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Subject Retrieval in Denmark, 1975—1985. A Survey

Provides 1) a survey on the classification systems that matter most in Danish libraries, among which the UDC and DK5, a Danish creation developed from the DDC. Reviews 2) research and development concerning the choice of an indexing technique to counterpart and support classification systems. Describes 3) the development in single library online catalogues, and in joint catalogues and bibliographical databases for several libraries and mentions 4) Danish participation in Scandinavian databases and in international databases of a special character. Furthermore, evaluations of the value of downloading subject data from foreign databases and of the searches performed in databases offered from foreign hosts have been made.   (Author)

0. Introduction

Indexing and classification are related operations. Their common aim is to give access to the findings of research and science. They operate mainly in the sphere of books, articles and other printed documents, but their scope is extended to other types of documents. Indexing and classification may point to the subject contents of single volumes, of collections of documents or of bibliographies, but may even point to data: concepts and facts in non-print materials.

These operations have been favourite activities in libraries and documentation centres, where they have been taken care of either by trained librarians, specializing in documentation or in librarianship. On the other hand they are by no means prerogatives of documentalists or librarians, many scientists and researchers take an interest in indexing and classification and are active in these fields.

This survey of the activities and the situation inside the common field of classification and indexing in Denmark is interwoven with a critical bibliography of the Danish contributions on classification and indexing. References are made to writings in which further information on the themes touched upon in the text can be obtained.

A characteristic of the Danish situation in classification and indexing is the amount of committee work performed by representatives of the library and documentation world, whereas research performed by individuals or groups of researchers is less numerous. This is a small wonder much as the institutions and organisations take a deep interest in any research likely to make library and documentation services more efficient and less costly.

1. The classification systems

Our knowledge of the history and present state of classification systems in research libraries, public libraries and elementary school libraries is very good. Several surveys have either described the state-of-the-art or have given a picture of the classification policy and the possible outcomes of the developments that could be visualized.

In private firms and in smaller institutions and organisations there are excellent libraries, our knowledge of which is less complete. As a rule they use some general classification system, but special systems do exist. In this chapter we shall deal mainly with the research libraries supplemented by some glances at the Danish National Bibliography and the public libraries where the DK5 is in use (1).

Shortly after its institution in 1970 the National Advisory Council for Danish Research Libraries showed its interest in the rationalization of classification work in research libraries. In 1972 the Council appointed a classification committee with the object of establishing cooperation between the Danish research libraries and of selecting one classification system as preferable for Danish research libraries.

The committee chose the UDC, due to its universality, its internationality and its already widespread use in Denmark. As a consequence the Council issued a resolution to the effect that Danish research libraries should adopt the UDC. Investigations should be performed in advance into two questions: Could the chosen system be common also for the Danish public libraries and which would seem to be the foreseeable future of the general classification systems in the outside world?

A classification system common with the public libraries proved to be out of the question and the international development appeared to be rather in favour of the Dewey Decimal Classification than of the UDC (2, 3). In this situation the Council changed its first resolution of 1975 into a new one, pointing to either the DDC or the UDC as the future research library classification system. The new resolution was issued in 1976 and a special classification committee was set up to realize the expected shifts of system and to follow the international development, finally also to point to possible cooperation between the DDC and the UDC in Denmark.

The Danish UDC development was taken care of in a Danish UDC committee with close ties to the FID. This committee was established in 1976. The Danish development of the DDC was starting from nil, because no Danish libraries were Dewey-classified. The most important product of the special classification committee was a mapping of the use of classification systems and subject headings in 195 special libraries as of 1978—1980 (4).

The mapping was based on a questionnaire containing 27 questions, supplemented by material from the annual library yearbook. The findings of the investigation were, that individual classification systems were the case in almost half the libraries in question, the UDC was the most used general system and the DK5, the Danish Dewey offshoot, the second in numbers of libraries. 20% of the book-collections was UDC-classified, 10% DK5-classified and the rest was classified in special, local classifications systems.

