Define a term or an expression

Subject	**Terminological procedures**
Purpose of the procedure	Produce a definition of a given term, in the most concise, clear and efficient way possible, in order to facilitate communication and learning
Key words	intentional aspect, terminology, definition, vocabulary, dictionary, Praxeme, method, procedure

Reference	**PxPCD-14a**	*Status*	Validated
Version	1.2.1	*Date*	12 April 2016
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[1] See http://www.conix.fr/.

Methodological reminders

In the context of the Praxeme method, a *procedure* is "a way of doing something, an operating mode for executing a task"[2]. It is therefore a stipulation on an individual level, in contrast to a *process,* which is a methodological response on a collective level.

The procedure sheets do not refer to possible processes in which these procedures may play a role, in order to facilitate their reuse in several contexts.

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Document history

Index	Date	Author	Content
0.0.0	21/08/2012	DVAU	Creation of the procedure sheet
0.1.0		LDEP, DVAU	Additions by Loïc
1.0.0	15/08/2013	LDEP, DVAU	Final version for publication
1.1.0, 1.1.1	20/08/2013	TBI	Minor corrections
1.2.0	2015	DVAU	Contribution from Conix: simplification of document
1.2.1	12/04/2016	J. TOWARD	Translation into English
1.2.1	12/04/2016		Current version of the document

[2] Cf. Thesaurus section on the *Praxeme Institute* website: http://wiki.praxeme.org/index.php?n=Thesaurus.Procedure.

[3] See the philosophy and license detail at: http://creativecommons.org/.

1. Application context of the procedure

1.1 Purpose of the procedure

a. Goal and motivation

This procedure "Define a term or an expression" aims to:

"Produce a definition of a given term, in the most concise, clear and efficient way possible to facilitate communication and learning."

Defining something is a common act that we do without even thinking about it. Yet, due to the importance definitions have in mutual understanding and, thus, in how well communication works, their quality cannot be left to chance. Terminology, both as study of terms and a science, in which the art of the definition is a part, sheds some light and brings us precepts that this procedure wants to make available for practitioners to use.

b. Flaws that affect definitions

Defining the terms that we use in our communication is an essential act and has serious consequences. Our definitions are often flawed because they are produced without serious thought of terminology (of terminological science). They can be unnecessarily heavy, which happens when we confuse definition with description or when we add prescriptions or preconceived ideas to the definition, linked to practices or doctrine. The scope of the concept then finds itself limited.

An example of a definition of "process":

"We refer to a process as a homogeneous set of activities, linked to the supply of a service or product to an internal or external customer, from the statement of requirements to its delivery."[4]

We judge this definition "heavy":

- first formally, because it piles up nominal groups;
- then conceptually, because it turns to notions taken from a specific domain and, in so doing, distances itself from the more general concept that the term "process" carries;
- and finally, lexicographically, because the segment "we refer to a process as a" is not required when formulating a true dictionary definition.

When specialists from one domain produce a definition, they tend to encapsulate the concept in a network of meaning and presuppositions that marks their territory and risks preventing non-specialists from accessing it.

We can also observe confusion between levels of representation, of the kind "the map and the territory[5]". The table below attempts a typology of definition mistakes and analyzes their causes and their impact. In general, these flaws handicap interpersonal communication, which always has, of course, harmful, even dramatic, effects (petty squabbles, conflicts, an impossibility to cooperate on the fundamentals…). The table below is an attempt at a typology of mistakes that we have to guard ourselves against when we produce a definition[6].

[4] Luc BOYER, Noël EQUILBEY, *Organisation, Théories et applications, Éditions d'Organisation*, 1999.

[5] Reference to Alfred Korzybski's famous quotation.

[6] Some examples are given in the last section of this document.

