LISBET PALS SVENDSEN: CONCEPT SYSTEMS - AN EMPIRICAL MODEL FOR PRESENTATION, LIMITATION, AND CO-ORDINATION.

1. Introduction

In connection with the preparation of research projects - be it linguistic or other projects - the simultaneous preparation of systems of concepts is an important element of the intended project; these systems are of great help to the researcher who thus acquires a systematic, over-all view of the research subject itself as well as related subjects, and also to the reader who can use the systems as an introduction to the subject in question and consequently form a quick impression of the nature and scope of the project.

Based on an assessment of the nature of the subject in question, the researcher will therefore have to decide on the most adequate type of concept system - the system that provides both the researcher and the potential user with the optimum comprehensive view of the subject itself and the related subjects.

In the Standard DIN 2331, Begriffssysteme und ihre Darstellung, concept systems are defined in the following way:-

"A concept system consists of a number of concepts between which relations exist or can be created and which thus defines a connected whole."

Consequently, the most important characteristics of a well-functioning concept system are clarity, uniqueness of reference, and flexibility to ensure that the system can be constantly revised or extended with possible new concepts and - if necessary - be related to other concept systems describing related subject matters.

2. Presentation

a. Numerical Systems

A concept system can be arranged as a numerical system, i.e. through the application of a consecutive, logical numerical system in which each individual concept is numbered to indicate its position in relation to the other concepts, cf. examples 1 and 2.

In a numerical system, it if furthermore possible to indicate the mutual relation between concepts through the use of either a full stop (.) or a hyphen (-) between the individual digits.

The full stop will indicate a generic relation between the superordinate and the sub-ordinate concept(s), and it will further indicate that the sub-ordinate concepts are represented on the same level in the concept system. An example of generic relations could be concept No. 1.1.2 "endeligt lån" (en: mortgage credit loan) which may again be sub-divided into two sub-ordinate concepts on the same level:- Nos. 1.1.2.1 "obligationslån" (en: bond loan) and 1.1.2.2 "kontantlån" (en: cash loan). These two concepts may be even further sub-divided into sub-concepts.
A hyphen in the notation instead of a full stop indicates a partitive relation (whole vs. components) between the individual concepts, cf. example 4. In example 4, the relations 1-3 "låneansøgning" (loan application), 1-4 "lånetilbud" (loan offer), and 1-5 "låneudmåling" (loan amount offered) are shown as partitively related sub-concepts to the super-ordinate concept "lån" (mortgage credit loan). Furthermore concept 1-3 "låneansøgning" can be sub-divided into the documents attached to such an application which are generically related: 1-3.1 "skøde/slutseddet" (title deed/contract for sale), 1-3.2 "matrikelkort" (land registry chart), 1-3.3 "tingbogsattest" (land registry certificate), etc.

In the setting-up of concept systems, it is - just as is the case in connection with the DIN system - most common to list the concepts below each other as shown in example 1. However, this procedure cannot always be recommended as long terminological lists may confuse the reader/user. If the list of concepts is long, it may prove helpful to both researcher and reader to indicate the relations between super- and sub-ordinate concepts both numerically and by means of lines as shown in example 2.

b. Field Diagrams
A field diagram provides the researcher with the possibility of showing a figure, curve, diagram, etc. to illustrate the term in question, e.g. in connection with technological projects. In a field diagram, it will also frequently be possible to indicate synonyms or to make linguistic comments to concepts already presented on the concept system level where the reader gets his first introduction to the subject and may therefore obtain a more general perception of the subject, cf. example 5.

Field diagrams may also be presented in circular or triangular or other shapes convenient to the subject of the project.

c. Line Diagrams
Line diagrams are probably considered the "traditional" form of a concept system. And line diagrams are in fact in many cases the form which provides the reader with the quickest over-all perception of the terminological connections of the project in question.

Line diagrams can be presented in several ways, all depending on the nature of the project and - practically speaking - on the number of related concepts.

c.1 Line Drawing
Just as relations between concepts are indicated through either a full stop or a hyphen in numerical concept systems, the way lines are drawn in a line diagram may also indicate the interrelation between concepts, either generically or partitively.

DIN 2331 uses oblique lines between concepts to indicate generical relations between them, cf. example 3. It further uses straight lines between concepts to indicate partitive relations, cf. example 4 which consists of both generical and partitive relations.

In certain cases it may be practical to leave out certain concepts in a chain of linguistically related terms; this can be indicated by means of a dotted line, oblique or straight depending on the nature of the relation between the terms; however, cf. section 2, Limitation.
c.2. Designations in Line Diagrams
In line diagrams, the drawing-up of the lines will indicate the mutual relations between concepts which will give the researcher a certain degree of freedom in his choice of designations. There may be diagrams where it will be sufficient to make use of the term/concept in question as designation, just as it may in other cases be enough to use the numerical notation as designation thus indicating a possible reference to an index. However, experience has shown that very few readers who are interested in obtaining a quick perception of the implications of a certain subject would consult an index to find the designation of any numerical notation found in the concept system.