When the committee was abolished in 1983 and re-placed by a subject data committee it could be taken as a landmark of the fact, that very few libraries had wanted or had had the capacity to effect a change of their classification system.

This situation was influenced by the new search possibilities made possible by means of electronic equipment in online catalogues and bibliographies.

Three articles (5, 6, 7) in library journals and in a festschrift describe the political reflections implicit in the choice between classification systems; they include not only the research libraries, but also the Danish public libraries.

1.1 Dewey (the DDC) in Denmark

The DDC is the ancestor of the DK5 as well as of the UDC. But its application in Danish libraries is restricted to being the classification system in a now non-existent Female Readers' Union in the birth of this century. Nevertheless two Danish representatives joined the DDC centenary in England in 1976. The Dewey policy of being partly a national classification system, partly an international one seemed to be tilting to internationality at that occasion and the interest in enlisting as a Dewey-user seemed to be growing.

The keenest interest was shown by the Royal Library of Copenhagen, where an investigation was made in 1981 as to the advantages of Dewey for this great national library. The DDC proved however to be too lacking in specificity for the use of the collections of foreign literature as compared to the special system tailored for the use of the collection.

An article by the present writer (8) in commemoration of the centenary drew the attention of the Dewey people present in Banbury to the affinity of the DK5 to the DDC, but no real cooperation between the two systems followed from this approximation.

The structure of the DDC was treated in a comparison between classifications of identical titles made at the BNB Dewey section and at the State and University Library of Århus. Although the book and the article on this investigation by Bente Ahlers Møller (9, 10) mainly intended to try and find the roots of the classification system of the State and University Library, they shed good sidelights on the ways in which the Dewey classifiers at the BNB are handling and reasoning when performing their document analyses. Whereas the DDC is an entirely pragmatic system with no explicit philosophical reasoning behind it, the State and University Library system may be traced back to the Swedish philosopher Allan Vannérus and even to the ontology of Wilhelm Wundt (11).

1.2 UDC in Denmark

The most prominent advocates of the UDC in Denmark come from the National Technological Library of Denmark. This library and its predecessors have been UDC-users for almost two generations and have collaborated on the system with other Danish technological libraries at institutions and in private firms. The Danish Central for Documentation has been the link to the UDC-users in Denmark and to the FID since 1937. The connecting link to the FID is now the aforementioned UDC-committee, appointed in 1976.

The UDC-committee functions as a coalition of the Danish UDC-users and as a line of communication to international UDC- and FID-developments. Furthermore it has on its agenda the effectuation of a Danish abridged UDC-edition, parallel to the Swedish abridged edition of 1977. An introduction to the structure and functioning of the UDC is the first-fruits of this work, intended for present and future UDC-users, containing also a short history of the UDC and a bibliography (12).

UDC editions in Danish exist, showing e.g. the UDC numbers in use at the Technological Library or at Roskilde University Library or they are specially elaborated sections of the UDC, such as an edition for the classification of municipal documents or for electro-technics or for building classification — the ABC. A universal abridged edition in Danish, which has been in the oven for several years, will be welcomed.

In 1985, a special study of the UDC, its problems and possibilities was published as a thesis by two students from the Royal school of librarianship (13).

1.3 The classification system of the Royal Library's Foreign collection of monographs 1950—.

Work on a classification system for the classified catalogue of this department of the Royal Library commenced in 1958. The 25-year jubilee of this work was commemorated with a publication in 1983, describing this enormous work, in which so many philosophers and scholars have been engaged for a generation. The book contains a lo-page English summary (14). Parts of the classification system are published, e.g. the regional catalogue and the catalogue on common history and Western history.

This classification system seems to prove, that a specially constructed classification system, tailored for the books of the collection with a well-known clientele in mind is better than a ready-made system such as the DDC. Administrative advantages and a continuous updating performed by system administrators of the DDC can only partly compensate for the fact, that the system is being elaborated without a special collection as its basis.

