

**MINISIS USERS' GROUP
MEETING 1991**

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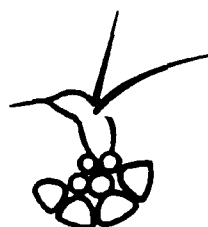
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Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.

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of the 12th Annual
MINISIS Users' Group Meeting

Compte rendu
de la 12^e Réunion annuelle
du Groupe des Utilisateurs de MINISIS



MUG '91

United Nations Economic Council for Latin America and the Caribbean (UN-ECLAC)
and the University of the West Indies (UWI)

le Conseil économique des Nations Unies pour l'Amérique latine et les Caraïbes
(UN-CEPALC)
et la University of the West Indies (UWI)

Port of Spain, Trinidad and Tobago
April 29 – May 3, 1991

Port of Spain, Trinité et Tobago
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Authors

Bilingual Thesauri and Indexing

Anne Barkworth and Sylvain Lemieux

1. Background

The Canadian Institute for International Peace and Security is a Crown Corporation of the Federal Government of Canada. The mandate of the Institute is to "increase knowledge and understanding of the issues relating to international peace and security from a Canadian perspective, with particular emphasis on arms control, disarmament, defence and conflict resolution". One way it accomplishes this is through the collection and dissemination of information on issues of international peace and security; and to do this the Institute has an Information Services division with a library. It is through the library that the Institute acquired MINISIS in February 1989. An existing micro-computer-based database containing about 30,000 bibliographic records was transferred onto MINISIS, along with the in-house thesaurus. Then, of course, the work began of customizing MINISIS to respond to the Institute's needs.

In compliance with the official languages policy of the Government of Canada, Crown Corporations are required to provide services in both official languages (French and English). Our main challenge was to operate a database equally efficiently in both French and English, and this was the main criteria when we selected a database management software. As our choice, MINISIS performs admirably, providing the user with a multilingual, although somewhat basic, user interface.

Other requirements were that the bibliographic records were to contain thesaurus terms in the language of the document independently of which language the indexers used; and that a print bibliography and a bilingual thesaurus could be produced. MINISIS did not fully meet these requirements, so our consultant, Anne Barkworth, had to find creative ways to provide these within the system, sticking to solutions that would be easy to maintain in-house.

2. Indexing

When indexing a record for our bibliography, we wanted the thesaurus terms to be in the language of the document. Even though our indexers have a working knowledge of both languages, there is always one language with which they feel more comfortable, and we wanted to provide them with the option of working principally in that language. The solution devised was to create stream jobs that would check the language code of the record and, if need be, translate the thesaurus terms to match the language code. In the case of bilingual records, we wanted thesaurus terms to appear in both languages in the record. The three jobs created were:

THETOF.STREAM	to translate thesaurus terms from English to French;
THFTOE.STREAM	to translate thesaurus terms from French to English;
THBIL.STREAM	to add either French or English Thesaurus terms to the records as required for bilingual records.

2.2 JOB THETOF.STREAM

The first stage of preparation was to set up a data submodel (DS) called BIBTHES. This DS links the master relational database (RD), BIB, to a KSAM through the field A170 (Thesaurus field). This link is made in order to allow the extraction of the French equivalent of the terms stored in field A170 in BIB. It is performed by joining field A170 to field T100 (Main Term English) of the ETOF KSAM (Figure 1).

KSAMs ETOF and FTOE were created to ensure the correct joining of field A170 to field T100 and T110. The THESMAS database uses word inversion for T100 and T110 so when we first tried making a direct join to the THESMAS database, we retrieved incorrect values because keys in the THESMAS database were word extracted. In addition, using the

DS join on a master DB field as the right hand component we encountered a virtual flattening problem which resulted in an incorrect number of keys being generated in INDEX. We therefore built 2 KSAMs and loaded the 2 fields T100 and T110 into them from the THESMAS database. This proved to be the solution, and with these KSAMs we were able to generate the right number of correct keys.

The job, then, uses the DS BIBTHES to retrieve records that have both a language code of FRE for French and that were indexed after a certain date (the date should be reset each time you run the job). The job itself consists of three main operations: 1) index the records using the French values provided through the join and using the option SHOWOCC to extract occurrence numbers (Figure 2); 2) sort the output file from the INDEX processor in descending order of occurrence, using the HP Sort utility (Figure 3); 3) using the UPDATE processor, transfer the Y010 value from the sorted index file to field A170 and delete the old value using the occurrence numbers (Figures 3 & 4).

A full listing of the job and data structures of BIB, BIBTHES and THESMAS are in Appendices I, II and III.

2.3 JOB THFTOE.STREAM

The job THFTOE.STREAM operates basically the same way THETOF.STREAM does, except that it uses a DS called BIBTHESF which links the thesaurus field of BIB (A170) to the Main term French field of THESMAS (T110) in order to retrieve records with a language code of ENG for English. The job also sorts on the English values provided by the join (T100).

A full listing of the job and data structures of BIB, BIBTHESF and THESMAS are in Appendices I, II, and III.

2.4 JOB THBIL.STREAM

The DS BIBTHESB is used in this job to link the BIB database (field A170) to the ETOF database

field T100, as well as to the FTOE database field T110. The index processor then extracts the data if a join is made (Figure 6) and stores both T100 and T110 in the primary key. The job then uses UPDATE (in batch) to delete all occurrences of the A170 field (which have been safely stored away in the index output file), and then a second UPDATE (in batch) transfers the data from the Y-TAG into A170.

