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Introductory Pages

Handbook of terminology

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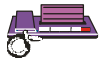
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HANDBOOK OF TERMINOLOGY

Silvia Pavel and Diane Nolet

Adapted into English by Christine Leonhardt

TERMINOLOGY AND STANDARDIZATION
TRANSLATION BUREAU

Catalogue No. S53-28/2001
ISBN 0-660-61616-5

National Library of Canada cataloguing in publication data

Pavel, Silvia

Handbook of terminology

Text in English and French on inverted pages.
Title on added t.p.: Précis de terminologie.
Includes a bibliography, an index and a glossary.

ISBN 0-660-61616-5
Cat. No. S53-28/2001

1. Terms and phrases – Methodology – Handbooks, manuals, etc.
2. Terms and phrases – Information sources – Handbooks, manuals, etc.
3. English language – Terms and phrases – Handbooks, manuals, etc.
4. French language – Terms and phrases – Handbooks, manuals, etc.

I. Nolet, Diane.
II. Leonhardt, Christine.
III. Canada. Translation Bureau. Terminology and Standardization Directorate.
IV. Title: Précis de terminologie.

P305.P38 2001 401'.4
C2001-980114-9F

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FOREWORD

Over the past thirty years, the Terminology and Standardization Directorate has developed work methods that have become a benchmark in the world of terminology. The Directorate is proud of its accomplishments and is pleased to share its acquired knowledge with other organizations, including private companies and the Translation Bureau's various collaborators, interested in adopting a more structured approach to their terminology work. This condensed publication, the Directorate's *Handbook of Terminology*, is intended to simplify this undertaking for them.

We hope that the *Handbook* will prove to be a useful tool that will greatly facilitate and sustain inter-organizational collaboration and contribute to the achievement of excellence in the harmonized management of complementary terminology collections.

Louis Claude Tremblay
Terminology and Standardization
Translation Bureau—Canada

PREFACE

This document provides new terminologists 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.

The authors of this handbook carefully selected the material to be included and presented it concisely and simply. Thanks to their many years of experience in managing the terminological contents of *TERMIUM*® and in teaching terminology both in the workplace and in university classes, they were able to clearly identify problems commonly encountered in the practice of the profession, and to suggest solutions with the support of many examples.

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.

Reader feedback on the content or presentation of this document would be greatly appreciated and can be sent to the following address:

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ACKNOWLEDGMENTS

The authors wish to thank those who participated in the production of this *Handbook*. Special thanks are extended to the following people for their valuable suggestions and comments:

- Christine Leonhardt, Claude Lainé, Helen Hutcheson, Charles Skeete and Christine Hug, Terminology and Standardization Directorate, Translation Bureau
- Linda Guay, Natural Resources Canada
- Jean Delisle, School of Translation and Interpretation, University of Ottawa.

The authors also wish to thank their colleagues, Diane Lafrance and François Mouzard, for their assistance in preparing the appendixes, and Louise Roy, Maurice Leblanc, and Mark Bélanger for the proofreading and page layout of the manuscript.

EDITOR'S NOTE

Terms appearing in coloured, bold, italic print designate the basic concepts of terminology work and are defined in the **Glossary** section of the *Handbook* (see page 103). The **Index** gives access to useful definitions of more specific concepts located in the body of the *Handbook*.

Examples in the text and in the **Glossary** appear in coloured italic print, while trademarks appear in black italic print. All trademarks are the property of their respective owners.

Figures illustrate the points made in the paragraph that precedes them.

INTRODUCTION

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 – A Means of Communication in Specialized Languages

Terminology is part of ***applied linguistics***, a science that includes work in specialized lexicography, specialized translation, technical writing, and language teaching. In 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 focusses on their acquisition by the student; and the institutional practice of ***comparative terminology*** and of its phraseological 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.

Principal Terminological Activities

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
- 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 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 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***.

Principal Tools for Terminology Work

Any terminological activity, from ***term identification*** through product delivery, can be performed manually. However, computerization allows unprecedented improvements in productivity, quality and accessibility. This is particularly true for terminologists working in a company, a government organization or a translation service where they must create, update and make good use of large computerized terminology files designed for numerous users to meet clearly defined communication needs.

The main ***work tools*** for terminologists are the following:

- printed or digitized documentation—CD-ROMs, the Internet, or any other ***information medium*** suitable for the task of term identification
- scanners (optical character recognition)
- ***software*** for ***term extraction***, ***data recording*** and management of large sets of ***terminological data***
- ***concordancers***
- ***text-alignment tools***
- desktop-publishing and ***electronic-publishing*** applications.

Ideally, all of the terminological tools are integrated into a single platform allowing the overall computerization of the work flow and of product delivery. This integration is the goal of the Translation Bureau's Terminology and Standardization Directorate.

Chapter I. PRINCIPLES OF TERMINOLOGY RESEARCH

Subject-Field Classification

The fundamental principle of terminology is that terms belong to spheres of activity structured into ***classification systems*** for specialized knowledge. Each area of specialization has such a system, which must be reflected in every coherent terminology collection.

Documentary classification systems, encyclopedias, manuals, and databases intended for knowledge transfer can all provide the beginning terminologist with the framework required to establish or adopt a subject-field classification system for the subject area in which s/he is called upon to perform ***terminology research***.

Subject-field classification systems may include a single level or multiple levels. In some cases, a single level may be defined for subject fields of less interest to the organization, while several hierarchical levels may be available for the classification of concepts in important spheres of activity.

One example of a subject-field classification system can be found in *TERMIUM*®, in which sets of terminology are organized into 24 broad subject fields. On average, each broad subject field, or class, is divided into 10 to 12 subject fields (divisions), each of which is, in turn, divided into subfields. This gives a total of about 1,600 classification nodes. For data-entry purposes, the subject fields are coded; for consultation purposes, the codes are automatically expanded into full descriptors. This system continues to be adopted and adapted by ***language professionals*** responsible for establishing terminology databases.

CLASSE		CLASS
K. Électronique et informatique	**DIVISIONS**	K. Electronics and Informatics
Systèmes cybernétiques	KA	Cybernetic Systems
Informatique	KB	Informatics
Ensembles électroniques	KC	Electronic Systems
Matériel informatique	KD	Computer Hardware
Logiciels	KE	Software
Automatique	KF	Automatic Control Engineering
Électronique	KG	Electronics
Provisoire	K-	Provisional Classification

Fig. 1a *TERMIUM® Subject-Field Classification Guide, broad K class (Electronics and Informatics) and its divisions*

KA Systèmes cybernétiques	SECTIONS	KA Cybernetics Systems
Systèmes cybernétiques de réaction	KAA	Response Systems
Systèmes cybernétiques de contrôle et de commande	KAB	Control Systems
Systèmes cybernétiques de régulation	KAC	Regulatory Systems
Intelligence artificielle	KAD	Artificial Intelligence
Simulation	KAE	Simulation
Généralités	KAF	General
Termes inclassables	KAZ	Non-classifiable Terms
Provisoire	KA-	Provisional Classification

Fig. 1b *TERMIUM® Subject-Field Classification Guide, KA division (Cybernetics Systems) and its sections*

Related disciplines and convergent technologies may share some concepts and the terms that designate them. Sometimes, the same concept may have different ***designations*** depending on the subject field of use, or the same term may designate different concepts in different areas of specialization. Indication of the subject field removes any ambiguity.

SUBJECT FIELDS
VGI Road Networks
VGK Signalling (Road Transport)
VGO Road Traffic

EN smartway*c*CORRECT
intelligent highway*g*CORRECT
smart highway*h*CORRECT
electronic highway*a*SEE RECORD
automated highway*d,i*CORRECT
automatic motorway*f*CORRECT

DEF* An electronically equipped highway for monitoring traffic flow and user security.*a
OBS* electronic highway: Not to be confused with the “information highway.”*a

KEY TERMS
AHS
Automated Highway System
self-steering car
intelligent motorway

FR autoroute automatique*b,d*FEM
autoroute électronique*a*PROPOSAL,FEM
autoroute intelligente*e*FEM

CONT* Certains futuristes envisagent des trains de voitures sur des autoroutes automatiques. En attendant, on peaufine un système anticollision qui détecte les obstacles, régule vitesse et distance minimale. Et un système d’alerte qui réveille le conducteur assoupi et redresse la trajectoire du véhicule en cas de problème.*b
OBS* Promoteur de ce projet PATH (Partners for Advanced Transit and Highways) [...] a placé dans le béton, au centre de la voie, 92778 aimants. Les véhicules sont équipés d’un senseur magnétique, baptisé magnétomètre, situé sous le parechocs avant, qui « lit » les aimants grâce à un système de codage numérique. Les aimants contrôlent les déplacements latéraux du véhicule et les corrigent.*e

CODED SOURCES
a*3XEA*1994; b*EXPRE*1997**2374*53;
c*TIME*1996*148*21*46; d*POINT*1997**1282*38;
e*SCIVI*1997**953*160; g*TIME*1996*148*21*47;
h*EMIST*1999*352*8129*75; i*BARDI*1998*10*2*93

NON-CODED SOURCES
f*Internet. [http://www.sprog.auc.dk/edb/i/2help/exchange/uk/1997-1/ukopgare.htm]. (20000217)

Fig. 2 *Several subject fields per record. The term “electronic highway” has a different meaning in the field of telecommunications. A different record must be created for the concept in that subject field.*

Classification systems evolve to reflect progress within a sphere of activity. This progress might entail the appearance of new disciplines, the migration of concepts between disciplines, or the disappearance, merging, or splitting of certain concepts or designations. Such changes lead to the indication of more than one subject field on the support on which data related to a single concept are recorded.

The distinction between primary subject field and field of application is another important principle with regard to subject-field classification. The concepts in one area of specialization may be applicable to several disciplines; nevertheless, they belong inherently to one subject field, which is always indicated first on the record.

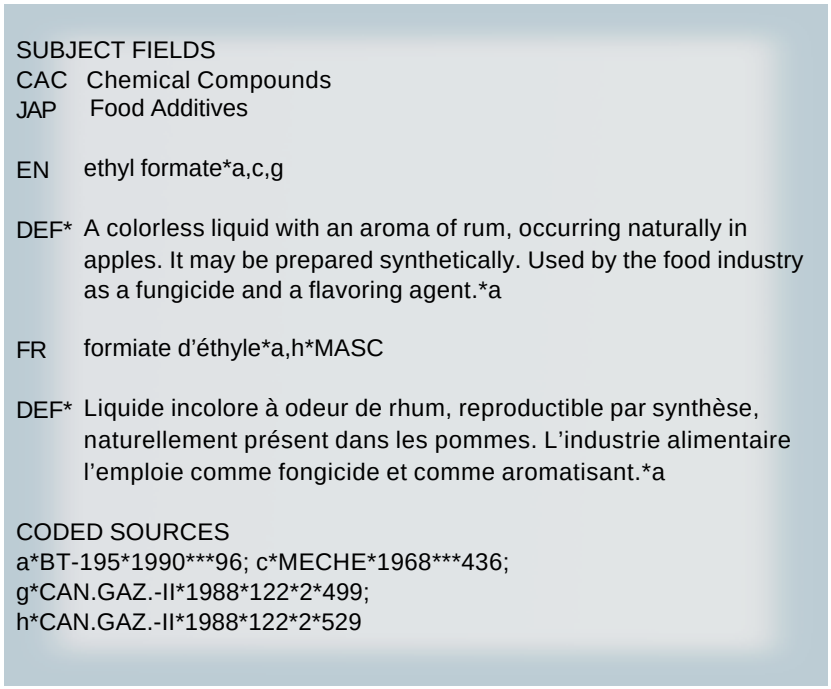


Fig. 3 *Primary subject field (Chemical Compounds) and field of application (Food Additives)*

Knowledge of the State of the Art in the Subject Field Under Study

In order to conduct any ***terminology research*** purported to reflect the current state of the art, the terminologist must keep track of knowledge in a given sphere of activity and stay abreast of new developments and their impact on communication.

Beginning terminologists can acquire this knowledge by carefully reading specialized documentation, building a network of specialized consultants, and keeping informed of relevant topics discussed at symposia, conferences and exhibits.

This knowledge will help the terminologist identify basic terminology and recognize the most recent terminology. In the latter case, concepts may be less clearly understood, ***neologisms*** may frequently occur, and ***usage*** may sometimes be contradictory, which hampers understanding.

```
SUBJECT FIELDS
KBJ     Telematics
UCD     Telecommunications
UDJ     Data Transmission

EN      electronic mail*a,d,e,h,i*STANDARDIZED
        email*c*
        E-mail*a,d,e,i*STANDARDIZED
        Email*a,e,i*STANDARDIZED
        strudel-post*c*JARGON

DEF*    Correspondence in the form of messages transmitted
        between user terminals over a computer network.*a
CONT*   Nerd speak. Strudel-post: electronic mail. (Strudel refers
        to the sign “at” in E-mail addresses).*c
OBS*    electronic mail; E-mail; Email: terms standardized by ISO
        and CSA.*b
```

Fig. 4a *Recent terminology, neologisms (continued in Fig. 4b)*

FR courrier électronique*a,d,e,h,i*MASC, STANDARDIZED
CÉ*a,e*MASC,STANDARDIZED
courriel*a,i*SEE RECORD, MASC, STANDARDIZED
C. ÉLEC*b,e*MASC
messagerie électronique*b*SEE RECORD
Mél*b,i*SEE RECORD
mel*g*MASC
imelle*f*SEE RECORD, MASC
adresse électronique*b*SEE RECORD
C. élec*i*CORRECT, MASC

DEF* Correspondance sous forme de messages, transmise entre terminaux d'utilisateur sur un réseau d'ordinateurs.*a

CONT* Le HP320LX est la future star du marché des assistants personnels, ces petits ordinateurs qui se glissent dans la poche intérieure d'une veste. Il a reçu Microsoft Explorer et permet donc de surfer et d'échanger des «mel» (la nouvelle orthographe officielle pour « e-mail »).*g

EX* Un imelle sur le oueb, c'est banal aujourd'hui.*f

OBS* courrier électronique; courriel; CÉ : termes normalisés par l'ISO et la CSA; courriel : terme proposé par l'Office de la langue française (Québec).*b

OBS* messagerie électronique; Mél : terme et abréviation proposés par la Commission générale de terminologie et de néologie (France), approuvés par l'Académie française, et qui seront publiés prochainement au Journal Officiel de la République française (Arrêtés de terminologie). L'abréviation mél (ou mel) a été rejetée par l'AFNOR et l'ISO.*b

CODED SOURCES
a*ISO-CEI-CD-2382-32*1995***---; b*3XEA*1999;
c*GAZET*1996**7-05*b6; d*CSA-Z243.58-92*1992***134;
e*BT-233*1996***; f*EXPRE*1999**2521*86;
g*POINT*1997**1291*119; h*SP-76*1992***508;i*MOING-WWW

Fig. 4b *Recent terminology, neologisms (continued from Fig. 4a)*

Knowledge of Documentation Containing Desired Information

The primary function of ***terminology work*** is the transfer of specialized knowledge and the authentication of related terminological usage. ***Terminology research*** is required in order to identify the ***terms*** that convey specialized knowledge.

In order to ensure that this function is performed successfully, the terminologist must be familiar with the best documents in his or her subject field and evaluate the documents by category:

- encyclopedias
- monographs and technical and academic manuals
- proceedings of congresses and symposia
- specialized and popularized periodicals
- brochures and publicity flyers
- dictionaries, vocabularies, and documentary, terminology, and linguistic databases
- Internet sites of the best content providers in the area of specialization.

To facilitate acquisition of this type of knowledge, the terminologist may consult documentalists and ***subject-field specialists***, and participate in specialized forums and ***discussion groups*** on the Internet.

Some types of documentation are traditionally preferred over others. Original-language documents are preferable to translations, and encyclopedias and other recognized academic documents or works recommended by specialists are preferable to brochures and promotional material.

The usefulness of monographs is evaluated against criteria such as the following:

- the publication date
- the author's credentials
- the structure of the contents

- the presence of an up-to-date bibliography
- the presence of an index of concepts dealt with
- the presence of a glossary that defines the concepts
- the presence of a table of contents.

Trade journals are preferable to popularized periodicals.

Although the Internet provides a wide range of documentary sources, they are transitory in nature and vary greatly in value.

Knowledge of the Rules for Recording Terminological Data

As a content provider in a ***specialized language***, the terminologist responsible for a given ***subject field*** must ensure that the data provided to users of terminology are coherent and up-to-date, and meet quality standards. Whether working alone or under the supervision of a ***reviser***, the terminologist must master the rules concerning the presentation of the ***terminological data*** with a view to distributing and implementing them in his or her department or company.

The main recording form for the data is the ***terminology record***. At a minimum, the data selected and presented must inform the user about the subject fields of the concept, the languages in which the ***concept*** is described, the ***terms*** that designate the concept in each of these languages, the ***definition*** of the concept (or any other type of ***textual support***), and the ***sources*** that document this information.

A record is made up of fields. Each field contains one particular type of data (or data element). A field may contain an entry term, a grammatical parameter, an originator code, etc. In comparative terminology, a record includes at least two language modules, each of which contains the same series of fields corresponding to important data elements.

Element 1: **primary subject field, fields of application**
Element 2: **language identifier**
Element 3: **main entry + sources + usage parameters** (see list below)
The main entry is the preferred term, expression or official title, which is entered first among the entries of the language module.
Element 4: **abbreviation of the main entry + sources + usage parameters**
Element 5: **secondary entry + sources + usage parameters**
Secondary entry terms are terms, expressions or official titles that are different from the main entry but that designate the same concept or entity. There may be differences in usage (frequency, level of language, etc.), which are indicated using parameters (labels). There may also be differences in spelling (including syntactic variants).
Element 6: **abbreviations of secondary entries + sources + parameters**
Element 7: **textual-support identifier + textual support + sources**
The main types of textual support are the definition (identifier DEF), explanatory context (CONT), usage sample (EX), supplementary terminological, administrative or technical information (OBS), and phraseologism (PHR).
Element 8: **sources**
Element 9: **originator**
Element 10: **record-creation date**
Element 11: **reviser**

Fig. 5a *Essential data elements of a record (description)*

1

RBN Lexicology, Lexicography and Terminology

2 and 3

EN terminology record*a*OFFICIALLY APPROVED

7

DEF* A medium for recording terminological data.*a

2 and 3

FR fiche de terminologie*b*FEM, OFFICIALLY APPROVED

4

fiche terminologique*c*FEM

7

DEF* Support sur lequel sont consignées selon un protocole établi les données terminologiques relatives à une notion.*b

8

a*CBT-78*1983***62
b*CBT-78*1983***11
c*ROBER-CD*1994

9

3XXX

10

20001212

11

3XTZ

Fig. 5b *Essential data elements of a record (illustration)*

Temporal Labels

ANOM	Former Name

Acceptability Rating

AE	Avoid
COR	Correct

Origin

CLAW	Common Law
DRCIV	Civil Law
LA	Latin
MC	Trademark
PR	Proposal

Linguistic Category

ANG	Anglicism
BARB	Barbarism
CQL	Calque
FAUX	Deceptive Cognate
PLEO	Pleonasm

Reference

VF	See Record

Parts of Speech

ADJ	Adjective
ADV	Adverb
ELP	Prefixal-Combining Form
ELS	Suffixal-Combining Form
LADJ	Adj. Phrase
LADV	Adv. Phrase
LN	Noun Phrase
LV	Verb Phrase
N	Noun
V	Verb

Gender

EPI	Masc/Fem
F	Fem
GC	Common Gender
M	Masc
NEUT	Neuter

Number

INVAR	Invar
PL	Plur

Geographic Labels

AB	Alberta
AFR	Africa
AMC	Central America
AML	Latin America
AMN	N. America
AMS	S. America
ANTA	Antarctica
ANTI	Caribbean
ARG	Argentina
ASIE	Asia
AUS	Australia
AUT	Austria
BEL	Belgium
BLZ	Belize
BOL	Bolivia
BRA	Brazil
CAN	Canada
CB	Br. Columbia
CHE	Switzerland
CHL	Chile
COL	Colombia
CRI	Costa Rica
CUB	Cuba
DDR	Germany (E)
DEU	Germany (W)
DEUT	Germany
DOM	Dominican Republic
ECU	Ecuador
ESP	Spain
EUR	Europe
FR	France
GB	Great Britain
GTM	Guatemala
HND	Honduras
IG	Intergov
IN	Internat
IPE	P.E.I.
IRL	Ireland
JAM	Jamaica
MEX	Mexico
MN	Manitoba
NB	New Brunswick
NE	Nova Scotia
NIC	Nicaragua

Fig. 5c *List of TERMIUM® parameters, in order of entry (continued in Fig. 5d)*

NOR	Norway
NT	Nunavut
NZL	New Zealand
ON	Ontario
OTAN	NATO
PAN	Panama
PER	Peru
PHL	Philippines
PRI	Puerto Rico
PRT	Portugal
PRY	Paraguay
QC	Quebec
REG	Regional
ROM	Romania
SK	Saskatchewan
SLV	El Salvador
SWE	Sweden
TN	Newfoundland
TNO	N.W. Territories
URY	Uruguay
USA	USA
VEN	Venezuela
YK	Yukon

Frequency

MF	Less Freq
RA	Rare

Temporal Labels

ARCH	Archaic
VI	Obsolete

Sociolinguistic Labels

FAM	Familiar
J	Jargon

Semantic Labels

GEN	Generic
PEJ	Pejorative
SPEC	Specific

Official Status Labels

NOFF	Unofficial
NORM	Standardized
UNIF	Officially Approved

Fig. 5d *List of TERMIUM®* parameters, in order of entry
(continued from Fig. 5c)

In order to set up a ***terminology file*** or database, a methodology for recording information must first be established and a ***record-completion guide*** (such as the *TERMIUM® Guide*) must be written. Without guidelines for completing records, file management becomes impossible, whether the file is manual or computerized. Since manual terminology files are rapidly being replaced by computerized files, familiarity with word-processing applications (such as *WordPerfect* and *Word*) and with data-recording tools is becoming increasingly important.

