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H. SCHMID

(Food and Agriculture Organization of the United Nations, Rome, Italy)

D. LEATHERDALE

(International Development Research Centre, Ottawa, Canada)

V. GADJOKOV

(International Atomic Energy Agency, Vienna, Austria)



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Summary

The subject breakdown of the AGRIS data base by categories interlinked with object and geographical codes is described in section 1. The use of these categories and codes in a mechanized information retrieval system is then considered.

The system is a modification of IBM's Information Retrieval and Management System (IRMS); it allows for batch processing on an IBM/360 or /370 computer operated under OS or VS. As IRMS was developed for use with a controlled vocabulary, the search possibilities on the AGRIS files are necessarily limited. An artificial vocabulary is presented, derived from the AGRIS subject categories, object codes, geographic codes, language codes, and bibliographic data: type of record, literary indicator, volume/issue number, and the country code of the submitting centre.

The use of the IRMS system for AGRIS is described in sections 2-10 with details of programming deliberately omitted. Program descriptions with data set definitions and file formats are presented separately in sections 11-13.

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1. SUBJECT CATEGORIZATION

1.1. Subject Categories (Tag 008)

Access terms to the subject content of the AGRIS data base are provided in three major groups. The prime breakdown is given in Tag 008, where there is provision for a subject category code followed by supplementary subject category codes. In the printed output from the data base, AGRINDEX, the bibliographic citations are arranged under these sequential codes in the form of subject headings. If an item was assigned a supplementary category as well, then the record number only of that item appears under the appropriate category as "See also xxxxxx". It is evident that retrieval from AGRINDEX by this means would be a laborious operation. However, retrieval from the magnetic tape record is not restricted in this way, so that all citations indexed under a particular category code are equally retrievable.

We have then, in the subject category codes in Tag 008, a major broad retrieval vocabulary. The AGRIS subject categories are listed and described in AGRIS-3[9].

1.2. Object Codes (Tag 620)

The second group of access terms have been referred to as object codes, for want of a better expression. They are given in Tag 620, where it is possible to give these entries if required. The detail of the object codes will be found in the document AGRIS-3[9], as will the breakdown of the subject categories and the other codes yet to be mentioned. They consist basically of the names of animals and plants used by man and of foods; at the time of writing, the list is in the course of augmentation, but for practical

Note: In this document the letter O is then written as Ø when it is specifically distinguished from the digit 0.

purposes we shall consider the list as issued in March 1974 (rev.1).

The object code lists are constructed in such a way that a code may be provided for any crop or animal, although with differing degrees of precision. We have, for sake of example, the following grouping:

1100	<u>Tropical fruits - general</u>
1110	Avocadoes
1112	Bananas
1114	Date palms
1116	Guavas
1118	Litchis
1120	Mangoes
1122	Papayas
1126	Pineapples
1190	Tropical fruits - other

It is a simple matter to use the appropriate code for retrieving information relating to a crop that is named in this list, such as Mangoes. It is equally simple to use the code 1100 to retrieve papers dealing with tropical fruits in general, or papers in which a wide range of tropical fruits is mentioned. But if the object of our search is, say, Durians, then we have to query on code 1190. These 'other' groupings include all commodities that fall within a major group yet are considered as minor commodities in the world as a whole, no matter how important they may be in a particular region. Experience with the AGRIS files over the first twelve months of operation shows that these 'other' codings are in general little used, so that we may expect low levels of noise or irrelevant citations on retrieval.

One serious limitation in the use of object codes has been their restriction to a total of three. It is not infrequent for a paper to give information on more than three commodities, and the indexer has then been faced with the quandary of which commodities to index in Tag 620 and which to omit. Conversely, completeness of retrieval would be suspect. As of AGRINDEX volume 2 the limitation has been removed, so that as many codes may be entered in Tag 620 as the item warrents.

1.3. Geographical Codes (Tag 620)

The third group are Geographical Codes, and they are also entered at Tag 620, in the last two positions. Unlike the Subject Categories and the Object Codes, the Geographical Codes are given in AGRIS-3 in the form of a structured thesaurus in order that their relationships may be made clear. They are fundamentally codes to political entities, subdivided in the case of large countries, but they also include codes for major quasi-political or physical groupings, such as G105 Francophone Africa, G800 South East Asia, and E037 SEAMEO. It is also possible to use a limited number of codes relating to physical geography, such as GZ40 Volcanic Areas.

