bulletin
MINISIS
newsletter

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In this issue:

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This newsletter is published by IDRC as a medium of communication among the members of the MINISIS Users' Group.

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Ce bulletin est publié par le CRDI afin de procurer aux membres du Groupe des usagers de MINISIS un moyen de communication.

Foreword

We are happy to welcome three new people to IDRC's MINISIS support team. As our new Head of Computer Operations and Applications, Richard Palmer will be responsible for the library of user-contributed MINISIS software. Michel LeBrun and Mike Sherwood have recently joined the Outreach group. As the MINISIS resource person for South-east Asia, Mike will be posted to Los Banos, the Philippines, starting in late February, 1984.

Shahid Akhtar has returned to IDRC's Ottawa office and is now Associate Director, Socio-Economic Information Systems and Networks in the Information Sciences Division. Maria Ng has taken over Shahid's former position as Information Sciences representative in IDRC's regional office in Singapore.

M. Raymond Aubrac has retired as IDRC's Information Sciences Division consultant in our Paris office. His successor in this position is M. Roch de Mautort. M. de Mautort comes to IDRC from UNIDO, where he managed UNIDO's Industrial Information Programs.

Mr. John Woolston, former Director of IDRC's Information Sciences Division, has accepted the post of Vice-President, Information Programs. Ms. Martha Stone succeeds Mr. Woolston as Director, Information Sciences.

Those of you who remember Faye Daneliuk, the designer of the MINISIS system, when she was Head of our Future Systems Group, will be interested to know that she has returned to IDRC as Associate Director, EDP Services, within the Office of the Comptroller General and Treasurer. Although Faye will no longer be involved directly with MINISIS activities, we are pleased to welcome her back into the IDRC family.

Mounir Tadlaoui, whom many of you know from past Users' Group meetings, has informed us that he is no longer with the Centre National de Documentation in Rabat; he is currently posted to Regie des Tabacs, Bd. Moulay Idriss ler, Casablanca 03.

One of the current activities of the Future Systems Group is the development of the microcomputer-based data entry package. They will begin testing of the internal routines at the end of January, and hope to have the basic functions completed by the end of April, 1984. The Group is also working on the data dictionary feature. SDI development is complete and the SDI facility is being tested at another MINISIS site.

New members of the Users' Group are: National Council of Applied Economic Research, New Delhi; PDIN, Jakarta; INFOTEC-CONACYT, Mexico; the Ministry of Industry and Minerals and the State Organization for Engineering Industry (SOEI), both in Baghdad; Seoul National University's College of Agriculture in Suweon and Yonsei University in Seoul; the Arab Organization for Agricultural Development (AOAD) in Khartoum; and Petronas in Kuala Lumpur. Installation and training have taken place for all the above sites except for AOAD and Petronas. Training for SOEI and the Ministry of Industry and Minerals was conducted jointly by IDRC's MINISIS Outreach Group, and the Documentation Centre of the Arab League (ALDOC), who also contributed their knowledge and experience of the Arabic version of MINISIS to the training course.

We neglected to mention, in the last issue of the Newsletter, the involvement of the Centre National de Documentation Agricole, Tunis, in the MINISIS installation and training for the Arab Industrial Development Organization (AIDO) in Baghdad. M. Ahmed Gharbi, the CNDA staff member who took part in the AIDO training course, was wholly responsible for training and installation at CNUDST in Tunis.

Among the new licensed by the MINISIS distributors are l'Institut du Monde Arabe and l'Institut Francais de l'Energie in Paris, Politecnico di Torino, the Metro Toronto Library System and the National Research Council of Canada.

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Préface

Nous sommes heureux d'accueillir trois nouvelles recrues au sein de l'équipe de soutien de MINISIS du CRDI. Richard Palmer, le nouveau chef des opérations informatiques et applications s'occupera de la bibliothèque de l'usager du logiciel MINISIS. Michel LeBrun et Mike Sherwood se sont récemment joints au Groupe de diffusion. A titre de personne-ressource de MINISIS pour l'Asie du sud-est, Mike sera affecté à Los Banos (Philippines) au début de février 1984.

Shahid Akhtar est revenu au Siège du CRDI à Ottawa à titre de directeur associé du systèmes et réseaux d'information socio-économique à la division des sciences de l'information. Maria Ng a remplacé Shahid au poste de représentant des sciences de l'information au bureau régional du CRDI à Singapour.

M. Raymond Aubrac a pris sa retraite et a été remplacé par M. Roch de Mautort dans le poste de consultant de la division des sciences de l'information à notre bureau de Paris. M. de Mautort s'occupait des programmes d'information industrielle à l'ONUDI avant de se joindre au CRDI.

M. John Woolston, ancien directeur de la division des sciences de l'information du CRDI, a accepté le poste de vice-président, programmes de l'information. Martha Stone lui a succédé à la tête de la division des sciences de l'information.

Ceux et celles qui se souviennent de Faye Daneliuk, la personne qui a mis au point le système MINISIS lorsqu'elle était chef du Groupe des nouveaux systèmes, seront heureux d'apprendre qu'elle est revenue au CRDI à titre de directrice associée des services TED au bureau du contrôleur général et trésorier. Même si elle ne s'occupera plus directement des activités de MINISIS, nous la félicitons de son retour dans la famille du CRDI.