Figure 1: DATABASE SETUP - JOBS THETOE AND THFTOE

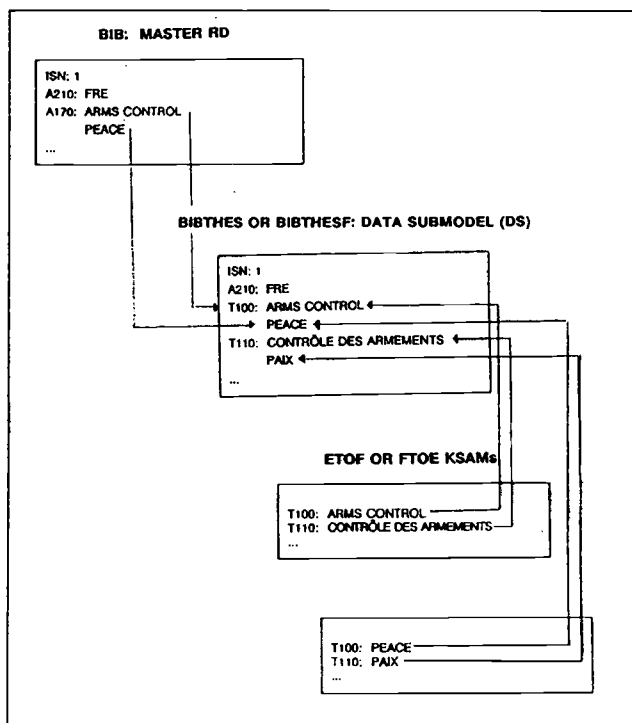


Figure 2: STEP 1 - INDEX ON BIBTHES

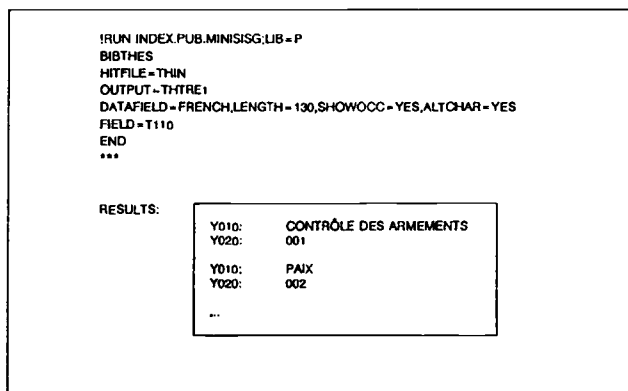


Figure 3: SORT USING THE HP SORT UTILITY

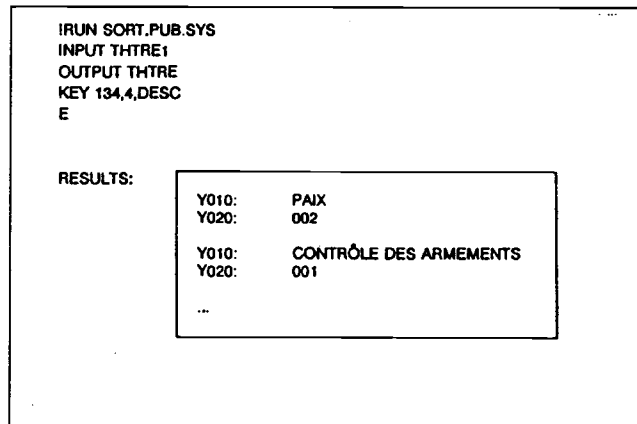


Figure 4: STEP 3 - TRANSFER Y010 TO A170 OF THE BIB RECORD

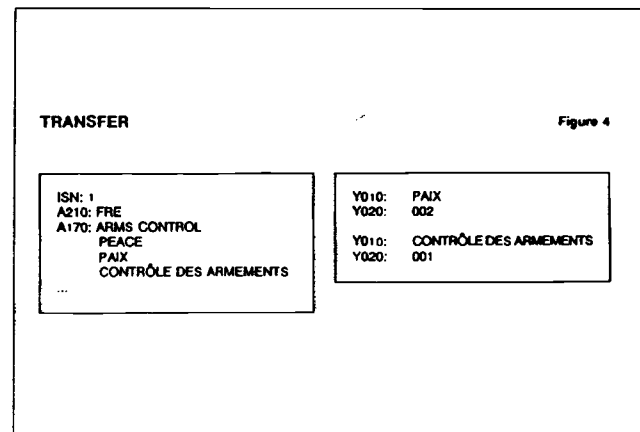


Figure 5: DELETE ENGLISH TERMS

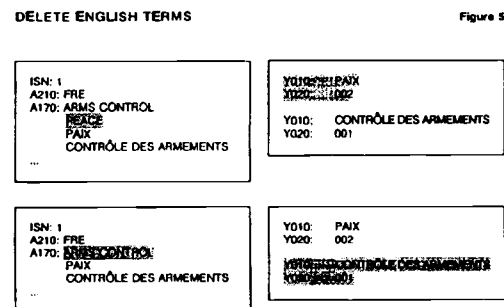
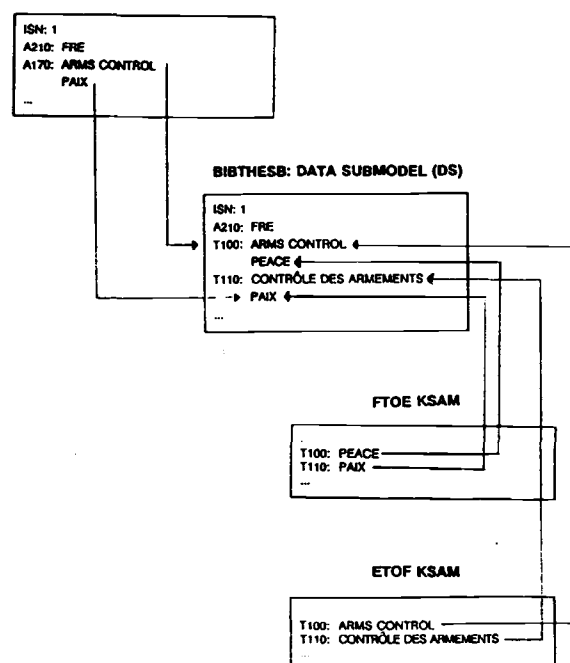


Figure 6: DATABASE SETUP - JOB THBIL



3. Printing of the Bilingual Thesaurus

The Institute's printed bilingual thesaurus is a reproduction of the online thesaurus.

English thesaurus record

English Descriptor	COLLECTIVE SECURITY
French Descriptor	SÉCURITÉ COLLECTIVE
Scope Note	SN An arrangement of unlimited commitment to counter aggression anywhere within the international system...
Broader Term	BT SECURITY
Related Term	RT ALLIANCE COMMON SECURITY

French thesaurus record

French Descriptor	SÉCURITÉ COLLECTIVE
English Descriptor	COLLECTIVE SECURITY
Scope Note	NC Engagement collectif illimité pris pour faire échec à toute agression n'importe où dans le système international...
Broader Term	TG SÉCURITÉ
Related Terms	TA ALLIANCES SÉCURITÉ COMMUNE

The THESMAS record entry for the preceding records would look like this:

ISN	ISN=163
Main Term English	T100 MTE : Collective Security
Main Term French	T110 MTF : Sécurité collective
Broader Term	T320 BT : SECURITY
Related Term	T340 RT : ALLIANCES COMMON SECURITY
Type of Term	T800 TT : S
Scope Notes English	T810 PN : An Arrangement of unlimited commitment to counter aggression anywhere within the international system...
Scope Notes French	T860 PRF : Engagement collectif illimité pris pour faire échec à toute agression n'importe où dans le système international...

As you can see from the above example, the relationships for each term are stored in English only. In order to print the English record, we simply pull the information out of the THESMAS records and print it. Printing the French records, however, is slightly more complicated. Since the relationships are not stored in the THESMAS record in French, we had to devise a way for MINISIS to replace the English relationships by their French equivalents. A job was created to convert the relationship information from English to French before printing.

