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Terminology work — Principles and methods

Travail terminologique — Principes et méthodes

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 704 was prepared by Technical Committee ISO/TC 37, *Terminology and other language and content resources*, Subcommittee SC 1, *Principles and methods*.

This third edition cancels and replaces the second edition (ISO 704:2000), which has been technically revised.

0 Introduction

0.1 Overview

The terminological principles and methods provided in this International Standard are based on current thinking and practices in terminology work.

Terminology work is multidisciplinary and draws support from a number of disciplines (e.g. logic, epistemology, philosophy of science, linguistics, translation studies, information science and cognitive sciences) in its study of concepts and their representations in special language and general language. It combines elements from many theoretical approaches that deal with the description, ordering and transfer of knowledge.

The terminology work dealt with in this International Standard is concerned with terminology used for unambiguous communication in natural, human language. The goal of terminology work as described in this International Standard is, thus, a clarification and standardization of concepts and terminology for communication between humans. Terminology work may be used as input for information modelling and data modelling, but this International Standard does not cover the relation with these fields.

In line with the current trend in standardization towards providing guiding principles, this International Standard is intended to standardize the essential elements for terminology work. The general purposes of this International Standard are to provide a common framework of thinking and to explain how this thinking should be implemented by an organization or group.

It is further intended to provide assistance to those involved in terminology management. The principles and methods should be observed not only for the manipulation of terminological information but also in the planning and decision-making involved in managing a stock of terminology. The main activities include, but are not limited to, the following:

— identifying concepts and concept relations;

— analysing and modelling concept systems on the basis of identified concepts and concept relations;

— establishing representations of concept systems through concept diagrams;

— defining concepts;

— attributing designations (predominantly terms) to each concept in one or more languages;

— recording and presenting terminological data, principally in print and electronic media (terminography).

Objects, concepts, designations and definitions are fundamental to terminology work and therefore form the basis of this International Standard. Objects are perceived or conceived and abstracted into concepts which, in special languages, are represented by designations and/or definitions. The set of designations belonging to one special language constitutes the terminology of a specific subject field.

0.2 Conventions and notation

In this International Standard and for the English language, ‘terminology work’ designates the discipline; ‘terminology’ used in the plural or preceded by an article refers to the set of designations of a particular subject field, such as legal terminology.

For the sake of consistency in reference to objects, concepts, definitions, and designations, the following wording conventions are used in this International Standard:

— objects

are **perceived** or **conceived**;

are **abstracted** or **conceptualized** into concepts;

— concepts

depict or **correspond to** objects or sets of objects;

are **represented** or **expressed** in **language** by designations or by definitions;

are **organized** into **concept systems**;

— designations (terms, appellations or symbols)

designate or **represent** a concept;

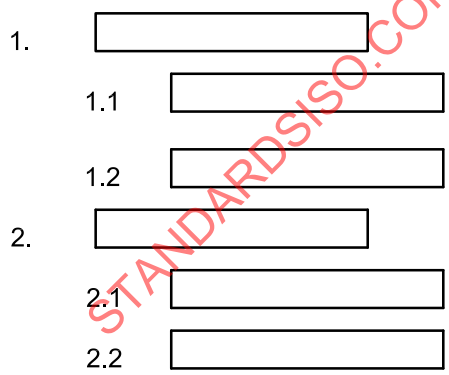
are **attributed** to a concept;

— definitions

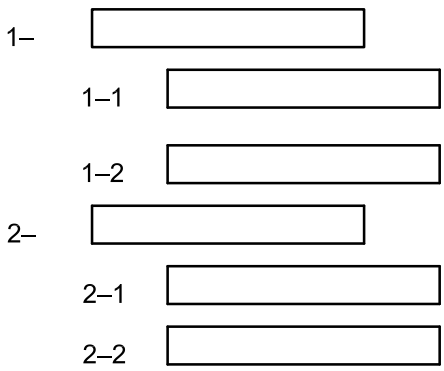
define, **represent** or **describe** the concept.

The more complex a concept system is, the more useful it is to clarify relations among concepts by representing them formally or graphically. Concept relations can be represented formally in a list. The formal representations used in this International Standard are indented and numbered with a full stop (period) (.) for generic relations and numbered with a dash (–) for partitive relations, as in the following models:

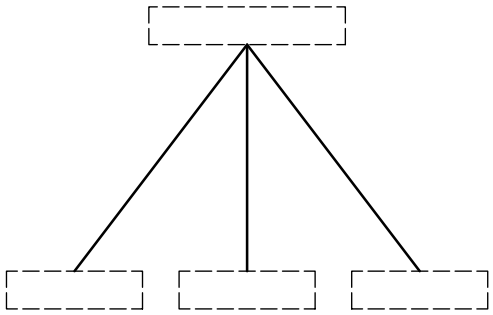
For generic relations:



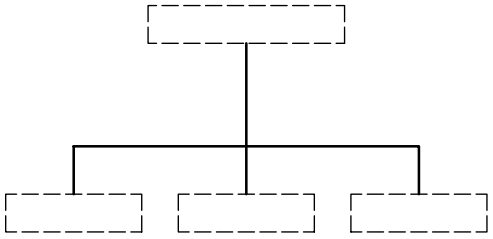
For partitive relations:



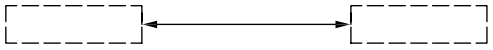
The graphic representations used in this International Standard are the most typical ones. The use of UML (Unified Modeling Language) notation for terminology work is described in ISO/TR 24156.



tree diagram to represent generic concept relations



rake diagram to represent partitive concept relations



line with arrowheads at each end to represent associative concept relations

The notation used throughout this International Standard is as follows:

— terms designating concepts defined in ISO 1087-1:2000 are in italics;

— concepts are indicated by single quotes;

— designations (terms, appellations or symbols) are in boldface;

— characteristics are underlined;

— examples are boxed.

This International Standard follows the ISO/IEC Directives, Part 2, 2004 with regard to the use of “shall”, which indicates a requirement and the use of “should”, which indicates a recommendation.

It should be noted that the examples in this International Standard have been chosen and simplified for illustrative purposes. Translation into other languages may necessitate the selection of other examples to illustrate the points.

It should also be noted that the examples of term-formation methods, in Annex B, are specific to the English language in the English version and to the French language in the French version. Annex B should not be translated, but should be adapted to the needs of each language.

Terminology work — Principles and methods

1 Scope

This International Standard establishes the basic principles and methods for preparing and compiling terminologies both inside and outside the framework of standardization, and describes the links between objects, concepts, and their terminological representations. It also establishes general principles governing the formation of terms and appellations and the formulation of definitions. Full and complete understanding of these principles requires some background knowledge of terminology work. The principles are general in nature and this International Standard is applicable to terminology work in scientific, technological, industrial, administrative and other fields of knowledge.

This International Standard does not stipulate procedures for the layout of international terminology standards, which are treated in ISO 10241.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1087-1, *Terminology work — Vocabulary — Part 1: Theory and application*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1087-1 and the following apply.

3.1
stipulative definition
definition which results from adapting a lexical definition to a unique situation for a given purpose and which is not standard usage

3.2
ostensive definition
demonstrative definition
definition which exhibits one or more representative object(s) in the extension of the concept

3.3
specialized concept
concept which reflects specific or technical knowledge within a given subject field

3.4
terminological resource
terminological data collection
TDC
text or data resource consisting of terminological entries

NOTE Adapted form ISO 26162:—[1].

3.5
terminology product
product that supports special language use or the field of terminology

NOTE Products that support special language use refer to dictionaries, databases, and other products for the dissemination of specialized terminology while products that support the field of terminology refer to journals, training manuals, tools, etc.

[ISO 22128:2008, definition 3.13]

3.6
terminographical product
terminology product consisting of a set of designations and terminological and/or linguistic information to support special language use

[ISO 22128:2008, definition 3.9]

4 Objects

In *terminology work*, an *object* is defined as anything perceived or conceived. Some *objects*, such as a machine, a diamond, or a river, should be considered concrete or material; others, such as each manifestation of financial planning, gravity, fluidity, or a conversion ratio, should be considered immaterial or abstract; still others, for example, a unicorn, a philosopher's stone or a literary character should be considered purely imaginary. In the course of producing a *terminology*, philosophical discussions on whether an object actually exists in reality are unproductive and should be avoided. Attention should be focused on how one deals with *objects* for the purposes of communication.

Objects are described and identified by their properties (see example in 5.4.1), but neither properties of specific *objects* nor the *objects* themselves are recorded in the terminological resource.

5 Concepts

5.1 Nature of concepts for terminology work

In communication, not every individual *object* in the world is differentiated and named. Instead, through observation and a process of abstraction called conceptualization, *objects* are categorized into classes, which correspond to units of knowledge called *concepts*, which are represented in various forms of communication (*object* → *concept* → communication). This International Standard does not deal with all *concepts* represented in language but only with those represented by the *terminology* of specialized fields. For *terminology work*, *concepts* shall be considered mental representations of *objects* within a specialized context or field.

Concepts are not to be confused with abstract or imagined *objects* (i.e. concrete, abstract or imagined *objects* in a given context are observed and conceptualized mentally and then a *designation* is attributed to the *concept* rather than to the *objects* themselves). The link between an *object* and its corresponding *designation* or *definition* is made through the *concept*, a higher level of abstraction.

1) To be published.

Producing a *terminology* requires an understanding of the conceptualization that underpins human knowledge in a subject area. Because *terminology work* always deals with specialized language in a particular field of knowledge (i.e. a *subject field*), the *concept* should be viewed not only as a unit of thought but also as a unit of knowledge.

The *concepts* contextualized in the *special language* of the *subject field* can be represented in the various forms of human communication according to the system used. In natural language, *concepts* can be represented by *terms*, *appellations*, *definitions* or other linguistic forms; they may also be represented by symbols; in artificial language, they can be represented by codes or formulae, while in multimedia they can be represented by icons, pictures, diagrams, graphics, sound clips, video or other multimedia representations. *Concepts* may also be represented with the human body as they are in sign language, facial expressions or body movements. This International Standard does not deal with the representation of *concepts* by sign or body language.

Concepts are described and identified by their *characteristics* (see 5.4.2, Example 2).

5.2 General concepts

When a *concept* depicts or corresponds to a set of two or more *objects* which form a group by reason of common properties, it is called a *general concept* and, in *special languages*, the *designation* takes the form of a *term* (e.g. floppy disk, liquidity, money market fund, etc.) or a symbol (e.g. ©, W, $).

5.3 Individual concepts

When the *concept* depicts or corresponds to a single *object* or when an *object* comprising a unique composition of entities is considered a single entity, it is called an *individual concept* and is represented in *special language* as an *appellation* (e.g. United Nations, Internet, World Wide Web) or a symbol (e.g.  Africa;  Statue of Liberty). *Appellations* refer to individual concepts and comprise names, titles and other similar forms and shall be distinguished from *terms* that refer to *general concepts*.

It follows that any unique object shall be considered an *individual concept*. When an *individual concept* is designated by an *appellation* constructed by conjoined entities, it is still considered an *individual concept* even though conjoined words or *terms* usually signal more than one *concept*.

EXAMPLE

A conjoined multi-name *appellation* in which there is elision of the headword can be viewed as a single *individual concept*. For example, a whole with X parts, as in the case of **North, Central, and South America** (a single region made up of the three parts) as opposed to the three *appellations* '**North America**', '**Central America**', and '**South America**', which are viewed as three separate *individual concepts*.

A multi-word *appellation* with conjoined modifiers is to be interpreted as a single entity and it designates an *individual concept*, for example: The **Canadian Radio-television and Telecommunications Commission** is to be interpreted as one entity, not two, i.e. not as the 'Canadian Radio-television Commission' and the 'Canadian Telecommunications Commission'. Similarly, **Sunnybrook and Women's Colleges Health Sciences Centre** is one entity.

An *individual concept* in a generic *concept system* cannot be subdivided further, while an *individual concept* in a partitive *concept system* can be subdivided into its parts (see 5.5.2.2.2 and 5.5.2.3.2).

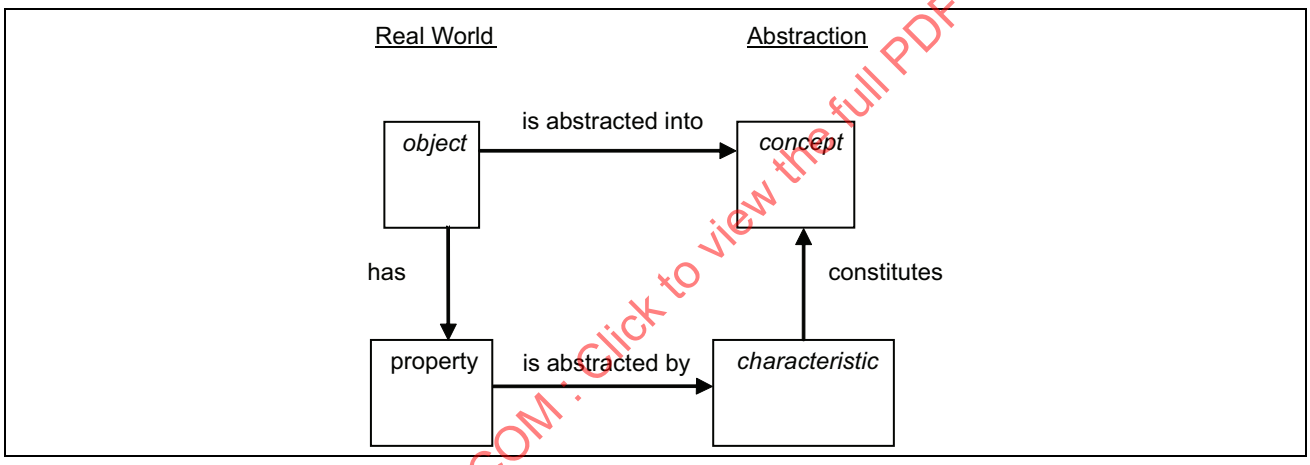
5.4 Characteristics

5.4.1 Nature of characteristics

Concept formation plays a pivotal role in organizing human knowledge because it provides the means for recognizing *objects* and for grouping them into meaningful units in a particular field. In order to categorize an *object* for the purposes of *concept* formation, it is necessary to identify its properties (see the example below). *Objects* perceived as sharing the same properties are grouped into units. Once similar *objects,* or occasionally a single *object*, are viewed as a meaningful unit of knowledge within a branch of human knowledge, the properties of an *object*, or those common to a set of *objects*, are abstracted as *characteristics* that are combined as a set in the formation of a *concept.*

Thus, *objects* in the real world are identified by their properties. The *objects* are then abstracted as *concepts* and the properties are abstracted as *characteristics* making up the *concepts*. Abstraction is the process of recognizing some set of common features in an individual set of *objects* and, on that basis, forming a *concept* of that set of *objects*. *Characteristics* are qualifiers and narrow the meaning of a *superordinate concept* (see 5.5.2.1). It should be noted that '*characteristic'* is a linguistic *concept* which should not be confused with the information technology (IT) *concept* 'property'.

EXAMPLE



The relations between these four *concepts* might be further elucidated by the following statements.

— Each *object* has one or multiple properties.

— Each property of a similar kind is abstracted into one *characteristic*.

— Each *characteristic* is part of one or multiple *concepts*.

— Each *concept* is constituted by one or multiple *characteristics*.

— Each *object* is abstracted into one or multiple *concepts*.

5.4.2 Terminological analysis

The coming together of a unique set of *characteristics* to make a *concept* is an everyday occurrence. The *concept* made up of this set of *characteristics* is represented by a *designation* (i.e. a *term*, *appellation* or symbol). Since a *designation* is not attributed to an *object* but to a *concept,* the latter depicting one or more *objects*, terminological analysis is based upon a representation of the *concept* in the form of a *designation* or a *definition*. Therefore, the methodology used in the analysis of *terminologies* requires:

— identifying the context or *subject field*;

— identifying the properties attributed to *objects* in the *subject field*;

— determining those properties which are abstracted into *characteristics*;

— combining the *characteristics* to form a *concept*;

— attributing a *designation*.

It should also be noted that the properties used to state properties that describe an *object* and the *characteristics* that make up a *concept* designate in themselves *concepts*, sometimes within the same specialized field, sometimes not. It may be useful to begin an analysis with those *concepts* corresponding to concrete *objects*, since the *characteristics* are more easily abstracted given that the properties of the *objects* can be physically observed or examined.

In an abstract way, terminological analysis should begin with the *objects* in question and the *subject field* contextualizing those *objects*. Properties shall be ascribed only to *objects*. A terminologist begins by analysing discourse texts which refer to *objects* to see how they are designated in language. By analysing a certain number of discourse texts, the terminologist can get an understanding of the properties of the various referents in the different discourse texts, so as to determine those properties that can be abstracted as *characteristics*, as opposed to those properties that are unique to an individual object and, therefore, cannot be seen as *characteristics*.