Figure 14a_1. Table of the commonest mistakes made when producing definitions

Mistake	Description	Possible causes	Consequences
Illustration rather than definition	Or a partially expanded definition. We give examples rather than determining the concept[7].	The concept is not seen clearly enough in its different appearances; we are unable to isolate its features.	This type of definition does not last very long: the example becomes obsolete, the concept unnoticed, and the understanding inadequate.
Confusion between planes of representation	We mix the concept, object, sign, representation…	We do not pay enough attention to the planes of meaning.	Map / territory
Description	Unnecessary heaviness of the definition, which happens when we confuse the definition with the description.	We are in the accident – the non-essential –, we have not reached the essence.	The reach or the scope of the concept is reduced.
Inadequate extension	The definition can be applied to objects that are outside the extension of the concept. Conversely, it excludes objects that should be part of it.	The concept creates problems because of its extension. Example: *teleprocessing*.	Imprecise definition.
Operationalization	The term is defined by means of its effects or the applications of the notion.		The definition is then linked to a particular cultural or operational context and is only valid in this setting.
Explanation	The definition exceeds its scope and becomes argumentation.	We continue clarifying the concept through a pedagogic attempt.	The explanation is useful, of course, but it should be presented outside of the definition. The definition should be limited to a single sentence.
Bias	The definition is guided by cultural, corporatist, ideological or doctrinal presuppositions.	Motivations and interests, more or less conscious or hidden, are expressed when the definition is created. The intention to promote something is often hidden behind the definition, deflecting the truth and function from it.[8]	The definition becomes the stake of a doctrinal battle. It can be the source of conflicts.

[7] Cf. [REY] on the definition: "The definition remains the essential center of a language dictionary, the main part of a terminological lexicon, however important the examples may be. We are reminded of what Voltaire wrote – and we have not stopped quoting it – that "a dictionary without examples [was] a skeleton". Yet, we must not forget that without a skeleton, the most beautiful of bodies would only be a shapeless jellyfish."

[8] Examples: **Eel**: "Long & slender freshwater fish, shaped like a snake, whose skin is so slippery that we are unable to hold it in our hands", Antoine Furetière, *Essai d'un Dictionnaire universel*, 1690. **Donkey**: "Animal usually with gray hair, slow, patient, with long ears and long chops, and which only serves to carry <…> bray a fool in a mortar and he'll be a fool still <…> ", Pierre Richelet, *Dictionnaire universel*, 1680.

c. Value brought by the procedure

To avoid communication failings, we need a clear and precise language, widely understood and shared. Such a language enables us to avoid losses of time due to a lack of understanding. In certain cases, it can also prevent conflicts as beliefs, doctrines and preconceived ideas invest a good many definitions. The exercise of the definition therefore contributes to intellectual clarity, preceding thought and communication.

Applying this definition procedure allows us to simplify the definitions, to reduce them to the essentials. The key is being able to separate the essential and non-essential features. Thus the definitions become easier to share and to understand. This simplification has beneficial effects on pedagogy and communication, particularly in those situations where specialists and non-specialists of a domain cooperate. In complex organizational contexts, it enables representations to converge and common knowledge to be built, which may be shared by several entities and act as a basis for common perception.

1.2 Situations of usage

The definitions produced can join information mechanisms such as simple glossaries or more elaborate knowledge bases or thesauri. They can also be included within all kinds of texts, when the writer feels it necessary to clarify one concept or another. Even in this last case, we can only encourage efforts to gather these isolated definitions together in a common "pot" that will be gradually enriched and will guarantee the consistency of the terminology[9].

1.3 Positioning in the method

a. Place in the reference framework

The Praxeme method situates terminology in the intentional aspect, of which "Vocabulary"[10] is one of four sections. The method prescribes setting the enterprise terminology as a thesaurus, which links the terms among themselves and provides the definitions. The intentional aspect and, more specifically, the vocabulary, establish a kind of "security airlock" towards the models. It collects the intuitive and natural perception of the enterprise and shapes it for future use.

b. Relations with other procedures

The definition procedure interacts with other procedures:

- other terminological procedures, of course;
- certain procedures of the intentional aspect because the work to elucidate values, explain objectives and define indicators regularly calls for an effort to define terms and concepts;
- modeling procedures.

Modeling elements formalize concepts. One requirement of modeling is to clarify concepts, which naturally leads to the seeking or development of appropriate definitions. Modeling activities, quite naturally therefore, lead us to call upon terminology as a discipline. The relation can be more complex, as shown in the operating mode below, as modeling clarifies concepts and thus has an influence on the definitions.

c. Posture

Praxeme distinguishes between the analysis posture and the design posture which both apply to all aspects of the enterprise[11].

The act of defining something can occur in both cases:

1. in analysis, it is a question of formulating or reformulating what has been learned from the domain studied, without intervening on the content, other than to provide it with a well-formed expression;
2. in design, when the terminologist enjoys sufficient freedom to reorganize the knowledge around a set of better structured terms and better formulated definitions.

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[9] On this point, refer to the other terminological procedures proposed by the method.

[10] See the General guide, ref. "PxMDS-01" (Praxeme version 2) or the discussion at § 1.2 of the PxPCS-14 data sheet.

[11] See the White paper, ref. "SLB-02".

