NORDTERM 8

Guide to Terminology

Heidi Suonuuti

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PREFACE

All those involved in the compilation of a terminological vocabulary have to know or find a solution to a number of questions before they can even start the actual work. Where does one start, where does one find realiable sources of information and what information should one collect? How does one organise and record the information and when does a computer become helpful? How are the different languages kept separate, the definitions written and how does one organise the whole process? These questions arise every time a terminological project is launched and therefore it makes sense to try to apply ready answers that have been tried and tested in practice. The basic methods of project management are well suited for terminology work. Practical details encountered in the work are also such that they can usually be handled by standardized methods/ models. A list of useful structural standards and drafts is given on page 11—12.

Different and less frequent questions concern the quality of the vocabulary. Often the issue of quality only emerges at later stages of the terminology project, or after the vocabulary has been published. Yet, even if the collection of terms is based on the best sources available, it should not be published as such. The most important indicator of a vocabulary's quality is its internal coherence, which includes clear and non-contradictory relationships between the concepts, definitions and terms. This coherence can only be achieved through a systematic elaboration of the material. The aim of this work is to present a concise guide to the principles and methods of systematic terminology work, and show how these can be applied in practice. Since this work is in booklet form, it does not cover all information needed. For this reason, additional information is available in the basic standards mentioned on page 11. They are the required reading for the secretaries of terminological work groups. The most helpful asset in actual terminology work is, however, long experience and practice in the field. Therefore, a competent terminologist can offer indispensable help to overcome the inevitable hurdles that turn up in all terminological projects. First-time terminology groups are strongly encouraged to

consult an experienced terminologist, whenever possible.

The first impression of systematic terminology work may be that, although it obviously enhances quality, the method seems to be far too complicated, time-consuming and expensive to apply. In fact, this is not true. Again, long-term experience and the statistical evidence acquired from earlier projects have shown that, after the initial threshold of learning, application of terminological methods actually speeds up the work process and lowers the total costs considerably.

This guide is a by-product of international standardization. The initial impetus came from the users who felt that they needed a compact introduction to the principles and methods of practical terminology work. A number of valued colleagues as well as terminologically-minded subject field specialists from Norway, Sweden, Finland, Canada and Austria have greatly helped me with their useful and perceptive comments. I wish to thank them all.

Helsinki, December 1996

Heidi Suonuuti

PREFACE TO THE SECOND EDITION

The revised second edition of the Guide to Terminology contains only a few changes: obvious mistakes and omission have been corrected.

When the Guide to Terminology was initially compiled in 1996—1997, no simple, compact guide to terminology was yet available. The international standards were much too theoretic and complicated for practical terminology work and revised editions were only under planning. In most cases, the vocabularies for special purposes are compiled by groups of professionals representing the special field in question. Such groups often take a dislike to theory as they find it rather useless. It was felt therefore, that a guide introducing the least amount of theory necessary for teminology work with the help of examples was needed. In my opinion, the necessity for the guide was proved by the fact that it was rapidly translated into four languages: Esperanto, Croatian, Chinese and Spanish (which, however, has not been published yet).

In the past years, a new set of international standards has been published. These standards are more practical and compact than before. Regardless, it seems that this guide still has a place as an introduction to the world of terminology.

Helsinki, September 2001

Heidi Suonuuti

Croatian: Upute za nazivlje, 1999. ISBN 953-6783-00-2.
Esperanto: Terminologia gvidilo, 1998. ISBN 92-9017-057-3.

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Foreword

This guide is based on the International Standards ISO 704, 860 and 10241 and it provides the basic information needed for successful completion of terminology work. This guide is therefore intended for all working groups which have terminology work on their agendas. It gives practical examples of how to write definitions based on a proper terminological analysis. This guide is not, however, a replacement for a trained terminologist. Trained terminologists should be consulted whenever possible and especially during the initial phases of terminology work. The Secretariat of ISO/TC 37 will provide names and addresses of qualified terminologists from various countries upon request.

For Information and assistance in terminology work, please contact your national organization for terminology work or any of the Nordterm member organizations (see page 42). You can also contact:

ISO/TC 37 Secretariat, Simmeringer Hauptstrasse 24, A-1110 Wien

Phone: +43-1-74040-441, Telefax: +43-1-74040-740, http://linux.infoterm.org/iso-e/i-iso.htm

The terminological principles and working methods described in this guide are directly based on experience in practical terminology work. The examples used rely on general knowledge and have been **deliberately simplified** to make them easier to understand.

Application of the procedure described in this guide will ensure compliance with the principles of quality management and result in effective work organization.

The procedure to be followed in the preparation of vocabularies is described in clauses 5 and 6.
In brief, this procedure may be summarized as:

- identifying concepts
- establishing concept systems
- formulating definitions
- selection and formation of terms.

In practice, these steps occur simultaneously.

Before starting the preparation of a vocabulary, it is necessary to make sure that the principles described in clauses 1—4 are known to the working group.

References

This guide summarizes the methods used in terminology work. For more detailed information, the standards listed below should be consulted.

Basic standards

- ISO/DIS 639-1 Code for the representation of names of languages — Part 1: Alpha-2 code
- ISO 639-2:1998 Codes for the representation of names of languages — Part 2: Alpha-3 code
- ISO 704:2000 Terminology work — Principles and methods
- ISO 860:1996 Terminology work — Harmonization of concepts and terms
- ISO 1087-1:2000 Terminology work — Vocabulary — Part 1: Theory and application
- ISO 10241:1992 International terminology standards — Preparation and layout
- ISO TR 12618:1994 Computational aids in terminology — Creation and use of terminological databases and text corpora
- ISO 15188:2001 Project management guidelines for terminology standardization

Structural standards and drafts

- ISO/CD 12615 Bibliographic references and source identifiers for terminology work
- ISO 1951:1997 Lexicographical symbols and typographical conventions for use in terminography
- ISO/FDIS 12616 Translation-oriented terminography
- ISO 12199:2000 Alphabetical ordering of multilingual terminological and lexicographical data represented in the Latin alphabet
- ISO 12620:1999 Computer applications in terminology — Data categories
- ISO 1087-2:2000 Terminology work — Vocabulary — Part 2: Computer applications
- ISO 12200:1999 Computer applications in terminology — Machine-readable terminology interchange format (MARTIF) — Negotiated interchange

- ISO/CD 16642 Computer applications in terminology — Meta model for representing terminology data collections
- ISO/CD 16503 Computer applications in terminology — Representation format for terminological data collections — MARTIF-compatible with specified constraints (MSC)
- ISO/CD 17241 Computer applications in terminology — Generic model — (GENETER) for SGML-based representation of terminological data

1 Concept analysis

1.1 Relation among object, concept, definition and term

There are millions of **objects** in the real world. Some are concrete (such as trees, devices and materials), others are abstract (e.g. society and health).

Terminology work is an interdisciplinary subject field for ordering and transferring knowledge. Its basic element is concept. All terminology work should be based on an analysis and structuring of concepts and relations among them.

When we think of an object, a tree for example, we mentally select a number of properties that we think best characterize it. In our minds, these properties become abstractions called **characteristics** (see 1.2). These characteristics are then combined to form a unit of thought called a **concept**. (The following are characteristics of trees: *being tall members of the vegetable group of living organisms*, *long living*, *having a hard self-supporting trunk*, *having branches*.)

A concept connected to a single object only is called an **individual concept** (*the planet Jupiter*, *the Eiffel Tower*). When we refer to several similar objects, properties common to all of these objects are singled out and included as characteristics for the **general concept** (*planet*, *tower*). Concepts are abstractions and, in order to communicate about them we need definitions and terms to express them. **Definitions** are statements describing a concept, and **terms** are expressions used to refer to concepts. Terms may consist of one or more words or of other elements such as **symbols**. See figure 1.