Management of the contents of terminology files is an ongoing task. The complexity of the elements on a record and the amount of data recorded depend on the information available and on the evolution of knowledge in the ***subject field*** under study. However, ***content management*** must always be performed as a function of the profile of the targeted users, including their level of knowledge, their ***querying*** requirements (for example, missing information to be provided), and the purpose of the users' queries. In other words, content management must result in the satisfaction of client needs.

Linguistic Knowledge

Terminology work requires an excellent knowledge of the structure and linguistic system of each of the languages under study, and of preferred ***usage*** in a ***specialized language***. Knowledge of the rules for lexical ***term formation***, of grammatical rules and of the stylistic characteristics of different ***levels of language*** helps the terminologist evaluate the linguistic quality of specialized documents and prepare records that respect ***quality-assurance*** criteria.

The contents of a terminology record are evaluated against a number of criteria, including:

- presence of a definition of the concept
- consistent use of the terms that designate the concept
- limited number of stylistic, spelling, and syntactic variants
- reflection of standardized terms in the subject field

- justification of the use or creation of new terms.

The quality of a terminology record is also based on the authenticity and representativity of the usage recorded by the terminologist. Among the various usages documented, the record originator must recognize and identify those that subject-field specialists prefer or avoid, recommend or caution against.

Structuring Knowledge, from the Concept to the Term

The knowledge structure of a ***subject field*** results from ***terminological analysis***, that is, the contextual analysis of texts in the specialized language with a view to understanding and describing the ***concepts*** designated by ***terminology units***.

In ***terminology work***, the knowledge acquired in a given subject field is structured according to the ***hierarchical*** and ***associative relationships*** between the concepts that make up the subject field.

Hierarchical relationships are those most frequently used to structure knowledge. They include relationships between a ***generic concept*** and related ***specific concepts***, and ***partitive relationships*** between a whole and its parts. The graphical representation of the relationships is called a ***concept diagram***.

In ***associative relationships***, concepts are linked spatially or temporally. These relationships include the following types: producer-product; action-result; action-tool; container-contents; and cause-effect.

Concepts			Associative Relationship
bushel	]	apples	container - contents
polishing	]	polisher	action - tool
nursery operator	]	trees	producer - product
bricklayer	]	trowel	trade - tool
hammer	]	nail	tool - object
hour	]	watch	length of time - instrument
king	]	castle	person - dwelling
rain	]	flood	cause - effect

Fig. 6a *Associative relationships*

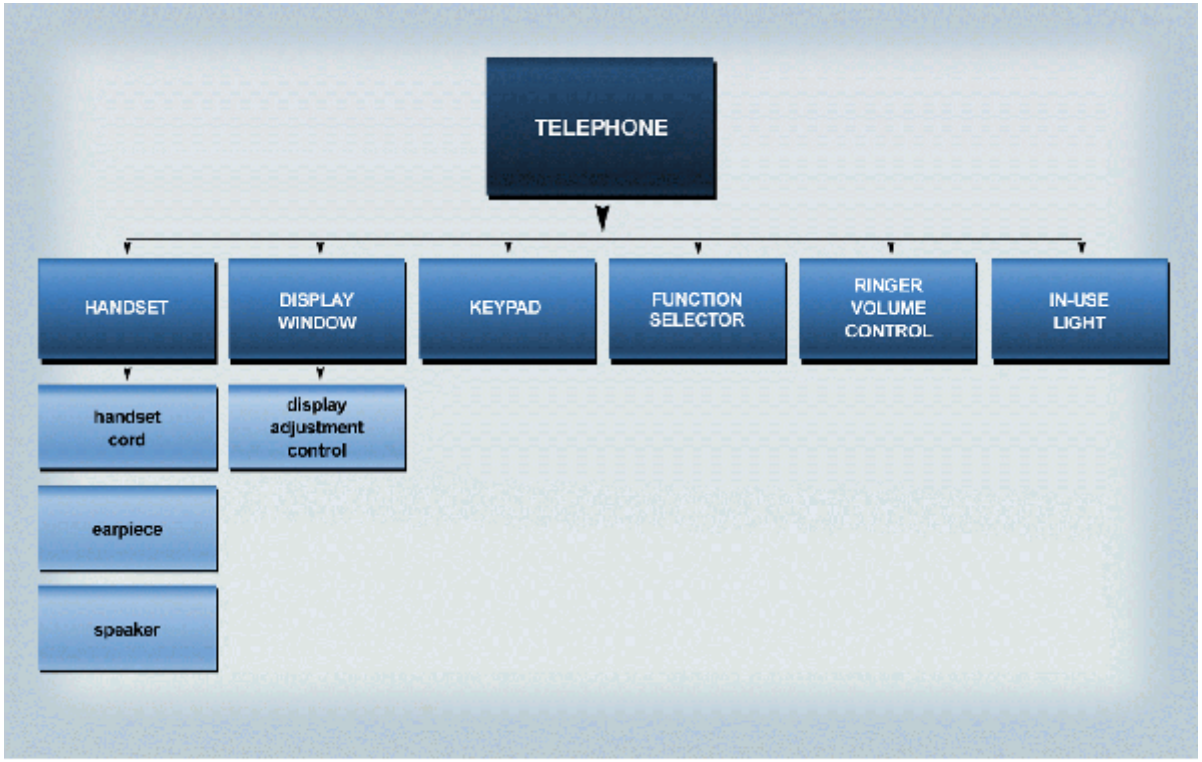


Fig. 6b *Partitive relationships*

With the help of this graphical representation of concept relationships, the terminologist can identify the essential ***semantic features*** of the concepts as well as their supplementary characteristics. The essential and delimiting semantic features are required to define the concepts, while the supplementary features serve to illustrate them.

The ***concept system*** also helps the terminologist to establish the ***textual match*** (that is, the correspondence of ***semantic features*** found in excerpts explaining the meaning of one or more specialized terms in one or more languages) and, consequently, to group all terms that designate the same concept on a single terminology record.

SUBJECT FIELDS
KBL Computer Graphics
SAJ Mathematics

EN attractor*a,c
DEF* A geometrical object toward which the **trajectory of a dynamical system** represented by a **curve in the phase space**, converges in the course of time.*c

FR attracteur*b,d*MASC
DEF* Ensemble invariant vers lequel est attirée asymptotiquement la **trajectoire d'un système dynamique** représenté par une **courbe dans l'espace** des phases.*d

CODED SOURCES
a*VFRAC*1989***28; b*FRACD*1987***97;
c*LASTE*1989***145; d*S-53-31*1994***12

Fig. 7 *Textual match*

Identifying Terminology Units

The ***terminology unit*** is the name or ***designation*** of a ***concept*** in a ***concept system***. It may be a word, an expression, a symbol, a chemical or mathematical formula, a scientific name in Latin, an ***acronym***, an ***initialism***, or the ***official title*** of a position, an

organization, or an administrative unit.

A ***term*** or terminology unit in a ***specialized language*** is distinguished from a word in ***general language*** by its single-meaning relationship with the specialized concept that it designates (called ***monosemy***) and by the stability of the relationship between form and content in texts dealing with this concept (called ***lexicalization***). The status of the term is revealed by its frequency of use and its relatively fixed contextual surroundings (its ***co-occurrents***), and by typographical enhancements (italics, boldface print, quotation marks, etc.). A final indicator is its rather limited set of morphological and lexical structures: noun (simple, derived, or compound), verb, adjective, noun phrase, verb phrase, or adjective phrase.

SUBJECT FIELDS
HEG Banking
FHE Negotiable Instruments (Commercial Law)

EN cheque*a,b,e
CHQ*a*
check*e*NOUN, UNITED STATES
DEF* A bill of exchange drawn on a bank, payable on demand.*b
PHR* Issue, deliver, return a cheque.*d

FR chèque*a,e*MASC
CHQ*a*MASC
DEF* Effet de commerce par lequel le titulaire d'un compte bancaire (le tireur) donne l'ordre à sa banque ou à un établissement financier (le tiré) de payer à vue à son profit ou à celui d'un tiers (le bénéficiaire) une somme à prélever sur le crédit de son compte.*e
PHR* Distribuer, émettre, retourner un chèque.*d

CODED SOURCES
a*CBT-30*1981***18; b*CANAC*1992***45
d*GBT-52-8-2*1994*1*c. 2-13*1; e*MCGEF*1994***133

Fig. 8 *Phraseologisms with the term "cheque"*

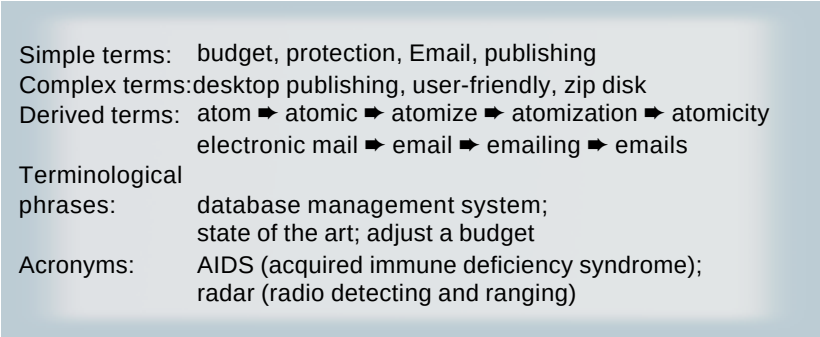


Fig. 9 *Simple terms, complex terms, derived terms, terminological phrases, acronyms*

A sound understanding of these structures helps the terminologist identify terminology units during ***term extraction***. In addition, the terminologist requires such knowledge in order to create or propose new terms, or ***neologisms***, to name new concepts when necessary, and to ensure correct and consistent usage of the terms identified.

Neologisms may be new words or new meanings assigned to existing words. In either case, certain principles should be respected to improve their chances of acceptance, or success.

- Sense neologisms (or semantic neologisms) do not involve any change to the form of the term. Instead, they result from:
  — expansion (that is, extending the meaning of a term by giving it a new meaning, as in a shift from the concrete to the abstract or from the abstract to the concrete)
  — metaphor (e.g. *backbone* of a network)
  — conversion of grammatical category (e.g. *preliminary*, from adjective to noun)
  — adoption from another subject field (e.g. *virus*, *inoculate* and other virology terms adopted in the field of computer security).

- Morphological neologisms are new word forms created through a variety of processes, including:
  — ***derivation*** (e.g. *digital*—*digitize*)
  — ***composition*** (e.g. *cyberspace*, *nonbiodegradable*, *webcast*)
  — compounding (e.g. *database management system*)
  — ***blending*** (e.g. *email* from *electronic mail*, *simulcast* from *simultaneous broadcast*)
  — ***acronymy*** (e.g. *AIDS*, *CD-ROM*)
  — ***borrowing*** (e.g. *découpage*).
- The acceptance of neologisms depends on such factors as their brevity (e.g. *email* for *electronic mail*), their handleability (e.g. *applet* for *little application*) and ease of retention, and their potential for derivation, or productivity (e.g. *email* ➨ *emails, emailing, emailed*), but the most important factor is the motivation: the term should reflect the characteristics of the concept it designates.

  The reason for creating the neologism may be stylistic (e.g. *vision-impaired* instead of *blind*), technological (e.g. *intelligent personal assistant* for the new pocket computer connected to the Internet), social (e.g. gender-neutral position titles), or functional, so called because a new way of designating the concept is dictated by the situation in which communication is needed.

Single-Concept Principle

The ***concepts*** belonging to an area of specialization are mental constructs that help structure objects in the real world. These objects may be concrete or abstract entities (e.g. *computer*, *freedom*); properties (e.g. *floppy, vocal*); relationships (e.g. *identity*, *partner, family violence*, *parallel*); or functions or activities (e.g. *friction*, *preventive maintenance*, *automatic subtraction*). All of the terms that designate a concept are in a monosemous relationship with this concept in a specialized language:

each one designates only this concept (ISO/FDIS 704:2000E).

Concept-term monosemy involves the ***single-concept principle***, according to which the terminologist must deal with one concept at a time, whether it be on a monolingual or multilingual terminology record or in a specialized vocabulary entry. This is the exact opposite of the principle of ***polysemy*** that is applied in general-***language dictionaries*** in which the lexicographical entry comprises a series of senses, each reflecting a different concept.

SUBJECT FIELDS
IEC Nuclear Power Stations
SHC Nuclear Fission Reactors
YAA Canadian Nuclear Safety Commission

EN pellet*b,f
fuel pellet*a,c,e*STANDARDIZED

DEF* Uranium dioxide, or other nuclear fuel in a powdered form, which has been pressed, sintered and ground to a cylindrical shape for insertion into the sheathing tubes of the fuel bundle.*a
OBS* fuel pellet: term standardized by ISO.*d

FR pastille*a,g*FEM
pastille de combustible*c*FEM, STANDARDIZED

DEF* Forme sous laquelle se présente le combustible de nombreux réacteurs nucléaires. (Les pastilles, souvent cylindriques, sont constituées, par exemple, d'oxyde d'uranium fritté.)*g
OBS* pastille de combustible : terme normalisé par l'ISO.*d

CODED SOURCES
a*PORAC*1978***217; b*AECB-1*1994***4E;
c*ISO-921*1997***104; d*3YMY*1992;
e*MHPHY*1984***224; f*AECB-8*1989***4E;
g*LAROG*1982*8**7879

Fig. 10a *Monosemy: only one meaning of the terms is dealt with on a single-concept record*

pellet **1.** A small solid or densely packed ball or mass, as of food.
2a. A bullet or piece of small shot.

Fig. 10b *Polysemy: series of senses in a lexical entry taken from ITP Nelson Canadian Dictionary of the English Language, 1997, p. 1013*

Textual Match and Definition of Specialized Concepts

The ***terminological definition*** is a concise description of the delimiting characteristics of a concept, presented in lexicographical, or dictionary-like, format. The definition must give the meaning of the term, rather than dealing with questions of the term's usage (Sager 2000: 12). Thus, it differs in function from linguistic observations of the type "Term used in X to designate Y." The ***terminological definition*** is the most important application of the ***single-concept principle*** and the main means of establishing a ***textual match***.

The nature of definitions varies according to the subject field. In scientific and technical subject fields, basic terminologies are validated through the use of definitions cited from authoritative sources, whereas new terminologies in such fields often require the ***formulation*** of definitions based on bits and pieces of textual information found during research. Further, in these subject fields the presentation of the definition must closely follow existing patterns; stylistic variation is quite limited. This is one reason for the close resemblance of the definitions for a given concept found in the best technical and scientific dictionaries. On the other hand, in social, economic and legal subject fields, the definitions for a given concept vary greatly, depending on the historical, cultural, and legal context of the institution or country in which the concept is recognized (Rey 2000: 131).

The terminologist must generally formulate definitions with the help of references to the documentation consulted. The ***quotation*** of definitions and contexts must, in fact, be kept to a minimum, for the following reasons:

- the importance of respecting copyright and avoiding unfair use
- the requirement for conciseness, quality and originality in terminological-product content
- the requirement for consistent editorial style within a terminology data bank.

This professional duty is reinforced by intellectual property law as applied to the creation of commercial ***terminological products***.

The terminological definition is a brief statement that provides a clear understanding of the meaning of a specialized term. It begins with a word identifying the broader class (***genus***) to which the concept belongs, and then specifies essential or delimiting features that clearly separate this concept from related concepts in that class. The delimiting features may include:

- intrinsic characteristics, such as the concept's nature, its material, or the topic it deals with
- extrinsic characteristics, such as its function or manner of operation, its origin, its destination, or its referent.

Intrapreneur: ***Salaried manager*** *(nature)* ***who applies to his work*** *(topic)* ***the motivation and initiative*** *(manner)* ***of a company owner*** *(referent).*

Fig. 11 *Intrinsic and extrinsic characteristics*

Among the non-essential characteristics of a concept are the shape of an object, the inventor of the object, and the time, space, and manner of use of the object.

The method of formulating the definition may be selected from a number of options, including the following:

- definition by genus and difference

computer peripheral: *In a data processing system, any equipment, distinct from the central processing unit, which may provide the system with outside communication or additional facilities.*

printer: *A computer peripheral that outputs data to hard copy.*

nonimpact printer: *A printer in which printing is the result of means other than mechanical impact.*

laser printer: *A nonimpact printer that uses a low-power laser to produce image-forming charges on the photoconductive surface of a drum.*

Fig. 12 *Definition by genus and difference*

- definition by function

printer: *A computer peripheral that produces a durable record of data in the form of a sequence of discrete graphic characters belonging to a predetermined character set.*

Fig. 13 *Definition by function*

- operational definition, listing the parts or steps

laser printer: *A nonimpact printer that operates at well over 10,000 lines per minute, using a low-power laser to produce image-forming charges a line at a time on the photoconductive surface of a drum; dry powder that adheres only to charged areas is applied to the drum, transferred to plain paper, and fused by heat.*

Fig. 14 *Operational definition*

- synonymous definition, using a paraphrase.

oblong: *elliptical, blunt at each end, having nearly parallel sides, and two to four times as long as broad.*

Fig. 15 *Synonymous definition by paraphrase*

A number of principles must be observed when drafting terminological definitions, including the following:

- predictability—the definition inserts the concept into a ***concept system***
- simplicity—the definition is concise, clear, and no longer than one sentence
- affirmativeness—the definition states what the concept is, rather than what it is not
- noncircularity—the definition does not use words whose definitions refer back to the concept in question
- absence of ***tautology***—the definition is not a paraphrase of the term, but rather a description of the ***semantic features*** of the concept.

