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Health Informatics — Categorial structures for representation of acupuncture — Part 2: Needling

Élément introductif — Élément principal — Partie n: Titre de la partie

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Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
1.1 Main purpose.....	1
1.2 Target groups.....	1
1.3 Topics considered outside the scope.....	2
2 Normative references.....	2
3 Terms and definitions.....	3
4 Categorical structure for representation of needling.....	5
4.1 Conceptual framework for acupuncture point.....	5
4.2 Sanctioned characteristics.....	6
4.2.1 Needle.....	6
4.2.2 Penetration.....	6
4.2.3 Guiding Hand.....	6
4.2.4 Guide Tube.....	6
4.2.5 Needling hand.....	6
4.2.6 Depth of Needle Operation.....	6
4.2.7 Elicited Response.....	6
4.2.8 Adverse Effect.....	6
5 Conformity to the technical specification.....	7
5.1 General.....	7
5.2 Identifying needle.....	7
5.3 Identifying penetration.....	7
5.4 Identifying guiding/needling hand and guide tube.....	7
5.5 Identifying depth of needle operation.....	7
5.6 Identifying elicited response.....	7
5.7 Identifying adverse effect.....	7
Annex A (normative) Selected definitions from ISO 17115.....	8
A.1 Formal representation of characteristics.....	8
A.2 Sanctioned specialization.....	8
A.3 Formal concept representation.....	9
A.4 Terminology and information models, concept systems.....	10
A.5 Specified concepts.....	11
A.6 Terminological systems.....	11
Annex B (normative) Selected definitions from ISO 1087-1:2000.....	13
B.1 Language and reality.....	13
B.2 Concept.....	13
B.3 Definitions.....	16
Annex C (informative) Sample diagrams of structure of needling.....	17
C.1 Three dimensional structure of needling.....	17
C.2 Anatomical structure and position of needle.....	17
Bibliography.....	18

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.

ISO nnn-n was prepared by Technical Committee ISO/TC 215, *Health Informatics*, Subcommittee WG 3, *Semantic content*.

ISO nnn consists of the following parts, under the general title *Health Informatics — Categorial structures for representation of acupuncture*:

- *Part 1: Acupuncture points*
- *Part 2: Needling*
- *Part 3: Channels* << to be proposed >>

Introduction

Acupuncture therapy originated from scrubbing or pressing applied to sensitive area on body surface. In the course of time, wood stick or stone was used to do those, needling therapy was gradually developed, and then the knowledge and techniques of acupuncture therapy was accomplished in ancient China. Up to today, those points and zones used in acupuncture practices are also utilized in acupressure or “classic massage”.

Traditional medicine was developed on the base of ancient philosophy, which was characterized as holism. Ancient people thought the followings: the root element of “life force” or “vital energy” constitutes the universe or nature including human body and its activities, and this life-sustaining force traffics between nature and human body. “Life force” also travels in human body and produces various body elements, then the characteristics of “life force” flows or the balance of fundamental elements reflect constitutional predisposition of human body and patient’s pathosis. At the same time, ancient people believed “sensitive area on body surface” is on the “life force” flow channel, or “life force” gathers there and flows out. Consequentially, scrubbing, pressing or needling applied to such point controls “life force” flow or redresses the imbalance of fundamental elements. In clinical practice, therapists have been required to find suitable points or areas in treatment because the characteristics of “life force” flow and the imbalances of fundamental elements varies in patient to patient, although point locations are defined in traditional medical textbooks. Then, a therapist does supplementation for deficient “life force” or fundamental element, or does reduction/drainage of excessed one. Those practices are achieved with detailed techniques and little movements of needling.

Today, these ideas are considered as unscientific or pseudoscience from modern scientific paradigm of the West. However, ancient people sought rationales with such epistemology and ontology in their era. Yet it is also fact that many contemporary scientific papers report suitable acupuncture therapy shows adequate therapeutic effects, those mechanisms cannot be proved with modern science methodology. When we accept the facts, it would be possible to have the new understanding of the concept designated by the term “life force” as some kind of the relations between stimulation and response or the ideological “mediator” between them.