1.4. Use of AGRIS Categorization for Retrieval

As will be apparent when we come to Section 6, a query using the AGRIS/INIS modification of IRMS (Information Retrieval and Management System) employs Boolean logic, by which we may combine strings of codes, restrict the applications of certain codes, or ask for certain codes in combination with (or alternatively dis-associated with) stated other codes. The codes may be a carefully selected mixture

from any groups, so that, for instance, one could ask for citations dealing with the marketing (Subject Category E70) of pepper (Object Code 2320) in Java (Geographical Code G673).

The versatility of the system, within the limits of the AGRIS vocabulary as at present constituted, becomes at once apparent in use. The user will find that at first it is difficult to foresee exactly what his query will produce. There has been the problem of frequency, which is now no longer so important because figures are available from the AGRIS files. As is to be expected, the number of times that a term (a descriptor) is used in the data base is very variable; during the first twelve months of AGRIS, 0150 Rice was used 541 times, whereas 2387 Ylang-ylang had a frequency of 0. It therefore follows that a query on Ylang-ylang could consist of the single code 2387, but a query on Rice would necessarily have to be put in terms as specific as possible within the strictures of the system.

It is difficult to give a frequency figure below which the Object Code alone would suffice for retrieval purposes, especially as the user may not be aware of the frequency at the time of making the query. (Users of INIS have a great advantage over users of AGRIS at present in that they are able to consult a detailed thesaurus that includes frequencies.) However, if we consider the question in quantitative terms, it is unrealistic to retrieve listings of more than 30 or 40 citations.

1.5. Bibliographic Data Elements

Sections 1.1-1.4 have been restricted to subject codings used in AGRIS, but it will be seen later that retrieval with the AGRIS modification of IRMS is not limited to those codes

alone. The AGRIS/IRMS thesaurus that is presented in this document also includes language codes, codes for types of record, codes for literary indicators, the volume/issue number, and the country code of the submitting centre. The intelligent use of these codes will give enhanced specificity to retrieval.

2. INTRODUCTION TO IRMS

The Information Retrieval and Management System - IRMS was originally developed by IBM for purposes which are evident from the name itself. The system is designed for carrying out retrieval based on controlled terminology, i.e., using the descriptors of a thesaurus as search points. Basically, IRMS works with three main disk files, the names and primary purpose of which are given below:

- a) IRMS Thesaurus - is used to check the correctness of the descriptors in a query and to replace them with their codes.
- b) Inverted file - is used to select among all the available documents those which are pertinent to the query processed, i.e., to carry out the actual retrieval.
- c) Bibliographic file - is used for printing the information on the retrieved documents necessary for their documentation.

At the AGRIS Input Unit in Vienna the system has been implemented and completed with an AGRIS-IRMS interface

which permits the use of different types of data elements as search points. With these modifications IRMS is being currently used for in-house search services on the cumulated AGRIS data base, as well as on the monthly AGRINDEX file. All examples and statistics given in this document refer to AGRINDEX volume 1.

All the following sections apply exclusively to the thus modified IRMS which is used at the AGRIS Input Unit in Vienna. The described AGRIS/IRMS system is derived from the INIS/IRMS system [8] modified for AGRIS needs.

3. SEARCH POINTS

In an IRMS query the following search points can be used:

- a) The object codes assigned to a document. The list of object codes is published in AGRIS-3[9].
- b) The geographic codes assigned to a document. The list of geographic codes is published in AGRIS-3[9].
- c) The subject categories, both primary and secondary, under which the document has been classified. Primary and secondary categories are treated in the same way and the program cannot distinguish between them. In addition, groups and series of categories, e.g., the A1-group or the C-series, are also search points.
- d) The language of the publication.
- e) The type of record, e.g. J for journal articles.

f) The literary indicator, e.g. K for conference papers.

g) The Agrindex volume/issue, half-volume and volume numbers. These are useful when it is necessary to limit the retrieval to a specific part of the whole data base.

h) The country code (regional and/or national country codes).

