INTERNATIONAL STANDARD

**ISO 639-4**

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# Codes for the representation of names of languages —

## Part 4: General principles of coding of the representation of names of languages and related entities, and application guidelines

*Codes pour la représentation des noms de langue —*

*Partie 4: Principes généraux pour le codage de la représentation des noms de langue et d'entités connexes, et lignes directrices pour la mise en œuvre*



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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 639-4 was prepared by Technical Committee ISO/TC 37, *Terminology and other language and content resources*, Subcommittee SC 2, *Terminographical and lexicographical working methods*.

ISO 639 consists of the following parts, under the general title *Codes for the representation of names of languages*:

— *Part 1: Alpha-2 code*

— *Part 2: Alpha-3 code*

— *Part 3: Alpha-3 code for comprehensive coverage of languages*

— *Part 4: General principles of coding of the representation of names of languages and related entities, and application guidelines*

— *Part 5: Alpha-3 code for language families and groups*

— *Part 6: Alpha-4 code for comprehensive coverage of language variants*

# Introduction

ISO 639 provides codes for the identification and specification of individual languages, language variants, and language groups. The identifiers may be used in a variety of applications, including specification of the language used in a text, the language of terms or words in a dictionary or terminological database, the language used in a spoken presentation, language proficiency, language capabilities of software, localization, etc. The various parts of ISO 639 are expected to be implemented in a number of environments.

Parts 1, 2, 3, and 5 of ISO 639 all contain some information about implementation issues. However, it is deemed necessary to expand those descriptions, and to have the implementation rules in a separate document. In future revisions of the other parts of ISO 639, it is expected that those standards will reference this part of ISO 639 rather than duplicating the information.

# Codes for the representation of names of languages —

# Part 4:
# General principles of coding of the representation of names of languages and related entities, and application guidelines



## 1 Scope

This part of ISO 639 gives the general principles of language coding using the codes that are specified in the other parts of ISO 639 and their combination with other codes. Furthermore, this part of ISO 639 lays down guidelines for the use of any combination of the parts of ISO 639.

The terminology and general descriptions of this part of ISO 639 are intended to replace corresponding text of other parts of ISO 639 as relevant in future revisions.

Relevant metadata for the description of linguistic entities are also given, as a framework for databases of linguistic data to support the ISO 639 series of International Standards.

## 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 639-1:2002, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 639-2:1998, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 639-3:2007, *Codes for the representation of names of languages — Part 3: Alpha-3 code for comprehensive coverage of languages*

ISO 639-5:2008, *Codes for the representation of names of languages — Part 5: Alpha-3 code for language families and groups*

ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 3166-2:2007, *Codes for the representation of names of countries and their subdivisions — Part 2: Country subdivision code*

ISO 3166-3:1999, *Codes for the representation of names of countries and their subdivisions — Part 3: Code for formerly used names of countries*

ISO 8601:2004, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 11179-1:2004, *Information technology — Metadata registries (MDR) — Part 1: Framework*

ISO/IEC 11179-2:2005, *Information technology — Metadata registries (MDR) — Part 2: Classification*

ISO/IEC 11179-3:2003, *Information technology — Metadata registries (MDR) — Part 3: Registry metamodel and basic attributes*

ISO/IEC 11179-4:2004, *Information technology — Metadata registries (MDR) — Part 4: Formulation of data definitions*

ISO/IEC 11179-5:2005, *Information technology — Metadata registries (MDR) — Part 5: Naming and identification principles*

ISO/IEC 11179-6:2005, *Information technology — Metadata registries (MDR) — Part 6: Registration*

ISO 12620:2009, *Terminology and other language and content resources — Specification of data categories and management of a Data Category Registry for language resources*

ISO 15924:2004, *Information and documentation — Codes for the representation of names of scripts*

ISO 19111:2007, *Geographic information — Spatial referencing by coordinates*

ISO 19112:2003, *Geographic information — Spatial referencing by geographic identifiers*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

In future versions of other parts of ISO 639, it is expected that some or all of the terms and definitions will be replaced by a reference to the terms and definitions in this part of ISO 639.

NOTE The definitions in this part of ISO 639 are intended for practical use within the context of the various parts of ISO 639 and their applications. For various linguistic purposes, there are needs for more detailed, and possibly deviating, definitions.

**3.1**
**code**
data transformed or represented in different forms according to a pre-established set of rules

NOTE The usage of the term “code” is not uniform in all standardized coding systems. According to the usage that is defined in this part of ISO 639, a “code” is to be understood as a **code table** (3.2) and the set of rules relating to the code table. Each individual row in a code table is a **code element** (3.4) (e.g. “de - German - allemand - Deutsch” in Part 1 of ISO 639), while the item “de” is the **language identifier** (3.5).

**3.2**
**code table**
table of **code elements** (3.4) as part of a **code** (3.1)

**3.3**
**code space**
totality of possible values for a set of identifiers within a **code** (3.1)

EXAMPLE All sequences of two letters (a–z) form the code space of the alpha-2 language code as specified in part 1 of ISO 639.

NOTE The alpha-3 language codes that are specified in parts 2, 3, and 5 of ISO 639 share the same code space, i.e. no language identifier assigned in one of the parts may be assigned to a different item in another part.

**3.4**
**code element**
individual entry in a **code** (3.1)

NOTE In the language codes of ISO 639, each code element consists of a language identifier and the names of the language.

**3.5**
**language identifier**
**language symbol**
string of characters assigned to a linguistic entity for the purpose of uniquely representing it

NOTE 1 In the language codes of Parts 1, 2, 3, and 5 of ISO 639, each language identifier is composed of two or three letters.

NOTE 2 See 4.1.

**3.6**
**language**
systematic use of sounds, characters, symbols or signs to express or communicate meaning or a message between humans

NOTE 1 This definition is intended to serve as a working definition for the purpose of the ISO 639 series of International Standards, not as a universal definition of this concept.

NOTE 2 See also 4.1 and 4.2.

**3.7**
**individual language**
**language** (3.6) that is distinctly different from another language

NOTE See 4.2.

**3.8**
**dialect**
**language variant** (3.14) specific to a geographical region or a group of language users

NOTE See 4.5.

**3.9**
**macrolanguage**
**language** (3.6) that for some purpose may be subdivided into two or more **individual languages** (3.7)

NOTE See 4.3.

**3.10**
**language group**
two or more **individual languages** (3.7) that for a specific purpose may suitably be treated as a unit

NOTE See 4.6.