Acupuncture therapy is now widely practiced as a part of complementary medicine in the world. This means the professionals who are related acupuncture therapy are responsible to establish scientific knowledge acceptable in modern science framework. In order to achieve this, it is inevitable to collect huge scientific evidences required to justify acupuncture therapies. For the accurate information exchange and data processing in machine, it is essential to prepare distinct concept system in this domain in order to provide appropriate formal representation of acupuncture therapy. In addition, contents of acupuncture therapy should be accurately recorded.

Therefore, this document specifies the categorial structures for representation of needling. This Technical Specification is constituted from three parts:

- Part 1 Acupuncture points
- Part 2 Needling
- Part 3 Channels << to be proposed >>

Health Informatics — Categorial structures for representation of acupuncture — Part 2: Needling

1 Scope

1.1 Main purpose

The purpose of this Technical Specification is to specify categorial structures, within the subject field of needling by defining a set of domain constraints for use within terminological resources.

Needling is a concept that means a therapeutic method of applying stimulation to human body by inserting needle into body or putting needle on body surface. This Technical Specification is focused on sub-population of the concepts of needling. This class of concept “needling” includes the following concepts: needle, penetration, stimuli, guiding hand, needling hand, guiding tube, elicited response, and adverse effect.

This Technical Specification describes a concept system detailing a domain constraint of sanctioned characteristics each composed of a semantic link and an applicable characterizing category.

The potential uses for this conceptual framework are to:

- support developers of new terminology systems concerning needling;
- support developers of new detailed content areas of existing terminology systems concerning acupuncture points to ensure conformance;
- facilitate the representation of needling using a standard core model in a manner suitable for computer processing;
- provide a conceptual framework for the generation of compositional concept representation of needling;
- facilitate the mapping and improved semantic correspondence between different terminologies by proposing a core specification of needling;
- provide a core model to describe the structure of needling, and facilitate improved semantic correspondence with information models;
- provide the monitoring system for adverse events and adverse reactions;
- provide the characterization of clinical research intervention of acupuncture.

1.2 Target groups

The target groups for this International Standard are:

- developers of terminology systems concerning acupuncture point;
- developers of information systems that require a structured framework of concepts to facilitate implementation;
- informaticians, analysts and epidemiologists who require common models of knowledge to facilitate analysis of current and legacy data from one or more information systems;

- Clinicians and coders to provide greater consistency in structure and organisation when entering and retrieving data using one or more terminology systems;
- Managers and administrative personal in providing a benchmark by which to judge terminology solutions: as to whether the potential options will deliver compatibility with legacy data and future proofing to emerging terminology products.

1.3 Topics considered outside the scope

Topics considered outside the scope of this International Standard include:

- A comprehensive categorial structure for needling;
- An exhaustive list of all possible characterising concepts that could be used to describe needling.
- Theoretical basis of acupuncture therapy including rationale for acupuncture point selection.
- Needling with no penetration.
- Herbal acupuncture and acupuncture point injection.
- Needling aimed to incision, resection, and extirpation.

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 1087-1:2000, *Terminology work – Vocabulary – Part 1:Theory and application*

EN 12264:2005, *Health informatics - Categorial structure for systems of concepts*

ISO 17115:2007, *Health informatics – Vocabulary for terminological systems*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply. Only key terms and definitions are provided in this section. Basic terms and definitions relating to acupuncture therapy are provided in *Working Draft* of Health Informatics- Categorial structures for representation of acupuncture – Part1: Acupuncture points. Additional background terms and definitions from two normative references: ISO 17115:2007, Health informatics - Vocabulary for terminological systems are provided in Annex A [2] ; and ISO 1087-1:2000, Terminology work - Vocabulary - Part 1: Theory and application provided in Annex B [1].

3.1

needling

therapeutic action conducted by inserting needle into human body. Pressing, pricking, scratching or scrubbing/massager using needles are also included. Needling is also considered to adjust the imbalance of life force in sick people.

3.2

stimuli

stimulation applied to acupuncture points on body by needling. It includes **manual mechanical stimuli** (3.7), electrical stimuli and thermal stimuli.