For details on how to refer to the search points listed in a - g above see sections 4.1 and 4.2.

4. AGRIS/IRMS THESAURUS

Entries in the IRMS Thesaurus consist of a term (up to 20 characters) and a five-digit code. The AGRIS/IRMS Thesaurus, i.e. term, code and the frequency of usage in the first year of AGRINDEX (~50,000 documents) are listed in Appendix 1. The IRMS Thesaurus for retrieval on the AGRIS files consists of two parts:

- A list of controlled terms for which numeric codes already exist in the original data base (e.g. object codes). The entries in this list are called 'descriptors'.
- A list of controlled terms for which the codes must be looked-up in a table at the time the inverted file is generated. The entries in this list are called 'pseudo-descriptors'. In order to differentiate between both lists, pseudodescriptors start with a dollar sign (\$) and are listed first in an alphabetical arrangement as Appendix 1.

4.1. AGRIS Descriptors

a) Object Codes

In general, two entries have been generated for each object code; the first one has as term the object code text as published in AGRIS-3 [9] or listed in the commodity index of AGRINDEX and as descriptor code the original object code is used. Some modifications will be necessary should AGRIS use non-numeric object codes. The second entry is a synonym of the first and has therefore the same code. The term however has the form OBJ=xxxx where xxxx means the object code. The second form will be preferred by the user in cases where the text is long.

The descriptors of the IRMS Thesaurus have a maximum length of 20 characters. Accordingly, text fields of object codes which are shorter or equal to 20 characters preserve their form in IRMS (e.g. BANANAS). If the text field includes a space, this counts as one character, e.g. SUGAR MAPLES.

Problems occur for long text fields: Cases of a text field longer than 30 characters (see Appendix 2.1) have been excluded altogether. No entry of the first type is generated.

Text fields with a length between 21 and 30 characters are truncated to 20 characters and are then included in the descriptor list if the truncation results in no ambiguity. Terms excluded from Thesaurus generation are listed in Appendix 2.1 and 2.2. In both cases, only an entry of the second type is generated (OBJ=xxxx).

b) Geographical Codes

For geographical codes the data base does not have a numeric code and therefore the entries for the geographic codes are generated as pseudodescriptors (see section 4.2). However for the reason of similarity to the object codes, entries to the descriptor list have also been generated. Since both use the same code the entries are synonyms. The form of the geographic code within the descriptor list is GEO=Gxxx, where Gxxx means the geographic code, with a numeric code generated by computer ($\gg 80,000$). The system would allow the inclusion of the actual country name to be used as another synonym.

4.2. Pseudodescriptors

The second part of the AGRIS/IRMS Thesaurus consists of the pseudodescriptors. All terms in that list have a dollar sign (\$) in the first position followed by up to 19 characters. If the pseudodescriptor has the same code as a term in the descriptor list, then the pseudodescriptor is a synonym of the descriptor. The following pseudodescriptors are available:

a) subject categories

Pseudodescriptors of the type \$CAT=xxx where xxx is generally a subject category assigned to a document either as primary or as secondary one.

Note that for each specific subject category assigned three pseudodescriptors of this type are generated. They correspond to the category itself (e.g. \$CAT=A21 for A21), to the group of categories (e.g. \$CAT=A2 for A21, A22 and A20) and to the series of categories (e.g. \$CAT=A for all the

categories of the series A00, AGRICULTURE - general). Thus, retrieval at each level of generality can be done.

Note also that the pseudodescriptors in pairs like \$CAT=A20 and \$CAT=A2 are different and, when used in retrieval, select different subsets of the data base, e.g.:

\$CAT=A20 - subset S_1 consisting of all documents classified under the general A20 category, either as primary or as secondary one.

\$CAT=A2 - subset S_2 consisting of all the documents classified under categories belonging to the A2 group (A20, A21 and A22), no matter whether these were used as primary or secondary categories.

Obviously, $S_1 \subset S_2$.

b) language

Pseudodescriptors of the type \$LAN=XX where XX is the language of publication as used in Tag 600 (see section 2.600 in AGRIS-1 [10]) e.g.

