



# Methods of concept analysis – a comparative study

## Part 1 of 3

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### Abstract

This article is the first one in a series of three articles, which focus on methods of concept analysis and discuss how terminological concept analysis methods could be developed as more generally applicable research methods. In this first article, terminological methods are contrasted with selected concept analysis methods utilized in business studies and nursing science. On the basis of the comparison, the second article to be published will outline a systematic concept analysis method, which can be utilized as a research method in its own right or as a part of any other type of study. The third article will describe concept analysis tools usable for systematic concept analysis in more detail.

### 1 Background

Concept analysis could be basically defined as an activity where concepts, their characteristics and relations to other concepts are clarified. Creation of conceptual clarity is of great importance for all kinds of research. General research guidelines as well as philosophical literature often mention concept analysis or concept research. These sources do not explicitly describe how to perform a concept analysis. Sometimes the only advice given is "use common sense". The lack of method descriptions in methodological guides has lead many students who are writing their master's thesis and doctoral dissertations to utilize methods described in terminological literature. After all, these methods are aimed at clarifying conceptual and terminological problems and are a good option when no other methods are available. However, researchers or students do not always problematize or seem to be aware of the fact that they are using these methods outside the original professional context of terminology work that they were originally developed for, i.e. systematic collection, description, processing and presentation of concepts and their designations<sup>1</sup> in glossaries or data banks. The methodological sources referenced may be manuals or text books addressed to terminologists working with practical terminology projects with a glossary or a set of entries for a terminology data bank as the end product. These methods as such do not meet all the methodological requirements of academic research without modification and without taking into account the prerequisites of academic research. For instance, a glossary as such does not

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<sup>1</sup> ISO 1087:10.



constitute an academic thesis even though it could be part of it or constitute a side product of the research.

In addition to terminological concept analysis, certain disciplines have developed or formulated their own concept analysis methods. These methods are meant for clarification and development of their own concepts. They share a scholarly view of conceptual problems and methodology, but since they are discipline specific, they too, they may need modification before becoming applicable to other fields. In addition, these methods do not seem to have developed such a detailed conceptual apparatus and such a systematic approach to solving conceptual problems as terminology work and terminology science have provided.

In this article, terminological concept analysis methods are contrasted with concept analysis methods that are described and utilized in business studies and nursing science. The purpose here is to find aspects that have to be taken into account when developing a concept analysis method which can be applied in scholarly research. The concept analysis method combining elements from all of these fields will be outlined in the forthcoming article in this same journal, whereas a third article will describe sets of applicable tools.

## **2 Concept analysis methods**

The concept analysis methods to be discussed here are concept analysis as it appears as a part of terminological analysis (Picht & Draskau; Nuopponen; Skuce & Meyer; Suonuuti) and concept analysis methods utilized in business studies (Näsi; Takala & Lämsä) and in nursing science (Walker & Avant). In business studies, Finnish professors Näsi (1980) and Takala together with Lämsä (2001) have discussed concept analysis as a research method. Their thoughts have been applied by various researchers in Finland. Takala and Lämsä's *interpretative research of concepts* belongs to the interpretative paradigm of organization and management research, but can also be classified as a type of conceptual research methods together with "traditional concept analysis" – which Näsi's concept analysis according to Takala and Lämsä (2001:372–4) represents.

Nursing science is a rich source for both descriptions of analysis methods and studies applying these methods. The method of Walker and Avant (1983) will be discussed here since it is the most frequently utilized one. Walker and Avant were also among the first ones to theoretically discuss concepts of the nursing science (Duncan et al. 2007:295). Their method is based on the concept analysis method described by John Wilson in his basic text book on concept analysis from 1963. Their method has been criticized and modified by other nursing researchers but it is still used as is shown by a large amount of studies applying it – also outside nursing research. Other concept analysis methods developed in nursing science are e.g. *evolutionary concept analysis* (Rogers 1993), *simultaneous concept analysis* (Haase et al. 1993), *utility method* (Morse 2000), *principle-based method of concept analysis* (Penrod & Hupcey 2005), and *hybrid model of concept development* (Schwartz-Barcott & Kim 1993).