**3.11**
**language family**
two or more **individual languages** (3.7) that are related to each other through having common ancestry

NOTE In exceptional cases, a language family may have only one individual language as a member.

**3.12**
**remainder group**
**language group** (3.10) with the explicit exclusion of specified languages

NOTE See 4.6.

**3.13**
**language variation**
continuous variation within and between **individual languages** (3.7)

NOTE Language variation is seen and may be described as variation over time, space, cultural affiliation, etc.

**3.14**
**language variant**
variant of an **individual language** (3.7) that may be identified and named

**3.15**
**standard variant**
**language variant** (3.14) with a high degree of status and normalization

NOTE A standard variant of a language may typically be used in official or public communication and in communication between users of different language variants.

**3.16**
**writing system**
system for writing a **language** (3.6), including the **script** (3.17) and character set used

NOTE See also 4.9.

**3.17**
**script**
set of graphic characters used for the written form of one or more **languages** (3.6)

[ISO 15924:2004 and ISO/IEC 10646:2003]

NOTE See also 4.9.

**3.18**
**orthography**
set of rules for accepted spelling of words and text in one or more **languages** (3.6)

**3.19**
**transcription**
system for representing text in a different **script** (3.17) than that in which the text was originally represented

NOTE The resulting text is also referred to as a “transcription”.

**3.20**
**transliteration**
**transcription** (3.19) that enables the reconstruction of the original **script** (3.17) without any loss of information about graphic characters

NOTE The resulting text is also referred to as a “transliteration”.

**3.21**
**written language**
**individual language** (3.7) or **language variant** (3.14) that is commonly represented in writing with a relatively normalized **orthography** (3.18)

**3.22**
**spoken language**
**individual language** (3.7) or **language variant** (3.14) that is represented in spoken form

NOTE Any spoken language may be represented in writing using a phonetic writing system, where characters represent sounds (phones or phonemes) directly.

**3.23**
**living language**
**individual language** (3.7) or **language variant** (3.14) in present-day use, in particular as a **spoken language** (3.22)

**3.24**
**extinct language**
**individual language** (3.7) or **language variant** (3.14) that is no longer in use and that has no present-day descendant

NOTE See 4.7.

**3.25**
**ancient language**
**extinct language** (3.24) with a distinct literature and special status in the scholarly community

NOTE See 4.7.

**3.26**
**historical language**
known earlier historical stage of a **living language** (3.23) or an **extinct language** (3.24)

EXAMPLE "Old English" and "Middle English" as historical stages of "English".

NOTE See 4.7.

**3.27**
**natural language**
**language** (3.6) for human communication that is not an **artificial language** (3.28)

**3.28**
**artificial language**
**language** (3.6) for human communication that has been artificially devised

NOTE See also 4.8.



## 4 Fundamental concepts of language coding

### 4.1 Language identifiers and languages

Language identifiers are composed of the following 26 letters of the Latin alphabet in lower case: a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z. No diacritical marks or modified characters are used.

A language identifier represents a language, which may also be represented by one or more language names. The objects of identification are languages themselves; language names are the means by which the languages denoted by language identifiers are designated.

Languages are not static objects every instantiation of which is identical to every other. Every language corresponds to some range of variation in linguistic expression. In ISO 639, a language identifier denotes some range of language variation. The range of variation that is denoted can have three different scopes: individual language, macrolanguage or language group. Also, languages that are represented can be of

various types: living languages, ancient languages, artificially constructed languages, etc. The following provides further explanation regarding assignment of identifiers for different scopes or to different types of languages in ISO 639.

## 4.2 Individual languages

Identifiers in Parts 1, 2, and 3 of ISO 639 are assumed to denote distinct individual languages, unless the language name explicitly refers to a language group.

There is no one definition of a “language” that is agreed upon by all and appropriate for all purposes. As a result, there can be disagreement, even among speakers of the language or experts in linguistics, as to whether two variants represent dialects of a single language or two distinct languages. For ISO 639, judgments regarding when two variants are considered to be the same or different languages are based on a number of factors, including linguistic similarity, intelligibility, a common literature, the views of speakers concerning the relationship between language and identity, and other factors. The following basic criteria are followed.

— Two related variants are normally considered variants of the same language if speakers of each variant have inherent understanding of the other variant (that is, can understand based on knowledge of their own variant without needing to learn the other variant) at a functional level.

— Where spoken intelligibility between variants is marginal, the existence of a common literature or of a common ethnolinguistic identity with a central variant that both understand can be strong indicators that they should nevertheless be considered variants of the same language.

— Where there is enough intelligibility between variants to enable communication, the existence of well-established distinct ethnolinguistic identities can be a strong indicator that they should nevertheless be considered to be different languages.

Some of the distinctions made on this basis may not be considered appropriate by some users or for certain applications. However, these basic criteria are thought to best fit the intended range of applications.

## 4.3 Macrolanguages

Parts 1 and 2 of ISO 639 include identifiers that correspond in a one-to-many manner with individual language identifiers in Part 3 of ISO 639. For instance, Part 3 of ISO 639 contains over 30 identifiers designated as individual language identifiers for distinct variants of Arabic, while Parts 1 and 2 each contain only one identifier for Arabic, “ar” and “ara” respectively, which are designated as individual language identifiers in those parts of ISO 639. It is assumed here that the single identifiers for Arabic in Parts 1 and 2 of ISO 639 correspond to the many identifiers collectively for distinct variants of Arabic in Part 3 of ISO 639.

In this example, it may appear that the single identifiers in Parts 1 and 2 of ISO 639 should be designated as collective language identifiers. That is not assumed, however. In various parts of the world, there are clusters of closely-related language variants that, based on the criteria discussed in 4.2, can be considered individual languages, yet in certain usage contexts a single language identity for all is needed. Typical situations in which this need can occur include the following.

— There is one variant that is more developed and that tends to be used for wider communication by speakers of various closely-related languages; as a result, there is a perceived common linguistic identity across these languages. For instance, there are several distinct spoken Arabic languages, but Standard Arabic is generally used in business and media across all of these communities, and is also an important aspect of a shared ethno-religious unity. As a result, a perceived common linguistic identity exists.

— There is a common written form used for multiple closely-related languages. For instance, multiple Chinese languages share a common written form.

