TNO report

On Terminology, and the Resolution of Related Issues

A practical method for establishing and maintaining terminology that is unambiguous and relevant for a given scope or purpose, and resolving related issues.

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1 Introduction

Many people have experienced situations where a discussion suddenly seemed to be hindered as people raised an issue about a term. One of my personal experiences is a standardization meeting of an ISO expert working group, where a debate was started around the term 'organization', the relevance of which is that standards such as ISO 9001 (quality), 14001 (environment) or 27001 (information security), state that the associated management process is run by an organization, so you need the ability to determine what is (not) an organization. Some participants said that only enterprises should be considered as an organization, and its departments should not, arguing that a standard should cover entire companies, not just parts of it. Others argued that departments should also be considered an organization, referring to the definition given by the (online[1]) Oxford English Dictionary (OED), that says: "An organized group of people with a particular purpose, such as a business or government department".

Discussions such as these are difficult to manage, and more often than not lead to what I call 'the Terminology Confusion issue'. The Terminology Confusion issue arises whenever people use a term and experience communications difficulties, such as misunderstandings, even if (and perhaps: in particular when) the term is properly defined.

Terminology confusion is very common, even if definitions are available and (generally) considered to be good. While in simple situations it is often not a big deal, it cause many problems when we try to cooperate with various parties to pursue complex goals. Having a good dictionary, glossary, or other terminology document (as in the example) does not always prevent or remedy such issues.

This document proposes an approach for preventing and/or remedying terminology confusion issues. It does so by focusing on the effects that we want definitions to have rather than on its mere existence. We show that this focus leads us to a new way to define terms, and that we can actually test such definitions for their quality – i.e.: the measure in which they produce the desired effects. We conclude by providing guidance for dealing with situations where terminology confusion pops up. This guidance enables discussions to be quickly concluded and definitions to be improved as needed, and is a valuable resource in any terminology governance processes.

1.1 Definitions

A common way to foster mutual understanding is to define terms. The idea is that if we agree to define a term in some way, and use that term accordingly, we avoid misunderstandings. Indeed, many terminologies (lists of definitions) have been established, in many varieties (e.g. glossaries, dictionaries, etc.) in an attempt to achieve this objective. The fact that debates about well-known terms keep popping up over and over again both underlines the importance of this work and suggests that improvements are called for.

We propose an approach that focuses on the effects that we want definitions to have in discussions, the most important one of which is that people that use a term in a discussion agree as to what is, and what is not an instance of the term, and that this agreement extends to multiple, different situations.

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[1] http://www.oxforddictionaries.com/definition/english/organization

Note that this effect is limited to the scope of a discussion, which would allow the same term to have a different meaning/interpretation in other discussions (as is common practice). Terminologies however are typically meant to be used in large(r) scopes, where people pursue specific objectives. For example, a terminology may be needed for creating, maintaining and using (a set of) standards, or an IT system.

We postulate that the use of a specific terminology is limited to a (set of) scope(s)[2] within which specific objectives are being pursued. Doing this allows us to discuss the relevance of terms within a scope: a definition that does not help people to realize the objectives of the scope has no place in the terminology of that scope. Conversely, any distinction that helps people to realize one or more of the objectives should be made explicit, and assigned a term. This makes terminology the invaluable asset that we feel it should be.

Within this document, we use the term 'stakeholder (of a terminology)' to refer to a person that contributes to realizing objectives of some scope for which that terminology exists, or is being developed/maintained. Having this notion allows us to distinguish between people that have a working interest in the terms defined therein, and those that do not. We will only allow stakeholders of a terminology to participate in discussions to create, update or delete terms therein.

Terms that are defined in a terminology use usually classifications of things we know to exist. For example, 'cup' represents a class of things that have specific characteristics. If stakeholders want to agree on what a cup is, they should devise a criterion that allows them to distinguish between things that are a cup, and things that are not. One part of a definition should thus be a criterion by which any stakeholder can make this judgement.

We say that a criterion is 'well-formed' if it has the property that all stakeholders make the same judgement in a given, yet arbitrary case. So if stakeholders use a well-formed criterion for 'cup', then you can present any item to them, and every time they will agree as to whether or not this item is a cup. The property of being well-formed is important for these criteria, because it ensures that stakeholders have the same idea about the meaning of a term.

Criteria that are well-formed in one context may not be well-formed in another context. In the context of a café in which some students want to converse while drinking a cup of coffee, the criterion 'anything that can contain coffee and that a person can drink out of' would be well-formed. In the context of a space station in which some astronauts want to converse while drinking a cup of coffee, this criterion may not be appropriate as it would include cups that spill their coffee because of the lack of gravity[3]. Therefore, another part of a definition should be a reference to the scope(s) within which it is applied.