1.4 DK5: the fifth edition of the Danish Decimal Classification

The Danish Decimal Classification was published in its 1st edition in 1915 as an adaptation for Danish public libraries of the DDC, 7th ed. The changes made were such that it could not possibly be called an abridged Dewey. In its 5 editions this system is by law the system of the Danish public libraries, of the Danish elementary school libraries, of many general and special school libraries and of several research libraries of a general profile.

The system was chosen for the Danish National Bibliography and for the Danish Article Index already in its 1st ed. and has continued as the Danish national bibliographical system ever since.

The DK5 is a broad system of classification with rather flat hierarchies. It is especially meritorious on account of its constant updating with index terms fetched from the monographs classified at the Danish National Bibliography office at the Library Bureau.

The indexes are printed out from a term base every year and supplements are issued thrice a year. There is a classified index besides the alphabetical one.

The literature on the DK5 is rather scarce. "Hjælpebog til DK5 [A companion to the DK5]" (15) is meant to give advice for the classifier on the application of the schedules in practical classification. Emnesøgnings- og emneregistreringssystemer i Danmark [Subject retrieval and subject indexing systems in Denmark]" (16) comments on the history of the 5 editions, the description being interwoven with some analysis of the classification policy and subject heading policy in Danish libraries taken as a whole.

2. Indexing techniques

In library history the history of the classification system builders and the history of the indexing and subject heading specialists are often merged. The reasons are that the pioneer generation in the USA took care of both and that the aim was the same: to give good access to library collections both for the users starting in the verbal end of the scale and for the users searching systematically. They considered the classification system index an instrument of the classifier, the open shelf order and the subject headings the instruments of the user.

The subject-heading-idea was taken over in Danish public librarianship simultaneously with the creation of the Danish classification system although no subject heading list appeared in print till 1928. The dictionary catalogue was the chosen catalogue form in the public libraries. Subject headings exist also in some research libraries, where they supplement the classified catalogues, which have always been the favourite catalogues in special libraries.

Subject headings are closely tied to the book collection to which they refer. Simultaneously with the centralization of library techniques for the public libraries at the Library Bureau the subject headings fell prey, because they could not be created centrally and be useful for all public library collections, as they are varying in size although of a similar profile. So the dictionary catalogues were gradually abolished and replaced by classified catalogues. Subject analysis at the Danish National Bibliography was not discontinued, but metamorphosed into augmenting the index terms of the classification system in tune with the growth of new subjects in the Danish book-market.

As an indexing technique this procedure can not be considered very advanced, although qualifying expressions and cross-references direct the searchers to more precision. The user is directed to the system and not to the documents which has been felt as a loss in these standard indexes to DK5.

Consequently the Library Bureau appointed a Subject Catalogue Committee in 1974 with the main aim or investigating and proposing the most suitable form of edp-produced subject catalogues for public and school libraries, of course with a view to the research libraries and to the international exchange of bibliographical data.

The work of the committee lasted for six years without leading to any definite resolution or solution of the subject retrieval problem. Two important reports from the year 1978 point definitely to the PRECIS system from the BNB as a system into which further investigations should be made (17, 18).

2.1 Precoordinate index systems

The theoretical work of the Indian mathematician and library philosopher Ranganathan had led to a deepened interest in the analysis and synthesis of the contents of documents, in Great Britain more than anywhere else outside India. It gave to a whole school of librarians and documentalists the impetus to the construction of special classification systems and to a more theoretical framework for indexing work. The idea of a fully descriptive verbal index statement and a fixed citation order between its elements inspired theoretical and practical indexing work with several aims: to give an adequate number of access points by means of the index entries and to make them co-extensive with the document contents in every single rotated index entry.

A rotation of the index statement elements facilitates a maximum of new fully descriptive access points in the index. The most elaborate of these precoordinate index systems and the one appealing most to the committee was found to be PRECIS.

If PRECIS had finally become the elect index system it would have determined the subject analysis work in connection with the Danish National Bibliography, with the bibliographical database (BASIS) which now contains 10 years of the Danish National Bibliography, and with the subject analysis at the Danish public libraries, the collections of which have already entered the BASIS base. Most of all the hesitations had economical backgrounds and had nothing to do with doubts as to the merits of PRECIS. The system was felt to be too good and to produce many more access points than might be necessary, maybe even that the idea of precombination might be replaced in a very near future by thesaurus-based descriptors, consisting mostly of single words, which could be combined freely, without any syntactical control.