— There is a transitional sociolinguistic situation in which sub-communities of a single language community are diverging, creating a need for some purposes to recognise distinct languages while, for other purposes, a single common identity is still valid. For instance, in some business contexts it is necessary to make a distinction between the languages Bosnian, Croatian, and Serbian; yet there are other contexts in which these distinctions are not discernable in language resources that are in use.

Where such situations exist, an identifier for the single, common language identity is considered to be a macrolanguage identifier.

Macrolanguages are distinguished from language groups in that the individual languages that correspond to a macrolanguage must be very closely related, and there must be some domain in which only a single language identity is recognized.

## 4.4 Linguistic norm

Some linguistic forms are “normalized” or “standardized” by official or private bodies like academies or language councils. This normalization may be applied to any elements: orthography, morphology, syntax, semantics, phonology, etc. The degree of normalization varies greatly from one language to another.

Languages or forms of languages may be considered to have some sort of official status within countries or regions. Language status may be established through acts of parliament or through other formal procedures, giving a language status as “national language”, “official language”, “regional language”, etc.

## 4.5 Dialects

The linguistic variants denoted by each of the identifiers in Parts 1, 2, and 3 of ISO 639 are assumed to be distinct languages and not dialects of other languages, even though for some purposes some users may consider a variant listed in Part 1 or 2, or in particular Part 3 of ISO 639 to be a “dialect” rather than a “language” (see 4.2 and 4.3). In ISO 639, the term *dialect* is used as in the field of linguistics where it identifies any sub-variant of a language such as might be based on geographic region, age, gender, social class, time period, etc.

The dialects of a language are included within the denotation represented by the identifier for that language. Thus, each language identifier represents the complete range of all the spoken or written variants of that language, including any standardized form.

For applications in which it is necessary to identify dialects, a separate standard may be developed that provides identifiers for dialects, or that combines identifiers from ISO 639 with other distinguishing identificational qualifiers.

## 4.6 Collective language code elements and language groups

Part 2 of ISO 639 includes alpha-3 identifiers for collections of languages, and Part 5 is especially dedicated to language groups and language families. Parts 1 and 3 provide identifiers for individual languages and macrolanguages only.

Some of the code elements in Part 2 specify remainder groups. These items have the word “other” in their English names (and “autres” in their French names). The same alpha-3 identifiers are included in Part 5 of ISO 639 denoting the language group or family as a whole. For applications using Part 2 only, the remainder group identifiers shall be used for languages that belong to the language group or family in question, but that do not have an individual-language identifier in Part 2. Applications using Parts 2 *and* 5 and applications using Parts 2 *and* 3 *and* 5 shall use the collective language code elements in the sense specified in Part 5, allowing for hierarchies of language identifiers.

### 4.7 Extinct, ancient and historic languages

ISO 639 includes identifiers that denote extinct languages as well as living languages. In order to qualify for inclusion in ISO 639, the language must have an attested literature or be well-documented as a language known to have been spoken by some particular community at some point in history; it may not be a reconstructed language inferred from historical-comparative analysis. The code also includes identifiers that denote historic languages that are considered to be distinct from any modern languages that may be descended from them; for instance, Old English and Middle English. Here, too, the criterion is that the language has a literature that is treated distinctly by the scholarly community.

### 4.8 Artificial languages

ISO 639 includes identifiers that denote artificial (or constructed) languages that meet the following criteria:

— the language has a literature; and

— the language is designed for the purpose of human communication.

Specifically excluded from ISO 639 are reconstructed languages, computer programming languages, and mark-up languages.

### 4.9 Writing systems and scripts

A single language identifier is provided for a language even though the language may be written in more than one writing system. ISO 639 language identifiers may be combined with script identifiers from ISO 15924 (see 7.3).

## 5 Relationship between the parts of ISO 639

### 5.1 Parts of ISO 639

The parts of ISO 639 form one coordinated set of language coding standards.

— Part 1 assigns alpha-2 identifiers to a limited number of languages (currently 186), in particular languages with a long-standing scientific literature and developed terminology and lexicography.

— Part 2 assigns alpha-3 identifiers to a somewhat larger number of languages (currently 484), in particular languages with a significant body of literature in central libraries and documentation holdings.

— Part 3 assigns alpha-3 identifiers to most individual languages of the world (currently about 7000).

— Part 5 assigns alpha-3 identifiers to language groups and language families.

— Part 6 enables the encoding of items on a more detailed level than “individual language”.

### 5.2 ISO 639 as one code space

All language identifiers that are specified in Parts 2, 3, and 5 of this International Standard share a single code space. This has the implication that one language identifier always denotes one specific item regardless of which of the parts it is included in.

All language identifiers of Part 1 of ISO 639, furthermore, denote exactly the same items as corresponding language identifiers with the same reference name that are specified in Parts 2, 3, and 5.

### 5.3 Principles

The following principles apply to each of the parts of ISO 639 and their interrelation.

— The set of languages included in Part 1 is a subset of the set of languages included in Part 2. The extension of any single item in Part 1 is exactly the same as the extension of the corresponding item in Part 2. An alpha-3 identifier in Part 2 and the corresponding alpha-2 identifier in Part 1 shall be considered synonyms. In cases where the “B table” and the “T table” of Part 2 have different alpha-3 identifiers, these identifiers shall be considered synonyms.

EXAMPLE 1 The language identifiers “en” and “eng” designate exactly the same language.

EXAMPLE 2 The language identifiers “fra” and “fre” (and “fr”) designate exactly the same language. Implementations should, whenever possible, allow free choice between such synonyms.

— Some items are included in Part 2 and in Part 5 with slightly different designations. Example: “gem” designates “Germanic (other)” in Part 2 and “Germanic languages” in Part 5. In the context of Part 2, “gem” shall be used to identify the set of languages that fall into the group “Germanic languages”, and that has no individual language identifier in Part 2. In other contexts, “gem” may be used to identify the language group “Germanic languages” as a linguistic entity.

— The alpha-3 code of Parts 2, 3, and 5 forms one single code space. No alpha-3 identifier assigned in any one of these parts has been assigned or will be assigned to another item.

— Code elements of Part 3 may also be included in Part 2 following the procedures of the Joint Advisory Committee (see 6.2).

### 5.4 Common maintenance and language coding database

While the various parts of ISO 639 have been developed and published as individual and separate parts of the International Standard, their maintenance is fully coordinated.

It is expected that a future revision of the ISO 639 series will be published as one integrated database utilizing the meta-structure that is specified in Clause 8.