Mounir Tadlaoui, que beaucoup d'entre vous se rappelleront avoir rencontré aux réunions du groupe des usagers, nous a informé qu'il n'est plus au Centre national de documentation à Rabat, mais à la Régie des tabacs, Bd. Moulay Idriss ler, Casablanca 03.

Le Groupe des nouveaux systèmes travaille actuellement à la mise au point d'un progiciel d'entrée de données pour micro-ordinateur. Il commencera les essais des programmes internes à la fin de janvier et espère avoir achevé l'établissement des fonctions de base d'ici la fin d'avril 1984. Le groupe travaille aussi au répertoire des données. Le DSI est au point et est en cours d'essai à un bureau qui est équipé pour MINISIS.

Les nouveaux membres du groupe des usagers sont: le Conseil national de la recherche appliquée en économie, New Delhi; le PDIN, Jakarta; l'INFOTEC-CONACYT, à Mexico; le Ministère de l'industrie et des minéraux et l'Organisation d'Etat pour l'industrie d'équipement (SOEI), tous les deux à Baghdad; le Collège universitaire national d'agriculture de Séoul à Suweon et l'université Yonsei à Séoul; l'Organisation arabe pour le développement agricole (AOAD) à Khartoum; et Petronas à Kuala Lumpur. Le système est installé et le personnel requis a été formé chez tous les usagers sauf l'AOAD et Petronas. La formation au SOEI et au Ministère de l'industrie et des minéraux a été assurée par le Groupe de diffusion de MINISIS du CRDI et le Centre de documentation et d'information de la ligue des Etats arabes (ALDOC), qui a aussi contribué au cours ses connaissances théoriques et pratiques de la version arabe de MINISIS.

Nous avons oublié de mentionner dans le dernier bulletin que le Centre national de Documentation Agricole, Tunis, avait participé à l'installation du système MINISIS et à la formation du personnel à l'Organisation arabe de développement industriel (AIDO) à Baghdad. M. Ahmed Gharbi, l'employé du CNDA qui a participé au cours de formation à l'AIDO, s'est chargé entièrement de la formation du personnel et de l'installation du système au CNUDST à Tunis.

Au nombre des nouveaux usagers ayant reçu une licence des distributeurs de MINISIS sont l'Institut du Monde Arabe et l'Institut Français de l'Energie à Paris, le Politecnico di Torino à Turin, le réseau des bibliothèques du Toronto métropolitain et le Conseil national de recherches du Canada.

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MINISIS Project Advisor - Asia

There are currently 24 MINISIS installations in the Asian region. It is a higher concentration than anywhere else except North America and there are many indications that the number of installations in Asia will continue to grow. In order to respond to this large and growing MINISIS community, IDRC has decided to post a MINISIS Project Advisor in the region. The MINISIS Outreach Group was fortunate to be able to recruit Mr. Michael Sherwood for this position. For the last six years, Michael has been a library systems analyst within the Library and Regional Documentation Centre at the Asian Institute of Technology in Bangkok. He is well known within the information community in Asia and the ISIS community around the world. The MINISIS installation at SEARCA, in the Philippines, has generously agreed to provide office and computer facilities to Michael. In addition to providing initial training to new users of MINISIS and installing and demonstrating the MINISIS software, Michael will be providing technical assistance to current users of MINISIS in the region. From the 2nd of January to the 17th of February Michael was in Ottawa learning more about MINISIS and he arrived in the Philippines at the end of February. Users in the region can correspond with Michael at the following address:

Mr. Michael Sherwood
c/o Southeast Asian Region Centre
for Graduate Study and Research in
Agriculture (SEARCA)
P.O. Box 720 MCC
Makati, Metro Manila
Philippines

Terry Gavin
Head
MINISIS Outreach

The Fifth Annual MINISIS Users' Group Meeting

The fifth annual meeting of the Users' Group took place in Wageningen, the Netherlands, in October 1983. It was hosted by the BAS Project Team of the Agricultural University of the Netherlands with assistance from RAET, the distributor for the Netherlands.

The meeting was very successful, thanks to the efforts of the hosts and the many interesting presentations given by the participants. Among the user presentations were a demonstration of the LOANS processor by the BAS Project team and a demonstration of the alternate character set facility using the Arabic character set, by ALDOC.

We would like to thank the Hewlett-Packard regional offices who played an active role in this meeting: H-P Netherlands for assisting the hosts, and H-P Geneva for providing the HP 2622A terminal with Arabic option for ALDOC's demonstration of MINISIS with the Arabic character set.

The Users' Group accepted the offer of the United Nations Economic Commission for Africa to host the next meeting in Addis Ababa, Ethiopia, in 1984. The date of the meeting has been tentatively set for 1-5 October 1984.

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A Simple Operational SDI Service

The purpose of this short note is not to tell you about a newly developed and sophisticated SDI module. It is simply to explain our experience since the beginning of this year in providing SDI service from Commonwealth Agricultural Bureaux (CAB)* tapes using some conversion programs and the standard MINISIS package.

