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UDC Centenary: the Present State and Future Prospects



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Survey on the activities going on to develop the UDC into a fully faceted classification system according to the Recommendations of the UDC Management Board. A Master Reference File (MRF) has been created from which any publisher or institution may develop its own versions according to the requests of its clientele. The UDC Technical Director at the FID Headquarters in The Hague maintains this File. An Editorial Board and an Editor in Chief was appointed. Extensions and Corrections are being published. Examples are given on ongoing revision work in the classes for Astronomy, Linguistics and Philology as well as in Medicine. Cooperation with the Editors of the Bliss Classification and the Dewey Decimal Classification exists.

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1. One hundred years of UDC

The UDC is celebrating its hundredth birthday this year and although that is something that we are very proud of, it is also a major problem. A classification that was designed for the organization of knowledge a hundred years ago, and indeed which was based on a structure that was conceived twenty years even before that, creates great problems in terms of maintenance and user satisfaction. One of the reasons why the scheme has lasted a hundred years is the way in which it was designed. The structure of the classification is one of extreme flexibility. This means that it is possible to join one part of the classification on to another using a simple notational device, very often a colon. It is also equipped with a number of auxiliary tables that permit the expression of a range of recurring concepts such as place, time, the form or language in which a document is published and so on. This facility has always had great attractions, especially for those concerned in detailed indexing work at the level of research papers, periodical articles, etc. Today, with the vast amount of information that can be accessed through the Internet it has even greater potential as an aid to retrieval, and it is already providing a map to those who embark upon the perilous journey of seeking information on the Information Superhighway in several small enterprises, such as

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the basic structure of the subject trees on the BUBL bulletin board - a bulletin board for librarians produced in Bath in the UK, and containing a range of general information, contents of journal issues, conferences, jobs, etc that may be of interest to librarians.

2. Changes are necessary

But, in order to achieve its full potential a number of changes are necessary. Some of these changes relate to the actual classification tables which I shall demonstrate later, but which are frequently unpopular with users of the classification because they do not wish to alter practices that have been well established for a number of years. This is particularly true of those parts of the world where the Online Public Access Catalogue is still not common and where the shelf arrangement practices within a library consisting largely of monographs are of paramount concern. These people cannot be ignored, because one the UDC's greatest attractions today is that it exists in a very large number of languages and is therefore a strong contender for use in the international exchange of information across language barriers.

3. UDC - a translational system

One of the biggest problems in accessing information in an online context is the assumption that everyone speaks English and that therefore the retrieval of information through words alone will meet all the demands made upon a system. I am sure this is a problem that you have encountered - indeed, here the reverse may be true and the assumption may well be that everyone speaks Russian - a fact that is only too clearly not the case, as you can deduce from hearing me! However, not all the world either understands or writes in English and therefore a systematic basis for retrieval, such as that offered by the UDC, has a far greater long-term potential than a system based solely on words.

4. Problems of maintenance

So, there are problems of maintenance because of the many widely differing demands made of the classification, because of the flexibility that permits the expression of a compound concept in more than one way, depending upon widely differing local needs, because of the uses to which it is put - the indexing of precise scientific reports,

of objects and realia as well as its use for traditional bibliographical listings, because of the variety of language editions and sizes of edition in which it is published and because of its structural basis. Historically, the way in which this classification which is used right across the world in wide range of languages and for an equally wide range of differing circumstances was maintained and revised was through a network of revision panels, each developing parts of the scheme and exchanging and agreeing revisions which eventually were implemented and incorporated into the classification. This is an extremely slow and very expensive way of developing a system and in 1989 the FID set up a Task Force to look into the future of the classification and to make recommendations about its future. I was invited to chair the small international panel that was appointed to undertake this task.