## 6 Implementation issues

### 6.1 Applications

ISO 639 and its parts may be implemented in a variety of applications. It is expected that few or none of these applications will utilize the totality of the language codes of all parts of this International Standard. As part of the implementation process it may be needed to specify usage relating to some of the issues that are listed in 6.2 and 6.3.

Some types of applications are listed below. The numbers of this list are referenced in 6.2 and 6.3 in the format “6.1: 1”. These references are intended for guidance only.

Language identifiers from the various parts of ISO 639 may be used in connection with, for example:

a) multilingual terminological or lexicographical databases to identify the language of an individual piece of information, e.g. a word, a term, a context, or a definition;

b) a text document or a set of text documents to identify the language of the entire text or of text segments, e.g. quotations;

c) bibliographical documents or databases (in general) to identify the language(s) of the bibliographic entries or the language(s) of the referenced documents;

d) linguistics and bibliographical documents or databases of linguistic or lexicographical documents to identify the language(s) that are the object of description in the documents (e.g. “source language”, “target language”, “description language”, “described language”, etc.);

e) translated documents to identify the source language for the translation;

f) translation and interpretation services to identify languages covered by the service;

g) notes or minutes of meetings to identify language(s) actually used during the meeting;

h) registries of individuals or organizations to identify language proficiencies or preferences;

i) software to identify language capabilities of, for example, character set handling, built-in grammar control, and dictionaries; and

j) localization in general, comprising a number of the types of applications above, but being in itself a major user of ISO 639; see also Clause 7.

A well-defined and much used implementation of the code tables of ISO 639 is designed by the Internet Engineering Task Force (IETF, see http://www.ietf.org/). Its repository RFC 4646 (which has replaced RFC 3066 and RFC 1766) defines the use of ISO 639 alpha-2 and alpha-3 language identifiers in combination with other information elements to identify the language of documents and text segments.

## 6.2 Subsets of the code table

The specification of any implementation of ISO 639 shall include information about which subset of the totality of the ISO 639 code tables is used. Some of the recommended options are:

— Part 1 only [6.1: a) to i), if all languages in question are included in Part 1];

— Part 1 and Part 2, using Part 2 only for items not included in Part 1 (or a user-defined subset of Part 1);

— Part 2 only [6.1: c)];

— Part 2 and Part 3;

— Part 2 and Part 5, using items included in both parts in the sense specified in Part 5 (see also 6.3) [6.1: d)];

— Part 1, Part 2, and Part 5, using items included in both Parts 2 and 5 in the sense specified in Part 5 (see also 6.3) [(6.1: d)];

— Part 2, Part 3, and Part 5, using items included in both Parts 2 and 5 in the sense specified in Part 5 (see also 6.3); and

— a user-defined subset of any of the parts or any combination of parts.

Part 5 is expected to be used only in combination with other parts of ISO 639.

It is expected that a mechanism will be developed in the future for naming and registering defined subsets of the totality of the ISO 639 language code.

## 6.3 Language groups

As discussed in 5.3, second list item, the simultaneous application of Part 2 and Part 5 of ISO 639 will require implementation-level specification.

There are currently 64 items that are included both in Part 2 and in Part 5 (listed in Annex A of Part 5). Of these items, 29 items are identical in the two parts (e.g. “alg – Algonquian languages”). The remaining 35 items are intended to cover remainder groups in Part 2 and entire language groups in Part 5 (e.g. “afa – Afro-Asiatic (Other)” in Part 2 and “afa – Afro-Asiatic languages” in Part 5).

According to the principles of Part 2, the identifier “afa” will be assigned only to a document or information in (or about) an Afro-Asiatic language that does not have an individual-language identifier in Part 2, and that does not fall into the remainder groups “ber – Berber (Other)”, “cus – Cushitic (Other)”, or “sem – Semitic (Other)”, all of which are Afro-Asiatic language groups.

According to the principles of Part 5, the identifier “afa” may be assigned to a document or information in (or about) any Afro-Asiatic language. The use of “afa”, “sem”, or “ara” in a concrete case relating to Arabic, depends on the purpose of the encoding, as specified in the implementation.

The use of identifiers from Part 5 will depend on the purpose of the application. It is expected that user-defined subsets of the items in Part 5 will frequently be used in combination with, for example, the totality or defined subsets of Part 2 or Part 3.

# 7 Combining language identifiers with other standards and codes

## 7.1 Combining ISO 639 with ISO 3166

The language identifiers of ISO 639 may be combined with country and country subdivision identifiers of ISO 3166 (all parts) to denote the area in which a word, term, phrase, or language variant is (or has been) used.

NOTE 1 In ISO 3166, the term “code element” is used to refer to the concept of “identifier” according to ISO 639 terminology.

NOTE 2 Some applications may not allow the use of the country subdivision code of ISO 3166-2, because of the variable format of that code.

EXAMPLE

— “eng US” (or “en US”, “eng USA”, “en USA”, “eng 840”, “en 840”) indicates English of the United States of America;

— “eng US-NY” indicates English of the state of New York;

— “fra FR” (or “fre FR”, “fr FR”, “fra FRA”, “fre FRA”, “fr FRA” ”, “fra 250”, “fre 250”, “fr 250”) indicates French of France;

— “fra FR-75” indicates French of Paris.

NOTE 3 Applications may define a default region for each language and use ISO 3166 identifiers to specify usage outside this region only.

## 7.2 Combining ISO 639 with ISO 19111 and ISO 19112

The language identifiers of ISO 639 may also be combined with spatial referencing information in accordance with ISO 19111 and ISO 19112 to denote the area in which a word, term, phrase, language, or language variant is used.

ISO 19111 and ISO 19112 complement ISO 3166 in that they allow spatial referencing independent of political and administrative considerations.

## 7.3 Combining ISO 639 with ISO 15924

The language identifiers of ISO 639 may be combined with script identifiers of ISO 15924 to indicate which script is used in a document, text segment, language, or language variant.

EXAMPLE

— “deu Latf” (or “ger Latf” or “de Latf”) indicates German in Latin Fraktur script;

— “kur Cyrl” (or “ku Cyrl”) indicates Kurdish in Cyrillic script.

NOTE Applications may define a default script for each language and use ISO 15924 identifiers to specify the use of scripts other than the default.

## 7.4 Other code combinations

The language identifiers of ISO 639 may be combined with any other standardized or user-defined code to establish combined identifiers suitable for given purposes.