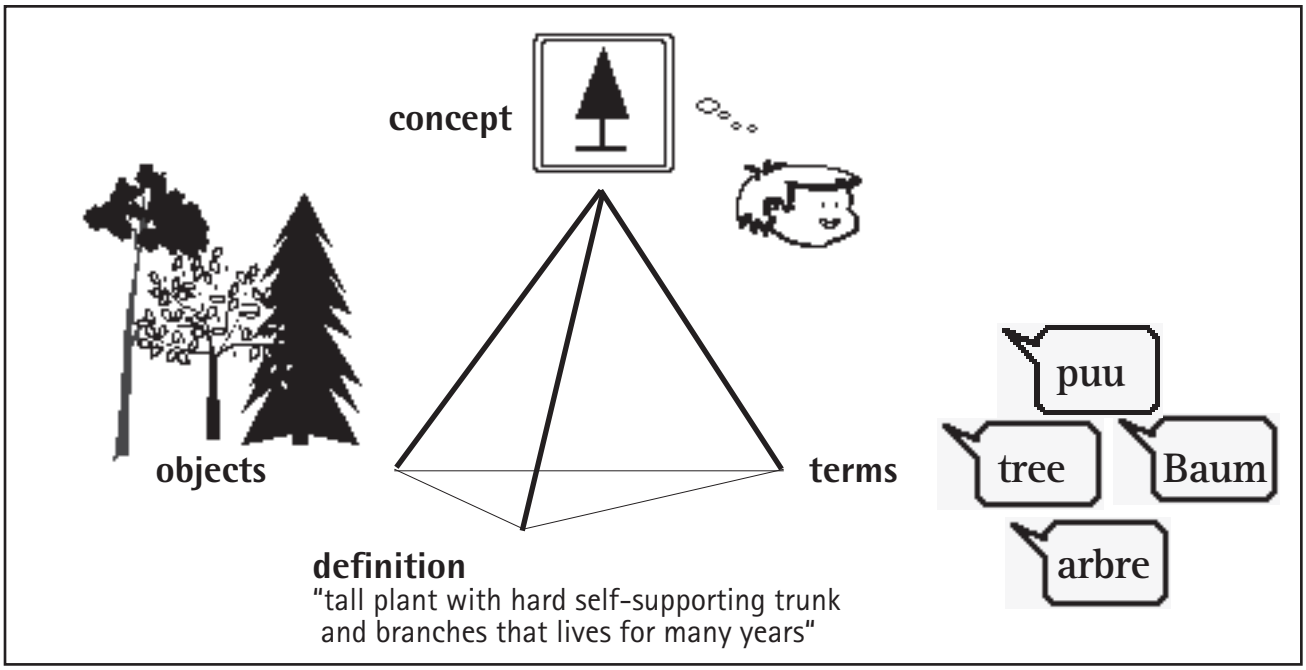

Figure 1. Relations among object, concept, definition and term.

In this model, elements on the base plane of the pyramid (objects, terms and definition) are all either concrete or abstract phenomena of the real world or expressions in a language. Concepts, situated at the top of the pyramid, are mental constructs. To be able to talk about them, we must use established expressions, terms, or verbal definitions to refer to them. For more detailed information on concept analysis, see ISO 704.

1.2 Characteristics

Characteristics correspond to properties attributed to objects. There are usually a great number of characteristics in any concept. Many of them are so common that they are not adequate for identifying a concept or differentiating it from other concepts (trees and bicycles are *concrete* and *hard* and often *green*). Delimiting characteristics are those characteristics that alone, or together with other characteristics, determine the concept and differentiate it from other concepts. Only delimiting characteristics should be used in definitions (For example, *having a hard self-supporting trunk* is a delimiting characteristic of trees in relation to climbing plants. All plants have roots, including trees. Therefore *having roots* is not a delimiting characteristic of trees.).

1.3 Intension and extension

The intension of a concept is the set of all characteristics that constitute a concept (The intension of the concept tree includes e.g. characteristics *being a plant*, *long living*, *having a self supporting trunk*, and *having branches*). The extension is the set of objects that the concept covers. (The extension of *tree* includes all pines, spruces, birches, maples, alders, apple trees etc., but not the family tree!) Both intension and extension can be used to define the concepts (see 2.1 and 2.2).

1.4 Concept systems

Concepts are not independent phenomena. They are always related to other concepts in one way or another, and form **concept systems** which can vary from fairly simple to extremely complicated. In terminology work, an analysis of the relations among concepts and an arrangement of them into concept systems, is a prerequisite for the successful drafting of definitions.

Concept systems are classified according to the types of relations among the concepts. For practical purposes, three types of relations, **generic**, **partitive** and **associative** relations are relevant. The concept systems constructed in practice are often combinations of the relation types (**mixed concept systems**).

1.4.1 Generic relations and concept systems

A generic relation exists when two concepts share an identical set of characteristics but one, the subordinate concept, has at least one additional, delimiting characteristic (e.g. if *tree* is the superordinate concept, *coniferous tree* is a subordinate concept and *having needles* and *having naked or exposed seeds* the delimiting characteristics). The extension (see 1.3) of the subordinate concept is smaller than that of the superordinate concept

(in other words, there are fewer coniferous trees than there are trees).

A generic concept system is based on the generic relations between concepts. The superordinate concept is divided into a number of subordinate concepts. The generic concept system often consists of several levels. Any subordinate concept may serve as a superordinate concept to another set of subordinate concepts and so on (e.g. *coniferous tree* may be divided into *spruce* and *pine*). See figure 2.

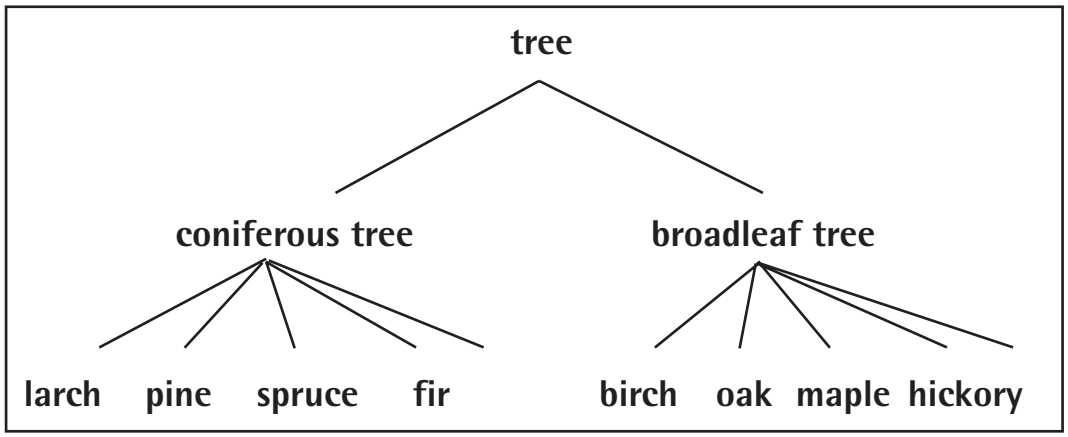

Figure 2. Generic concept system of trees.

Any concept can be subdivided in more than one way. The subdivision of trees, for example, can be based on the following:

- anatomy (figure 2: *coniferous tree*, *broadleaf tree*)
- species requirements (figure 3a: *light-demanding tree*, *tolerant tree*)
- abscission (normal separation of leaves from trees) (figure 3b: *deciduous tree*, *evergreen tree*).

