 1996). The digitization of holdings involves the transfer of texts, images, sound and films to electronic media. The holdings are then consulted in networks using a set of tools for querying, selecting, annotating, and on-screen editing.

Virtual libraries are delocalized and universally accessible; instead of having a physical address, they are constructed on Internet sites, and bear evocative names like Alexandrie, Bibliotheca Universals and Project Gutenberg. Individuals access them via a computer connected to the Internet, navigate from one site to another, and participate in discussion groups, seminars and conferences organized on these sites. They may also download documents to their own computers for later consultation. Publishers of specialized journals, the print media, professional associations and publishing houses sell subscriptions to the electronic versions of their publications, thus making them available on-line, digitize their own legacy documentation, and allow researchers and research centers, publishers and interested readers to access these archives.

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Universities, institutes, and research centers distribute information through their respective Internet sites, while government institutions are starting up their own ventures, such as the Canadian government's initiatives called Government On-Line, French on the Internet and Digitization Task Force. The departmental archives of the Canadian government are being digitized at an ever-increasing rate, and may be consulted on-line by federal employees as well as by the Canadian general public.

These technological changes have a great impact on all knowledge workers whose main goal is to transmit and manage specialized content for the benefit of all. Language professionals, including document lists, terminologists, writers, translators, and other language workers, in their capacity as knowledge workers, are faced with this technological evolution as they perform their various professional tasks on computers connected to the Internet. To illustrate some of the developments, the following paragraphs contain brief descriptions of tools designed, tested and used by the Translation Bureau to help terminologists in the performance of their professional activities.

### **The benefits of terminology tools**

Translators who use CAT tools can choose to manage their terminology by using the built-in terminology

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management features of their tool and create so-called term bases. Most CAT tools have this built-in terminology feature and enable the collection of terms as you translate (often with the use of hotkeys). Terminology management can also be performed quite easily by using MS Office software like Excel and Access or by using any other terminology software that is able to import and export to and from various exchangeable formats. Surprisingly enough, there are still translators who never use the term base features of their CAT tool or any other tool, but prefer to use dictionaries or online resources for referencing terms and their meanings in specific contexts. There are reasons for this.

Some may find terminology management a rather cumbersome and time-consuming activity and would prefer to focus on the translation process instead of spending too much of their time collecting terms and managing their term bases. Another reason is that term base management tools in CAT software do not always provide an adequate or efficient means to perform the task as one would perhaps like to. There are also translators who choose to collect their terminology only after the translation is completed (if they can spare the time...) and in some cases not at all and often rely purely on their TMs (translation memories) to produce

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Terminologically correct translations. While this method may work well for certain translation assignments, e.g. those that are adequately covered by extensive TMs in specific fields, it is not always a wise thing to do. TMs may be borrowed from other sources or may contain unverified or incorrect terminology. Relying purely on TMs also makes the translator less versatile when it comes to style and choice of terms (text). The use of TMs for selecting appropriate terminology is therefore limited only to the content of the TM being used. In the long term, TMs used in conjunction with contextual terminology become much more effective and the benefits for the translator are much greater. For example, if properly managed, termbases can provide alternative translations (synonyms, equivalent or similar terms, related terms, preferred phrases, additional context hits in TMs etc.) and this may have a much more positive effect on the style and consistency of translations in specific fields. Combining the use of TMs with extensive term bases therefore provides a much richer set of resources for the translator to work with. It's for this reason that I personally believe that terminology tools are highly under-valued considering the improvements and benefits they can bring to translators and their clients.

### **The time factor**

Another drawback of terminology management as far as most translators are concerned is the 'time' factor.

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Because translation work is often driven by short deadlines imposed by clients or by the focus of the translator on achieving high output rates in order to generate sufficient income, time is always an important issue and something you can't simply neglect. Sadly, this is also the reason why many translators do not invest more time and effort in building their own terminology resources. On the other hand, there are also translators who view terminology work as a crucial part of their work. They have discovered the benefits of the time they invest and enjoy terminology work, as well as the research (and Learning process) that goes with it.

Some surveys have indicated that there is still a relatively large number of translators who do not do any terminology work at all, for various reasons. What is clear to me is that many translators are not benefiting from terminology work as much as they could be or don't even have the right tools to work with, even the simplest of tools. They are sometimes still unaware of the fact that they already have some very good tools on their computers (e.g. Excel, Access) but have never used them for terminology work. In fact, all that is required from them is to organize and plan their work differently and to invest a little more time and effort.