The usage of such combined identifiers and combination codes shall be documented in each individual case. The intension of the individual language identifiers and the ISO 639 language code shall remain unchanged by such combinations.

## 7.5 Formats of combined identifiers

This International Standard does not require a specific format of combined identifiers. The format used in 7.1 and 7.2 is intended as an example only.

Each application shall specify the format of combined identifiers. The specification may include one or more of the following:

— the order of the elements,

— a separation character between elements,

— prefixes or other indicators to some or all of the elements,

— structuring features, such as XML tagging.

Depending on the specification of the application, a combined language identifier for a text in German in Latin Fraktur script, originating from Austria, could for instance be encoded in one of the following ways:

— de Latf AT

— de_Latf_AT

— de_AT_Latf

— de-C:AT-S:Latf

— language=“de” script=“Latf” area=“AT”

# 8 Language description format (LDF)

## 8.1 Compatibilities between the ISO 639 model and ISO 12620

### 8.1.1 General

The model for ISO 639 has been developed to be compatible with models being developed by other groups within ISO/TC 37. ISO/TC 37 standards for computational use of terminology, specifically ISO 16642 and its combination with ISO 12620, emphasize the use of a metamodel in combination with metadata identifiers, referred to as data categories. These data categories may be referred to also as administered items, in accordance with ISO/IEC 11179.

ISO 639 uses a specific model for language identification/documentation and a list of metadata identifiers can be associated with this model. The model for ISO 639 has been developed to be in conformity with the ISO/IEC 11179 series of standards. As such, language information is

— specified according to ISO/IEC 11179-3,

— defined according to ISO/IEC 11179-4,

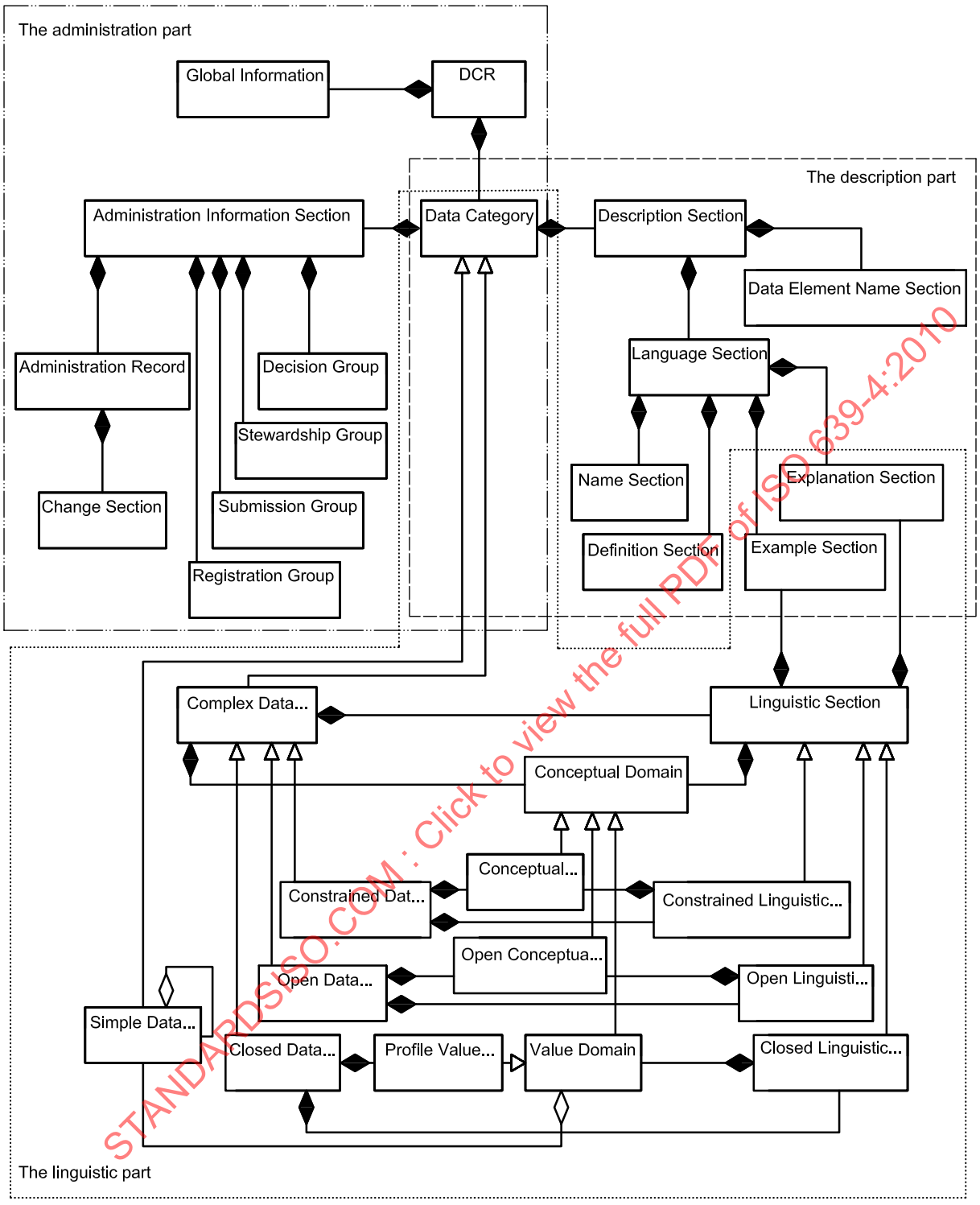
— named according to ISO/IEC 11179-5, and

— registered according to ISO/IEC 11179-6.

It is intended to be fully compatible with the metadata registry specified in ISO 12620. It is also intended to be fully compatible with the Data Category Interchange Format (DCIF) defined in ISO 12620. Some variation between the metamodel of the metadata registry and the specific model described in this International Standard has been unavoidable, but the core of the model shall be as consistent with ISO 12620 as possible.

The identifiers and associated data shall be managed within a metadata registry conforming with ISO 11179-6.

The metamodel of ISO 12620 (see Figure 1) is applied within the scope of ISO 639.






△ inheritance relationship from subclass to superclass
♦ composition relationship between two classes
◊ aggregation relationship between two classes

**Figure 1 — Overview of the metamodel of ISO 12620 underlying the DCIF**

### 8.1.2 Identification

Each item within the language code is provided with one reference name. This reference name is intended for use as the unique data identifier (DI), to be used in combination with a version identifier (VI) and registration authority identifier (RAI) for composing the international registration data identifier (IRDI), in accordance with ISO/IEC 11179. The combination created by the IRDI shall provide a unique identifier.