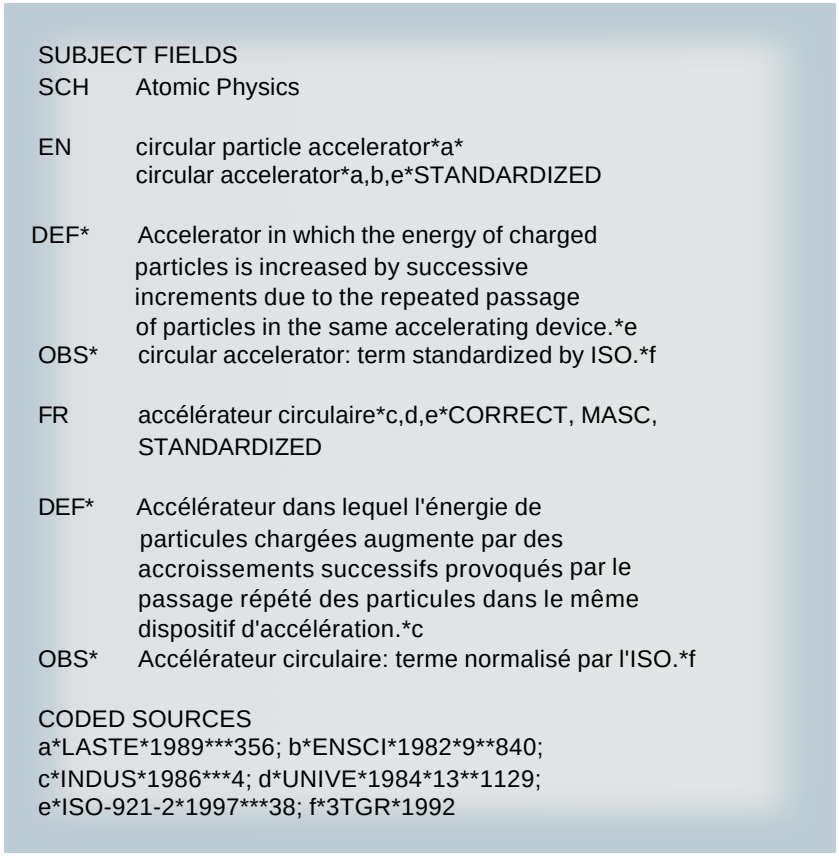


Fig. 16 *Terminological definitions*

When formulating a definition, the terminologist must keep these principles in mind and select:

- the delimiting ***characteristics*** that identify the concept unambiguously, for example, ***genus*** and ***specific difference***
- the method of definition best suited to the profile of the targeted users (including their communication needs and their level of knowledge). For example, an analytical definition that gives the intrinsic characteristics of the concept may be preferable to a definition by description that gives the extrinsic characteristics; a partitive definition that lists the parts of an object may be preferable to a synonymous definition.

- the rules established for drafting definitions for all records intended for a particular terminology database. For example, it may have been decided that definitions must (or must not) begin with a definite or indefinite article.
- the ***anchor word*** with which the statement begins, for example, the term designating the ***superordinate concept***
- the preferred formulation for the concept category in question. For example, the definitions of state concepts begin with *"Condition ..."* or *"State ..."*, definitions of action concepts, with *"Act of ..."*, *"Technique for ..."*, *"Group of techniques for ..."*; definitions of adjectival concepts, with *"Of or relating to ..."* or a participle functioning as an adjective.

Evaluation of Terms and their Relationships

Specialized languages target the ideal of ***monosemy***, but they are nonetheless a set of evolving social conventions. Consequently, they include linguistic variants just as ***general language*** does.

When creating a ***terminology record*** or updating a ***terminology file***, the terminologist must qualify the ***synonyms*** that designate a concept to reflect actual ***usage***. For example, the term may be the scientific or technical ***designation*** or it may be technical jargon; it may be used correctly or incorrectly, internationally, commonly, officially, or in a limited geographical area; a ***neologism*** may be accepted or criticized; a ***term*** may be rare, obsolete, deprecated, standardized or officially approved. The terminologist helps users select proper terms by qualifying synonyms with appropriate ***usage labels***, by explaining usage in ***observations*** or demonstrating usage through ***usage samples***, and by supporting these findings with references to ***sources*** of information.

The main ***usage labels*** found in large terminology data banks are grouped into six categories:

- sociolinguistic labels (the level of language of the term may

be customary, scientific or jargon; the term may be standardized or officially approved)

- geographic labels (the term may be specific to a particular country or region)
- temporal labels (the term may be obsolete, archaic, or a neologism)
- origin labels (the term may be preferred by a given company or in a certain subject field for reasons of originality in commercial competition)
- frequency labels (the term may be used frequently, less frequently, or rarely).

```
SUBJECT FIELDS
VHA      Elevators

EN       passenger elevator*a*CORRECT, USA, STANDARDIZED
         passenger lift*d*CORRECT, GREAT BRITAIN

DEF*     An elevator used primarily to carry persons other than the  operator
         and persons necessary for loading and unloading.*a
CONT*    Passenger elevators have relatively wide, shallow cars with  wide
         entrances, so that people can enter and leave quickly  at each
         stop.*c
OBS*     passenger elevator: term standardized by IEEE (Standards Committee).*g

FR       ascenseur*e,f*CORRECT, MASC, STANDARDIZED

DEF*     Appareil élévateur permettant de transporter des personnes    dans
         une cabine se déplaçant entre des guides verticaux, ou
         faiblement inclinés sur la verticale, et actionnée par une
         machinerie.*e
OBS*     ascenseur : terme normalisé par AFNOR.*g

CODED SOURCES
a*INELE*1977***474; c*AMERI*1977*10**218;
d*CHAMB*1973*8**537; e*LGRAN*1970*1**624;
f*NF-P82-210*1980***8; g*3VYU*1981
```

Fig. 17 *Geographical, grammatical, official-status usage labels*

In the languages of literature and the media, originality of content and uniqueness of expression are greatly valued. ***Specialized languages***, on the other hand, must facilitate the global sharing of specialized knowledge. They are characterized by a cognitive or referential function that favours consistency of content and expression. In terminology, the principle of consistency is more important than that of creativity.

The concept of ***language management*** evolved primarily following World War II as a governmental initiative to give preferred status to a selected ***level of language*** such as conventional French, standard Russian, simplified Chinese, or BBC English, and to identify gaps or grammatical or lexicographical discrepancies to be filled or corrected through ***official language notices***. The *Délégation générale à la langue française* in France, the *Office de la langue française* in Quebec and various African ***language-planning*** agencies have taken this approach (Antia 2000).

In most cases, this governmental intervention dealt with gaps and corrections pertaining to ***general language*** on an ad hoc basis. In contrast, terminology ***standardization*** as conducted by the International Organization for Standardization (ISO) or by national standardization bodies (see list in Appendix I) is limited to the concepts and vocabulary of specialized languages, is thematic and prescriptive in nature, and is performed by subject-field specialists in accordance with more or less globally accepted procedures (such as the *ISO Project management guidelines for terminology standardization*).

The process of official approval of terminology falls between these two types of intervention. This process encompasses concern for conceptual precision and linguistic correction, adequacy of the term to the communication situation, and efficiency of communication. According to user needs, the approval process may deal with individual cases or may take a thematic approach. It is performed by

a working group or user committee that may or may not include subject-field specialists. The application of official-approval decisions may be mandatory or strongly recommended, or may be adopted by consensus.

The terminologist responsible for collecting and approving terminology used within a department or a company may perform the following tasks (among others):

- remove duplicate records or incorrect records from the terminology file
- confirm the use of new terms, and propose new terms if necessary
- advise against the use of ***pseudo-synonyms*** and of variants that create confusion, and promote the use of recommended terms
- deal with cases of contradictory usage
- distribute a terminology collection that is up-to-date, complete, coherent, and validated by the members of a recognized official-approval committee, and which includes labels indicating the ***official status*** of terms where appropriate.

The Terminology and Standardization Directorate of the Translation Bureau has suggested the following official-approval approach to other departments of the Canadian federal government:

Fig. 18 *Steps of the official-approval approach proposed to federal government departments by the TSD*

Terminology standardization and official-approval activities may be integrated into a governmental language-management policy, as illustrated recently in the Translation Bureau of Canada (see Appendix III: Language Management Infrastructure in the Public Service of Canada).

Chapter II. TERMINOLOGY WORK METHODOLOGY

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***
- 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 documentalists, 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 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*). Documentalists 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 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:

- 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.

TITLE IN FULL	SOURCE CODE	YEAR	VOL.	ISSUE	PAGE
*Le **Devoi**r*, December 18, 2000, issue, Section A, page 1	DEVOI	2000		37242	A 1
Vocabulaire de l'ingénierie nucléaire, **S**ociété **F**rançaise d'**É**nergie **N**ucléaire, Paris, 2000, page 9	SFEN-1	2000			9
Industrial Gamma Radiography, Atomic Energy Control Board, 1989, page 41	CC-172-5E	1989			41
***Sci**entific **Am**erican*, October 2000 issue, page 20	SCIAM-E	2000	283	4	20

Fig. 19 *Source coding*

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:

- 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.

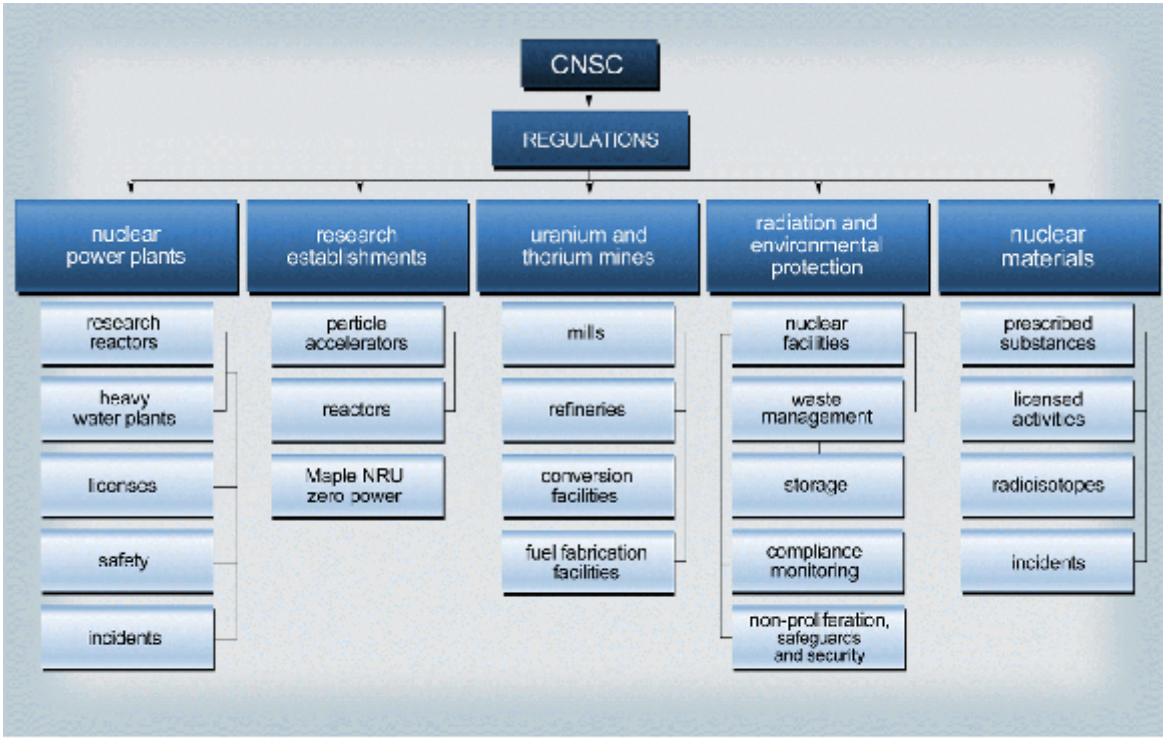


Fig. 20 *Subject-field classification system — Canadian Nuclear Safety Commission*

Establish the Diagram of the Concepts to be Defined

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.

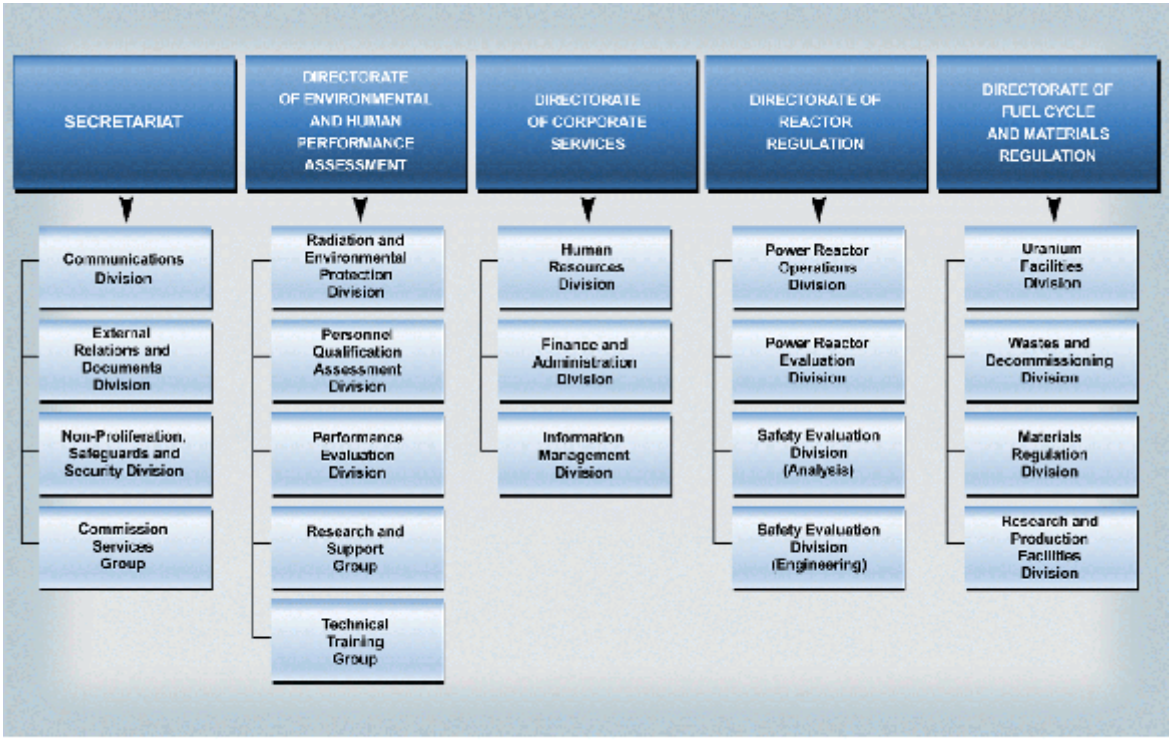


Fig. 21 *Source: Canadian Nuclear Safety Commission, February 2001*

Perform Term Extraction in Original-Language Sources and Mark Pertinent Textual Supports

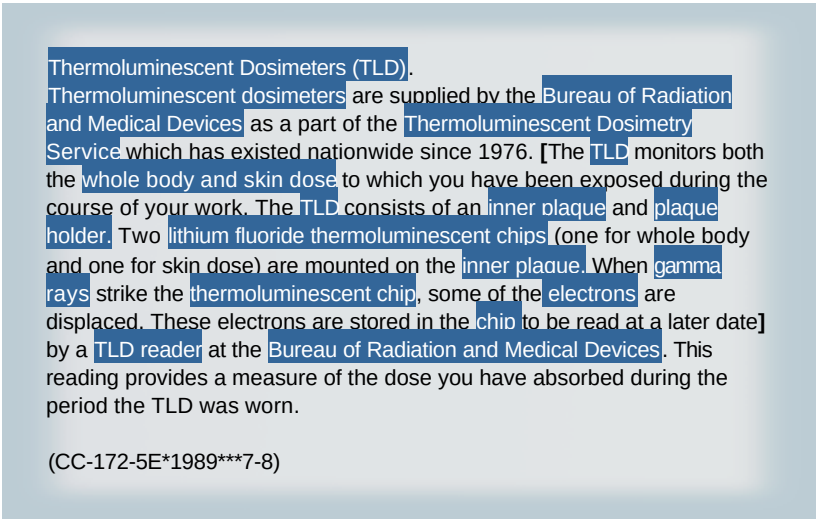
All of the texts providing information about one or more of the concepts identified in the ***concept diagram*** are scanned for terms, that is, they are read so that terminology units can be highlighted and their ***contexts*** (sentences, paragraphs) noted.

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* (see descriptions in Chapter III).

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.

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

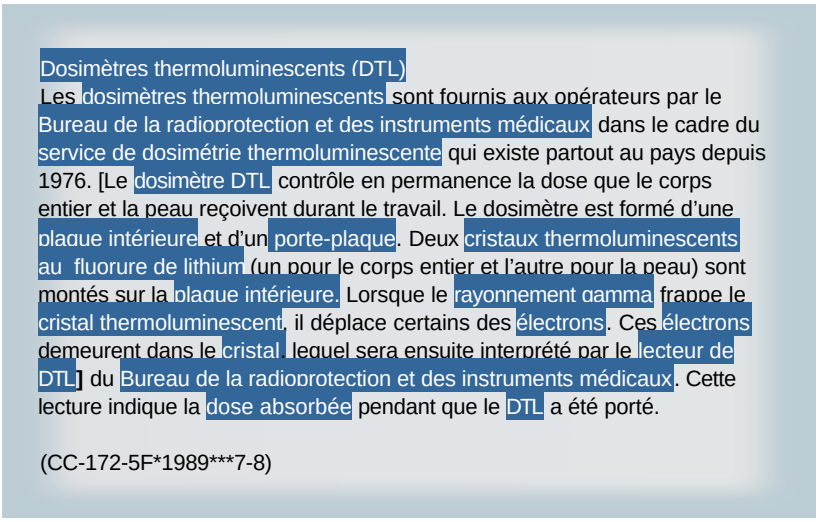
extraction in original-language texts. Such a verification is not always possible in translation services where the terminology files usually allow the storage of source-language terms and their target-language equivalents, but not the recording of textual supports or source references.



Thermoluminescent Dosimeters (TLD).
Thermoluminescent dosimeters are supplied by the Bureau of Radiation and Medical Devices as a part of the Thermoluminescent Dosimetry Service which has existed nationwide since 1976. **[**The TLD monitors both the whole body and skin dose to which you have been exposed during the course of your work. The TLD consists of an inner plaque and plaque holder. Two lithium fluoride thermoluminescent chips (one for whole body and one for skin dose) are mounted on the inner plaque. When gamma rays strike the thermoluminescent chip, some of the electrons are displaced. These electrons are stored in the chip to be read at a later date**]** by a TLD reader at the Bureau of Radiation and Medical Devices. This reading provides a measure of the dose you have absorbed during the period the TLD was worn.

(CC-172-5E*1989***7-8)

Fig. 22a *Terms extracted in English text*



Dosimètres thermoluminescents (DTL)
Les dosimètres thermoluminescents sont fournis aux opérateurs par le Bureau de la radioprotection et des instruments médicaux dans le cadre du service de dosimétrie thermoluminescente qui existe partout au pays depuis 1976. [Le dosimètre DTL contrôle en permanence la dose que le corps entier et la peau reçoivent durant le travail. Le dosimètre est formé d'une plaque intérieure et d'un porte-plaque. Deux cristaux thermoluminescents au fluorure de lithium (un pour le corps entier et l'autre pour la peau) sont montés sur la plaque intérieure. Lorsque le rayonnement gamma frappe le cristal thermoluminescent, il déplace certains des électrons. Ces électrons demeurent dans le cristal, lequel sera ensuite interprété par le lecteur de DTL**]** du Bureau de la radioprotection et des instruments médicaux. Cette lecture indique la dose absorbée pendant que le DTL a été porté.