We were forced to use existing MINISIS options to give SDI service for two major reasons:

(a) The bulk of our users, agricultural researchers throughout tropical Africa, have very limited access to current professional journals. Many research institutes get one or two journals, and in most cases several months after publication. SDI service is an effective way of getting relevant and timely information to these people;

(b) We don't have any other option except using our HP 3000 and MINISIS to provide this service (e.g. like FLIRT for PUDOC).

*More recently we have also started using AGRIS tapes for SDI.

Every month, CAB tapes are converted and processed against some 300 profiles of ILCA's scientific staff and researchers of different African countries (Table 1).

COUNTRY	NO. OF PROFILES
Botswana	6
Burundi	6
Cameroon	1
Ethiopia	33
Gambia	2
Ghana	3
Guinea	1
Ivory Coast	1
Kenya	48
Madagascar	3
Malawi	2
Mali	10
Mauritius	2
Niger	3
Nigeria	58
Rwanda	5
Senegal	4
Sierra Leone	2
Somalia	6
Sudan	7
Tanzania	3
Upper Volta	2
Zaire	25
Zambia	3
Zimbabwe	8
ILCA Staff	40

Table I Country distribution of ILCA SDI users

The profiles have been set-up using a questionnaire in most cases, while personal interviews are used when the users are easily accessible (e.g. ILCA staff members).

When a new tape comes in, it is first converted to an ISO 2709 format using a program obtained from IDRC, and then to a MINISIS data base using ISOCONV. Then a number of jobs are run to do inversions on journal codes, titles, descriptors and language of text. The entire conversion and inversion process takes about 10 hours for 6000 records on our HP 3000 model 44 machine with other scientific and administrative programs running concurrently.

The search and printing steps are conducted on-line from the QUERY processor using each individual's profile, which is kept as a unique file after it has been tested in previous runs. This exercise gives us the opportunity to evaluate the type of references retrieved by profiles, particularly in the case of complicated requests. This will also enable us to edit profiles regularly, especially since some profiles abort searching with an "illegal term" message when previously used key-words are not found in the current tape.

The on-line searching and printing of the output takes about 18 hours for some 250 profiles. Again consideration should be taken to the fact that several other sessions of scientific and administrative programs are running concurrently.

Our users are happy with the output they are getting from our SDI service. One of them commented as follows:

> I have screened the output (SDI) over the last three months and found that you are picking up almost everything that I find of interest from more extensive searching (done elsewhere), and that you are also finding additional information that I am missing. I have, therefore, reprogrammed my reading to rely more heavily on your SDI output, as this is saving me a fair bit of time.

With basic applications of MINISIS, we are able to provide a satisfactory SDI service to our users.

We hope the new SDI processor will help us to reduce the time involved, and to support a larger number of profiles.

Michael Hailu
Library and
Documentation Services
ILCA

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Thesaurus Development in a MINISIS Environment

[This article discusses three programs contributed by the writer to the MINISIS User-contributed Library. The programs - VERIFY, INSERT and MATCHUP - were released with MINISIS Version F. Ed]

Introduction

This article grew out of a project at the World Bank Records Management Division in 1982-1983 to develop a joint World Bank - International Monetary Fund thesaurus.

The MINISIS multilingual thesaurus feature is well-adapted for use in conjunction with a bibliographic database in the QUERY processor, with commands available to "navigate" through the logical structures of the thesaurus.

MINISIS is less well suited to the development and maintenance of a thesaurus. The best approach to this problem is usually to maintain a Master/Xref database of thesaurus terms and, from time to time, to reload the thesaurus using THLOADER. In the absence of a thesaurus maintenance module within MINISIS, this seems likely to remain the only feasible approach.

The existing MINISIS processors (ENTRY, MODIFY, QUERY) support a large number of the functions associated with thesaurus maintenance: entry and modification of records, searching for inconsistencies (e.g. forbidden term records containing also a related term), some statistics-gathering (through INDEX), and a fair range of display formats (through INDEX and PRINT - a KWIC index is especially useful). The THLOADER utility provides a (limited) set of checks of structural terms.

The World Bank thesaurus project team identified and implemented the following set of additional utility functions in support of the thesaurus-building effort:

i. Validation of structural relationships without using THLOADER.
ii. Enhanced structural validation:
    - reciprocal relationships
    - Use For(UF) and Use Term(UT) validations
iii. Hierarchical display of thesaurus.
iv. Validation of terms in existing bibliographic databases against the working (i.e. Master/Xref) thesaurus file.
v. Automated insertion of Top Term(TT) in thesaurus records.

Enhanced Validation of Reciprocal Relationships

The program THLOADER will partially validate the BT, NT, RT relationships. It will verify that the term referred to exists but not that a structural term exists in that record pointing back. In addition, it will not validate the UT or UF (Used For - carried in MT record to point to the FT which points to it) relationships.