3.3

penetration

operation of piercing and inserting needle into human body. In penetration, practitioners use **needling hand** (3.5) for holding needle handle and use **guiding hand** (3.4) for holding **guide tube** (3.6).

3.4

guiding hand

the hand used for assisting **needling hand** (3.5) during **needling** (3.1) procedure including **penetration** (3.3), inserting and withdrawal of needle, by holding guide tube or needle shaft. It is also used for detecting acupuncture point before needling or inducing needle sensation. .

3.5

needling hand

the hand used for holding needle handle and for conducting needle operation during the **needling** (3.1).

3.6

guide tube

plastic or metal tube primarily used for assisting **penetration** (3.3), with needle in it. It is also used by practitioners for the purpose of **inducing needle sensation** (3.10) by flickering needle handle, tapping body surface around acupuncture points.

3.7

manual mechanical stimuli

stimulation applied by operating needle manually after **penetration** (3.3).

3.8

basic needle operation

needling methods which are adopted as basic needle operations. It includes **simple needling method** (3.13), **thrusting and lifting method** (3.14), **twirling and rotating method** (3.15). Combination of these basic needle operations composes varieties of complicated needling methods.

3.9

multi direction needle operation

needling method of changing direction of needle after **penetration** (3.3). Practitioners lift the needle near to skin and then insert in different directions..

3.10

Inducing needle sensation

act of promoting needle sensation in patients after inserting needle, usually conducted by flickering or shaking needle, or massaging body surface along the channel around the needled points.

3.11

depth of needle operation

subcutaneous position at which needle operation is conducted. It is described as anatomical tissue name, as distance from skin or a name of one of the layers (heaven's portion, human portion, earth portion).

3.12

needle retention

leaving needle as it is inserted for a certain duration of time, with no additional operation.

3.13

simple needling method

way of needling with no additional operation during **needling** (3.1), from **penetration** (3.3) to withdrawa.

3.14

lifting and thrusting method

needling operation composed of lifting and thrusting needle. Usually the combination of the two operations is successively conducted as a series. It is performed by a practitioner either forcefully or softly, after consideration of patient's status. Also it can be performed together with **twirling and rotating method** (3.15) for the purpose of promoting needle sensation.

3.15

twirling and rotating method

needling operation composed of twirling and rotating needle. The strength of stimulation depends on the direction of rotating (clockwise/counter clockwise) or angle (0-360°).

3.16

supplementation 補

functional action of needling operation aimed at supplementing the life force in shortage. In traditional approach on body, needling operation is closely associated with adjusting imbalance of life force flow traveling along the channels in body.

3.17

draining 瀉

functional action of needling operation aimed at expelling pathogenic factor and restoring the balance of life force.

3.18

modality of stimuli

kind of stimulation applied to needle during needling. It includes manual mechanical stimuli, electrical stimuli and thermal stimuli.

3.19

electric stimuli

stimulation applied to acupuncture points by delivering electric impulse to a pair of needles inserted in body.

4 Categorical structure for representation of needling

4.1 Conceptual framework for acupuncture point

This Technical Specification describes a **concept system** (B.3.2.11) detailing a **domain constraint** (A.3.3.2) of potential **sanctioned characteristics** (B.3.2.4) each composed of a **semantic link** (A.3.2.3) and an applicable **characterising category** (A.3.3.3).

In section 4.2, an item enclosed by single angle brackets <> refers to a **characterising category** that can be specialised to various **concepts** (B.3.2.1) as required. An item enclosed within the text by single curly parentheses {} identifies a **semantic link**. The following sections list a set of potential **sanctioned characteristics** that are illustrated in a concept diagram in Figure 1.