EXAMPLE 1

The specific *objects* designated by the visual representations below have the following specific properties:

		
— a device; — ivory-coloured; — hand-manoeuvred along a firm, flat surface; — has a ball on its underside; — has three buttons; — has a wire for connecting to a computer; — rollers detect the movement of the ball; — the ball controls the movement of a cursor on a computer display screen.	— a device; — blue and grey; — hand-manoeuvred along a firm, flat surface; — has a ball on its underside; — has two buttons; — has a wire for connecting to a computer; — rollers detect the movement of the ball; — the ball controls the movement of a cursor on a computer display screen.	— a device; — black-grey; — hand-manoeuvred along a firm, flat surface; — has a ball on its underside; — has two buttons; — has a wire for connecting to a computer; — rollers detect the movement of the ball; — the ball controls the movement of a cursor on a computer display screen.

If the *objects* in Example 1 are contextualized in the field of computer hardware, these particular *objects* are recognized as belonging to the set of *objects* that has been conceptualized as ‘mechanical mouse’. In the process of conceptualization, the properties of all the *objects* in the category are abstracted into *characteristics*, that is, the properties of the *objects* are converted into generalizations applied to the entire set as opposed to the individual *objects*, as illustrated in Example 2.

To facilitate this analysis, the properties of *objects* may be grouped into categories such as part, function, composition, colour, shape, operation, location. Categories appropriate to the *subject field* can be found from reference works and encyclopedias, but any list has to be used flexibly, and it should be assumed that additional categories are likely to be needed to adequately represent all the properties. For practical purposes, beginning with one of the more typical *objects* is recommended. The identification of *characteristics* shall be based on specialized knowledge in the field and this often requires research. Experienced terminologists for whom the *concept* in question is clear and straightforward may move directly to identifying the *characteristics*.

The following example is a preliminary analysis of the *concept* 'mechanical mouse'. *Concepts* denoting non-physical *objects*, e.g. 'bankruptcy', shall be analysed along the same lines.

EXAMPLE 2

Concept: abstraction based on the set of all mechanical mice ***Designation*** (***term***): **mechanical mouse**			
Properties of *Object 1*	**Properties of *Object 2***	**Properties of *Object 3***	***Characteristics***
hand-manoeuvred along a firm, flat surface	hand-manoeuvred along a firm, flat surface	hand-manoeuvred along a firm, flat surface	being hand-manoeuvred along a firm, flat surface
has a ball on its underside	has a ball on its underside	has a ball on its underside	having a ball on its underside
has three buttons	has two buttons	has three buttons	having at least one button
has a wire for connecting to a computer	has a wire for connecting to a computer	has a wire for connecting to a computer	having a wire for connecting to a computer
rollers detect the movement of the ball	rollers detect the movement of the ball;	rollers detect the movement of the ball	having rollers (mechanical sensors) for detecting ball-movement
ivory-coloured	blue	black	having colour NOTE This *characteristic* is inherited from a *superordinate concept* at a very high level, e.g. 'physical *object*'.

Characteristics shall be used in the analysis of *concepts*, the modelling of *concept systems*, and in the formulation of *definitions* and, where appropriate, should have a bearing on the selection and formation of *designations*.

Note that in selecting properties and *characteristics,* these purposes need to be borne in mind, since the number of properties that distinguish one *object* from another is effectively infinite. So, for example, in the case of computer mice, one might observe that place of manufacture is a *characteristic* which need not be considered. Again, the experienced terminologist will be well-placed to anticipate what is likely to be required.

5.4.3 Intension and extension

The set of *characteristics* that come together to form the *concept* is called the *intension* of the *concept*. The set of *objects* conceptualized as a *concept* is known as the *extension* of the *concept*. The two, the *intension* and the *extension*, are interdependent. For example, the *characteristics* making up the *intension* of 'mechanical mouse' determine the *extension* or the *objects* that qualify as mechanical mice.

5.4.4 Shared vs. delimiting characteristics

After identifying the *characteristics* that make up the *intension* of a *concept*, the terminological analysis shall be taken a step further. Each *characteristic* of the *concept* under study shall be analysed in relation to the related *concepts* in the *concept system*. Similarities between *concepts* are indicated by shared *characteristics*; differences that set a *concept* apart are signalled by *delimiting characteristics* (see 5.5.2.2.1, Example 4). A *characteristic* is delimiting with respect to two *concepts* if it distinguishes these *concepts* from each other. The same *characteristic* of a *concept* may be delimiting in relation to one related *concept* but shared with another related *concept*. Analysing the similarities and differences between *concepts* will result in identifying

the unique set of *characteristics* that typify a given *concept*. Specification of this unique combination of *characteristics* will situate the *concept* within a network of related *concepts* with similar or different *characteristics*. The relations between the *concepts* shall be used to determine the basic structure of a *concept system* (see 5.6). The task of defining a *concept* requires knowledge of the *characteristics* used to develop the *concept system*.

5.4.5 Necessary, sufficient, and essential characteristics

In some fields, e.g. IT and logic, a distinction is made between necessary, sufficient, and *essential characteristics* and, while they are not relevant to *terminology work*, they are described here for informative purposes.

Necessary *characteristics* hold for all *objects* in the *extension* of a *concept*, i.e. they correspond to properties that all *objects* in the *extension* must have.

EXAMPLE 1

Consider the *concept* of 'right-angled triangle with sides 3, 4 and 5 cm'. For all *objects* in the *extension* of this *concept*, all the *characteristics* below necessarily hold, i.e. all *objects* have the corresponding properties. These are necessary *characteristics* of the *concept*.

Characteristics	***Properties of any object in the extension***
Length of one side of the right angle: 3 cm	Length of one side of the right angle: 3 cm
Length of the other side of the right angle: 4 cm	Length of the other side of the right angle: 4 cm
Length of hypotenuse: 5 cm	Length of hypotenuse: 5 cm

NOTE For all right-angled triangles, it holds that

$$a^2 + b^2 = c^2$$

where a, b and c are the lengths of three sides in the triangle. Therefore, the length of one side can always be calculated from the length of the other two, and hence any two of the *characteristics* will be enough to uniquely define the *concept*. Note that even though three different *definitions* can be given, the *concept* remains the unique combination of *characteristics* listed above.

A sufficient *characteristic* is one of a set of *characteristics* that determines whether a specific *object* belongs in the *extension* of a given *concept*. A sufficient *characteristic* is not necessarily true of all *objects* in the *extension* of the *concept*, but any *object* having the properties corresponding to the *characteristics* in this set belong to the *extension* of the *concept*.

EXAMPLE 2

Any *object* that has the properties corresponding to the *characteristics* having given birth and being human belongs in the *extension* of the *concept* 'woman', but not all women have given birth.

NOTE Since sufficient *characteristics* do not necessarily hold of all *objects* in the *extension* of a *concept*, they cannot be used to define that *concept*.

An *essential characteristic* is one of a set of *characteristics* that is both necessary and sufficient to determine the *extension* of a *concept*.

EXAMPLE 3

At present, the property of being the "fourth day of the month of July" is both necessary and sufficient for an *object* belonging to the *extension* of the *concept* 'Independence Day in the United States of America'.

The distinction between necessary, sufficient, and *essential characteristics* has to do with the identification of the *extension* of *concepts*. *Terminology work* is concerned with the *intension* and *designation* of *concepts*, and in this context necessary, sufficient, and *essential characteristics* are not used.

5.5 Concept relations

5.5.1 Types of concept relations

Concepts do not exist as isolated units of knowledge but always in relation to each other. Our thought processes constantly create and refine the relations between *concepts*, whether these relations are formally acknowledged or not. A set of *concepts* structured according to the relations among them is said to form a *concept system*.

In organizing *concepts* into a *concept system*, it is necessary to bear in mind the *subject field* that gave rise to the *concept* and to consider the expectations and objectives of the target users. The *subject field* shall act as the framework within which the *concept field*, the set of thematically related but unstructured *concepts*, is established.

EXAMPLE

If our task were to list and compile the *terminology* of pointing devices for computer hardware, our example of 'mechanical mouse' would form part of the *concept field* dealing with mice as conceptualized by those in the *subject field* of computer hardware.

NOTE Mice outside the *subject field* of computer hardware, such as field mice or laboratory mice, would be excluded.

To model a *concept system*, the *concepts* of the *concept field* have to be examined and compared. In *terminology work*, at least the following relations shall be used to model a *concept system*:

- *hierarchical relations:*
  - *generic relations*;
  - *partitive relations*;
- *associative relations*.

Concept systems are represented graphically by *concept diagrams*.

5.5.2 Hierarchical relations

5.5.2.1 Types of hierarchical relations

In a *hierarchical relation*, *concepts* are organized into levels of *superordinate* and *subordinate concepts*. For there to be a hierarchy, there must be at least one *subordinate concept* below a *superordinate concept*. *Superordinate concepts* can be subdivided according to more than one criterion of subdivision (i.e. they can be viewed from more than one dimension), in which case the resulting *concept system* is said to be multidimensional. *Subordinate concepts* at the same level and resulting from the application of the same criterion of subdivision are called *coordinate concepts*. *Concepts* are superordinate, subordinate or coordinate, not on their own, but always in relation to each other in a hierarchy.

In this International Standard, two types of *hierarchical relations* are recognized:

- *generic relations*;
- *partitive relations*.

5.5.2.2 Generic relations

5.5.2.2.1 Generic relations and general concepts

As mentioned in 5.4.2, the *characteristics* associated with a *concept* constitute its *intension*, and all the *objects* included in the set of *objects* associated with the *concept* constitute its *extension*. A *generic relation* exists between two *concepts* when the *intension* of the *subordinate concept* includes the *intension* of the *superordinate concept* plus at least one additional *delimiting characteristic*. For example, the *intension* of 'mechanical mouse' comprises that of 'computer mouse' plus the *delimiting characteristic* having rollers (mechanical sensors) for detecting ball-movement (see Example 2).

In a *generic relation*, the inclusion relationship between the *extensions* of the two *concepts* is the inverse, i.e. the *extension* of the *superordinate concept* includes that of the *subordinate concept*. For example, the *extension* of 'computer mouse' includes that of 'mechanical mouse' since some of the *objects* categorized as computer mice can also be categorized as mechanical mice.

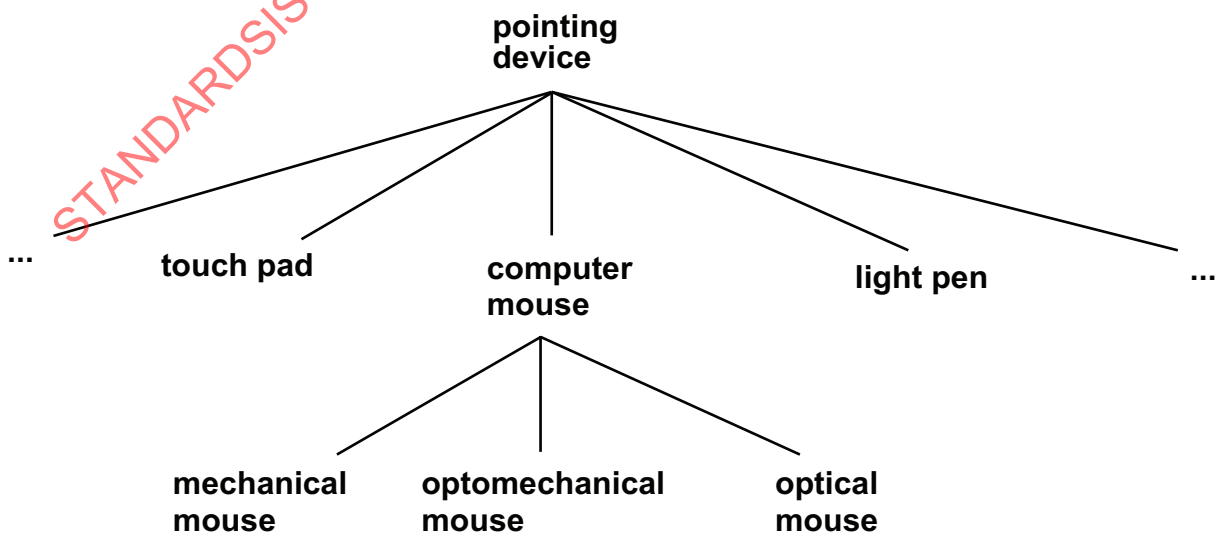
The *superordinate concept* in a *generic relation* is called the *generic concept* and the *subordinate concept* is called the *specific concept*.

An important feature of the *generic relation* is that it assumes inheritance, i.e. if *concept* B (e.g. 'mechanical mouse') is a *specific concept* of the *generic concept* A (e.g. 'computer mouse'), then *concept* B inherits all the *characteristics* of *concept* A. The inheritance principle is a way of testing and validating the generic relationship (see Example 3). In keeping with the metaphor implied by the concept of inheritance, a *generic concept* is often called a **parent**, a *specific concept* is a **child**, and *coordinate concepts* are **siblings**.

When documenting *characteristics* associated with *concepts*, instead of listing inherited *characteristics* redundantly for *subordinate concepts*, they shall be listed only with the *generic concept*. Under the *specific concept*, it is possible simply to list only the additional *characteristic*(*s*) that delimits the *specific concept* from its *generic concept* and/or from its fellow *coordinate concepts*. Inherited *characteristics* can be obtained at the level above in the *concept system*.

EXAMPLE 1

In the *concept diagram* below, 'computer mouse' is a *specific concept* in relation to the *generic concept*, 'pointing device'. Similarly, the *concepts* 'mechanical mouse', 'optomechanical mouse', and 'optical mouse' are each a *specific concept* in relation to the *generic concept* 'computer mouse'. Each of the *coordinate concepts* 'mechanical mouse', 'optomechanical mouse' and 'optical mouse' has a *generic relation* with the *generic concept* 'computer mouse'.



Comparing the *characteristics* of a *concept* and its related *concepts* (i.e. *generic*, *coordinate* and *specific*) may require an adjustment and refinement of the *intension*.

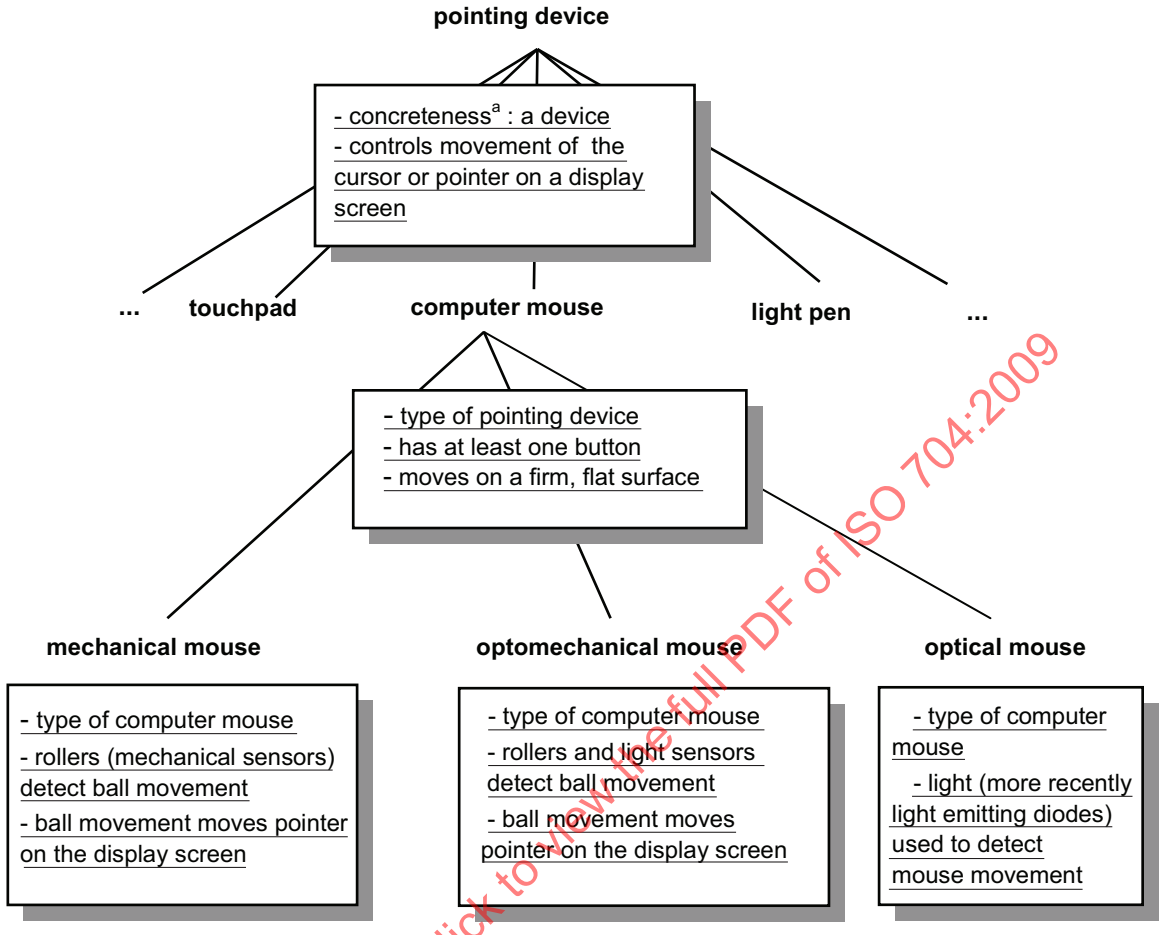
EXAMPLE 2

Comparison of the *characteristics* of 'mechanical mouse' with related *concepts* in Example 3

Usage	hand-manoeuvred along a firm, flat surface	DELIMITING in relation to the generic 'pointing device' but INHERITED from the generic 'computer mouse', and SHARED with the coordinates 'optomechanical mouse' and 'optical mouse'
Composition	has a ball on its underside	SHARED with the coordinate 'optomechanical mouse' but DELIMITING in relation to all other *concepts* in question
Composition	has at least one button	DELIMITING in relation to the generic 'pointing device' but INHERITED from the generic 'computer mouse', and SHARED with the coordinates 'optomechanical mouse' and 'optical mouse'
Function	having rollers (mechanical sensors) for detecting ball-movement	DELIMITING in relation to all other *concepts* in question
Function	ball movement controls the movement of a pointer on a computer display screen	SHARED with the coordinate 'optomechanical mouse' but DELIMITING in relation to all other *concepts* in question

NOTE The *characteristics* having colour and having a wire for connecting to a computer have now been dispensed with as they are considered to have no importance in relation to subsequent analysis.