(CC-172-5F*1989***7-8)

Fig. 22b *Terms extracted in French text*

thermoluminescent dosimeter; TLD	dosimètre thermoluminescent; DTL; dosimètre DTL
Bureau of Radiation and Medical Devices	Bureau de la radioprotection et des instruments médicaux
radiation	radioprotection
Thermoluminescent Dosimetry Service	service de dosimétrie thermoluminescente
thermoluminescent dosimetry	dosimétrie thermoluminescente
dosimetry	dosimétrie
whole body dose	
skin dose	
inner plaque	plaque intérieure
plaque holder	porte-plaque
lithium fluoride thermoluminescent chip	cristal thermoluminescent au fluorure de lithium
lithium fluoride	fluorure de lithium
chip	cristal
thermoluminescent chip	cristal thermoluminescent
electron	électron
TLD reader	lecteur de DTL
	dose absorbée

Fig. 22c *Bilingual matching of extracted terms*

SUBJECT FIELDS
SIA Scientific Instruments
SIE Measurement and Analysis
SHH Radiation Protection

EN thermoluminescent dosimeter*a*
ABB TLD*a

CONT* The TLD monitors both the whole body and skin dose to which you have been exposed during the course of your work. The TLD consists of an inner plaque and plaque holder. Two lithium fluoride thermoluminescent chips (one for whole body and one for skin dose) are mounted on the inner plaque. When gamma rays strike the thermoluminescent chip, some of the electrons are displaced. These electrons are stored in the chip to be read at a later date ...*a
PHR* The TDL monitors.*a

FR dosimètre thermoluminescent*b*MASC
ABB DTL*b*MASC
dosimètre DTL*b*MASC

CONT* Le dosimètre DTL contrôle en permanence la dose que le corps entier et la peau reçoivent durant le travail. Le dosimètre est formé d'une plaque intérieure et d'un porte-plaque. Deux cristaux thermoluminescents au fluorure de lithium (un pour le corps entier et l'autre pour la peau) sont montés sur la plaque intérieure. Lorsque le rayonnement gamma frappe le cristal thermoluminescent, il déplace certains des électrons. Ces électrons demeurent dans le cristal, lequel sera ensuite interprété par le lecteur de DTL [...]*b
PHR* Le dosimètre contrôle.*b

CODED SOURCES
a*CC-172-5E*1989***7-8; b*CC-172-5F*1989***7-8

originator: 3TGR
creation date: 20001212

Fig. 22d *Record prepared based on data from texts scanned for terms*

The term-extraction operation reveals not only terminology units, but also the ***co-occurrents*** of the terms. The collocations (two or more terms that typically appear together in a given subject field) demonstrate the use of the term in specialized discourse. This information is often recorded in the phraseologisms field of the record.

The terms identified during a term-extraction exercise may also be used when performing a diagnosis of a database—they can be queried in order to determine the response rate of terms found in the database or file to be evaluated.

Establish the Monolingual Terminological Base List from the Concept Diagram

The lists resulting from ***term extraction*** often include terms belonging to other subject fields or which designate concepts that were missing in the original ***concept diagram***. In addition to terminology units, automatic term-extraction software outputs a great deal of "noise" (that is, pseudo-terminological expressions or components accidentally occurring together in discourse but which do not designate concepts). A brief review of the ***contexts*** associated with the terms appearing in the lists helps eliminate noise, set aside terms belonging to other subject fields, and create a more complete graphical representation of the ***concept system*** through the insertion of missing concepts.

The terminological ***base list*** is the list of terms resulting from this operation. It provides all of the terms to be assigned to "***nodes***" of the concept diagram with a view to grouping the ***textual supports*** by concept. In ***comparative terminology***, the concept system is used to establish a terminological base list for each of the languages and is the main benchmark for matching base lists.

Text: *1998-1999 Annual Report* of the Canadian Nuclear Safety Commission
NOTE: The figure appearing next to each entry is the number of occurrences of the string in the scanned text.

("A_E" 3)
("A_E_C_B" 3)
("actual_dose" 1)
("AECB_authorization" 1)
("AECB_licensee" 1)
("AECB_staff" 2)
("aecb-licensed_facility" 1)
("ample_opportunity" 1)
("annex_X" 1)
("annual_dose_limit" 1)
("annual_exposure" 1)
("annual_limit" 1)
("annual_whole-body_dose" 1)
("Assessment_Act" 2)
("Assessment_Agency" 3)
("atomic_energy" 1)
("atomic_energy_control_ regulation" 3)
("average_annual_exposure" 1)
("average_annual_whole-body_ dose" 1)
("average_dose" 1)
("average_whole-body_dose" 2)
("average_worker_dose" 2)
("average_worker_whole-body_ dose" 2)
("blind_River" 1)
("body_dose" 2)
("Brunswick_Power" 1)
("bundle_assembly" 1)
("bundle_assembly_operation" 1)
("C_B" 3)
("Cameco_Corporation" 1)
("Cameco's_conversion" 1)
("Cameco's_conversion_facility" 1)
("Canada_Limited" 1)
("Canadian_Atomic_Energy_ Control_Regulation" 1)
("Canadian_Environmental_ Assessment" 1)
("Canadian_Environmental_ Assessment_Act" 2)
("Canadian_Environmental_ Assessment_Agency" 3)
("CANDU_reactor" 1)
("CANDU_reactor_fuel" 1)
("canister_facility" 1)
("Chalk_River" 1)
("Chalk_River_Laboratory" 1)
("collective_dose" 1)
("collective_worker_dose" 1)
("comprehensive_study" 4)
("concrete_canister_facility" 1)
("concrete_container" 1)
("concrete_container_facility" 3)
("concrete_silo" 1)
("considerable_amount" 2)
("construction_licence" 1)
("contained_radioactive_waste" 1)
("container_facility" 2)
("control_act" 1)
("conversion_facility_–_uranium_ conversion" 1)
("conversion_facility_–_uranium_ refining" 1)
("corporate_environmental_ information_management_system" 1)
("critical_group" 1)
("current_dose_limit" 1)
("current_regulation" 1)
("dioxide_pellet" 1)
("disposal_facility" 1)
("dose_limit" 10)
("dose_limit." 4)
("dry_concrete_container" 1)
("dry_concrete_container_facility" 2)
("dry_storage" 1)

Fig. 23a *Extract from the results of term extraction performed by Nomino, an automatic term-extraction software*

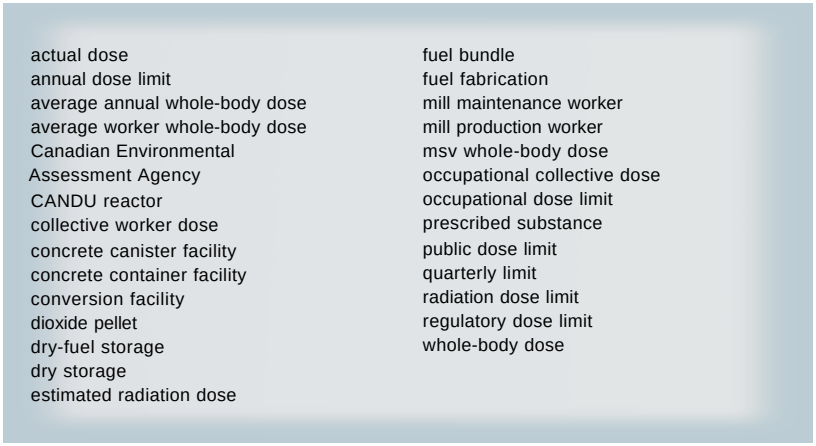


Fig. 23b *Base list retained following verification of the text on which automatic term extraction was performed*

Compile Term-Extraction Results into Single-Concept Terminology Case Files

All of the ***terms*** and ***textual supports*** (***definitions***, ***contexts***, ***usage samples***, phraseologisms, terminologist's ***observations*** or subject-field specialists' opinions) resulting from ***term extraction*** and pertaining to a single ***concept*** are grouped together in an analysis tool called a ***terminology case file***. Grouping the collected information is the most delicate and complex step in ***terminological analysis***. This compilation step involves evaluating information concerning the ***semantic features*** of the concept, rating the correctness of the terms that designate the concept, possibly formulating a definition, and selecting pertinent textual supports for entry on a record to be presented to an official-approval committee, or for publication.

In ***comparative terminology***, the terminology case file includes a component for each of the languages dealt with. For each textual support, references are made to the documentation consulted or scanned for terms. This file may be in hard-copy form or in

electronic format. It may deal with a single record or may become a collection of texts pertaining to a given theme. The case file may also be used to produce a monolingual document synthesizing the results of a terminological analysis, of the type that certain terminology data banks make accessible to users through a querying option. In *TERMIUM Plus*®, for example, the synthesis is called a complementary document.

COMPLEMENTARY DOCUMENT: Fissionable and Fissile

According to Webster's Third New International Dictionary, "fissile" is a synonym for "fissionable". According to the Oxford English Dictionary, "fissile" means "Capable of undergoing nuclear fission" (and hence has the same meaning as "fissionable", which then would be a generic term), but it is "sometimes used specifically of materials capable of fission upon absorption of a slow (as opposed to a fast) neutron". According to the Canadian Committee for the Standardization of Nuclear Terminology, which has officially approved the term "fissile", the terms "fissile" and "fissionable" should not be used interchangeably.

Fig. 24 *Complementary document linked to the record on "fissile" in TERMIUM*®

Enter the Terms from the Base List and Related Textual Supports on Records

The ***terminology record*** is a tool for synthesizing and organizing data. The main criteria for preparing a record are the validity, conciseness, timeliness, and complementarity of the data. From the ***terminology case file***, the terminologist selects the ***definition*** or ***context*** that best describes the ***concept*** and which best shows the ***textual match***. Repetition of information in the textual supports retained is avoided whenever possible. Instead, the textual supports complement one another to facilitate the user's ability to form a mental construct of the entire concept. Information must be entered on the record in accordance with the rules laid out in a ***record-completion guide*** that is applied to the entire ***database*** in question.

SUBJECT FIELDS
SCH Nuclear Physics

EN accelerator*f
particle accelerator*f*OFFICIALLY APPROVED
atom smasher*f*SEE RECORD

DEF* A device for imparting kinetic energy to charged particles. In general, the energy added is greater than 0.1 MeV.*c
CONT* ... the high energies needed by charged particles to penetrate the nuclei of atoms are produced by machines popularly called atom smashers but more correctly particle accelerators.*f
OBS* particle accelerator: term officially approved by the Canadian Committee for the Standardization of Nuclear Terminology.*g

FR accélérateur*c,h*MASC
accélérateur de particules*a,e,j*MASC, OFFICIALLY APPROVED

DEF* Machine permettant de communiquer de l'énergie à des ions ou à des particules élémentaires, généralement en vue d'explorer les structures de la matière.*h
CONT* Seules les particules stables, possédant une charge électrique peuvent être accélérées : ce sont l'électron et le positron, le proton et l'antiproton ainsi que les ions stables. [...] Les progrès de la physique ont entraîné la construction d'accélérateurs atteignant des énergies de plus en plus élevées. Ces énergies sont mesurées en électronvolts. [...] On peut distinguer trois grandes classes d'accélérateurs : les accélérateurs électrostatiques, linéaires et circulaires.*h
OBS* accélérateur de particules : terme uniformisé par le Comité canadien de normalisation de la terminologie nucléaire.*g

CODED SOURCES
a*CAN.GAZ.-II*1993*127*8*1636; c*ISO-921*1972***---;
e*DOC-L-15*1980***19; f*BROCH*1962***1545;
g*7LCX*1980; h*LAROG*1982*1**49; j*CHENE*1961***70

Fig. 25 *Record with complementary textual supports, without repetition of information*

The main types of textual support (see Chapter I) are ***definitions***, ***contexts***, ***observations*** and phraseologisms.

- Defining contexts include the essential ***characteristics*** of the concept under study, while explanatory contexts provide

information about some of the characteristics. Associative contexts demonstrate the use of the term in the subject field under study, but do not help to illustrate the ***textual match*** through correspondence of ***semantic features***.

- ***Observations*** provide information about nuances of the ***concept*** or about ***usage*** of the terms that designate the concept.
- If textual supports are ***quotations***, as is always the case with contexts, copyright must be respected and a reference to the appropriate source code must be included. If textual supports are original formulations, the record originator is identified as the source.
- Phraseologisms for the terms designating the concept dealt with on the record may be collected by the record originator and entered after the observations concerning the usage or status of the terms, in a way that reflects the behaviour of the ***co-occurrents***, for example, *term + verb*, *verb + term*, *term + adjective*, *adjective + term*, *term + noun*, *noun + term*.

The main kinds of entries appearing on the record are the preferred terms, their ***synonyms*** (including their ***abbreviations*** and their ***spelling*** or ***syntactic variants***), ***quasi-synonyms*** and, if necessary, the ***pseudo-synonyms***, or terms to avoid.

- ***True synonyms*** are terms that designate the same concept and that can be used interchangeably in all contexts.
- Quasi-synonyms are terms that designate the same concept but that are not interchangeable because of differences in usage depending on communication situations. These differences are indicated on the record by appropriate ***usage labels*** and observations.
- Pseudo-synonyms designate different, although often related, concepts. They are always accompanied by an observation explaining the situation and advising against the use of these terms to designate the concept dealt with on the record.

SUBJECT FIELDS

KEC	Codes (Software)
KBI	Office Automation
EN	exclamation point*a*
	exclamation mark*a*
	EXCL*a*
	Exclam*a*FAMILIAR
	bang*a*NOUN, JARGON
	shriek*a*NOUN, JARGON
	wow*a*NOUN, JARGON
	pling*a*NOUN, JARGON
	factorial*a*NOUN, JARGON
	smash*a*NOUN, JARGON
	cuss*a*NOUN, JARGON
	boing*a*NOUN, JARGON
	hey*a*NOUN, JARGON
	wham*a*NOUN, JARGON
	eureka*a*NOUN, JARGON
	soldier*a*JARGON
FR	point d'exclamation*b*MASC
	cri*b*MASC, JARGON
OBS*	Nom commun pour le signe « ! ».*b

CODED SOURCES

a*RAYHA-E*1996***44; b*RAYHA-F*1997***18

Fig. 26a *True synonyms ("exclamation point", "exclamation mark") and quasi-synonyms (jargon, familiar, etc.*)

SUBJECT FIELDS

KBK	Computer Security
EN	year 2000 computer date problem*d year 2000 problem*c,g* Y2P*h* year 2000 bug*a Y2K problem*c Y2K bug*g millennium computer bug*b millennium bug*b,c,g millennium bomb*g millennium glitch*h Y2K glitch*h Year 2000 glitch*h millennium problem*h Y2K compliance*h*AVOID Y2K issue*i*AVOID Y2K*i*AVOID Y2K virus*i*AVOID
DEF*	A potential problem for computer programs when the year 2000 is reached, in that a variety of logic checks within programs may suddenly fail if they rely on two-digit year indicators.*f
CONT*	The millennium bug is a global phenomenon experts estimate could cost hundreds of billions of dollars to repair worldwide. Unless corrected, computers unprepared for the calendar to roll from December 31, 1999 to January 1, 2000 will either crash or spew out possibly disastrous miscalculations.*a
OBS*	Y2K compliance, Y2K issue, Y2K and Y2K virus have specific meanings and should not be used as true synonyms of “millennium bug”.*b
FR	bogue de l’an 2000*b*MASC/FEM problème de l’an 2000*d*MASC problème A2K*e*MASC
DEF*	Remise à zéro problématique des ordinateurs en l’an 2000, en raison des deux derniers chiffres utilisés pour désigner l’année dans le siècle.*b

CODED SOURCES
a*CITIZ*1997**4-09-97*C5; b*3XEA*1997;
c*CITIZ*1998**4-01-98*D3; d*4UOW*1996;
g*BARDI*1998*10*2*130L; h*1ZMA*1999; i*3SVP*1999
NON-CODED SOURCES
e*Internet. [http://www.pvirgule.fr/clients/isadupont/unisys/fp2000.htm];
f*Internet. [http://mspress.microsoft.com/mspress/products/1031/#B]

Fig. 26b *Pseudo-synonyms with an observation advising against their use*

The exercise of entering information on a record results in as many ***terminology records*** as there are ***nodes*** in the ***concept system***. More records may be produced when additional concepts belonging to the subject field are discovered during creation of the ***terminology case file*** or when the terminologist finds information in the case file that justifies the preparation of a record in a subject field other than the one under study.

Another exception to the principle of "one record per concept and one concept per record" occurs in ***comparative terminology***, when concept delimitation differs between languages. Such exceptions occur in the subject field of Canadian bijuralism, where the concepts of common law and civil law sometimes correspond only partially. Terms in one language designating concepts in the corresponding legal system are sometimes adopted to designate more-or-less equivalent concepts in the other legal system.

Revise the Records to Ensure Respect of Research, Record-Completion, Citation, and Distribution Rules in Effect

The autonomous ***terminologist*** is his or her own ***reviser***, but the linguistic service of a company or of a department may have a whole team of terminologists who manage a single ***database***. In this case, the terminologist may be well-advised to ask colleagues to revise his or her records, or to benefit from the competence of a terminologist-reviser.

Record revision is not just a simple technical verification, nor is it a ***proofreading*** exercise. Revision involves reviewing both the form and the content of each record (accuracy of the equivalence, presence of a textual match in the textual supports, accuracy of usage labels, ratings, subject fields, sources, etc.).

SUBJECT FIELD
LFE Basketball

EN dribble*a*VERB

Correction: The part-of-speech label VERB is required because “dribble” can also be a noun.

~~OBS* Technique/tactics.*a~~
~~OBS* The ability to dribble is essential for all players. They must keep moving the ball along by controlling it with either hand while running, walking or standing.*f~~

Correction: The content of the OBSs can be used to draft a definition, making the observations unnecessary. The superfluous OBSs must be removed, source f must be removed from the CODED SOURCES field since it is no longer used on the record, and the source of the new DEF must be added, with the source-reference letter g.

DEF* To move a ball along continuously by bouncing it with one hand while running, walking or standing.*g

FR dribbler*a,~~b,d,~~ e

Correction: According to the accepted guideline, only those authorized sources that best document usage of the entry term in the subject field must be retained. Sources a and e are reliable sources, whereas sources b and d are translated sources that are not required to demonstrate equivalence.

~~OBS* Un joueur n’a pas le droit de marcher en portant le ballon. Il doit dribbler, c’est-à-dire faire rebondir le ballon au sol en marchant.*b~~

~~OBS* Les joueurs peuvent passer le ballon, le lancer, le frapper, le rouler ou le «dribbler», ils n’ont cependant pas le droit de le botter ou de le porter.*d~~

Correction: Remove the two OBSs, which are not required since they add no information to the two CONTs that follow. Remove the source-reference letters b and d from the CODED SOURCES field, since they are no longer used on the record.

~~OBS*~~

Fig. 27a *Revised record (continued in Fig. 27b)*

CONT* Pour amener le ballon à proximité du but, les joueurs peuvent soit le passer à l'un de leurs coéquipiers, soit avancer en dribblant. Le dribble est le fait, pour un joueur d'avancer avec la balle en la faisant rebondir sur le sol, mais sans jamais porter le ballon.*e

Correction: The textual-support identifier OBS is incorrect. This is a defining context (CONT) since the number and quality of elements it provides allow a precise image of the concept to be formed.

CONT* Les petits joueurs ont un avantage lorsqu'il est question de dribbler, c'est-à-dire de faire rebondir le ballon sur le plancher tout en courant et en s'esquivant. Plus votre main est près du sol, plus il est facile de dribbler.*c

CODED SOURCES
a*INSEP-1*1995***---
~~b*SPORT-F*1995***23~~
c*SPORT-F*1986***19
~~d*DIAGR-1F*1985***62~~
e*COSPQ*1970***84
~~f*3SVP*1998~~
g*3XXX*2000

originator: 3XXX
creation date: 20001212

Fig. 27b *Revised record (continued from Fig. 27a)*

The reviser's remarks are discussed with the record originator, who modifies the record accordingly before sending it for ***data entry***. In teams made up of experienced terminologists, post-data-entry revision may lead to gains in productivity, but may occasionally prove risky.

Some terminology ***data banks*** have a field in the record for the reviser ***code***, in order to confirm ***quality assurance*** of records. The revisor code should appear only on those records that are actually revised.

Load the Records into a Database and Proofread Them to Confirm Conformity

The method of ***data entry*** of records depends on the degree of computerization of the company or department with a terminology service.

- Three types of ***transactions*** can be distinguished in data entry: ***new records***, or records added to the collection, ***modifications*** made to improve the existing records, and ***cancellations***, or records deleted from the database.
- The terminologist may send his or her handwritten or typed records to a data-entry centre, grouping the records into uniquely numbered batches. These batches may be assigned titles which the data-entry operators record in the transaction registers. The data-entry operators type the records in the database, using software to perform ***validation***, then transmit proofreading printouts to the record originator for post-data-entry ***proofreading***. ***Corrections*** and minor modifications are indicated on the printout, which is returned to the data-entry centre for input into the database.
- The terminologist may prepare his or her records using an electronic medium with the help of a data-recording software such as *LATTER*©, then send a numbered batch of records on diskette or via e-mail to the data-entry centre. The data-entry operators prepare the file for automatic ***loading*** and technical ***validation***, then return proofreading printouts to the record originator for post-data-entry ***proofreading*** and correction.
- If the terminologist wishes to load a list of terms with their equivalents or a complete set of terminological information resulting from ***term extraction*** or contained in a terminological publication, s/he may prepare a ***data-entry protocol*** to indicate the common elements of information for the records to be entered into the database, and mark up the entries in the list for manual data entry as individual records.