I must therefore recommend any researcher to indicate both the numerical notation and the concept/term in both line diagrams and other diagram types since this is essential to the comprehensive understanding of the subject in question; in fact this seems to me to be the very purpose of drawing up concept systems!

3. Limitation
Depending on the nature of the research project, it will be necessary for the researcher to limit the material to be processed. Such problems of limitation will arise within most subjects since it is indeed very few subjects that have no relations at all to surrounding concepts.

Within my own field of research, viz. housing finance in Denmark through the mortgage credit institutions and Great Britain through the building societies - from which I have chosen my examples - there is a long number of adjacent concepts/areas to be considered.

On the one hand, it should be relatively simple to limit one's subject in such a manner that only those activities of e.g. the Danish mortgage credit institutions that concern housing finance are included in the project; on the other hand it must be considered whether it might not be appropriate to indicate that the mortgage credit institutions also grant loans for other purposes than merely housing finance or are in a position to offer other loan types than merely housing finance loans.

In such cases I found it practical to indicate concepts with a merely restricted relation to the subject in a parenthesis and furthermore extrapolosed in the relevant system, e.g. concept Nos. 1.1.2.2.4 "rentehenstandsân" (interest postponement loans) and 1.2.4 "afdragsfrie lån/erhvervslån" (commercial loans). I am certain that such concepts should be included in the concept systems as they round off the general picture of the mortgage credit institutions' activities.

It would also be possible in a line diagram to indicate the attachment of the partially related concepts to the system by means of a dotted line as shown in example 8.
4. Coordination of Concept Systems

When - as I am - a researcher is working on a project that touches upon both social and linguistic conditions, he will often be in a situation where it would be of benefit to the project to combine concept systems concerning similar conceptual fields in both languages.

Such a coordination of concept systems, however, entails a long number of difficulties as the researcher must necessarily be fully aware of whether the concepts related to the systems in the two languages in question are totally identical - or whether he is facing two conceptual fields that have merely the super-ordinated concept in common, i.e. one super-ordinated concept with identical application and contents in both languages.

In the examples 6 and 7 I have attempted to make such a coordination of the conceptual fields of the two project languages - Danish and English. Example 6 concerns the Danish concept of "rente" (interest). This concept with the attached partitively related concepts 6-1 "rentebeløb" (interest amount), 6-2 "rentesats" (nominal interest), and 6-3 "rentebetaling" (interest payment) in the two languages offers the same application possibilities and contents which is indicated by means of the international symbols for languages (Da/En) in a parenthesis below the concept in question (in compliance with "Symbols for languages", Appendix A of DS/ISO 3166 "Codes for the representation of names of countries"). Concept No. 6-2 has three sub-concepts: 6-2.1 "nominel rente" (nominal rate of interest) (Da/En), 6-2.2 "direkte rente" (flat rate of interest) (Da), and 6-2.3 "effektiv rente" (true rate of interest) (Da).

Here we are faced with the situation that only concept No. 6-2.1 "nominel rente" applies to both languages within the frame-work of the project whereas the other two concepts do in fact exist in English and - as in Danish - even within the area of securities transactions, but not, however, in a housing finance context. Other researchers might consider it relevant to indicate this in the concept system, but in a case like this, I would prefer to make a comment on this in connection with the relevant terminological article. This is just one of the limitation problems that face the researcher and that he or she will have to decide on his own, all depending on the nature, subject, and contents of the project in question.

Example 7 shows a combination of concept systems pivoting around one common super-ordinate concept with identical application and concept fields but having attached cultural-specific sub-concepts.

This common super-ordinate concept is placed between the concept groups of the two languages, and the concepts relating to each language are placed below each other under a heading indicating the relevant language in accordance with DS/ISO 3166.

Furthermore, the individual sub-concepts together with their - in this case generically - related sub-concepts have been placed in frames which does, in my opinion, make the system more easily comprehensible that would have been the case if the concepts had been merely listed numerically below each other.
When the researcher then wants to describe for instance system 3 "pantebreve" (mortgages), and when a systematic number such as e.g. 3.1 carries the same connotations in both the Danish and the English system, it would be practical to number such concepts Da 3.1 and En 3.1, respectively. This may also be done in the concept system.

5. The empirical model

As mentioned, the overall aim of a concept system is to provide the reader with a general impression of the subject before he sets out to obtain more specific knowledge of the subject itself or parts of it. Therefore the researcher must from the outset decide quite definitely on the setting-up of the system which will again depend on the nature of the project. In the case of e.g. a technological project, the field diagram could be a solution since the reader may know what the thing in question looks like but not its name, or within which tool group he should look for it; in such cases the field diagram makes it possible for the researcher to include figures, drawings, etc.

In other connections, e.g. a more theoretical subject, the researcher may decide on the line diagram as lines can be drawn from one concept to several sub-concepts or between one or more sub-concepts. In many cases numerical systems will prove to be the most appropriate, if the list of terms does not exceed 20-25 concepts. If the number is higher, it is my experience that another diagram form could be more suitable.

Furthermore, it is important to be completely aware of what limitations are to be made on the subject in question; should adjacent concepts/subjects be mentioned? Or should they be left out? Or should just a few be selected for presentation in the project?