The program VERIFY.OBJECT.MINLIB in the MINISIS User-contributed Library will verify the following reciprocal relationships (i.e. will ensure that each structural term points to a valid MT/FT which has in turn an appropriate backward pointer) :

- RT
- BT
- NT
- UT
- UF

The program processes INDEX-compatible files extracted from the database of thesaurus terms and produces a error listing of unbalanced structural terms. The program documentation is found in VERIFY.DOC.MINLIB and the source (written in COBOL/3000) in VERIFY.SOURCE.MINLIB. The program is fairly modular and can easily be modified to suit local requirements.

Printing a Hierarchical Display

A useful product of the thesaurus-building process is a formatted hierarchical display (i.e. a listing of database terms in hierarchical order from top to bottom). Conceptually, this display can be thought of as following the NT relationship from top to bottom. An example of such a display might be:

```
Plants
 Fruits
  Citrus Fruits
   Oranges
   Grapefruits
   Lemons
  Non-Citrus Fruits
   Bananas
 Vegetables
  Green Vegetables
   Peas
   Beans
  Non-Green Vegetables
   Carrots
   Beets
```

These hierarchical relationships are maintained already in the database of terms. The fields Main Term (MT), Broader Term (BT), and Narrower Term (NT) contain all the information required for the display. The trick lies in creating a view of the data that essentially chains the thesaurus records together using NT as the link.

For purposes of illustration assume a database containing MT(T100), BT(B100), and NT(N100). MT is inverted online using the whole field as the key.

From the intellectual exercise involved in building the thesaurus you will know how many "levels" there are in the database (i.e. the maximum number of levels of progressively narrower terms that exist for any term). In the example displayed above there are four levels.

Define a PS, projecting MT, BT, NT and renaming the field tags (T100 -> T200, B100 -> B200, N100 -> N200). Flatten on NT (N200). This will create a PS record for each occurrence of NT. Repeat this process, creating a PS corresponding to each "level" of the database (i.e. T300/B300/N300 and so on).

The next step is to create a DS which joins the PS's together, linking NT at one level to MT at the level below.

```
JOINDB:

  PS-1
      N200  <+  PS-2 (T300)
      N300  <+  PS-3 (T400)
      N400  <+  PS-4 (T500)
              .
              .
              .
              .
    and so on, to the desired number of levels.
```

Since the PS's are flattened on NT, it is necessary to ensure that all records to be printed have at least one occurrence of NT in them. The set of records which contain "bottom terms" (i.e. which have BT but not NT) must be modified to insert a temporary NT. These records will have MT PRESENT, BT PRESENT, and NT ABSENT. You will have to create a hitfile of these, do a global MODIFY to insert a temporary value (e.g. "DUMMY"), and do a global MODIFY to remove these temporary values after printing the display.

The next step is to identify the "top terms" in the database. These are the terms that sit at the top of each hierarchical tree. They will have MT PRESENT, BT ABSENT, and NT PRESENT. Create a hitfile of these for subsequent processing in INDEX.

Run INDEX against the DS, using the hitfile of top terms created in the previous paragraph. Since the DS joins all the PS's together by NT-MT from one level to the next and the PS's are flattened on NT, you will end up with a number of DS records for each ISN in your hitfile. Each DS record will contain all the terms in the path from the top term to one of the bottom terms in its hierarchy.

The INDEX sorting specifications are as follows:

```
KEY=K1,LENGTH=nn (nn=length of MT in terms database)
FIELD=T200
END
KEY=K2,LENGTH=nn
FIELD=T300
END
.
.
.
and so on for up to five keys and ten datafields.
***
```

INDEX lets you sort on up to five keys. If necessary, you can pass the INDEX output file through MPE SORT to sort on more than five levels. The last step is to pass the INDEX output through a PRINT format, printing Y fields with indentation and equal suppression to achieve the desired presentation.

Please note that this process assumes a perfectly balanced set of BT/NT relationships. If this is not the case, you will get inaccurate output.

Don't forget to do a global MODIFY to remove the temporary NT's. They won't affect the hierarchical display since only MT's are extracted and printed, but they will appear in any print of the terms database.

Validating Terms Against the Thesaurus Database

If your thesaurus is to be used in conjunction with a previously-existing bibliographic database containing uncontrolled descriptive terms, it is sometimes useful to compare a set of existing terms with the in-process thesaurus database. This will let you identify frequently-used terms in the bibliographic database which perhaps should be considered for inclusion in the thesaurus. It will also let you identify terms in the bibliographic database which will have to be changed to conform to the thesaurus.

Once the thesaurus is loaded, this can be accomplished easily in INDEX using the VALIDATE/SELECT feature. There is no present facility to do this directly against a Master/Xref format database.

The program MATCHUP.OBJECT.MINLIB lets you compare two INDEX-compatible files with each other. The program produces lists and counts of terms in one file which do and do not appear in the other file. This program can be used for such things as verifying existing keywords in a bibliographic database against a thesaurus in the development process. The program gives counts of each term to facilitate deciding whether to add the term to the thesaurus or to delete/change it in the bibliographic database.

The documentation file is MATCHUP.DOC.MINLIB and the source file (in SPL) is MATCHUP.SOURCE.MINLIB.