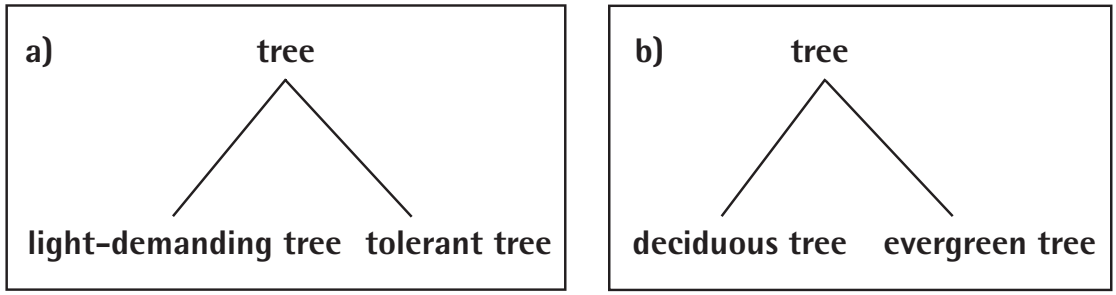

Figure 3. Two monodimensional generic concept systems of trees.

Such subdivisions are parallel and independent of each other and can be described as subdivisions of a concept in more than one dimension. In terminology work these subdivisions may be treated as separate concept systems having the same superordinate concept. Often, however, it is easier to grasp the multitude of concept relations, if the concepts are combined to constitute one single polydimensional concept system (see figure 4).

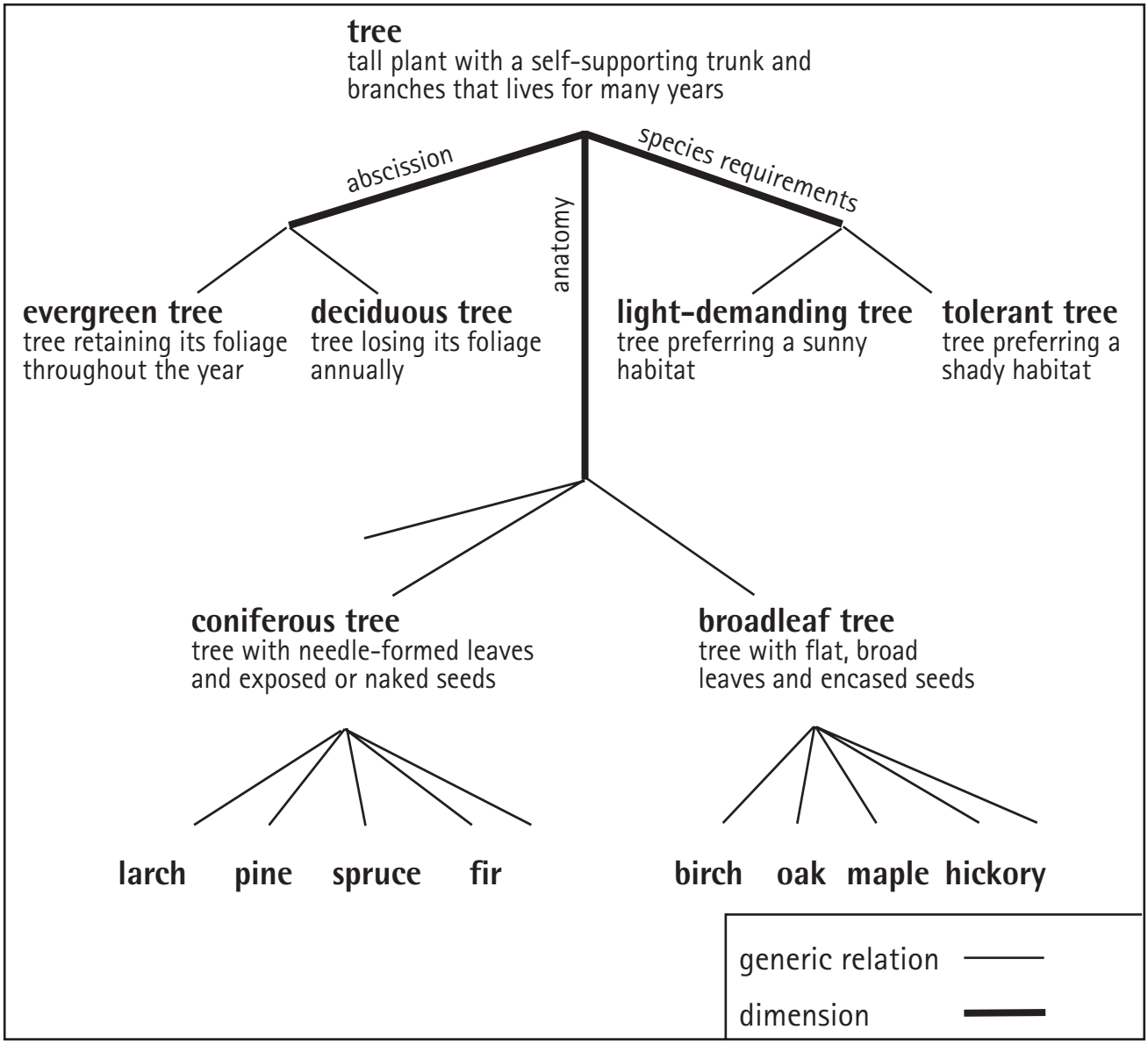

Figure 4. Polydimensional generic concept system of trees.

When a concept system is represented as a tree diagram, the criteria for subdivision can be indicated along the lines representing different subdivisions.

1.4.2 Partitive relations and concept systems

A partitive relation exists when the superordinate concept relates to an object as a whole, while the subordinate concepts relate to parts of that whole (e.g. tree and its parts: stem, branches, roots, etc.).

The partitive concept system can be appear in many forms. The parts that make up the whole may all be similar (*like the two oxygen atoms that make up an oxygen molecule*) or different (like the four seasons that make up a year). Sometimes the number of parts is essential (*two oxygen atoms make up an oxygen molecule; if the number of atoms is three, the substance is ozone*) sometimes non-essential (*a chair can have 1–4 legs*). The whole can be a closed system with certain parts (the year) or an open system which allows additional parts to be included (*an electrical equipment is any totality including at least one electrical apparatus*).