5. The recommendations of the UDC Management Board in 1990

The Task Force reported to the UDC Management Board in March 1990 and it made a number of recommendations, many of which have since been put into effect. These were all aimed at getting the scheme up to date as speedily as possible and at placing it on a firmer financial footing. Probably the most important proposal was that a machine-readable Master Reference File should be created, so that the whole scheme was in a form that was readily available and could be quickly updated. So, work began on the creation of the Master Reference File which constitutes the 'standard version' of the UDC. It contains about 60,000 divisions and subdivisions (or classes, as UDC calls them) so is considerably larger than Dewey, and is c. 20,000 classes larger than the English Medium Edition of the UDC which was used, together with subsequent Extensions and Corrections, as the basis of the File. This was completed in 1993 and it is at present maintained by the UDC Technical Director at The Hague.

6. The Master Reference File

This version is smaller than the full edition with which some of you may be familiar, which has caused some disappointment amongst specialist users for whom the greater detail of the old full schedules has many attractions. It was felt, however, that to begin with, a Master File of manageable proportions must be created and it was also strongly felt that one of the working languages should be English. The English Medium Edition of 1985/88 and all subsequent additions and corrections were already in machine-readable format, so there was a good starting point and this, together with later editions of the scheme, especially those in French, Serbo-Croat and Japanese, were drawn upon as the basis of the File. It is at present in English but the intention for the future is that versions will be created in other languages also. German is intended to be the second language for the file and doubtless French and Spanish will follow not far behind. If someone, or a group of persons wishes to produce a Russian version, it

would be extremely useful, and that is something that you may wish to discuss with me later. It is felt strongly that two languages, as a minimum, are necessary for use in a scheme intended for international usage and to assist in the refinement of the terminology selected. The problems are those of funding and finding the expertise to undertake the work.

7. The introduction of an Editorial Board and an Editor in Chief

Among other recommendations made by the Task Force was the need for some action to meet the criticism that the system of revision by committee did not work properly. It was also felt that it was no longer possible for FID to continue to try to run a major classification scheme on a diminishing budget depending upon voluntary input from a variety of people. Some better means of controlling revision had to be found, and it was agreed that a properly worked out long-term programme was necessary with firm decisions being taken and adhered to. To handle revision, a small advisory panel was originally set up but it was subsequently decided that it would be a better solution to appoint an editor in chief and an editorial board. This board was set up in 1993 and I was invited to act as editor in chief. At about the same time the "ten-year rule" was rescinded. This practice of freezing a number for that period of time before it could be re-used, slowed down revision and was not felt to be realistic.

8. The UDC Consortium and the new revision policy

In January 1992 FID ceased to have overall responsibility for the scheme and passed this to a Consortium of publishers. This Consortium is collectively responsible for funding, developing and managing the classification. It consists of six members who represent the major publishers of the classification - the British, Dutch, Belgian, Spanish and Japanese publishers, together with FID, the original owners of the classification. The technical direction is managed by them, at present through their appointed Technical Director, and the development of the classification, though their ultimate responsibility, is undertaken by the editor in chief and such experts as are needed to develop, revise and evaluate revisions, on a contractual basis. This is a complete reversal of the previous policy whereby a series of national and international panels considered all revisions and they were discussed at length, usually over a period of at least two years. The reason for ceasing this practice was that as a rule the committees involved, for excellent reasons, tended to disagree, and the result was that with fast-moving subjects, the scheme rapidly got very out of date. The present method is a policy of pragmatism rather than perfection.

9. The machine-readable UDC version

The Master Reference File is probably the first thing that is of interest. This is the machine-readable version of the UDC which now constitutes the authorized version of

the scheme. As I mentioned just now, it is maintained at the Hague and is available for sale under licence either to publishers other than those who are already members of the Consortium, or to individual institutions or to networks. The database contains the complete text of the classification - notations and descriptions - annotations, references and examples. The subscription for a licence covers three years and includes the annual updates for the period paid for. The MRF is licensed in two ways. There is a publishing licence allowing the production of non-English language versions of the classification to be distributed in printed or machine-readable form. There is also a non-publishing licence, allowing the use of the MRF on-site within an organization for its own documentation or library system, without distributing it to others.