\$LAN=EN

\$LAN=ES

etc.

c) type of record

Pseudodescriptors of the type \$TYP=X where X

is the type of record (see Tag 008 in the AGRIS Worksheet header reproduced in Appendix 3), e.g. \$TYP=R for reports.

d) literary indicators

Pseudodescriptors of the type \$LIT=X where X is a literary indicator circled in Tag 008 (see the AGRIS Worksheet header reproduced in Appendix 3), e.g. \$LIT=Y for progress reports. More than one literary indicator is allowed for the same document and in this case more than one pseudodescriptor of this kind is generated, e.g. \$LIT=K and \$LIT=E for a conference paper published with summary included.

e) volume/issue number

Pseudodescriptors of the type \$VOL=XXXXX where XXXXX is the Agrindex volume/issue, half-volume and volume numbers. Three pseudodescriptors of this kind are generated by IRMS for each document on the file, e. g. for a document published in Agrindex vol.1 no.3 they are

- \$VOL=01/03 - indicates the exact issue of publication;
- \$VOL=01/A - Indicates that the document was published in the first half of vol.1; (similarly, it would be \$VOL=1/B for documents published in the second half of vol.1);
- \$VOL=05 - indicates the volume of publication

f) country code^{*}

Pseudodescriptors of the type \$CC=xx where xx is the two-character code issued by ISO in April 1975, extended by the regional country codes defined by the AGRIS coordinating center.

Entries in the inverted file are generated from the first two characters of the TRN and from the optional subfields for country codes in Tag 008.

5. THE IRMS BIBLIOGRAPHIC FILE

This is a direct-accessible file containing information which allows the identification of the documents to be retrieved.

The file contains the complete bibliographic citations arranged in the same way as in Agrindex.

Records on the bibliographic file are referred to by means of an IRMS-generated Document Access Number (DAN) starting with 1 for any IRMS system. IRMS DANs are then different from AGRIS RNs, if AGRIS RNs have been deleted from the file or if the IRMS system does not include the complete AGRIS cumulative file.

* As of AGRINDEX volume 2.

6. REQUEST STRUCTURE

Queries are entered into the computer on punch cards and processed in batch. Each request consists of:

- a) a title card;
- b) descriptor card(s);
- c) query card(s).

The general card format is

1	2	3		73	74	76	80
I	D	variable text - see <u>6.1</u> , <u>6.2</u> and <u>6.3</u>			0	5	R R N N N

where:

ID - card type identifier; can have one of the following values:

- 00 for the title card;
- 01,02,...,15 for the descriptor cards;
- 99 for the query card(s).

05 - must be punched in cols 74-75 of all cards.

RR - two-digit retriever's code

NNN - three-digit query number.

Note: No two queries in a batch with the same retriever's code and query number are accepted.

6.1. Title Card

This is the first card of each query. Its format is as follows:

1	2	3	4	13	14	17	18	69	70-73	74	80
0	0	=			QID				RET	0 5 R R N N N	

Card Col. No.	Content
14-17	QID Query identification (4 character code)
70-73	RET Retriever identification (3 character code)
4-13 } 18-69 }	May be used for any kind of identification.

6.2. Descriptor Cards

As already mentioned, both descriptors and pseudo-descriptors form part of the IRMS Thesaurus and can equally be used in query formulation. For the sake of brevity we refer to "descriptors" only but, actually, both descriptors and pseudodescriptors are meant.

The descriptors used in a search are divided into groups. The descriptors in each group are linked by one of the two logical operators:

AD (logical "and"), and
ØR (non-exclusive logical "or").

Each group may contain up to 10 descriptors. There may be up to 15 groups. Thus, a query profile may contain up to 150 descriptors.

The groups are numbered from 01 to 15. The descriptor cards must be given in ascending group number.

Each descriptor card has the following format:

1	2	3	4	5	6	7	8	9	73	74	80
G	G	,	Ø	P	,	P	=	Descriptors		0	5 R R N N N

optional

where

- GG is the group (01 to 15) number
- ØP is the logical operator used (either AD or ØR)
- P if col. 6 and 7 contain ', P' the descriptors of this group are printed with the descriptor codes (see Appendix 4.1). If the Thesaurus print is not desired, col. 6 contains the equal sign (=) and the descriptors start in col. 7.