We say that a criterion is 'relevant' if it has the property that all stakeholders agree – possibly for different reasons – that the distinction it makes helps them to realize their objectives and/or address issues that prevent them from doing so. Testing for this property (i.e. asking the stakeholders whether or not they think it helps to realize objectives and/or address issues[4]) ensures that the criterion does not need

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[2] The term 'scope' as we use it here can be replaced by the term 'context'.
[3] NASA has designed so-called 'space cups' for drinking liquids such a s coffee in the International Space   Station   ISS.   See https://www.nasa.gov/mission_pages/station/research/experiments/2029.html.
[4] If you test a criterion by simply asking stakeholders to assert that the criteria is relevant, you run the risk that they have their own interpretation of the term 'relevant'. In order to mitigate this risk, you should either define 'relevance (of a criterion that is used in a definition)' as the property of helping stakeholders in the scope of that definition to to realize their objectives and/or address issues that prevent them from doing so, or you should ask the question as we stated here.

to make distinctions that, while relevant in other scopes, are irrelevant in the scope in which it is established.

Obviously, criteria that are relevant in one context may not be relevant in another context. For example, in the context of a chic restaurant in which some students want to have a good time, conversing with one another and drinking glasses of wine, the criterion for a glass: 'anything that can contain wine and that a person can drink out of' would be relevant. In the context of that same restaurants in which the same students want to taste wine as part of their training to become a sommelier, this criterion is no longer relevant.

1.2 A Definition for 'Definition'

This leads us to propose that the phrase 'definition (of a term)' be used in scopes/contexts where it is an objective to realize the effects we described earlier, to refer to a specification of:
- **a scope**, i.e. the context(s) within which the definition of that term is applicable. This includes or implies, implicitly or explicitly, that objectives exist that are pursued within that scope by one or more people (stakeholders);
- **a (set of) criteria**, that stakeholders will use for judging whether or not something is an instance of the term;
- **a term**, i.e. one or more words (e.g. 'definition (of a term)') that stakeholders can use within the scope to refer the things that satisfy the criteria.

A definition qualifies as 'good' if and only if it has the following properties:
- **its criteria are well-formed**, meaning that all stakeholders make the same judgements c.q. reach the same conclusions when using these criteria in a given situation;
- **it is relevant**, i.e. stakeholders have identified cases that demonstrate how the use of this term helps them realize their objectives and/or address issues that prevent them from doing so, or they have agreed that relevance is obvious.

Apart from this, definitions may also be associated with other attributes, depending on the purposes for which they are used. For example, a definition that is to be used in an educational context may be required to come with examples, and/or explanations about why the distinction is made as it is.

Note that he above text about 'definition (of a term)' qualifies as a 'good definition', as
- it is a definition (of a term) according to its own criteria:
  - **it is scoped** to any discussion that seeks to maximize efficiency and effectiveness,
  - **it specifies criteria** for judging whether or not something is a definition, and
  - **it specifies a phrase** that stakeholders can use to refer to definitions;
- when used as described in the previous paragraph, it qualifies as 'good' because:
  - **its criteria are well-formed**, because that paragraph requires this property to be explicitly verified;
  - **it is relevant**, because this document requires that cases that demonstrate the relevance of a term be identified (unless the relevance is considered to be obvious).

1.3 Creating or Changing a Definition

The process (step) for creating and/or changing a definition starts with a request to this end.

Processing this request, which includes deciding whether or not to service it in the first place, should be done by one or more stakeholders of the term. After all, they are the ones that contribute to the realization of the objectives for which the term was defined, and hence need to ensure they can (keep) work(ing) with it[5].

This doesn't mean that others Of course, it doesn't mean that others cannot have good ideas, but whether or not that is the case is for the stakeholders to decide. Too often do we see e.g. people adding terms to a glossary for purposes that don't serve the objectives.

We do not prescribe any specific way for stakeholders to process the request. We only state the conditions that anyone can check to see if the work is done, which is the case when the definition qualifies as a 'good definition' according to the criteria stated above. Thus, stakeholders can do whatever they deem appropriate, as long as the end result satisfies these criteria.

If the set of stakeholders is too large to be practical for satisfying these criteria, they may appoint one (or a small committee) of them as a 'terminology officer' or 'curator', i.e. the one that is tasked with processing such requests and bringing that processing to a satisfactory end.

1.4 Conflict Mediation and Resolution

We have experienced many situations in which terms were not used 'in the right way'. This is not problematic per se. Going back to the example of the coffee cup, one of the students may observe that coffee is being served in something that he does not consider to be a cup. If he reacts by saying how surprised he is to find out that cups are more varied than he thought so far, this is an expression of having obtained a new insight, and having learned in an enjoyable fashion. From our perspective, he values the importance of the criterion higher than the importance of being right in the definition that he has (unconsciously) used himself.