## **3 Definition and purpose of concept analysis**

The selected sources define concept analysis each from the point of view of their own discipline. In terminological sources, concept analysis is seldom defined or mentioned, but it is implicitly regarded as an integrated part of terminology work, because concept is considered as a central element in terminological theory. Instead of the term *concept analysis*, terms such as *terminological concept analysis*, *systematic concept analysis* and *terminological analysis* are used variably in terminological literature to refer to the same phase of terminology work.



Terminological analysis could, however, be regarded as a wider activity than concept analysis proper. In addition to concept analysis, it includes also e.g. elaboration of definitions and identifying translation equivalents to terms (e.g. Picht & Draskau 1985; Nuopponen 1996).

Suonuuti (1999:29) who explicitly mentions concept analysis regards it as an activity that is a part of terminology work and where concepts belonging to a whole and their relationships are clarified and described. These elements are included also in the definition of Skuce and Meyer (1990:56): "the description of concepts through an enumeration of their characteristics, or properties, and 2) the description of relations that hold within systems of concepts". The same basic characteristics are to be found in Nuopponen 2003 where concept analysis is defined as the core of terminological methods. Its purpose is to clarify the intension of a concept, its relations to other concepts and its location in a concept system and to create thus a basis for elaboration of concept definitions and reveal synonymy and equivalence between terms in different languages, etc. Based on these definitions, a definition for (terminological) concept analysis could be formulated as follows: concept analysis is an activity where concepts belonging to a whole, their characteristics and relations they hold within systems of concepts are clarified and described.

From business studies, two different views on analysing concepts were scrutinized. Concept analysis for Näsi (1980) means "target-oriented solving of conceptual problems; forming concepts through analytic and synthetic reasoning by using existing concepts and insight". Takala and Lämsä (2001) want to give more emphasis to interpretation of texts in their method for *interpretative research of concepts*, which has as its purpose to interpret meanings and definitions of concepts presented in written, textual form in the light of a chosen theoretical perspective<sup>2</sup>.

In nursing science literature, concept analysis is seen as a part of the development of the theory and discipline of the nursing science. For Walker and Avant (1994) *concept analysis* is a concept development method while *concept development* is a critical element in theory development. Concept analysis for them is "a process of determining the likeness and unlikeness between concepts" and its "basic purpose is to distinguish between the defining attributes of a concept and its irrelevant attributes" (1994:38). Walker and Avant distinguish concept analysis from *concept synthesis*, "to extract or pull together concept(s) from a body of data or set of observations", and from *concept derivation*, "to shift and redefine concept(s) from one field to another" (2004:32). All these three are more or less included in the methods of Näsi (1980) and Takala and Lämsä (2001).

The scrutinized concept analysis methods are all based on a worry about vague concepts and terms, and they have been developed to create conceptual and terminological clarity. Näsi (1980:7) for instance is well aware that the requirements for scholarly concepts are clearly stricter than those concerning everyday language. He sees that in the early phase of a new discipline, concept analysis has an important role as a research method of its own when clarifying concepts that refer to the "practical object" of the discipline (Näsi 1980:21). This is clearly visible today in nursing science. Näsi continues that later on, when the discipline has matured, concept analysis will function as a tool for other research methods (*ibid.*). It may thus have two different roles: an independent method and a tool combined with other methods. A common nominator for business studies and nursing science seems to be an urge to develop

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<sup>2</sup> [http://lta.hse.fi/2001/3/lta\\_2001\\_03\\_s4.pdf](http://lta.hse.fi/2001/3/lta_2001_03_s4.pdf)

concepts of their own in order to establish a scientific basis for their discipline. Terminological methods, on the other hand, are meant as tools for any special field – or discipline.