EXAMPLE 3



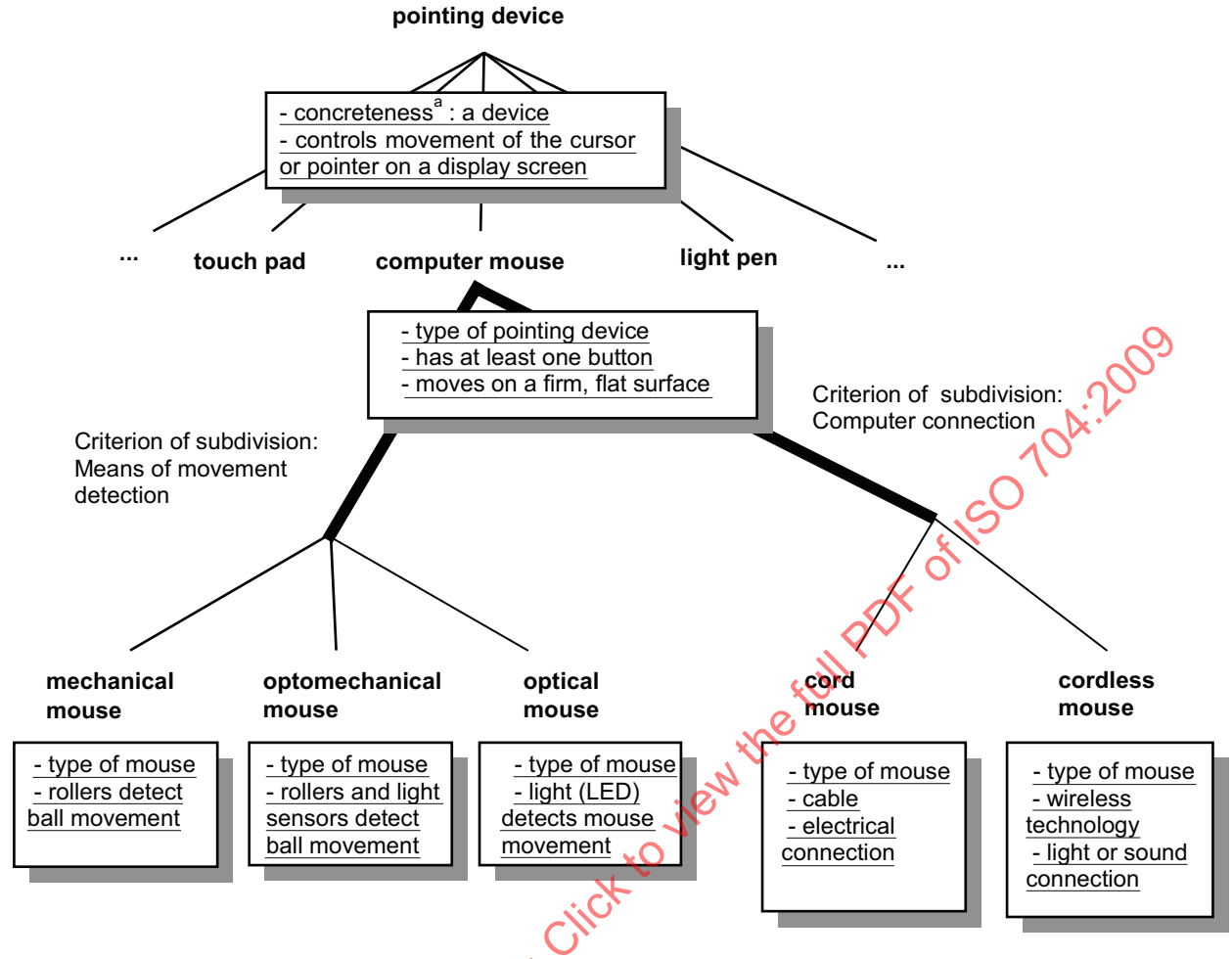
[a] Concreteness is listed here as a reminder that pointing devices are concrete *objects*.

According to the principle of inheritance, a 'mechanical mouse' is a type of or kind of 'computer mouse', which is in turn a kind of 'pointing device'. The set of all mechanical mice is a subset of all computer mice. This means that all mechanical mice are also computer mice, and that the *intension* of 'computer mouse' has to apply to or is inherited by the *concept* of 'mechanical mouse'. When the subset is defined, however, mechanical mice are distinguished from other computer mice by at least one more additional *characteristic* not shared by the other computer mice. This means that 'computer mouse' has a smaller *intension* than 'mechanical mouse'. The criterion used to increase the specificity of the *concept* is the nature of the sensors that convert the computer mouse's movement into a means of pointing on the computer screen.

A sequence of *concepts* reflecting *generic concept* relations constitutes a vertical ↓ series of *concepts* with inheritance (called a *concept* ladder), whereas a group of *coordinate concepts*, i.e. *concepts* that rank at the same level of abstraction in a *concept system*, form a horizontal → series of *concepts*.

As already mentioned, in a *generic relation* there may be several ways of subdividing a *concept* into *subordinate concepts* depending on the criteria of subdivision or type of *characteristic* chosen.

EXAMPLE 4



[a] Concreteness is listed here as a reminder that pointing devices are concrete *objects*.

'Mechanical mouse', 'optomechanical mouse' and 'optical mouse' are *coordinate concepts* because they share the same criterion of subdivision; 'cord mouse' and 'cordless mouse' constitute another set of *coordinate concepts*.

Concept	***Characteristic***	**Type of *characteristic***
mechanical mouse	Rollers detect ball movement	Means of movement detection
optomechanical mouse	Rollers and light sensors detect ball movement	Means of movement detection
optical mouse	Light (LED) detects mouse movement	Means of movement detection
cord mouse	Cable	Computer connection
cordless mouse	Wireless technology	Computer connection

The *concept diagram* most commonly used to illustrate *generic relations* in a *concept system* is the tree diagram, as in Examples 1, 3 and 4, or the indented list of *concepts*, as in Example 5.

EXAMPLE 5

1 **pointing device**
- 1.1 **touch pad**
- 1.2 **computer mouse**
  - 1.2.1
    - 1.2.1.1 **mechanical mouse**
    - 1.2.1.2 **optomechanical mouse**
    - 1.2.1.3 **optical mouse**
  - 1.2.2
    - 1.2.2.1 **cord mouse**
    - 1.2.2.2 **cordless mouse**
- 1.3 **light pen …**

5.5.2.2.2 Generic relations and individual concepts

In a concept ladder (i.e. a generic series of increasingly more *specific concepts*), *individual concepts*, if they are present, occupy the bottom rung of the ladder, the last item in the vertical series. The *extension* with a single *object* cannot be divided further into a more *specific concept*. Each *object* in an *extension* of a *general concept* has the potential of becoming the bottom rung of a *concept* ladder and therefore being named with a unique identifier or *appellation*. The *individual concept* inherits all the *characteristics* of its generic *superordinate*s.

EXAMPLE

In the following *concept* ladder, 'Canada' constitutes the bottom rung, which cannot be further divided into a more *specific concept*.

5.5.2.3 Partitive relations

5.5.2.3.1 Partitive relations and general concepts

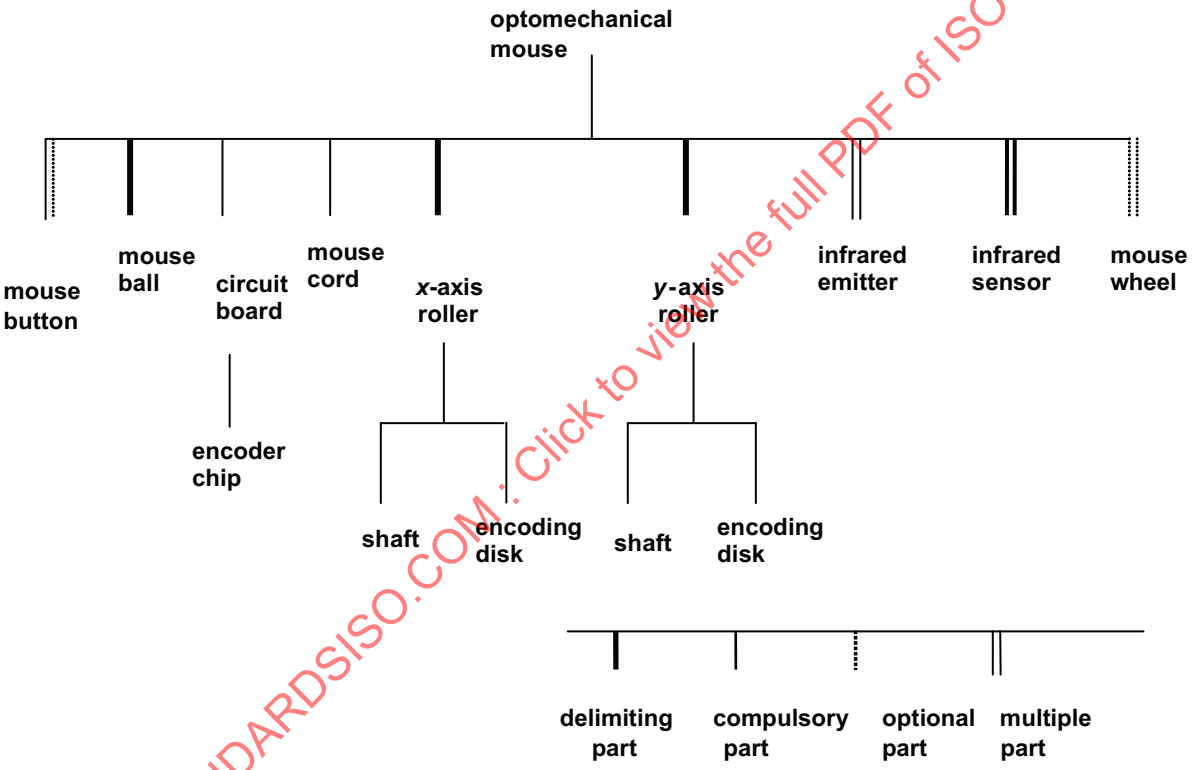
A *partitive relation* is said to exist when the *superordinate concept* represents a whole, while the *subordinate concepts* represent parts of that whole. The parts come together to form the whole. The *superordinate concept* in a *partitive relation* is called the *comprehensive concept* and the *subordinate concept* is called the *partitive concept*. Unlike *concepts* in a *generic relation*, *concepts* in a *partitive relation* do not inherit *characteristics*. However, it is important to keep in mind that *specific concepts* in a *generic relation* inherit the parts of their *superordinate concepts*.

The parts that make up the whole may be similar in nature (such as atoms in an oxygen molecule) or distinctly different from each other. One or more parts may be compulsory (and may, in a mixed *concept system*, be considered *characteristics*) or optional. Some parts reflect *delimiting characteristics* in that they allow the whole to be distinguished from other similar *comprehensive concepts*. Some parts may be multiple such as 'page' as part of a book, or variable within a range, such as an 'ink reservoir', an 'ink cartridge' or an 'ink refill' (as part of a pen).

To identify *partitive concepts* and their *characteristics*, it is necessary to determine first the position of the *comprehensive concept* in a generic hierarchy and to be mindful of the inheritance principle. How *generic* the *comprehensive concept* is will determine its *partitive concepts* and the *extension* of those *concepts* (see Example 1). *Concept diagrams* commonly used to illustrate *partitive relations* in a *concept system* are called rake diagrams (see Examples 1, 2 and 3 and the example in 5.5.2.3.2). It is also possible to use indented lists as illustrated in Example 4.

EXAMPLE 1

Before beginning an analysis based on *partitive relations*, it is necessary to determine whether the analysis starts with the *comprehensive concept*, 'computer mouse', or one of its *specific concepts*. In the following *concept diagram*, the analysis will be based on 'optomechanical mouse' (the whole) and its *partitive concepts*, 'mouse button', 'mouse ball', 'circuit board', 'mouse cord', '*x*-axis roller', '*y*-axis roller', 'infrared emitter', 'infrared sensor', and 'mouse wheel' (the parts that make up the whole). The part 'mouse wheel' is optional, since it is not found on all mechanical mice; this is indicated in the diagram by parallel dotted lines. All the other parts are compulsory components of all optomechanical mice. The *partitive concepts* 'mouse ball' and '*x*-axis roller', '*y*-axis roller' and 'infrared sensors' are considered delimiting parts because they behave like *delimiting characteristics* in that they allow one to distinguish the *comprehensive concept*, 'optomechanical mouse', from other closely related mice such as the 'mechanical mouse' and 'optical mouse'.

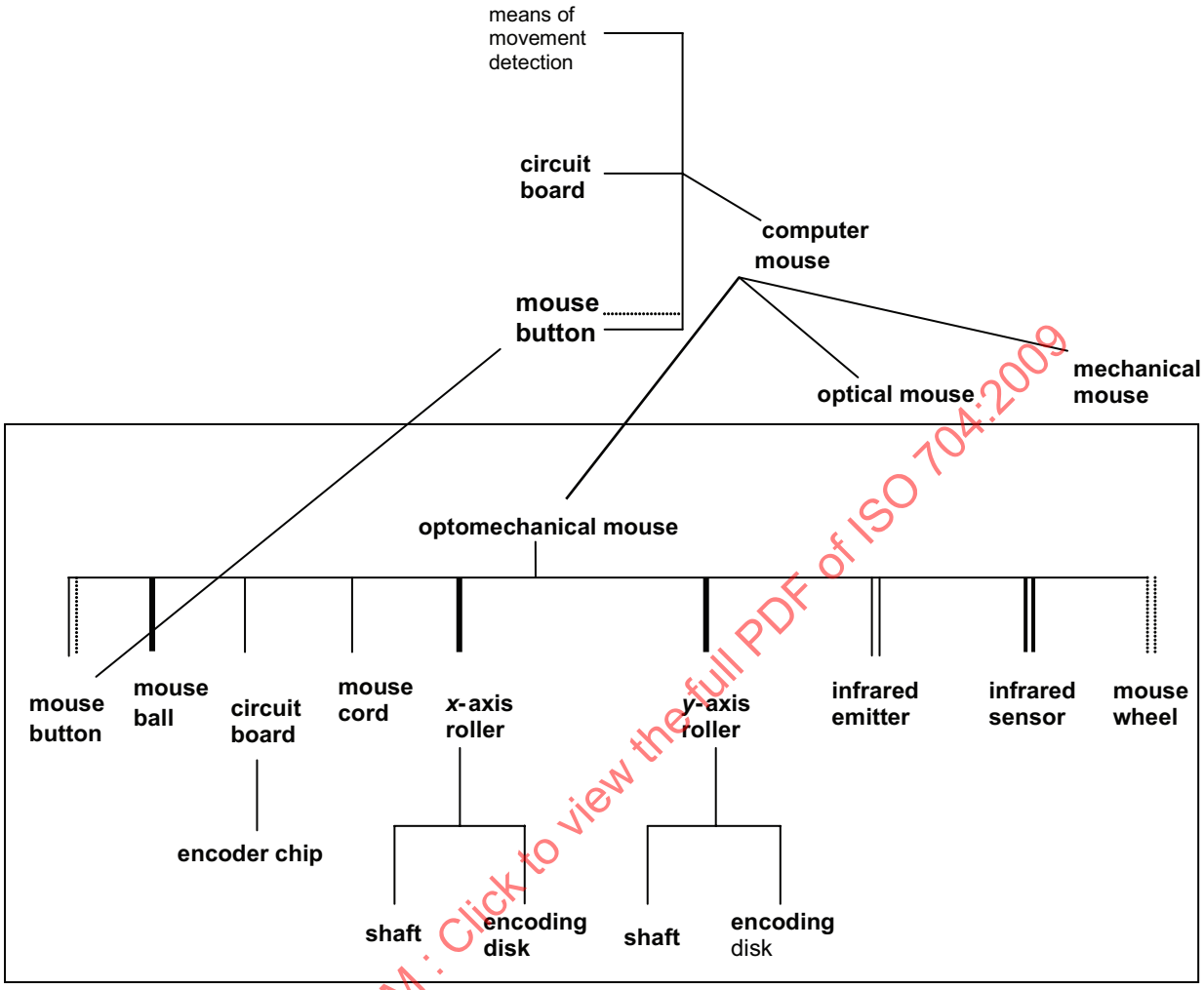


In relation to other mice (see 5.5.2.2.1, Example 4), one of the *delimiting characteristics* of the *concept* 'optomechanical mouse' is that rollers and light sensors detect the ball movement. It should be noted that, as in the case of *delimiting characteristics*, considering a part to be delimiting is relative and depends on the *generic concept system*, on the *coordinate concepts* being compared and on the inheritance principle.

