

Terminological Dictionary

Summary

An informal introduction to terminological dictionaries, and a suggestion that they provide a more reliable basis for business vocabularies than conventional reference dictionaries.

Dictionaries

Conventional Dictionary

A *conventional dictionary*, such as Merriam-Webster or Oxford, is term-centered. Each entry has its own definition(s) - many words have more than one meaning - and synonyms are near-approximations of each other. This can cause difficulties in determining exact intended meanings. Figure 1 illustrates one problem:

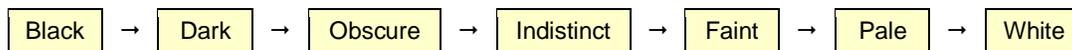


Figure 1: From black to white in six steps

You can easily find this kind of chain of approximate synonyms in conventional dictionaries you might have used as authoritative sources¹. This kind of imprecision can cause difficulties when you're trying to decide:

- For text – words, phrases, sentences - with more than one possible meaning, which is the intended one;
- Whether similar - but not identical - texts have the same or subtly different meanings.

Terminological Dictionary

The idea of *terminological dictionary* is presented in the ISO standard *ISO 704:2009 Terminology work – Principles and methods*². Its terms are defined *ISO 1087-1_2000 Terminology work - Vocabulary - Part 1: Theory and application*³. A terminological dictionary is concept-centered. Each entry describes one and only one meaning and includes all terms used as synonyms, as illustrated in Figure 2.

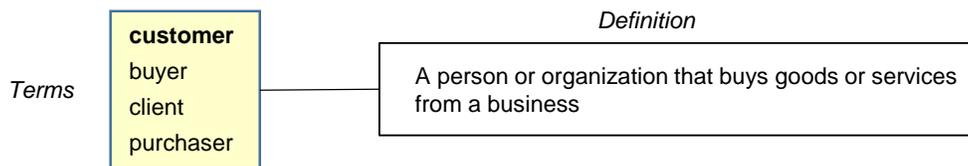


Figure 2: Synonyms in a terminological dictionary

Your objective is to ensure unambiguous definitions of the concepts relevant to your business, in language familiar to your audience. You don't need to define terms for which the everyday meaning is adequate. In the example, there would probably be no misunderstanding of *person*, *organization*, *goods* or *services*. You might need to think about whether the general understanding of *business* needs a narrower, more specific definition for your context; maybe the everyday meaning would suffice.

The meaning of the terms in Figure 2 is unambiguous: including them in your terminological dictionary is your assertion that the definition given is the only one for them in your business. If you needed to refine the definition for particular contexts, you would need to define new concepts, say *retail customer* and *b2b customer*.

Each terminological dictionary entry is for one concept. Good terminology practice is to start with a sound definition of your concept; then, select (or create) a term that will be acceptable to the audience; then - if needed - select (or create) synonyms for different audiences and/or different contexts; then, add examples and notes.

¹ The example in Figure 1 is from **online Oxford Dictionaries** (www.oxforddictionaries.com).

² www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38109 (payment required)

³ www.iso.org/iso/catalogue_detail.htm?csnumber=20057 (payment required)

Terms and Audiences

Another aspect of good terminology practice is to select a primary term for each terminological entry, and use it consistently in your terminological dictionary when defining other concepts. You would then have a 'master' set of terms for development and maintenance.

You will probably need to use synonyms in some of the governance documents based on your terminological dictionary (otherwise, why would you have synonyms?). For example, different terms for the same concept might be needed for: operational process descriptions for employees; legal contracts; advertisements; regulatory compliance reports; scripts for customer helpdesk staff.

It's easier to support different audiences – sharing the same concepts, but using different terms - if you have tools that support association of lists of terms with audiences, and substitution of terms in documents for those audiences.

Designations, Signs, Concepts and Things

ISO 1087-1 is consistent with the Triangle of Meaning⁴ (first published by Ogden & Richards⁵), also known as the Semantic Triangle, illustrated in Figure 3.