Three KSAMs were built to hold BROADER TERMS (THBT), NARROWER TERMS (THNT) and RELATED TERMS (THRT). In turn, these three KSAMs were linked to the THESMAS database through a DS called THESDS (Figure 6). The job is called THESAURF.STREAM and performs the following operations:

STEP 1

Using a special print format (THBTPF.FORMATS), the job prints to disk every set of English Main Terms with their French translations (Main Term French). The resulting disk file is called THESBT and is used to translate BROADER TERMS (BT).

```
!FILE OUTFL=THSBT;DEV=DISC;DISC=10000;NOCCTL
!PRINT
THESMAS
THBTPF.FORMATS
T800=S
END
```

RESULTS:

```
!REC-ID
*Z100*Caribbean Region
*Z110*Région des Caraïbes
```

```
!REC-ID
*Z110*Barbados
```

STEP 2

The file THESBT is then copied twice to create the files THESNT for NARROWER TERMS (NT) and THESRT for RELATED TERMS.

```
!FCOPY FROM=THESBT;TO=THESNT;NEW
!FCOPY FROM=THESBT;TO=THESRT;NEW
```

STEP 3

The three KSAMs are emptied to receive the relationship information.

```
!RUN DATADICT.UTILITY.MINISISG;LIB=P
ERASE DB=THBT
ERASE DB=THRT
ERASE DB=THNT
EXIT
```

STEP 4

The disc files THESBT, THESRT, and THESNT are edited using EDITOR to turn them into BATCHIN files for the KSAMS. Note that for the copies of the THESBT disk file (THESNT and THESRT) the label prefix has to be changed to match the labels of the fields in the KSAMs.

```
!EDITOR
T THESBT
C1/80 TO "!DB=THBT"IN 1
C1/80 TO "!CHANGE STARTER=*,ENDER=*,STRIP=YES,IN
2
K THESBT,UNN
Y
T THESRT
C1/80 TO "!DB=THRT"IN 1
C1/80 TO "!CHANGE STARTER=*,ENDER=*,STRIP=YES,IN
2
CQ"*Z" TO "*W"IN ALL
K THESRT,UNN
Y
T THESNT
C1/80 TO "!DB=THNT"IN 1
C1/80 TO "!CHANGE STARTER=*,ENDER=*,STRIP=YES,IN
2
CQ"*Z" TO "*X"IN ALL
K THESNT,UNN
Y
E
```

STEP 5

A BATCHIN is performed on the three KSAMs using the BATCHIN files just created.

```

!RESET OUTFL
!FILE BATCH=THESBT;DEV=DISC
!RUN BATCHIN.UTILITY.MINISIG;LIB=P
THBT
EXIT
!FILE BATCH=THESNT;DEV=DISC
!RUN BATCHIN.UTILITY.MINISIG;LIB=P
THNT
EXIT
!FILE BATCH=THESRT;DEV=DISC
!RUN BATCHIN.UTILITY.MINISIG;LIB=P
THRT
EXIT

```

STEP 6

The BATCHIN files THESNT and THESRT are purged after being loaded into the KSAMs. We could have purged THESBT here too, but we left it alone so that if for any reason the job failed we would be able to resume operations from this point.

```

!PURGE THESNT
!PURGE THESBT

```

STEP 7

INDEX is used to select all the records from the THESDS database (the root of which is THESMAS, joined to THBT, THNT and THRT) which meet the criteria:

This creates 2 keys only. If all the fields had been specified as separate keys it would have been a nightmare to try and suppress the extra primary keys in the print process, since the print format already

TYPE CODE (T800)=S.

```

!!INDEX
THESDS
T800=S
OUTPUT=THESF
USE=THESKEYF
PRIMARY KEY = THE FRENCH TERM
KEY=TERM, LENGTH=130,ALTCHAR=YES
FIELD=T110
ALTERNATIVE=T210
END
SECONDARY KEY = RELATIONSHIPS
KEY=LUCK,LENGTH=130,ALTLABEL=YES,ALTCHAR=YES
FIELD=T610
ALTERNATIVE=T210,OCC=ALL,PREFIX="Y020"
FIELD=Z110,OCC=ALL,PREFIX="Y030"
FIELD=X110,OCC=ALL,PREFIX="Y040"
FIELD=W110,OCC=ALL,PREFIX="Y050"
FIELD=T800,PREFIX="Y060"
END

```

contains many fields using the EQUAL SUPPRESSION command.

By assigning prefixes to the fields, we are effectively sorting all the relationship terms in one key , while still maintaining separate relationships.

```

Y030  CONTRÔLE DES ARMEMENTS
Y030  PRINCIPES DE DÉFENSE
Y040  MANIFESTATIONS POPULAIRES
Y040  RÉVOLUTIONS
ETC..

```

ALTLABEL is used to place each separate field from which the key is extracted into a separate Y-TAG. For example, all W110 values extracted are stored in field Y050 in the Index file.

STEP 8

This step is a bit more complicated. We have generated an index output file which contains blank records and where secondary keys are not present. BLANK=NO would have suppressed the primary key if no secondary key existed, but we did not want to do this. We therefore had to eliminate from the Index output file those records which did not have values in the secondary key. We used the command "FCOPY" with the "EXCLUDE" option.

Using this command we exclude any blank keys.

```
!PURGE THES1
!PURGE THES2
!PURGE THES3
!PURGE THESFOLD
!RENAME THESF,THESFOLD
!FCOPY FROM=THESFOLD;TO=THES1;NEW;SUBSET="Y020 ",135,EXCLUDE
!FCOPY FROM=THES1;TO=THES2;NEW;SUBSET="Y030 ",265,EXCLUDE
!FCOPY FROM=THES2;TO=THES3;NEW;SUBSET="Y040 ",395,EXCLUDE
!FCOPY FROM=THES3;TO=THESF;NEW;SUBSET="Y030 ",525,EXCLUDE
```

STEP 9

The easiest procedure remains. All we have to do is print the Thesaurus using the print format designed for it. Since our Thesaurus is edited for final printing using a word processor (WordPerfect), the file is printed to disk.

```
!RESET OUTFL
!PURGE THESFRE
!PRINT
THESMAS
THESFRE.FORMATS
HITFILE=THESF
END
```

Appendix I - Database Data Definitions

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LISTDOT DATA DEFINITION

PAGE 1

O	L	M	D	R	S	P	M	D	S	V	P	I	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E
F	E	U	E	E	U	R	A	U	I	A	R	N	N	N	N	N	U	Y	E	T	T	N	M	O	A	R	X
F	M	M	C	P	B	O	N	P	B	L	I	V	V	V	V	V	M	P	N	R	P	Y	V	G	L	C	I
S	G	E	E	F	M	D	I	M																			
E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	E	P	F	F	F	C	F	N	
I	L	T	O	T	O	N	V	A	K	N	E	F	Y	H	X	X	X	X	X	X	X	X	X	X	X	X	X
C	E	R	C	L	T	E	L	F	P	E	T	T	I	O	L	L	L	L	L	L	L	L	L	L	L	L	L
O	Y	K	E	Y																							