In the *partitive relation* shown above, the rollers are conceptualized as '*x*-axis roller' and '*y*-axis roller' along with their parts.

Usually a partitive *concept system* does not provide a complete analysis of the *concepts*. If a *partitive concept* is not particular to the *comprehensive concept*, then the *extension* of a *partitive concept* may not be accounted for completely and some *characteristics* of its *intension* may be lacking. It is important to keep in mind that *partitive concepts*, i.e. parts, that are common to two or more *coordinate concepts* in a *generic relation* may have been inherited from the *generic concept*. Such inherited *partitive concepts* shall be analysed in relation to the *generic concept*.

EXAMPLE 2



The part 'mouse button' is not conceptually unique to 'optomechanical mice' but is inherited from the *generic concept*, 'computer mouse'. The mouse button of an 'optomechanical mouse' does not form a separate *concept* with its own *designation* but rather constitutes only a portion of the set of *objects* that make up the *extension* of the *concept* 'mouse button'. Other types of mice also have mouse buttons. The complete *extension* of the *concept* 'mouse button' can only be determined when 'mouse button' is analysed in relation to the more *generic concept* 'computer mouse'.

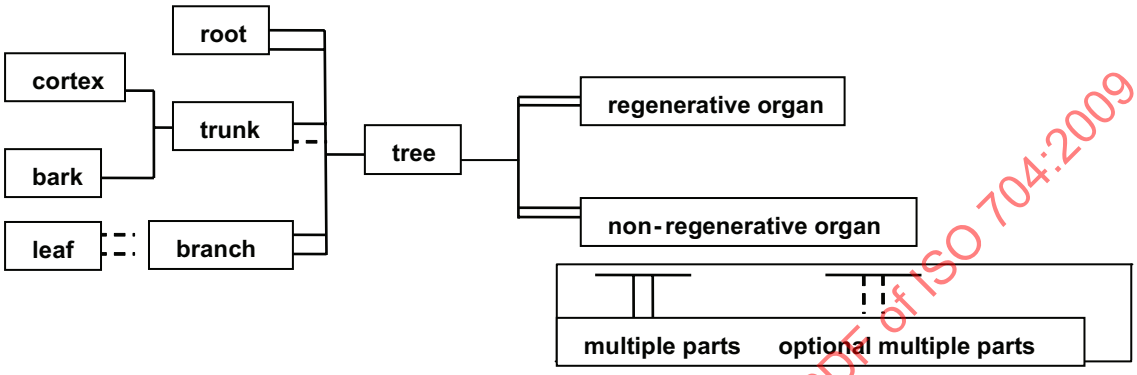
The 'mechanical mouse' and 'optomechanical mouse' have, basically, the same parts. Both use rollers and other moving parts to detect the movement of the mouse ball. However, in addition to its mechanical parts, an 'optomechanical mouse' uses photo transistors (light) to detect and transmit the movement of the mouse ball.

The parts 'mouse ball', '*x*-axis roller', '*y*-axis roller' and their parts, as found in a 'mechanical mouse' or an 'optomechanical mouse', designate *partitive concepts* that are unique in relation to other computer mice and hence can be defined on the basis of *partitive relations.*

Partitive relations, like *generic relations*, can be expressed as vertical ↓ and horizontal → series and multidimensional partitive *concept systems* are possible, although they are less common.

EXAMPLE 3

Criterion of subdivision:	Parts of the *concept* 'tree' viewed as a living plant	
	Comprehensive concept:	***Partitive concepts:***
	tree	root, trunk, branch, leaf
Criterion of subdivision:	Parts of the *concept* 'tree' viewed according to the regenerability of its organs	
	Comprehensive concept:	***Partitive concepts:***
	tree	regenerative organ, non-regenerative organ



EXAMPLE 4

1– **tree**

1–1– ("parts based on composition")

1–1–1–**branch**

1–1–1–1–**leaf**

1–1–2–**root**

1–1–3–**trunk**

1–1–3–1–**bark**

1–1–3–2–**cortex**

1–2– ("parts based on regenerability of organs")

1–2–1– **regenerative organ**

1–2–2– **non-regenerative organ**

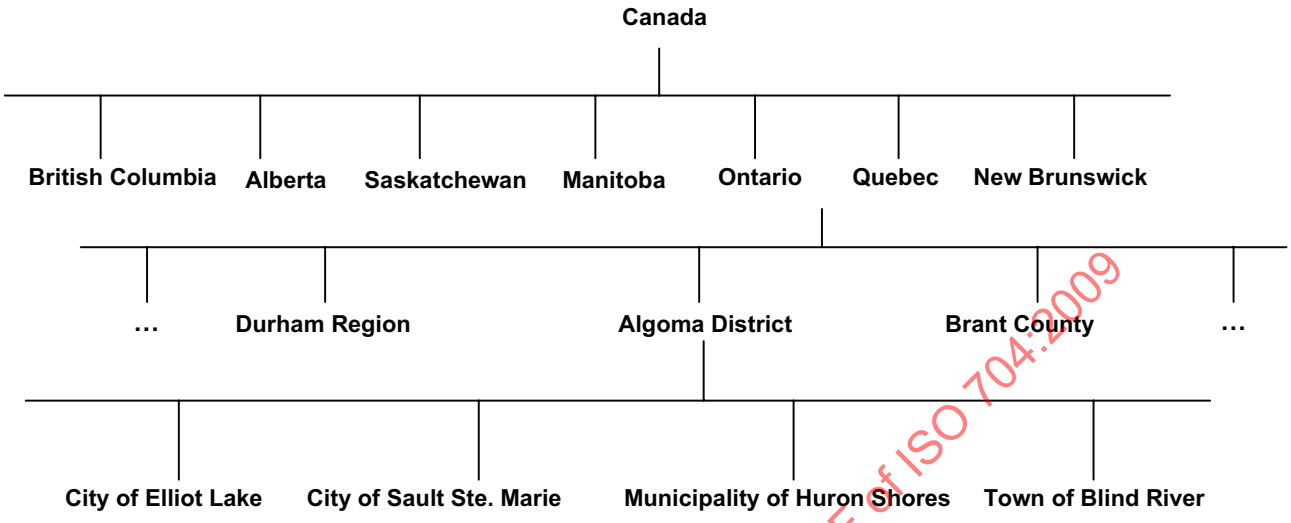
NOTE Multiplicity and optionality of parts, as shown in Example 3, are not reflected in the listing presented here.

5.5.2.3.2 Partitive relations and individual concepts

In a *generic relation*, an *individual concept* constitutes the most *specific concept* in the hierarchy (bottom rung) and cannot be subdivided further. However, if the same *concept* is viewed as a *comprehensive concept* in a *partitive relation*, the *individual concept* can be subdivided into its parts.

EXAMPLE

In a *partitive relation*, the *individual concept* 'Canada', which in the example in 5.5.2.2.2 constitutes the bottom rung in a series of the *generic relations*, can be divided into the various parts that make up the country of Canada.



The *appellation* **Canada** represents an *individual concept*, which means that when viewed generically, its *extension* comprises a single *object*. Nevertheless, it can also be viewed from a partitive perspective by illustrating its parts (provinces, counties, municipal units, etc.).

5.5.3 Associative relations

Associative relations are non-hierarchical. An *associative relation* exists when a thematic connection can be established between *concepts* by virtue of experience.

Some *associative relations* exist when dependence is established between *concepts* with respect to their proximity in space or time. These relations may involve

action – actor

action – equipment/tool

action – place/location

action – target

concrete item – material

concrete item – shape

material – property

material – state

matter/substance – property

product – composition

quantity – unit

raw material – product

Some relations involve events in time such as a process dependent on time or sequence; others relate cause and effect.

There are many kinds of *associative relations* and the following are but a few examples.

EXAMPLE

Concepts			*Associative relation*
milk carton	⇔	**milk**	container – contained
clicking	⇔	**computer mouse**	action – tool
gametes	⇔	**zygote** ⇔ **zygospore**	steps of a cycle
humidity	⇔	**corrosion**	cause – effect
baker	⇔	**bread**	producer – product
time	⇔	**clock**	quantity – measuring device
painter	⇔	**brush**	profession – tool employed
screw	⇔	**screwdriver**	object – tool for its manipulation

5.6 Concept systems

5.6.1 Nature of concept systems

The *terminology* of a *subject field* is not an arbitrary collection of *terms*. The relevant *concepts* constitute a coherent *concept system* based on the relations existing between *concepts*. The unique position of each *concept* within a system is determined by the *intension* and the *extension*. In the case of *concept systems* based on *generic relations*, the *concept system* also reflects inheritance systems, because *specific concepts* inherit *characteristics* from their generic *superordinate concepts*.

Different *subject fields* view the same bodies of knowledge in different ways. The same *objects* may be combined to form different units of knowledge with different *intensions* and *extensions*, thus resulting in different *concept systems* and distinct *designations*. Hypothetical-deductive approaches such as mathematics may create *concept systems* based on statistics or abstract mathematical formulae, whereas the natural sciences may view the same body of knowledge, but draw up systems resulting from the classification of observed phenomena. Engineering and technology may structure a system according to production processes, whereas specialists in law or sociology can view the same phenomena in terms of legal liability or social interaction.

EXAMPLE

water	chemistry	molecule-composed compound of two atoms of hydrogen and one atom of oxygen (H_2O), considered the universal solvent
	physics	fluid which is colourless, odourless and tasteless used as the standard of specific gravity and of specific heat which freezes at 0 °C and boils at 100 °C
	physics	chemical compound which is colourless, odourless, and tasteless and whose formula is H_2O and which is naturally found in solid state at temperatures at and below 0 °C, in liquid state at temperatures between 0 °C and 100 °C, and as vapour at temperatures above 100 °C
	biology	chemical substance that is essential to all known forms of life
	metrology	chemical compound whose freezing and boiling points are the basis for the Celsius temperature scale, where freezing point equals 0 °C and boiling point equals 100 °C at standard atmospheric pressure
	astrology	one of the four elements of life that is associated with the emotional and intuitive processes

A *concept system* serves to:

— model *concepts* and relations between them based on specialized knowledge of a *subject field*;

— clarify the relations between *concepts*;

— form the basis for a uniform and standardized *terminology*;

— facilitate the comparative analysis of *concepts* and *designations* across languages and across *subject fields*;

— facilitate the writing of *definitions*;

— facilitate the inclusion of all relevant *concepts* while developing a terminological resource.

In a generic *concept system*, a concept may not have an established *designation*, or may have a *designation* in one language but not in another.

5.6.2 Types of concept systems

The types of *concept systems* are:

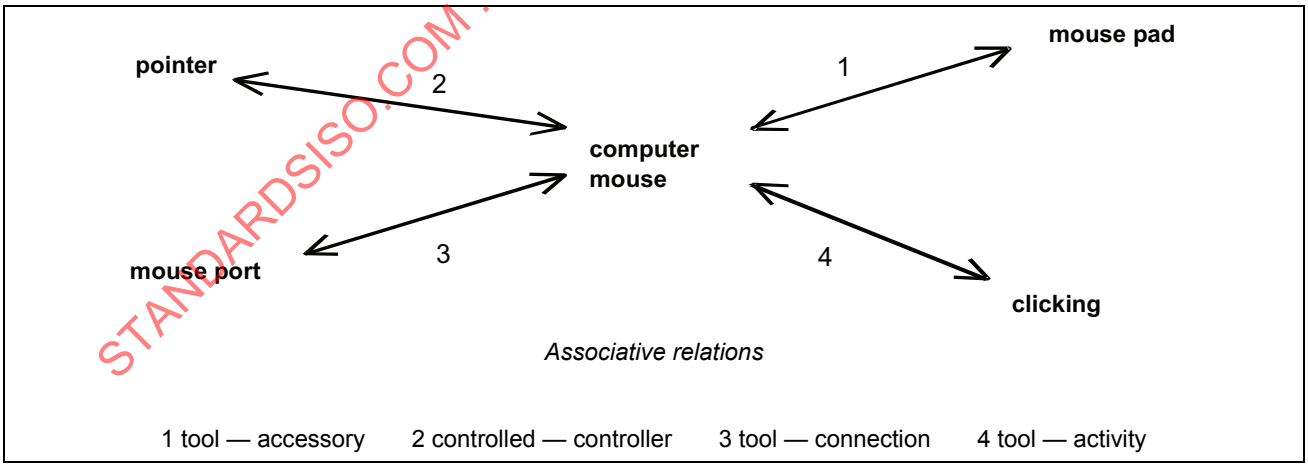
— generic *concept system*: a *concept system* in which all the *concepts* relate to each other as *generic* and *specific concepts*; see 5.5.2.2.1, Examples 3 and 4;

— partitive *concept system*: a *concept system* in which all the *concepts* relate to each other as wholes and their parts; see 5.5.2.3.1, Example 1;

— associative *concept system*: a *concept system* in which all the *concepts* relate to each other by association. The type of *associative relation* between any two *concepts* may vary within a system; see Example 1;

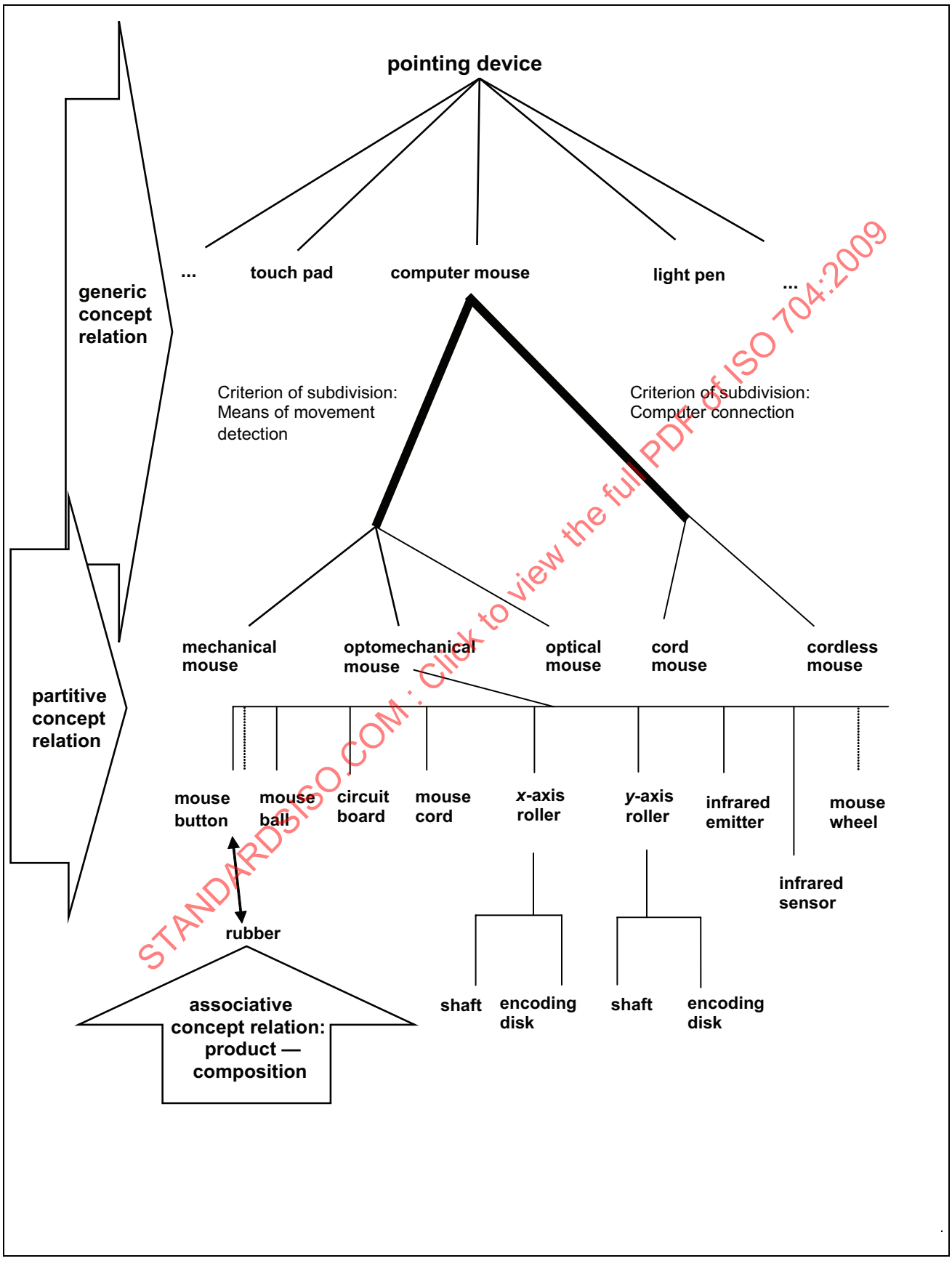
— mixed *concept system*: a *concept system* constructed using a combination of *concept* relations; see Examples 2 and 3.