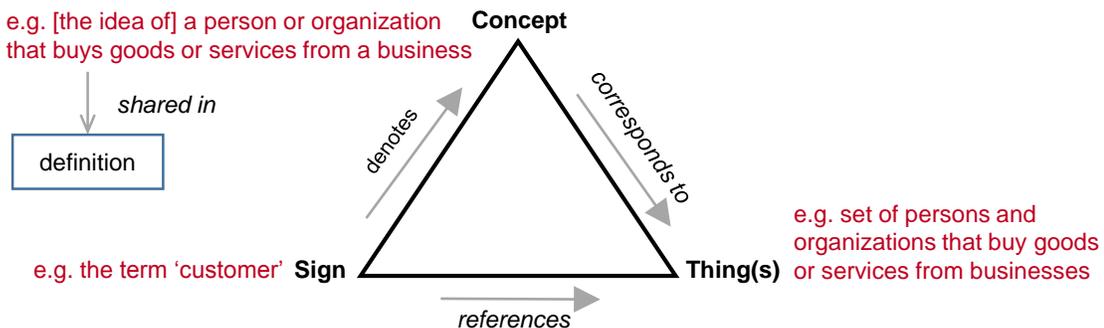


Figure 3: Triangle of Meaning

A *concept* is an idea in someone's head that corresponds to something or some things in the world. ISO 1087-1 defines two kinds:

- *individual concept*: 'concept which corresponds to only one object'. Examples are: the concepts of The White House, 1776, and Apple Inc.
- *general concept*: 'concept which corresponds to two or more objects which form a group by reason of common properties'. Examples are: the concepts of white house, year, and corporation.

In ISO 1087-1 *object* means 'anything perceivable or conceivable', which 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)'. In business, you'd probably imagine things like possible products, markets, competitors and disasters rather than unicorns. In this note, we use the term 'thing' instead of 'object' because of the IT baggage 'object' carries.

Concepts are ideas in people's heads. People who work together need to share understanding of the concepts that are relevant to what they do. They do this by agreeing shared definitions and documenting them.

ISO 1087-1 defines *designation* as 'representation of a concept by a sign which denotes it'. When these signs are text (as opposed to, say, pictures or sounds) the *designation* for a *general concept* is called a *term* and, for an *individual concept*, an *appellation* (name). These terms and names:

- denote the meanings documented in the definitions when people speak or write about the concepts;
- reference the real-world things that the concepts correspond to.

⁴ There is a good discussion in "Ontology, Metadata, and Semiotics" (<http://www.jfsowa.com/ontology/ontometa.htm>)

⁵ "The Meaning Of Meaning" Ogden & Richards, 1923 (ISBN-13: 978-0156584463 ISBN-10: 0156584468)

Concepts, Characteristics and Definitions

ISO 1087-1 defines:

- *concept* as ‘unit of knowledge created by a unique combination of characteristics’
- *characteristic* as ‘abstraction of a property of an object [a thing] or of a set of objects [things]’. For example, a person has the properties ‘having an age’ and ‘being of a gender’
- *intension* as ‘set of characteristics which makes up the concept’

In your terminological dictionary, you’d define the concepts you need using the characteristics relevant to your business. Most concepts are defined hierarchically, specializing a broader concept by adding *delimiting characteristics*. ISO 1087-1 calls this kind of definition an *intensional definition*.

For example, suppose you had defined ‘customer’ in terms of buying goods and services from your business. You could then use ‘being a person’ as a delimiting characteristic to differentiate ‘individual customer’ (‘customer who is a person’) from ‘corporate customer’ (‘customer that is not a person’). You can have multi-classification; for example, specializing ‘customer’ into ‘active customer’ and ‘dormant customer’ using the characteristic ‘having bought something in the past year’.

You can specialize through as many levels as you need; for example, specializing ‘individual customer’ into ‘male customer’ and ‘female customer’ by using the characteristic ‘being of a given gender’.

In theory you could have a single hierarchy, with every concept descending from ‘thing’. In practice, you wouldn’t. Your terminological dictionary would be based on a number of foundational concepts – concepts understood by the people in your business simply by the terms, without explicit shared definitions. A typical example is ‘person’. People in most businesses share the meaning represented by the term ‘person’ without any risk of misunderstanding. You wouldn’t have to create specializations all the way down from ‘thing’⁶.

You would finish up with a number of complete, consistent hierarchies, defining the concepts relevant to your business.