10. Extensions and Corrections to the UDC

As you know, the Master File is at present in English and the first hard copy version of it to be published was produced by the British Standards Institution in March 1994. They are about to publish the first update to that edition, incorporating the changes that have been authorized over the past two years - the period since the database was completed and the date at which they began production of their hard copy edition. Revisions are published by the Consortium on an annual basis, normally in October or November, in the publication known as Extensions and Corrections to the UDC. Its title is in some ways a misnomer since, although it does continue to provide an updating service and to correct errors in the Master Reference File, it includes other features. It provides an up to date list of nation states with their notation. (Last year's list is that current at the end of April 1994). It contains proposals for new revisions to classes on which comment from the readership is invited. The last issue also includes a bibliography of recent articles on UDC and reports on revision in progress from those responsible for doing the work. There is also an editorial report and reports from users of the scheme in France and Estonia. The current issue also published new and more detailed area tables for Australia and France, and a revision for Southern Africa to accommodate the new South Africa as well as recast class 9 which I shall speak about later, and minor corrections and additions to other classes.

11. A new revision schedule necessary

The Master Reference File is by no means an ideal product, but it is a start. We are moving on several fronts to improve the scheme. One of the first things that I did when appointed editor was to draw up a schedule for revision. This operates on two levels - the cleaning-up and updating that is the routine process of any editorial function and the "bottom-up" revision of the type that the Dewey Decimal Classification for many years described as phoenixes (1). We have plans for the second and hope to produce a radical revision for Medicine within the next year or so and one for Computer Science currently being

developed by the Japanese this year. Updated and less radical revisions for Astronomy and Chemistry are also in the pipeline for this year.

But the aim is to carry out a thorough overhaul, class by class, beginning with clarifying and standardizing the special auxiliary tables. UDC is equipped with an array of these special tables of limited application and while some of them are so specialized as to be only applicable at one point within a specific class, a great many concepts represented in these auxiliaries apply over a range of disciplines, though not over the whole of knowledge. This is already to some extent acknowledged in UDC. Class 7 has a set of subdivisions at the head of the class introduced by .0 which applies to all the arts other than Photography. Similarly, at 62 there is a set of subdivisions introduced by the hyphen which applies through the greater part of class 6. For the future, the intention is to equip each "main class" (i.e. major notational grouping of classes sharing similar characteristics and interests) with a set of auxiliaries that applies throughout the class, in preference to innumerable series of little tables, often consisting of only one or two numbers. As the classification is at present, it is very easy to lose sight of where these tables can be used. It is very difficult for a novice to apply the classification because the layout in many editions does not assist with clear instructions or examples of how the numbers should be constructed. We feel it would be much easier to implement the classification if the classifier is given clear instructions at the beginning of each class and if there is one auxiliary table applicable throughout it. This would abolish the uncertainty about what can be used where, which I suspect is the case at present. This uncertainty often leads to classifiers not making the most of the facilities offered by the scheme.

12. Moving towards a faceted UDC

The first class to be so tackled will be Class 3 - Social Sciences. In this way, we hope to clean up some of the inconsistencies that permeate the classification through generations of attempting to cobble a synthetic structure on to what started life as an enumerative scheme. In other words, we are hoping to eliminate the spelling out of compound concepts and instead create a fully faceted classification where every concept is expressed in simple terms and the classifier does the combination at the input stage. By beginning with the auxiliaries, we then hope to iron out the compounds in the classes to which they apply and to build up a much more consistently and clearly faceted scheme. By distinguishing in the notation the concepts expressed by these auxiliaries, the qualities of the scheme for machine-searching should be greatly enhanced.

13. Experiences from revisions in Class 8

The creation of a totally faceted scheme has already been embarked upon. Some three years ago a new edition of class 81 - Literature, was published, together with the

totally revised accompanying auxiliary tables, on which the specification of concepts in this subject field depends - those of language and also the ethnic and racial characteristics that are derived from the language auxiliaries. This is obviously a class that lends itself to a faceted approach and indeed always was so conceived both in DDC and in UDC, even if not so described. The 2nd edition of the English Medium Edition is the first published version of the complete scheme to contain this revised class. The new subdivisions are much more in line with modern approaches to linguistic classification and some improvements were introduced last year also to the remaining section of class 8 - linguistics, philology, etc.