2.2 Coordinate indexing

Coordinate indexing had been known for a generation, in use especially in technological libraries and in documentation centres in libraries and in private firms. When coordinate indexing became more widely known as the retrieval device characteristic of edp, guided and controlled by thesauri, the interest in precoordination performed by an indexer seemed to weaken. Although it was argued for instance by Jutta Sørensen (19) that the precoordination work performed by an indexer would greatly enhance the work of a user online with a database, PRECIS was taken off the agenda after a final meeting of the Subject Catalogue Committee with a large assembly of librarians in Ebeltoft in 1980 (20).

2.3 Indexing and classification system research and development work outside the committee

Danish research librarians, teachers and students at the Royal School of Librarianship took an active and interested part in the question of how to select the best

possible way of giving expression to the subject contents of documents.

The PRESOC-project was set up by the British Library and the Royal Library in Copenhagen (21). The aim of the project was to investigate the variations in the indexing output of two PRECIS-indexers indexing a number of sociological titles on the basis of subject descriptions drawn up by two sociologists. The conclusion of the investigation was that the PRECIS system did not fulfil the demands for precision and specificity claimed by the sociologists. A sociologist well-acquainted with the PRECIS-potential would most likely have performed better because of his familiarity with the documents and with the sociological terminology.

The INES-experiment (22) showed that verbal subject entries could greatly enhance the access possibilities to a test base of monographs in the fields of mass communication and media policy. A combination of free index terms extracted from the documents and controlled descriptors was judged by a group of library-school students to give much better search facilities than searching solely by means of the UDC and its indexes.

Out of the many theses written by library school students on the use of PRECIS in the Danish environment two have been published (23, 24), one choosing the best system for a press-cutting collection at a bigger public library, the other one comparing the indexes of a newspaper by means of KWIC indexing and of PRECIS. The newspaper articles were dealing with social science subjects.

The first investigation preferred a rotated index or a chain-index to PRECIS, which was found to be out of proportion with the rather limited collection. In the second investigation a PRECIS index was judged by a group of students to be more precise and to give a better recall than a KWIC index.

2.4 The cognitive point of view

Annelise Mark Pejtersen of the Royal School of Librarianship has been investigating the implications of a knowledge of users' needs for the construction of classification schemes and for indexing. When value preceptions and cultural factors form part of an information retrieval system the input and output situation is essentially changed as compared to indexing and search profiles for professional people searching for factual information. A system for the retrieval of fiction has been the point of departure for the research performed by A.M. Pejtersen (25, 26).

The cognitive aspect has been dealt with comprehensively at a number of conferences, e.g. at the Seminar on the Psychological Aspects of Information Searching in Copenhagen in November 1983 (27).

2.5 Danish participation in ISO-work

A sub-committee on thesaurus and terminology under the Danish Council for Standardization has been considering the ISO-drafts on indexing methods (ISO 5963) and on guidelines for monolingual and multilingual thesaurus-construction (ISO 2788 and 5964). Whereas the indexing draft and the multilingual thesaurus draft are likely to be issued as Danish standards with the English language-version preserved, the monolingual thesaurus-

draft was considered too sophisticated in its chapters on indexing terms and compound terms, dealing with problems of another character than the problems of indexing in the Danish language.

ISO 214 on abstracting has been translated into Danish and is going to be issued as a Danish standard before long.

3. Online catalogues and databases

A rapid change from hard copy catalogues to online catalogues is taking place these years. Electronic data-processing is known to have started in Denmark as early as 1955 at the Danish National Centre for Building Documentation in Copenhagen. However the automated system most widely known abroad is the ALIS-system of the National Technological Library of Denmark (Automated Library Information System). The system dates back to 1968, comprising now more than 125.000 records in the bibliographic database, which holds the collections of books and periodicals of this library, conference reports from Scandinavian libraries, and the collections of other Danish technological libraries (28, 29).