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More importantly, terminology work should not be postponed or set aside for a rainy day many months later (i.e. when it is not actually needed and often too late to use!) so that it is eventually forgotten. The more time one invests in terminology work as it presents itself (i.e. during the actual process of translation or immediately after the completion of an assignment), the greater the benefits will be in the long term. This is without a doubt.

Spending just a few hours a week on terminology can, after only a few months, have an enormous impact on the production rate, efficiency, consistency, style and quality of translation work, depending of course on how much time the translator is willing to invest. The payback period is much shorter than one could imagine. Also, translators with minimal or limited terminology resources do not generally produce the standard or quality of work they could be producing. Nor are they exploiting the tools they already have as well as they could. It is a fact that translators who do have access to extensive terminology resources – also proprietary terminology collected from client assignments in specific domains - generally produce a higher standard of work in terms of consistency, style and correct use of terminology. They also make a much better impression on their clients and on new clients!

Terminology work is not just a matter of collecting terms in a database. It entails a lot more than that. Terminology

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must be verified or be collected from reliable sources. Many 'industry terms' will not be found in dictionaries unless those dictionaries are highly specialized and have been compiled in close consultation with those working in the relevant field. Correct terminology needs to be collected from reliable sources, preferably from documentation in the industry itself or from persons working in those industries. This is an ongoing task that doesn't simply end after a translation has been submitted to a client. If that's the view of the translator, then that would be much like selling motor cars without offering customers the option to buy spare parts if something goes terribly wrong.

Also, if terminology work is neglected, translation work can become dull, cumbersome and much more time-consuming, especially when new assignment opportunities arise. We all know how it feels when you know you've translated a similar text in the past but don't have the terminology to use because you've not recorded it or anticipated its use in new assignments. Perhaps even an assignment from the same client just weeks or months later. Of course, you can always revert to previous translations and then look up the terms you need, but that also takes time.

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Time you could have spent collecting and recording terms in a database weeks before. So, in my view, translators should become more involved in terminology work and view it as a crucial part of their job. It can greatly improve the standard of work and, in the long run, increase one's overall output as well as client satisfaction.

In a highly competitive market like translation, client-binding can be very important for your survival as a freelancer, so there is much to be gained from investing more time in regular terminology work. It can mean the difference between securing an assignment or missing out altogether if you're not properly equipped or don't know where to start.

### **Introducing TermX**

In an attempt to make terminology work more attractive and to get more people involved, some months ago I decided to design a new Windows software package that I call TermX. TermX has various built-in features that translators can benefit from. Some of these features are even time-savers.

TermX is built around two widely used software packages that most translators will probably already have if they use MS Office. There was a specific reason for this choice.

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MS Access includes the option of applying SQL (query) commands (e.g. search commands, sorting commands etc.) to manipulate data contained in standard databases and because translators have it in MS Office, from a programming point of view it seemed to be the most obvious choice. The spreadsheet program MS Excel also seemed an obvious choice because Excel can be used as an intermediary between existing term bases in CAT tools and MS Access. This means that terminology data can be edited and manipulated outside of TermX and still be used in TermX in an open, non-proprietary format. Another added advantage is that the practical use of these programs provides the translator with an insight into how this software can be used in other ways to create extensive terminology repositories.

Terminology collected and managed in TermX can be easily exported to various other formats. Underlying database structure The TermX database (an MDB file), comprising 4 different tables, is based upon a very simple data model, so that it can be used quickly and efficiently to produce extendable term bases (e.g. for use in CAT tools) or standalone terminology repositories for translators. Although it is not intended to be a fully-fledged terminology management or lexicographic system for professionals (like Uniterm, Dictionary Workbench,

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Tshwane etc.) it can still be used quite elegantly to produce output files that can be further manipulated for online or hardcopy glossary production, even for databases on ASP (Net) servers. It not only allows for the Exchange of data to and from TermX and MS Office software and formats like RTF and PDF, but can also be used to produce other more complex file formats like SGML, XML, HTML etc. Additionally, any data you collect in TermX can be shared with others on a server (website) that provides for ASP or PHP scripting (based either on an SQL database for PHP or an MS Access database for ASP). ASP is a web application framework developed and marketed by Microsoft to allow programmers to build dynamic web sites, web applications and web services. This means that any terminology collected in TermX can also be used to build both static (PHP/HTML) or dynamic (ASP) glossary websites. This makes TermX a highly versatile terminology tool. TermX is a software package that can be used both by independent translators and translation agencies to build extensive domain-specific terminology repositories.