*** Database : B18

AN Accession Number (A010)	AN	A010	-1	10		Y		Y	B	1	10		A010														
Source of Record /VL/DEF=1	SR	A020	-1	4		Y	Y	Y	B	1	4		A020	A020													
Author, ANALYTIC /CV	AU	A030	-1	100		Y	Y		B	10	W 30	N	ANY2	AUTH													CODEVAL
Corp. Author, ANALYTIC /CV	CA	A040	-1	400		Y	Y		B	80	W 30	N	ANY2	AUTH													CODEVAL
Title, ANALYTIC	TI	A050	-1	400		Y			B	80	W 30	N 0		ADJT													
ADDT Added Title - Analytic(A060)	ADDT	A060	-1	400		Y	Y		B	80	W 30	N 0		ADJT													
Edition /TS	ED	A070	-1	100		Y	Y																				TIME SAVE
Place /TS	PL	A080	-1	50		Y																					TIME SAVE
Publisher /CV	PU	A090	-1	200		Y		Y	B	80	W 30	N 0		A090													CODEVAL
Date as published /TS	DT	A100	-1	50		Y																					TIME SAVE
Pub. Date (YYYYMMDD) /TS	PD	A110	-1	8		Y		Y	B	1	6			DATE													TIME SAVE
Volume /TS	VL	A120	-1	20		Y																					TIME SAVE
Pages for Articles (Range)	PG	A130	-1	20		Y																					
Collation (# of pages for Mono.)	CN	A140	-1	30		Y																					
BN ISBN (A150)	BN	A150	-1	10		Y		Y	B	1	10			A150													
Journal /CV	JN	A160	-1	200		Y		Y	B	80	W 30	N		A160													CODEVAL
Thesaurus /VL	TH	A170	4	130		Y	Y	Y	K	Y	130	130	D	THES													
Series /TS	SE	A180	-1	300		Y	Y	Y	B	80	W 30	N		A180													TIME SAVE
Notes	NOTES	A190	-1	200		Y	Y																				
AB Abstract (FOR FUTURE USE A200)	AB	A200	-1	1000		Y																					
Language /VL/DEF=ENG	LA	A210	-1	4		Y	Y	Y	B	1	4			LANG	LANG												
Type of Material /VL/TS	TY	A220	4	4		Y	Y	Y	B	1	4			A220	FORM												TIME SAVE
Content Code /VL/TS	CC	A230	-1	6		Y	Y	Y	B	1	6			A230	A230												TIME SAVE
Readership Level /VL/TS/DEF=0	RL	A240	-1	2		Y	Y	Y	B	1	2			A240	A240												TIME SAVE
COLTN Collection (A260)	COLTN	A260	-1	6		Y	Y	Y	B	1	6			A260	A260												
CALLN Call Number (A270)	CALLN	A270	-1	60		Y																					
CA1 Call Number Line 1 (A271)	CA1	A271	-1	30		Y																					
CA2 Call Number Line 2 (A272)	CA2	A272	-1	6		Y																					
CA3 Call Number Line 3 (A273)	CA3	A273	-1	6		Y																					
CA4 Call Number Line 4 (A274)	CA4	A274	-1	6		Y																					
CA5 Call Number Line 5 (A275)	CA5	A275	-1	6		Y																					
CA6 Call Number Line 6 (A276)	CA6	A276	-1	6		Y																					
COPY Copies (A280)	COPY	A280	-1	2		Y																					
SU Subject (A290)	SUBJ	A290	-1	900		Y	Y	Y																			
SU Subject (A291)	SU	A291	-1	200		Y			B	80	W 30	N		ADJS													
Identifier	IDENT	A300	-1	1300		Y	Y																				
Identifier	ID	A301	-1	400		Y		Y	B	50	W 30	N 0	ANY1	ADJS													
CS Catalog Status Code (A310)	CS	A310	-1	2		Y	Y	Y	B	1	2			A310	A310												
ST Source of Title (A320)	ST	A320	-1	2		Y		Y																			
Date Entered /DEF=today	DE	A330	-1	10		Y		Y	B	1	10			A330													
Operator / DEF=Logon OP	OP	A340	-1	4		Y		Y	B	1	4			A340													
Date Modified /DEF=Today	DM	A350	-1	10		Y		Y	B	1	10			A350													
FREQ Frequency (A360)	FREQ	A360	-1	4		Y																					
FORM Notation Formula (A370)	FORM	A370	-1	20		Y																					

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	O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
	F	E	U	E	E	U	R	A	U	I	A	R	N	N	N	N	N	U	Y	E	T	T	N	N	O	A	R	X
	F	N	M	C	P	B	O	N	P	B	L	I	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I	
	S	G	E	E	F	M	D	I	M																	T		
	E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	C	F	N		
FIELD NAME	MNEMONIC	TAG	T	N	I	L	T	D	T	O	N	V	A	K	N	E	F	Y	N	X	X	X	I	I	I	N	I	A
					C	E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	G	L	M		
						D	Y	K	E	Y		E	S	R	R	P	E	E	E	E	E	E	E	E	E	E		

*** Database : BIBTHES

Thesaurus /VL	TH	A170 4	130	Y	Y	Y	Y	K	Y	130	130	D	THES	THES
T100 English Thesaurus Term	ETERM	T100 4	130	Y				Y	K					
T110 French Term	FTERM	T110 136	130	Y				Y	K					

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	O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
	F	E	U	E	E	U	R	A	U	I	A	R	N	N	N	N	N	U	Y	E	T	T	N	N	O	A	R	X
	F	N	M	C	P	B	O	N	P	B	L	I	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I	
	S	G	E	E	F	M	D	I	M																	T		
	E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	C	F	N		
FIELD NAME	MNEMONIC	TAG	T	N	I	L	T	D	T	O	N	V	A	K	N	E	F	Y	N	X	X	X	I	I	I	N	I	A
					C	E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	G	L	M		
						D	Y	K	E	Y		E	S	R	R	P	E	E	E	E	E	E	E	E	E	E		

*** Database : BIBTHESB

Thesaurus /VL	TH	A170 4	130	Y	Y	Y	Y	K	Y	130	130	D	THES	THES
T100 English Thesaurus Term	ETERM	T100 4	130	Y				Y	K					
T110 French Term	FTERM	T110 136	130	Y				Y	K					

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	O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
	F	E	U	E	E	U	R	A	U	I	A	R	N	N	N	N	N	U	Y	E	T	T	N	N	O	A	R	X
	F	N	M	C	P	B	O	N	P	B	L	I	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I	
	S	G	E	E	F	M	D	I	M																	T		
	E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	C	F	N		
FIELD NAME	MNEMONIC	TAG	T	N	I	L	T	D	T	O	N	V	A	K	N	E	F	Y	N	X	X	X	I	I	I	N	I	A
					C	E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	G	L	M		
						D	Y	K	E	Y		E	S	R	R	P	E	E	E	E	E	E	E	E	E	E		

*** Database : BIBTHESF

Thesaurus /VL	TH	A170 4	130	Y	Y	Y	Y	K	Y	130	130	D	THES	THES
T100 English Term	ETERM	T100 136	130	Y										
T110 French term	FTERM	T110 4	130	Y				Y	K					