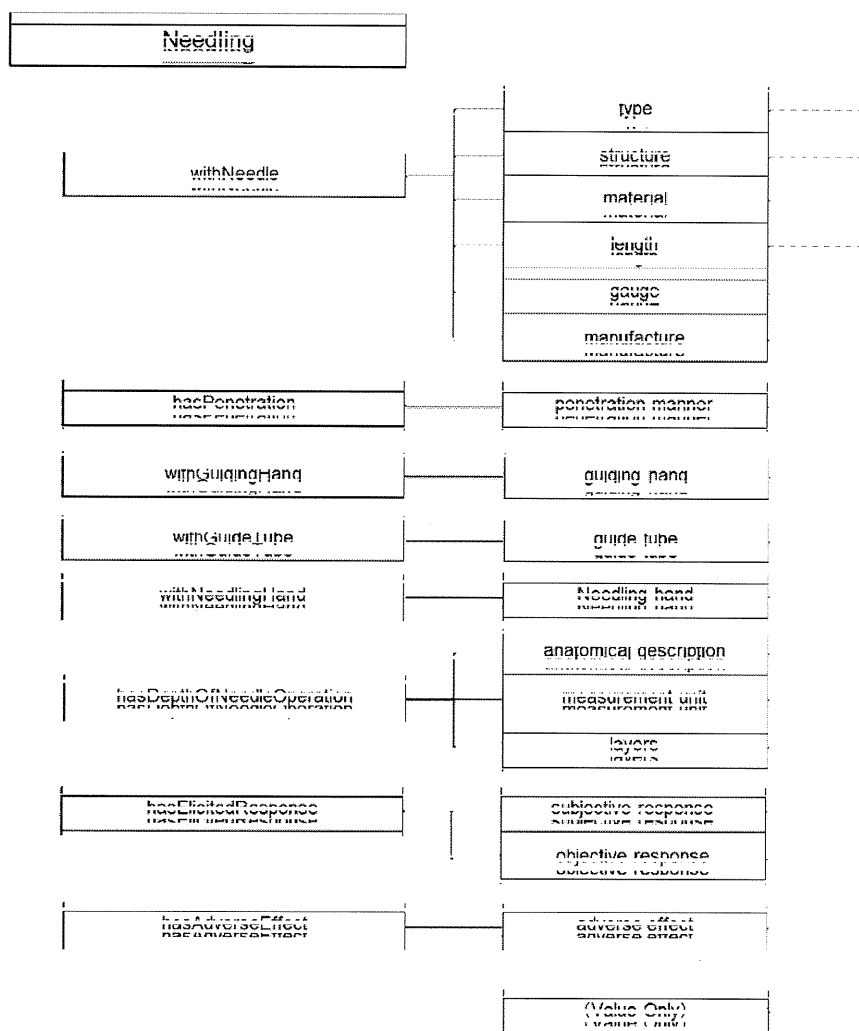


Figure 1 — Conceptual framework for needling

NOTE Value only refers to a characterizing category whose specialization is allowed to be used only as a characterizing concept.

4.2 Sanctioned characteristics

4.2.1 Needle

Formal representation of a **characteristic** composed of the **semantic link** {withNeedle} to the **characterising category** <Needle> representing a device used in acupuncture therapy, with a **semantic link** {withType} to the **characterising category** <type> representing kind of <Needle>, with a **semantic link** {withStructure} to the **characterising category** <structure> representing structure of <Needle>, with a **semantic link** {withMaterial} to the **characterising category** <material> representing the material of <Needle>, with a **semantic link** {withLength} to the **characterising category** <Length> representing the length of the shaft of <Needle>, with a **semantic link** {withGauge} to the **characterising category** <gauge> representing the gauge of <Needle>, with a **semantic link** {withManufacture} to the **characterising category** <manufacture> representing maker of <Needle> .

4.2.2 Penetration

Formal representation of a **characteristic** composed of the **semantic link** {hasPenetration} to the **characterising category** <penetration manner> representing practitioner's manual operation when needle penetrates body.

4.2.3 Guiding Hand

Formal representation of a **characteristic** composed of the **semantic link** {withGuidingHand} to the **characterising category** <Guiding Hand> representing practitioner's hand used for assisting needling hand in <Needling>.

4.2.4 Guide Tube

Formal representation of a potential **characteristic** composed of the **semantic link** {withGuideTube} to the **characterising category** <Guide Tube> representing tube device used for assisting needle penetration or inducing needle sensation.