Each individual entry in TermX can be assigned various types of information, for example: a homonym number for repeated source terms, a specific language attribute (editable in a separate database table), a domain or group of related domains (editable in a separate database

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table), context information (relating to the use of the term in a specific context), source information (how and where the term was collected) and 1-6 translation for each individual source term entry (although 2-3 would normally be more than adequate). If required, the user can also enter additional editor's notes.

The main input screen includes scrollable entries on the left, with a search option and editing section on the right for translations and any other information relating to the source term and translations. Entry fields include: user name, edit date, amend date, source term, language attributes, domains, homonym number, context, source information, editor's notes and an additional checkbox to designate that an entry is verified and complete. Numerous language attributes and domains are already included in the database but the user can edit these entries and add new entries as required. A special characters selector is available from the main menu of TermX.

TermX Pro also comes with an additional utility called the external desktop viewer. This utility can be docked on the program bar and be used in all Windows software and CAT tools to look up terms contained in the TermX terminology Database (see example below). The viewer can be used in conjunction with any CAT tool.

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For ease of use, the software also includes 3 different editing modes: (a) an extensive editing mode (b) a very basic Quick Edit mode (with minimal entry fields) and (c) an extended Quick Edit mode that can also be used separately and as an independent utility from the desktop without the need to start the full version of TermX Pro. All three programs use the same underlying database structure, i.e. they communicate with the same database and database tables.

The very basic Quick Edit mode (see screenshot below) in TermX enables the user to enter only the most essential data (source terms and translations), without the need to add additional information such as language attributes, domains etc. This is particularly handy if you want to collect and record terms very quickly and add more detailed information at a later date, i.e. when you have more time.

Yet another convenient feature of TermX Pro is the ability to use the software to browse various internet (glossary) resources directly from the main menu. This feature is built-in, so users aren't required to start their browser first or to enter the URL of those resources in a separate browser address field. This feature is built around the widely used MS Internet Explorer. Resource links include:

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Google, Google Translate, Wikipedia, Word web, the Oxford Dictionary online, LEO, IATE and various others). These resources can be used for referencing data directly from your desktop as you collect and record new terminology. Terms and translations can also be e-mailed directly from TermX.

TermX also enables other files (bilingual text files, MemoQ 2-column RTF files etc.) to be loaded directly from the user's computer in order to collect terminology from existing documents (in Word, PDF, RTF, Excel etc.) and/or previous translations.

## **TermX Pro in a nutshell**

TermX is compatible with all current Windows versions, including Windows Vista and Windows 7. It can be used as a simple, reliable and affordable terminology management system for collecting general or specific terminology in various user defined domains. The export features included in TermX allow the user to export data to PDF, RTF, XLS and TXT formats in order to manipulate that data using MS Excel and/or MS Access or to convert that data to various other formats like XML, HTML etc. Conversely, existing term bases in CAT tools can be easily imported into TermX through MS Access and/or MS Excel so that TermX can be used as the central terminology



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repository for all of your CAT term bases. This is explained in the extensive help files. TermX also has an attractive interface that is easy to understand and use.

Other versions of TermX include: TBEEdit (a very simple term base editor), TBViewer (standalone term base viewer utility), and TermX Desktop (a simplified version of TermX Pro). Several TC members have beta-tested the software and are already using this new tool to collect and manage their own terminology.

Hopefully, this short article will inspire you as a member of our community to view your work from a different perspective and to acknowledge the need for a more personal involvement in terminology work. It can be a very enjoyable activity and also one which will eventually result in obtaining more translation assignments in your chosen specialization.

## Exercise based on lesson Four

- 1. What do you think the importance of using technology in dealing with terminology?**

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- 2. What are the main tools of technology used in terminology?**

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- 3. Databases are something that is very helpful in the process of translation using terminology ... Discuss ....**

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**Translate this text into Arabic**

**Sustainability in the Electrical and Electronic Sector.**

The purpose of this essay is to explore the importance of sustainability within the sector of Electrical and Electronic Engineering. Before a detailed discussion of the topic can be made, the concept of sustainability must first be defined. Brundtland defined sustainability as: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

This definition, whilst widely used, is somewhat incomplete, since it does not directly address the importance of social, political or environmental factors within sustainable development.

In 1992, The United Nations agreed upon "The Rio Declaration on Environment and Development". This declaration contains twenty-seven key principles, two of which are shown below:

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“Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature”.