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		O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
		-	F	E	U	E	E	U	R	A	U	I	A	R	N	M	M	M	U	Y	E	T	T	M	N	O	A	R	X
		F	M	M	C	P	B	O	M	P	B	L	I	V	V	V	V	V	M	P	M	R	P	Y	V	G	L	G	I
		S	G	E	E	F	M	D	I	M																			T
		E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	F	C	F	M	
FIELD NAME	MEMONIC TAG	T	M	I	L	T	D	T	O	N	V	A	K	N	E	F	Y	N	X	X	X	I	I	I	N	I	A		
		C	E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	L	L	L	L	L	L	L	M	
			D	Y	K	E	Y																						

*** Database : ETOF																													
T100 English Thesaurus Term		ETERM	T100	4																									
T110 French Term		FTERM	T110	136																									

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		O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
		F	E	U	E	E	U	R	A	U	I	A	R	N	M	M	M	M	U	Y	E	T	T	M	N	O	A	R	X
		F	M	M	C	P	B	O	M	P	B	L	I	V	V	V	V	V	M	P	M	R	P	Y	V	G	L	G	I
		S	G	E	E	F	M	D	I	M																			T
		E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	F	C	F	M	
FIELD NAME	MEMONIC TAG	T	M	I	L	T	O	T	O	N	V	A	K	N	E	F	Y	N	X	X	X	I	I	I	N	I	A		
		C	E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	L	L	L	L	L	L	L	M	
			D	Y	K	E	Y																						

*** Database : FTOE																													
T100 English term		ETERM		T100		136		130																					
T110 French term		FTERM		T110		4		130		Y		K																FTOE	

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O L N D R S P M D B V P 1 1 1 1 1 1 N T L S S A 1 L V A E
F E U E E U R A U I A R N M M M M U Y E T T N M O A R X
F M H C P B O N P B L 1 V V V V V M P M R P Y V G L G I
S G E E F M D I M 1
E T R P A L P T C L D O R O T T E E E P F F F C F M
F I E L D N A M E M N E M O N I C T A G T N 1 L T D T O N V A K M E F Y N X X X 1 1 1 N 1 A
C E R C L T E L F P E T T T O L L L G L M
D Y K E Y E S R R R P E E E E E

```

*** Database : TMESDS

FIELD NAME	MEMONIC	TAG	T	N	1	L	T	D	T	O	N	V	A	K	M	E	F	Y	N	X	X	X	1	1	1	N	1	A	
MTE Main Term English (T100)	MTE	T100	-1	130																									
MTF Main Term French (T110)	MTF	T110	-1	130																									
FTE Forbidden Term English (T200)	FTE	T200	-1	130																									
FTF Forbidden Term French (T210)	FTF	T210	-1	130																									
BT Broader Term English (T320)	BT	T320	-1	130																									
NT Narrower Term English (T330)	NT	T330	-1	130																									
RT Related Term English (T340)	RT	T340	-1	130																									
UE Use Term English (T600)	UE	T600	-1	130																									
UF Use Term French (T610)	UF	T610	-1	130																									
TT Type of Term (T800)	TT	T800	-1	2																									
PN Printed Notes (T810)	PN	T810	-1	575																									
NN Non-Printed Notes (T820)	NN	T820	-1	200																									
SC Status Code (T830)	SC	T830	-1	2																									
DE Date Entered (T840)	DE	T840	-1	10																									
DM Date Modified (T850)	DM	T850	-1	10																									
T860 Printed Notes - french PRF	PRF	T860	-1	575																									
USEDFF USED FOR ENGLISH (T870)	USEDFF	T870	-1	130																									
USEOFF USED FOR FRENCH (T880)	USEOFF	T880	-1	130																									
w100 Thesaurus English Term	w100	w100	4	130																									
w110 Thesaurus French Term	w110	w110	136	130																									
x100 Thesaurus English Term	x100	x100	4	130																									
x110 Thesaurus French Term	x110	x110	136	130																									
z100 thesaurus english term	z100	z100	4	130																									
z110 Thesaurus French Term	z110	z110	136	130																									

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O L N D R S P M D B V P 1 1 1 1 1 1 N T L S S A 1 L V A E
F E U E E U R A U I A R N M M M M U Y E T T N M O A R X
F M H C P B O N P B L 1 V V V V V M P M R P Y V G L G I
S G E E F M D I M 1
E T R P A L P T C L D O R O T T E E E P F F F C F M
F I E L D N A M E M N E M O N I C T A G T N 1 L T D T O N V A K M E F Y N X X X 1 1 1 N 1 A
C E R C L T E L F P E T T T O L L L G L M
O Y K E Y E S R R R P E E E E E

```

*** Database : TMESMAS

FIELD NAME	MEMONIC	TAG	T	N	1	L	T	D	T	O	N	V	A	K	M	E	F	Y	N	X	X	X	1	1	1	N	1	A	
MTE Main Term English (T100)	MTE	T100	-1	130																									
MTF Main Term French (T110)	MTF	T110	-1	130																									
FTE Forbidden Term English (T200)	FTE	T200	-1	130																									
FTF Forbidden Term French (T210)	FTF	T210	-1	130																									
BT Broader Term English (T320)	BT	T320	-1	130																									
NT Narrower Term English (T330)	NT	T330	-1	130																									
RT Related Term English (T340)	RT	T340	-1	130																									
UE Use Term English (T600)	UE	T600	-1	130																									
UF Use Term French (T610)	UF	T610	-1	130																									
TT Type of Term (T800)	TT	T800	-1	2																									
PN Printed Notes (T810)	PN	T810	-1	575																									
NN Non-Printed Notes (T820)	NN	T820	-1	200																									
SC Status Code (T830)	SC	T830	-1	2																									
DE Date Entered (T840)	DE	T840	-1	10																									
DM Date Modified (T850)	DM	T850	-1	10																									
T860 Printed Notes - french PRF	PRF	T860	-1	575																									
USEDFF USED FOR ENGLISH (T870)	USEDFF	T870	-1	130																									
USEOFF USED FOR FRENCH (T880)	USEOFF	T880	-1	130																									

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		O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E	
		F	E	U	E	E	U	R	A	U	I	A	R	M	M	M	M	M	U	Y	E	T	T	M	N	O	A	R	X
		F	M	N	C	P	B	O	M	P	B	L	I	V	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I
		S	G	E	E	F	M	D	I	M																			T
		E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	F	C	F	N	
FIELD NAME	MNEMONIC TAG	T	N	I	L	T	D	T	O	N	V	A	K	M	E	F	Y	N	X	X	X	X	I	I	I	N	I	A	
		C		E	R	C	L	T	E	L	F	P	E	T	T	O	L	L	L	L	G	L	M						
				D	Y	K	E	Y		E	S	R	R	P	E	E	E	E	E	E	E	E	E	E	E	E	E	E	