4.2.5 Needling hand

Formal representation of a potential **characteristic** composed of the **semantic link** {withNeedlingHand} to the **characterising category** <Needling Hand> representing practitioner's hand used for holding and operating <Needle>.

4.2.6 Depth of Needle Operation

Formal representation of a potential **characteristic** composed of the **semantic link** {hasDepthOfNeedleOperation} to the **characterising category** <Depth of Needle Operation> representing the feature of **life force** (4.4) flow at a certain **acupuncture point** (4.3).

4.2.7 Elicited Response

Formal representation of a potential **characteristic** composed of the **semantic link** {hasElicitedResponse} to the **characterising category** <Elicited Response> representing response induced by <Needling>.

4.2.8 Adverse Effect

Formal representation of a potential **characteristic** composed of the **semantic link** {hasAdverseEffect} to the **characterising category** <Adverse Effect> representing any negative events brought by <Needling>.

5 Conformity to the technical specification

Within the scope of this Technical specification, as defined in 1.1:

5.1 General

A needling (3.1) description claiming conformance to the present Technical specification shall describe concepts that are defined in terminological resources which have entries to needling and that clinical records or reports those describe any clinical information concerning the descriptions of needling.

5.2 Identifying needle

A needling (3.1) description claiming conformance to the present Technical specification shall describe needle (4.2.1 Needle).

5.3 Identifying penetration

A needling (3.1) description claiming conformance to the present Technical specification should describe the penetration (4.2.2 Penetration) as necessary. The necessity depends on the purpose of a terminological resource, on clinical situation, or on research method of scientific paper.

5.4 Identifying guiding/needling hand and guide tube

A needling (3.1) description claiming conformance to the present Technical specification should describe the guiding hand (4.2.3), needling hand (4.2.5) and guide tube (4.2.4) as necessary. The necessity depends on the purpose of a terminological resource, on clinical situation, or on research method of scientific paper.

5.5 Identifying depth of needle operation

A needling (3.1) description claiming conformance to the present Technical specification should describe the depth of needle operation (4.2.6 Depth of Needle Operation), as necessary. The necessity depends on the purpose of a terminological resource, on clinical situation, or on research method of scientific paper.

5.6 Identifying elicited response

A needling (3.1) description that claiming conformance to the present Technical specification should describe elicited response (4.2.7 Elicited Response) as necessary. The necessity depends on the purpose of a terminological resource, on clinical situation, or on research method of scientific paper.

5.7 Identifying adverse effect

A needling (3.1) description claiming conformance to the present Technical specification shall describe the adverse effect (4.2.8 Adverse Effect) as necessary. The necessity depends on the purpose of a terminological resource, on clinical situation, or on research method of scientific paper.

Annex A (normative)

Selected definitions from ISO 17115

The following terms and definitions are selected from ISO 17115. They are included here as background to the key terms and definitions in Clause 3 of this International Standard. The numbering in this Annex reflects the numbering in ISO 17115, for consistency.

A.1 Formal representation of characteristics

A.2.2.1

composite characteristic
qualifier

representation of a **characteristic** (B.3.2.4)

EXAMPLE hasCause Bacteria; Location = LeftUpperLobeOfLung

NOTE Typically expressed by a **semantic link** (A.2.2.3) and a **characterising concept** (A.2.2.2)

NOTE Can be compared to an attribute-value pair in a **compositional system** (A.2.5.2)

NOTE A qualifier often denotes **characteristics** with a small simple **characterizing generic concept** (A.2.3.3), such as laterality (left or right), or severity (low, moderate, high).

A.2.2.2

characterizing concept
concept (B.3.2.1) that is referenced by a **semantic link** (A.2.2.3) in a **composite characteristic** (A.2.2.1)

EXAMPLES "Bacterium" in the construct "Disease that hasCause Bacterium"; "Yellow" in the construct "SkinLesion that hasColor Yellow".

A.2.2.3

semantic link

formal representation of a directed **associative relation** (B.3.2.23) or **partitive relation** (B.3.2.22) between two **concepts** (B.3.2.1),

EXAMPLES hasLocation (with inverse isLocationOf); isCauseOf (with inverse hasCause)

NOTE This includes all relations except the **generic relation** (B.3.2.21).