“All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world”.

These principles, in conjunction with the Brundtland definition, are summarized by the following statement:

“Sustainable development is a dynamic process, which enables all people to realize their potential and to improve their quality of life in ways which simultaneously protect and enhance the Earth’s life support systems”.

The meaning of sustainable development as it pertains to the sector will be considered to be development which meets the criteria of the above definitions.

Electronics production is the fastest growing manufacturing industry worldwide, and unfortunately is also one of the most environmentally polluting. Approximately 70% of heavy metals found in landfill sites are a result of electronic waste, and an estimated 40% of

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the lead found in landfill sites is a result of discarded consumer electronics, or “e-waste”.

In the past, many companies have been slow to develop more environmentally friendly products due to the extra expense incurred, but increasing environmental awareness is starting to change the situation.

For example, the European Union’s “WEEE Directive” includes a ban on lead-bearing solders that will come into effect in January 2008, and also requires manufacturers to recycle their products. Thus designing environmentally friendly products is slowly becoming a necessity, at least for the European and Japanese markets (similar legislation exists in Japan to remove lead from consumer electronics).

In order to remain competitive, the sector must embrace these stricter environmental constraints, and successfully modernise the design process accordingly. This is already happening, most notably in Japan with companies such as NEC already producing lead free motherboards for laptop computers, and other big names such as Sony, Toshiba, and Fujitsu committing to removing lead from their soldering processes.

Another area where sustainability has impacted engineering design is the automotive industry. Increasing worries about the growing levels of carbon dioxide in the

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atmosphere has led to collaboration between engineers specialising in electrical, electronic and mechanical disciplines to produce hybrid electric vehicles (HEVs). Such vehicles combine standard internal combustion engines with electrical motors and batteries.

Techniques such as regenerative braking allow HEVs to recapture energy that would otherwise be lost in slowing the vehicle, and HEVs provide better fuel economy and emit less environmentally unfriendly gases than vehicles powered by internal combustion alone.

This highlights another important effect of the need for sustainable development in the sector; effective collaboration between those with different areas of expertise is essential to achieve sustainability.

Recall that in 1992 the United Nations agreed that sustainable development must “decrease the disparities in standards of living”. This means it must be ensured that the entire product cycle allows all people involved “a healthy and productive life” as stated by the United Nations.

Sadly, although many electrical and electronics companies are striving to improve the sustainability of their products by making them more ecologically sound, the concept of sustainable development for their employees sometimes seems less of a concern.













# Lesson Five

## Glossary of terms

In this section we will have some of the terms used in many fields of politics, medicine, engineering and a lot of many other fields.

overcome	يتغلب على	obstacle	حائل / عائق / عقبة
affect	يؤثر	<b>good citizens</b>	مواطن صالح
have / has a bad effect on	له تأثير سيئ على	<b>everlasting peace</b>	السلام الدائم
export	يصدر	<b>peaceful co-existence</b>	التعايش السلمي
exports	صادرات	<b>citizenship</b>	المواطنة
exporter	مصدر	<b>friendship</b>	الصداقة
facilities	تسهيلات	<b>eliminate / stamp out</b>	يزيل / يتخلص من
nuclear bomb	قنبلة نووية	<b>make great progress</b>	يتقدم تقدما عظيما
on a wide scale	على نطاق واسع	<b>make use of / benefit from</b>	يستفيد من
in return for	في مقابل	<b>make the best use of</b>	الاستفادة القصوى
human wrights	حقوق الإنسان	<b>make good use of</b>	يستغل جيدا
economic	اقتصادي	<b>in vain</b>	بلا جدوى
economy	الاقتصاد	<b>resources</b>	موارد
struggle	يكافح يناضل	<b>cooperate</b>	يتعاون
privatization	الخصخصة	<b>cooperation</b>	التعاون
ignorance	الجهل	<b>virtues</b>	فضيلة
illiteracy	الأمية	<b>vices</b>	رذيلة
reclamation	إصلاح	<b>sins</b>	ذنب / خطيئة
crisis	أزمة	<b>do without/ go without</b>	لا يساير
means	وسائل	<b>in bad need of</b>	في اشد الحاجة لـ
achieve	ينجز	<b>peace-loving nations</b>	الدول المحبة للسلام
achievement	انجاز	<b>the artery of life</b>	شريان الحياة
attractive	يجذب	<b>the United Nations</b>	الامم المتحدة