*** Database : THBT																													
z100 thesaurus english term		Z100	Z100	4	130																								
z110 thesaurus french term		Z110	Z110	136	130																								

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		O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E			
		F	E	U	E	E	U	R	A	U	I	A	R	M	M	M	M	U	Y	E	T	T	M	N	O	A	R	X			
		F	M	N	C	P	B	O	M	P	B	L	I	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I			
		S	G	E	E	F	M	D	I	M																		I			
		E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	F	C	F	N			
FIELD	NAME	MNEMONIC	TAG	T	N	I	L	T	D	T	O	N	V	A	K	M	E	F	Y	N	X	X	X	X	I	I	I	N	I	A	
						C		E	R	C	L	T	E	L	F	P	E	T	T	T	O	L	L	L	L	G	L	M			
						D	Y	K	E	Y				E	S	R	R	R	P	E	E	E	E	E	E	E	E				

*** Database : THNT																															
x100 Thesaurus English Term	X100	X100	4	130																											THNT
x110 Thesaurus French Term	X110	X110	136	130																											

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		O	L	N	D	R	S	P	M	D	B	V	P	I	I	I	I	I	N	T	L	S	S	A	I	L	V	A	E
		F	E	U	E	E	U	R	A	U	I	A	R	M	M	M	M	M	U	Y	E	T	T	M	N	O	A	R	X
		F	M	N	C	P	B	O	M	P	B	L	I	V	V	V	V	V	M	P	N	R	P	Y	V	G	L	G	I
		S	G	E	E	F	M	D	I	M																			T
		E	T	R	P	A	L	P	T	C	L	D	O	R	O	T	T	E	E	E	P	F	F	F	F	C	F	N	
FIELD NAME	MNEMONIC TAG	T	N	I	L	T	D	T	O	N	V	A	K	M	E	F	Y	N	X	X	X	X	I	I	I	N	I	A	
		C		E	R	C	L	T	E	L	F	P	E	T	T	O	L	L	L	L	G	L	M						
				D	Y	K	E	Y			E	S	R	R	P	E	E	E	E	E									

*** Database : THRT																													
w100 Thesaurus English Term		W100	W100	4	130																								
w110 Thesaurus French Term		W110	W110	136	130																								

Appendix II - Job Listings

PAGE 1 HEWLETT-PACKARD 32201A.07.17 EDIT/3000THU, APR 18, 1991, 10:52 AM (C) HEWLETT-PACKARD CO. 1985

```
1  !JOB THESAURF,MGR.PSBIB;OUTCLASS=LP,1
2  !COMMENT THIS JOB PRINTS THE THESAURUS IN FRENCH
3  !PURGE THESBT
4  !PURGE THESF
5  !PURGE THESBT
6  !PURGE THESNT
7  !PURGE THESRT
8  !PURGE THESFDD
9  !FILE OUTFL=THESBT;DEV=DISC;DISC=10000;NOCCTL
10 !PRINT
11 THESMAS
12 THBT PF.FORMATS
13 1800=s
14 END
15 !FCOPY FROM=THESBT;TO=THESNT;NEW
16 !FCOPY FROM=THESBT;TO=THESRT;NEW
17 !O
18 ERASE DB=THBT
19 ERASE DB=THRT
20 ERASE DB=THNT
21 EXIT
22 !E
23 T THESRT
24 C1/80 TO "IDB=THRT"IN 1
25 C1/80 TO "ICHANGE STARTER=*,ENDER=*,STRIP=YES"IN 2
26 CQ"*Z"TO"*W"IN ALL
27 K THESRT,UNN
28 Y
29 T THESBT
30 C1/80 TO "IDB=THBT"IN 1
31 C1/80 TO "ICHANGE STARTER=*,ENDER=*,STRIP=YES"IN 2
32 K THESBT,UNN
33 Y
34 T THESNT
35 C1/80 TO "IDB=THNT"IN 1
36 C1/80 TO "ICHANGE STARTER=*,ENDER=*,STRIP=YES"IN 2
37 CQ"*Z"TO"*X"IN ALL
38 K THESNT,UNN
39 Y
40 E
41 !RESET OUTFL
42 !FILE BATCH=THESBT;DEV=DISC
43 !RUN BATCHIN.UTILITY.MINISIG;LIB=P
44 THBT
45 EXIT
46 !FILE BATCH=THESNT;DEV=DISC
47 !RUN BATCHIN.UTILITY.MINISIG;LIB=P
48 THNT
49 EXIT
50 !FILE BATCH=THESRT;DEV=DISC
51 !RUN BATCHIN.UTILITY.MINISIG;LIB=P
52 THRT
53 EXIT
54 !PURGE THESNT
55 !PURGE THESRT
56 !INDEX
57 THESds
```

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```

58  t800=s
59  OUTPUT=THESF
60  USE=THESKEYf
61  !purge thes1
62  !purge thes2
63  !purge thes3
64  !purge thesfold
65  !rename thesf,thesfold
66  !fcopy from=thesfold;to=thes1;new;subset="y020  ",135,exclude
67  !fcopy from=thes1;to=thes2;new;subset="y030  ",265,exclude
68  !fcopy from=thes2;to=thes3;new;subset="y040  ",395,exclude
69  !fcopy from=thes3;to=thesf;new;subset="y050  ",525,exclude
70  !RESET OUTFL
71  !purge thesfre
72  !FILE OUTFL=THESFRE;DEV=DISC;DISC=6000;SAVE;NOCCTL
73  !PRINT
74  THESMAS
75  THESFRE.FORMATS
76  HITFILE=THESF
77  END
78  !IF JCW < FATAL THEN
79  ! SET STDLIST=DELETE
80  !ENDIF
81  !EOJ

```

THESKEYF