Insertion of Top Terms

Most thesaurus MT's will have one or more BT's and/or NT's and can therefore be seen as members of one or more hierarchies of terms (see above). By following each BT path from a term, one can find the term at the top of each hierarchy in which the term participates. These are the "top terms" for the MT in question.

There is not always a one-to-one relationship between the number of BT's associated with a particular MT and the number of unique top terms for hierarchies to which it belongs. Two or more of its BT's may ultimately fall under the same top term. Alternatively, one of the BT's of the MT may itself have multiple BT's, each in different hierarchies with different top terms.

One desirable feature of a thesaurus-maintenance software is the ability to identify, print, and insert in each record the top terms of the hierarchies in which it participates.

There are two steps in this process. The first is to identify (and, optionally, to print) the top terms associated with each MT and the second is to insert in each MT record its top terms. The process for identifying top terms is almost a mirror image of the process described above for creating a hierarchical display. Define a set of PS's as above, except that BT is flattened instead of NT. Define a DS as above, joining BT to MT. This will create a view in which there is a DS record for every hierarchical path from a term to the top term in its hierarchy.

Since the PS's are flattened on BT, every record to be included must have at least one occurrence of BT. To do this, identify the top terms as above and save as a hitfile. Use this hitfile to insert a temporary BT, and to remove the temporary BT after you have finished with this process.

Next, identify the set of records which will have top terms. These are found by MT PRESENT and BT PRESENT (i.e. any member of a hierarchy except the top term). Save this set as a hitfile for subsequent processing in INDEX.

Run INDEX against the DS, using the hitfile created in the previous paragraph. Since the DS joins all the PS's together by BT-MT from one level to the next and the PS's are flattened on BT you will end up with a number of DS records for each ISN in your hitfile. Each DS record will contain all the terms in a particular path from a MT to the top term in one of the hierarchies in which it participates.

The INDEX sorting specifications are as follows:

```
KEY=K1,LENGTH=nn          (nn=length of MT)
FIELD=M200                (member of a hierarchy)
END
KEY=K2,LENGTH=nn
FIELD=M900                (assuming a thesaurus with
ALTERNATIVE=M800           8 levels and thus 8 PS's)
ALTERNATIVE=M700
.
.
ALTERNATIVE=M300
END
***
```

This creates an INDEX output file with Y010 containing a MT that has a top term somewhere above it, the ISN of this MT, and Y020 containing the top term (i.e. the MT found as far as possible up the BT chain from the term). You can pass this file through PRINT with equal suppression on Y010 to list the top terms for all terms in the database.

Please note again that this process assumes a perfectly balanced set of BT/NT relationships. If this is not the case, you will get inaccurate output. (In fact, it is possible to do a hierarchical display using the PS's and DS described in this section. You would need to modify the top terms as described and to create a hitfile of bottom terms (MT PRESENT, BT PRESENT, NT ABSENT). Passing this hitfile through INDEX in the DS would let you create an output file identical to the one created above for the hierarchical display except that the records would carry the ISN's of the bottom terms. While the hierarchical display is simpler in concept when considered from the top down, if you plan to do both hierarchical display and top term insertion you can save some work by going from the bottom up.)

There is a program INSERT.OBJECT.MINLIB which will accept as input the INDEX output file created above in this section and insert in each record the top terms associated with that MT. Please note that Top Term (TT) must be defined as a repeating field. In addition, more than one path up from a particular MT may terminate at the same top term. INSERT will catch and reject duplicates.

The documentation file is INSERT.DOC.MINLIB and the source file (in SPL) is INSERT.SOURCE.MINLIB. The program is generalized enough to handle other functions than the one described here.

Conclusion

This represents only one possible approach to this set of problems. There are undoubtedly other (and better) ways of linking related records together. I would be most interested in sharing experiences with other people involved in developing thesaurus-support software.

John Nesbitt
Int'l Monetary Fund
Washington, D.C.

Generation of SEE and SEE ALSO references in subject catalogs

As a result of Systemhouse's work with various libraries, particularly the Metropolitan Library of Toronto, we have developed a mechanism for generation of SEE and SEE ALSO references that avoids two key problems, namely:

1. Do not create blind references, i.e. do not tell a user to look somewhere unless there is something to look at.

2. Avoid repetition, i.e. do not place a reference in every record for which a reference is required.

The solution is a little difficult to conceptualize and quite difficult to explain in writing but is, in fact, very easy to implement.

A subject data base must be built with at least the following three fields:

```
Subject Key          - validated - not repeatable - inverted
See From Term        - repeatable
See Also From Term   - repeatable
```

The main subject key should be validated against a KSAM file, but inverted into a B-tree file.

The bibliographic data base will have a subject key field which will presumably be repeatable and validated against the subject KSAM file. A projected subset of this file should be created in which the subject field is flattened. A data submodel must then be created which links the PS to the subject data base. The DS will contain the three fields noted above.