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policy	السياسة	the only way to	الطريق الوحيد لـ
politics	سياسى	apart from	بمضى عن
vast areas	مناطق شاسعة	It is no use	
conference	مؤتمر	stand against	يقف ضد
get rid of	يتخلص من	constrictive criticism	النقد اللاذع
developing countries	دول نامية	selfishness	الانانية
practice / practising	تدريب	unselfishness	الايثار
		require	يطلب
The Cairo book fair	معرض القاهرة لكتاب	requirements	مطالب
obstacles	عائق	motivate	يحفز
hindrance	عرقلة	motivation	دافع / حافز
revolution	ثورة	values	قدر
breakthrough	تقدم مفاجئ فى التقنية	valuable	قيم
family planning	تنظيم الاسرة	good value for money	القيمة الجيدة للمال
birth control	تحديد النسل	part and parcel of	
investment	الاستثمار	set ..... free	يطلق صراح
investor	مستثمر	liberate / free	حر
the standard of living	مستوى المعيشة	victory	النصر
merits / advantages	مميزات	defeat	يخبط / يهزم
demerits / disadvantages	عيوب	set up / establish / erect	يقيم / يؤسس
safety	الامان	except	ماعدا
security	الامن	civil war	حرب اهلية
national income	الدخل القومى	national identity	الهوية القومية
monuments	الاثار	rush hours	ساعة الذروة
the cost of living	تكلفة المعيشة	distribute	يفرق / يوزع
traditions	تقاليد	distribution	التفريق
customs	عادات	efficient	كفاء
the Ministry of Tourism	وزارة السياحة	efficiency	الكفاءة
contain	يحتوى على	renaissance	النهضة
capital	رأس المال	role-model	مثل اعلى
school activities	نشاطات مدرسية	ideal	نموذجى
pollution	التلوث	constitution	دستور
destroy	يدمر / يحطم	keep up with	يساير
destructive /	مدمر / مهلك /	immigration	الهجرة

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destruction	غير بناء		
self-confidence	الثقة بالنفس	illegal	غير شرعى / قانونى
self-confident	واثق من نفسه / جرى	make up for	يعوض بـ ..... عن
independence	الاستقلال	percentage	النسبة %
self-independence	الاعتماد على النفس	rate	معدل
independent	مستقل	rational	معقول / منطقى
the Western Culture	الثقافة الغربية	rationalizing consumption	ترشيد الاستهلاك
characteristics	خصائص	optimistic	متفائل
unity	الوحدة	pessimistic	متشائم
disunited	مفكك	prosperity	الازدهار
united	متحد	welfare	الرفاهية
symbol	شعار رمز	creative	مبدع
mental	عقلى	creativity / innovation	الابداع
physical	بدني	means of transport	وسائل المواصلات
benefits	فائدة	shyness	خجول
tolerant	متسامح	shy	الخجل
tolerance	التسامح	medical care	الرعاية الطبية
rejecting violence	نبذ العنف	curative tourism	السياحة العلاجية
public libraries	المكتبات العامة	thinkers	المفكرين
outnumber	يفوقه عددا	literature	الأدب
starvation / famine	مجاعة	men of literature	رجال الأدب ( الأدباء)
ungrateful	عقوق / غير معترف بالجميل	scientific	علمي
grateful	معترف بالجميل	survive	ينجو
ingratitude	الكفران	survivors	الناجون
gratitude	العرفان الجميل	provide ..... with	يمد بـ
focus on	يركز على	provide ..... for	يوفر لـ
concentrate	يركز	natural disasters	كوارث طبيعية
concentration	التركيز	earthquake	زلزال
reclaim	يستصلح	torrents	سيل
reclamation	الاستصلاح	flood	فيضان
spinning and weaving	الغزل و النسيج	hurricane	اعتصار
precautions	تدابير وقائية	fog	ضباب
cautions	تحذيرات	mist	رطوبة / ضباب
houses of worship	دور العبادة	the environmental pollution	التلوث البيئي
worship	يعبد	die out / extinct	ينقرض