- ***Language professionals*** who manage an in-house database such as *TERMICOM*® may type their records directly into the

database, without first going through a quality-assurance procedure.

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
- 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.

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.

Extract Data to Provide the Products Requested by Clients

The product to be delivered to users of a terminology file may take a variety of forms, including the following:

- ***querying*** of individual terms in the terminology file, a service requested and delivered by telephone (***SVP service***)
- ***term extraction*** leading to the production of a bilingual ***glossary***
- validation of a list of terms and their equivalents
- subject-field research leading to the creation of records and the production of a bilingual or multilingual vocabulary.

The most efficient way to respond to such requests is to ensure that the terminology required is present in the database and that the terminological data can be extracted without the addition of further information. If this is not the case, the terminologist must define a project to reply to the request, so that information missing from the database may be added and the desired product delivered.

The project can be prioritized and integrated into the terminologist's or the terminology service's annual work plan. Some suggestions follow:

- fully understand the user's expectations: the type of ***terminological data*** required, the number of entries or records to produce, the start and end dates of the project, the delivery deadline, the medium (on-line, on diskette, on paper), the contact persons on both sides, feedback to be given or follow-

up to be performed

- send the client a draft version of the ***terminological product*** in question to ensure that it is satisfactory and to incorporate any comments received, before delivery of the final version
- archive the electronic version of the deliverable, and re-use it to meet future needs for similar products
- inform all clients of the list of products available in the archives. One opportunity to provide the list is when conducting surveys on client needs and user profiles. However, the dialogue between the terminologist and his or her clients should be ongoing.

ACTIVITIES	DELIVERABLES
Term extraction in *Canadian Environmental Protection Act*	Electronic glossary and loading of term-extraction results into *TERMIUM*®
Term extraction in ISO 9000 standard *Quality Management and Quality Assurance*	Loading of about 20 records into *TERMIUM*®
Bibliographic research in aquaculture	Bibliography on diskette
Participation in revision of National Classification of Occupations	Loading of glossary produced into *TERMIUM*®
Establishment of departmental glossary concerning Government On-Line	Departmental glossary of about 3,000 entries, hard copy and electronic version
Participation in Terminology Committee on Safety	Loading of records into *TERMIUM*® and articles for *Terminology Update*

Fig. 28 *Order book: activities and deliverables*

Chapter III. TERMINOLOGY WORK TOOLS

Computerization of Specialized Content

Over the past twenty years, the computer has become the main tool for accessing specialized knowledge and the favoured 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 *Institut national de la langue française.*

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 Universalis* 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 centres, publishers and interested readers to access these archives.

Universities, institutes, and research centres 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 documentalists, 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.

Documentary Search Tools

Traditional ***documentary search tools*** and methods include catalogues produced by libraries and publishing houses, directories of published titles, such as *Books in Print*, consultation of documentary services by telephone or in person, interlibrary loans, and bibliographies published in specialized periodicals and other works. The terminologist's toolbox also includes computerized tools such as the following:

- ***Documentary data banks***. Among these data banks, *DIALOG* is considered to be the largest in the world. It gives access to more than 500 databases covering different subject fields. By selecting appropriate options from a menu, it is possible to obtain exact references, summaries, descriptors, or the complete text of periodical or journal articles. *PASCAL* and *DELPHES* are among the many databases available through *DIALOG*. This data bank is accessible via Datapac (using a modem) or the Internet; payment for access is in American dollars.

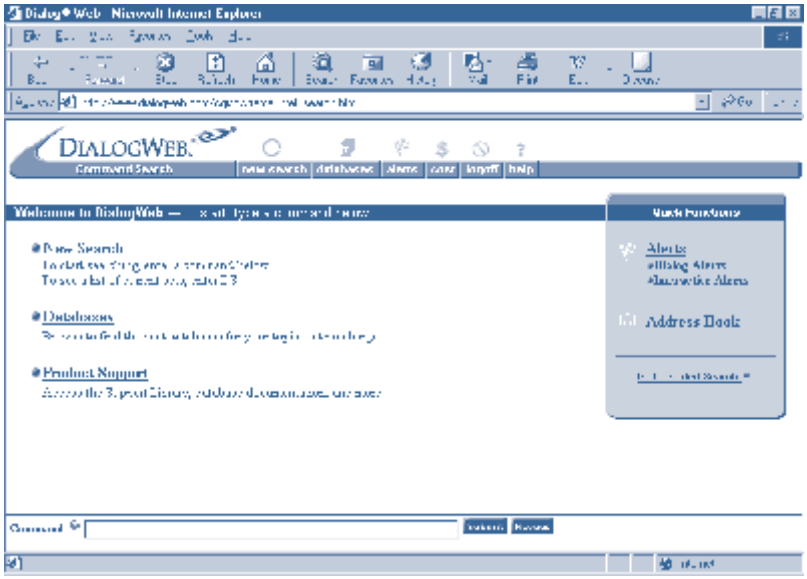


Fig. 29a *DIALOGWEB (screen shot reproduced with the permission of Dialog Corporation)*

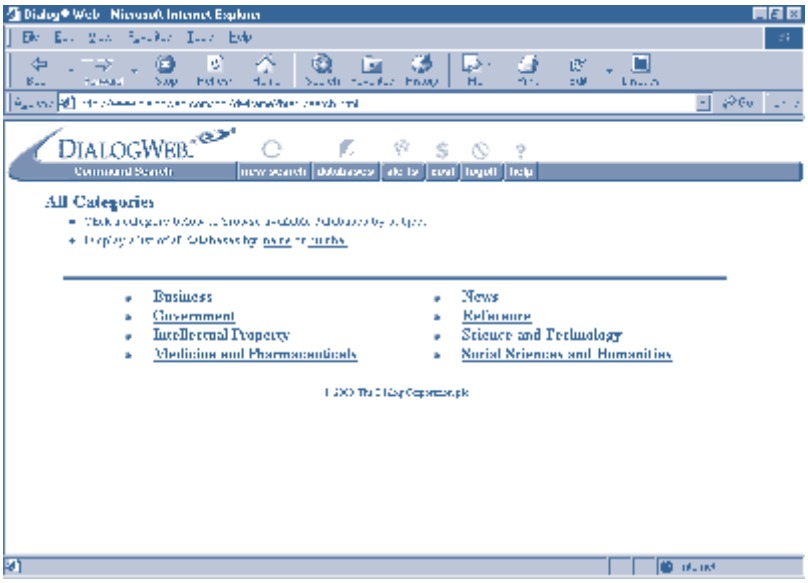
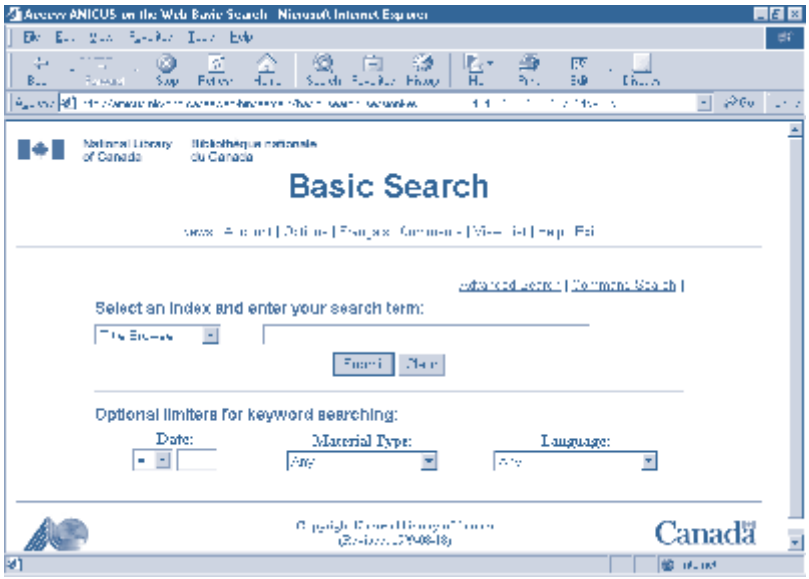


Fig. 29b *DIALOGWEB (screen shot reproduced with the permission of Dialog Corporation)*

- The computerized catalogues of large libraries facilitate tasks such as referencing, verification of bibliographic information, interlibrary loans, or location of a book or a periodical. For example, *AMICUS*, the National Library of Canada's information system, includes more than 40 search indexes (author, program, association, department, subject heading, title, subject, ISBN, ISSN, publisher, series, etc.). It is accessible via the Internet.



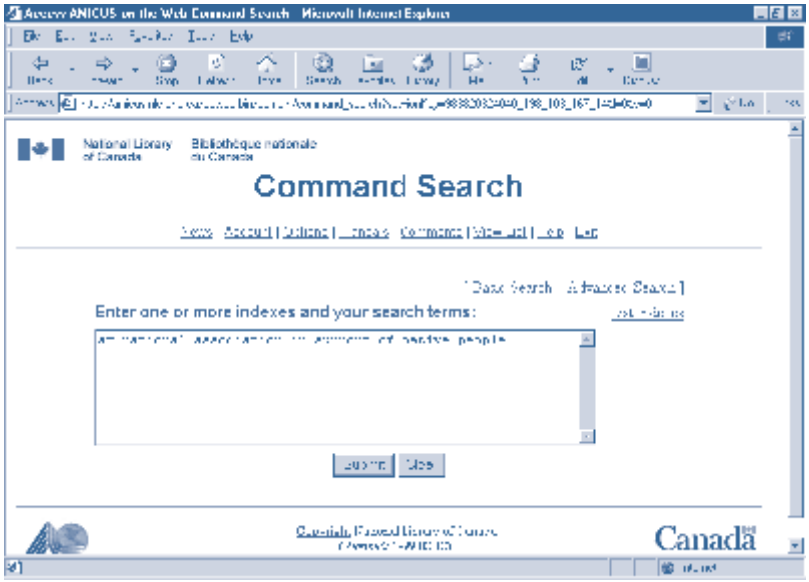


Fig. 30a *AMICUS search (screen shots reproduced with the permission of the National Library of Canada—www.nlc-bnc.ca)*

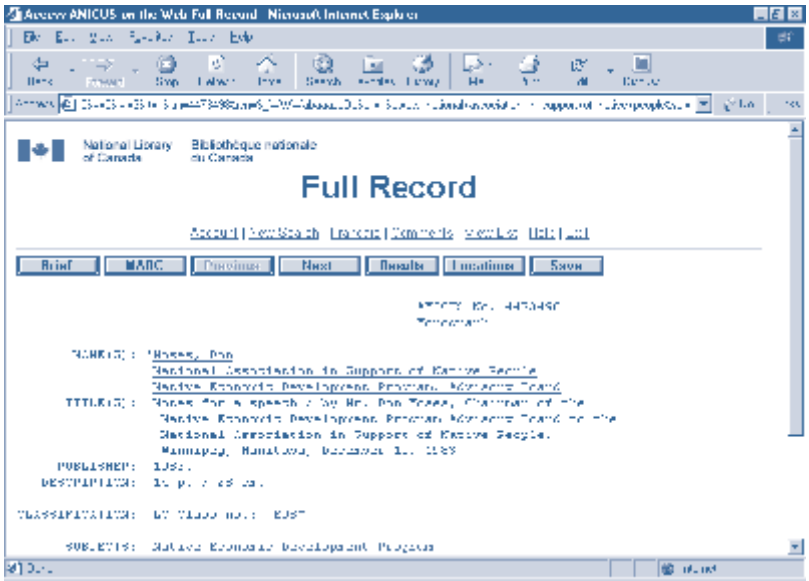


Fig. 30b *AMICUS search (screen shot reproduced with the permission of the National Library of Canada—www.nlc-bnc.ca)*

The *AG-Canada* database is similar to *AMICUS* as far as access and types of possible documentary searches are concerned (via Internet, payment required). The largest legal database in Canada is *QUICKLAW*, which gives access to several databases on precedents and administrative decisions made by government organizations, and to legislative databases containing federal and provincial laws and regulations.

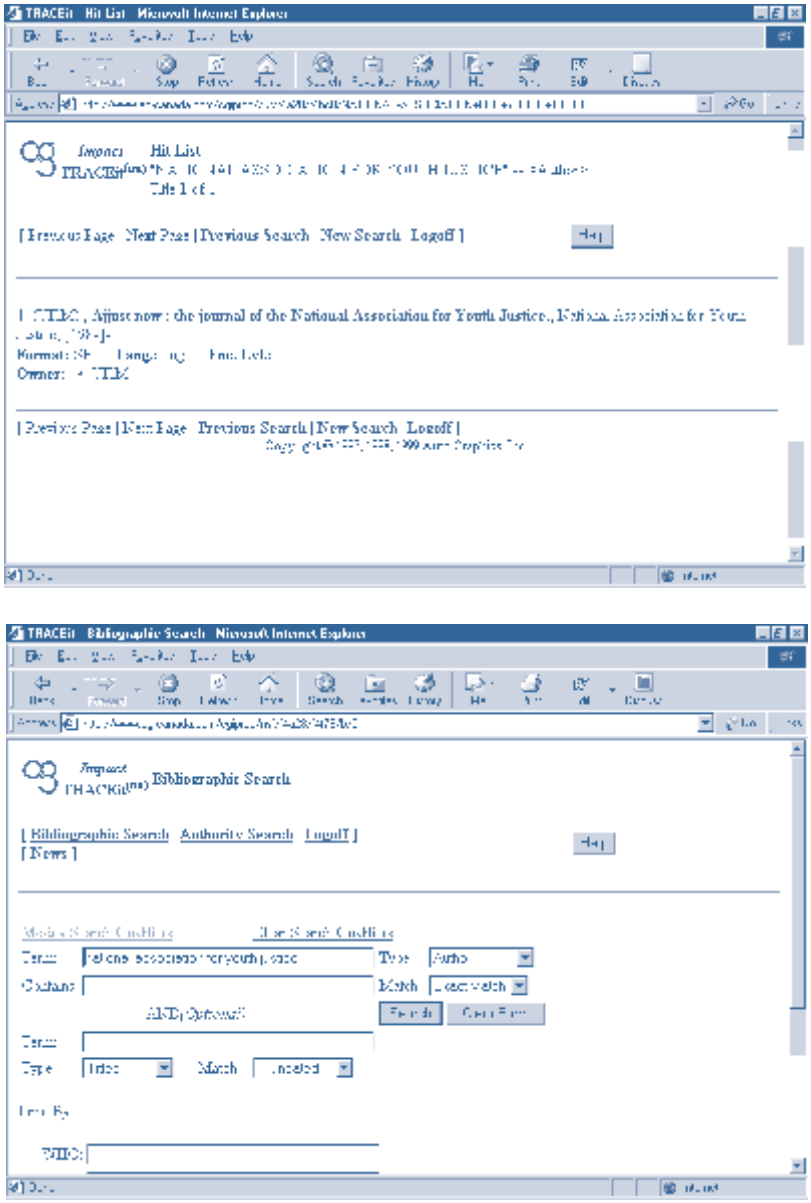


Fig. 31 *AG-Canada search (screen shots reproduced with the permission of AG-Canada Ltd.)*

- ***On-line search services*** provide terminologists and other users with bibliographic information by giving access to computerized search services in commercial data banks, in the databases mentioned above, or in the catalogues of Canadian libraries registered with *GEAC*.

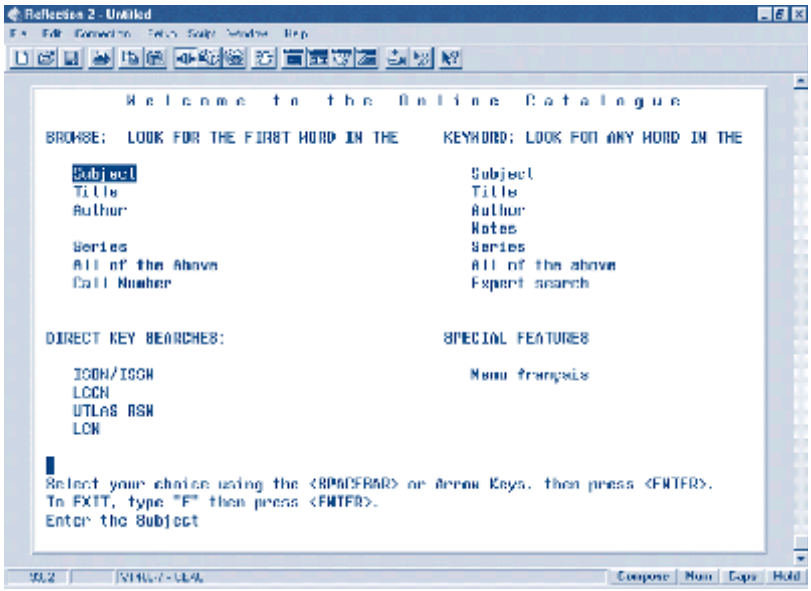


Fig. 32 *GEAC search (screen shot reproduced with the permission of GEAC Computers Ltd.)*

- The terminologist may perform his or her own ***documentary searches*** on the Internet using ***search engines*** such as *Alta Vista* (www.av.com), *Raging Search* (www.raging.com) and *Copernic* (www.copernic.com) and download the documents that will serve as bibliographic references. For example, the search engine *FindSame* searches for occurrences of a sentence, paragraph or entire document by scanning over 200 million URL addresses. It helps find ***sources*** dealing with the same topic or translations of a text, can help determine the frequency of

certain definitions in a given field, and so on. The search engine *Vivísimo* can perform queries by key words combined with operators such as + and -, selects documents and automatically sorts them into folders by topic and subtopic. It is also possible to find specialized glossaries and vocabularies by querying, for example, "glossary + subject field". It is a very valuable resource for compiling inventories of sources to be used in ***terminology research***.

- Reference portals (see linguistic sites in Appendix II) give access to, among other things, multilingual, multidisciplinary terminology ***data banks***. The names of the data banks are presented in alphabetical order. Selecting a name and clicking on it calls up the querying menu of the desired bank. It is possible to switch from one data bank to another while keeping the same screen, so that search results can be compared, and pertinent information can be retained for terminology research by using a word processor's copy-and-paste function.

Term-Extraction Tools

Manual ***term extraction*** involves attentively reading and annotating a series of documents selected after consulting documentalists and subject-field specialists. The results are used to establish the ***subject-field breakdown*** and ***concept system*** leading to the ***base list*** of concepts to be defined. Annotation of the texts involves highlighting the ***terminology units*** identified during reading and marking those parts of the text that provide information about the concepts to be defined.

Following marking up of the text, the terms and their contexts are copied to concept-based ***terminology case files*** for later selection of the most pertinent information to be included on terminology records.

When large documents must be scanned for terms, or when terms must be extracted from a large number of documents, the manual approach quickly becomes fastidious and costly in terms of time and human resources. Since information is being produced at an ever-increasing pace, large-scale term extraction is becoming more and more important for building and maintaining terminology databases; consequently, the use of computerized tools is unavoidable. Among the tools are the following:

- ***Electronic text corpora and optical character recognition***. Government organizations, research institutions, universities, and private-sector organizations distribute a growing number of electronic documents through their Web sites, with permission to download them. The general public can access documentation on the sites of professional associations, the press and television networks, although this access is not always free. These documentary sources are currently the most commonly used for ***term extraction*** in ***terminology work***. It is simply a matter of locating them with the help of search and navigation guides on the Internet (see GUGLIELMINETTI and RENEHAN), indexing them, and retrieving them with such tools as *Isys Desktop 5* or *Alta Vista Discovery*.

  The Translation Bureau recently created a central-archiving system which collects, in one database on one server, all of the texts (with appropriate security levels) translated by Bureau translators. The system, which can be consulted from employees' workstations, includes both the source- and target-language texts. It allows word searches to be performed in the texts, and aligns the retrieved documents to facilitate the recognition of equivalents in the target language.