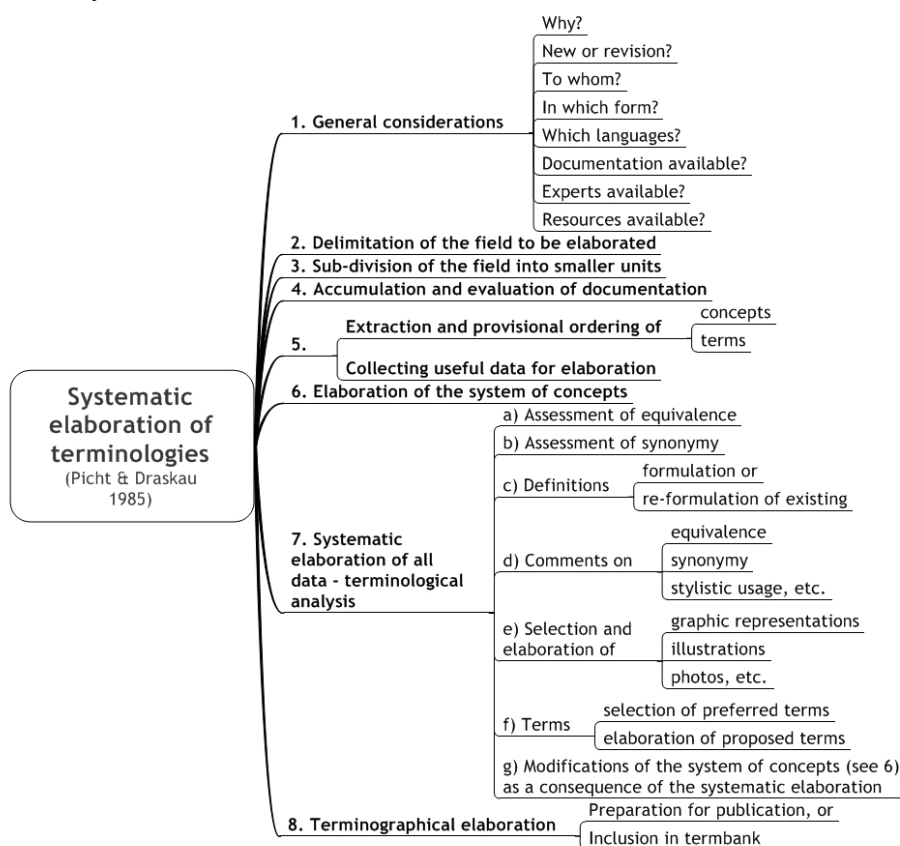
#### 4 Analysis process

In the following, three models are presented, one from each field: terminology work, business studies and nursing science. Takala and Lämsä do not specify any phases at all but state that the analysis proceeds in a hermeneutical circle. For none of these three process descriptions the phases are clear-cut, the phases instead tend to be parallel or interwoven, and the analyst must often return to the previous phases etc.

#### 4.1 Systematic elaboration of terminologies

Terminological textbooks normally describe the basic elements of the theory as well as the process of terminology work or terminology projects. Concept analysis is normally an integrated inseparable element of the process and rarely even mentioned as a separate step. An example of such a description is given by Arntz and Picht (1982:178–186) and Picht and Draskau (1985:164–173), see Figure 1. If the glossary-specific features were eliminated from the process model, it would serve as a more general model for concept analysis.

The process starts with general considerations on various practicalities, e.g. delimitation of the field to be elaborated, sub-division of the field into smaller units, as well as accumulation and evaluation of documentation. After that the material is extracted and concepts and terms preliminary ordered, and more data collected.