According to ISO 12620, identification occurs within the **Administration Record** of the **Administration Information Section**.

Identification, according to this scheme, should be an implemented form of:

/identifier/ = Western Apache
/registration authority/ = SIL
/version/ = 1

/identifier/ uniquely identifies the data category in the registry. This field is annotated by information about the registration authority (/registration authority/) and the version of the identifier (/version/). Uniqueness is a condition within the combination; multiple identifiers using the same /identifier/ value are possible if either the registration authority or the version differ, for example

/identifier/ = Western Apache
/registration authority/ = SIL
**/version/ = 2**

and

/identifier/ = Western Apache
**/registration authority/ = LOC**
/version/ = 1

are both different from the first example. This prevents the potential for collision of differently described identifiers upon import.

For each registered item, the /registration status/ data category shall be provided with a value. The list of possible values for this identifier differs between ISO/IEC 11179-6 and ISO 12620.

From ISO 12620, the listed registration status values are given below:

— /standard/: the Registration Authority confirms that the administered item is of sufficient quality and of broad interest for use in the Registry community *(2)*;

— /candidate/: it has been proposed for progression up the Registry registration levels; note: the registration status of a data category is set to /candidate/ until its administration status is finally determined as /accepted/ (in which case the registration status becomes /standard/) *(6)*;

— /deprecated/: the Registration Authority has approved the administered item as no longer recommended for use in the registry community and this item should no longer be used;

— /superseded/: the Registration Authority has approved the administered item as no longer recommended for use in the registry community but the successor administered item is the preference for users *(8)*.

From ISO/IEC 11179-6, further values for registration status are:

— /preferred standard/: the Registration Authority confirms that the administered item is preferred for use within the Registry community *(1)*;

— /qualified/: the Registration Authority has confirmed that the mandatory metadata attributes are complete and conform to applicable quality requirements *(3)*;

— /recorded/: the Registration Authority has confirmed that all mandatory metadata attributes have been completed *(4)*;

— /incomplete/: the submitter wishes to make the community that uses this Registry aware of the existence of this item *(6)*;

— /retired/: the Registration Authority has determined that this item is no longer recommended for use in the community that uses this Registry and the item should no longer be used *(7)*.

NOTE Numbers in *( )* are the order in ISO/IEC 11179-6. There is obvious progression between some of these.

/deprecated/ appears in the list from ISO 12620 but does not appear in the list from ISO 11179-6; it should be replaced with /retired/.

The following identifiers should also be populated, though it is the choice of each implementing system whether these fields are filled manually or automatically:

— /creation date/: the date when the data category was first created (for instance in an expert's working space or private area);

— /effective date/: “the date an administered item became/becomes available to registry users” (ISO/IEC 11179-3); the date on which a value for registration status was assigned;

— /last change date/: the date of the last modification of information about a data category (interdependent with change description);

— /change description/: free text description of the modification undergone by the data category (e.g. “definition updated …”);

— /explanatory comment/: descriptive comments about the data category;

— /origin/: source (document, project, discipline or model) for the data category;

— /unresolved issue/: problem that remains unresolved regarding proper documentation of the data category;

— /until date/: the date a data category is no longer effective in the registry; note: this information is set when the registration status of the data category changes to /retired/ or /superseded/.

The values within source should be produced in conformity with an appropriate standard. Free text fields such as explanatory comment and unresolved issue require standardization consideration. All date information shall be provided in conformity with ISO 8601.

Further documentary information may be provided by each Registration Authority for a data category within the Registration Group, Submission Group, Stewardship Group and Decision Group. It is the responsibility of the specific Registration Authority to document the information provided within these sections. As ISO 12620 does not impose any constraints on these sections, data interoperability and consistency of description between registration authorities that involve these sections is not guaranteed. In general, these sections will be considered as empty for the purposes of interchange.

### 8.1.3 Description of an ISO 639 language identifier

The Description Section of a data category (ISO 12620) provides the capability for a single item to have multiple names, with each name organized according to the language within which it is used (see Figure 2). One or more names may be given in one or more languages; however, there must be at least one name. In ISO 12620, the analogy is drawn with the terminological metamodel (ISO 16642) where a concept has multiple terms organized by the language in which they are used.



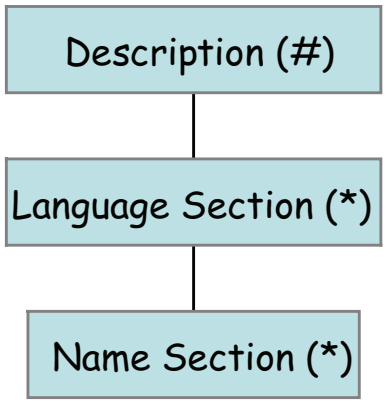



**Figure 2 — Metamodel of ISO 12620 underlying the DCIF**

A simple example of this multiplicity is provided for data from ISO 639-1 and ISO 639-2. For information about languages identified by ISO 639-2 **gla** or ISO 639-1 **gd**, within **Description**, we have:

[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = Gaelic
[**Name Section**] /name/ = Scottish Gaelic

[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = gaélique
[**Name Section**] /name/ = gaélique écossais

For the purposes of this part of ISO 639, the item being described, i.e. the language, is named in one or more languages but does not need to be named in its own language.

/broader data category/ can be used within the Description Section to associate language data categories with more broadly descriptive language data categories. An example is taken from ISO 639-5 for part of the expansion of the Indo-European languages involving the West Germanic language family.

| Alpha-3 | Parent alpha-3 | English | French |
|---|---|---|---|
| ine | | Indo-European languages | indo-européennes, langues |
| gem | ine | Germanic languages | germaniques, langues |
| ine | gem | West Germanic | germanique occidental |

The data is expanded to the description shown below in which each section is identified in square brackets in bold:

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = West Germanic
[**Description**] /broader data category = /Germanic languages/
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = West Germanic
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = germanique occidental

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = Germanic languages
[**Description**] /broader data category = /Indo-European languages/
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = Germanic languages
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = germaniques, langues

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = Indo-European languages
[**Description**]
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = Indo-European languages
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = indo-européennes, langues

This description can be implemented within the DCIF. Further descriptive information should be added to the Description Section including the following.