All projects adopt, first and foremost, the first attitude. Often they stop there. If the terminologist does not allow himself or herself the freedom to design the terminology, the modeler will seize it. In fact, terminological design anticipates the modeling work, with an immediate benefit: that of proposing a better, clearer, more easily communicable enterprise terminology, and one that will last longer. This posture is required in all cases where the practitioner is authorized to build a reference dictionary. Especially when there are competing vocabularies (between subsidiaries, between departments…), the only real option is to "start at the top", by proposing definitions that respect the rule book, or even introducing new terms, sometimes unknown in the "business domain".

Examples of decisions that illustrate the terminological design posture[12]:

1. In the context of an IT development project concerning the scheduling of insurance assessor appointments and involving two subsidiaries of the group, the focus was moved from making the appointment to the meeting, and from there to the action itself. This movement towards genericity is natural to terminology; it comes into its own in semantic modeling. It leads to considerable economies in the development of information systems as, for the same budget, the project will produce highly reusable components that can be reused in contexts other than the one the effort was originally for.
2. The second example is taken from work carried out before semantic modeling, without any IT development. The figure below[13] applies to expressions of state or ones assimilated to states (statuses, situations, step in a procedure…). Analysis brought them to the fore. They were found, partly in the screens of the software used, partly through exchanges with business actors and, for the remainder, in documents that gave a partial description of the procedures. All these expressions, in current usage, relate to the candidate. This last notion is, moreover, ambiguous as the organization is interested in its relations with the person at different times: before applying, this person is interested in the course; after graduating, he or she may follow other courses; beyond that, he or she becomes "alumni" (former students) or may even be personally involved in delivering training. In order to organize all that, we have to introduce a notion that is never named but which, alone, can provide some coherence: the study contract, formally defined as a relation between a person and a training course. The course itself differs from the training delivered as the latter is linked to a period. Business actors use the term "training" to refer indifferently to the training *model* ("training") and the training *plan* ("training course"). This example shows that efforts to clarify terminology lead quite naturally to design decisions: introduction of new terms, reorganization of terms around new notions, and reformulation of certain notions. The last point is illustrated by states linked to the study contract rather than to the student. For example, the terrible phrase "subject to limitation" applies, in practice, to a person whose application was rejected for a given course due to a limited number of places. After going through semantic modeling, this expression is picked up as a sub-state of the state "refused", qualifying the study contract. This sub-state is called "for quota reasons", the importance is the transition which enables the unfortunate candidate to be "awarded" a place if one becomes free. The model reads correctly: "study contract → refused → for quota reasons"[14]. In the end, the business vocabulary has been amended, going beyond a simple analysis.

[12] These examples are taken from lessons-learned sessions. Cf. PxREX-14-01 with *Groupe Prunay* and PxREX-15-01 with *HEP Vaud* in Switzerland.

[13] It is taken from the data sheet PxPCD-14 where it is commented.

[14] The lifecycle that corresponds to this example is shown in the data sheet PxPCD-14g.

Figure 14a_2. Examples of terms and expressions qualifying states

1.4 Conditions to respect

Whatever the situation where we need to turn to this procedure, one prior condition is the gathering of definitions that may possibly be already available for the term. One should check if a normalized definition (such as Afnor or ISO) or an official one (in France, term published in the *Journal Officiel*), has not already been given, either inside or outside the enterprise. Thus:

reader, n. (*liseuse, n.f.)*
Domain: Publishing and IT books.
Definition: Portable device with a screen designed for storing and reading digital books or periodicals.

Note: We can also find the term "electronic book".
See also: digital book.
Other equivalents: e-book reader, electronic book reader, electronic reader, e-reader.
Warning: This publication cancels and replaces that of the term "electronic book" in the French *Journal Officiel* of the 18th January 2005.

digital book
Domain: Publishing and books.
Definition: Work edited and disseminated in a digital format, designed to be read on a screen.

Note:
1. The digital book can be a work written directly in a digital format or digitized from printed matter or manuscripts.
2. The digital book can be read using highly diverse electronic supports.
3. We may find the term "electronic book", which is not recommended in this sense.
See also: reader.
Equivalent: e-book, electronic book.

2. Terminology used in this document

The data sheet PxPCD-14 provides an introduction to terminology's specialized vocabulary. We have added here the elements of discussion that help to compare definition to description. This comparison will not be without consequence on both the procedure and its results.

2.1 Definition, define

[DEPECKER]: The linguistic definition "can be considered as a microsystem made up of the statement of the features of the concept and the relations that they form among themselves. These features are selected, in the statement that enumerates them, according mainly to the point of view adopted, the description sought, the degree of precision desired, the wording chosen, and the culture considered." [15]

[REY]: "The definition, as its name indicates, is used to delimit, to indicate the "ends", the boundaries, the "terms". Its nature is complex and its theory difficult."