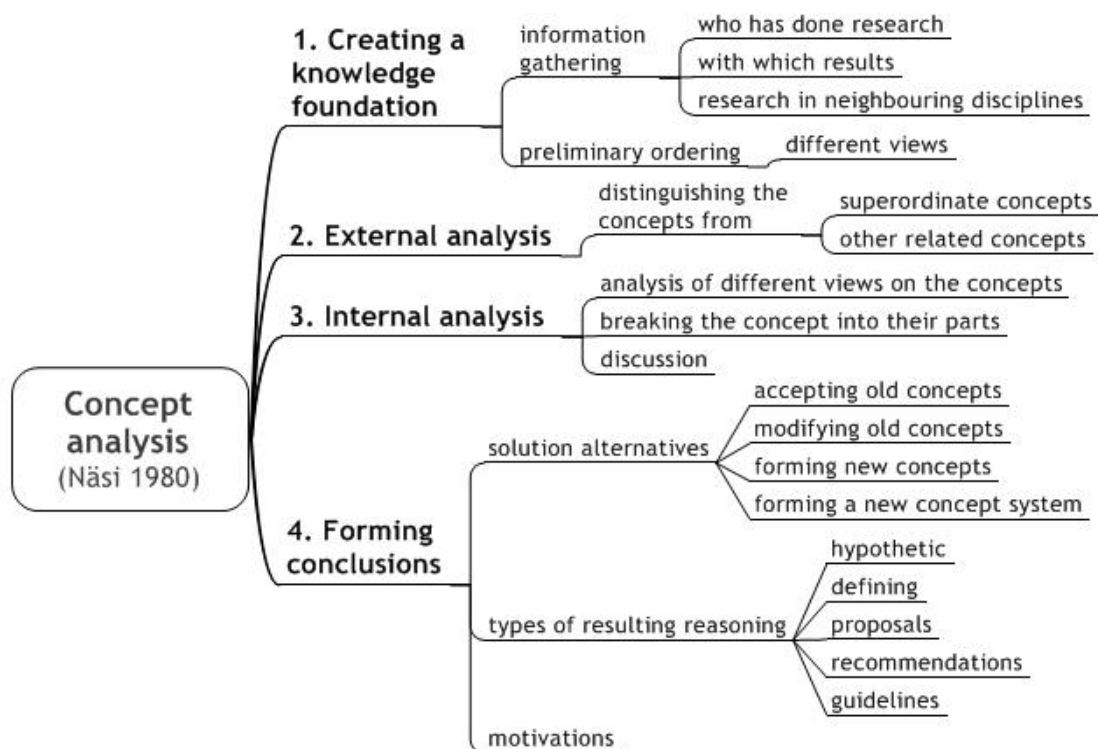


**Figure 1.** A model of systematic elaboration of terminologies based on Picht & Draskau (1985)

Next steps consist of structuring a concept system and analysing all data systematically. Systematic elaboration means going through collected information on concepts according to the preliminary concept system and establishing their contents and delimiting concepts from other concepts in the same concept system. The procedure up to the point 7 (Figure 1) coincides with what is meant by "terminological analysis" in this paper. The last phase in Figure 1 is glossary specific terminographical elaboration which means preparing the results for a publication or inclusion in a termbank.

#### 4.2 Näsi's four elements of concept analysis

Näsi (1980:12) says that it is not possible to describe an exact step-by-step procedure for concept analysis. He suggests anyhow a set of interwoven phases for concept analysis (see Figure 2).