EXAMPLE 1



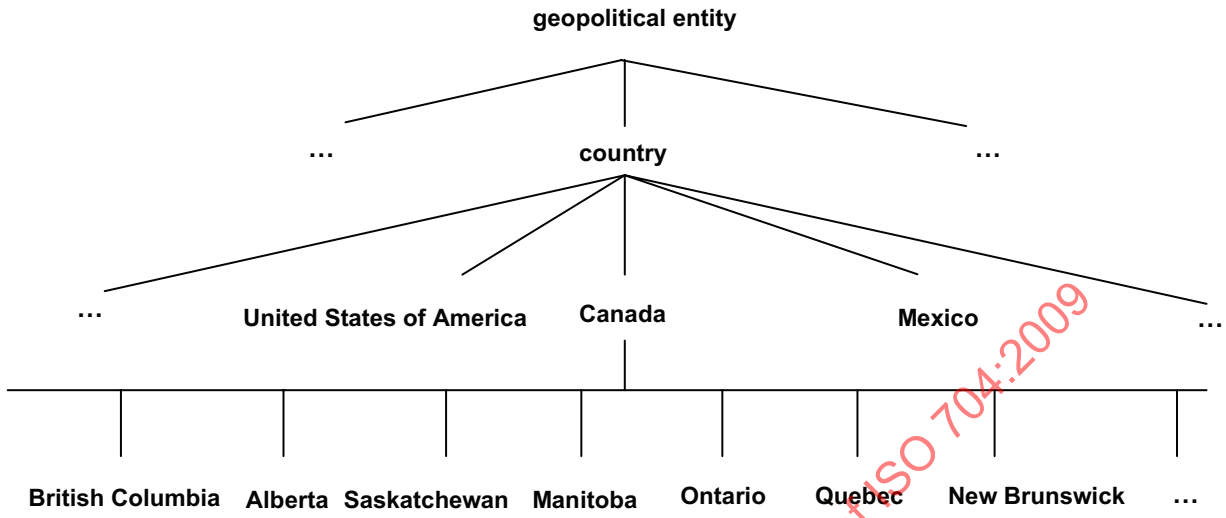
EXAMPLE 2

Mixed *concept system* with *generic, partitive* and *associative relations*.



EXAMPLE 3

Mixed *concept system* with both *generic* and *partitive relations* between *general concepts* and *individual concepts*:



5.6.3 Modelling concept systems

A *concept field* is a set of unstructured but thematically related *concepts* that shall be used as the starting point for developing a *concept system*. A *concept system* is an abstract system that the terminologist extracts from the *concept field*. Many different techniques are used to produce *concept diagrams*. Modelling techniques, especially *object* modelling programs, are used to such an extent that it has become conventional to speak of modelling *concept systems* rather than developing them.

The modelling of *concept systems* involves a series of interactive operations leading, for example, to the compilation of a terminological resource in a specific *subject field*. These operations generally include:

— selecting the *concept field*, the preliminary *designations* and *concepts* to be treated by taking into account the *subject field*, the user group and its needs;

— analysing the *intension* and *extension* of each *concept*;

— determining the relation and position of these *concepts* within the *concept system*;

— illustrating the resulting *concept system* with the help of a *concept diagram*;

— formulating and evaluating *definitions* for the *concepts* based on the *concept* relations;

— attributing *designations* to each *concept*.

The steps involved in modelling *concept systems* and defining *concepts* are closely related. *Definitions* shall reflect the *concept system*. If appropriate *definitions* already exist, the relations within the system should be established primarily by analysing the *characteristics* of each *concept* included in its respective *definition*. Consequently, modelling and illustrating the structure of a *concept system*, and writing *definitions* for the *concepts* treated in that system are reiterative processes that often require review and repetition of some operations.

Concept diagrams can be represented in different ways, using different modelling languages, e.g. the classical terminological representation used in this International Standard, UML, etc. Guides are being developed on how to use other formal modelling languages for *terminology work*.

6 Definitions

6.1 Nature of definitions

Both the *designation* and the *definition* represent the *concept*, which is to say that the *concept*, the *designation* and the *definition* all refer to the same *object*(*s*) making up the *extension*. A *designation* is a succinct way of referencing the *concept*, while a *definition* shall make it possible to pick out the *extension* and distinguish the *concept* from others within the domain.

In the case of *terminology work* carried out in standardization, not only are the *term* and other *designations* standardized (with one *term* specified as a *preferred term,* where applicable) but so is the *definition*. In scientific, mathematical, and technical documentation, the *definition* may be complemented with a graphic illustration (see 6.4). The *definition* may also be expressed by or complemented by a formula (see 6.3.5, Example 4).

Some *terms* are so long and complex that they could almost serve as *definitions* because the detailed components making up the *term* represent the *characteristics*. Some *definitions* are so short they could almost be thought of as *terms*. Despite this, the *definition* should not be confused with the *designation* in a terminological resource, and synonyms should never be used in place of a *definition* in the way they often are in general language dictionaries. Although some terminological resources list abbreviated forms as *terms* and provide the full form in the place of the *definition*, this is not appropriate terminological practice. Both the full form and the *abbreviation* are *designations* and should be treated as *terms* in a *terminological entry*. The same consideration holds true for equivalents in other languages. In technical resources, formulae may be used as *definitions*.

A *terminology* shall include lexical units that are adequately defined in general language dictionaries only when these lexical units are used to designate *concepts* that form part of the *concept system* (see 6.2). These dictionaries shall be cited as references for the lexical units.

When providing information about *concepts*, it is important to take into consideration the needs of the intended audience: a) specialists in the *subject field* in question, already familiar with the *subject field*'s conceptualization patterns and who may have already encountered the *terms*; b) specialists in another *subject field* who may or may not be familiar with the *terms* and the *concepts*; or, c) non-specialists unfamiliar with both the *terms* and the *concepts* of the *subject field*. A *definition* alone may not be sufficient. Developing terminological resources for non-specialists often requires amplification, either by the addition of *notes, concept* descriptions, explanations, *contexts* or encyclopedic information, or by the inclusion of a representation in other media (e.g. graphic, sound clip). The format in which the *definition* is written in *terminological dictionaries* varies from language to language. Every language has its own conventions and *definitions* should respect them.

Traditional *intensional definitions* are the most explicit and precise method of *concept* definition. Other types of *definitions* (*extensional*, ostensive, lexical, precising, stipulative) in current usage are treated in Annex A.

6.2 Intensional definitions

The role of an *intensional definition* is to provide the minimum amount of information that forms the basis for abstraction and that allows one to recognize and differentiate the *concept* from other related *concepts*, especially *coordinate concepts*. An *intensional definition* shall define the *concept* as a unit with an unambiguous *intension* reflected by a unique *extension*. The unique combination of *characteristics* creating the *intension* shall identify the *concept* and differentiate it from other *concepts*.

Intensional definitions shall include the *superordinate concept* immediately above, followed by the *delimiting characteristic(s).* The *superordinate concept* situates the *concept* in its proper context in the *concept system* (i.e. ‘mice’ among ‘pointing devices’, ‘trees’ among ‘plants’). In practice, *intensional definitions* are preferable to other types of *definitions* and should be used whenever possible as they most clearly reveal the *characteristics* of a *concept* within a *concept system*.

Unlike an encyclopedic description or an explanation, a *definition*'s main purpose is not to provide a means for a complete understanding of a given *concept* but rather to provide enough understanding so as to avoid confusing the *concept* in question with other related *concepts*.

EXAMPLE

In most encyclopedic sources, the explanation of **penguin** will include the information that they live in the south temperate and Antarctic regions. NOTE This information is not necessary to differentiate penguins from other birds, and should not be included in a *definition*.

6.3 Definition writing

6.3.1 General

Since some of the directions given in this subclause may be language-dependent, in translations of this International Standard they shall be adapted to the norms of the language in question.

6.3.2 Systemic nature of intensional definitions

A *definition* shall reflect the *concept system* describing the *concept* and its relations to other *concepts* in the *concept system*. *Definitions* shall be systemic in order to enable a terminologist to reconstruct the *concept system*. The *characteristics* selected in an *intensional definition* shall indicate the delimitation that distinguishes one *concept* from another or the connection between the concepts.

According to standard terminological practice, a *definition* is a statement that does not form a complete sentence. It must be combined with an *entry term* (designating the *concept* being defined) placed at the beginning of the entry in order to be read as a sentence: when the *concept* being defined is designated by a noun, the subject is the *designation*, the copula (which identifies the predicate with the subject) is understood to be the verb "be" and the *definition* completes the predicate (the wording which expresses something about the subject). Generally, the *entry term* is followed by some sort of separator, such as a punctuation mark or line break. The *definition* begins with a predicate noun stating the broader *generic* (*superordinate*) *concept* associated with the *concept* being defined, together with delimiters indicating the *characteristics* that delimit the *concept* being defined from *coordinate concepts*. An article (generally indefinite) is implied but not written at the beginning of a *definition*. The *subject field* may be indicated in angle brackets at the beginning of the *definition*.

Intensional definitions of *concepts* which are represented by nominal *designations* shall begin with a noun and those represented by verbal *designations* shall begin with a verb. Most *intensional definitions* of *concepts* represented by adjectival *designations* begin with a word or phrase that indicates the state or function of an *object*, which will often be a gerund or present participle, such as

— being or occurring …;

— of or relating to …;

— having …;

or it may begin with an adjective or adjectival phrase.

EXAMPLE 1

mechanical mouse
<computing> computer mouse in which movements are detected by a ball on its underside that activates rollers in physical contact with the ball
This *terminological entry* is to be read as: “[A] mechanical mouse [is a] computer mouse in which movements are detected by a ball on its underside that activates rollers in physical contact with the ball”.

EXAMPLE 2

localize
<computing> adapt the translation of a software product to the cultural norms of the target language
This entry is to be read as: “[To] localize [is to] adapt the translation of a software product to the cultural norms of the target language”.

EXAMPLE 3

acaulescent
<botany> having no apparent stem above ground
This entry is to be read as: “[being] acaulescent [is] having no apparent stem above ground”.

EXAMPLE 4

pyroclastic
<geology> composed chiefly of rock fragments of volcanic origin
This entry is to be read as: “[being] pyroclastic [is being] composed chiefly of rock fragments of volcanic origin”.

6.3.3 Subject field

The *extension* and the *intension* reflected in a *definition* shall be appropriate to the *concept system* in a given *subject field*. If the specific *subject field* is not clearly indicated in the *designation*, in the document title or is not generally understood, it shall be placed before the *definition* on the same line (see Examples 1 and 2). In a terminology database, there is usually a separate field for storing the denomination of the *subject field*.

EXAMPLE 1

pointer
<programming> variable that contains the memory location of some data rather than the data itself
pointer
<user interface> onscreen symbol that indicates locations or choices on the screen
EXAMPLE An example of an onscreen symbol is an arrowhead.

When adapting a *definition* to a specific *subject field* (writing a precising *definition* – see A.2.4), the *extension* will thereby be limited to the *subject field* indicated at the beginning of the *definition*.

EXAMPLE 2

mouse
<computing> hand-held hardware device that controls the movement of an onscreen pointer and the selection of functions
The *concept* of 'mouse' originally belongs to the *subject field* of zoology, but its *designation* has been adopted as a metaphor in the *subject field* of computing and by clearly indicating the *subject field*, two separate *concepts* are signalled and ambiguity is avoided.

6.3.4 Substitution principle

The substitution principle shall be used to test the validity of a *definition*. In the case of an *intensional definition*, it is valid if it can replace a *designation* in discourse without loss of or change in meaning. See 6.5.2, Example 4.

6.3.5 Formulating intensional definitions

Intensional definitions shall be written in accordance with the formal *definition*-writing conventions specific to the language in question. In the case of writing *definitions* for standards, see ISO 10241 for the layout.

The *intensional definition* is a concise statement of what the *concept* is. It states the *superordinate concept* to concept expressed by the *designation* and its *delimiting characteristics*, and it shall be based on the *concept* relations determined during analysis.

An *intensional definition* based on a *generic relation* shall represent the *concept* by stating the *generic concept* immediately above, followed by the *delimiting characteristics* that differentiate the given *concept* from *coordinate concepts* in a generic *concept system*. By stating the *generic concept*, the *characteristics* that make up the *intension* of the *superordinate concept* are implicitly assumed in the *definition* on account of the inheritance principle. An *intensional definition* may be supplemented by further information (see 6.4) or a representation in other media (e.g. graphic illustration or sound clip).

EXAMPLE 1

mechanical mouse
computer mouse in which movements are detected by rollers and a ball
NOTE A mechanical mouse may include a mouse wheel.
optomechanical mouse
computer mouse in which movements are detected by rollers and light sensors
optical mouse
computer mouse in which movements are detected by light (LED)
The *definitions* are based on the *concept system* in 5.5.2.2.1, Example 4:
Superordinate concept: 'computer mouse'
Delimiting characteristics: The detection of movements by rollers, by rollers and light sensors, and by light (LED)

An *intensional definition* based on a *partitive relation* shall describe a *concept* as a part of a particular whole or *comprehensive concept*. It is therefore necessary to analyse the *comprehensive concept* first to determine its position in a *concept system* and to indicate its relation to the *partitive concepts*. Partitive *definitions* typically begin with formulations that clearly indicate the *partitive relation* such as: part of, component of, section of, period of, element in, ingredients making up, etc., followed by the *comprehensive concept* and the *delimiting characteristics*. A *concept* shall be defined as a *partitive concept* only if it constitutes a distinct part of the *comprehensive concept*. It should be defined as a part of the most *generic concept* of which it is a part.

EXAMPLE 2

mouse ball

spherical part on the underside of a mechanical or an optomechanical mouse which rolls on a firm surface and whose movement is used to control the location of the pointer on the computer screen

The *definition* of 'mouse ball' is based on the partitive *concept system*:

Superordinate concept: 'mechanical mouse' or 'optomechanical mouse'

Characteristics:

— round like a sphere;

— located on the underside;

— rolls on a firm surface (e.g. mouse pad);

— its movement is translated into signals that control the pointer on the computer screen.

To have a complete *extension* of the *concept* 'mouse ball', the partitive *concept system* for both 'mechanical mouse' and 'optomechanical mouse' must be analysed. See 5.5.2.3.1, Examples 1 and 2.

A *comprehensive concept* may be defined based on a mixed *concept system*. The *definition* shall begin by stating the superordinate *generic concept* associated with the *comprehensive concept* being defined, followed by a listing of the delimiting parts corresponding to the *characteristics* that make up the *comprehensive concept*. Optional parts shall not be included. Optional parts frequently associated with a *concept* may be mentioned in a *note*. This type of *definition* is practical only if the number of parts to be enumerated is limited.

EXAMPLE 3

In the *definition* of 'optomechanical mouse' in Example 1, the *superordinate concept* is 'computer mouse', and 'light sensor' and 'rollers' are delimiting parts as shown in the *concept system* in 5.5.2.3.1, Example 2.

A formula used to define a scientific or mathematical quantity can be considered an *intensional definition* based on a *partitive relation* whenever the relationship between the parts is indicated.

EXAMPLE 4

force

quantity represented by: $F = m \times a$,

where F is force, m is mass and a is acceleration

The *definition* is based on a mixed *concept system*:

Superordinate concept: 'quantity'

Parts:

— m, where m is mass;

— a, where a is acceleration;

— the two parts multiplied.

A *concept* may be defined based on the *associative relation* established between two *concepts*. The *definition* shall state the *superordinate concept* followed by *characteristics* that indicate the relationship between the *concepts* in question. It should be noted that, in many cases, the *superordinate concept* is not specific to the specialized *subject field* and, therefore, care should be taken to ensure that the complete *intension* and *extension* of the *concept* have been analysed thoroughly before defining the *concept* based on an *associative relation*. The associative *concept system* in 5.6.2, Example 1, shows a tool – accessory relationship between 'mouse pad' and 'computer mouse'.

EXAMPLE 5

mouse pad
small pad with a special surface designed for sensing the movement of a computer mouse
The *definition* is based on the associative *concept system* in 5.6.2, Example 1, and on the associative relationship of tool – accessory.
Superordinate concept: 'pad'
Characteristics:
— small (about 20 cm by 25 cm and about 5 mm thick);
— designed with a surface for sensing the movement of a computer mouse.

An *intensional definition* shall describe a *concept*, not the words or elements that make up a *designation*.