The descriptors (twenty characters at most!) are punched, beginning in column 7 resp. 9 with the Thesaurus print option and separated by commas. No blanks should either precede or follow the commas. A period (.) must follow the last (or only) descriptor on a card.

If the descriptor field (cols. 7-73) is not enough for entering all the descriptors of a group, up to three additional cards bearing the same group number may be used. Their format is exactly the same as described above. Each of them must have a period after the last (or only) descriptor and, therefore, there can be no transfer of descriptor parts from one card to another. Thus, the order of the descriptor cards (up to four) within a group is irrelevant.

Note that if a group consists of one descriptor only, either of the two logical operators (AD or ØR) may be used. The results obtained will be identical for each case.

6.3. Query Card(s)

The query card is used to express the actual question by means of combining the various descriptor groups with the logical operators AD ("and"), ØR (non-exclusive "or") and NØ ("and not"). It has the following format:

1	2	3	4	73	74	80
9	9	,	nnnn=Boolean expression		0	5 R R N N N

where:

- 99 is the query-card identifier.
- nnnn is the output definition parameter. It is a decimal number which may consist of 1-4 digits, i.e. $1 \leq nnnn \leq 9999$. This number must be followed by an equal sign (=) after which the Boolean expression starts (no blanks allowed).

If the Boolean expression is too long and cannot be entered into cols 4-73 of the query card, a continuation card (one only!) may be used. Its format is:

1	2	3	4	73	74	80
9	9	,	Boolean expression (continued)		0	5 R R N N N

The output definition parameter nnnn governs the print-out of the documents retrieved: if the actual number of these documents (either at an intermediate or at the final step of the query execution) is less than or equal to nnnn, then the program prints out the corresponding bibliographic citations; otherwise it just indicates the number of documents retrieved and the printing is suppressed. Thus, the output definition

parameter acts as a sort of safety factor against printing long lists of irrelevant documents in case of wrong or badly formulated queries.

The Boolean expression is constructed in accordance with the following rules:

- a) The simplest Boolean expression consists of a primary. A primary is either
 - i) a single group number or
 - ii) another expression enclosed in parentheses
- b) More complicated expressions are formed by linking two or more primaries with logical operators. If the primaries linked are more than two, all the operators used must be of the same type.
- c) No more than two levels of nested parentheses are admitted.
- d) A logical operator may appear only between two primaries, i.e. no two operators can be adjacent to each other.
- e) The operators which can be used are:
 - i) AD (logical "and");
 - ii) ØR (non-exclusive "or");
 - iii) NØ (logical "and not").

All desired operators must be specified explicitly.

- f) The parentheses used must be balanced, i.e. the number of open parentheses must be equal to that of the closed ones.

- g) A group number in a Boolean expression may appear only once. If a second use of the same set of descriptors is required, they must be repeated a second time on the descriptor cards with different group number.

Examples

I. Valid IRMS Boolean expressions:

01
01AD02
(01ØR02)AD03
((01AD02)ØR(03AD04))AD05
(01AD02)NØ03
01NØ02
(01NØ02)AD03

II. Invalid IRMS Boolean expressions:

01AD02ØR03	Two operators of different types (rule b).
0102	Missing (i.e. not explicitly specified) operator (rule e).
01ADNØ02	Two consecutive operators (rule d).
(01AD(02ØR(03AD04)))	Three levels of nested parentheses (rule c).
((01ØR02)AD03	Unbalanced parentheses (rule f).
(01AD02)ØR(01AD03)	Group number used twice (rule g).

Two sample queries are given in Appendix 4.

7. IRMS FORMALISM VERSUS BOOLEAN ALGEBRA

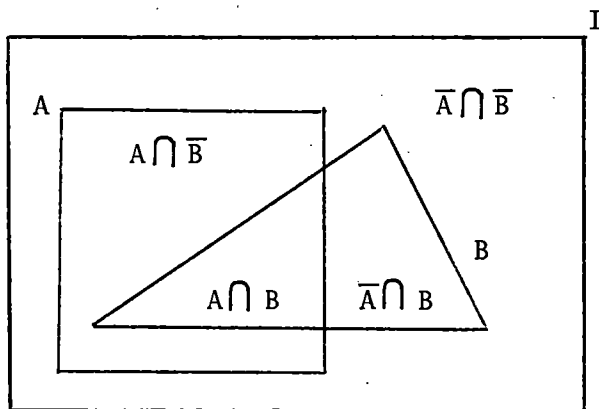
The IRMS query formulation is actually just a way of expressing Boolean operations between classes.

