

**MINISIS USERS' GROUP
MEETING 1991**

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This series includes meeting documents, internal reports, and preliminary technical documents that may later form the basis of a formal publication. A Manuscript Report is given a small distribution to a highly specialized audience.

La présente série est réservée aux documents issus de colloques, aux rapports internes et aux documents techniques susceptibles d'être publiés plus tard dans une série de publications plus soignées. D'un tirage restreint, le rapport manuscrit est destiné à un public très spécialisé.

Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.

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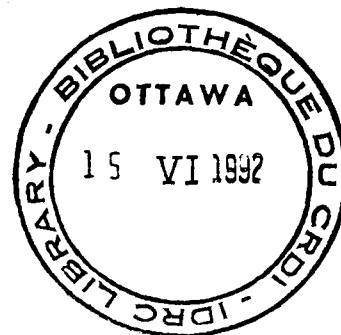
MUG '91

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and the University of the West Indies (UWI)

le Conseil économique des Nations Unies pour l'Amérique latine et les Caraïbes
(UN-CEPALC)
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Authors

UNFLATTEN A tool every MINISIS database manager is looking for

Peter van Boheemen

AGRALIN, the AGRicultural Automated Literature Information system of the Netherlands, has been a dedicated MINISIS user for more than ten years. We serve Dutch agricultural scientists by:

- providing literature using our Integrated Library System
- providing SDI services
- acting as a host for online retrieval of information
- producing current awareness bulletins.

AGRALIN is based at the Jan-Kopshuis, which accommodates the Library of Wageningen Agricultural University and PUDOC, the Centre for Agricultural Publishing and Documentation.

The system we use is called ISOBAS. It was developed and is being maintained by the computing department of the Jan-Kopshuis. We built ISOBAS, using MINISIS and locally developed software, of which especially CARDEX and LOANS have become well-known products.

We are - and have always been - very pleased with MINISIS and its powerful relational possibilities. We simply couldn't agree more with the statement in Chapter 2.2.3 of the second section of the MINISIS Database Manager's Guide:

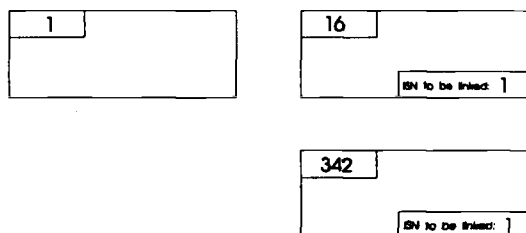
The Data Submodel is by far the most complex and powerful logical structure within MINISIS. It represents a logical combination of two logical structures (RD's and PS's) and the physical primary data files they represent, according to very specific rules.

We have always felt these words were very true. The Data Submodel (DS) is a very powerful structure, but the rules according to which a DS record is formed are indeed very specific I

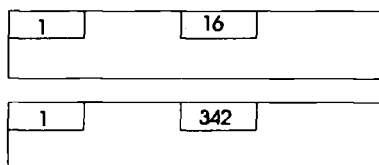
One such rule is described as "the special case of 'join on fast access'", by which a non-repeating field in the left-hand component is joined to a field in the right-hand component through a fast-access file. In such a case, "virtual" flattening occurs, if more than one record of the right-hand component is joined. The record in the DS that results will be repeated as many times as there are records in the right-hand

component that meet the join criteria. All these records will have the same ISN. (Figure 1)

Figure 1

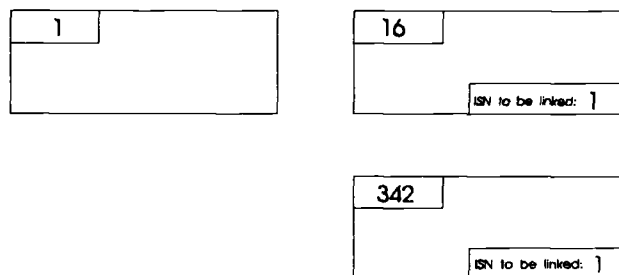


A JOIN WILL RESULT IN:

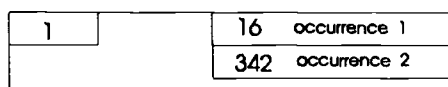


The join rule has two important drawbacks. One concerns the far more complicated print formats that are needed, since many fields are repeated in every record but only have to be printed once. The major drawback, however, has to do with updating these records. It is not possible to modify all the

Figure 2



WANTED JOIN RESULT:



records in the flattened set through the DS. Entry through this DS follows very strict rules. These very strict rules have been a problem for us over the last few years. What we really wanted was a join in which the right-hand component would appear in the join as a normal, repeatable subfielded field (Figure 2). Moreover we wanted to be able to update this subfielded field as one would in any other MINISIS Relation Definition (RD) or Projected Subset (PS). This is why we decided to develop UNFLATTEN.