Relations

In ISO 1087-1 *relations* define connections between concepts. ISO 1087-1 doesn’t provide a general definition for *relation*, but defines seven specific kinds, illustrated in Figure 4:

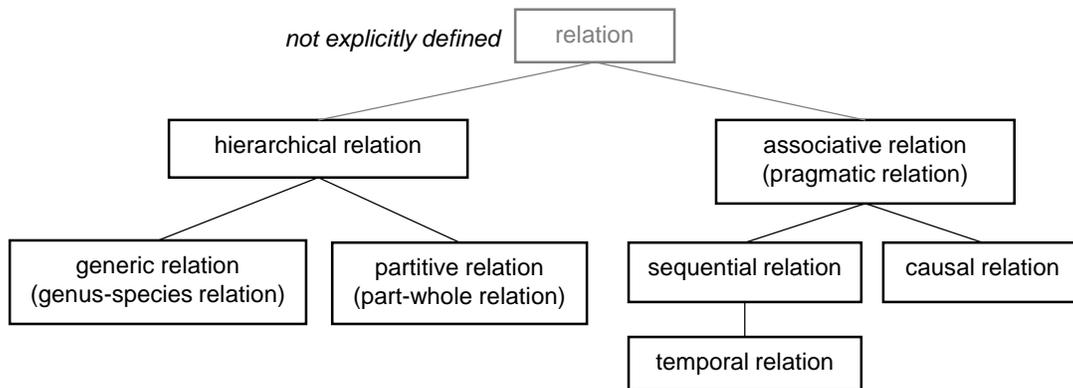


Figure 4: Relations in ISO 1087-1

⁶ The simplified Linnaean hierarchy is: Thing, Animal, Chordate, Vertebrate, Mammal, Primate, Hominid, Homo Sapiens

ISO 1087-1 defines the kinds of relation illustrated in Figure 4 as:

- *hierarchical relation*: relation between two concepts which may be either a *generic relation* or a *partitive relation*
- *generic relation* (genus-species relation): relation between two concepts where the intension of one of the concepts includes that of the other concept and at least one additional delimiting characteristic
- *partitive relation* (part-whole relation): relation between two concepts where one of the concepts constitutes the whole and the other concept a part of that whole
- *associative relation* (pragmatic relation): relation between two concepts having a non-hierarchical thematic connection by virtue of experience
- *sequential relation*: associative relation based on spatial or temporal proximity
- *temporal relation*: sequential relation involving events in time
- *causal relation*: associative relation involving cause and its effect

ISO 1087-1 and ISO 704 provide guidance for building consistent, unambiguous definitions of concepts. For your governance vocabulary you will need some additional guidance that ISO 1087-1 and ISO 704 do not provide:

- Rigorous definitions of meanings for relations, especially the verbs in them. For example, 'runs' has very different meanings in 'person runs race', 'person runs company' and 'person runs bath'.
- Relations in ISO 1087-1 and ISO 704 are binary. You will probably want some relations that connect more than two concepts. For example: 'supplier delivers consignment to customer on date'.

Other ISO terminology standards and the ISO TBX terminology interchange file standard (ISO 30042)⁷ do list verbs and other parts of speech – but don't mention the roles of verbs in connecting concepts in the kinds of relation described in ISO 1087-1 and ISO 704.

Things and Data

Your terminological dictionary defines things in the real world of your business, not the data you'll need to store about them in information systems that support your business.

You will, of course, need supporting data. For a customer, you would need items such as: identifier, type indicator (individual or organization), contact details, credit limit, current balance, orders, payments, and so on. And you will need to refer to supporting data in some of your governance documents – data to be included in reports, data needed to support decisions, data to be captured in the information system, and so on.

You could define your supporting data in your terminological dictionary. Data elements can be conceived or perceived; they meet the ISO definition of *concept*. But why would you, when there are data dictionaries and other data administration tools that are a much better fit for purpose?

Better to keep the data definitions in a data administration tool and the governance concepts in your terminological dictionary, and link corresponding elements between the two with, for example, URLs.

What you shouldn't do is relegate your governance vocabulary to informal text in the 'Notes' fields of entries in a data dictionary or data modeling tool.

Contributed by John Hall (john.hall@modelsystems.co.uk)

This note or parts of its content may be reused with acknowledgement of copyright to Governance Authors and inclusion of the URL of this web site: www.governanceauthors.org

⁷ Developed by the Localization Industry Standards Association (LISA). Available free at www.ttt.org/oscarStandards