Each descriptor in the descriptor cards represents the class of all documents in the data base to which that descriptor has been assigned.

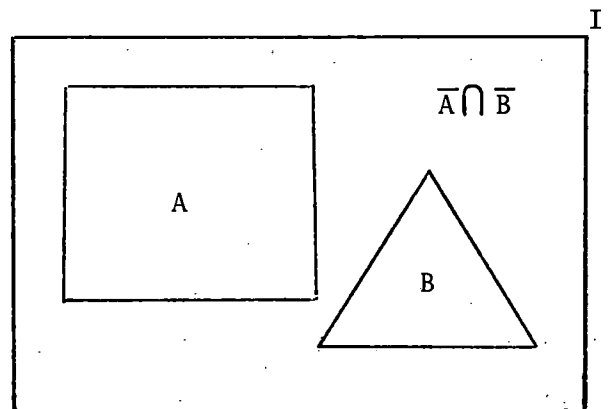
Each group is the class resulting from the Boolean sum (operator $\emptyset R$) or the Boolean product (operator AD) of the classes represented by the descriptors in that group.

The Boolean expression in the query line, finally, represents the class resulting from the specified Boolean operations between the various groups. This is actually the class of documents to be retrieved.

The following diagrams give a schematic picture of the three Boolean operations:



Case 1: $A \cap B \neq 0$



Case 2: $A \cap B = 0$

where:

- I is the class of all the documents in the data base;
- A is the class of documents indexed with descriptor A;
- B is the class of documents indexed with descriptor B;
- \bar{A}, \bar{B} are the classes of documents not indexed with descriptors A and B respectively;

\cap is the Boolean product or class intersection operator;
 \cup is the Boolean sum or class union operator.

The result of the Boolean operation $A \cup B$ is illustrated by the sum of areas $A \cap \bar{B}$, $A \cap B$ and $\bar{A} \cap B$ in case 1 and, respectively, by A and B in case 2.

If group number 01 and 02 are assigned to descriptors A and B respectively, then one-to-one correspondence between IRMS and Boolean operators can be established:

$$01AD02 \equiv A \cap B \quad (7*1)$$

$$01\emptyset R02 \equiv A \cup B \quad (7*2)$$

$$01N\emptyset 02 \equiv A \cap \bar{B} \quad (7*3)$$

The symbol \equiv means "is equivalent to".

In Appendix 5 some of the most useful laws of Boolean algebra are listed. Many of the limitations imposed by rules 6.3.a - g can be overcome with the help of these laws. For instance, the expression

$$01AD(02AD((03AD04)\emptyset R(05AD06))\emptyset R(07AD08)),$$

although quite legitimate in Boolean algebra, violates both rule b (AD and $\emptyset R$ operators in the outermost pair of parentheses) and rule c (three levels of nested parentheses). One level of nested parentheses is avoided if we write it as

$$01AD((02AD03AD04)\emptyset R(02AD05AD06)\emptyset R(07AD08)),$$

but group 02 is now repeated twice (rule g). Therefore, a new group 09 equivalent to group 02 is introduced and the expression takes its final form

$$01AD((02AD03AD04)\emptyset R(09AD05AD06)\emptyset R(07AD08)).$$

Another way of dealing with the same expression would be to split the original request into two subqueries:

a) 01AD02AD((03AD04)ØR(05AD06));

b) 01AD07AD08;

the final answer to the request would then be the sum of answers to a and b above.

8. SEARCH EXECUTION AND OUTPUT

8.1. Execution

IRMS carries out the search from left to right along the Boolean expression, in one or more steps. Each step produces its own output.

The number of steps can, to a certain extent, be controlled by the retriever and depends on the way in which the Boolean expression of the query card(s) is formulated. This control is limited because it must be exercised within the rules 6.3.a - g; in particular, rule c which does not allow more than two levels of nested parentheses is of primary importance.