ALIS has a well-elaborated facility of searching hierarchically the schedules of this library's UDC-edition, in a way similar to the broadening and narrowing of a thesaurus-search. A study of the enhancing of subject retrieval in ALIS was the INES-project (22).

The SOL-system of the State and University Library of Åarhus and the AUBOLINE-system of Ålborg University Library are online retrieval systems with free text search facilities, devised by 1/S Regnecentralen [a Danish Hardware Company]. Experiences with these systems show an extensive use of local classification symbols but also relying on classification symbols and subject headings fetched from indexing of books catalogued at other libraries or from MARC-records (UK-MARC and LC-MARC) (30).

3.1 SAMKAT – the common cataloguing base of Danish research libraries

SAMKAT is a common cataloguing base with 12 Danish research libraries as participants. The database was established in 1979 and contains now more than half a million records. Together with the ALBA-base [Localization base for monographs in foreign languages] the SAMKAT-base operates as the localization instrument for monographs in foreign languages in Danish research libraries and for Danish-language literature in the 12 libraries.

Subject and classification data produced by individual libraries can be searched in these bases, complicated somewhat by various use of the danMARC subject fields. A uniform input practice is being established and is most certainly going to create better possibilities for subject searching.

The ALBA- and SAMKAT-bases form part of the bibliographic edp-system of the Danish research-libraries, holding also the MULTIMARC-base (records from UK-MARC and LC-MARC), the Danish National Bibliography and a periodicals-base. The total system giving subject retrieval possibilities to a vast number of subject packages from the UK-MARC, the LC-MARC and

from the Danish National Bibliography in addition to the ALBA- and SAMKAT-bases is described in a small booklet (31).

3.2 Discussion on further development of mutual cooperation between Danish research libraries

The vistas for further progress in the area of subject retrieval possibilities has been a bone of contention ever since the launching of the SAMKAT-project in 1979. Economic reasons have contributed to the lack of index terms in SAMKAT-records. An investigation committee was appointed in 1980 with the object of specifying the future structure of research library cooperation. In its paper IBIS of 1980 an integrated library information system was described with rather good considerations on the necessary subject retrieval facilities of the future (32).

This project has not yet been fully brought to life and remains a fountain of ideas. In the meantime the discussions continue (33) and were brought to an apex at a conference in 1984 in Nyborg on subject data in the online-age. The conference papers show an intense interest in improving existing subject retrieval facilities and gives moreover a bird's-eye-view of the state-of-the-art of subject indexing and subject retrieval in Danmark and abroad (34).

3.3 Online catalogues in public and elementary school libraries

At the Ebeltoft-meeting in 1980 (20), it became evident that a precoordinate index system would not be chosen for the public library database (BASIS) the records of which originate from the Danish National Bibliography and from foreign language monographs and periodicals in Danish public libraries. In 1982 the Library Bureau, which is responsible for the production of the Danish National Bibliography as well as for the DK5, for the production of printed cards and several other centralized library service functions, appointed a working-group to be concerned with future online-subject retrieval. The report of the working-group signalized a future with online catalogues in Danish public libraries in harmony with the conviction of the Library Bureau, that the online age was almost a fact (35). Consequently also, that indexing in the online age should no more endeavour to create syntactical indexing strings circumscribing in one verbal expression the subject contents of a document and being a document surrogate. The future should consist of controlled index terms, free and uncontrolled index terms originating from the document and natural language searching.

As the DK5 system was supposed to form an integral part of the subject retrieval part of the BASIS database, the syndetics of the thesaurus to come should be scantily developed and show only very flat word hierarchies.

Further work on this model is going on and subject terms are being added to the records of the National Bibliography. The subject terms are on the same specificity level as the contents of the document in question and are supposed to be operational both as equivalent verbal expressions of the contents and to be used in combination during a search. The thesaurus facility to come is supposed to be more user-oriented than docu-

ment-oriented and to be researched in the light of associative habits of users.