A Case: The ISOBAS LOANS System

In 1983 Agricultural University Wageningen decided to develop a system to register the circulation of books. The requirements of this system were that it be based on MINISIS and be independent of the catalogue database being used. This resulted in the ISOBAS LOANS module, a system which is so independent of the catalogue that it can even run without it.

The ISOBAS LOANS program controls the records of three databases:

- a database with items (books or serial volumes or any other item that can be lend out)
- a database with patrons (persons or organisations borrowing books, libraries lending books)
- a title database (the catalogue) which is only used to look up a title connected to an item, LOANS will also work without this database.

Cataloguing was not affected by the system. The holding information in the cataloguing records was copied in the item records. Each cataloguing record contained a repeatable subfielded field, in which the occurrence of every copy, owned by one of the participating libraries, was registered. The subfields

contained the holding information of each copy (Figure 3).

Figure 3 A cataloguing record

Good, R.E. Wigham, D.F. Simpson, R.L.
Freshwater wetlands : ecological processes and management potential :
proceedings symposium held February 1977 at Rutgers University, New
Brunswick, New Jersey.
New York (etc.) : Academic Press, 1978. - 378 p. (en) Freshwater
wetland : ecological and management potential (February 1977; New
Brunswick, New Jersey)
102266 - RINL Book AB 202
- NATBEH Hdb 80 *241.2 GOO
- IOC Gr. 8 FRE
- SBB U 460/SA

these procedures, differences between the "duplicate" data could not be avoided. Among users there was a growing urge to get rid of the duplicate information and to use only the holding information in the items database. This information should, however, be made visible and updatable from within the cataloguing record. It should be presented in the same way as before (e.g. as a repeatable subfielded field), but the information should be gathered from the different ITEM records. Besides the holding information, information about the availability of the copy, only recorded in the item records, should be presented as one of the subfielded fields. We used UNFLATTEN to do this. UNFLATTEN enables us to present item information in the catalogue as a result of a join, i.e. in an integrated record. As is shown in Figure 5, the user will then experience the join as if a subfield with information about the availability of the copy has been added to the catalogue record.

For every copy, an item record was created that also contained the holding information (in addition to other information about the copy) (see Figure 4.)

Figure 5 The integrated result

Figure 4 A corresponding item record

ISN: 50286
Item barcode: A200000004945898
ISN of title record in catalogue: 102266
This item has been lend out 14 times.
Holding information: NATBEH Hdb 80 *241.2 GOO
Lend out by: NATBEH
Lend out on: 1991-02-25
Should be returned before: 1991-03-13
Loan can be extended until: 1991-08-21

Good, R.E. Wigham, D.F. Simpson, R.L.
Freshwater wetlands : ecological processes and management potential :
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- IOC Gr. 8 FRE Available
- SBB U 460/SA Available

Duplicate information becomes redundant and can be banned from the system. The information is only recorded in the item records, but can be updated from within the cataloguing database, which has changed from a PS to a DS.

Special procedures were developed to make sure the holding information in both databases was the same. Over the years it became clear that, in spite of

For the cataloguing department there were hardly any changes to be made in the way they had to work

since the item information can be treated as a normal subfielded field.

UNFLATTEN

How could we get MINISIS to present a join like this without causing "virtual" flattening ? To do so we developed the program UNFLATTEN. With this program and the MINISIS feature to define 'user defined data structures', we were able to make this join: i.e. between a standard MINISIS database as a left-hand component and a 'user defined database' as a right-hand component.

When defining a database in the DATADICT processor, MINISIS allows one to build a user defined database as a database of a NON-MINISIS FILE-TYPE. When MINISIS opens, closes, reads from or writes to such a database, it uses the interfaces OPENUSERDB, CLOSEUSERDB, READUSERDB and WRITEUSERDB, respectively. These interfaces can be written by the user.

The database defined as NON-MINISIS FILE-TYPE 2703, is an RD with only one subfielded field. According to MINISIS restrictions,

it can only have 9 subfields. When opening this database, MINISIS will call for the interface OPENUSERDB by using file-type 2703. Our version of OPENUSERDB will open a parameter file. This parameter file will contain the name of the database to be joined and the correspondence between the defined subfields and the fields in the database to be joined. OPENUSERDB will subsequently start the program UNFLATTEN, which will open this database.

Our version of READUSERDB will tell UNFLATTEN to find all the records to be joined and present them as repeatable subfielded fields.

WRITEUSERDB will present all occurrences of the subfielded field to UNFLATTEN, which will update any changes in the corresponding records of the right-hand database.

CLOSEUSERDB will make UNFLATTEN close the database to be joined and subsequently kill itself, once this is done successfully.

We think we have created a very useful tool. It will make the powerful relational capabilities of MINISIS even more so. We hope that the Standard MINISIS Application of version H will allow the user to define this kind of join so our tool will become obsolete.