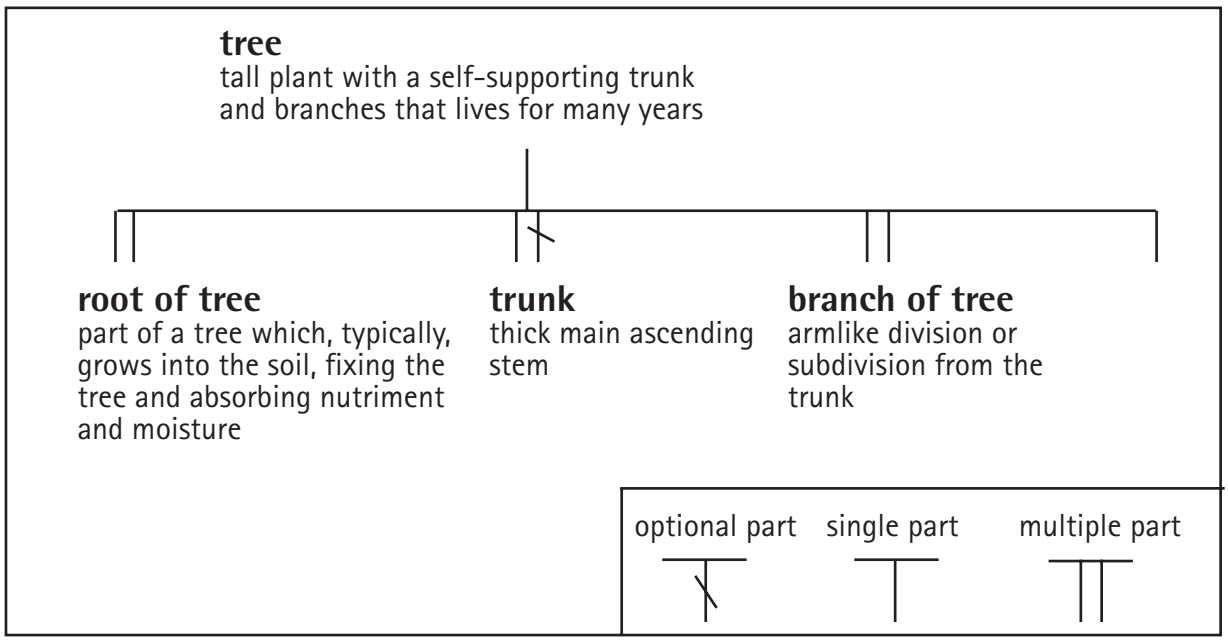

Figure 5. Partitive concept system of a tree as a rake diagram.

Figure 5 illustrates a methodically correct partitive concept system. In practice, however, 'root of tree' and 'branch of tree' would not be included as terms in a vocabulary of trees. Instead, they would be replaced by 'root' and 'branch', referring to more general concepts. For details see 2.5.3.2 and figure 8.

As with the generic concept system, partitive systems may consist of several levels and dimensions of coordinate concepts (see figure 6).

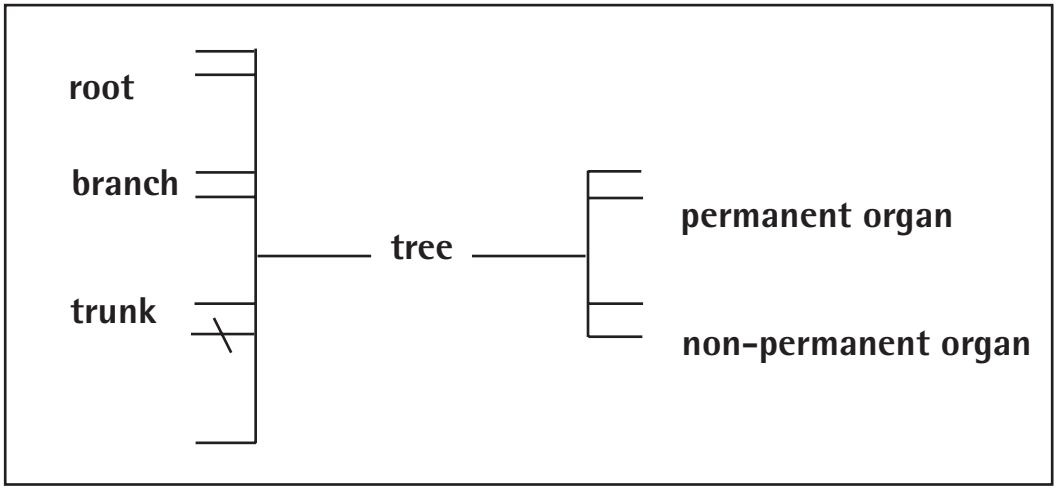

Figure 6. Polydimensional partitive concept system.

1.4.3 Associative relations and concept systems

Associative relations include a wide range of non-hierarchical relations such as:

- cause / effect (*spring | trees coming into leaf*)
- producer / product (*magpie | a magpie's nest*)
- activity / actor (*nesting | bird*)
- activity / location (*nesting | tree; papermaking | paper mill*)
- object / location (*nest | tree; paper machine | paper mill*)
- object / activity (*apple tree | fruit gathering*)
- tool / function (*paper machine | papermaking*)
- material / product (*wood | paper*)

The associative relations among the concepts in one concept system may vary (see figure 7).

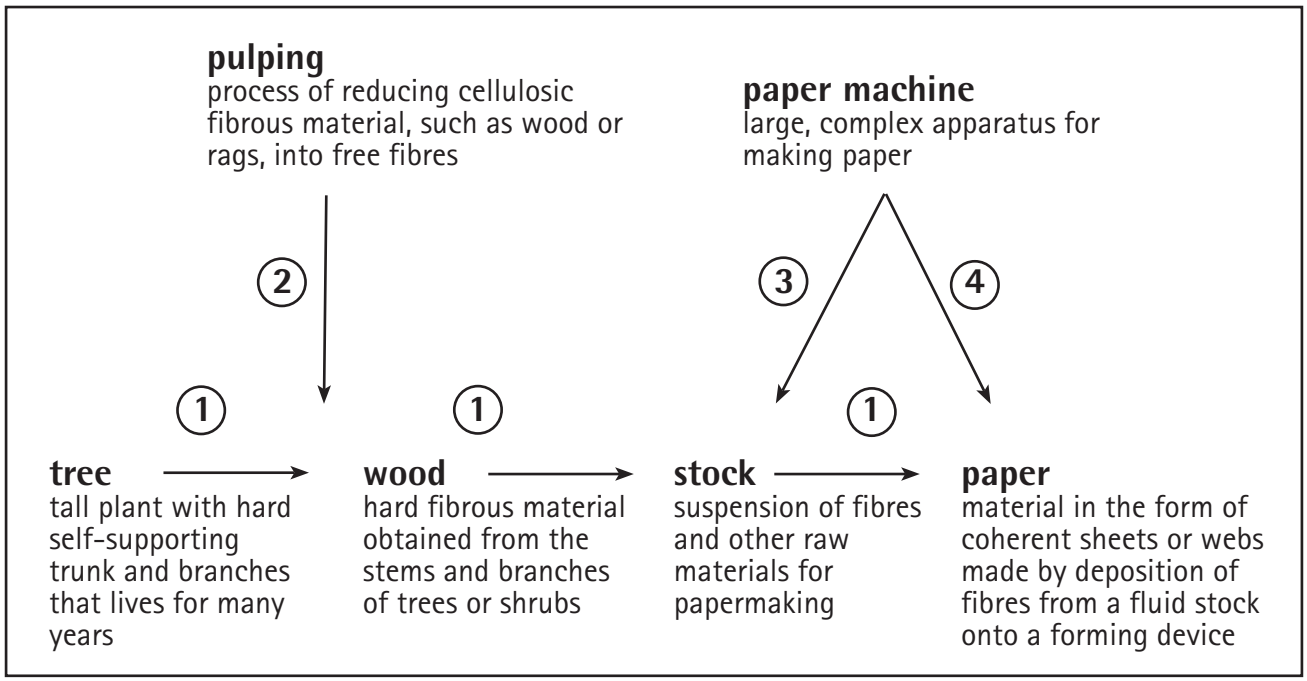

Figure 7. Associative concept system as an arrow diagram.

Relations: 1) origin and material, 2) process and material,
3) apparatus and semi-product, 4) apparatus and product.

2 Definitions

The overall quality of terminology work mainly depends on the quality of definitions.

The definitions shall be written so that the concepts are correctly placed and adequately described in the relevant concept systems. Therefore, before drafting a definition, it is necessary to identify the following:

a) the related concepts in the concept system concerned

b) the types of relations among the concepts.

For examples of definitions based on various types of concept relations, see the definitions in figures 4, 5 and 7.