NOTE A semantic link always has an inverse, i.e. another semantic link with the opposite direction.

NOTE A semantic link can be part of a **composite characteristic** (A.2.2.1) where it describes the role of the **characterizing concept** (A.2.2.2). Similarly, it defines the role of a **characterizing generic concept** (A.2.3.3) in a sanctioned **characteristic** (B.3.2.4).

A.2 Sanctioned specialization

A.2.3.1

sanctioned characteristic

formal representation of a **type of characteristic** (B.3.2.5)

EXAMPLE performedUsing <INSTRUMENT>; hasLocation <BodyPartOrImplantedDevice>.

EXAMPLE "CauseOfInflammation canBe set{ bacteria, virus, parasite, autoimmune, chemical, physical }", where "canBe" is the **semantic link** (A.2.2.3), and "set{ bacteria, virus, parasite, autoimmune, chemical, physical }" is the **characterizing generic concept** (A.2.3.3)

NOTE A sanctioned characteristic is typically made up of a combination of a semantic link and a characterizing generic concept, and can be used in **domain constraints** (A.2.3.2).

A.2.3.2 domain constraint

sanction rule prescribing the set of **sanctioned characteristics** (A.2.3.1) that are valid to **specialize** (A.2.1.1) a **concept** (B.3.2.1) in a certain **subject field** (B.3.1.2)

EXAMPLE "Infection possibly hasLocation SkeletalStructure" describes that an infection in a certain context can be located in a structure that is a kind of skeletal structure

NOTE The rule describes the set of sanctioned **characteristics** (B.3.2.4) by combining the **semantic link** (A.2.2.3) and the **characterizing generic concept** (A.2.3.3) it links to, possibly by enumeration of the concepts in the characterizing generic concept

NOTE Different levels of sanctioning are possible (e.g. conceivable, sensible, normal, usuallyInTheContextOf, necessary).

A.2.3.3 characterizing generic concept

characterizing category

value domain

formal category (A.2.5.3) whose specialisation by a **domain constraint** (A.2.3.2) is allowed to be used as **characterizing concept** (A.2.2.2) in a particular context

EXAMPLE <INFECTIOUS_ORGANISM> = {bacterium, virus, parasite}, in the context of "Infection that hasCause INFECTIOUS_ORGANISM".

NOTE The context includes a **superordinate concept** (B.3.2.13) and a **semantic link** (A.2.2.3)

A.3 Formal concept representation

A.2.4.1 compositional concept representation

intensional definition (B.3.3.2) of a **concept** (B.3.2.1) using as **delimiting characteristics** (B.3.2.7) one or more **composite characteristics** (A.2.2.1)

NOTE This allows inference and subsumption within a **compositional system** (A.2.5.2). It is usually expressed in a formalism, such as description logic.

A.2.4.2 axiomatic concept representation

axiom concept representation present in a **formal system** (A.2.5.1) without a **formal definition** (A.2.4.3)

EXAMPLES Liver; Incision act; Pain

NOTE This often represents a "natural kind" from the perspective of a particular terminology system; i.e. something that "just exists". It may have a definition or description outside the system but by choice, this is not represented in the system.

A.2.4.3 formal definition

definition within a **formal system** (A.2.5.1)

NOTE This can be done by a **compositional concept representation** (A.2.4.1) or a formal **extensional definition** (B.3.3.3)

NOTE It is usually automatically processable and governed by explicit rules

A.2.4.4

concept name

canonical expression

term (B.3.4.3) which uniquely designates a **concept** (B.3.2.1) within a **concept system** (B.3.2.11)

EXAMPLE Machine readable: <Inflammation that <hasCause Bacteria hasLocation Lung>> (with compositional characteristics sorted alphabetically after semantic link) instead of <pulmonaryInfection that hasCause Bacteria>

EXAMPLE General language: Inflammation that has cause bacteria and has location lung (with compositional characteristics sorted alphabetically after semantic link) instead of pulmonary infection that has cause bacteria.