## Alfa for Translation & publishing

exploit	يستغل / عمل بطولي	wealth	ثروة
exploitation	استغلال	wealthy	ثرى
available	في المتناول	invade	يغزو
the armed forces	القوات المسلحة	invasion / conquest	الغزو
the Arabian Nation	الامة العربية	conquer	فتح / استولى
martyrs	شهيد	occupy	يحتل
refugees	اللاجئين / اللاجيء	occupation	الاحتلال
initiative	مبادرة	equipment / sets	معدات
elect	ينتخب	electric appliances	ادوات كهربائية
election	الانتخاب	legend / myth	اسطورة
tank	دبابة	peace treaty	معاهدة السلام
weapons	اسلحة	seek to the peace	ينشد السلام
conflict	صراع / تضارب / تعارض	flourish	يزدهر
stability	استقرار	rural	ريفى
childhood	الطفولة	urban	حضرى / مدنى
		fly-over bridges	الكبارى العلوية
medical check-ups	فحوصات طبية	a strong will	ارادة قوية
neglect	يهمل	play an important role in	يلعب دورا هاما فى
negligence	الاهمال	stand on equal footing with	يقف على قدم المساواة
fate / destiny	قدر	celebrate	يحتفل
racial discrimination	تمييز عنصري	sacrifice	يضحى
hospitality	حسن الضيافة	enjoy	يستمتع بـ
hospitable	حسن الاستقبال	subsidy	اعانة مالية
scholarship	منحة دراسية	we must do our best to	يجب ان نبذل قصارى جهدنا
bright future	المستقبل المشرق	monopoly	احتكار
be proud of	فخور بـ	monopolize	يحتكر
principles	مبادئ	slogan / motto	شعار
freedom / liberty	الحرية	shelter	يستظل / يلجأ إلى
increase the production	زيادة الإنتاج	culture	ثقافة
a productive society	مجتمع منتج	cultured	متقف
deterioration	تدهور	agriculture	الزراعة
deteriorate	يتلف	agricultural	زراعى
the economic crisis	أزمة اقتصادية	industry	الصناعة
heavenly religions	الاديان السماوية	industrial	صناعى
call	نداء / دعوة	a chief source of	مصدر رئيسى لـ
call upon	يطلب من	reconstruction	اعادة البناء

## Alfa for Translation & publishing

call for	يطلب	double efforts	مجهود مضاعف
civilization	الحضارة	double production	مضاعفة الانتاج
for the good of	لصالح	pave the way	يمهد الطريق
the working woman	المرأة العاملة		

And these are some expansions

We should work hard	يجب أن نعمل
.....	بجد
to double production	نضاعف
.....	الإنتاج
to improve our standard of living	لرفع ، تحسين ( مستوى
.....	معيشتنا
national income	الدخل القومي
.....	
to lead a happy life	لنحيا حياة
.....	سعيدة
to achieve prosperity and welfare	لنحقق الرخاء
.....	والرفاهية
to overcome (solve) our problems	لنتغلب على
.....	مشكلاتنا
to lead a peaceful quiet life	نحيا حياة مسالمة
.....	هادئة
social problem	مشكلة
.....	اجتماعية
to develop the individual awareness	لتنمية الوعي
.....	الفردى
to take part in	لنشارك في
.....	
social development	التنمية الاجتماعية
.....	
to work for peace	نعمل من أجل
.....	السلام
to stand against war and terrorism	نقف ضد الحرب و
.....	الإرهاب
all over the world	في كل أنحاء
.....	العالم
play an important part in	يلعب دورا هاما
.....	في
to devote (himself) to	يكرس حياته لـ
.....	



to work seriously and sincerely .....	يعمل بجد و إخلاص
to spare no effort .....	لا يدخر وسعا
to do (his) best = utmost.....	يبذل قصارى جهده
to increase our exports .....	نزيد صادراتنا
local production .....	الإنتاج المحلي
for the sake of our country .....	لصالح بلدنا
to co-operate together .....	لنتعاون معا
for the benefit of .....	لصالح
for the good of .....	لصالح
to put an end to = root out .....	نضع نهاية (حد) لـ
a peace maker = man of peace .....	رجل ( صانع ) سلام
thinkers, scientists and men of letters .....	المفكرون والعلماء و الأدباء
will be indebted to him for his discoveries .....	مدينون له لاكتشافاته
great achievements .....	إنجازات عظيمة
aim at .....	يهدف إلى
in the field of economy .....	في المجال الاقتصادي
to strengthen our ties with other countries .....	يقوى علاقتنا مع الأقطار الأخرى
up – to – date = state of the art .....	حديث ( على الموضة )
out – of – date = old fashioned .....	قديم ( ليس على الموضة )
one of the greatest civilizations in the history of the world .....	
.....	إحدى أعظم الحضارات في تاريخ العالم
beautiful weather .....	الجو جميل