However, we often find that people feel strongly about what is the 'right' definition of a term, even though they have problems in providing a good definition, i.e. one that is both relevant and well-formed. This often leads to debates that in the end do not have a satisfactory conclusion.

If you find yourself in such a discussion, there are several things that you can do to revert this situation. The first thing is to verify that the participants are sufficiently motivated to have an outcome that is good for all – even if that means they will have to acknowledge that they were not right all the way. We assume that a sufficiently motivated group of participants can agree that definitions should have the properties that we have defined for being a good definition. You may want to explicitly establish this assumption, and explain that these properties prevent misunderstandings, cater for better cooperation as you get a common 'picture' of what you are doing, and what is relevant for that and what is not. And yes, it may seem to take more time than usual. However, we see this as a sure sign that

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[5] We have often seen (changes in) definitions of terms being contributed by well-intentioned people, the result of which didn't qualify as a 'good definition', amongst others because they were not stakeholders as we see them.

spending this time now and resolving the issue will save us multiple such times where the issue is not resolved in a manner that is satisfactory to all participants: such issues will persist in popping up. Some people may need to experience this for themselves before accepting that this is the case.

Even after having established that participants are motivated to come to a good definition, participants may have strong feelings about the meaning of terms or the phrasing of a definition, and object to review that. In such cases, it may help to state the scope of the definition that you are trying to agree on, e.g. being a project you all work on, or the discussion that you are having. Then, you can explain that the definition you are trying to pin down is only applicable in that scope, which means that strong feelings about the meaning of the term or the phrasing of a definition are ok in other context, and that the definition for the term that you are trying to define does not pose a threat to these contexts. We have seen this intervention have a relativizing effect on people, as it allows them to participate without having to give up their opinions (for other contexts).

Another intervention that you can do when the scope is clear, yet the discussions go all over the place, is clearly stating when you are trying to formulate a criterion and assess its well-formedness, and when you are establishing the relevance of the distinction that you attempt to make. When assessing relevance, the task is to come up with situations that call for the need to make the envisaged distinction. But you should not surrender to the temptation to already apply (one of the) criteria that may lie around. When you are trying to formulate or choose a criterion and assess its well-formedness, the task is to throw these (relevant) situations at the criterion, and ONLY find out whether or not stakeholders make the same distinction. As you alternate between these two tasks, you may find that at some point in time,
- convergence takes place, i.e. the proposed criteria increasingly become well-formed, and increasingly make the distinction that you are after. You have a good definition!
- it dawns on you that it is not one, but other distinctions need be made as well. In the example of the wine students, they may find out that they do not only need a definition for 'glass', but that they need other terms in order to distinguish between the various kinds of glasses they need for drinking different wines.[6] You split up the discussion in as many discussions as you want to make distinctions.
- no convergence takes place at all. You are probably trying to make distinctions that in the end do not make any sense. Take a break, try to get some fresh/foolish ideas, and try again from there.

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[6]   A famous example of discussions and the use of definitions that constitute of criteria is that in the IAU, about (dwarf) planets. While it is a good example of how definitions should be used, it also shows that it is not the holy grail. See:
- see: https://en.wikipedia.org/wiki/Dwarf_planet for an account of what happened and for the resolution
- IAU (August 24, 2006). "Definition of a Planet in the Solar System: Resolutions 5 and 6". IAU 2006 General Assembly. International Astronomical Union. Retrieved March 8, 2018. – discussions

2   Glossary

Term	Criteria
Scope (or Context)	The extent of the area or subject matter, within which one or more parties collectively pursue one or more coherent objectives.
Stakeholder (of a Terminology)	A party that, within a scope, pursues one or more objectives of that scope, for the sake of which they have decided to develop and/or maintain a terminology.
Criterion	A principle, standard or expression by which something may be judged or decided.
Term	A word or phrase that is used a scope/context to refer to a specific concept.
Well-formedness (of a criterion within a scope)	The property of that criterion that, when used by an arbitrary set of stakeholders in that scope, leads all stakeholders to make the same judgements or decisions in any given, yet arbitrary case.
Relevance (of a Term)	The property of that term that stakeholders have identified cases that demonstrate how the use of this term helps them realize their objectives and/or address issues that prevent them from doing so, or they have agreed that relevance is obvious.
Definition	An assembly that consists of: - a specification/identification of the scope within which the definition is (to be) agreed upon (by the stakeholders of that scope); - a (set of) criteria, that stakeholders will use within that scope for determining whether or not something is an instance of the term; - a term, that stakeholders will use within that scope to refer to whatever satisfies the criteria.
Terminology (of a scope)	A set of terms that are used within that scope for communicating about topics that help stakeholders realize the scope's objectives.
Party	An entity that autonomously sets its own objectives, maintains its knowledge, and uses that knowledge to pursue these objectives in an autonomous (sovereign) manner.

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