2.1 Types of definitions

In special-language vocabularies, concepts can be defined by:

- describing their essential and delimiting characteristics (intensional definitions)
- listing the objects covered by the concept (extensional definitions).

2.1.1 Intensional definitions

The most commonly used technique of definition writing is to describe a concept's delimiting characteristics. All concepts consist of a great number of characteristics, and listing all of them would make a definition incomprehensible. Therefore, the intensional definition is always based on a generic superordinate concept that covers the basic essential characteristics and places the concept in its proper context among similar concepts (*trees* among *plants*, *paper machines* among other *apparatuses* etc.). The rest of the definition includes the delimiting characteristics needed to differentiate that concept from other related concepts.

EXAMPLES:

light-demanding tree
tree preferring sunny habitat

tolerant tree
tree preferring shade

noble gas
gas that in the natural state is chemically inactive

For more examples, see the definitions in figures 4, 5 and 7.

2.1.2 Extensional definitions

Extensional definitions list the objects covered by the concept to be defined (see 1.2).

EXAMPLE:

noble gas
helium, neon, argon, krypton, xenon or radon

See also definition of coniferous tree under 2.5.3.3.

2.2 Systematic nature of definitions

Clearness in communication requires a clear description of the concepts and the relations and differences among them. Therefore, when drafting a definition, it is necessary to know how the concept fits into the concept system in question.

In generic concept systems, the intensional definitions are always based on the **nearest** superordinate concept. Delimiting characteristics are then selected to show the relation between the superordinate and subordinate concepts, and the coordinate concepts.

EXAMPLES:

tree
tall *plant* with hard self-supporting *trunk* and branches that lives for many years

coniferous tree
tree with needle-formed leaves and exposed or naked seeds

fir
coniferous tree of the genus abies

In partitive concept systems, a relation between the superordinate and subordinate concept is shown in only one of the definitions of the concepts.

EXAMPLES:

1) **scissors**
cutting instrument consisting of two **scissor blades** fastened at the centre so that they open in the shape of the letter X and cut when they close

scissor blade
flat metal **blade** with one cutting edge and a ring-shaped handle at one end for fingers

2) **year**
period of time, equal to about the amount of time it takes for the Earth to travel completely round the sun

season
part of the **year** characterized by similar weather conditions

In an associative relation the intensional definition usually begins with a **general term** representing a generic superordinate concept (see also 2.1.1) and is followed by characteristics indicating the relevant associative relation.

EXAMPLES:

1) **firewood** ← **woodbin**
wood for fuel — **box** for holding **firewood**

2) **log** ← **log house**
cross cut portion of the **trunk** of a large felled **tree** — **house** whose framework is made of hewn **logs**

3) **match wood** → **match**
round timber for production of **matches** — short slender **stick** tipped with a chemical substance which produces fire when rubbed on a prepared surface

2.3 Conciseness of definitions

Definitions shall be as brief as possible. Carefully written definitions should contain only information required to place the concept correctly in the concept system. Any additional information or examples should be placed in a note. Such additional information could be, for example, the most important inessential characteristics or a list of typical objects included in the extension of the concept.

EXAMPLE:

> **evergreen tree**
> **tree** that retains its foliage in the cold season in certain latitudes where such seasons appear regularly but may loose its leaves in more arctic climates or a tree that grows in a climate where there are no successive seasons

Correct to:

> **evergreen tree**
> **tree** that retains its foliage throughout the year
> NOTE — Whether a tree retains its foliage and thus qualifies for evergreen may depend on the climate.

2.4 Principle of substitution

In texts, terms and definitions are interchangeable elements. This means that, when necessary, the term can be replaced (with minor changes) by its definition. In order to judge whether a definition is correct, the **substitution test** may be carried out, by replacing the term by its definition, e.g. in an other definition.

2.5 Deficient definitions

The most common forms of deficient definitions are circular definitions, incomplete definitions and negative definitions. For information on other types of deficient definitions, trained terminologists or handbooks on terminology work should be consulted.

2.5.1 Circular definitions

A circular definition is formed when we define a concept by itself directly or indirectly. A circular definition does not add to our understanding of the concept. There are two types of circularity:

- within a single definition
- within a system of concepts.

A definition is circular within a single definition when the concept is repeated as the superordinate concept (example 1) or one of the characteristics (example 2) in the definition.

EXAMPLE 1:

tree height
tree height measured from the ground surface to the top of a **tree**

Correct to:

tree height
distance between the ground surface and the top of a **tree**

EXAMPLE 2:

evergreen tree
tree with evergreen foliage

Correct to:

evergreen tree
tree that retains its foliage throughout the year

A definition is circular within a system of concepts if two or more concepts are defined by means of each other.

EXAMPLE:

virgin forest
forest constituted of a **natural tree stand**

natural tree stand
stand of trees grown in a **virgin forest**

Correct to:

natural tree stand
stand of trees grown without interference by man

The definition of *virgin forest*, however, may remain as it is, since it clarifies that *virgin forest* is related to *natural tree stand*.

See also example under 2.6.

2.5.2 Negative definitions

A definition shall normally describe what a concept is, not what it is not. Some concepts, however, require negative definitions because the absence of a certain characteristic is essential to the concept.

EXAMPLES:

1) Inappropriate negative definition:

deciduous tree
tree other than an evergreen tree

Correct to:

deciduous tree
tree loosing its foliage annually

2) Appropriate negative definition:

non-food product
product that is not intended to be used as nourishment

2.5.3 Incomplete definitions

A definition shall be precise. It shall be neither too narrow nor too broad.

2.5.3.1 Broad definitions

A definition is too broad if it does not provide the essential information needed to clearly delimit the given concept.

EXAMPLE:

The following definition for *tree* is too broad because it does not state that a plant must have a self-supporting trunk to be a tree. Thus, banana and vine are not trees.

tree
tall plant that lives for many years

2.5.3.2 Narrow definitions

A definition is too narrow if it includes irrelevant characteristics that unintentionally exclude objects that should be covered by the concept.

EXAMPLE:

The following definition for *coniferous tree* is too narrow because it excludes deciduous coniferous trees such as larch, dawn redwood and swamp cypress. The correct definition should not include the characteristic *evergreen*. The correct superordinate concept is therefore *tree* (see definition under 2.2 on page 21).

coniferous tree
evergreen tree with needle-formed leaves and naked or exposed seeds

Typically, a narrow definition occurs when a commonly used concept is defined as if it belonged to one subject field only.

EXAMPLE of deficient formulation:

fertility
ability of a **tree** to produce offspring

Correct to:
fertility
ability to produce offspring

EXAMPLE of a too narrow definition in a partitive relation:

stick
basic constructive part of a magpie's nest

Defining common concepts as belonging to one subject field only would prevent quoting of definitions from other vocabularies, and thus cause duplication of effort. Given the high costs of terminology work, groups working in related fields should avoid reworking, over and over again, the same concepts.

In some cases, however, it may be necessary to limit the definition to a specific subject field. The subject field should then be stated within angle brackets before the definition.

EXAMPLE of correct formulation:

bleeding
<botany> exuding of liquid from a living part of a plant through a surface wound

A partitive subordinate concept should be defined as **part of...** only if it merely appears as a part of the whole being defined.

Do not define common concepts like, *root*, *branch*, *blade*, *screw*, *switch*, *wheel* etc., as if they were part of a specific object or type of objects only.