The revision of class 8 was total. It had a long history and was the subject of much international debate, going back to the 1980s and the days of the old revision committees that I mentioned earlier. It has not been universally well received by practitioners in libraries, although it has been widely praised by specialists in the linguistics field and this demonstrates many of the problems that we have to face with revisions. I would welcome comments from you as users as to the best way that this problem can in general be tackled. Whatever we do, we will get criticism. If you do not revise outdated parts of a classification it is immediately decried as being out of touch with modern developments. If you do revise it, you immediately receive a welter of complaints from long-established users who do not wish to change their classification practices. It is an even greater problem with a synthetic classification like UDC than with an enumerative one like Library of Congress because the facility for combining numbers greatly increases the probable range of class marks that need to be altered whenever a major revision is undertaken.

14. The problem of consistency of notation

So class 8 is a good example of our planned future developments and also of the likely reception that we shall get from changes. But in order to create a scheme that can be used reliably for machine retrieval, consistency is essential and the expression of a concept consistently by the same piece of notation is a prerequisite. At the moment, it is frequently possible to create perfectly correct but widely differing class numbers for the same item, as any comparison of two libraries' catalogues will quickly demonstrate. We realize that this has advantages as well as disadvantages - it is very convenient to be able to "do your own thing" - but it is also difficult for the user to understand that this is happening, and nowadays when it is possible from one's own terminal in one's own office to access catalogues all over the world through the Internet, it is even more difficult for the user to understand that the same concept may not be expressed in a standard fashion, especially as he normally keys straight in to the catalogue rather than first reading the explanation, that may or may not be mounted on the system, outlining how the classification works. These are difficult times because everything is moving so fast, but simpler rules and standard practices

can only assist in the long term in the interchange of information.

15. Using earlier revision work, e.g. in Astronomy

Not all the classification needs the total restructuring that was undertaken in class 8. Astronomy was revised on faceted principles some twenty years ago and is at present being updated. This task has been rendered much simpler because here the earlier revision was based on a faceted structure and a feature of the revision currently being undertaken is to combine it with the International Astronomical Union's thesaurus produced in Australia and Robyn Shobbrook, the compiler of that thesaurus, is assisting in the revision work. This linking of the classification to a thesaurus is something that we regard as important for the future and is reflected in another research project, to which I shall refer in a moment.

16. Intended working with "parallel subdivisions"

Another way in which we intend to improve the scheme relates to the technique known as "parallel subdivision". Through this device, a number from one part of the scheme is added directly on to another with no distinguishing element. Class 61 Medicine is an obvious example where, as in Dewey, the same numbers are used for the anatomy, physiology and pathology of a specific part of the body, building the numbers in 611 - Anatomy on to 612 - Physiology or 616 - Pathology as appropriate. This clearly achieves an economy in the notation but it has the problem for use in an automated system of having no distinct identifier and therefore it is not possible to retrieve, for example, all literature on the heart by searching on one number, which in an ideal situation would be possible.

17. Examples from Class 9, History and Geography

One of the most pervasive places where this happens is in class 9, History and Geography, where the notation from the Area Table is added on to the appropriate number from class 9, usually 91 or 94/99, to express the geography or history of an area, as required. Since the 1930s the UDC notations have been spelt out exactly like the Dewey numbers which means that there is no facet indicator to show clearly that place has been added, so 914.7 is the Geography of Russia, 947 is the History of Russia and (470) is used in most other places to denote Russia. This results in the situation where a person requiring everything on a particular area needs to search on three different numbers at least - a fact that is neither evident nor memorable for the average library catalogue user. Similarly, each country has its own special auxiliary for dates in History, in spite of the fact that there is a Table of Common Auxiliaries of Time. So last year (2) a revised class 9 was published though, unlike class 8 (which was a totally restructured scheme with wide-ranging notational changes both in the main classification and in the accompanying auxiliaries) this time the original concepts and notations

have been kept but the enumeration has been disposed of and each concept is individually identified as an area, date or main branch of the discipline.