EXAMPLE 6

inappropriate *definition*	**coniferous tree** tree bearing cones Bearing cones is an explanation of the word 'coniferous' rather than a delimiting *characteristic* of 'coniferous tree'.
appropriate *definition*	**coniferous tree** needle-leaved or scale-leaved, cone-bearing gymnospermous tree, chiefly evergreen

Before drafting an *intensional definition* for a given *concept*, it is necessary to determine the relations between the *concept* and its related *concepts* and to model a *concept system* within which the *concept* is situated. If a *definition* already exists, in an International Standard for example, it should be adopted as it stands only if the information in the *definition* is consistent with that of the other *concepts* in the *concept system*, thereby allowing the *concept* in question to be incorporated into the *concept system*. Otherwise, it should be adapted.

When modelling the *concept system* and formulating the corresponding system of *definitions*, it is essential to determine which *concepts* are so basic and familiar that they need not be defined. *Superordinate concepts* should be defined before defining their *subordinate concepts*. When drafting a new *definition*, the concepts used in the *definition* should have *definitions* either in the same terminological resource or in other resources, including general language dictionaries.

Ideally, *definitions* should be as concise as possible and as complex as necessary. Complex *definitions* shall contain only information that makes the *concept* unique; any additional descriptive information deemed necessary is to be included in a *note*. *Definitions* should be drafted in a consistent manner bearing in mind the target audience's language register and knowledge level.

EXAMPLE 7

The three synonyms below clearly relate to differing language registers and are therefore likely to be familiar to different target audiences. Accordingly, the first of the two *definitions* will be more appropriate for general users while the second is directed at specialists. A given terminological resource may contain different *definitions* of one *concept* directed at different target groups.

heart attack

myocardial infarction

MI

acute episode of heart disease marked by the death or damage of heart muscle due to insufficient blood supply to the heart and characterized especially by chest pain

infarction of the myocardium resulting typically from coronary occlusion, which may be marked by sudden chest pain, shortness of breath, nausea, and loss of consciousness, and sometimes resulting in death

A *definition* shall describe only one *concept*. It shall not include hidden *definitions* of other *concepts*, e.g. *concepts* denoting *characteristics*. Any *characteristic* that requires an explanation shall be defined separately as a separate *concept* in a separate entry or given in a *note*.

EXAMPLE 8

	mechanical mouse
inappropriate *definition*	computer mouse with rollers, moving parts made up of a shaft and encoding disk inside the mouse casing, that detect the ball movement which in turn controls the pointer on the computer screen

This *definition* includes the *characteristic*, moving parts made up of a shaft and encoding disk inside the mouse casing, which is a hidden definition of the *concept* 'roller'. This characteristic should not be included in the definition of 'mechanical mouse' but be used in a separate *definition* for the *concept* 'roller'.

The *definition* shall not contain *characteristics* that belong logically to *superordinate* or *subordinate concepts*.

EXAMPLE 9

In the *definition* of 'mechanical mouse', it is not correct to indicate the *characteristic* hand-manoeuvred along a firm, flat surface (which applies to all the *objects* in the *extension*) since this *characteristic* is part of the *intension* of the *superordinate concept*.

In the *definition* of 'computer mouse', it is not correct to note that a computer mouse can be either a 'mechanical mouse', an 'optomechanical mouse' or an 'optical mouse' because the *concept* 'computer mouse' allows for all of these *subordinate concepts*.

6.4 Supplementary information to the definition

6.4.1 Nature of supplementary information

All information other than the *designations* and a *definition* of the *concept* shall take the form of supplementary information.

The following categories of supplementary information, which complement the definition but are not essential for differentiating the concept from other concepts, are recognized:

— *notes*;

— *concept* descriptions;

— encyclopedic descriptions;

— explanations;

— examples;

— defining *contexts*.

It should be noted that, in standards, supplementary information in the form of a *note* is only normative when it appears in a “Terms and definitions” clause. Supplementary information in the form of an explanation is not. Supplementary information plays an important role in *terminology* databases that contain *terminology* for translation and writing purposes where the emphasis is on how the *terminology* is used in discourse. Supplementary information plays a less important role in systematic *terminology work* for information and knowledge management where the emphasis is on the *concept system* and the relations between the *concepts*.

6.4.2 Notes

Notes may include non-delimiting *characteristics* or optional parts often associated with the *concept*, or typical elements that make up the *extension* of the *concept* which complement the *definition* but are not essential for differentiating the *concept* from other *concepts*. See 3.6 and 6.3.5, Example 1.

6.4.3 Concept descriptions

A *concept* description can provide a wide range of information about a *concept* (e.g. historical information, instances of the *concepts*, properties, *characteristics*) but it does not focus on providing the *characteristics* that make up the *intension* of the *concept*, as does the *definition*. *Concept* descriptions are not representations of the *concept*. They do not have a conventional format and most often take the form of running text. Often, *concept* descriptions are cited from existing sources.

6.4.4 Encyclopedic descriptions

An encyclopedic description goes beyond the requirements of a *definition*. It not only provides *characteristics* but also a wide range of knowledge-based information about the *concept*. An encyclopedic description may provide a formal *definition* within its description but does not limit itself to it. Encyclopedic descriptions found in existing sources often serve as the basis for formulating terminological *definitions* since they often include all the *characteristics* needed for *definition* writing.

EXAMPLE

Intensional definition **computer mouse** pointing device designed to be manipulated by hand, having at least one button for selecting items and whose movement is converted into signals that control the pointer on the computer screen
Encyclopedic description **computer mouse** A device that controls the movement of the cursor or pointer on a display screen. A mouse is a small object you can roll along a firm, flat surface. Its name is derived from its shape, which looks like a mouse, its connecting wire that one can imagine to be the mouse's tail, and the fact that one must make it scurry along a surface. As you move the mouse, the pointer on the display screen moves in the same direction. Mice contain at least one button and sometimes as many as three, which have different functions depending on what program is running. Some newer mice also include a scroll wheel for scrolling through long documents. Available at http://www.webopedia.com/TERM/m/mouse.htm

6.4.5 Explanations

An explanation provides an account of how a *concept* operates or of its application but does not define what it is. Some explanations, known as operational *definitions*, may be in point form or in the form of graphic or flow charts, but they are not considered proper terminological *definitions*.

EXAMPLE

	computer mouse
inappropriate *definition*	The computer mouse, named from its shape and size, is a piece of hardware which is commonly used as a pointing device for onscreen data and for executing functions by manually clicking on its surface.

6.4.6 Defining contexts

Text that contains the designation is called a context. A defining context is a context that allows the user to deduce the meaning of the *concept* by implication. The defining context cannot replace an *intensional definition*, only supplement it. Defining contexts may be collected at the beginning of a *terminology* project, when *concept systems* and coherent *definitions* have not yet been formulated. At the end of the project it may be decided to keep them in the terminological resource. Since the context is a cited text, proper authorization shall be obtained and the source of the citation shall accompany the text in order to respect copyright. The source should be authoritative in order to lend credibility to the *concept* description. Care should be taken to avoid errors in citations.

EXAMPLE

The following examples include the sources from which the citations have been taken.

computer mouse

Every day of your computing life, you reach out for your mouse whenever you want to move your cursor or activate something. Your mouse senses your motion and your clicks and sends them to the computer so it can respond appropriately.

Available at http://computer.howstuffworks.com/mouse.htm

portfolio

A portfolio is a purposeful collection of student work that exhibits the student's efforts, progress and achievements in one or more areas. [What Makes a Portfolio? Educational Leadership. Vol. 48, no.5, 1991]

ad view

In Web advertising, the term *impression* is sometimes used as a synonym for *view*, as in *ad view*. Online publishers offer and their customers buy advertising measured in terms of ad views or impressions. Since a single Web page can contain multiple ads (depending on its design), a site usually registers more ad views per unit of time than Web pages per unit of time.

Available at http://whatis.techtarget.com/definition/0,,sid9_gci212334,00.html

6.5 Deficient definitions

6.5.1 Types of deficient definitions

Common types of deficient *definitions* are:

— circular *definitions*;

— inaccurate *definitions*;

— negative *definitions*.

6.5.2 Circular definitions

If one *concept* is defined using a second *concept*, and that second *concept* is defined using the *term* or elements of the *term* designating the first *concept*, the resulting *definitions* are said to be circular. Circular *definitions* make it impossible to fully understand the *concept* and shall be avoided. An internal circularity fails to describe an *essential characteristic*. Upon application of the substitution rule, external circularity results in the reader being unable to complete either *definition.*

Circularity can occur:

— within a single *definition* (inner circle);

— within a system of *definitions* (outer circle).

Circularity within a *definition* occurs when the *designation* is repeated to introduce the *definition* or when an element of the *designation* is used as a *characteristic*. When formulating a *definition*, it is not permissible to repeat the *designation* to introduce the *definition* (see Example 1). The use of an element of the *designation* as a *characteristic* in the *definition* should be avoided as far as possible (see Example 2). However, if deemed necessary, an adjective which forms part of the *term* may be used in the *definition*, provided it is clearly defined elsewhere (see the example in 6.5.3).

EXAMPLE 1

	tree height
inappropriate circular *definition*	**tree height** measured from the ground surface to the top of a tree
corrected *definition*	distance between the ground surface and the top of a tree

EXAMPLE 2

	evergreen tree
inappropriate circular *definition*	tree with **evergreen** foliage
corrected *definition*	tree that has green leaves throughout the entire year

A *definition* is circular within a system of *definitions* when two or more *concepts* are defined by means of each other. The substitution principle clearly reveals repetition and circularity. If the adjective ‘evergreen’ is defined, the circularity is eliminated. In Example 3, ‘haploid’ in the first definition can be replace by its definition without loss or change in meaning.

EXAMPLE 3

	haploid life cycle
definition	period in an organism's life involving one generation when only the multicellular stage is haploid
separate *definition* of haploid	having a single set of chromosomes in the nucleus of each cell

EXAMPLE 4

inappropriate circular *definitions*	**virgin forest**
	forest constituted of a **natural tree stand**
	natural tree stand
	stand of trees grown in a **virgin forest**
Replacing the *term* **virgin forest** with its *definition* in the *definition* of 'natural tree stand' results in:	
inappropriate *definition*	stand of trees grown in ***a forest constituted of a natural tree stand***
corrected *definition*	stand of trees grown without interference by man
Once the *definition* of 'natural tree stand' has been modified to remove the circularity, the *definition* of 'virgin forest' can remain as it is.	

To avoid circularity, defining *concepts* on the basis of a partitive analysis shall be restricted to one level, either the subordinate level or the superordinate level, not both.

EXAMPLE 5

encoding disk

wheel-like part of an *x*-axis or *y*-axis roller in a mechanical or optomechanical mouse whose slot rotation creates pulses used to control the direction of the pointer on a computer screen

The *definition* of 'encoding disk' is based on the partitive *concept system* in 5.5.2.3.1, Example 1:

Superordinate concepts: 'roller' and 'mechanical mouse' or 'optomechanical mouse'

Characteristics:

— wheel with slots;

— the slots in the disk break the beam of light into pulses;

— the pulsing is translated into signals that control the pointer on the computer screen.

If the *partitive concepts* of the '*x*-axis' or '*y*-axis roller' ('shaft' and 'encoding disk') are defined on the basis of a *partitive relation* (the part in relation to the whole), then the *comprehensive concept* '*x*-axis roller' or '*y*-axis roller' must not be defined on the basis of a *partitive relation* of the whole to its parts. This avoids circularity.

6.5.3 Inaccurate definitions

A *definition* shall describe the content of the *concept* precisely. It should be neither too narrow nor too broad. Otherwise, the *definition* is considered inaccurate. Non-delimiting or irrelevant *characteristics* in the *definition* may result in an *extension* where *objects* are unintentionally included or excluded. A *definition* is considered too broad if the *characteristics* selected to describe the *concept* allow for *objects* that should not be part of the *extension*. A *definition* is considered too narrow if the *characteristics* selected exclude *objects* that should be part of the *extension*. The subject field and source indicated in the terminological entry should also be considered when assessing whether a definition is too broad or too narrow.

EXAMPLE

	optomechanical mouse
too broad	computer mouse that uses a ball to control the pointer on the computer screen
inappropriate *definition*	
By not specifying precisely the light sensors, this *definition* expands the *extension* to include mechanical mice.	
	optomechanical mouse
too narrow	computer mouse composed of a mouse button, rubber ball, circuit board, cord, *x*- and *y*-axis rollers, LED infrared emitter, and infrared sensor
inappropriate *definition*	
By specifying a rubber ball and an LED infrared emitter, this *definition* limits the *extension* by excluding older mice that used metal balls and those which use non-LED infrared emitters.	
	optomechanical mouse
corrected *definition*	computer mouse composed of a mouse button, ball, circuit board, cord, *x*- and *y*-axis rollers, infrared emitter, and infrared sensor

In adapting an existing *definition* to a specific *subject field* or context, care should be taken not to change the *extension* of the *concept*. A change to the *extension* leads to a new *concept*. Similarly, changes to any of the *characteristics* in a *definition* result in a new *concept*.

6.5.4 Negative definitions

A *definition* shall describe what a *concept* is, not what it is not.

EXAMPLE 1

	deciduous tree
inappropriate negative *definition*	tree other than an evergreen tree
	deciduous tree
corrected *definition*	tree that loses its foliage seasonally

However, when a *concept* is the opposite of another *concept* already defined, then the first *concept* may be defined by a negative *definition* using the second one's *designation* or the second one's *definition*. Opposite *concepts* are created, for example, by the presence/absence (existence/non-existence) of an *essential characteristic*.

Opposite concepts are often signalled by a negation in the *designation* or in the determining component of the *designation* of one *concept* to form the *designation* of the other.

EXAMPLE 2

1
conformity
fulfilment of a specified requirement
nonconformity
non-fulfilment of a specified requirement
2
hairy-headedness
having hair on the head
baldness
having no hair on the head
3
aerobic respiration
process of oxygen assimilation which requires free oxygen
anaerobic respiration
process of oxygen assimilation which does not require free oxygen
The pairs of *concepts* above are opposite *concepts*. The *definition* of the second *concept* in each pair contains a necessary negation of the whole or of *essential characteristics* of the *definition* of the first *concept*:
fulfilment – **non**-fulfilment
having – lacking (= **not** having)
requires – does **not** require

7 Designations

7.1 Types of designations

The *designation* acts as a synthesis of the *definition*. A *designation* is a representation of a *concept* by linguistic or non-linguistic means. *Designations* are categorized as:

— *terms* designating *general concepts*;

— *appellations* designating *individual concepts*;

— symbols designating either *individual* or *general concepts*.

It should be noted that not all symbols are *designations*.

7.2 Terms

7.2.1 Term — concept relations

A *term* is a *designation* consisting of one or more words representing a *general concept* in a *special language* in a specific *subject field*. A *simple term* contains only one root, while a *term* containing two or more roots is called a *complex term.*

A *preferred term* has to be accepted and used by subject specialists. A neoterm created to designate a *concept* is a type of neologism and is called a *neoterm*. Although most *neoterms* designate new *concepts*, some designate established *concepts*.

Ideally, when precise and accurate communication is required in a given *special language*, especially in fields of science and technology, the objective of assigning *terms* to *concepts* is to ensure that, within a given *subject field*, a given *term* is attributed to one *concept* (*monosemy*) and that a given *concept* is represented preferably by one *preferred term.* This condition reduces ambiguity, while *homonymy* and *synonymy* can lead to ambiguity.

7.2.2 Monosemy

Monosemy is the relation between *designations* and *concepts* in which one *designation* represents only one *concept*. *Designations* in such a relation are called monosemes.

7.2.3 Homonymy

Designations in a given language may have identical forms, either phonetic or written, but designate different *concepts*. *Homonymy* arises when two or more *concepts* have identical *designations*. *Designations* in such a relation are called homonyms.

Terms that are phonetically identical but written differently are called homophones, while terms that have identical written forms but are pronounced differently are called homographs. Homonyms are both written and pronounced the same way.

EXAMPLE

homophones	sun – son
homographs	tear [tiə] /ti:r/ (weeping) – tear [tɛə] /ter/ (separating)
homonyms	bloom (efflorescence) – bloom (type of ingot)

7.2.4 Synonymy

Synonymy is the relation between differing *designations* that designate the same *concept*. *Designations* in a synonymous relation are called synonyms. Given the same level of language, synonyms are interchangeable. If two or more *terms* are attributed to *concepts* whose *intensions* are almost identical, they are called quasi-synonyms and are interchangeable only in some contexts.

EXAMPLE

synonyms	**term bank = terminological data bank; half-life = half value period**
quasi-synonyms	**dashboard ≈ instrument panel**

7.2.5 Harmonization

Incidences of *homonymy* and *synonymy* usually lead to the need for *term harmonization*, which is part of the standardization process. The standardization of *terminologies* in various *subject fields* frequently implies harmonization of *concepts* and/or *terms* within a *subject field*, across *subject fields* and across languages. To reduce duplication and to reduce the high cost of *terminology work*, efforts should be made to harmonize whenever minor differences exist. See ISO 860 for principles of *term* and *concept harmonization*.