  Some documentation may only be available in hard copy. The terminologist may select some of the texts for optical-character recognition in order to obtain an electronic version

to prepare for computerized term extraction. Given the current state of the art in OCR, this option is not recommended for very large documents.

- ***Computer-assisted term-extraction tools***. When the terminologist wishes to select terms to be retained for further study, s/he may use a computer-assisted method such as *YVANHOÉ*©, a product developed by a Translation Bureau terminologist for in-house use by colleagues responsible for managing a large terminological data bank. The program, which was recently redeveloped under *Windows*, extracts tagged terms from an electronic document and copies them to individual records, together with their context, source reference and page number. The resulting file is retrieved using a data-recording software (such as *LATTER*© or *TERMICOM*®) so that the records can be completed, merged and improved as research is pursued. The finalized records are then automatically transferred to the *TERMIUM*® data bank, to a publishing software, or to both.

Document 1

Un <<1 accélérateur de particules>> est un appareil qui accélère un faisceau de <<2 particules subatomiques>> à l'aide de <<3 champs électriques>> et <<4 champs magnétiques>> pour créer des <<5 rayonnements ionisants>> utilisés en <<6 cancérothérapie>>, en recherche, dans les analyses ou dans la production d'isotopes () Comme ces appareils peuvent produire de l'<<7 énergie nucléaire>> (c.-à-d. des <<8 matières radioactives>>), leur construction, leur <<9 mise en service>>, leur exploitation et leur <<10 déclassement>> sont assujettis au régime de <<11 permis de la CCEA>>. Le 31 décembre 1998, on dénombrait 120 accélérateurs en construction, en exploitation ou en déclassement. De ce nombre, 97 étaient regroupés sous 54 [[12 permis d'accélérateurs]] [[13 accélérateurs médicaux]] et de [[14 générateurs de neutrons]] utilisés pour la [[15 diagraphie des puits]]. Les 23 autres appareils étaient regroupés sous 15 permis d'[[16 accélérateurs médicaux de recherche]].

Document 2

A <<1 particle accelerator>> is a machine that uses <<3 electric fields>> and <<4 magnetic fields>> to accelerate a beam of <<2 subatomic particles>> to generate <<5 ionizing radiation>> that in turn is used for <<6 cancer therapy>>, research, analysis or isotope production () Machines that are capable of producing <<7 atomic energy >>(i.e.<<8 radioactive materials>>) require an <<11 AECB licence>> for their construction, <<9 commissioning>>, operating and <<10 decommissioning>>. As of December 31, 1998, there were a total of 120 accelerators under construction, in use or being decommissioned. Of these, 97 were covered by 54 [[12 licences for accelerators]] [[13 medical accelerators]] and [[15 well-logging]] [[14 neutron generators]]. The remaining 23 devices were included under 15 licences for[[16 medical research accelerators]].

Fig. 33a *Term extraction in bilingual texts using the computer-assisted program called YVANHOÉ©*

SUBJECT FIELDS
SCH Atomic Physics

EN medical accelerator*a

EX* As of December 31, 1998, there were a total of 120 accelerators under construction, in use or being decommissioned. Of these, 97 were covered by 54 licences for medical accelerators and 15 well-logging neutron generators.*a

FR accélérateur médical*b*MASC

EX* Le 31 décembre 1998, on dénombrait 120 accélérateurs en construction, en exploitation ou en déclassement. De ce nombre, 97 étaient regroupés sous 54 permis d'accélérateurs médicaux et de générateurs de neutrons utilisés pour la diagraphie des puits.*b

CODED SOURCES
a*CC-1771-1999F*1999***14; b*CC-1771-1999E*1999***15

Fig. 33b *Record produced using YVANHOÉ© program*

- ***Automated term-extraction tools***. One of the best known tools in this category is the *Nomino* software package which can perform ***term extraction*** in monolingual English or French texts (see Fig. 23a) without human intervention. Pseudo-terminological units must be removed from the resulting files. With the help of an indexing function, automatic pairing of the half-records can then be performed. *MultiTrans* also includes a term-extraction function that can be applied to identical bilingual texts. Potentially equivalent terminology units can then be proposed automatically. The product includes a ***text-alignment tool***, a record-creation module, and a translation memory that facilitate management of the collection of terminology acquired. Other Canadian-made software products that include term-extraction modules, such as *LogiTerm* and *EdiTerm*, are also used.

- ***Concordancers***. These software products, such as *WordCruncher*, are used in the analysis of literary texts to identify the vocabulary usage peculiarities and frequently used turns of phrase of a writer. When used in terminology,

these products can count and list the occurrences of a given term together with the words that precede and follow it within the constraints specified by the user (for example, five words before and five words after the term). Within these series of occurrences, the terminologist will find the most commonly used or most relevant phraseologisms and can then structure them according to the record-completion rules applicable to the phraseologisms field on a terminology record.

Terminology Research Tools

Once the ***base list*** relating to a ***vocabulary research*** project has been established, the terminologist finds, in the inventoried documentation, explanations of the concepts to be defined and observes the usage of the terms that designate them. The terms and textual supports related to each of these concepts can then be grouped together. The identification of pertinent information and the grouping of the information may be done manually or with the help of computerized tools. A practical approach is to query documentary databases for terms designating a concept, or to use Internet search engines to help document the terms.

- ***Terminology databases***. Consultation of terminology ***databases*** and ***data banks***, such as *TERMIUM*®, the *Grand dictionnaire terminologique*, and *EuroDicAutom*, allows the terminologist to better understand the concepts to be defined, to evaluate the quality and timeliness of the terms that designate them and, if necessary, to find equivalents for these terms in languages other than that in which they were queried. These data banks may be available on the Internet, via modem or, in some cases, on CD-ROM.

- ***Search engines***. New technologies bring extremely rapid changes in this area, but it seems useful to mention a few of the current search engines. *Google* (www.google.com) for

Windows Internet Explorer locates Web pages containing a particular term, ranks them by order of importance, and highlights the requested term in the ***context*** found on each of the retrieved pages. This approach helps the terminologist select the most pertinent information concerning the concept and its ***designations***. If the search engine finds multiple results on the same site, it presents the best results first, and offers the option to continue the search in sites containing similar results. The *Windows* copy-and-paste function facilitates the selection of information that can be used in the ***writing*** or ***quotation*** of textual supports. *Alta Vista*, *Vivísimo* and *Copernic* are also useful when documenting terms. With the commercial version of *Copernic 2000 Pro*, it is possible to explore 55 subject categories using over 600 search engines. The product also features automated search operations such as downloading, validating and refining, and offers a ***spell checker*** and a search wizard to facilitate query formulation. It organizes searches into folders and tracks them, automatically updating results at regular intervals.

- ***Internet user networks and discussion groups***. The exchange of information, experience, and professional opinions is a very valuable aspect of terminology research. Consequently, it is recommended that terminologists explore language forums on the Internet (see list in Appendix II), or create ***discussion groups*** within their own company or department. For example, Translation Bureau translators, terminologists and interpreters can access contributions from the Bureau's own *Internet Users Network*.

Data-Recording Tools

- ***The Terminologist's Workstation***, *LATTER*©. The Translation Bureau developed the terminologist's ***workstation*** to rationalize resources and streamline the work flow related to the creation of ***terminological products***. The workstation combines a

number of programs and allows the collection, storage, sharing, analysis and synthesis of ***terminological data*** while simplifying and accelerating the input of *TERMIUM®* records and the production of ***glossaries*** and ***vocabularies***. The local ***database*** that is part of *LATTER©* includes, among others, functions for data management and exchange, and allows the creation of worksets of records produced or imported, and the exclusion of selected records. Using *LATTER©*'s data-recording program, the terminologist may:

- input records resulting from term extraction
- draft records for later completion
- prepare monolingual, bilingual or multilingual records
- combine multilingual records based on textual matches
- create complete, final records
- copy complete records or parts of records and modify the copies
- establish conceptual links among various groups of records
- collect and record phraseological data
- automatically validate records before exporting them to *TERMIUM®*
- exchange records between workstations
- export sets of records to electronic-publishing software
- import *TERMIUM®* or *YVANHOÉ©* records or outside-collaborator records for processing
- automatically query *TERMIUM®* to detect terms missing from that database, etc.

```
LATTER 2.3 -- Browse Record #8 -- 1/1
   Record       Edit       Workset       Utilities       About...            Exit
 LAT. Proj.    : CCSN-2000
 LAT. subj.    :
 TER subj.     : SHH • YAA
 Sec. subj.    : FICHE PROTÉGÉE
 Data coll.    : TER
 File          : B
 Comp code :
••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••
 Language      : EN
 Entry term    : radiation protection
  Source:      : a
  Param.       : COR • NORM
 Abbrev.       :
    Source     :
    Param.     :
 Entry term    : radiological protection
    Source     : c
    Param.     : COR
 Abbrev.       :
    Source     :
    Param.     :
••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••
 Def. type     : DEF
 Text. sup.    : The science and practice of assessing radiation hazards and of developing,
                 encouraging the use of, and using the instruments, protective clothing,
                 guidelines and procedures required for keeping radiation doses within the dose
                 limits and as low as reasonably achievable.
   Source      : c
 Def. type     : OBS
 Text. sup.    : radiation protection: term standardized by the Canadian Committee for the
                 Standardization of Nuclear Terminology.
   Source      : f
 Key term      :
 Group. key    :
 References    :
••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••••
 Language      : FR
 Entry term    : radioprotection
 Source        : b • d • e
  Param.       : COR • F • NORM
  Abbrev.      :
    Source     :
    Param.     :
 Entry term.   : protection radiologique
    Source     : d
    Param.     : COR • F
```

Fig. 34a *Completed LATTER© record (continued in Fig. 34b)*

Def. type : DEF
Text. sup. : Science et pratique de l'évaluation des risques dus aux rayonnements, de même que l'élaboration, et la promotion de l'utilisation des instruments, des vêtements protecteurs, des directives et des procédures nécessaires pour maintenir les doses de rayonnement en deçà des limites de dose et à des niveaux aussi bas qu'il soit raisonnablement possible d'atteindre.
Source : d
Def. type : OBS
Text. sup. : protection radiologique; radioprotection : termes normalisés par le Comité canadien de normalisation de la terminologie nucléaire.
Source : f
Key term :
Group. key :
References :

	Source	Yr1	Yr2	Volume	Number	Page
a	CC-172-5E	1989				iv
b	CC-172-5F	1989				iv
c	AECB-C-78	1983				A-14E
d	AECB-C-78	1983				A-18F
e	AECB-R-52-1	1991				1F
f	3TGR	1989				

Orig. code : 3TRL
Created : 94/08/24
Modified : 00/12/18
Rev. code :
Revised :
Rev. trans :
Transfer :
Synthesize:
Comment :

TER. key : 1588216
From TER : 00/06/28
Orig. name :
Cr. Date T :
Upd. name :
Update : 00/12/18
Rev. name :
U. Rev. C. :
Updte Rev :

Fig. 34b *Completed LATTER© record (continued from Fig. 34a)*

- ***TERMICOM***®. The first version of this user-friendly application was created by a Translation Bureau translator for use by his colleagues. The most recent version allows individual translators to create and store relatively simple records, share them immediately with a group of authorized users through the local area network, and manage all records collectively.

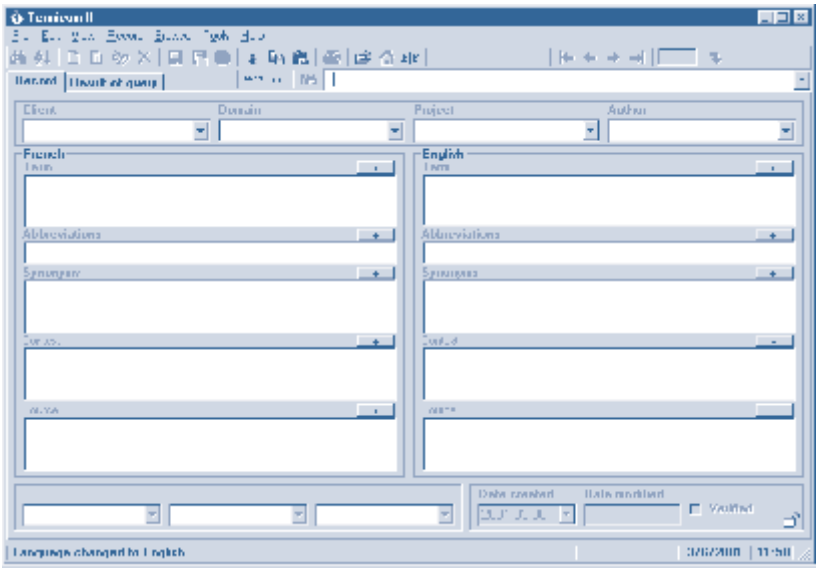


Fig. 35 *TERMICOM® record*

- ***Spell checkers***. Word-processing packages generally include spell-checking utilities which can be used to accelerate the proofreading stage of record creation. By comparing the recorded terms and textual supports with its reference dictionary, the spell checker can indicate typographical errors and other discrepancies. However, the usefulness of spell checkers is limited in terminology work, since the most up-to-date contents of terminology databases have never been recorded in dictionaries, much less in the dictionaries included with commercial word processors. In fact, when spell checkers stop at unrecognized words, it is more likely to be because of the limitations of their reference dictionaries than because of typographical errors on the terminology records.

Electronic-Publishing Tools

- ***PUBLICIEL***©. This electronic-publishing tool, a DOS application, was developed by the Translation Bureau in 1990 to produce its electronic ***glossaries*** and ***vocabularies***. The application includes a database and output programs that format the stored information according to the guidelines laid out in the Bureau's *Guide des publications*[1]. Some terminologists have a copy of the application on their workstation, and can import sets of ***terminological data*** taken from *TERMIUM*® or *LATTER*©. *PUBLICIEL*© then performs the desired page layout in the form of a file that can be retrieved in *WordPerfect* or *Word*. The resulting manuscript can then be saved in PDF or HTML format and distributed on the Internet using a File Transfer Protocol (FTP).

Database Management Tools

- ***Terminological data storage software***. With personal data storage tools such as *DicoMaker*, it is generally easy to create and update records in multiple languages, consult the ***terminology file***, and print the data in dictionary form. However, the memory capacities of the tools are often relatively limited, as are functions related to data management (statistical reports, search histories, inversion of languages, etc.).

- ***Multilingual database management systems***. *Termbase* is an example of a system that is intended for use by translators for managing multilingual terminological data. It allows the creation of records that include English, French, Spanish, German and Italian terms, the extraction, exchange and updating of the records, statistical management of the database's contents, output in RTF format, and the definition of access restrictions per user.

[1] *Translator's note: The English version of this guide is not yet available.*

- ***Multiple database management systems***. Tools such as *TermStar*, *MultiTerm* and *EdiBase* are used to manage databases that can be configured by the user, who can define and group numerous databases for consultation purposes. These databases can hold a large number of entries and a wide variety of languages, and can be integrated with word-processing software such as *Word* and *WordPerfect*. They allow the user to define and store filters for restricting searches, to protect certain parts of the database contents, to perform global changes on groups of records, and to link images to records.

- ***Terminology database managers***.
  - ***The TERMIUM® system***. This is a large-scale data management system that allows the storage, distribution, macro-management and manipulation of terminological and documentary data. The name *TERMIUM®* also designates the ***database*** within the system that contains more than one million records for ***consultation***, and the spinoffs *TERMIUM® on CD-ROM* and TERMIUM Plus® (on the Internet). The system produces monthly statistical reports on the types of ***transactions*** performed, grouped by record originator, by project title, by subject field, by language, by file, and by other access keys. The system is also used to maintain the subject-field ***classification system*** and user profiles (including read and write privileges); it ensures data security and provides information concerning the amount of time each user spends on-line, the number of queries per user, and the response rate related to these queries.
  - ***Virtual compartments in TERMIUM®***. These are subdivisions of the *TERMIUM®* system which contain data managed by outside collaborators, and which ensure the protection, integrity and ownership acknowledgment of these data in the commercial versions of *TERMIUM®*. With the help of these compartments, records can be created in the *LATTER©* format, improved through global

or individual changes, and extracted for the production of publications.

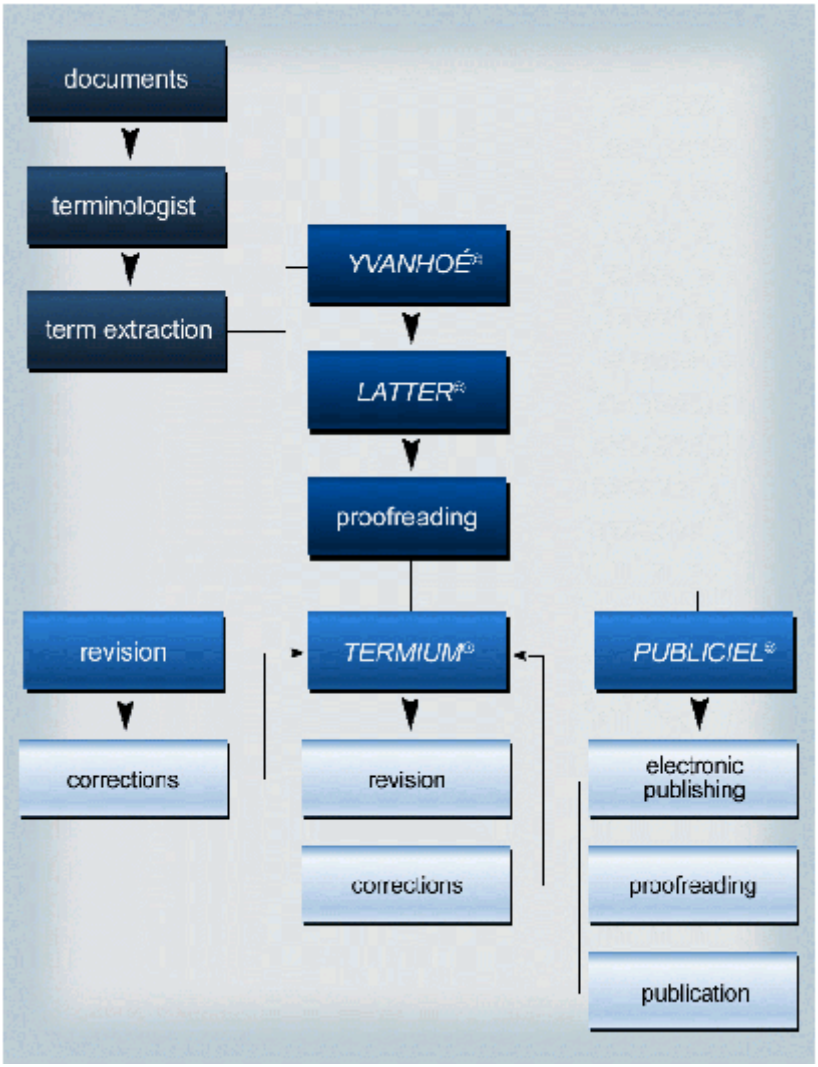


Fig. 36 *Terminologist's work flow*

For a given research topic, the terminologist may use the tools described in this chapter to:

- perform documentary research and preliminary readings
- create an initial text corpus in the source and target languages
- delimit the subject field to be researched
- establish the concept system to be examined and the related base list
- consult terminology databases
- analyze terms identified in their context
- group synonyms, variants and abbreviations on single-concept records
- select textual supports necessary to describe the concepts and demonstrate usage
- draft definitions and observations
- illustrate the use of terms in specialized discourse through phraseologisms
- suggest neologisms when designations do not exist
- inform the user of the official status of terms
- format the data for the production of publications and of other terminological tools intended for distribution on the Internet.

Terminology and Language Industries

The increasing automation of the terminology work flow is just one way in which the profession of terminology is being modernized. Other innovations include:

- networking of terminology data banks
- creation of sites for exchanging information and terminological products
- access to directories of terminology and translation service providers on the Internet
- joint action with the terminological sectors in large international organizations and the national organizations of member countries.

Because of the integration of information through these tools and products, ***terminology work*** has become both an important component of the ***language industries*** and a critical means of

attaining goals related to the globalization of products and services in today's society. It is also a means of localizing or adapting these products and services for use in local markets.