— /definition/: should be used to provide a definition in the data category registry. As far as possible, the definition should be language and theory neutral. This information is mandatory for each DEC. It may be repeated to provide translations of the definition in other working languages. When necessary, /definition/ may be refined by a /source/ and a /note/.

— /explanation/: can be used to provide additional information about the data category that would not be relevant for a definition (e.g. more precise linguistic background for the use of the data category).

— /example/: the use of examples should be limited to those that illustrate the data category in general, excluding language specific usages, which should be documented at Object language level.

— /source/: may refine /definition/, /explanation/, or /example/ to indicate the source from which the corresponding text has been borrowed or adapted. When a definition is compiled from more then one source, this field can be repeated. The /source/ field should not be used alone in the Description Section.

— /profile/: shall be identified as Language description.

— /conceptual domain/: since language identifiers are considered to be simple data categories, there are no possible values for conceptual domain.

— /note/: additional information associated with the Description Section, excluding technical information that would normally be described within /explanation/.

— /broader data category/: shall be used to refer to a more encompassing language identifier. This mechanism can be used to cross-refer between identifiers across arbitrary boundaries, for example to make the familial link from **English** (**eng** or **en**) to **West Germanic** (**gmw**).

The last description above, with integration across administrative boundaries, presents one minor difficulty: cross-reference across systems indicates use of the unique identifier from the combination of RA:ID:Ver. This gives two alternatives:

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = English
[**Description**] /broader data category = /**West Germanic**/
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = West Germanic
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = germanique occidental

or

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = English
[**Description**] /broader data category = /**639-5.West Germanic.1**/
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = West Germanic
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = germanique occidental

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = West Germanic
[**Description**] /broader data category = /Germanic languages/
[**Language Section**] /language/ = /eng/
[**Name Section**] /name/ = West Germanic
[**Language Section**] /language/ = /fra/
[**Name Section**] /name/ = germanique occidental

This description can be implemented within the DCIF.

In the Description Section, the Language Section level is likely to contain repeated entries as demonstrated above. The following data categories will be used in this section.

— /language/: shall be used to identify the language being described (i.e. *object language*, as defined in ISO 16642). Values for this data category shall be those of ISO 639 such that an identifier could be described potentially using any kind of media.

— /definition/: to define the data category when it occurs in a specific system within a language, so that it impacts on the accuracy of the reference definition.

— /example/: provides an example of how the data category is used for the current object language.

— /explanation/: additional explanation specific to the use of the data category in the object language.

— /source/: see Description Section.

— /conceptual domain/: since language identifiers are considered to be simple data categories, there are no possible values for conceptual domain.

— /note/: additional information associated with the Object language level, excluding technical information that would normally be described within /explanation/.

The **Name Section** shall be used to record an appellation for the data category in the object language elicited at Language section level. The Name Section may be repeated within a Language Section as demonstrated above. The following descriptive elements are associated with the Name Section level.

— /name/: one word or multi-word unit used to refer to the data category for the corresponding object language as expressed in the encompassing Language Section. Names given to a data category shall not be used for the purpose of identifying a data category (see /identifier/).

— /name status/: with the following conceptual domain: {/standardized name/, /preferred name/, /admitted name/, /deprecated name/, /superseded name/} (taken as such from ISO/IEC 11179).

## 8.2 Extensions to ISO 12620 for ISO 639 LDF

### 8.2.1 Representation

Within ISO 12620 there is no provision for non-linguistic identification/representation, which is essential for LDF. The ISO 639 language identifiers shall be considered as representations in line with ISO/IEC 11179. The first expansion allows for the alpha-2 and alpha-3 representations and is associated with the Description Section. Representations are the permitted values a data category may use. Names are language-dependent representations; ISO 639 provides language independent representations also, and specific description of these does not appear to be catered for fully in either ISO/IEC 11179 or ISO 12620.

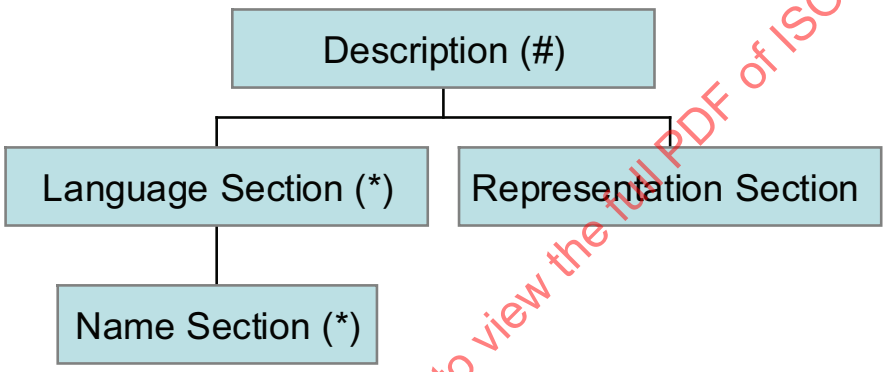



**Figure 3 — Naming and representation for ISO 639**

Multiple representations are available in ISO 639, including the terminological and bibliographical varieties of ISO 639-2 alpha-3s and, for a number of the ISO 639-2 alpha-3s, there are equivalent ISO 639-1 alpha-2s. For ISO 639, each of these varieties of representation is identified by the following data categories:

— /representation term/: alpha-2 or alpha-3 language identifier;

— /representation source/: refinement on /representation term/ that contains one of the values /iso639-1/, /iso639-2/, /iso639-3/, /iso639-5/.

[**Data Category**]
[**Administration Information Section**]
[**Administration Record**] /identifier/ = English
[**Description**] /broader data category = /**West Germanic**/
[**Language Section**] /language/ = /en/
[**Name Section**] /name/ = West Germanic
[**Language Section**] /language/ = /fr/
[**Name Section**] /name/ = germanique occidental
[**Representation Section**] /representation term/ = en; /representation source/ = /iso639-1/
**Representation Section**] /representation term/ = eng; /representation source/ = /iso639-2/

From the representations, further ISO/IEC 11179 metadata identification is possible, for example the enumeration of value domains in the conceptual domain:

/conceptual domain name/ = Languages of the world
/conceptual domain definition/ = Lists of languages of the world represented as names or codes

/value domain name/ = language codes – 2 character alpha/
/permissible values/ = /en/, /fr/, ….