Defining something consists in bringing out the conceptual content of a term, its signification. The definition must say the essentials, the essence, the concept. It must not be burdened with accidentals. The authority, the example, the illustration are not in the definition but in its comments.

As this content is rarely unique or univocal, defining something leads us to take an interest in the usages of the term, even in its history.

2.2 Description, describe

We are often tempted, in professional definitions, to go *beyond* the concept to show its determinations or applications, or on the other side, to reduce it to a specific usage in a discipline or field of study. This results in the definition being altered. To avoid this mistake, we distinguish between the definition and the description. We therefore impose on the definition that it restitute the concept and only the concept, whereas the description will enable the concept to be shown in action, applied to a particular domain or accompanied by rules and interpretations that go beyond the concept in its strictest sense.

Describing something consists in gathering, around a concept, the features that are linked to it without necessarily being part of it.

The description allows us to take the appearances of the concept into account, as well as the circumstances and accidents that may affect it. The description may concern how the concept is implemented, possibly in defined contexts.

3. Required competence

3.1 Competence required to produce good definitions

The definition specialist is the **terminologist**. He or she is the best placed to draw up the terminology of a domain or an enterprise. However, few and far between are those who make terminology their profession.

The general **practitioner** in an enterprise, whatever his or her role or discipline may be, may be required to produce definitions. It is not usually a routine job for such employees and if they are not made aware of the consequences and requirements of this exercise, they are at great risk of making the same mistakes denounced in section 1, above. The procedure described here will help them avoid such mistakes. These few simple precepts will enable them to express their knowledge, with concerns for clarity, rigor and communication in mind.

The minimum skills for good definitions are:

- mastering everyday language, spelling and syntax;
- attention given to intersubjective communication;
- an awareness of the language usages and its drift;
- the ability to structure sets of concepts.

These skills do not require any specific practice; rather, they are based on showing vigilance with regard to linguistic phenomena, vigilance that we can help prepare by reading summarized works or works that popularize topics in the linguistic domain.

[15] See [DEPECKER], pp. 68 et sq.

3.2 Additional skills

Sometimes, the person in charge of the definition work – let us say the terminologist – has to call upon the help of the modeler to unravel complex conceptual systems or to decide between rival interpretations. The semantic modeler is mainly the one solicited here.

Modelers themselves must master this procedure, as they will be called upon to produce the definitions of the elements of their models. At the very least, the semantic classes must be adorned by a perfect definition. The latter may already be available in the thesaurus, but it is not always the case. Attributes (which formalize the information), indicators, states, events… must also be given well-made definitions. In the other enterprise aspects, the definition exercise applies just as much: roles and functions in the pragmatic aspect, etc.

4. Operating mode

4.1 Identify and extract the terms

In our effort to clarify the terminology, there are two possible starting points. We can start:

- either from a term (that is to say from the linguistic form of a language),
- or from a concept (the idea that we have of an object or a set of objects).

More often than not, when it is time to create the definition, we find ourselves in the first case. The need for a definition arises when divergent usages fuel a certain confusion that we end up feeling, or when there are conflicting interpretations.

However, the case where we start from a concept also arises. Almost always, it appears in circumstances where change is present and indicates a moment of creativity. In particular, in modeling, the effort for genericity leads us to isolate concepts according to their place in the structure; this place defines a concept, one that we must then manage to name.

This step begins by gathering the available documents. Even if no reference dictionary exists prior to this effort, it is not uncommon to find one or several glossaries, resulting from past attempts. Procedure documents, Quality manuals, IT solution manuals of use, etc. are useful starting points; as are pages from websites, the products and services catalog, and standard contracts. For a more in-depth analysis, minutes from meetings are also a source to be exploited, especially if the mission is part of a transformation program.

If this step takes on increasing proportions, it is recommended that the "Harvesting terminology" procedure be applied. This procedure acts on all the enterprise terminology, in contrast to the "Define…" procedure, which deals with one term at a time.

Reading the collected documents enables us to identify the main, often recurrent, terms. From these terms, we look for all manners of qualifying and using them. All grammar categories are called on: adjectives (almost always for naming states), expressions (equivalent to the gerund in English), complementary propositions (to link notions together), and verbs (actions *on* the object or *of* the object).