For the sake of clarity it may in some cases be practical to coordinate several concept systems, either within one particular language or between two or more languages. In such cases the selection of system form should be given the utmost attention as a defective or blurred coordination of concept system can do more harm than good.

REFERENCES


Deutsche Normen, DIN 2331: Begriffssysteme und ihre Darstellung, Beuth Verlag GmbH, Berlin 30/Köln 1, April 1980.


DS/ISO 3166, Koder for landenavne (Codes for the representation of names of countries), Appendix A, bogstavkoder for sprog (Language codes).


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**Example 1**

Begrebssystem 1 - lån (da)
1. lån
1.1 låneformer
1.1.1 forhåndsåbn
1.1.2 endeligt lån
1.1.2.1 obligationslån
1.1.2.1.1 pariforrentet, inkonvertibelt obligationslån
1.1.2.1.2 provenulån
1.1.2.2 kontantlån
1.1.2.2.1 fastforrentet kontantlån
1.1.2.2.2 indekslån
1.1.2.2.3 rentetilpasningslån
1.1.2.2.4 (renteheransandslån)
1.2 lånetyper
1.2.1 ånnuitetlån
1.2.2 serielån
1.2.3 faste lån
1.2.4 (afdragsfrie lån/erhvervelån)

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**Example 2**

Begrebssystem 1 - lån (Da)
1. lån
1.1 låneformer
1.1.1 forhåndsåbn
1.1.2 endeligt lån
1.1.2.1 obligationslån
1.1.2.1.1 pariforrentet, inkonvertibelt obligationslån
1.1.2.1.2 provenulån
1.1.2.2 kontantlån
1.1.2.2.1 fastforrentet kontantlån
1.1.2.2.2 indekslån
1.1.2.2.3 rentetilpasningslån
1.1.2.2.4 (renteheransandslån)
1.2 lånetyper
1.2.1 ånnuitetlån
1.2.2 serielån
1.2.3 faste lån
1.2.4 (afdragsfrie lån/erhvervelån)
EXAMPLE 4
Begrebsystem 1 - lån (Da)

1.1
låneformer

1.1.1
forhåndslån

1.1.2
obligationslån

1.1.2.1
pariforrentet, inkonvertibelt obligationslån

1.1.2.1.1
provenulån

1.1.2.1.2
fastforrentet kontantlån

1.1.2.2
kontantlån

1.1.2.2.1
rentetilpasningslån

1.1.2.2.2
indekslån

1.1.2.2.3
rentefonden

1.1.2.2.4
(rentehenstandsflån)

1.2
lånetyper

1.2.1
annuitetlån

1.2.2
serielån

1.2.3
fast lån

1.2.4
(afdragsfrit lån/ erhvervelån)

1-3
låneansøgning

1-4
lånertilbud

1-5
låneudmåling

1-3.1
skøde/slutseddel

1-3.2
matrikelkort

1-3.3
tingbogsattest
EXAMPLE 6
Begrebsystem 6 - rente (Da/En)

6. rente (Da/En)

6-1 rentebeløb (Da/En)

6-2 rentesats (Da/En)

6-3 rentebetaling (Da/En)

6-2.1 nominel rente (Da/En)

6-2.2 direkte rente (Da)

6-2.3 effektiv rente (Da)

6-3.1 udlånsrente (Da/En)

6-3.2 indlånsrente (Da/En)

EXAMPLE 7
Begrebsystem 3 - pantebræv (Da/En)

Da

3.1 pantebræv udstedt til realkreditinstitut
3.1.1 formular B (cf. 3.3.3)

3.2 privat pantebræv
3.2.1 ejerpantebræv
3.2.2 salgerpantebræv
3.2.3 låangepantebræv
3.2.4 omprioriteringspantebræv
3.2.5 (skadesløsbrev)

3.3 pantebrævsformular
3.3.1 formular I
3.3.2 formular A
3.3.3 formular B

En

3.1 normal repayment mortgage

3.2 option mortgage

3.3 endowment mortgage

3.4 pension mortgage
### Begrebsystem 1 - lån (Da)

<table>
<thead>
<tr>
<th>1. lån</th>
<th>1.1 lånformer</th>
<th>synonym: udlånformer</th>
<th>1.2 lånetyper</th>
<th>synonym: tilbagebetalningsformer</th>
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7.1 obligationernes administrative opdeling

7.1.1 serie
7.1.2 afdeling
7.1.3 litra
7.1.4 kupon

7-2 udtrækning

7-2.1 udtrakningschance

7-3 konvertering

7-3.1 enkeltkonvertering
7-3.2 seriekonvertering
7-3.3 konvertibel obligation
7-3.4 inkonvertibel obligation

7-4 obligationsformer

7-4.1 nominalobligation
7-4.2 enhedsobligation
7-4.3 rentetilpasningsobligation
7-4.4 indeksobligation

7-5 andre

7-5.1 premieobligationer
7-5.2 international obligation
7-5.3 euro-obligation
7-5.4 futures
7-5.5 options