The BASIS database with its free text retrieval possibilities and its DK5-search possibilities was described by Paul B. Jensen (36). Whereas periodicals as such enter the records single articles from periodicals are not in this database.

A specification of how an article-database should be organized has been issued (37). Subject retrieval possibilities will be the DK5 classification symbols and controlled index terms. The database is an online version of the printed Danish Article Index with index terms selected from the articles indexed. A survey of the problems of subject indexing articles illustrated by examples of existing indexing methods was given by Anders Ravn, the leader of this index, in 1977 (38).

4. Foreign relations

The Nordic countries constitute a unity in many ways: for historical and cultural reasons especially. Naturally cooperation has been sought for also in the so-called bdi-sector (libraries, documentation and information). A common Nordic bdi-database has existed since 1979, containing by now up to 10.000 records, in Danish, Swedish, Norwegian and Finnish. A thesaurus guides the indexing. It has a special edition for each Nordic country. A manual to the handling of the searching has just appeared in its second edition (39, 40).

The Nordic bdi-index is just one instance of Danish activities in Nordic and international cooperation on online-databases. The number of databases with Danish Cooperation is growing quickly; a survey appeared recently proving very useful (41).

4.1 Other Nordic databases

The Nordic Energy Index — NEI — is a database started in 1981. The records in this database are provided with subject category codes from INIS and EDB (Energy Data Base); the records cover the whole of the energy area. A Danish-language description of the contents of each subject category and a keyword-index to the subject categories was published in 1984.

Other important Nordic initiatives are the BODIL-database containing building research with uncontrolled index terms, and the SCANP (Scandinavian Periodicals Index in Economics and Business) working with an English-language search aid thesaurus.

The SMOT database contains monographs in Scandinavian technical university libraries and is accessible by the ALIS system. The records are mainly classified by UDC, but some Swedish items also by Dewey or LCC.

4.2 Danish participation in international databases

The EUDISED multilingual thesaurus covers research and development in education (43). It can be regarded as a European counterpart of the ERIC thesaurus. The Council of Europe is the organization behind the EUDISED and the thesaurus now covers the nine languages of the EEC. A Danish edition of the thesaurus has appeared in 1984 (44).

The MDS system — Multilingual Descriptor System for the European Inventories on the Environment — is

also a multilingual system with Danish index terms in the thesaurus (45).

Participation in other international databases, e.g. AGRIS, deserves to be mentioned; the survey mentioned earlier presents a picture of the Danish contributions to this ever developing pattern (41).

4.3 Evaluation of the services of international commercial information systems

A project at the public library of Gentofte, supported by the ministry of culture, investigated for two years the effect of use of international information systems and national databases (46). In the conclusions of the project report it is recommended that Danish public libraries utilize in the future, where terminals are sure to be found in the libraries, the growing number of databases and information systems. A comparison on the costs of manual and online literature search could not be made because in many searches both search-ways could not be used.

Two research librarians at Roskilde University Library consider the use of the commercial information systems over-estimated, finding that online retrieval is no more than a supplement to the intelligent literature searching which can be performed in a well-established library collection. Online retrieval is costly and demands constant work with and insight into the structure of the bases (47).

5. Conclusions. Future development in subject retrieval in Denmark

An argument worth listening to in the discussion on the efficiency of modern subject retrieval is the question of the exhaustivity of indexing and classification: If verbal search keys furnish no more subject information than did the subject headings of the older model and the classification symbols, are they then worth having?

Technical possibilities for a full text searching inside reasonable economic limits could be a future aim.

In our literature indexing we are not digging very deeply into the treasures of information buried in the monographs and the periodicals. Indexing taking into consideration single chapters and minor parts of monographs, as has been shown in the Swedish research of Irene Wormell (48), could make the excavations of monographs similar to the depth indexing performed with articles in periodicals. This might one day change the present literature retrieval into a real information retrieval.

But the shorter intervals between computer generations do make a little futile the intensity of our contemplation on better subject retrieval, because the technological future is relatively unforeseeable, which was correctly emphasized by Annette Winkel at the online-conference in Nyborg 1984.

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