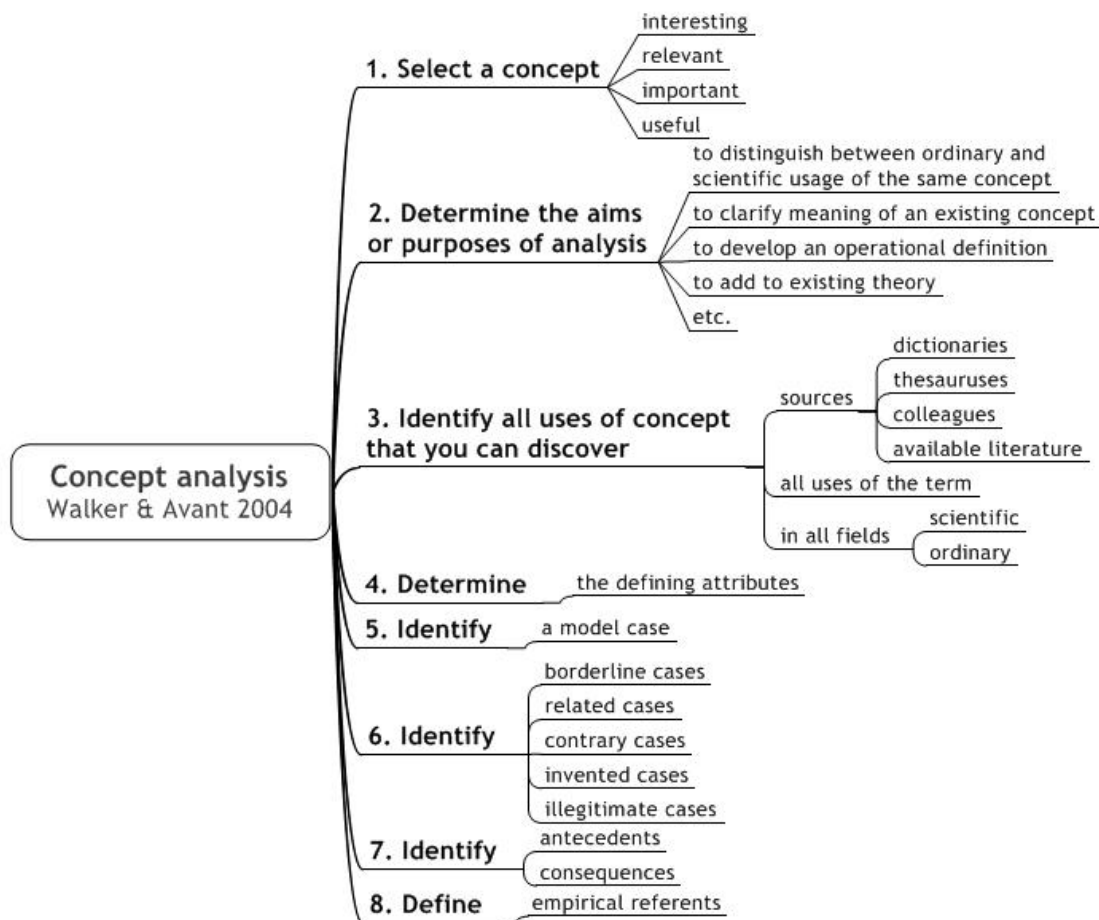


**Figure 2.** Näsi's concept analysis model

At first, information on relevant research and its results is gathered. This phase has its equivalent in phases 1–5 in the model in Figure 1. The external analysis involves distinguishing and delimiting the concepts to be studied from their superordinate concepts and other related concepts. Important questions to be asked while analysing concepts of a discipline are: who has done research where the question of concepts is focal, with which results, and what is relevant research in neighbouring disciplines. In Näsi's internal analysis, concepts are broken down into their parts, and different views are discussed. Finally, in the conclusion phase, solutions to concept problems are offered. Solutions could be either modifying or accepting the old concepts, or even forming new concepts. Additionally, Näsi distinguishes between different types of reasoning (hypothetic, defining, proposal, recommendations, and guidelines) – depending on the on the type and purpose of the study. The discussion in terminology science has traditionally focused on contrasting normative and descriptive terminology work. Instead of this bipolarity, a continuum could be applied.

### 4.3 Walker and Avant's concept analysis model

In nursing science, various authors describe very detailed processes. Here, the process model by Walker and Avant (1994) is presented, because it seems to be the most influential model in nursing science. Walker and Avant have reduced Wilson's 13-step procedure to 8 steps (see Figure 3).



**Figure 3.** Walker and Avant's concept analysis model

The model starts with selecting a concept to be analysed. Walker and Avant recommend that the concept should be interesting to the researcher, e.g. associated with his or her work. Concepts taken as research objects in nursing science seem to be very abstract and their designations are often used also as normal words in general language without very clearcut meanings, e.g. *trust*, *compassion*, *spirituality* etc. The concepts may also be more field specific ones, e.g. *self-healing*, *patient participation*, *holistic practice*, *interconnectedness in nursing*. Common to these concepts is that different authors define them differently, or the terms may be used vaguely in nursing practice. According to Schwartz-Barcott and Kim (1993:110), nursing scholars have selected either concepts from other disciplines, concepts that have been identified but are yet underdeveloped in nursing literature, or even new concepts generated in nursing practice or research. In their own hybrid concept analysis model, they combine these.



The second step in Walker and Avant's model is to answer the vital question *Why am I doing this analysis?* The purpose of the concept analysis could be to distinguish between ordinary and scientific usage of the same concept, to clarify meaning of an existing concept, to add to existing theory, to develop an operational definition, or something similar. (Walker & Avant 1994:40).