NOTE It is preferred expression to represent a **concept** (B.3.2.1) in a given terminology system

NOTE It is unique within the system unambiguous

A.2.4.5

categorial structure

minimal set of **domain constraints** (A.2.3.2) for representing **concepts systems** (B.3.2.11) in a **subject field** (B.3.1.2).

A.2.4.6

precoordinated concept representation

compositional concept representation (A.2.4.1) within a **formal system** (A.2.5.1), with an equivalent single unique identifier

EXAMPLE Problem=Fracture that hasLocation Femur. This is an example of how a precoordinated concept is represented

NOTE The identifier (code, term etc) may be within or outside the terminology system in question.

A.2.4.7

post-coordinated concept representation

compositional concept representation (A.2.4.1) using more than one **concept** (B.3.2.1) from one or many **formal systems** (A.2.5.1), combined using mechanisms within or outside the formal systems

EXAMPLE Problem.Main = Fracture, Problem.Location = Femur within a template for a problem description

NOTE Combining concepts from disparate terminologies can cause problems with overlapping and/or conflicting concepts. Typically, the mechanisms for making **compositional concept representations** (A.2.4.1) are specified in an information model (e.g. as templates for a certain type of concept).

A.4 Terminology and information models, concept systems

A.2.5.1

formal [concept representation] system

set of machine processable definitions in a **subject field** (B.3.1.2)

A.2.5.2

compositional system

system that supports the creation of **compositional concept representations** (A.2.4.1)

A.2.5.3

formal category

generic concept (B.2.1.4) represented by a **formal definition** (A.2.4.3)

NOTE This implies that the generic concept's **extension** (B.3.2.8) can be determined algorithmically and includes extensionally defined **concepts** (B.3.2.1) and formal **intensional definitions** (B.3.3.2).

A.5 Specified concepts

A.2.6.1 mapping

assigning an element in one set to an element in another set through **semantic correspondence** (A.2.6.2)

NOTE It is the relation with the best semantic correspondence between an element in one set and an element in another set

A.2.6.2 semantic correspondence

measure of similarity between two concepts

NOTE The opposite semantic distance

A.2.6.3 instance of a concept

member of the **extension** (B.3.2.8) of a **concept** (B.3.2.1)

A.2.6.4 focus concept representation

specified representation of the **concept** (B.3.2.1) of interest within a **formal system** (A.2.5.1)

EXAMPLE "Moderately severe inflammation caused by pneumococci located in the upper lobe of the left lung, ascertained by plain film pulmonary X-ray and sputum culture" in the context of a diagnosis with confirmatory evidence.

NOTE It including context information, enabling independent use

A.2.6.5 generic relation

subtype relation

relation between two **concepts** (B.3.2.1) where the **intension** (B.3.2.9) of one of the concepts includes that of the other concept and at least one additional **delimiting characteristic** (B.3.2.7)

[ISO 1087-1:2000, A.3.2.21]

NOTE All individuals in the **extension** (B.3.2.8) of the second are included in the extension of the first.

EXAMPLE A generic relation exists between the concepts 'internal organ' and 'heart', 'surgical deed' and 'appendectomy', 'inflammatory disease' and 'pericarditis'.

A.6 Terminological systems

A.2.7.1 classification

exhaustive set of mutually exclusive **categories** (A.2.1.4) to aggregate data at a pre-prescribed **level of specialization** (A.2.1.3) for a specific purpose

EXAMPLE ICD 10

A.2.7.2 coding scheme

collection of rules that maps the elements in one set, the "coded set" onto the elements in a second set "the code set"

[ISO 2382-4]

NOTE The two sets are not part of the coding scheme.

A.2.7.3

coding system

combination of a set of **concepts** (B.3.2.1) [coded concepts], a set of code values, and at least one **coding scheme** (A.2.7.2) mapping code values to coded concepts

NOTE Coded concepts are typically represented by **terms** (A3.4.3), but can have other representation. Code values are typically numeric or alphanumeric.