/value domain name/ = language codes – 3 character alpha/
/permissible values/ = /eng/, /fre/, ….

The variety of information about names and representations enables the computational construction of metadata hierarchies from more generic to more specific language identifiers across the series of the ISO 639 standards. The instances of /broader data category/ can be followed, for example, to construct a (fragment) sub-tree of identifiers related to Manx as shown in Figure 4.



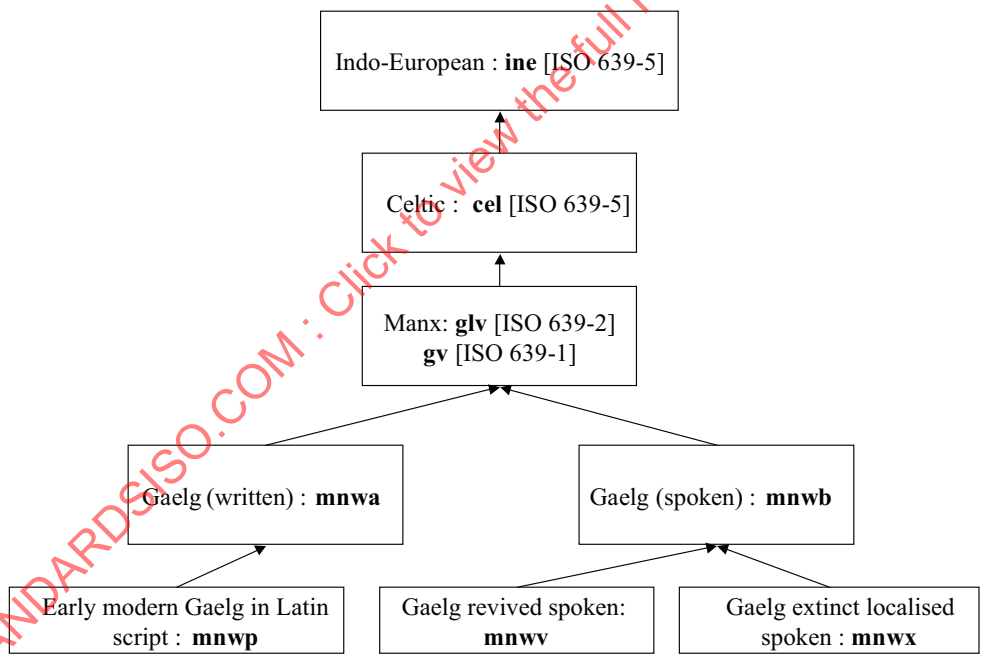



**Figure 4 — A (fragment) sub-tree of identifiers related to Manx**

### 8.2.2 Documentation

Beyond the documentation of names and representations, ISO 639 Registration Authorities and other language documentation projects should provide further documentary information for each language data category. Since this information is not catered for in ISO 12620 and for ease of interchange, a Documentation Section in LDF extends the Description Section as shown in Figure 5.

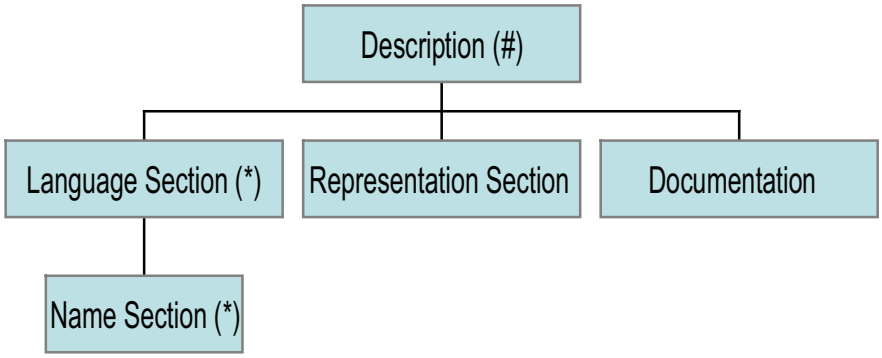



**Figure 5 — Documentation Section (1)**

The Documentation Section is subdivided into further sections as shown in Figure 6.

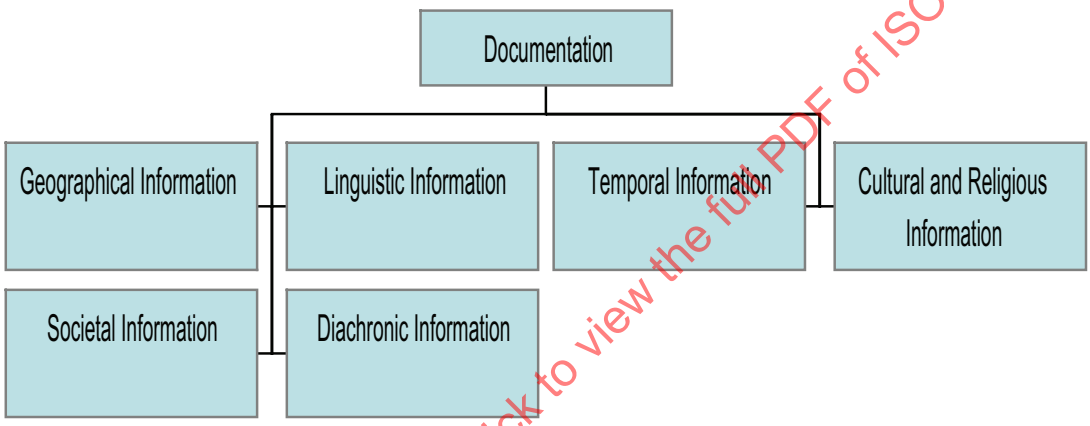



**Figure 6 — Documentation Section (2)**



The following lists comprise metadata descriptors used for documenting languages. These descriptors are intended for capturing information that assists in the identification, provenance and monitoring of quality in a language metadata registry. These descriptors will be used to help avoid unnecessary variations when describing highly similar objects within the registry. The development of the metadata registry may result in the addition of further meta-descriptors, and the registration authorities for ISO 639 shall document such additions where it is essential for interoperability within the ISO 639 series and with respect to the ISO 12620 DCR.

Geographical information includes:

— placeholder for link to GPS information, e.g. metadata as described with ISO 19115 using lat/long coordinate system;

— toponym;

— UN region or ISO 3166 identifier.

Linguistic information includes:

— mode of communication, e.g. spoken or written or signed;

— writing system;