To create the catalog, the following sort key specifications should be employed against the DS:

```
KEY=key1,LENGTH=nn,ALTLABEL=yes
FIELD=subject key,SUFFIX="ZZ"                    << Y010 >>
FIELD=forbidden term                             << Y020 >>
FIELD=see also term                              << Y030 >>
END
KEY=key2,LENGTH=nn
FIELD=subject key
END
KEY=key3,LENGTH=nn
FIELD=title or whatever                          << Y050 >>
END
***
```

The "ZZ" suffix is used to force the subject entry to sort after the "SEE ALSO" reference with the same subject key.

To print the catalog, the following print rules should be specified:

```
Y010    Lines before 2
        Equal suppression YES
        Max. characters (nn-2) to exclude suffix
        Conditional display YES

Y050    Display while find checked field Y010
        First line indentation 3 chars.
        Lines before 1
        Conditional display YES


Y020    Equal suppression YES
        Lines before 2
        Post literal *SEE*
        Conditional display YES

Y030    Equal suppression YES
        Lines before 2
        Post literal *SEE ALSO*
        Conditional display YES

Y040    Display while Y010 not found
        Equal suppression YES
        Conditional display YES
```

The key to the effectiveness of this solution is that the subject key generates SEE or SEE ALSO references that point to itself. If the subject key is not present, the reference will not be generated.

The only drawback to this solution is that the SEE ALSO reference will print on a separate line before the same subject heading entries. For example:

```
ADOLESCENCE    *SEE ALSO*    YOUTH

ADOLESCENCE
     Growing up in South Africa
     The huntsman
     Prisoners of chance
     etc.
```

The technique above can be used as a guide and local variations and extensions can be employed according to circumstances. The author would be interested to hear from anyone who has developed other solutions to this problem.

ACOUSTICS *SEE* SOUND

ADOLESCENCE *SEE ALSO* YOUTH

ADOLESCENCE
- Growing up in South Africa
- The huntsmen
- Prisoners of chance (Teenage parents)
- Young people and the 1980's

AERONAUTICS
- All systems go
- Come fly with me

AFRICA, SOUTH *SEE* SOUTH AFRICA

AIR TRAVEL
- Come fly with me

AIRPLANES
- Come fly with me

CHILD DEVELOPMENT *SEE ALSO* CHILD PSYCHOLOGY

CHILD DEVELOPMENT
- Aggressive behaviour
- The early years
- The world of three

CHILD PSYCHOLOGY *SEE ALSO* CHILD DEVELOPMENT

CHILD PSYCHOLOGY
- Child behaviour = you
- The huntsman
- Joey

CHILD PSYCHOLOGY
- The promise of play
- The question of TV violence

COMMUNICATION
- Autism
- Children without words

FLIGHT *SEE ALSO* AERONAUTICS

JUVENILE DELINQUENCY
- Paper boy

SOUND
- Children without words

SOUTH AFRICA
- Growing up in South Africa

YOUTH *SEE ALSO* ADOLESCENCE

YOUTH
- Young people and the 1980's

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Report on the MINISIS/UNIMARC study

[The following is from a report by Ms. Elaine Woods on a study commissioned by the Programme Management Committee of the International Federation of Library Associations and Institutions, on the feasibility of an interface between MINISIS format and UNIMARC. Copies of Ms. Woods' full report, including a proposed MINISIS data definition, can be obtained on request from MINISIS Outreach, IDRC. At present, copies are available on microfiche only. Ed.]

I. Purpose of the study

MINISIS is a generalized management and information retrieval system developed by the International Development Research Center (IDRC) of Ottawa, Canada. It is designed for use on the Hewlett-Packard HP 3000 range of minicomputers and was created primarily for use in an information environment.

At the present time, MINISIS is an excellent mini-system used in information centers. IDRC makes the system software available to institutions in developing countries and if the system could handle MARC data effectively, then libraries in developing countries could take advantage of MARC records already available from other countries and send their MARC records to other countries.

UNIMARC: A Universal MARC Format is a standard international communications format developed under the auspices of the International Federation of Library Associations and Institutions (IFLA) for international exchange of bibliographic data in machine-readable form. UNIMARC is a generalized format covering all forms of material. Many countries are currently exchanging cataloguing records using UNIMARC; others, including the National Library of Canada, the British Library, and the Library of Congress will be using UNIMARC in the near future.

In addition, a Common Communications Format (CCF) is under development by UNESCO for use in information systems. The purpose of the CCF is to provide a bridge between the library community and the abstracting and indexing community which have historically used different machine-readable formats. The first edition of this format is due to be published shortly.

To further the IFLA principle that a bibliographic record need be created only once and then exchanged for use by others, countries and/or institutions using the MINISIS system should be able to exchange records internationally using the UNIMARC format.

The IFLA Program Management Committee agreed to conduct a study for the British Library (BL), the Library of Congress (LC), and the National Library of Canada (NLC) to determine the feasibility of developing a UNIMARC version of the MINISIS software package.

The specific purposes of this study are:

1. To determine to what degree MINISIS is now capable of implementing the UNIMARC format and to identify those areas where incompatibilities exist.

2. To specify what changes/improvements to MINISIS would be needed in order to overcome any incompatibilities and thus ensure the maximum implementation of UNIMARC.