7.2.6 Deprecation of terms

Standardized *terminologies* shall reflect a coherent terminological system that corresponds to the *concept system* of the *subject field* in question. The *terminology* defined in an International Standard shall be precise and lead to increased clarity in communication.

One primary function of a standardized *terminology* shall be to indicate *preferred*, *admitted*, and *deprecated terms*. A *term* recommended by a technical committee shall be considered a *preferred term* whereas an

admitted term shall represent an acceptable synonym for a *preferred term. Deprecated terms* are *terms* that have been rejected.

Terms are rejected or deprecated for a number of reasons. A *term* may be a synonym for the *preferred term* but is deprecated in the interests of *monosemy*. A *term* may be flawed or inaccurate.

EXAMPLE 1

The *term* **fireproof** is misleading and inaccurate; the *terms* **fire-resistant** or **fire-retardant** are more precise.
The *term* **prebake resistance** is not necessarily false, but it is deprecated in favour of **precure heat tolerance**, a more precise *term.*

A *term* considered deprecated for one *concept* may be reserved to designate another *concept*.

EXAMPLE 2

The *term* **load** is deprecated as a synonym for the *term* **force**, but is used to represent the related *concept* 'application of a force'.

The inclusion of a *designation* in a *terminology* standard shall constitute an implicit deprecation of other *designations* that may be used as synonyms in the *subject field*. It is wise to consider these *terms*, to identify them explicitly as *admitted* or *deprecated terms*, and to explain the reasons for deprecation.

7.2.7 Transliteration and transcription

In the dissemination of standardized *terminologies*, it may be necessary to render a *term* written in one alphabet or non-alphabetic writing system into a different writing system. In such instances, the latest International Standards on transliteration or romanization shall be used (e.g. ISO 9, ISO 233, ISO 259, ISO 843, ISO 3602, ISO 7098, ISO/IEC 10646, and *The Unicode Standard, Version 5.0*).

In the case of phonetic transcription, the latest version of the International Phonetic Alphabet (IPA) of the International Phonetic Association shall be used.

7.3 Appellations

7.3.1 Nature of appellations and proper names

In general language, proper names are understood to designate individual entities, be they personal names, titles, place names, names of buildings or organizations, etc. In *terminology work*, however, a distinction is made between personal names and proper names which relate to specific *subject fields*, and the latter are referred to as *appellations*. An *appellation*, being a *designation* of an *individualconcept*, is also a proper name, but not all proper names constitute *appellations*. Personal names such as Mary Robinson or Barack Obama are proper names but are not *appellations*, while names or titles designating individual entities in a specific *subject field* are considered *appellations*, for example, **The United Nations Commissioner for Human Rights**, **The President of the United States**, or **Il Duce**, an *appellation* applied to Benito Mussolini.

Thus, an *appellation* designates a *concept* whose *extension* is made up of a single *object* or multiple parts that form a single *object*. In *terminology work*, the focus is placed on the names of *individual concepts* representing *objects* that are members of a set but manifest a certain individuality in a particular field of activity.

EXAMPLE

The House of Commons, Ontario Ministry of Transportation	—	specific political institutions or units
United Nations, The Liver Foundation	—	specific organizations in a field of activity
Distinguished Service Cross, 2001 Nobel Peace Prize	—	specific awards
Halley's Comet, Saturn	—	specific scientific phenomena
Tylenol, Nike, Kleenex	—	specific brand names of products or services

Since *appellations* constitute unique names designated to *individual concepts* relating to specific *subject fields*, be they places, organizations, titles, or products, their forms will have been generated and/or elaborated by the relevant bodies. In recording an *appellation*, the terminologist should pay attention to the form and category of the *appellation*. (See Annex C for categories of appellations in the English language.)

Furthermore, the unique nature of an *appellation* presents a challenge in the writing of a *definition* in that it may be difficult to identify *delimiting characteristics*. For this reason, a specific description of the *object* or entity may be necessary.

7.3.2 Form of appellations

In languages with grammatical number, an *appellation* shall designate an *individual concept* even if the *appellation* is morphologically in the plural. In recording the *appellation* in a *terminological data* collection, the form of the *appellation* must respect usage, i.e. it should be recorded whether the words that make up the *appellation* are in the singular or the plural. (See Example 1.)

EXAMPLE 1

In English, the singularity of the *concept* is reflected in the grammar. Even though the geographic name for the country **The United States of America** is plural in form, it designates an *individual concept*, thereby taking a singular verb: e.g. "The **United States of America stretches** over thousands of miles of territory". There was a time in the early 1800s when the plural verb was used but, as the states were viewed increasingly as a single entity, the singular verb was then adopted.

An *appellation* shall be a unique identifier. Where there is a possibility of confusion, jurisdictional markers, place names, dates, years, or numbers shall be added.

EXAMPLE 2

Jurisdictional marker: **Department of Agriculture, Government of Canada** vs. **United States Department of Agriculture (USDA)**

Place name: **Paris, France** vs. **Paris, Michigan (USA)**

Date, year, or number: **2000 Nobel Peace Prize** vs. **2001 Nobel Peace Prize**

Appellations are often associated with a certain level of "officialdom" by an authorizing body or organization. Each organization decides the form of the *appellation* best suited to meet its individual requirements and confers an "official" status to the *appellation*. In this way, *appellations* are somewhat arbitrary in comparison to *terms*, which have to receive the general acceptance of the *subject field*'s linguistic community.

Appellations are subject to time considerations and may be readily replaced by other *appellations*. For terminology management, it is important to record the former *appellations* and their sequence. Biographies and resumes often make reference to institutions which may no longer exist or have evolved over time. This makes these appellations difficult to confirm if temporal information and changes in status are not recorded.

EXAMPLE 3

The **Ministry of Consumer and Commercial Relations** of Ontario changed its name to the **Ministry of Consumer and Business Services** in March 2001.

When it is clear (e.g. from the grammar or the context) that an *appellation* is used as a modifier in a complex noun phrase, the expression shall no longer be considered an *appellation*. The expression shall be considered to designate a *general concept* and may become a *term.*

EXAMPLE 4

World Wildlife Federation is an *appellation* but **World Wildlife funding** is not. In English, the use of the lower case noun in the expression (as **funding** above) signifies a *general concept* and not an *individual concept*. However, not all languages indicate the difference graphically.

7.3.3 Nomenclature

A *nomenclature* comprises *appellations* compiled in classified order according to pre-established naming rules, thus forming a set or system of *appellations* used by an individual or community, especially those used in a particular science, art or discipline. *Nomenclatures* are widely used by standardization bodies to facilitate rigorous and efficient communication. Typical examples are **chemical *nomenclature***, the system for naming chemical compounds, and **binomial *nomenclature***, the formal system for naming specific species in biology.

7.4 Formation of terms and appellations

7.4.1 Nature of term/appellation formation

Since *term*- as well as *appellation*-formation patterns depend on the lexical, morphosyntactic, and phonological structures of individual languages, language-specific principles of *term* formation should only be described in national and regional standards dealing with a particular language rather than in International Standards. See Annex C for examples of formation methods applicable to the English language.

For a standardized *terminology*, it is desirable that a *term* be attributed to a single *concept*. Before creating a neoterm, it is necessary to ascertain whether a *term* already exists for the *concept* in question. Well-established usage has to be respected. Established and widely used *designations*, even if they are poorly formed or poorly motivated, should not be changed unless there are compelling reasons. If several *designations* exist for a single *concept*, the one that satisfies the largest number of principles listed below shall be selected as the preferred designation.

The following principles, even though they are not all applicable simultaneously for any one *term* or *appellation*, can provide assistance when creating neoterms or new *appellations* or when systematizing existing *terminologies*.

7.4.2 Principles for term/appellation formation

7.4.2.1 General

The following principles should be followed in the formation of *terms* and *appellations*, as far as possible and as appropriate to the language in question (for examples of *term*-formation methods for the English language, see Annex B):

— transparency;

— consistency;

— appropriateness;

— linguistic economy;

— derivability and compoundability;

— linguistic correctness;

— preference for native language.

7.4.2.2 Transparency

A *term* or *appellation* is considered transparent when the *concept* it designates can be inferred, at least partially, without a *definition* or an explanation. In other words, the meaning of a *term* or *appellation* can be deduced from its parts. For a *term* to be transparent, a key *characteristic* – usually a *delimiting characteristic* – is used in the formation of the *term* or *appellation* itself.

It is advisable that only *characteristics* unlikely to change quickly as a result of technological evolution be used. Otherwise, one may be faced with the task of renaming the *concept* as soon as the technology changes.

EXAMPLE

1. torque wrench vs. **monkey wrench**

The *term* **torque wrench** (wrench used to measure torque, usually when tightening a nut or bolt component of an assembly) is transparent while the *term* **monkey wrench** (wrench named after its supposed inventor, Moncky) is opaque (not transparent).

2. thermal noise vs. **Johnson noise**

Similarly, the *term* **thermal noise** is more transparent than the *term* **Johnson noise**.

3. Government Task Force on Agencies, Boards and Commissions vs. **Wood Task Force**

The *appellation* **Government Task Force on Agencies, Boards and Commissions** is meaningful since it clearly indicates the subject matter to be dealt with by the task force, while **Wood Task Force**, named after Bob Wood, the chair of the task force, is not and could even be misinterpreted as a task force that has to do with wood.

7.4.2.3 Consistency

The *terminology* of any *subject field* should not be an arbitrary and random collection of *terms*, but rather a coherent terminological system corresponding to the *concept system*. Existing *terms* and *appellations* and neoterms and *appellations* must integrate into and be consistent with the *concept system*.

EXAMPLE

synthetic fabrics: **nylon, orlon, dacron, rayon**, etc.

Any *designation* for a new synthetic fabric should be consistent (end in "-on") and respect the pattern arising from the *concept system*.

position titles in a company: **VP of Finance, VP of Marketing, VP of Production**, etc.

Any new title created for a new position at the same level should be consistent (VP of) and respect the pattern arising from the *concept system*.

7.4.2.4 Appropriateness

Proposed *terms* and *appellations* should adhere to familiar, established patterns of meaning within a language community. Formations that cause confusion should be avoided.

EXAMPLE 1

The computing *term* **install wizard** is confusing and misleading because it looks like a command (to install a wizard) rather than a name for a type of wizard (for installing software). The appropriate *term* is **installation wizard**. It is clear and accurate and, therefore, unlikely to be mistranslated in localization projects.

Terms should be as neutral as possible. They should avoid distracting connotations, especially negative ones.

EXAMPLE 2

The *term* **language technology** has generally replaced the earlier *term* **language engineering**, partly because of problems translating the latter, but also because of negative connotations, which could lead people to believe that **language engineering** involved “engineering a language”, as opposed to creating “engineering solutions for processing language”.

7.4.2.5 Linguistic economy

A *term* should be as concise as possible. Undue length is a serious shortcoming. It violates the principle of linguistic economy and it frequently leads to ellipsis (omission).

EXAMPLE 1

e-mail instead of **electronic mail**

The requirement for conciseness often conflicts with those for accuracy and transparency. The greater the number of *characteristics* included in a *term,* the greater the precision and transparency of the *term.* However, increasing the number of *characteristics* expressed in a *term* often makes a *term* too long and inconvenient to use. Practicality should govern any decision to give preference to one pattern of *term* formation over another. For instance, shortened forms should be favoured whenever a long, precise *term* is not suitable (e.g. oral communication in a factory). In contrast, *complex terms*, composed of several words, are acceptable in scientific publications.

In many *context*s, both the full form and shortened forms coexist. The shortened forms may produce synonyms or homonyms which would not occur if the full forms were used. It is a function of *terminology work* to draw attention to potential difficulties of this kind, and users of shortened forms need to be aware of the potential for misunderstanding. In documents, it is common practice to give the full form (together with the shortened form) when the *term* first occurs, so that the shortened form may be used throughout the rest of the document.

EXAMPLE 2

World Health Organization (**WHO**), **South-East Asia Region** (**SEAR**).

7.4.2.6 Derivability and compoundability

Productive *term* formations that allow derivatives and compounds (according to whatever conventions prevail in an individual language) should be favoured.

EXAMPLE

herb vs. **medicinal plant** The *term* **herb** with its derived *terms* **herbaceous, herbal, herbalist** and **herby** is preferred over **medicinal plant**, which produces no derivatives.

7.4.2.7 Linguistic correctness

When neoterms or *appellations* are coined, they should conform to the morphological, morphosyntactic, and phonological norms of the language in question.

7.4.2.8 Preference for native language

Even though borrowing from other languages is an accepted form of *term* formation, native-language expressions should be given preference over direct loans.

Technically, *appellations* are not translated but remain in their original language. However, an *individual concept* may have an *appellation* in different languages. Whether an *individual concept* has an *appellation* in more than one language depends on the following:

— the language policy of a country;

— how internationally well known the *concept* is;

— the multilingual nature of the entity in question;

— the need for international cooperation and relations.

EXAMPLE

In bilingual countries such as Canada, federal government *appellations* exist in both English and French; in Switzerland, many *appellations* exist in French, German, and Italian.

Major geographical entities, such as countries and their capitals, are internationally well-known and, therefore, have *appellations* in the various languages e.g. **Italia, Italy, Italie, Itaalia, United States, États-Unis, Estados Unidos, Estato Unido, Ameerika Ühendriigid** (see ISO 3166).

Because of their international nature, many United Nations agencies have *appellations* in various languages, e.g. **Food and Agriculture Organization of the United Nations** (FAO), **Ernährungs- und Landwirtschaftsorganisation der Vereinten Nationen** (FAO), **Organisation des Nations Unies pour l'alimentation et l'agriculture** (FAO), **Organizzazione delle Nazioni Unite per l'alimentazione e l'agricoltura** (FAO), **De Forenede Nationers Levnedsmiddel- og Landbrugsorganisation** (FAO), **Organização das Nações Unidas para a Agricultura e Alimentação** (FAO), قدحتملا ممألل ةعارزلاو ةيذغألا ةمظنم (FAO).

In documents directed at the international community, *appellations* may be used in the original language if they are likely to be understood or they may be translated for the purposes of international cooperation and understanding. For example, in a document directed at an international audience, the Irish *appellation* **Áras an Uachtaráin** may not be understood and the accepted English equivalent, **The Official Residence of the President of Ireland**, may be used instead.

An *appellation* without an equivalent *appellation* in the target language should normally be kept in the original language. In the case of legal entities, the *appellation* shall remain in the form recorded in the legal document. Many *appellations*, however, have official translations that are commonly used in other languages and listed in standard references and such official translations should be used. In the event of no official translation being available, an *appellation* may be either transcribed (see appropriate transcription standards listed in the normative references) or may appear with an explanation or translation as an aid to comprehension.

7.5 Symbols

Symbols are an important aid to international communication because their visual representation of *concepts* functions independently of any given language. They can communicate information directly under difficult circumstances (e.g. traffic signs, airport signs). Whenever the technology allows for their integration on terminological records, they can be added as synonymous forms for a *term* or *appellation*. Only symbols that represent a *concept* are considered *designations*.

Iconic symbols should bear some visual resemblance to the *concept* they represent. Generally, their meaning should be directly apparent without explanation. In some cases, however, the visual resemblance of the symbol to the *concept* is less pronounced or completely lost. Its meaning may be no longer directly recognizable and may be supported only by general agreement.

Terms using the letters of the alphabet as iconic symbols to communicate the shape of the letter itself rather than its sound shall not be considered a symbol (see Example 1).

EXAMPLE 1

U-turn – a turn in the shape of a U
T-beam – a beam, the cross section of which is in the shape of a T

Characters that replace words or parts of words, such as mathematical symbols or currency symbols, shall be considered symbols.

EXAMPLE 2

§, $, €, £, &, @, %, #, =, <, –

It should be noted that the lexical *designations* of SI units (International System of Units) are *appellations*, while the non-lexical ones are considered symbols rather than *abbreviations* since they do not vary from language to language, have no plural, and are never written with full stops (periods), except for normal sentence punctuation.

EXAMPLE 3

Appellation	**Unit Symbol**
metre	**m**
second	**s**
metre per second	**m/s**
metre per second squared	**m/s^2**

Alphanumeric codes made up of combinations of letters, numbers or both shall be considered symbols, if they do not represent words in a natural language or abbreviated forms (see B.2.4). Chemical formulae for chemical compounds can be considered symbols or be treated as synonymous forms for a *term.* Alternatively, formulae may be used as definitions, but not both at the same time.

EXAMPLE 4

C_2H_5OH = ethyl alcohol); CH_4 = methane; C_4H_{10} = butane
A4 (paper format, 210 mm × 297 mm)

A symbol should be:

— simple and easy to recognize and, if possible, self-explanatory;

— monosemic in a specific subject field;

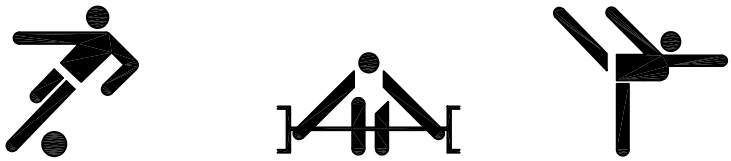
— unambiguous;

— easy and economical to reproduce;

— consistent and appropriate, i.e. designed to permit coordination with and differentiation from other related symbols.