We should be wary of one phenomenon: the prominent position given to obvious facts in the actors' minds, that they do not take the trouble of naming. Central concepts may, in this manner, pass by unnoticed[16]. It is almost always the case with generic concepts. Steps 4 and 5 should extract them (see further on).

4.2 Analyze the demand for the definition and its stakes

In this action, we start from the concept.

The terminologist has to be attentive to the factors that provoked the definition request. These factors reveal difficulties in the use of the vocabulary, possibly conflicting interests and deep disagreements. Most particularly, terms linked to disciplinary or interdisciplinary stakes that are capable of stirring up passions. Quarrels about vocabulary often tally with the clash of cognitive universes or social groups who, rightly or

[16] Typically: a person's situation before the enterprise considers him or her as a client… registered, with a number, having an account, etc. Before marketing steps in, the notion of prospect risks being overlooked by the mechanical analysis of a corpus centered on production.

wrongly, believe that nothing can reconcile them. The stakes of a definition can therefore take on a dramatic dimension.

Without this analysis, the terminologist will be heading for an unpleasant surprise when the time comes to deliver his or her definition. This step therefore serves to drive the action. The project manager pays particular attention to it as it provides information that needs to be taken into account in his or her communication.

The request can come from several, typical situations:

- The request comes from decision-makers: they saw a stake, a difficulty, or they are promoting a new culture ("customer-centric", convergence, innovation, novelty of the offering or attitudes…). A strong motivating factor is the required formulation of knowledge, in order to protect or to transmit it.
- The request comes from the field, in exchanges between colleagues. This occurs in a quasi-automatic way when initiatives bring distinct populations into contact with each other: several departments or functions, different subsidiaries, partners, service providers… Those involved quickly discover the vague approximations of the vocabulary and feel the need to dispel confusion.
- During an investment – for example, IT –, those involved notice the lack of precision in the language and the ambiguities in the available texts (beginning with the specifications). They turn, then, towards the business representatives who soon recognize that things are not as simple as they might have first thought. Everyone agrees on the need for efforts to be made to clarify the terminology.

Depending on the origin of the request, the definition work will be more or less easy.

4.3 Observe the usages of the term or expression to be defined

In this action, we start from the term.

If the analysis has shown that the term lends itself to several usages or carries several senses, it is important to keep them in mind before moving on to the definition. Studying the usages of the term leads us to associate its different senses to specific situations. The usage contexts are characterized in terms of circumstances – material or temporal situation –, of the public concerned, of organization…

This study will enable us to extract the connotations that weigh down the term and confine its semantic content. It is a preparation for being able to then purify the definition and remove any implicit connotations from it.

Beyond observing, the terminologist can decide to eliminate certain usages. Indeed, certain usages or meanings detected can be put to one side, either because they are outside the scope studied, or because they show a linguistic or cognitive drift that we want to discourage. The decision to reject one usage must not be taken hastily: it must be documented and justified. We have to explain the reasons for it to the populations concerned.

We remark, fairly regularly, that one term is used for another, as a shortcut for a more correct expression, or if an appropriate term is not available. Even a specialized term, in a specific activity domain, can assume several connotations, according to how it is used in different parts of the same enterprise.

4.4 Take stock of the available definitions

Once the usages have been identified, the terminologist can turn to the lexicographical resources. They are distinguishable by the groups that supply them or use them, and that carry these definitions or usages. There is therefore a relationship to be made between the sources and communities identified by the previous analysis.

Among the available resources, priority is given to those that are the most open, public and widespread. Even for technical terms or specialized meanings given to everyday terms, we will make sure we find the initial meaning which often gives rise to an analogical or metonymic transposition. We will examine therefore:

- dictionaries of everyday language;
- lexicons of the domain studied;
- norms and standards that may have been published for this domain;
- internal enterprise glossaries (or ones from the entity that requested the definition).

The order of this list does not infer any sequence whatsoever in how the procedure is executed. Rather, it reflects a hierarchy in terms of legitimacy: the first ones, which have the largest audience, have more chance of producing definitions that obey the criteria sought (see the following section). Standards benefit, without doubt,

