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**Terminology work — Harmonization of  
concepts and terms**

*Travaux terminologiques — Harmonisation des concepts et des termes*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 860 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 860:1996), which has been technically revised.

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## Introduction

### 0.1 Overview

In spite of all the efforts made to coordinate terminologies as they develop, it is inevitable that overlapping and inconsistent terminologies will continue to be used because documents and policies are produced in different contexts. Differences between concepts and misleading similarities at the designation level create barriers to communication. Concepts and terms develop differently in individual languages and language communities, depending on professional, technical, scientific, social, economic, linguistic, cultural or other factors. Harmonization is, therefore, desirable because

- differences between concepts do not necessarily become apparent at the designation level,
- similarity at the designation level does not necessarily mean that the concepts behind the designations are identical,
- mistakes occur when a single concept is designated by two synonyms which by error are considered to designate two different concepts.

Harmonization starts at the concept level and continues at the term level. It is an integral part of standardization.

### 0.2 Conventions and notation

In this International Standard, tree diagrams are used to represent generic concept relations. The following notation is used throughout this International Standard:

- concepts are indicated by single quotes;
- designations are in boldface;
- characteristics are underlined;
- alpha-2 language codes are in small letters, boldface and italics;
- country codes are in capital letters;
- examples are boxed.

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# Terminology work — Harmonization of concepts and terms

## 1 Scope

This International Standard specifies a methodological approach to the harmonization of concepts, concept systems, definitions and terms.

This International Standard applies to the development of harmonized terminologies, at either the national or international level, in either a monolingual or a multilingual context.

## 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 704:2000 <sup>1)</sup>, *Terminology work — Principles and methods*

ISO 1087-1:2000 <sup>2)</sup>, *Terminology work — Vocabulary — Part 1: Theory and application*

ISO 10241:1992, *International terminology standards — Preparation and layout*  
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## 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

#### **concept harmonization**

activity leading to the establishment of a correspondence between two or more closely related or overlapping concepts having professional, technical, scientific, social, economic, linguistic, cultural or other differences, in order to eliminate or reduce minor differences between them

NOTE The purpose of concept harmonization is to improve communication.

### 3.2

#### **concept system harmonization**

activity leading to the establishment of a correspondence between two or more closely related or overlapping concept systems having professional, technical, scientific, social, economic, linguistic, cultural or other differences, in order to eliminate or reduce minor differences between them

NOTE The purpose of concept system harmonization is to improve communication.

1) Under revision.

2) To be revised.

**3.3 definition harmonization**

activity leading to the description of a harmonized concept by an intensional definition that reflects the position of the concept in the harmonized concept system

**3.4 term harmonization**

activity leading to the selection of designations for a harmonized concept either in different languages or within the same language

NOTE Harmonized terms between different languages are equivalent terms; harmonized terms within the same language are either synonyms or term variants.

**3.5 equivalence**

relation between designations in different languages representing the same concept

[ISO 1087-1:2000, definition 3.4.21]

**4 Harmonization of concepts and concept systems**

**4.1 Concept variation**

**4.1.1 General**

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Since concepts may vary slightly on account of differences in professional, technical, scientific, social, economic, linguistic, cultural or other environments, the harmonization of specific concepts or concept systems will assist in reducing ambiguity and misunderstanding in communication. Some examples of concept variation are shown in Example 1.

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**4.1.2 Example 1 — Concept variation due to differences in professional, scientific, cultural or socioeconomic environments**

Differences	Example
Professional	'Bachelor degree' and 'licentiate degree' in different countries are not exactly the same but are close enough to be considered equivalent degrees.
Scientific	'word' in the field of linguistics varies according to different linguistic theories.
Cultural	For Europeans, 'North America' includes the US and Canada while in the Americas, 'North America' is the region comprising Canada, the US and Mexico.
Socioeconomic	The 'minimum acceptable standard of living' can have different extension within the context of the highly industrialized countries.

**4.2 Feasibility study**

**4.2.1 Preliminary analysis**

Before conducting concept harmonization, differences and similarities between concepts and concept systems shall be examined in order to determine the feasibility of harmonization. Preliminary issues will be concerned with whether the concept systems to be harmonized are from the same subject field, the extent to which both contain the same concepts and, if the content is overlapping, whether the harmonization project is to be directed towards the area of overlap, or all the concepts in the systems to be harmonized. See Annex A.



#### 4.2.2 Analysis of the subject field

Harmonization is more likely to be possible if the following conditions are met:

- a) a subset of the terminology of the subject field has already been harmonized;
- b) the subject field is well established and relatively stable;
- c) the subject field has a tradition of standardization.

#### 4.2.3 Similarity between concepts

Whether the harmonization project will be carried out on concepts and concept systems in one language or across languages, a cursory comparison of some key concepts to be harmonized in each concept system shall be performed. This analysis shall determine:

- a) which characteristics the concepts of each concept system have in common
  - 1) within a language,
  - 2) across languages;
- b) which characteristics of the concepts differ from one concept system to another
  - 1) within a language,
  - 2) across languages;
- c) which characteristics are essential to each key concept.

Successful concept harmonization is more likely to be possible if the following conditions are met:

- the concepts are closely related to each other and have common characteristics;
- the essential characteristics are the same or similar and reflect a similar perspective within the particular professional, technical, scientific, social, economic, linguistic, cultural or other environment;
- a correspondence can be established between the key concepts in each concept.