ancient monuments	الأثار القديمة
.....	
to go sightseeing	يزور أماكن الجذب السياحي
.....	
the tombs and temples of the pharaohs	مقابر ومعابد الفراعنة
.....	
glorious past	الماضي المجيد
.....	
oriental touch	لمسه من لمسات الشرق
.....	
constructing fly-overs and tunnels	تشيد الكباري والأنفاق
.....	
establishing child libraries	إنشاء مكتبات الأطفال
.....	
everywhere all over the country	في كل مكان في أنحاء القطر
.....	
general knowledge	المعرفة العامة
.....	
to supply with = to provide with	يزود بـ
.....	
to enrich their knowledge	لاثراء معرفتهم
.....	
to create the good citizen	لخلق المواطن الصالح
.....	
sense of belonging	الشعور بالانتماء
.....	
sense of responsibility	الشعور بالمسئولية
.....	
sense of loyalty	الشعور بالولاء
.....	
sense of duty	الشعور بالواجب
.....	
take a Nile cruise	يقوم برحلة نييلية
.....	
buy souvenirs	يشترى الهدايا التذكارية
.....	
travelling abroad	السفر للخارج
.....	
summer camps	المعسكرات الصيفية
.....	
to have great effect upon	لها أثر كبير على
.....	

The problem of food shortage .....	مشكلة نقص الطعام
The problem of public health .....	مشكلة الصحة العامة
The problem of over- population .....	مشكلة تزايد السكان
The problem of pollution .....	مشكلة التلوث
The problem of energy .....	مشكلة الطاقة
The problem of unemployment .....	مشكلة البطالة
The problem of over – crowdedness .....	مشكلة شدة الازدحام
The traffic jams .....	أزمة المرور / زحمة المرور
rush hours .....	ساعات الذروة
this problem leads to many other problems .....	هذه المشكلات تؤدي إلى مشكلات أخرى كثيرة
to find alternative sources of energy .....	إيجاد مصادر بديلة للطاقة
instead of oil .....	بدلاً من البتروئ
solar power .....	الطاقة الشمسية
water power .....	الطاقة المائية
will soon run = be exhausted .....	سريعاً سينفذ
terrorism and violence .....	الإرهاب و العنف
a destructive stroke .....	ضربة مدمرة
humanity and civilization .....	الإنسانية و الحضارة
everywhere and in all ages .....	في كل مكان وكل العصور
we have to stand firmly against .....	علينا أن نقف بثبات ضد
as one man	كرجل واحد

..... the most powerful computer in the world .....	أقوى كمبيوتر في العالم
The twenty – first century .....	القرن الحادي والعشرين
satellite networks .....	شبكات الأقمار الصناعية
a revolution of information resources .....	ثورة في مصادر المعرفة
scientific thinking .....	التفكير العلمي
the application of scientific theories .....	تطبيق النظريات العلمية
in practical fields .....	في المجالات العملية
science clubs .....	نوادي العلوم
modern technology .....	التكنولوجيا
a good social position .....	مكانة اجتماعية مرموقة
great projects .....	مشروعات ضخمة ) عظيمة (

## Exercise based on lesson Five

1. Why do you think we should be very accurate in dealing with terms within translation?

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2. Culture differs from a nation to another how can terminology solve this problem?

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Translate this text into English

### تيار الجهد العالي المتردد

الجهد الكهربائي يعرف على انه فرق في القوة الكهربائية (الناجمة عن حركة الالكترونات) بين نقطتين في دائرة كهربائية. و وحدة قياس الفرق في الجهد هي الفولت ، و يعرف الجهد العالي على انه كل جهد قيمته تتعدى ١٠٠٠ فولت حسب اللجنة الكهروتقنية الدولية .

و التعريف الرقمي للجهد العالي يعتمد على سياق النقاش. حيث ان هناك عاملين رئيسيين في تصنيف الجهد العالي وهما إمكانية احداث شرارة في الهواء، ومخاطر الصدمة الكهربائية الناجمة من الملامسة أو الاقتراب. على هذين الأساسين يخضع جميع العاملون في مجال الكهرباء بشكل خاص والفنيون في المجالات الأخرى في الشركات الصناعية بشكل عام إلى تدريبات وامتحانات سنوية مقسمة إلى ثلاث مراتب بحسب الأولوية.