3. To determine whether the same incompatibilities exist between MINISIS and CCF and whether similar changes/improvements would be necessary to ensure its implementation in MINISIS as well.

II. Approach to the problem

1. Analysis

The first task in this study was to compare and analyze: 1) the UNIMARC format; 2) the Common Communications Format; and 3) the needs and present practices of MINISIS users. Drawing from this analysis, a proposed or test MINISIS data definition was formulated.

2. Proposed MINISIS data definition

The purpose of developing a test MINISIS data definition was threefold: 1) to see what difficulties would be encountered in incorporating UNIMARC requirements, CCF requirements, and present MINISIS needs and requirements into one data definition; 2) to try different solutions to the problems encountered; and 3) to develop a data definition that could be used for running actual data through the MINISIS system.

3. Examples

From the proposed MINISIS data definition, a MINISIS Relation Definition (RD) and Correspondence Definition (CD) was developed. A body of test records was then input in order to further deterimine what problems would occur.

4. Field/subfield usage statistics

Statistics on the usage of some UNIMARC fields and subfields were obtained from Library of Congress statistics on the MARC monograph database. (The MARC database contained 1.5 million titles.) These statistics helped determine what fields/subfields could be eliminated from the proposed MINISIS data definition, if necessary.

5. Discussions with IDRC staff

All problems encountered were discussed with IDRC technical staff. Section III contains the solutions agreed upon in these discussions.

III. General conclusions of the study

There are two general approaches that can be taken in solving MINISIS/UNIMARC incompatibilities: a "short-term approach" using MINISIS "as is" and a "long-term approach" that would refine MINISIS to make it more UNIMARC compatible.

In the "short term" approach, one could develop a limited data base definition that would accept UNIMARC data into MINISIS. The data base, however, would be limited to monographs and serial publications. Converting MINISIS data to UNIMARC would be more difficult due to the greater degree of specificity in UNIMARC. While this "short-term" approach would involve no changes to the MINISIS software, it would involve a series of compromises and would severely limit the number of UNIMARC fields that could be used.

The "long-term" approach would entail changes to the MINISIS software. The most critical problem in handling MINISIS/UNIMARC conversion is the lack of repeatable subfields in MINISIS. This, coupled with the limit on the number of tags (256) allowed, places certain constraints on the conversion. Both the non-repeating subfield problem and the number of tags allowed are fundamental to MINISIS system design. However, in discussion with IDRC staff, it was agreed that the long-term approach should be followed. Specifically, the following points were agreed to:

1. While the number of field (including subfield) definitions allowed in the MINISIS database should be limited to 200 (not including locally defined fields), a generalized archival approach which would capture and store data exactly as input in the UNIMARC format will be created for those UNIMARC fields not included within the 200 field limitation. [This will require modification to MINISIS software.]

2. The repeatable subfield problem will be solved by embedding the subfield identifier and subfield code in the data on a limited number of fields. This technique will be used for fields in which the repeatable subfield problem can be solved effectively in no other way (see below). [This will require modification to MINISIS software.]

3. Fixed fields will be allowed by adding software for a field level exit. [This will require modification to MINISIS software.]

Based upon these general solutions and other techniques outlined in the following section, a proposed MINISIS data definition has been created.

IV. Specific problems encountered

1. MINISIS software problems

1.1 Subfields not repeatable in MINISIS

In order to conserve computer operations, MINISIS does not distinguish between "fields" and "subfields". The tagging system does permit the software to recognize the association of a group of tags and to treat them as subfields through having all tags end in zero (0) and all subfields (in reality other tags) end in 1-9. Subfields cannot repeat individually; only the group (zero level tag) may repeat.

Solution 1. Additional repeats of UNIMARC subfields can be dropped. This solution is acceptable only in cases where second or subsequent subfields occur frequently. This technique has been used in the proposed MINISIS data definition when usage statistics reflect minimal usage of a field.

Solution 2. Use of an ISOCONV special exit routing to combine multiple repeats into a single occurrence, i.e., combining repeatable subfields into one subfield.

This solution is not always acceptable in that repeating subfields in UNIMARC are not always consecutive and nor does it adequately satisfy the conversion of MINISIS to UNIMARC. This solution was not used in the proposed MINISIS data definition.

Solution 3. Explicitly define the repeating subfields, e.g., for a repeating "Place of publication" subfield in the imprint, define the MINISIS subfields as:

B100 Imprint
B101 First place of publication
B102 Second place of publication
B103 Third place of publication
etc.

This solution was used for some UNIMARC fields in the MINISIS/UNIMARC data definition. It is an acceptable solution only when the order and number of subfields can be predetermined. It has the disadvantage of creating more subfields (fields) which is a consideration when the maximum allowable number of fields is 256.

Solution 4. Treat the repeatable subfield as a group, i.e., if a subfield is repeated, repeat the entire group field with its associated subfields.

This solution has been used on a limited basis in the MINISIS/UNIMARC data definition.