```

KEY=TERM,LENGTH=130,altchar=yes
FIELD=T110
ALTERNATIVE=T210
end
KEY=LUCK,LENGTH=130,ALTLABEL=YES,altchar=yes
FIELD=T610
alternative=T210,OCC=ALL,prefix="y020"
FIELD=Z110,OCC=ALL,prefix="y030"
FIELD=X110,OCC=ALL,prefix="y040"
FIELD=W110,OCC=ALL,prefix="y050"
field=t800,prefix="y060"
end

```

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```

1  !job thbil,mgr.psbib;outclass=lp,1
2  !comment *****
3  !comment   First the files that are to be created by the procedure
4  !comment   shall be purged; these files are:
5  !comment   thin - query file 2030
6  !comment   thindd - query file 2031
7  !comment   thbil2 - index output file 2020
8  !comment   thbil2dd - index output file 2021
9  !comment   thbil - index output file 2020
10 !comment   thbildd - index output file 2021
11 !comment *****
12 !file outfl;dev=lp,1
13 !purge thin
14 !purge thindd
15 !purge thbil
16 !purge thbildd
17 !purge thbil2
18 !purge thbil2dd
19 !comment *****
20 !comment   The QUERY program will be used to find all records with a
21 !comment   DATE ADDED or DATE MODIFIED field which is greater than
22 !comment   the DATE provided in the QUERY formulation of this job.
23 !comment *****
24 !query
25 bib
26 = la BIL and de > 1991-04-24
27 save thin
28 exit
29 !comment *****
30 !comment   Next INDEX shall be run to sort the retrieved records through
31 !comment   a database called BIBTHESB; which by its name indicates that it
32 !comment   joins the data base BIB with the database ETOF and to FTOE.
33 !comment   The BIB field A170 is joined to the ETOF field T100 and T110
34 !comment   is joined to the field A170 of BIB through the data base FTOE
35 !comment   T100 is the English Term of the Thesaurus Term Record.
36 !comment   T110 is the French Term of the Thesaurus Term Record.
37 !comment   Using this data base, we are able to make a connection between
38 !comment   the terms found in the record and the corresponding
39 !comment   terms from the Thesaurus master data base record.
40 !comment   Note that, in the event a record has been indexed with
41 !comment   either French terms or English terms, then there will be a conne
42 !comment   between A170 to Term T100 and also to Term T110 always.
43 !comment *****
44 !index
45 bibthesb
46 hitfile=thin
47 output=thbil
48 key=bilingual,length=130,showocc=yes,altchar=yes
49 field=t100
50 field=t110
51 end
52 ***
53 !comment *****
54 !comment   The UPDATE program will be used to a) delete all existing A170
55 !comment   Don't Panic! They have been safely stored away in the Index
56 !comment   file and will not be lost. We have to delete them first
57 !comment   to avoid duplication of terms; this way we also only run

```

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```

58 !comment one job and it doesn't matter what the original indexing
59 !comment language for A170 was.
60 !comment We then want to b) TRANSFER the Y010 tag to field A170.
61 !comment This will contain both French and English terms on the record
62 !comment A predefined batch job called thmod2 was created to do the
63 !comment work outlined in step a)
64 !comment A second predefined batch job called thmod3 was created to do th
65 !comment work in step b).
66 !comment *****
67 !update
68 thmod2
69 !update
70 thmod3
71 !comment *****
72 !eoj

```

THMOD2

G.00.02

BIB ±THBIL

D ALL A170

D ALL A170

D ALL A170

D A170

EXIT

THMOD3

G.00.02

BIB ±THBIL

T Y010 TO A170

EXIT

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```

1  !job thftoe,mgr.psbib;outclass=lp,1
2  !comment *****
3  !comment First the files that are to be created by the procedure
4  !comment shall be purged; these files are:
5  !comment thin - query file 2030
6  !comment thindd - query file 2031
7  !comment thtrf - index output file 2020
8  !comment thtrfdd - index output file 2021
9  !comment thtrf1 - copy of index output file thtrf 2020
10 !comment *****
11 !purge thin
12 !purge thindd
13 !purge thtrf
14 !purge thtrfdd
15 !purge thtrf1
16 !file outfl;dev=lp,1
17 !comment *****
18 !comment The QUERY program will be used to find all records with a
19 !comment DATE ADDED or DATE MODIFIED field which is greater than
20 !comment the DATE provided in the QUERY formulation of this job.
21 !comment *****
22 !query
23 bib
24 = la ENG and de > 1991-04-24 and not la BIL
25 save thin
26 exit
27 !comment *****
28 !comment Next INDEX shall be run to sort the retrieved records through
29 !comment a database called BIBTHESF; which by its name indicates that it
30 !comment joins the data base BIB with the database THESMAS.
31 !comment The BIB field A170 is joined to the THESMAS field T110.
32 !comment T110 is the French Term of the Thesaurus Term Record.
33 !comment Using this data base, we are able to make a connection between
34 !comment the french terms found in the record and the corresponding
35 !comment english terms from the Thesaurus master data base record.
36 !comment Note that, in the event an english record has been indexed with
37 !comment English terms, then there will be no connection made from Englis
38 !comment Term A170 to French Term T110. Therefore running this job when
39 !comment the data is in the form you want will have no effect.
40 !comment *****
41 !index
42 bibthesf
43 hitfile=thin
44 output=thtrf
45 key=english,length=130,showocc=yes,altchar=yes
46 field=t100
47 end
48 ***
49 !comment *****
50 !comment The index output file thtrf is renamed to thtrf1. The reason
51 !comment for this is that we wish to create another copy of the file
52 !comment with the occurrence numbers of the output sorted in descending
53 !comment order.
54 !comment *****
55 !rename thtrf,thtrf1
56 !comment *****
57 !comment The HP sort program is used to sort the output file thtrf1

```

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```

58 !comment      and place the resulting sorted file into the file named thtrf
59 !comment      we shall sort on the tag Y020 which is found in position 134 of
60 !comment      the output file.  IF THE LENGTH OF THE THESAURUS FIELD
61 !comment      IS CHANGED IN THE FUTURE, THEN THIS NUMBER 134 WILL ALSO
62 !comment      BE AFFECTED!!!  Basically, take the length of the field and
63 !comment      add 4; therefore now, length=130 plus 4 therefore use 134.
64 !comment      We have assured that the occurrence from which the field was
65 !comment      extracted will be recorded in the output file by using the INDEX
66 !comment      option SHOWOCC=YES.
67 !comment      *****
68 !run sort.pub.sys
69 !input thtrf1
70 !output thtrf
71 !key 134,4,desc
72 !e
73 !comment      *****
74 !comment      The UPDATE program will be used to a) TRANSFER the Y010 tag
75 !comment      to the field A170.  These are the English term equivalents to
76 !comment      the French terms on the record.
77 !comment      and b) DELETE the French terms based upon the occurrence
78 !comment      number found in the Y020 tag.
79 !comment      A predefined batch job called thmod4 was created to do this.
80 !comment      *****
81 !update
82 !thmod4
83 !comment      *****
84 !eoj

```