In conclusion, effective communication is a prerequisite to information exchange across boundaries, languages and cultures. Translation, terminology and interpretation play a key role in the management of multilingual knowledge, in the production of documentary and language products facilitating information interchange, and in the integration of language resources for a knowledge-based society.

APPENDIXES

I - List of Principal Standardization Organizations

1.1 Canadian National Standardization Bodies

Association canadienne du gaz **(ACG)** / Canadian Gas Association
http://www.cga.ca/

Bureau de normalisation du Québec **(BNQ)**
http://www.criq.qc.ca/bnq

CSA International / CSA International **(CSA)**
http://www.csa-international.org

Laboratoires des assureurs du Canada **(ULC)** / Underwriters' Laboratories of Canada **(ULC)**
http://www.ulc.ca

Office des normes générales du Canada **(ONGC)** / Canadian General Standards Board **(CGSB)**
http://w3.pwgsc.gc.ca/cgsb

1.2 Non-Canadian National Standardization Bodies

Australia

Standards Australia **(SAA)**
http://www.standards.com.au/

Belgium

Institut belge de normalisation **(IBN)**
http://www.ibn.be/

Finland

Finnish Standards Association **(SFS)**
http://www.sfs.fi/esisa.html

France

Association française de normalisation **(AFNOR)**
http://www.afnor.fr/

Germany

Deutsches Institut für Normung **(DIN)**
http://www.din.de/

Ireland

National Standards Authority of Ireland **(NSAI)**
http://www.nsai.ie/

Italy

Ente Nazionale Italiano di Unificazione **(UNI)**
http://www.nsai.ie/

Japan

Japanese Industrial Standards **(JIS)**
http://www.jisc.org/ejis1.htm

Japanese Industrial Standards Committee **(JISC)**
http://www.jisc.org/ejis1.htm

Malaysia

Standards and Industrial Research of Malaysia **(SIRIM)**
http://www.sirim.my/

Mexico

Dirección General de Normas
http://www.secofi.gob.mx/normas/home.html

New Zealand

Standards New Zealand
http://www.standards.co.nz/

Norway

Norges Standardiseringsforbund **(NSF)**
http://www.standard.no/

Spain

Asociación Española de Normalización y Certificación **(AENOR)**
http://www.aenor.es/

Switzerland

Association Suisse des Électriciens **(ASE)** / Schweizerischer Elektrotechnischer Verein **(SEV)**
http://www.sev.ch/f

United Kingdom

British Standards Institution **(BSI)**
http://www.bsi-global.com

Standards and Metrology Institute **(SMIS)**
http://www.usm.mzt.si/

United States

American National Standards Institute **(ANSI)**
http://www.ansi.org/

American Petroleum Institute **(API)**
http://www.api.org/tech/

American Society of Heating, Refrigerating and Air-Conditioning Engineers **(ASHRAE)**
http://www.ashrae.org/

American Society for Testing and Materials **(ASTM)**
http://www.astm.org/

Book Industry Systems Advisory Committee **(BISAC)**
http://www.bisg.org/

Data Interchange Standards Association **(DISA) —** EDI Standards
http://www.disa.org/

Defense Standardization Program **(DSP)**
http://www.dsp.dla.mil/

Institute of Electrical and Electronics Engineers **(IEEE)**
http://standards.ieee.org/catalog/olis/index.html

Internet Engineering Task Force **(IETF)**
http://www.imc.org/ietfwgs.html

National Information Standards Organization **(NISO)**
http://www.niso.org

National Institute of Standards and Technology **(NIST)**
http://www.nist.gov/welcome.html

Radio Technical Commission for Aeronautics, Inc. **(RTCA)**
http://www.rtca.org/

Serials Industry Systems Advisory Committee **(SISAC)**
http://www.bisg.org

Society of Automotive Engineers **(SAE)**
http://www.sae.org/technicalcommittees/index.htm

Underwriters Laboratories Inc. **(UL)**
http://www.ul.com/welcome.html

1.3 International Standardization Bodies

Agence internationale de l'énergie atomique **(AIEA)** / International Atomic Energy Agency **(IAEA)**
http://www.iaea.org/worldatom/

Association de transport aérien internationale **(IATA)** / International Air Transport Association **(IATA)**
http://www.iata.org/

Association internationale des sciences et technologies céréalières / International Association for Cereal Science and Technology **(ICC)**
http://www.icc.or.at/#tab

Bureau international des poids et mesures **(BIPM)**
http://www.bipm.fr/

Bureau international pour la standardisation de la rayonne et des fibres synthétiques **(BISFA)** / International Bureau for the Standardization of Man-made Fibres **(BISFA)**
http://www.bisfa.org/

Codex Alimentarius Commission **(CAC)**
http://www.fao.org/waicent/faoinfo/economic/esn/CODEX/

Comité européen de normalisation **(CEN)** / European Committee for Standardization **(CEN)**
http://www.cenorm.be/

Commission Électrotechnique Internationale **(CEI)** / International Electrotechnical Commission **(IEC)**
http://www.iec.ch

Commission Internationale de l'Éclairage **(CIE)** / International Commission on Illumination **(CIE)**
http://www.cie.co.at/cie/

Conseil international des machines à combustion **(CIMAC)** / International Council on Combustion Engines **(CIMAC)**
http://www.cimac.com/wwwroot_netscape/index_NS.htm

Consultative Committee for Space Data Systems **(CCSDS)**
http://www.ccsds.org/

Council for Harmonization of Electrotechnical Standardization of the Nations of the Americas **(CANENA)**
http://www.canena.org/canena/standardization.html

Fédération dentaire internationale **(FDI)** / World Dental Federation
http://www.fdi.org.uk/about/index.htm

Fédération internationale d'information et de documentation **(FID)** / International Federation for Information and Documentation **(FID)**
http://www.fid.nl/

Fédération internationale pour le traitement de l'information / International Federation for Information Processing **(IFIP)**
http://www.ifip.or.at/

Comité international de normalisation de la comptabilité **(CINC)** / International Accounting Standards Committee **(IASC)**
http://www.icca.ca/

International Council for Research and Innovation in Building and Construction **(CIB)**
http://www.cibworld.nl/

Institut international du froid **(IIF)** / International Institute of Refrigeration **(IIR)**
http://www.iifiir.org/

Office international de la vigne et du vin **(OIV)** / International Vine and Wine Office **(OIV)**
http://www.oiv.org

Organisation internationale de métrologie légale **(OIML)** / International Organization of Legal Metrology **(IOLM)**
http://www.oiml.org

Organisation internationale de normalisation **(ISO)** / International Organization for Standardization **(ISO)**
http://www.iso.ch/

Organisation internationale du Travail **(OIT)** / International Labour Organization **(ILO)**
http://www.ilo.org/public/french/index.htm

Organisation météorologique mondiale **(OMM)** / World Meteorological Organization **(WMO)**
http://www.wmo.ch/index-fr.html

Organisation mondiale de la propriété intellectuelle **(OMPI)** / World Intellectual Property Organization **(WIPO)**
http://www.wipo.org/index.html.fr

Organisation mondiale de la Santé **(OMS)** / World Health Organization **(WHO)**
http://www.who.int/

Réunion internationale des laboratoires d'essais et de recherches sur les matériaux et les constructions **(RILEM)** / International Union of Testing and Research Laboratories for Materials and Structures **(RILEM)**
http://www.rilem.org/profile.htm

Secteur de la normalisation des télécommunications **(UIT-T)** / ITU Telecommunication Standardization Sector **(ITU-T)**
http://www.itu.int/ITU-T/index.html

Union internationale de chimie pure et appliquée **(UICPA)** / International Union of Pure and Applied Chemistry **(IUPAC)**
http://www.iupac.org/

Union internationale des chemins de fer **(UIC)** / International Union of Railways **(UIC)**
http://www.uic.asso.fr/fr/index.html

Union internationale des télécommunications **(UIT)** / International Telecommunication Union **(ITU)**
http://www.itu.int/ITU-T/index.html

United Nations Centre for Trade Facilitation and Electronic Business **(UN/CEFACT)**
http://www.unece.org/cefact/

II - Brief Directory of Language Sites

1. Terminology Databases

TERMIUM Plus® (Government of Canada's Linguistic Data Bank). English, French and Spanish. Free to Canadian public service. Sold to public.
www.termium.gc.ca or www.termium.com

Grand dictionnaire terminologique (Government of Quebec's terminology data bank). English and French. Free.
www.granddictionnaire.com

EuroDicAutom (European Union's terminology data bank). Multilingual. Free.
http://eurodic.ip.lu

Termite (International Telecommunication Union's terminology database). Multilingual. Free.
www.itu.int/search/wais/Termite/

LOGOS terminology data bank. Multilingual. Free.
www.logos.it

TERMDAT (Government of Switzerland terminology database). Multilingual. Free.
www.admin.ch/ch/I/bk/termdat/index.htm

2. Vocabularies, Glossaries, Dictionaries

A Web of On-line Dictionaries. English. Free.
www.yourdictionary.com

Dictionary of English acronyms. English. Free.
www.acronymfinder.com

Voilà portal. French. Free.
http://guide.voila.fr/Informatique_internet/Glossaires_lexiques

The Microsoft Glossaries. English. Free.
ftp://ftp.microsoft.com/developr/msdn/newup/glossary/

Bilingual electronic dictionaries, sorted by source language. French. Free.
www.admin.ch/ch/f/bk/sp/dicos/biling.htm

Oxford English Dictionary. English. Annual subscription.
http://dictionary.oed.com

Babylon, automatic multilingual dictionary. Multilingual. Free.
www.babylon.com

3. Encyclopedias

Hachette encyclopedia. French. Free.
www.encyclopedie-hachette.com

Encyclopaedia Britannica On-line. English. Free.
www.eb.com:180/

Webopedia: On-line Computer Dictionary for Internet Terms. English. Free.
www.webopedia.com

4. Reference Works

Portal to reference works on information technology. English. Free.
www.whatis.com

Principles of English Usage in the Digital Age. English. Free.
http://hotwired.lycos.com/hardwired/wiredstyle

TransSearch. Bilingual. Free.
http://132.204.26.67/TransSearch/TS-simple-ufr.cgi?

III - Language Management Infrastructure in Canada's Public Service, 2000

TODAY'S CHALLENGE

A commitment to excellence in communications in English and French is at the core of the Translation Bureau's language management activities. Mandated to standardize and disseminate terminology in the federal Public Service since 1974, the Bureau has enhanced the quality and vitality of Canada's official languages by providing ready access to a common terminology.

As a special operating agency of Public Works and Government Services Canada since 1995, the Translation Bureau has made tremendous strides in fine-tuning its terminology products and services to meet the needs of federal employees and other clients. Ever mindful of its mandate, the Bureau has had to rethink its approach to standardization viewed in relation to the rapid proliferation of terminological databases in the Public Service. From sole provider of translation services to federal departments and agencies a few years ago, the Bureau now finds some of its traditional clients looking to other suppliers for services. Some have begun to develop their own data banks to store their supplier's terminology, while others are starting to manage their own terminological data to meet such specific needs as the use of search engines for easier access to data, computer-assisted translation, as well as dissemination and standardization of in-house terminology and official titles. With the ready availability of inexpensive data management software, there is a fast-growing trend toward the proliferation of departmental banks.

The emergence of these independent satellite terminology banks, including a great many databases on the Internet, presents a challenge to the Translation Bureau as it relates to its mandate of disseminating and standardizing the terminology shared by the entire Public Service. In time, information could be dispersed among a constellation of minibanks whose autonomy might, at first glance,

seem to rule out common access by all. Moreover, this phenomenon is even found within the Bureau where the contents of its own linguistic data bank, *TERMIUM®*, are augmented by collections developed by the translation units themselves which store each client's in-house terminology. Responding proactively to this situation, the Bureau has put mechanisms in place to transfer these data to *TERMIUM®*, thus changing a potential disadvantage into a plus for language management.

STRATEGY

Products and services for terminology standardization and dissemination

As part of its language management strategy, the Bureau has developed products and services to reach its standardization and dissemination goals and thus fulfil its mandate. To this end, the Translation Bureau maintains and updates the contents of *TERMIUM®*, its linguistic data bank now consisting of some three million terms and official titles in a great many leading-edge fields. The Bureau first offered *TERMIUM® on CD-ROM* in 1996 to government users. This was followed shortly thereafter by the launch of *TERMIUM Plus®* on the Extranet, an upgrade with 40% new content and three writing and editing guides. Easy to consult and accessible free of charge to federal employees, *TERMIUM Plus®* is also available by subscription through the Internet to the general public.

The Bureau's sphere of activities also extends to the production of glossaries and vocabularies (more than 100 titles to date), as well as the publication of *Terminology Update*, a quarterly periodical intended mainly for language professionals. Switching to an informatics environment to reach a wider client base, the Bureau is opting increasingly for electronic-format publications available through the Extranet and the Internet. Also, the quarterly has been recently revamped to broaden its readership and to feature our products and services more prominently.

Because the traditional concept of terminology has evolved, it is no longer sufficient to provide users with the equivalent of a term in a particular language, along with the context supporting that choice. Clients now expect information on how to use terms and their proposed equivalents in context. Consequently, *TERMIUM*®'s content is gradually being augmented by tools relating to grammar, syntax, usage and typography as well as writing and editing guides that are designed to promote effective communication. This is yet another example of the language management resources that are being offered to our clients.

The Bureau also designed and developed *Querium*, a bilingual query module, for Web sites. Working in tandem with a client's search engine, this technolinguistic tool lets Web surfers retrieve documents with greater ease, using key words entered in English or French. *Querium* enhances the quality of on-line searches by providing a list of synonyms for the term queried. The user can thus conduct a simultaneous search for several related terms in a single operation. The module is now in use on Industry Canada's Strategis site.

And lastly, for specific terminology-related questions the Bureau's clients can consult a language information service, known as the SVP Service, that is staffed by a team of experienced terminologists.

Owing to the increased presence of these products and services in the Public Service, employees can now easily access reliable tools providing them with a common terminology that, in turn, fosters a high level of standardization and ensures effective communication in both official languages.

Building a language management infrastructure

The Translation Bureau has chosen to form partnerships with the principal stakeholders in official languages to build a viable infrastructure to promote standardization government-wide. Experience acquired in standardization committees both abroad and

at home has shown that it is often pointless to try to impose standards unilaterally if the intended users reject them. The active participation of the target audience's representatives is needed, because no consensus on terminological decisions can be reached without prior discussions and exchanges of views. The same is true of any language management initiative likely to have a significant impact on the Public Service as a whole.

Accordingly, the Bureau makes good use of the Departmental Advisory Committee on Official Languages (DACOL) that acts as a forum for consultation and communication on official languages and deals with issues pertaining to the implementation and goals of the *Official Languages Act.* It was DACOL that first validated the Bureau's approach in 1996 to the installation of *TERMIUM® on CD-ROM* government-wide. And as recently as 1998, the Bureau sought their advice and recommendations before going ahead with the installation of *TERMIUM Plus®* on the Extranet.

In 1997, the Bureau teamed up with the Treasury Board Secretariat and the Office of the Commissioner of Official Languages to seek out their advice and to obtain their unique views on how to carry out its terminology mandate. This led to the creation of the Interdepartmental Advisory Group on the Terminology and Standardization Program, the first step toward setting up an infrastructure for language management consultation in the Public Service.

The following year the Bureau established the *Terminology Managers Network,* now called the *Federal Terminology Council,* to further promote standardization. With the growing trend toward terminology banks branching out into ever more complex networks, the Translation Bureau opted to consolidate the efforts of managers having a keen interest in terminology. The Federal Terminology Council ensures the integrated and coherent management of collections and allows for the creation of mechanisms for data exchange. Providing an overview of terminological activities throughout the Public Service, the Council is instrumental in retrieving terminologies that would otherwise be lost

to the Bureau and others. It also makes its expertise available to departments and agencies managing their own databases.

The Bureau has also established the Advisory Group on the Canadian Language Management Site, which is mandated to provide advice on the design, development and maintenance of the Site. Conceived to present a common and integrated vision of Canada's language policy, the Site showcases the various projects, products and services in support of this policy. It also promotes the language management expertise of the Government of Canada and other Canadian stakeholders, and pools the achievements of various government levels and other partners in the language industry. Among its responsibilities relating to the Advisory Group, the Bureau was assigned the role of Canadian correspondent for language management to the *Agence intergouvernementale de la Francophonie*.

Standardization committees

Among its many activities, the Translation Bureau remains in the forefront of standardization and participates actively in the following standardization committees:

- Technical Committee on Terminology–Principles and Coordination of the International Organization for Standardization (ISO/TC37)
- The National Program for the Integration of Both Official Languages in the Administration of Justice (POLAJ)
- NATO Terminology Committee
- Toponymy and Terminology Committee of Parks Canada
- Canadian Permanent Committee on Geographical Names (CPCGN)
- *Entraide Traduction Santé* (ETS)
- *Comité de terminologie de l'Ordre des comptables agréés du Québec*
- Committee on Financial Administration Terminology
- Army Terminology Board
- Words First - Indian and Northern Affairs Canada

Pooling of resources

Satellite terminology collections have led to a high degree of field specialization or, in some cases, fragmentation as well as a proliferation of storage points. Faced with this complex challenge, the Translation Bureau has acknowledged this new reality and has acted as a catalyst for discussion and consultation among users of terminology collections. In this new environment, the Bureau intends to serve as a focal point for the pooling of information, making terminologies that might otherwise be dispersed available to its partners.

Indeed, the Bureau strives to remain at the crossroads of terminological activities on the widest possible scale, so as to support the major language management players in a meaningful way, and to optimize the input of standardized data into *TERMIUM*®. That is why it is active in organizations whose work directly or indirectly benefits the Bureau and enriches *TERMIUM*®. They are as follows:

- International Organization for Standardization (ISO)
- North Atlantic Treaty Organization (NATO)
- *Réseau panlatin de terminologie* (Realiter)
- *Réseau international francophone d'aménagement linguistique* (Rifal)

The Bureau also maintains close links with the following agencies:

- *Délégation générale à la langue française* (France)
- *Office de la langue française* (Quebec)

And finally, through co-operation agreements with universities and foreign agencies, the Bureau regularly receives new terminology collections that meet its overall language management priorities. The expertise acquired by its collaborators constitutes another tangible benefit for the Bureau that can in turn be shared with its own clients.

Positioned at the crossroads of terminological activities, the Bureau is able to share its expertise in the coherent management of terminology banks and to fine-tune its integrated approach to language management.

Language management consultants

Recently, the Bureau has begun to make its terminologists' expertise in inputting and managing data available directly to such clients as the Department of Justice, Revenue Canada, and Agriculture and Agri-Food Canada. In addition to assessing terminological needs, these language management consultants provide sound advice on how to select and use existing software. For the Bureau, this new role of terminology adviser is having a noticeable and positive impact on the creation of rewarding partnerships and the acquisition of new terminologies. As well, the Bureau is gaining new insight into the changing role of terminology in the federal Public Service.

TOMORROW'S CHALLENGE

We can already foresee how the infrastructure will be organized in the new millennium: a network of highly customized and specialized satellite banks orbiting around a megabank, such as *TERMIUM*®. Acting as an anchor point, it will give access to a common terminology base, which will further promote standardization.

In the face of an ever-changing environment, the Bureau will build on its strengths, while adapting and innovating in renewed collaboration with its network of Public Service partners and with its outside collaborators. As a high-profile provider of quality terminology products and services and as a recognized authority in standardization practices, the Translation Bureau will assume its proper place in the broader field of language management at home and on the world stage.

Terminology and Standardization Directorate,
Translation Bureau

GLOSSARY

A

***abbreviation*:** The act of removing one or more components of a word or phrase by clipping, acronymy, initializing, or blending. The designation formed by omitting words or letters from a longer form. Examples: *laboratory = lab*; *stagflation* = *stagnation* + *inflation*; *World Wide Web* = *web*, *www*.

***acronym*:** An abbreviation composed of the initial letters or syllables of a compound term and which is pronounced as a single word. Examples: *Disk Operating System* = *DOS*; *L'ATelier du TERminologue* = *LATTER*.

anchor word*:** The term with which a terminological definition begins, and which designates the concept that is broader than the one being defined, thus showing the latter's relative position in a concept system. cf. ***genus.