A.2.7.4

reference terminology

set of atomic level designations structured to support representations of both simple and compositional concepts independent of human language (within machine)

NOTE Reference terminology is designed to uniquely represent **concepts** (A.3.2.1)

NOTE The terminology lists the concepts and specifies their structure, relationships and, if present, their systematic and **formal definitions** (A.2.4.3).

A.2.7.5

clinical terminology

terminology required directly or indirectly to describe health conditions and healthcare activities

NOTE Health conditions include symptoms, complaints, illness, diseases, disorders etc.

NOTE It is used in, for example, medical records, clinical communication, and medical science.

Annex B (normative)

Selected definitions from ISO 1087-1:2000

The following terms and definitions are selected from ISO 1087-1:2000. They are included here as background to the key terms and definitions in Clause 3 of this International Standard. The numbering in this Annex reflects the numbering in ISO 1087-1:2000, for consistency.

B.1 Language and reality

B.3.1.1

object

anything perceivable or conceivable

NOTE Objects may be material (e.g. an engine, a sheet of paper, a diamond), immaterial (e.g. conversion ratio, a project plan) or imagined (e.g. a unicorn).

B.3.1.2

subject field

domain

field of special knowledge

NOTE The borderlines of a subject field are defined from a purpose-related point of view.

B.2 Concept

B.3.2.1

concept

unit of knowledge created by a unique combination of **characteristics** (B.3.2.4)

NOTE Concepts are not necessarily bound to particular languages. They are, however, influenced by the social or cultural background which often leads to different categorizations.

B.3.2.2

individual concept

concept (B.3.2.1) which corresponds to only one **object** (B.3.1.1)

NOTE 1 Examples of individual concepts are 'Saturn', 'the Eiffel Tower'.

NOTE 2 Individual concepts are usually represented by **appellations** (B.3.4.2).

B.3.2.3

general concept

concept (B.3.2.1) which corresponds to two or more **objects** (B.3.1.1) which form a group by reason of common properties

NOTE Examples of general concepts are 'planet', 'tower'.

B.3.2.4

characteristic

abstraction of a property of an **object** (B.3.1.1) or of a set of objects

NOTE Characteristics are used for describing **concepts** (B.3.2.1).

B.3.2.5

type of characteristics

category of **characteristics** (B.3.2.4) which serves as the criterion of subdivision when establishing **concept systems** (B.3.2.11)

NOTE The type of characteristics colour embraces **characteristics** (B.3.2.4) being red, blue, green, etc. The type of characteristics material embraces characteristics made of wood, metal, etc.

B.3.2.6

essential characteristic

characteristic (B.3.2.4) which is indispensable to understanding a **concept** (B.3.2.1)

B.3.2.7

delimiting characteristic

essential characteristic (B.3.2.6) used for distinguishing a **concept** (B.3.2.1) from related concepts

NOTE The delimiting characteristic support for the back may be used for distinguishing the **concepts** (B.3.2.1) 'stool' and 'chair'.

B.3.2.8

extension

totality of **objects** (B.3.1.1) to which a **concept** (B.3.2.1) corresponds

B.3.2.9

intension

set of **characteristics** (B.3.2.4) which makes up the **concept** (B.3.2.1)

B.3.2.10

concept field

unstructured set of thematically related **concepts** (B.3.2.1)

NOTE Concept fields may be used as a starting point for establishing **concept systems** (B.3.2.11).

B.3.2.11

concept system

system of concepts

set of **concepts** (B.3.2.1) structured according to the relations among them

B.3.2.12

concept diagram

graphic representation of a **concept system** (B.3.2.11)

B.3.2.13

superordinate concept

broader concept

concept (B.3.2.1) which is either a **generic concept** (B.3.2.15) or a **comprehensive concept** (B.3.2.17)

B.3.2.14

subordinate concept

narrower concept

concept (B.3.2.1) which is either a **specific concept** (B.3.2.16) or a **partitive concept** (B.3.2.18)

B.3.2.15

generic concept

concept (B.3.2.1) in a **generic relation** (B.3.2.21) having the narrower **intension** (B.3.2.9)

B.3.2.16

specific concept

concept (B.3.2.1) in a **generic relation** (B.3.2.21) having the broader **intension** (B.3.2.9)