تم تقييم الجهود فوق ٥٠ فولت بأنها جهود خطيرة على جسم الإنسان عند ملامستها للجلد وهي كافية لتمير تيار صغير يتسبب في تحلل الدم وقتل الأنسجة وربما الموت. لهذا السبب توضع دائما إشارات تحذيرية خاصة في كل مكان به جهود تبدأ من هذه القيم فما فوق. هناك حالات تستدعي هذه الإشارات حتى عند ١ فولت تقريبا وهي الحالات التي يكون فيها مخزون طاقة عالي مثل البطاريات الصناعية والتي يمكن أن تعطي تيارا عند قصر الدائرة قد يصل إلى ٥٠٠ أمبير وبالتالي يكمن الخطر غير المباشر في حدوث احتراق في المكان المحيط.

تشمل تطبيقات الجهد العالي انابيب التفريغ، شبكات النقل الكهربائية، شبكات التوزيع الرئيسية، الأشعة السينية، الأقواس الكهربائية في توليد الشرارة لمحركات الاحتراق، مكبرات القدرة، وفي التطبيقات الصناعية مثل المحركات الكهربائية الضخمة وكذلك في أغراض علمية أخرى

يمكن للجهد العالي أن يكون سببا في إطلاق طاقة كافية لاشعال الجو المحاط بمواد مشتعلة وقد تكون النتائج مأساوية كالانفجارات. لهذا السبب نجد في المنشآت الصناعية التشديد على:

- السلامة الجوهرية باستعمال أجهزة خاصة في المنشآت المحتملة المخاطر تم فحصها وخضعت لاختبارات طاقة اللإشعال (طاقة غير كافية للتسبب في الاشتعال حتى عند انطلاق شرارة منها).
- وافي الانفجار، وهو أيضا أحد الشروط اللازمة في الأجهزة المستعملة في المنشآت الصناعية ويعني أن يضمن في حالة حدوث شرر أو انفجار داخل الجهاز بالألا يسمح للحريق بالانتشار خارجه.

يعتبر البرق أكبر مصدر للشرارات الفائقة، ويمكن لشرارة برق واحدة أثناء التفريغ ٣٠ إلى ٥٠ كيلو امبير، وبطاقة كافية لانارة مصباح منزلي لأكثر من شهر. كما أن العواصف الرعدية لها جهد خيالي يصل لمليار فولت وتيار قد يصل لنصف مليون أمبير (طاقة كافية لانارة مصباح

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بقدره ١٠٠ وات لمائة عام) على الرغم من اللحظات الزمنية التي تتم بلمح البصر. تكمن مخاطر البرق في قدرته التدميرية للمرتفعات ولتجنبها توضع مانعات صواعق فوق المرتفعات المسكونة مثل المباني، المنشآت الصناعية، بحيث تكون جيدة التوصيل للكهرباء وقادرة على امتصاص أكبر قدر من الشحنة وتميرها إلى الأرض. عندما يتم تفريغ جهد عالي إلى الأرض كما في حالة البرق لاتستطيع الأرض امتصاص الشحنة ومعادلتها انيا وانما تستغرق بعض الوقت مما ينتج عنه خطر اخر وهو جهد الخطوة وهو جهد عالي موزع على الأرض لكل مترا طوليا في جميع الاتجاهات بسبب بقاء الأرضية المصابة بالبرق أو المفرغ فيها شحنة البرق مشحونة لفترة من الزمن. لهذا السبب يجب عدم ترك القدمين منفرجتين أثناء الصواعق بل يجب ضمهما قدر الإمكان لتجنب حدوث فرق جهد الخطوة الذي قد يمرر تيارا يمكن ان يمر عبر القدمين إلى القلب ليقتل في لحظات

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**Alfa for Translation & publishing**

Dotted lines for writing.



## **Index**

- **EAFT - European Association for Terminology**  
<http://www.unilat.org/dtil/aet/en/1aetce.htm>
  
- **INFOTERM International Information Centre for Terminology**  
<http://www.infoterm.org/>
  
- **Realiter: Pan-Latin Information Technology Terminology Dictionary. A wide terminology base of cross linked terms in English, Catalan, Spanish, French, Italian, Portuguese, and Romanian. Pages in French.**  
[http://www.realiter.net/microinf/\\_BDT0.HTM](http://www.realiter.net/microinf/_BDT0.HTM)
  
- **European Language Resources Association**  
<http://www.icp.inpg.fr/ELRA/home.html>
  
- **Unión Latina: Terminology. Online magazine about Industrial and Scientific Terminology in French, Spanish and Portuguese**  
[http://www.unilat.org/dtil/terminometro/boletin\\_index.asp](http://www.unilat.org/dtil/terminometro/boletin_index.asp)