EXAMPLE 5

1. Symbols used to designate sports activities at the Olympics



2. The loop used in the *subject field* of environment to designate recyclability

Annex A
(informative)

Other types of definitions

A.1 General

While this International Standard presents intensional definitions (see 6.2) as the most explicit and precise method of concept definition, it acknowledges that other types of definitions are in current usage in some contexts and it has been decided to treat them as supplementary information in this annex.

A.2 Definitions

A.2.1 Extensional definitions

A.2.1.1 Using extensional definitions

In highly specialized terminology work directed at specialists who are familiar with the subject field, the definition may be presented as a list of the subordinate concepts, under just one criterion of subdivision, which correspond to objects making up the extension of the concept. The list of subordinate concepts may consist of either individual or general concepts. It is important to remember that the extension is not the same as an extensional definition. The list of terms represents concepts that depict or correspond to the objects making up the extension and not the objects themselves. Listing the concepts depicting or corresponding to the objects of a given extension only suggests a concept's intension but never determines it as in an intensional definition.

Extensional definitions are useful only in very limited circumstances. Extensional definitions shall be used when a given concept can be described more efficiently by an extensional definition than by an intensional definition. Extensional definitions shall be used only if the number of subordinate concepts to be enumerated is finite, the list of subordinate concepts is complete under one criterion of subdivision, and the subordinate concepts can be clarified by intensional definitions or are well known. All the subordinate concepts listed shall be defined elsewhere in the terminological resource, and shall not be defined using the immediate superordinate concept in an intensional definition, as this will create circularity (see 6.5.2).

EXAMPLE

threatened species
critically endangered species, endangered species or vulnerable species

A.2.1.2 Formulating extensional definitions

Extensional definitions shall be formulated with reference to the position of the defined concept within its respective generic concept system. This means that an extensional definition is structured as a list of subordinate concepts related to a single criterion of subdivision associated with the generic superordinate concept. The list of subordinate concepts corresponds to the objects making up the extension of the concept being defined. (See 5.5.2.2.1, Example 4 and 5.6.2, Example 2, for examples of criteria of subdivision.)

The operator “or” in the definition shall be used to indicate a generic relation between the subordinate concepts in the definition and the superordinate concept that is being defined; the operator “and” shall be used to indicate a partitive relation.

EXAMPLE 1

season
spring, summer, autumn or winter

EXAMPLE 2

seasons of the year
spring, summer, autumn and winter

An extensional definition shall list all the subordinate concepts corresponding to objects in the extension and shall not include open-ended formulations (e.g. the following items, etc.). Incomplete lists may be listed in a note attached to an intensional definition. All the subordinate concepts listed shall be defined elsewhere in the terminological resource.

Partitive concepts whose extension extends beyond the partitive relation under analysis should not be defined narrowly in terms of the comprehensive concept.

EXAMPLE 3

	mechanical mouse
too narrow **inappropriate *definition***	computer mouse having a cord and scroll wheel in which movements are detected by a ball on its underside that activates rollers in physical contact with the ball The definition of the concept 'mechanical mouse' should not include the characteristics 'cord' and 'scroll wheel' as they are not necessarily parts of every object in the extension.

EXAMPLE 4

	coniferous tree
incomplete **inappropriate *definition*** **(open-ended formulation)**	conifer such as cedars, cypresses, firs, larches, pines, etc.
	coniferous tree
incomplete definition **inappropriate *definition*** **(not all concepts listed)**	juniper, larch, fir, cedar, cypress, redwood or pine
	coniferous tree
corrected definition	needle-leaved or scale-leaved, cone-bearing gymnospermous tree, chiefly evergreen EXAMPLE Familiar representatives of coniferous trees are cedars, yews, firs, junipers, larches, redwoods and pines.

A.2.2 Ostensive definitions

An ostensive definition, also known as a demonstrative definition, is one that defines by exhibiting non-lexical representations of the concept (such as a drawing, an illustration, a video, a sound clip, a computer animation, etc.) or even by pointing to an object. With the increased availability of multimedia technology, ostensive definitions may use any form of multimedia that allows one to exhibit non-lexical representations of the concept. However, rather than being used on their own, ostensive definitions are best employed as

complements to intensional definitions or concept descriptions, since it is not always clear what is being referred to or how far to generalize from the particular object exhibited. Furthermore, it may prove difficult to deduce the superordinate concept from an ostensive definition.

EXAMPLE 1

What does a video clip of a ‘bright red car swerving’ designate? Is it designed to indicate the whole object, one of its parts (the body, for example), its colour, or what it is doing?

There are various types of graphic representations:

— abstract illustrations;

— network diagrams;

— matrix diagrams;

— schematic diagrams;

— iconic illustrations;

— drawings, etchings, etc.;

— photographs;

— statistical diagrams;

— line charts;

— bar charts;

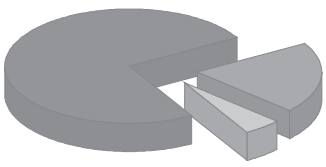
— pie charts, etc.;

— mixed figures, which combine two or more forms.

An ostensive definition may be recognized as a definition on its own only in the rare cases where the non-lexical representation can represent the concept in an analogous way to an intensional definition; otherwise, it shall not be used as a definition but as supplementary information for inclusion in a note.

EXAMPLE 2

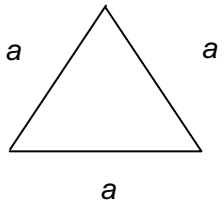
This statistical diagram is an example of an ostensive definition for the concept ‘exploded pie chart’.



exploded pie chart

An ostensive definition shall provide the same information as an intensional definition, i.e. the superordinate concept along with the delimiting characteristics.

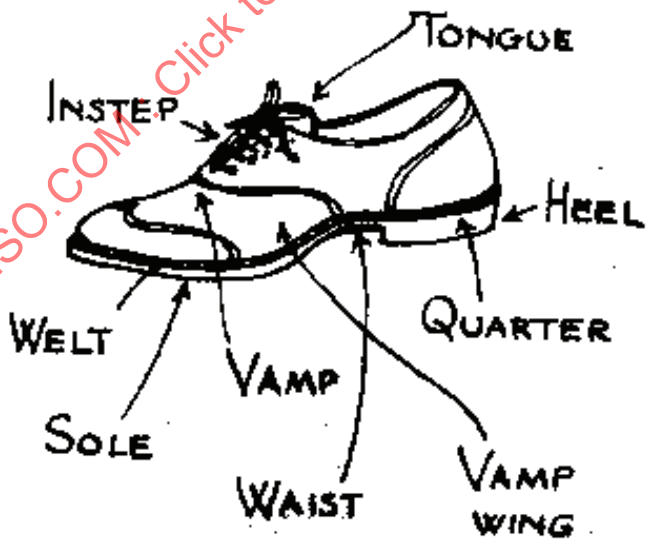
EXAMPLE 3

The following abstract illustration could be used as an ostensive definition for the concept ‘equilateral triangle’. Intensional definition (for a concept in a generic relation): **equilateral triangle** triangle that has all 3 sides the same length
Ostensive definition (for a concept in a generic relation): **equilateral triangle** 
Superordinate concept: ‘triangle’ Delimiting characteristic: — all 3 sides are the same length, where *a* = length

Iconic illustrations present images of objects that may be unfamiliar, such as a photograph or drawing of an exotic plant. They are especially useful in complementing partitive definitions since they show the relationship between the whole and its parts.

EXAMPLE 4

A shoe and its parts: <shoe industry >



< http://www.theweebsite.com/sewing/shoes/design.html >

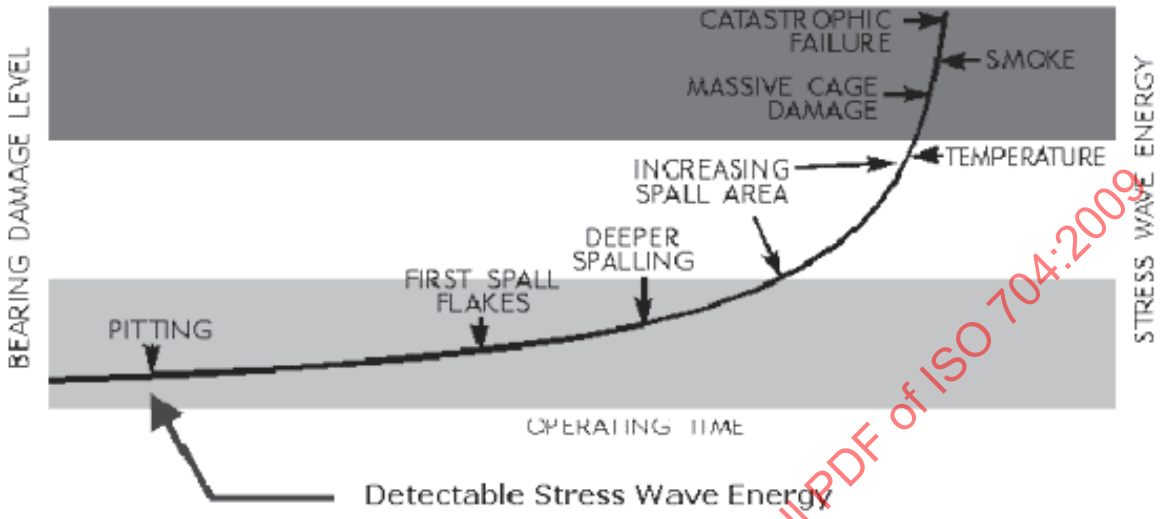
Iconic illustrations are also useful for clarifying the associative relation between concepts.

EXAMPLE 5

The sequence of bearing damage levels (associative concepts) in the operating history of stress wave energy.

pitting <machine tooling>

Stress Wave Energy Operating History

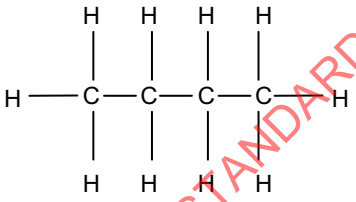


Graph was previously available at http://www.swantech.com/technologyoverview.html.

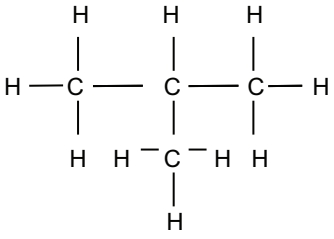
EXAMPLE 6

Chemical structure of butane, C_4H_{10}: In a technical resource, an atomic structure of a chemical formula such as C_4H_{10} can be considered a definition of butane. However, a formula giving the number of atoms in a given molecule may still identify a substance ambiguously since the modelling of complex molecules may result in different atomic structures. Compounds with the same molecular formula that have different structures are called isomers. Isomeric variations have similar, but not necessarily identical, qualities. Butane is a relatively simple example where one finds butane vs. isobutane. More complex chemicals may have many isomeric variations for the same molecular formula. An explicit illustration of the variations helps to clarify the concept.

butane



isobutane



However, the object or non-lexical representation represented in the ostensive definition should not be confused with the concept itself. A graphic representation is but a depiction of only one object among all the other objects that make up the extension of the concept. For this reason, a graphic representation of a concept is best used to complement a definition. A graphic representation complements a definition well if it further clarifies the characteristics of a given concept and/or its relations to other concepts. Graphic representations may provide a means of visualizing a concept that may be difficult to grasp from textual definitions alone.

EXAMPLE 7

This picture of a fir tree could be used to illustrate the concept 'tree', but not to define it. However, it must be noted that the illustration on the left is merely a representation of the object, not the object itself. Furthermore, one must not confuse the specific fir tree illustrated with the concept 'tree', whose extension includes other objects such as 'deciduous trees', 'palm trees', etc.

A.2.3 Lexical definitions

A terminological resource may include lexical definitions found in a general language dictionary when the superordinate concept of a concept is not specialized or when the top superordinate concept of a vertical concept ladder has become so generalized it no longer qualifies as a concept specific to the subject field.

EXAMPLE

The superordinate concept for 'mouse pad' is 'pad' and must be considered a candidate for the relevant concept system.

pad

thin cushionlike mass of soft material, used to fill, to give shape, or to protect against jarring, scraping or other injury

[*The American Heritage® Dictionary of the English Language*, Fourth Edition, 2000]

A.2.4 Precising definitions

Precising definitions may be called for when adapting a definition to a specific subject field. Terminological analysis may begin with a lexical definition and may involve turning the lexical definition into a precising definition, i.e. turning a more vague lexical expression into a definition with more precise characteristics. The objective is to identify the specific concept designated by a specialized technical or scientific term. The specific subject field shall be clearly indicated at the beginning of the definition.

EXAMPLE

Lexical definition: **fish** 1. In popular language, any animal living exclusively in the water, including cetaceans, crustaceans, molluscs, etc. In scientific language any vertebrate animal provided with gills throughout life, and cold-blooded; the limbs, if present, being modified into fins. [*The Shorter Oxford English Dictionary on Historical Principles*, 3rd ed., rev. with addenda, London: Oxford University Press, 1970, p. 705.]
Precising definition: **fish** <ichthyology> any of a large group of cold-blooded, finned aquatic vertebrates, divided into three classes: Agnatha, Chondrichthyes, and Osteichthyes. Based on: Jason Buchheim, *A Quick Course in Ichthyology*, available at http://www.marinebiology.org/fish.htm A precising definition narrows the objects in the extension of the concept by adding more precise characteristics to a lexical definition. Therefore, the concept of fish is made more precise by specifying characteristics that limit the concept to one used in ichthyology.

A.2.5 Stipulative definitions

A.2.5.1 Using stipulative definitions

Where concept information is specific to a unique situation, the definition is described as a stipulative definition. Stipulative definitions do not follow standard terminological principles but serve the specific purposes of individual bodies, such as legislators, law firms, commercial firms, etc. When the concept is limited to a given situation and the need for a stipulative definition is valid, it shall be clearly identified as such. The definition shall begin with the qualifier, such as “For the purposes of <document name>, …”. Stipulative definitions shall be located only within the parent document or set of related documents to which they apply. In some cases, they are identified with special wording, such as, “Definition specific to this standard”.

EXAMPLE

Stipulative definition: **fish** For the purposes of the Saltfish Act, means fish of the cod family (Gadidae). [Canada. Saltfish Act. 1985. R.S.C. 1985, c. S-4, s.2]

Similarly, the stipulative definition also narrows the extension of the concept. However, it differs in that a stipulative definition may contradict the lexical definition or narrow its extension beyond the norms of understanding in its subject field, while a precising definition does not.

A.2.5.2 Formulating stipulative definitions

A particular context rarely refers to all the objects making up the extension of a concept. Definitions in laws and regulations tend to be interpretive and are often stipulative definitions. The stipulative definition defines a (new) concept which is narrower than the one usually represented by the designation. The stipulative definition is not inaccurate with regard to this (new) concept, only with regard to the “usual” one. Therefore, it is important to include a specification clause at the beginning of the definition (see the following example). Definitions in International Standards shall be defining rather than interpretive. If a concept is restricted to a particular interpretation for a given text, it shall be explained in the body of the International Standard rather than by creating a new concept with a smaller extension. If specification information is associated with the concept, then this shall be given in an appropriate specification clause rather than in a definition.

EXAMPLE

	organization
too narrow	for the purposes of this regulation, bodies not operating for profit
This definition of ‘organization’ does not define the concept ‘organization’ but merely signals how to interpret the concept in a given context. From all the objects that make up the extension of the concept ‘organization’, this context considers only those not operating for profit.	

Annex B
(informative)

Examples of term-formation methods

B.1 General

The examples found in this annex are based on the English language and are not intended to cover all the methods used for English term formation. For a more complete description of the various formation methods of the English language, reference works on word formation should be consulted.

Term-formation patterns depend on the lexical, morphosyntactic and phonological structures of individual languages and recommendations cannot be given in an International Standard. For instance, each language has its own rules for the abbreviation process and language-specific conventions dictate whether a term will consist of a single lexical element, several morphological elements combined to form a single unit, several words arranged in a string, or a terminological phrase. Therefore, this annex should not be translated but adapted to the specific rules applicable to the language in question.

However, the following term-formation methods apply to the English language, and may also apply to other languages:

— creating neoterms;

— using existing forms;

— translingual borrowing.

B.2 Neoterms

B.2.1 General

A neoterm is a new lexical entity. Formation processes such as derivation, compounding or abbreviation can be used to create neoterms.

B.2.2 Derivation

The derivation process involves forming a neoterm by adding one or more morphological elements, or affixes, to a root or a word.

EXAMPLE

phosphor + ous	= **phosphorous**
co- + education- + al	= **co-educational**
de- + toxi(n) + fi + -cation	= **detoxification**

B.2.3 Compounding

Compounding involves combining existing words or word elements to create a new form that contains two or more roots but designates a single concept. Compounds may be complex terms, phrases or blends. The elements of the complex term or phrase often include qualifiers to a superordinate term in the form of adjectives, proper names, noun or verbal qualifiers, and may be joined by a hyphen or by fusing, or may not