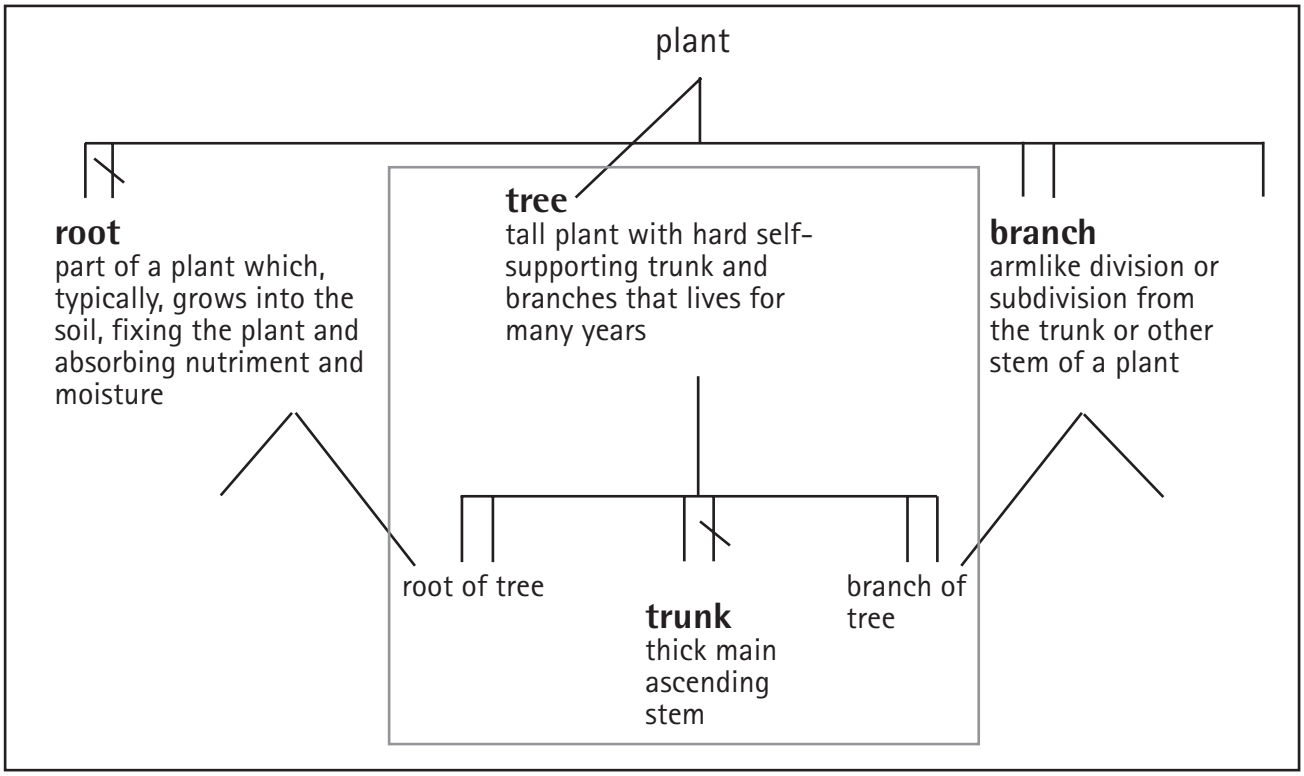

Figure 8. Partitive concept system as defined in practice.

In practice, definitions found in the concept diagram of figure 5 would be written to follow the diagram in figure 8.

2.5.3.3 Incomplete extensional definitions

An extensional definition shall list all the objects included in the extension of a concept. Formulations like **e.g., the following items...** or **etc.** are not acceptable.

EXAMPLE:

Coniferous trees shall not be defined by the following listing:

coniferous tree
familiar representatives of conifers are cedars, cypresses, firs, junipers, larches, pines, redwoods and spruces

An incomplete list of objects may, however, be included in the Note to the definition.

EXAMPLE:

coniferous tree
tree with needle-formed leaves and exposed or naked seeds
NOTE — Familiar representatives of conifers are cedars, cypresses, firs, junipers, larches, pines, redwoods and spruces.

2.5.4 Hidden definitions within definitions

A definition shall describe one concept only. If a term refers to more than one concept, it shall have more than one entry, as long as the other concepts are relevant to the subject field in question.

Other terms should not be explained within a definition. A definition shall only refer to concepts that are known to the intended users or defined elsewhere in the vocabulary. Any concepts that require explanations shall be defined separately.

EXAMPLE:

The following definition of tree includes a hidden definition of *branch*:

tree
tall plant with hard self-supporting **trunk** and **branches**, armlike stems growing from the trunk, that lives for many years

If *branch* needs an explanation, it shall have a separate entry.

2.6 Figures

Illustrations may be used to complement the definitions, not to replace them. If they are used they should preferably be placed on the same page with the entry to which they refer.

EXAMPLE:

pith
central spongy tissue in stems of certain plants
See figure 9.

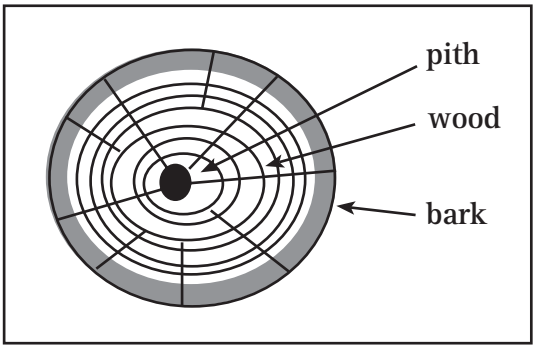

Figure 9. Pith.

3 Terms

3.1 Types of terms

A term may be one word ('pollution'), compound word ('lighthouse'), or a multiword expression ('environmental review', 'broadband integrated services digital network'). Most terms are presented as singular nouns ('raw material', 'environmental report'), but plural nouns ('interested parties'), verbs ('reclaim') and adjectives ('biodegradable') also occur.

3.2 Requirements for the selection and formation of terms

Any term chosen for a concept shall be linguistically correct, i.e. follow the norms of the language in question. A term should preferably also reflect some of the characteristics of the concept, be short and permit the formation of derivatives. See ISO 704 for more detailed information on the formation of terms.

3.3 Preferred terms

If several terms are used to designate a concept, it is recommended that only one term be selected as the preferred one. In exceptional cases, it may be necessary to adopt more than one preferred term. The other synonyms, including abbreviations, should be listed as admitted or deprecated synonyms. The abbreviated forms may, in exceptional cases, be chosen as preferred term, if the abbreviated form is the one which is more commonly used ('NC'; 'numerically-controlled machine tool'). The full form shall then be listed as a synonym. (See ISO 10241, clause 6.2.5.)

4 Harmonization of concepts and terms

Harmonization may be needed between different subject fields within one language or between different languages. The aim of concept harmonization is to reduce or to eliminate minor differences among two or more concepts that are already closely related to each other. Concept harmonization is an integral part of standardization.

4.1 Harmonization of concepts and concept systems

Harmonization of concepts always involves a comparison of the different concept systems. It shall never involve a **direct** transfer of one concept system to another language. For harmonization purposes, all available concept systems shall be compared, irrespective of their origin, i.e. whether they have been internationally or nationally standardized or otherwise established. **It is important that the analysis is not restricted to the official languages only.** For more detailed information, see ISO 860.

4.2 Harmonization of terms and term systems

Harmonization of terms and term systems is possible and meaningful only after concept harmonization. In the process of harmonization, it is important not to be misled by the superficial similarity of terms, for example, by the so-called "false friends".

In term harmonization, no pressure shall be exerted on individual languages to adopt means of term formation that are alien to their structure. Identical characteristics of concepts should, however, be used in the term coining process, to achieve term correspondence whenever possible.