As the third step, Walker and Avant (1994:40) emphasize that it is important to identify all uses of the concept when collecting material for the analysis. Hereby, they actually refer to all uses of the term, i.e. the concept designation. They state that because concepts are expressed by a word or a term in language, "an analysis of a concept must, perforce, be an analysis of the descriptive word and its use" (1994:38). To them, concept analysis is thus ultimately "only a careful examination and description of a word and its uses in the language coupled with the explanation of how it is 'like' and 'not like' other related words" (ibid.). If their advice to look for "both actual and possible uses of words that convey concept meanings" (ibid.) is taken literally, it may cause the analyst a lot of extra work when exploring totally irrelevant material outside the discipline. Walker and Avant's own example (1994:41) take as point of departure *coping* as a psychological term but involves analysis of homonyms such as *coping falcon's beak* or *coping saw* etc. However, this does not have anything at all to do with the psychological concept called *coping* that nursing science is interested in.

Walker and Avant (ibid.) regard the fourth step as the "heart of concept analysis", i.e. determining the defining attributes or defining characteristics of the concept. When the analyst has identified all the different usages e.g. of the word *fear* on various fields, the next step is to read through them to find characteristics that appear over and over again. According to Walker and Avant (ibid.) the result of this activity is "a cluster of attributes that are the most frequently associated with the concept". Here again it must be noted that this is throughout a semasiological analysis process and with "concept" they actually mean the expression and its different meanings.

As the fifth step, Walker and Avant (1994:42) advice the analyst to develop one or more model cases that represent a "real life" example of "the use of the concept that includes all the critical attributes of the concept". If the concept to be analysed were e.g. *fear*, a model case would be description of a real life situation, which exhibits all of the critical attributes of fear. If the concept is new, they recommend that the first thing to do in the analysis should be to look for a model case.

As the sixth step Walker and Avant include in their model an examination of additional cases. These originate from Wilson's model (1963:28–32), and are divided into borderline, related, contrary, invented, and illegitimate cases. Walker and Avant point out that an "analysis cannot be completed until there are no overlapping attributes and no contradictions between the defining attributes and the model case". The purpose is to assist to decide which characteristics or attributes best fit for the concept of interest and what counts as defining attributes as well as which do not count – making thus the model case stronger. Not all of these additional cases are necessarily included in individual concept studies in nursing science.

The seventh step in Walker and Avant's model is to identify antecedents and consequences. They define these as those events or incidents that happened prior to, or as a result of the "occurrence of the concept" as they express it. There seems to be a contradiction here, because – as they themselves pointed out earlier "concept is a mental image of a



phenomenon" and "not the thing or action" (Walker & Avant 1994:24). What they should be talking about here are the events or activities that the concepts "refer to".

In Walker and Avant's model, as the last step, the critical attributes and their empirical referents in the real world are brought together. For nursing the empirical referents are useful in practice because they provide "the clinician with clear, observable phenomena by which to 'diagnose' the existence of the concept in particular clients", as Walker and Avant (1993:46) express it.

## 5 Discussion

Walker & Avant (1994:47) admit the limitations of their concept analysis: "The feeling of being absolutely in over your head. Since there are no firm rules in concept analysis, this may make you very anxious. There is no way we can say to you, 'First do this, then do that, and when you have done so, all will be wonderful.' We have attempted to give you guidelines but the actual intellectual work must be yours." Also in the concept analysis models of business studies, the more detailed analysis of concepts has been left to the analyst to figure out individually. None of these methods seems to have such a full-fledged set of theoretical tools as terminological theory.

The classifications and descriptions of meta-concepts created in terminology science and terminology work offer researchers as well as terminologists more concrete tools than the unspecified "method of thinking" that the general research methodology literature has to offer. Terminological literature accounts for detailed procedures and methods to break down concepts into their characteristics, to structure concept systems, and to write well formed definitions. However, the overall tone in these descriptions is often terminology work oriented and not always readily converted into a stringent research method needed for an academic study.

A flexible method applicable for many purposes will be outlined by combining elements of terminological analysis with elements from the other, more research oriented concept analysis methods. This method and its tools will be presented in part 2 and 3 of this paper.

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