Solution 5. There are certain repeatable subfields that do not lend themselves to any of the above solutions. They include subfields such as: 1) $h (number of part) and $i (name of part) in the title fields; 2) the $x, $y, and $z (form subdivisions in the subject heading fields); and 3) $b (subdivisions in the corporate author headings). These repeating subfields present problems either because they do not repeat consecutively or do not repeat a limited number of times. It is for these cases that the general technique of embedding the subfield code and subfield identifier in the data will be developed by IDRC.

1.2 Insufficient subfields. MINISIS allows only nine subfields per tag; some UNIMARC fields contain more than nine subfields.

Solution 1. Separate a UNIMARC tag into several MINISIS fields.

This solution has been used in some cases. For example, UNIMARC field 210 (Publisher, Distributor, etc.) can be broken into several MINISIS field groups: 1) place, publisher and date of publishing and distribution; and 2) place, manufacturer and date of manufacturing. This reduces the number of tags to less than nine per field.

Solution 2. For those UNIMARC fields with more than nine subfields for which the above solution is unacceptable, the general technique of embedding the subfield data will be used.

1.3 No indicators in MINISIS

Solution 1. Indicators can be either ignored or treated as the first subfield.

An analysis of the UNIMARC indicators shows that a number of the indicators are used for controlling printing. Since MINISIS cannot format a print program based on content of the data,* such an indicator would have no meaning in the MINISIS data base. Other indicators (e.g., Title is/is not significant in the UNIMARC 510-517 fields) have little value in that cataloguing rules prescribe that one would not enter the title unless it is significant.

*This is now possible under MINISIS Version F. Ed.

1.4 MINISIS does not handle fixed fields. Since MINISIS uses inverted files for access/retrieval, no fixed length variable fields are used.

Solution 1. While fixed fields can each be given a separate MINISIS tag, this drastically increases the number of fields. Therefore, fixed fields will be allowed by adding software for a special field level exit.

1.5 Limit of 256 fields. MINISIS allows 256 fields to be defined. Many of the solutions to the other problems involve creating additional fields. Since MINISIS is an integrated library management system, some fields must be left for definition of local data.

Solution 1. MINISIS software will be adapted to allow a generalized archival approach in which the data will be captured and stored exactly as input in the UNIMARC format.

1.6 Character set. The new release of MINISIS (Release F) will support extended and non Latin character sets up to 256 characters that conform to 7- or 8-bit ASCII code. Therefore, character sets appear to be no problem.

2. Bibliographic problems

2.1 Organization of data in the record

Both present MINISIS practice and the CCF allow for carrying information about the documentary unit and the generic document in one record, i.e., the information about a journal article and the serial title itself could be in one record. MINISIS practice allows this so that users may report to UNISIST-based systems such as AGRIS, INIS, etc. The CCF allows this to satisfy the A&I requirements and has expanded the record directory to 14 characters to accommodate a segment identifier.

UNIMARC (like USMARC) relies on having a discrete record with links to other records containing the analytic or the generic document.

Additional fields can be carried as needed in the MINISIS data base to satisfy the UNISIST/CCF requirements.

2.2 Series/linking fields. There is a problem in converting to the appropriate embedded series field (4XX) in UNIMARC. [In the proposed MINISIS data definition, these fields have been omitted.] They can be carried as an archival field with the appropriate UNIMARC tags and subfields.

2.3 Subject headings

The CCF specifies descriptors for subject access and assigns a tag to the descriptors. Creating a separate repeatable tag (tropical subject heading) for each descriptor greatly increases the number of tags.

V. UNIMARC fields for which special MINISIS programming is required

1. Special fixed field processing is needed for the following UNIMARC fields:

UNIMARC 100 (F100) - Coded data field: General
UNIMARC 105 (F200) - Coded data field: Books
UNIMARC 110 (F300) - Coded data field: Serials
*UNIMARC 115 (F400) - Coded data field: Audiovisual
UNIMARC 120 (F500) - Coded data field: Maps
*UNIMARC 121$a (F510) - Coded data field: Maps: physical
*UNIMARC 121$b (F520) - Coded data field: Maps: aerial
*UNIMARC 125 (F600) - Coded data field: Sound recordings
*UNIMARC 126$b (F610) - Coded data field: Sound recordings/ physical

Note: Items with asterisk (*) are provisional UNIMARC fields and may be subject to change.

2. UNIMARC fields for which the embedded subfield technique will be required:

UNIMARC 200 (B200 & B210) - Title statement
UNIMARC 500 (B500) Uniform title
UNIMARC 600 (C100) Subject/Personal name
UNIMARC 601 (C110) Subject/Corporate name
UNIMARC 602 (C120) Subject/Family name
UNIMARC 605 (C130) Subject/Title
UNIMARC 606 (C150) Subject/Tropical name
UNIMARC 607 (C160) Subject/Geographic name
UNIMARC 670 (C190) Precis [if needed by British Library]

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MINISIS Bibliography

Copies of the following publications can be obtained free of charge by writing to MINISIS Outreach, Information Sciences Division, IDRC, P.O. Box 8500, Ottawa, Canada K1G 3H9. We are interested in hearing from other users who have written papers on their experiences with MINISIS, and who would be willing to have their publications distributed by IDRC as part of our MINISIS information package.

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