```

THMOD4
G.00.02
BIB      SYNTRE
T Y010 TO A170

```

```

D A170
OCC=Y020
EXIT

```

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```

1  !job thetof,mgr.psbib;outclass=lp,1
2  !comment *****
3  !comment First the files that are to be created by the procedure
4  !comment shall be purged; these files are:
5  !comment  thin  -   query file 2030
6  !comment  thindd -   query file 2031
7  !comment  thtre  -   index output file 2020
8  !comment  thtredd - index output file 2021
9  !comment  thtre1 -   copy of index output file thtre 2020
10 !comment *****
11 !file outfl;dev=lp,1
12 !purge thin
13 !purge thindd
14 !purge thtre
15 !purge thtredd
16 !purge thtre1
17 !comment *****
18 !comment The QUERY program will be used to find all records with a
19 !comment DATE ADDED or DATE MODIFIED field which is greater than
20 !comment the DATE provided in the QUERY formulation of this job.
21 !comment *****
22 !query
23 bib
24 = la FRE and de > 1991-04-24 and not la BIL
25 save thin
26 exit
27 !comment *****
28 !comment Next INDEX shall be run to sort the retrieved records through
29 !comment a database called BIBTHES; which by its name indicates that
30 !comment it joins the data base BIB with the database THESMAS.
31 !comment The BIB field A170 is joined to the THESMAS field T100.
32 !comment T100 is the English Term of the Thesaurus Term Record.
33 !comment Using this data base, we are able to make connection between
34 !comment the english terms found in the record and the corresponding
35 !comment french terms from the Thesaurus master data base record.
36 !comment Note that, in the event a french record has been indexed with
37 !comment French terms, then there will be no connection made from English
38 !comment Term A170 to English Term T100. Therefore running this job when
39 !comment the data is in the form you want will have no effect.
40 !comment *****
41 !index
42 bibthes
43 hitfile=thin
44 output=thtre
45 datafield=french,length=130,showocc=yes,altchar=yes
46 field=t110
47 end
48 ***
49 !comment *****
50 !comment The index output file thtre is renamed to thtre1. The reason
51 !comment for this is that we wish to create another copy of the file
52 !comment with occurrence numbers of the output sorted in descending
53 !comment order.
54 !comment *****
55 !rename thtre,thtre1
56 !comment *****
57 !comment The HP sort program is used to sort the output file thtre1

```

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```

58      !comment  and place the resulting sorted file into the file named thtre
59      !comment  we shall sort on the tag Y020 which is found in position 134
60      !comment  of the output file.  IF THE LENGTH OF THE THESAURUS FIELD
61      !comment  IS CHANGED IN THE FUTURE, THEN THIS NUMBER 134 WILL ALSO
62      !comment  BE AFFECTED!!!  Basically, take the length of the field and
63      !comment  add 4; therefore now, length=130 plus 4 therefore use 134.
64      !comment  We have assured that the occurrence from which the field was
65      !comment  extracted will be recorded in the output file by using the INDEX
66      !comment  option SHOWOCC=YES.
67      !comment  *****
68      !run sort.pub.sys
69      input thtre1
70      output thtre
71      key 134,4,desc
72      e
73      !comment  *****
74      !comment  The UPDATE program will be used to a) TRANSFER the Y010 tag
75      !comment  to the field A170.  These are the French term equivalents
76      !comment  to the English terms on the record.
77      !comment  and b) DELETE the English terms based upon the occurrence
78      !comment  number found in the Y020 tag.
79      !comment  A predefined batch job called thmod1 was created to do this
80      !comment  *****
81      !update
82      thmod1
83      !comment  *****
84      !eoj

```

THMOD1

G.00.02
BIB ±TNTRF

T Y010 TO A170

D A170
occ=y020
EXIT

Appendix III - Print Formats

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LISTFORMAT - PRINT FORMAT SPECIFICATION

PAGE : 1

** PRINT-FORMAT FILE NAME ** TMSFRE.FORMATS

Column formatting	NO
Printing mode	1
Lines per page	66
Characters per line	132
Default spacing	1
Spacing between record	0
Max. records per page	32767
Left margin	1
Max. no. of lines per record	0
Split record between pages	NO
Print after last record	NO
Starting page number	1

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LISTFORMAT - PRINT FORMAT SPECIFICATION

PAGE : 2

ABSOLUTE LINE / COL.

ENTRY CHECKED PRINT COND. EQU RGT STR END INDENTATION MAX. SPACES LINES SORT PRINT PAGE ALT. FUNCT DISPL.
NO. FIELD 10. FMD E-SUP BY GRP DSPLY SUP JUST COL COL FIRST NEXT CHAR TO RGT BEF. AFT. FLD ASC. AT TOF EJECT FLD. CODE

<----- LITERAL 1 ----->										<----- LITERAL 2 ----->									
TYPE	LEN	CON	REP	SUP	TYPE	LEN	CON	REP	SUP	TYPE	LEN	CON	REP	SUP	TYPE	LEN	CON	REP	SUP
1	Y010		NO	YES	YES	NO	-1	0	0	0	32767	0	2	0	NO	NO	Y020		
	*1				PRE	2	YES	NO	NO		*2				POST	2	YES	NO	NO
2	T100		NO	YES	YES	NO	-1	0	0	0	32767	0	1	0	NO	NO			
	*3				PRE	2	YES	NO	NO		*4				POST	2	YES	NO	NO
3	T610	Y010	YES	YES	NO	YES	NO	NO	-1	0	0	11	32767	0	1	0	NO	NO	
	*5/Voir/*6				PRE	10	YES	NO	NO										
4	TEST		NO																
	T800	PRESENT																	
5	LITL	T880	YES	YES	NO				-1	0	0	0	0	1	0		6		
	*7EQ*8																		
6	T880	Y010	YES	YES	NO	YES	NO	NO	-1	0	0	0	32767	132	0	0	NO	NO	
	*9				PRE	2	YES	YES	NO										
7	TEST		NO																
	T860	PRESENT																	
8	LITL	T860	YES	YES	NO				-1	0	0	0	0	1	0		8		
	*10NC*11																		
9	T860	Y010	YES	YES	NO	YES	NO	NO	-1	0	0	0	32767	132	0	0	NO	NO	
	*12				PRE	3	YES	YES	NO		*13				POST	3	YES	NO	NO
10	TEST		NO																
	Y030	PRESENT																	
11	LITL	Y010	YES	YES	NO				-1	0	0	0	0	1	0		8		
	*13TC*14																		
12	Y030		NO	YES	NO	NO	-1	0	0	0	32767	0	0	0	NO	NO			4
	*9				PRE	2	YES	YES	NO										
13	TEST		NO																
	Y040	PRESENT																	
14	LITL	ISN	YES	YES	NO				-1	0	0	0	0	1	0		8		
	*14TS*15																		
15	Y040		NO	YES	NO	NO	-1	0	0	0	32767	0	0	0	NO	NO			4
	*9				PRE	2	YES	YES	NO										
16	TEST		NO																
	Y050	PRESENT																	

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LISTFORMAT - PRINT FORMAT SPECIFICATION

PAGE : 3

ENTRY		CHECKED	PRINT	COND.	EQU	RIGHT	STR	END	INDENTATION	MAX.	SPACES	LINES	SORT	PRINT	PAGE	ALT.	FUNCT	DISPL.							
NO.	FIELD	JD.	FIND	E-SUP	BY	GRP	DSPLY	SUP	JUST	COL	COL	FIRST	NEXT	CHAR	TO	RIGHT	BEF.	AFT.	FLD	ASC.	AT	TOF	EJCT	FLD.	CODE
<----- LITERAL 1 -----> TYPE LEN CON REP SUP <----- LITERAL 2 -----> TYPE LEN CON REP SUP																									
17	LITL	T100	YES	YES	NO					-1	0	0	0	0	1	0									
	*16TA*17																							8	
18	V050		NO	YES	NO	NO				-1	0	0	0	32767	0	0	0				NO	NO			4
	*9 PRE 2 YES YES NO																								