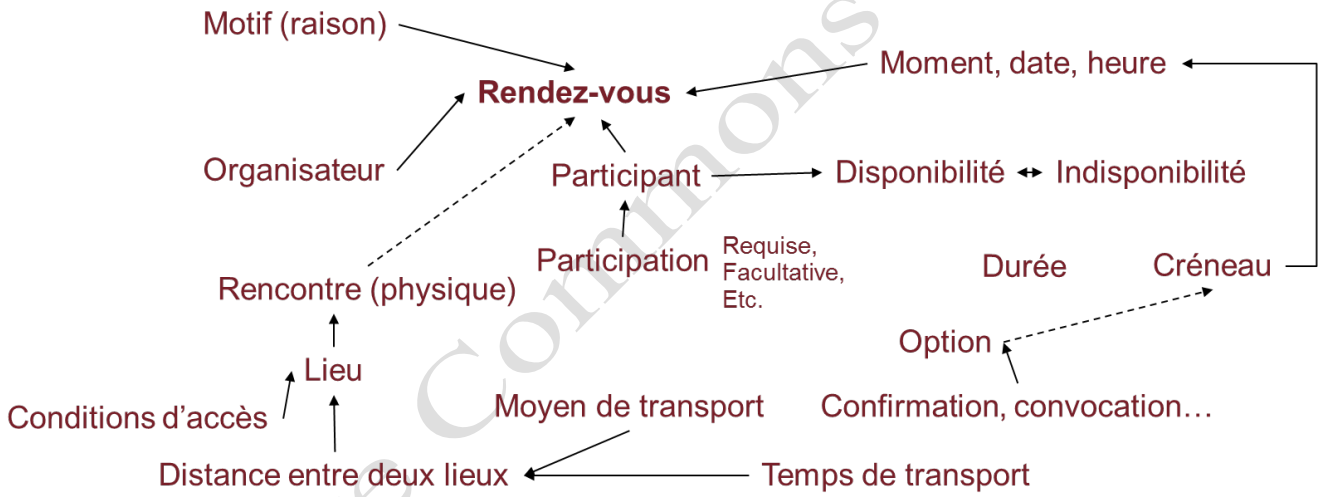
from a sizeable legitimacy; unfortunately, the definitions they propose are not always well chosen and they increase the vocabulary drift towards specialized usages, inaccessible to laypersons.

4.5 Carry out componential analysis

Directly proposing a definition is the best way of seeing the terminological enterprise fail! Indeed, with each person possessing intimate knowledge of the (or his or her) language and firming believing that they are authorized to speak about it, any definition proposed from the outset risks being challenged by others and, without a protocol to control the exchange, the debate is highly likely to turn into a dialogue of the deaf. To avoid this fruitless cacophony, the technique is to bring out the many determinations of a term and the meaning of a term. This technique is call componential analysis and consists in analyzing the different components of the meaning of a term. These components are semantemes or semes, minimal units of meaning. The semantemes are grouped together in bundles, within which they are more or less strongly linked. The bundles themselves can be totally disjunctive, even incompatible when the term has several meanings (in this case, dictionaries choose to make several entries or, under the same entry, number the distinct meanings). At other times, the bundles of the features of the concept foster the relations required.

It does not take long to notice that this analysis unearths a structure of the meaning of the term, a structure that explains the differences in usage. From there, the terminologist has, at his or her disposal, the material with which to build the definition, propose it to the public concerned and negotiate its directions. The figure below[17] illustrates the procedure, intuitively applied using a simple presentation tool[18].

Figure 14a_3. An example of componential analysis around the notion of meeting



The question that arises, at this stage, is: What is the minimal set of semantemes that makes up the concept? In the example, the notion of meeting necessarily implies that there be at least two participants. This is not true of the more general notion of the action. The simultaneity (moment) and the coincidence of place are constituent of the notion of meeting. In a telephone meeting, place is no longer a constraint… Thus, we isolate the subsets of semantemes that correspond to each concept.

4.6 Propose a definition

A definition is generally directed towards a particular need. It is, in this case, necessarily dependent on the point of view that we choose.

A definition is a linguistic representation of a concept. It aims to articulate the main features of the concept described. It has to be necessary and sufficient, knowing that it must contain the essential features (those which characterize the essence). It must therefore be formulated in a single sentence. Features considered less essential can be added to a further note, independent of the definition, as shown in the following step.

[17] In relation with the lessons-learned experience described in PxREX-14-01.

[18] This work can use a more rigorous formalism, as is shown in the procedure PxPCD-14f.

To write a definition, one has to, first, select, at the beginning of the sentence, the most appropriate *definer* for the description of the concept. This definer designates, in general, the concept immediately above the concept described. This is what is traditionally known as the "*genus proximus*" rule. The *genus proximus* integrates the concept described into a specific class[19]. Thus, the definition of "apple tree" can, from a general point of view, be a "fruit tree that produces apples". Here, the *genus proximus* of apple tree is "fruit tree". In turn, the *genus proximus* of fruit tree is tree, etc.

From there, we can formulate, according to the point of view adopted, the "*differentia specifica"*, that is to say the features that distinguish, compared to others, the object or concept described.