18. Revision of 'Medicine' in cooperation with the Bliss Classification Editor

So, by eliminating compound concepts and by cleaning up the special auxiliary tables we are attempting to create a classification that is more amenable to machine searching. But it is a slow process and some sections of the classification are so dated as to need a total restructuring. One such class is 61 - Medicine. Here, a totally different approach is being adopted.

At the 5th International Study Conference on Classification held in 1991 Professor Nancy Williamson of the University of Toronto gave a paper demonstrating how the Bliss Bibliographic Classification might be used as the basis of a UDC-like classification cum thesaurus, taking class T - Economics as a test field (3). Since BC2 is the most recently developed general classification and the only one (apart, of course, from the Colon Classification) with a totally faceted structure, it was felt that the results of Professor Williamson's preliminary investigations were sufficiently promising to persevere with. Therefore, she, I and Jack Mills, the editor of the Bliss Classification, met together and discussed the possibility of taking the BC structure and analysis and building on to it a UDC-like notation. Mills recommended Medicine as suitable discipline for such an experiment since it contains elements of Science, Social Science and Technology, and this accorded well with the need for a new class in UDC.

In 1993 a pilot project (4) was conducted to investigate the possibilities and the results were sufficiently promising to lead the UDC Consortium to enter into a formal arrangement with the Bliss Classification Association. It has been agreed that we may develop and convert such classes as seem appropriate (subject to the Bliss Classification Association's approval) into UDC schedules, on payment of a royalty and with due acknowledgement of the debt to the original in any printed version. This is a reciprocal agreement so that, should they wish, the Bliss Classification Association may similarly borrow the terminology or the subject structure from the UDC. This project is proceeding - developments were reported by Professor Williamson at the ISKO Conference in Copenhagen in June 1994 (5) and at the ASIS meeting in October 1994, and in due course the hope is to produce a new UDC schedule for Medicine, based to a large extent upon the BC subject structure. This is a far from easy undertaking and some of the difficulties have been reported. But the intention is to provide a fully faceted classification accompanied by a thesaurus, hopefully within the next two years.

19. UDC schedules accompanied by thesauri

We think that this project is important for a number of reasons. One is the creation of an accompanying thesaurus

to complement the systematic display created by the classification. We feel that this is likely to have greater appeal to the modern approach to information retrieval and is something we are also doing with the Astronomy revision. Both the Medicine and the Astronomy revision, but more especially the Medicine one, involve the work of another organization, and we think that this co-operation has great potential for the future development of retrieval systems. It is not helpful to have a number of different systems in operation internationally, or even nationally. It is even less helpful, in economic terms to say the very least, to have several organizations spending money on revising the structure of the same discipline. The production of revisions is very costly. It requires a great deal of intellectual input, and a great deal of consultation both with experts on the subject and with those who are actually going to use the system. It also makes very little sense professionally to have two (or more) different semantic structures for the same subject, even if the notational expression of those concepts is different. We therefore feel that there should be much greater co-operation between those responsible for the maintenance of the widely used classification schemes. This agreement with the Bliss Classification Association is of mutual benefit, since we interchange revisions, and I sit as an observer on their Revision Committee while the editor of that scheme has observer status on the UDC Editorial Board.

20. Cooperation with the Dewey Decimal Classification Committee

We are developing similar connections with those responsible for the Dewey Decimal Classification. The editor of Dewey is also an observer on the

UDC Editorial Board and I am an observer on the British Library Association's Dewey Decimal Classification Committee. We are in close communication with the Forest Press, the publishers of the Decimal Classification, and hope to develop similar co-operative projects with them. As a first step, we are at the early stages of negotiating the possibility of publishing a joint area table so that Dewey and UDC would have one standard set of notations for the expression of countries, though the facet indicators used by the two schemes to introduce these notations would remain individual - the -09 in DC and the curved brackets in UDC.