### 4.3 Harmonization procedure

#### 4.3.1 Selection of concepts

The scope of the harmonization project will determine the concepts and concept systems to be harmonized.

#### 4.3.2 Comparison of concept systems

All relevant concept systems shall be examined. Ideally, a new set of concept systems, containing all the material from all the sources to be harmonized, will be produced. However, there may be divergences in the criteria of subdivision which establish the need for separate displays. In this case, the point of divergence can be identified.

The comparative analysis of the different concept systems shall take account of the following:

- a) the number of concepts included;
- b) the relationships between concepts;
- c) the depth of structuring;
- d) the criteria of subdivision used to develop the concept system.

#### **4.3.3 Harmonized concept system maintenance**

Having assembled all relevant material into a set of concept systems for the purposes of overall control, it will be necessary to decide whether to retain them in this form for display purposes or to disaggregate them for particular applications. Another approach is to give the concept systems in their complete form even if only part is relevant to the specific context, distinguishing the relevant concepts, e.g. by boldening or italics.

Depending on the scope of the harmonization project, it shall be necessary to decide whether

- a) a harmonized concept system will be produced after harmonization has successfully been carried out, or
- b) each concept system will be adapted to reflect the result of harmonization.

#### **4.3.4 Harmonization of single concepts**

##### **4.3.4.1 General**

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Concepts shall be analysed by comparing their characteristics and not their designations. In practice, characteristics shall be found in the definition and sometimes in the explanatory note provided for each concept belonging to the concept system. Definitions shall be collected from reliable sources including all available expertise within the subject field.

After completing a comparative analysis of the definitions for one concept, it shall be determined which of the conditions described in 4.3.4.2 to 4.3.4.5 applies.

##### **4.3.4.2 Concepts which are identical**

###### **4.3.4.2.1 General**

The concepts in the different concept systems are exactly the same and their characteristics coincide. In this case, there is no need for concept harmonization. See Example 2. However, term harmonization may be necessary at a later stage to select the designation in each language, and to establish term equivalence between languages and synonymy and term variation within each language.

## 4.3.4.2.2 Example 2 — Identical concepts

A concept in a monolingual and a bilingual context for which there is no need for harmonization.

**Harmonization within a language:**

**en** 'proenzyme' <medical biochemistry>

1. the precursor of an enzyme requiring proteolysis to render it active (source: Stedman's Medical dictionary)
2. an inactive precursor of an enzyme that can be converted to the active enzyme by proteolysis (source: Dorland's Illustrated M.D.)
3. an inactive enzyme precursor that is converted to the active form of the enzyme by proteolytic cleavage [source: Singleton, P. and Sainsbury, D. (1996): *Dictionary of microbiology and molecular biology*, Chichester / Toronto, Wiley]

Characteristics used to define the concept:

precursor of an enzyme (1) / inactive precursor of an enzyme (2, 3)  
requiring proteolysis to render it active (1, 2) / converted to an active enzyme by proteolytic cleavage (3)

Regarding the difference found in the first characteristic [precursor of an enzyme (1) and inactive precursor of an enzyme (2, 3)], the solution lies within the context of the second characteristic [requiring proteolysis to render it active (1, 2) / converted into an active enzyme by proteolytic cleavage (3)], as it can be implied that before the process of proteolysis / proteolytic cleavage the precursor of the enzyme was not active.

After the analysis of the possible difference between proteolysis and proteolytic cleavage (proteolysis: the cleavage of proteins by proteases; proteolytic cleavage: the process of breaking proteins by proteases), it can be concluded that there is no difference. Therefore, the same characteristics are used to define the concept of 'proenzyme'; thus, there is no need for concept harmonization.

**Harmonization across two languages:**

**en** 'proenzyme' <medical biochemistry>

1. the precursor of an enzyme requiring proteolysis to render it active (source: Stedman's Medical dictionary)
2. an inactive precursor of an enzyme that can be converted to the active enzyme by proteolysis (source: Dorland's Illustrated M.D.)
3. an inactive enzyme precursor that is converted to the active form of the enzyme by proteolytic cleavage [source: Singleton, P. and Sainsbury, D. (1996): *Dictionary of microbiology and molecular biology*, Chichester / Toronto, Wiley]

For the analysis of the English characteristics, see above.

**fr** 'zymogène' <biochimie médicale>

1. précurseur inactif d'une enzyme, qui par activation protéolytique génère l'enzyme active [source: Devlin, E. and G. Pham (1993): *Vocabulaire du génie enzymatique*, Ottawa: Services gouvernementaux Canada]
2. précurseur d'une enzyme inactive qui par activation protéolytique deviendra active [source: *Cours de Biochimie*, Université Montpellier 1]
3. précurseur d'une enzyme non active qui est activée par un processus de protéolyse (source: Institut National de la Recherche Agroalimentaire *Glossaire d'enzymologie*)

The analysis of the French characteristics used to define the concept 'zymogène' reveals that:

précurseur inactif d'une enzyme / précurseur d'une enzyme inactive / précurseur d'une enzyme non active (1, 2, 3)  
qui par activation protéolytique génère l'enzyme active (1, 2) / qui est activée par un processus de protéolyse (3)

As in the case of English, qui par activation protéolytique is the same as activée par un processus de protéolyse.

Since the characteristics used to define the concepts of **en** 'proenzyme' and **fr** 'zymogène' are the same, the concepts correspond to each other; therefore, there is no need for concept harmonization across these two languages.