The definition does not need to reuse the term to be defined; it limits itself to the defining predicate and is presented as:

< term >: < term designating the *genus proximus* > < 1st *differentia specifica* >, [< 2nd *differentia specifica* >, etc.].

The definitions given in the section "Terminology used" in the sheet PxPCD-14 provide good examples of this practice.

The definition of a concept is generally drawn up within the framework of a specific domain. It is important that we are reminded of this framework prior to the definition.

Among the types of definitions identified in the ISO 704 norm (see annex 7.3, p. 15), we favor the intensive definition, that is to say the one which expresses the targeted concept and which has the most universality in a given language.

4.7 Develop the description of the concept

The definition of a concept, reduced to its necessary and sufficient features, can be accompanied by a further description. Thus, it can be useful to complete the definition with a system of notes. These notes can be of a technical, legal or linguistic nature.

The distinction between definition and description encourages us not to weigh the former down, keeping the illustrations, sophistication and distinctive identities for the latter. It therefore improves the terminology that is produced.

5. Results produced

5.1 Product

The procedure "Define a term or an expression" produces a very simple result: the definition. Let us be more specific! The product contains:

- the definition itself, which obeys the criteria given below (often a single line);
- the description which completes it and in which the public will find the complexity and richness that they imagined to be behind the term;
- a possible graphical representation, resulting from the componential analysis;
- the analysis report on usages;
- if necessary, the work session reports on terminology, when the definition of the term is discussed in a group[20];
- the list of references used, possibly completed by any criticisms of the definitions that may have been found.

Admittedly, what counts the most is the definition itself. However, we would be wrong to neglect the material accompanying it. To do so would be to take several risks:

[19] Here, the modeler will recognize the classification technique, with the recognition of classes and subclasses that he or she organizes in a tree diagram (inheritance trees).

[20] Note that applying terminological procedures to these sessions makes them more effective. Their reports are lighter as the content of the exchanges can be distributed in the forms described here.

- The definition may not be understood or may be rejected; we might consider the simplicity vexing (why is the definition so short? A certain sense or presupposition that we usually associate with the term is not found in the definition…).
- When this terminological work will have been forgotten, we will have to argue the definition again or abandon it and start once more.
- Those involved, namely the modelers who will exploit the dictionary in the future, will certainly need clarification on the meaning. The componential analysis can provide them with an initial framework for the structure of the model. The study of usages and of groups of speakers can give some useful indications for pragmatic modeling. It can also feed the interface designs[21]…

In conclusion, depending on the effort made, a real file can accompany a definition.

5.2 Quality criteria of a good definition

What are the criteria of a good definition? The following table gathers together some criteria and recommendations for producing "good" definitions.

Figure 14a_4. Recommendations for applying the definition procedure

Quality sought	Recommendation	Comment
Adequacy and exactness	"A good definition must correspond, according to the time-honored expression, to *all the defined* – which makes it adequate –, and *only to the defined* –, which makes it exact."[22]	The definition must be borne out by all the objects or indications aimed for by its concept and only to those (the intention must correspond strictly to the extension).
Conciseness	The definition must be as short as possible, while at the time same delimiting the concept aimed for[23]. Do not confuse definition and description.	One sentence should suffice; not even a sentence: a predicate[24].
Readability	As far as possible, the definition uses everyday words, likely to be understood by the majority. When the term is of common usage, we will favor the definitions given by good dictionaries of everyday language.	Many of the supposedly specialized concepts have a linguistic history and reality outside of the specialists' field. It can be a good for us to hold on to that fact.
Autonomy	As far as possible, the definition is self-sufficient, supposing that all its terms are non-ambiguous and understood by everyone.	The limit of this precept is the criterion of simplicity: it leads to the definition being given a derived concept by referring to its generic concept and adding some specific features to it. The definition of the specific term therefore depends on another one, at least, that of the generic term.

[21] This content constitutes a source that the ergonomist can use, on the one hand for static ergonomics (formulations to remember for the wording displayed, for messages); on the other hand for cognitive ergonomics (adjusting expressions to the users' mental representations).

[22] In [REY].

[23] Another application of Ockham's razor.

[24] See the examples given in section 2, "Terminology used in the procedure".