5 Phases of a terminology project

This clause gives guidance to groups preparing vocabularies. All its subclauses may not be equally applicable to other types of terminology work, such as drafting the definitions clause for international standards. For details see ISO 10241.

The main phases of a terminology project are:

- Evaluating needs
- Determining the target group
- Identifying concepts
- Collecting and recording data
- Establishing the term list
- Establishing the concept systems
- Formulating definitions
- Selection and formation of the terms
- Revising the concept diagrams

In practice, many of these phases occur simultaneously.

5.1 Working group

An ideal terminology group consists of 5—8 members. If the group does not have experience in systematic terminology work, it is advisable to hire a trained terminologist to assist the group. This will speed up the work and improve the quality of the resulting vocabulary. Whenever possible, an introductory tutorial in terminology work should be arranged for all group members.

5.2 Subject delimitation

The subject field shall be carefully delimited according to the purpose of the vocabulary and the needs of its target group. This delimitation procedure involves a detailed description of the subject field and its division into possible sub-categories.

5.3 Sources

Any relevant material in the field should be consulted. Useful examples, illustrations, concept systems, terms, etc., may be found in various types of documentation.

The main types of documentation to be examined include laws, regulations, directives, standards, textbooks, dissertations, periodicals, operating instructions, reports, vocabularies, dictionaries, encyclopedias, databases etc. All documentation shall be evaluated for its reliability and relevance. Translated material should be used with caution.

5.4 Number of concepts

The number of concepts to be dealt with by the terminology group must be limited, because working with a large number of concepts easily results in inconsistencies and omissions, and it is very time-consuming. Experience has shown that if the number of concepts is well over 200, a subdivision of the project into parallel or successive subprojects becomes necessary.

5.5 Schedule

A detailed schedule shall be drawn up for the project. The schedule should include: a list of the project phases, a timeframe for each phase and the responsibilities assigned to the working groups and the individuals involved.

5.6 Collecting and selecting terminological data

The source documentation (see 5.3) shall be analyzed in order to identify the concepts belonging to the subject field. At this stage, the number of concepts and terms collected should not be limited too strictly. Sources of the collected information shall be clearly indicated. For details of recording terminological data, consult ISO 10241.

The following classification of the concepts into four categories may serve as a guide in determining whether or not a concept should be included:

1) concepts specific to the subject field
2) concepts common to several subject fields
3) concepts borrowed from adjacent subject fields
4) concepts used in general language.

The final terminology should include mainly concepts specific to the subject field (1) and only a limited number of concepts from categories 2—3. General language concepts (4) should be included only in exceptional cases.

5.7 Concept systems and definitions

The selected concepts shall be structured into concept systems so that each concept is allocated a specific place in a system. It may be advisable to start with the generic relations and then proceed with partitive and associative relations. A diagram or systematic list showing the relationships between the concepts can be used to organize the concept systems.

The selected concepts shall be defined following the instructions in clause 2. For additional guidance, the International Standards ISO 704, 860 and 10241 should be consulted. In practice, the drafting of definitions is often carried out at the same time as the concept systems are established. If concept systems are drafted first, it is usual that they are revised during the definition writing. The general rule is that the definitions shall be clear and easy to understand. When adopting existing definitions, special care shall be taken to avoid errors and inconsistencies. References to standardized definitions should be used whenever possible.

6 Terminography

6.1 Form of definitions

The following conventions are used in the formulation of definitions:

a) Both the term and definition shall be in the singular form unless the concept to be defined is in plural.
b) The definition shall not begin with **term used to describe** or **term denoting** or **concept denoting**, **concept formed by**; neither shall it take the form **is..** or **means...**
c) The definition shall not begin with an article, unless there is a specific reason to do so.
d) The definition, including the first letter of the first word, shall be in lower case, and there is no full stop at the end.
e) If the definition has been taken from another normative document, a reference to the source shall be added in square brackets after the definition.
f) Only preferred terms are admitted in definitions.
g) Terms used in definitions and defined elsewhere in the vocabulary shall be highlighted typographically, e.g. by bolder type and by its entry number between parentheses.

6.2 Form of entries

For standardization purposes, a terminological entry shall contain at least:

a) the entry number
b) the preferred term
c) the definition of the concept.

EXAMPLE OF A TYPICAL ENTRY:

1.3

field of standardization	de	Normungsgebiet, *n*
standardization field	sv	standardiseringsområde, *n*
domain of standardization (deprecated)	fi	standardisointiala

group of related subjects of *standardization*
[ISO/IEC Guide 2]
NOTE — Engineering, transport, agriculture and quantities and units, for example, could be regarded as fields of standardization (1.1).

Additional information may be added and represented in accordance with ISO 10241, clause 6.

6.3 Order of entries

A systematic order shall be used whenever possible. However, a mixed order or an alphabetical order are permitted. See ISO 10241, clause 6.3.

6.4 Computer methods

It is recommended to use computers for recording terminological data. For smaller projects, text processing or card file software will be sufficient. For more comprehensive work, commercial terminology management systems should be considered (see also ISO/TR 12618). Information on terminology management systems and the details concerning their application may be obtained from national terminology centres, standardization bodies and from the ISO/TC 37 Secretariat.

Some international standards organizations have their own special rules for computer methods in recording terminologies.

VOCABULARY OF TERMINOLOGY[1]

characteristic

fi käsitepiirre
sv kännetecken, *n*
nb kjennetegn
nn kjenneteikn
da karakteristisk træk
is einkenni, *n*
se doahpaga dovdomearka

(See page 13.)

concept

fi käsite
sv begrepp, *n*
nb begrep
nn omgrep
da begreb
is hugtak
se doaba

(See page 12.)

concept harmonization

fi käsiteharmonisointi
sv begreppsharmonisering
nb begrepsharmonisering
nn omgrepsharmonisering
da begrebsharmonisering
is hugtakasamræming
se doabaharmoniseren

(See page 32.)

concept diagram

fi käsitekaavio
sv begreppsdiagram, *n*
nb begrepsdiagram
nn omgrepsdiagram
da
is hugtakavenslamynd
se doabaskovvi

(See pages 16—19.)

[1] The Swedish, Norwegian (Bokmål and Nynorsk), Danish, Icelandic and Sámi equivalents were collected with the assistance of Nordterm member organizations. In Swedish and Icelandic, the neuters are marked with *n*.

concept system

fi käsitejärjestelmä

sv begreppssystem, *n*

nb begrepssystem

nn omgrepssystem

da begrebssystem

is hugtakakerfi, *n*

se doabavuogádat

(See page 14.)

coordinate concept

fi vieruskäsite

sv sidoordnat begrepp, *n*, sidobegrepp, *n*

nb sidebegrep

nn sideomgrep

da sideordnet begreb

is hliðskipað hugtak

se báldadoaba

(See pages 18, 21.)

definition

fi määritelmä

sv definition

no definisjon

da definition

is skilgreining

se meroštallan

(See page 19.)

deprecated term

fi hylättävä termi

sv avrådd term

nb frarådd term

nn fråråd term

da frarådet term

is óæskilegt íðorð

se hilggohastearbma

(See pages 31, 37.)

extension

fi käsitteen ala, ekstensio

sv begreppsomfång, *n*, extension

nb begrepsomfang

nn omgrepsomfang

da ekstension, begrebsomfang

is hugtaksumtak, *n*, hugtaksvídd

se doahpaga viidodat, ekstenšuvdna

(See page 14.)

general concept

fi yleiskäsite

sv allmänbegrepp, *n*

nb generelt begrep, allmennbegrep

nn generelt omgrep, allmennomgrep

da generelt begreb

is almennt hugtak

se oktasaš doaba

(See page 12.)