***applied linguistics*:** The branch of linguistics concerned with practical applications of language studies, with particular emphasis on the communicative function of language, and including such professional practices as lexicography, terminology, general or technical translation, language teaching (general or specialized language, mother tongue or second language), writing, interpretation, and computer processing of language.

***associative relationship*:** The relationship between two concepts having a non-hierarchical thematic connection based on spatial or temporal proximity, such as the relationship between a container and its contents, an activity and the tool used to perform the activity, a cause and its effect, a producer and its product, an organization and the building in which it is located, etc.

B

***base list*:** A list of terms, symbols and formulas designating the nodes of a concept diagram, established for the purpose of researching the terminology of a given subject field.

***blending*:** The creation of a word (called a "blend") by combining a word or word part with another word or word part. Examples: *smog* from *smoke* and *fog*; *email* from *electronic mail*; *simulcast* from *simultaneous broadcast*.

***borrowing*:** In specialized languages, the adoption of a terminology unit from one language or subject field for use in another. Examples: *découpage*—English term of French origin; *virus, inoculate*—virology terms used in computer security.

broader concept*:** see ***superordinate concept

C

***cancellation*:** A transaction resulting in the removal of a terminology record from the database.

***characteristic*:** An abstraction of a property of an object or of a set of objects, used for describing a concept. Examples: *essential*, *non-essential*, *delimiting*, *intrinsic*, *extrinsic characteristic*.

***classification system*:** A structured scheme for categorizing knowledge, entities or objects to improve access or study, created according to alphabetical, associative, hierarchical, numerical, ideological, spatial, chronological, or other criteria.

***code*:** An alphabetic, numeric or alphanumeric abbreviation or symbol entered as a value in certain fields of a terminology record. Examples: *record-originator code*; *reviser code*; *source code*; *subject-field code*.

***comparative terminology*:** The study, in relation to a given subject field, of terms designating a specialized concept in two or more languages, with a view to determining their equivalence.

***composition*:** The process of creating new terms by joining established words, affixes, or combining forms. Examples: *cyberspace*; *nonbiodegradable*; *webcast*.

***concept*:** A unit of knowledge abstracted from a set of characteristics attributed to a class of objects, relations, or entities.

concept analysis*:** The analysis required to identify and determine the scope of a concept designated by a given term as it is used in a particular subject field. Also ***conceptual analysis.

***concept diagram*:** The graphic representation, often in the form of a tree diagram or a rake diagram, of a concept system.

***concept harmonization*:** An activity whose purpose is to eliminate minor differences between two concepts which are closely related to each other.

concept system*:** A set of concepts structured according to the logical relationships among them. Also ***conceptual system; ***system of concepts***.

***concordancer*:** Software that counts and lists the occurrences of a given term, together with its co-occurrents, in the text corpus compiled for vocabulary research.

***consultation*:** The process of seeking information from a file or from a specialist. Examples: *consultation of TERMIUM®*; *consultation of a source*; *consultation of a specialist*.

***content*:** The substantive or meaningful part of the information stored in a database for consultation by users.

***content management*:** All of the processes and activities (analysis, evaluation and diagnosis of existing collections, planning and performance of terminological activities) that have as their objective the creation, development and maintenance of a terminology file, database or data bank in one or more specialized subject fields.

***content manager*:** A person or team responsible for the content management of a terminology file, database or data bank.

content provider*:** A person or company that creates, structures, and delivers informational products. Also ***content supplier.

***context*:** The part of a text or statement that surrounds a particular word and determines its meaning. A type of textual support on a terminology record that provides information about the semantic features of a concept or the use of a term. Examples: *defining context*; *explanatory context*; *associative context*.

***co-occurrent*:** An element of discourse (e.g. a word) that frequently appears in combination with a given term in a particular subject field.

***corpus*:** A collection of selected written texts assembled for the purpose of performing terminological analysis.

***correction*:** A transaction in a terminology database which, contrary to a modification, involves only the appearance of a record. Example: *typographical error*.

D

***data bank*:** A collection of logically interrelated databases organized in such a way that it can be consulted by many users.

***database*:** A collection of logically interrelated data accessible using appropriate software.

***database manager*:** The component of a computer system that handles the organization, storage and extraction of the data and that interprets queries made against the database.

***data entry*:** The process in which a human operator keys the information recorded on a terminology record into a file, database or data bank.

***data-entry protocol*:** A form on which instructions for the data entry of a particular set of terminological data are provided to a data-entry service.

***data recording*:** The action of entering on a terminology record the information acquired about a concept during terminological analysis.

***definition*:** A dictionary-style statement that describes the concept designated by a term. A type of textual support on a terminology record that helps establish the textual match between languages by stating the delimiting characteristics of a concept.

***derivation*:** The process of forming new words from an existing base by adding affixes. Example: *digital—digitize*.

designation*:** The sign denoting a concept, such as a term, phrase, abbreviation, formula or symbol. Example: *water* = H_2O. Also ***designator.

***digitization*:** The conversion of images, characters, or sounds to digital codes so that the information may be processed or stored by a computer system.

***discussion group*:** A group of Internet users who hold a dialogue on topics of mutual interest by exchanging open e-mail messages on an Internet site.

documentary search*:** A systematic and thorough search for written material on a specific subject area. Also ***documentation search.

***documentation of usage*:** The citation of a text demonstrating the use of a term in an original-language source.

E

***electronic library*:** A library whose holdings have been digitized and made available to users via terminals installed on-site.

***electronic publishing*:** The production of documents using computerized means such as word-processing and desktop-publishing software, and the distribution of the documents in a format, including hypertext, that is accessible by computer.

***entry term* :** One of the terms designating the concept dealt with on a terminology record. The term which heads a terminological entry in a vocabulary.

entry word*:** A word listed in a lexicographical reference work and which begins an entry block containing information about the meaning and usage of the word. Also ***headword.

F

***field*:** A specified area of a record used for recording one particular class of data elements. Examples: *definition field*; *source field*; *subject-field field*.

formulation*:** The process of creating and expressing a definition in accordance with accepted terminological principles. Also ***writing.

G

general language*:** The spoken or written system of communication used by a particular community or country. cf. ***specialized language.

***generic concept*:** The superordinate concept in a generic relationship.

generic relationship*:** The hierarchical relationship between a general concept and a series of subordinate concepts that inherit its properties but which are distinguished from one another by at least one delimiting characteristic. Also ***genus-species relationship.

***genus*:** A class of objects which have common semantic features and which can be divided into subordinate kinds.

genus-species relationship*:** see ***generic relationship

***glossary*:** A list of terms that pertains to a specific subject field, together with equivalents (but no definitions) in one or more languages. A monolingual list of difficult or specialized terms with their definitions, often placed at the back of a book.

H

***handbook*:** A compact reference book giving the essential information in a given field of study.

headword*:** see ***entry word

***hierarchical relationship*:** A relationship between two concepts where one of the concepts is broader than the other.

homonym: A word or term with the same spelling as another but with a different meaning. Example: *sound* (noise) and *sound* (stretch of water).

***hyperlink*:** A logical connection from a hypertext file or document to another location or file, typically activated by selecting a specially marked word or image at a particular location on the screen.

hypernym*:** see ***superordinate term

hyperonym*:** see ***superordinate term

***hypertext*: A method of presenting computerized information that allows the display of documents in an associative way that mimics the human structuring of ideas, as opposed to the linear model of speech or writing.

hyponym*:** see ***subordinate term

I

indexer*:** Software that extracts significant words in a text and assembles them into an alphabetical list, together with technical information required to retrieve the texts corresponding to each entry in the list. Also ***indexing software.

information medium: The physical support on which information can be recorded, stored, or distributed.

***initialism*:** An abbreviation made up of the initial letters of the components of the full form of a designation or from syllables of the full form, and pronounced letter by letter.

***initialization*:** The abbreviation of a complex designation by retaining only the initials of the component words.

K

knowledge worker: A professional who applies his or her intellectual capacities to the acquisition, processing, management, and communication of knowledge.

L

language dictionary*:** A reference book containing an alphabetical list of the lexical items of a language, together with their meanings, descriptions of their use or other linguistic information. cf. ***glossary, ***vocabulary***.

***language industry*:** Sector of activity dedicated to designing, producing, and marketing tools, products, or services related to computerized language processing.

language information service*:** A linguistic service responsible for responding to requests for information submitted by clients. Also ***SVP service.

language management: The systematic organization of activities aimed at developing, improving, implementing and disseminating language features (including terminology) that reflect modern society.

language notice*:** A means of informing the affected user community of a decision made by an authorized individual or organization with regard to recommended or deprecated terminology usage. Also ***official language notice.

***language planning*:** Official actions taken to modernize a language.

language professional: A person practicing a profession in the area of languages, particularly in a discipline of theoretical, applied, or computational linguistics (such as language teaching, lexicography, terminology, translation, or interpretation). Also ***language worker***.

level of language: The particular social context with which the use of a given term or expression is associated, as indicated by a stylistic label where applicable. Examples: *jargon*; *familiar*; *scientific*; *popular*. Also ***language level***.

lexicalization: The process by which a group of words comes to be fixed by usage and to behave as a single lexical item. Examples: *information highway*; *sweet potato*.

lexicography: The science or practice of compiling dictionaries, based on a study of the form, meaning, and behaviour of the words in a given language.

loading: The process of transferring terminological data from input media (e.g. records, processed vocabularies, glossaries, scanned texts) into a central terminology database.

M

modification: A transaction in a terminology database for the purpose of improving the form or substance of an existing terminology record.

monosemy: The relationship between designations and concepts in a given language in which one designation only relates to one concept.

N

narrower concept: see ***subordinate concept***

***neologism*:** A newly created term or a term that has been given a new meaning.

new record: A transaction that results in the addition of a record dealing with a concept previously missing from a terminology file or database.

node: The end of a branch or the point of intersection of two or more branches of a tree diagram. Examples: *generic node*; *specific node*; *terminal node*; *root node*.

O

***observation*:** A type of textual support on a terminology record that comments on or clarifies a concept or the use of a term.

official language notice*:** see ***language notice

***official status*:** The status of a term that has been the subject of authoritative review and recommendation.

***official title*:** The accepted designation of an organization, program, administrative or other entity. Note: Official titles often have an abbreviation.

***on-line search service*:** A documentary-search service giving access to computerized information holdings through querying terminals.

***optical character reader*:** A device for scanning documents by identifying alphanumeric characters using photoelectric devices and software and producing coded signals for computer processing or storage.

P

***parameter*:** Any of the data elements entered on a terminology record to qualify the usage or status of a term. Parameters may be terminological (usage labels, grammatical labels, acceptability ratings) or technical (e.g. “standardized”).

partial synonym*:** see ***quasi-synonym

partitive relationship*:** The hierarchical relationship between a superordinate concept constituting the whole and the subordinate concepts that are parts of that whole. Also ***part-whole relationship.

phrase*:** A group of words forming a syntactic unit. Also ***syntagm.

***phraseology*:** The set of expressions surrounding terms in discourse, including the nouns, verbs, and adjectives commonly co-occurring with a term.

***polysemy*:** A relationship between designations and concepts in a given language in which one designation represents two or more concepts sharing certain characteristics.

***proofreading*:** A content-management activity performed by the terminologist following the data entry of a record for the purpose of confirming that the captured data respect the established data-recording rules and terminology research principles.

***pseudo-synonym*:** A designation incorrectly used for a given concept as a result of misunderstanding correct usage, confusion between a generic and a specific, etc. Example: *Y2K virus* instead of *Y2K bug*.

Q

***quality assurance*:** All of the planned and systematic actions necessary to provide adequate confidence that a product or service satisfies the quality requirements established to maintain client confidence.

quasi-synonym*:** A term that designates the same concept as another, but which is not interchangeable with the other term in all contexts as its use is limited to certain communication situations. Also ***partial synonym.

***querying*:** The entry of search commands to retrieve relevant terminological data from a database according to the criteria specified. Examples: *querying by term*; *querying by subject field*.

***querying terminal*:** A computer or computer terminal connected to a telecommunications system and allowing users to send requests to and receive information from a database.

***quotation*:** A passage taken from a source text and entered on a terminology record, with reference to the source.

R

***record-completion guide*:** A reference document that systematically presents the rules to be followed when entering terminological data on records. Example: *TERMIUM® record-completion guide*.

***research methodology*:** All of the techniques, methods and procedures adopted in terminology work to carry out terminology research.

***reviser*:** A person who contributes to quality assurance by reviewing the form and substance of a terminology record and conveying comments to the record originator so that improvements can be made.

S

scanning for terms*:** see ***term extraction

***search engine*:** Software allowing the user to search for information in a database or on the Internet.

***semantic feature*:** Any one of several minimal characteristics or properties which comprise the meaning of a term.

***single-concept principle*:** The principle that a terminology record should deal with one concept only and that all data relating to a given concept should be consolidated on one record.

***software*:** The programs, procedures, rules and associated documentation needed to operate an information processing system.

***source*:** Any person or organization providing information or any written work used to document a term, formulate a definition, quote a context, etc., in terminology work.

specialist*:** A person who possesses in-depth and extensive knowledge of a particular area of study. Also ***subject-field specialist.

specialized language*:** Natural language used by a community of subject specialists in a particular field of knowledge. Also ***special language.

***specialized lexicography*:** Lexicography dealing with the vocabulary of a specialized language.

***specific concept*:** The concept in a generic relationship that has the broader intension and that inherits semantic features from its hierarchically superior generic concept.

***specific difference*:** Property or semantic feature that distinguishes a specific concept from others of the same class.

spell checker*:** A word-processing program that is used to highlight and correct misspellings. Also ***spelling checker.

***spelling variant*:** A term whose spelling differs only slightly from that of another term designating the same concept.

***standardization*:** The selection, approval, and dissemination of one or more terms by a recognized standardizing body, for the purpose of promoting preferred usage or discouraging deprecated usage in the target community.

***subject field*:** The carefully delineated sphere of human activity in which vocabulary research is carried out.

***subject-field breakdown*:** The graphical representation, often in the form of a tree diagram, of the component subdivisions of a subject field.

***subject-field classification*:** The organization of the subject fields and subfields dealt with in a terminology file, database, or data bank into a logical structure.

subject-field specialist*:** see ***specialist

subordinate concept*:** A concept in a hierarchical relationship whose semantic features are inherited from a broader concept. Note: A subordinate concept may be either a specific concept (in a generic relationship) or a partitive concept (in a partitive relationship). Also ***narrower concept.

subordinate term*:** A term that has a hierarchical relationship to another term whose semantic range is broader than and encompasses its own. Also ***hyponym.

superordinate concept*:** A concept in a hierarchical relationship whose semantic features are inherited by those concepts that are subordinate to it. Note: A superordinate concept may be either a generic concept (in a generic relationship) or a comprehensive concept (in a partitive relationship). Also ***broader concept.

superordinate term*:** A term that has a hierarchical relationship to another term whose semantic range is more restricted. Also ***hyperonym; ***hypernym***.

SVP service: see ***language information service***

synonym*:** A term designating the same concept as another in the same language and which can be used interchangeably with the other term in all contexts. Also ***true synonym.

***syntactic variant*:** A term whose syntactic form differs only slightly from that of another term designating the same concept. Example: *competency certificate*, *certificate of competency*.

syntagm: see ***phrase***

system of concepts*:** see ***concept system

T

***tautology*:** The repetition, in the definition, of information already provided by the term designating the concept. Note: Tautology constitutes a fault in the writing of the definition.

term*:** A word (simple term), multiword expression (complex term), symbol or formula that designates a particular concept within a given subject field. Also ***terminology unit.

term extraction*:** The careful reading of a corpus and selection of terms, normally with contexts, for recording on terminology records. Also ***scanning for terms.

***term formation*:** The creation of terminology units in a specialized language.

***term harmonization*:** An activity leading to the designation of one concept, often in different languages, by terms which reflect the same or similar characteristics or have the same or a slightly different form.

***term identification*:** The part of term extraction that involves the recognition and selection of designations.

***terminological analysis*:** The analysis of terms in context and of the concepts designated by them within a given subject field in order to determine their interrelationships.

***terminological data*:** Any information relating to a term or the concept designated. Note: The more common terminological data include the entry term, equivalents, alternate terms, definitions, contexts, sources, usage labels, and subject fields.

***terminological definition*:** A brief statement providing a clear understanding of a specialized term.

***terminological entry*:** The part of a terminological product which contains the terminological data related to one concept.

***terminological product*:** The result of terminology work, such as a record, file, database, glossary, vocabulary, standard, official language notice, etc.

***terminologist*:** A language professional specialized in terminology.

***terminologization*:** The process by which a general-language word or expression is transformed into a term in a special language.

***terminology*:** The set of special words belonging to a science, an art, an author, or a social entity. The language discipline dedicated to the scientific study of the concepts and terms used in specialized languages.

terminology approval*:** The process by which an official-approval committee in a company, department or other administrative unit approves a set of terms (and, in some cases, their definitions) for the purpose of establishing preferred usage for a particular user community. Also ***validation.

***terminology case file*:** A terminological-analysis tool in which textual information, specialists' opinions and personal observations concerning a given concept are collected for study.

***terminology committee*:** A group of subject or language specialists assembled to review research findings and recommend terminology and, in some cases, definitions.

***terminology file*:** A collection of terminology records that are logically linked through the use of a common format, retrieval module, and set of record-completion rules.

***terminology record*:** A medium for recording, in a structured set of fields, the terminological data for a specialized concept.

terminology research*:** The search for, analysis, synthesis, recording, and processing of terminological data relevant to one or more concepts. Also ***terminological research.

***terminology standard*:** The result of the work of a terminology standardization committee concerning a term or specialized vocabulary and sometimes distributed as a standardization notice.

***terminology standardization board*:** A terminology committee composed of members drawn from a number of organizations and mandated by a standardizing body to review comprehensive research findings on terms relating to a given subject area for purposes of standardizing usage.

terminology unit*: see *term

***terminology work*: Work concerned with the systematic collection, description, processing, and presentation of concepts and their designations, for the purpose of documenting and promoting correct usage.**

***text-alignment tool*: Software that allows comparison of parallel texts (often a source-language text and its translation) by displaying them side by side based on correspondences established between text units (e.g. paragraphs, sentences, words). Also *text aligner*.**

***textual match*: The correspondence of semantic features found in contexts or definitions, used to demonstrate that all data recorded on the record deal with a single concept.**

***textual support*: A statement that provides the user of a terminological product with information about a specialized concept or about the usage of the terms designating the concept.**

***transaction*: An electronic operation that changes the contents of a database by adding, modifying, transferring or deleting data.**

true synonym*: see *synonym

U

***updating*: The content-management activity encompassing operations performed on a terminology database to ensure that quality-assurance requirements are met and that the information is up to date, including the deletion of duplicate, erroneous, or out-of-date records, the modification of existing records, and the addition of new records to provide missing information.**

***usage*: The way in which a term is actually used by subject-field specialists.**

***usage label*:** A label on a terminology record that qualifies the usage of a given term according to some factor such as currency of use, locality, social context, etc.

***usage sample*:** A type of textual support on a terminology record that consists of a brief quotation illustrating the use of a term in a given subject field, without providing any of the semantic features of the concept designated by the term.

***user*:** A person who regularly makes use of a database.

V

validation*:** see ***terminology approval

***validation*:** The content-management activity that involves checking that the terminology records to be loaded into a database respect the data-recording rules established for that database, before transactions are effected.

***virtual compartment*:** A subdivision of a database whose contents belong to a user other than the owner or manager of the remainder of the database's contents.

***virtual library*:** A collection of machine-readable documents made available through an Internet site.

vocabulary*:** A list of terms relating to a specific subject field, together with equivalents and definitions (or explanations) in two or more languages. cf. ***glossary, ***language dictionary***.

***vocabulary research*:** In-depth terminology research carried out on the terms and concepts specific to a given subject field.

W

***work tool*:** A document, device or computer program used by professionals in the performance of their functions.

workstation: Computer system integrating a set of work tools designed to assist language professionals in the performance of their functions.

writing: see ***formulation***

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