Quality sought	Recommendation	Comment
Simplicity	Simplicity is obtained as a compromise between the previous precepts.	A simple definition should be, at the same time, short (conciseness), self-sufficient (autonomy) and use everyday words (readability). This alliance is rarely feasible. We often have to abandon autonomy and introduce specialized terms, defined elsewhere.
Coherence	The definition should not introduce any contradiction with itself, nor with the definitions of the terms that it is composed of.	This property affects a set of definitions. Refer to the procedure "Build a thesaurus".
Triangulation	Know which of the three approaches to definitions we are using and stick to it.	The definition can express the being of the thing, what it is; or its function, what it does; or its becoming, where it is from, what it becomes[25]. It is also possible to use all three for the same term.

6. Tooling the procedure

6.1 Help for the definition

The first of the tools is the irreplaceable dictionary, whether it be paper, electronic or online. It is chosen depending on the domain and specialization of the term to be defined. In all cases, the dictionary of everyday language is a precious ally.

In specialized domains, we look for the standards: vocabulary standards (e.g., ISO) or application standards, which almost always contain definitions[26]. These definitions are clearly identified in a norm's standard table of contents.

Even though these sources do not necessarily apply the precepts that lead to a good definition, they provide very useful entries.

Concerning the analysis of terminological usages, the study of online forums is particularly enriching. A sign of a discipline that is either young or under construction, the forum is regularly fired up with precisely such requests for definitions[27].

6.2 Construction of networks of terms

Before beginning any terminological work of a certain scale, we must have, at our disposal, a solution to link the terms among themselves. Networks of terms can fast become difficult to control. The appropriate tooling is the same as will be used to build the thesaurus[28].

6.3 Help for representation

Tools for dictionaries are mentioned in the other terminological procedures.

[25] "The definition is a triangulation", says Jean-Louis LE MOIGNE in [LEMOIGNE], p. 63. This triad Be-Do-Become provides the dimensions of the modeling in Praxeme. Any modeling exercise, if it wants to be complete, should cover structural (or ontological) modeling, functional modeling and contractual (or genetic) modeling.

[26] A good example is provided by the norm NR EN ISO 9000, "Quality management systems – Essential principles and vocabulary".

[27] The phenomenon can be observed among the community of enterprise architects, for example.

[28] See the procedure PxPCD-14f.

On the scale of a definition (that of the current procedure) we sometimes need to represent the semantic network during the componential analysis (action described in § 4.5).

The properties listed in section 5.1 should ideally be proposed by a tool where the definitions will be kept. We can turn to a form and treat the terminology as documents, but it means giving up on its integration in the enterprise description repository and on its function of "security airlock".

7. Extending one's knowledge

7.1 Bibliography

Refer to sections 7.1 and 7.2 of the introductory sheet PxPCD-14.

7.2 Examples of mistakes observed in definitions

a. Example 1: "information system"

Definition of "information system": "the term information system, or IS, is an organized set of resources such as personnel, data, procedures put in place, material or software."[29]

Criticism:

- First, "information system" is not a term, but an expression.
- Then, this expression is not a set of resources, but *designates* this set.
- Lastly, this definition by enumeration (incomplete) struggles to represent the unit of the concept. Moreover, it could also be applied to the notion of enterprise.

A sizeable share of the difficulties that we encounter to define "information system" comes from the fact that it is an artifact and an artificial notion created from nothing, stuck between two other, more immediate, notions: the enterprise on one side, the IT system on the other.

7.3 Types of definitions

The norm ISO 704, *Terminology work – Principles and methods*, distinguishes four ways of defining something:

- The **intensive** definition expresses the concept.
- The **extensive** definition lists the objects that come under the concept (example: "BRIC: Brazil, Russia, India, China"). It can also proceed by enumerating the subordinate concepts that the concept to be defined covers (example: "endangered species: vulnerable, endangered, or critically endangered species").
- The **ostensive** definition (or demonstrative) is based on non-verbal representations. It shows the object to be defined or its representation.
- The **stipulative** definition is used especially in a legal context (the law, a contract…). It is revealed by formulas such as: "in the framework of this contract…", "in our context, we name…".

7.4 The triple approach to a definition: an example

In the specialized context of IT, a design approach called SOA (Service-Oriented Architecture) was built on a metaphorical usage of the term "service". Taken in this context, we can define service in three ways:

1. Ontological definition (the being): "a service is the elementary unit in the information system". To make this concept and its implications clearer, the description compares it with other ways of doing it.
2. Functional description (the doing): "only way of obtaining a piece of information, an action or a transformation from the system". The description completes this definition by drawing our attention to its practical consequences: certain manipulations become prohibited.
3. Genetic definition (the becoming): "the services are derived from the object and activity models, according to precise rules; they are conveyed as software components".

[29] Found in Optimind, a special feature on IS.

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Analytical table