21. Responsibility and rights of individual UDC publishers

The development of a more consistent, faceted approach which I have said quite a lot about, throws a great deal of responsibility on the designer of the classification and in addition, it has implications for the publishers of the classification. You should be aware that although there is one body, the Consortium, responsible for the Master Reference File, that File only exists in a machine-readable format, as far as the Consortium is concerned, and the hard copy versions, or versions in any other format, are the

responsibility and the copyright of the individual publishers. This means that a publisher who is a member of the Consortium may shorten the Master version, if it suits his needs, or that he may add expansions for topics that are of local interest, most obviously perhaps, in the area table, where smaller units than those in the "authorized version" may be wanted. Such a publisher may also, of course, translate the text and may publish it in any format he wishes, e.g. CD-ROM, loose-leaf, etc. He may also add whatever instructions he wishes or explanations and examples. By and large, the provision of instructions and examples has traditionally been fairly sparse in the printed editions. The Master Reference File itself contains rather more examples than have been found in many earlier versions and the further development of a faceted structure means there is a need for instructions relating to combination order where the scheme is used in any context requiring filing or shelving and more explanation of the structure.

22. Publication of a Guide to the UDC

One way in which we have attempted to meet this need already is with the publication of a Guide to the use of the scheme, which was published last year and has already been translated into a number of languages. But instructions and examples will need to be greatly increased in the published versions of the scheme also, in order to make the task of the classifier easier. Unlike the other major schemes in widespread use, namely the Dewey Decimal Classification and the scheme used in the Library of Congress, UDC is not very often found in cataloguing information supplied by co-operatives - there are, for instance, very few UDC class marks allocated on the vast number of records in the OCLC data base, as can easily be seen if you do a class mark search, and this means that very little help can be derived from available sources at present, putting greater onus on the individual publishers of versions of the classification.

23. UDC in libraries or national networks

The development of the product in different formats is not something that we have overlooked. As already mentioned, the MRF is available in a machine-readable version and can be supplied under licence to individuals or corporate bodies. In its present form, it is probably more useful to publishers than to libraries or national networks, but a number of the latter have invested in it. These institutions buy it and mount it on their online catalogues. This provides the facility to identify the class mark for a particular topic, but it does not assist in discovering whether there is anything on that topic in the system. It does not, therefore, really do a great deal more that can be done by putting a hard copy of the scheme by the catalogue. Similarly, at present, it is of no great assistance to the classifier, since it does not really help in indicating what auxiliaries are relevant, etc. at any particular place.

24. Considering requests from users

The Spanish have provided a hypertext version on disk for a portion of their abridged edition, but this is an area where there is ample scope for development. One of the worrying factors about such products that have been discussed in relation to UDC up to the present is that the people designing them do not distinguish clearly between what is needed for the editing and maintaining of the classification and what is needed by the end-user. Systems designed for the former tend to be bent to meet the requirements of the latter and the results are not always very satisfactory. Clearly, there is scope for the development of versions that would fulfil these needs. Some plans are in the pipeline but have not yet been developed, largely on account of the expense involved.

25. UDC as a tool for future knowledge organization

So, the UDC Consortium is attempting, as far as it is able, to maintain and develop the UDC as a tool for knowledge organization that will carry on into the second century of its existence. It is attempting to meet the needs of its users in a variety of different circumstances and areas and it continues to work towards providing as good a tool for information retrieval as possible. It sees its future as a tool for processing information across language barriers but it realizes that in order to do this effectively it will have to introduce a greater measure of standard practice than has been the case in the past and it will have to submit all its tables to a rigorous editorial process in order to eliminate ambiguities. It is always anxious to identify people who would like to assist in the task of revision and will be glad to know if there are any in the audience here.

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