individual concept

fi yksilökäsite

sv individualbegrepp, *n*

nb individualbegrep, individuelt begrep

nn individualomgrep, individuelt omgrep

da individuelt begreb

is stakt hugtak

se ovttaskas doaba

(See page 12.)

intension

fi käsitteen sisältö, intensio

sv begreppsinnehåll, *n*, intension

nb begrepsinnhold

nn omgrepsinnhald

da intention, begrebsindhold

is hugtaksinntak, *n*, hugtaksdýpt

se doahpaga sisdoallu, intenšuvdna

(See page 14.)

object

fi tarkoite

sv referent

no referent

da objekt

is merkingarmið, *n*, vísimið, *n*

se čuozáhat, refereanta

(See page 12.)

preferred term

fi suositettava termi

sv rekommenderad term

nb tilrådd term, anbefalt term

nn tilrådd term

da anbefalet term

is æskilegt íðorð

se ávžžuhuvvon tearbma

(See page 31.)

subordinate concept

fi alakäsite

sv underordnat begrepp, *n*, underbegrepp, *n*

nb underbegrep

nn underomgrep

da underbegreb

is undirhugtak, *n*

se vuolledoaba

(See page 14.)

superordinate concept

fi yläkäsite
sv överordnat begrepp, *n*, överbegrepp, *n*
nb overbegrep
nn overomgrep
da overbegreb
is yfirhugtak, *n*
se badjedoaba

(See page 14.)

synonym

fi synonyymi
sv synonym
no synonym
da synonym
is samheiti
se synonyma

(See page 31.)

term

fi termi
sv term
no term
da term
is íðorð, *n*, heiti, *n*
se tearbma

(See page 31.)

term harmonization

fi termiharmonisointi
sv termharmonisering
no termharmonisering
da termharmonisering
is íðorðasamræming
se tearbmaharmoniseren

(See page 32.)

terminological entry

fi termitietue
sv termpost
no terminologisk oppslag
da terminologisk record, terminologisk indgang
is fletta
se tearbmamearkkuš

(See page 36.)

terminologist

fi terminologi
sv terminolog
no terminolog
da terminolog
is íðorðafræðingur
se terminologa

(See page 10.)

NORDTERM ORGANIZATIONS

NORDTERM is a Nordic association of organizations and societies which are engaged in terminology work, training and research. The nucleus of NORDTERM is composed of the following centres for terminology in the Nordic countries:

Tekniikan Sanastokeskus (TSK)
Albertinkatu 23 A 12, FIN-00120 Helsinki
Tel: +358-0-2709 1060
Fax: +358-0-608 859
E-mail: tsk@tsk.fi
http://www.tsk.fi

Terminologicentrum TNC
Västra vägen 7 B, SE-169 61 Solna
Tel: +46-8-446 6600
Fax: +46-8-446 6629
E-mail: tnc@tnc.se
http://www.tnc.se

Rådet for teknisk terminologi (RTT)
Postboks 660 Skøyen, NO-0214 Oslo
Tel: +47-2204 9225
Fax: +47-2243 4224
E-mail: rtt@rtt.org
http://www.rtt.org

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ANNEX

TERMINOLOGY WORK IN BRIEF

Guide to Terminology
by Heidi Suonuuti
2001

ORGANIZE THE WORK

1. Set up a working group of 5—8 subject specialists.
2. Hire a trained terminologist to assist the group. This will speed up the work and improve the quality of the resulting terminology.
3. Collect information about the principles, methods and practicies in terminology work. International standards published by ISO/TC 37 contain useful information.
4. Arrange an introductory tutorial in practical terminology work for all members of the group.
5. Determine your target group and evaluate its needs.
6. Delimite your subject field. Note the sub-fields to be covered and those to be excluded.
7. Choose the languages to be dealt with.
8. Collect vocabularies and other documents published in the subject field concerned.
9. Collect texts in which relevant concepts can be identified.
   NOTE — Useful information may be found in various types of documentation.
10. Evaluate the documentation or its reliability and relevance. Use translated material with caution.
11. Decide on the number of concepts to be included.
12. Draw up a detailed schedule.
13. Select the recording medium and record format. Use a computer if possible.

RECORD AND STRUCTURE THE INFORMATION

14. Analyze the documentation and identify the concepts belonging to the subject field.
15. Select the concepts to be included and structure them into concept systems. Use diagrams to organize the concept systems. Check and correct gaps or overlaps in or between the systems. NOTE — When working with a multilingual terminology, structure the concept systems separately for each language.
16. Collect and record terms, definitions and other relevant information from the source documentation. Consult subject field specialists.

DEFINE THE CONCEPTS

17. Follow the concept systems when writing the definitions. In generic concept systems, base your definition on the nearest superordinate concept. When necessary in partitive or associative concept systems, use a general term. Examples of useful words are *property*, *action*, *science*, *device*, *process*, *system*. Word combinations like *part of [device]*, *element in [system]*, *component of [system]* indicate partitive relations, and *result of [action]*, *product of [process]* indicate associative relations. The rest of the definition describes how the concept differs from the related concepts in the same system.
18. Quote standards or other reliable sources, whenever possible. Note the source in square brackets, i.e. [ISO 2382-1:1993].
19. Don't write or quote definitions that do not place the concept adequately in your concept system. If a definition quoted from an authorized source has to be redrafted, be careful not to change the concept's intension or extension.
20. Write definitions that will be useful for the intended user. Highly technical expressions, such as mathematical formulas, do not meet the needs of laypersons. On the other hand, the requirements of a specialist would not be met by a definition that did not provide technical information.
21. Don't replace definitions by illustrations.
22. Describe only one concept per definition. Any concept that requires an explanation shall be defined separately.

AVOID DEFINITION ERRORS

23. Don't write definitions which are too broad or too narrow. Include only the characteristics necessary to identify the concept. Any additional information may be included as a note or an example.
24. Avoid drafting a definition that applies only to a specific circumstance. Indicate the subject field of a definition, when necessary, to avoid confusion. This is particularly relevant when a term refers to more than one concept. For example, <organic chemistry>, <public transit>.
25. Don't use the term of the concept being defined or any grammatical variation

thereof in the definition (internal circle).

26. Don't write definitions where one concept is defined by another which in turn is defined by the first (external circle).
27. Write definitions which describe what the concept is, not what it is not.

FORMULATE THE DEFINITIONS

28. Be brief. Write concise definitions in one sentence.
29. Use only common general language words, terms that are self-explanatory to the target group, and special terms that have been defined elsewhere in your vocabulary.
30. Use preferred terms to refer to concepts already defined.
31. Use the same part of speech in the definition as in the term. Use a verb or verbal phrase when defining a verb, a noun when defining a noun, etc.
32. Check the form of the definitions: singular form, lower case letter, no article at the beginning, no full stop at the end, etc.

SELECT THE TERMS

33. Evaluate the terms and classify them according to their acceptability rating, e.g. *preferred*, *depracetd*, *obsolete etc*.
34. Find the term equivalents and denote their degree of equivalency.
35. If a term refers to more than one concept ("has more than one meaning"), it shall have more than one entry as long as the other concepts are relevant to the sub ject field in question.

FINALIZE THE DRAFT

36. Select the form and order of the entries.
37. Draw up the introductory elements and indexes of the vocabulary.
38. Have your definitions read and terms checked by a native-language speaker and a subject field specialist to ensure that they are adequate and clear.

Note that in practice the steps of the working process may occur simultaneously.