The number of execution steps is equal to the number of queryline primaries which

a) are not enclosed in a higher level of parentheses;

b) are linked by the operators AD or NØ.

If the operator linking the primaries is $\emptyset R$, or the Boolean expression consists of a single primary, then the search is carried out in one step. Some illustrative examples are given in the following table:

<u>Boolean expression</u>	<u>Total number of steps</u>	<u>Step expressions</u>
01	1	01
01 $\emptyset R$ 02	1	01 $\emptyset R$ 02
((01 $\emptyset R$ 02)AD03)N \emptyset 04	2	1) ((01 $\emptyset R$ 02)AD03) 2) ((01 $\emptyset R$ 02)AD03)N004
01AD02	2	1) 01 2) 01AD02
01AD02AD03AD04	4	1) 01 2) 01AD02 3) 01AD02AD03 4) 01AD02AD03AD04
((01 $\emptyset R$ 02)AD(03 $\emptyset R$ 04))	1	((01 $\emptyset R$ 02)AD(03 $\emptyset R$ 04))

To reduce the amount of printout when the search is carried out in steps, it is advisable to arrange the Boolean expression in such a way that the primaries with the lower probabilities are searched first (see sections 8.2 and 9).

8.2. Search Output

The search program processes the queries in the order in which they are submitted and, for each query, produces the output described below. Appendix 4 gives sample computer printouts.

A listing of the request cards comes first. If any error is detected by the program, an error message is printed and, most probably, no further output is produced. Appendix 6 gives a list of error messages which can be produced by the search program.

If no error is detected the output proceeds by steps. Intermediate steps are indicated by a line reading "TEMPORARY ANSWER"; this message is followed by the number of documents retrieved (N=...) and by a list of descriptor groups on which that particular step is based (QU=.....). The last (or only) step starts with a similar line reading "LAST ANSWER"; no group list is given here since all the groups participate in selecting the last answer.

Because of the way the steps are defined, the documents retrieved at a given step are always a proper or improper subset of the documents retrieved at any of the preceding steps. The bibliographic citations are, therefore, only printed for the first step which retrieves a number of documents less or equal to the output definition parameter.* After the step indicator line (either "TEMPORARY ANSWER" or "LAST ANSWER") the bibliographic citations follow. They consist of:

a) A header line containing

- i) The IRMS Document Access Number (DAN); note that IRMS DAN may be different from the AGRIS RN (see section 5).
- ii) The AGRIS RN.
- iii) The volume/issue numbers.
- iv) The codes of primary and secondary (if any) subject categories in their correct order.
- v) An indication of the type of record in the form of the corresponding pseudodescriptor (see section 4.2.c) but without the leading \$.

* At previous steps where the number of documents retrieved exceeds the value of the output definition parameter as specified on the query card the printing of the bibliographic citations is suppressed (see section 6.3).

- vi) An indication of the literary indicator(s) assigned (if any) in the form of the corresponding pseudodescriptors (see section 4.2.d) but without the leading \$.
- vii) The country code of the submitting centre - for a regional input centre the national country code follows in parentheses if given in the AGRIS data base.*

- b) The bibliographical data which will be printed as in Agrindex.

For each subsequent step (if any) the program prints a list of the DANs only.

9. ESTIMATION OF THE OUTPUT DEFINITION PARAMETER nnnn

The simplest way to estimate the output definition parameter nnnn is the "try and guess" method. However primitive it may seem, its precision increases with the retrieval experience gathered. It is based on intuition whose importance can hardly be over-estimated. Unfortunately, no manuals on how to improve one's intuition are available.

We shall, therefore, concentrate on a simple statistical method which can give us a probable value for nnnn. At least the order of magnitude of this value is usually correct. Statistically nnnn can be expressed as

$$nnnn = P_n \cdot N \quad (9*1)$$

where N is the number of documents in the data base.

P_n is the probability to meet in the data base a combination of descriptors satisfying the query.

* As of AGRINDEX volume 2.

For a given data base N is a known quantity. To evaluate P_n we start with evaluating the probabilities P_d of descriptors forming the query:

$$P_d \approx \frac{F_d}{N} \quad (9*2)$$

where F_d is the descriptor's frequency of usage which can be taken from Appendix 1.

Then we proceed with evaluating the probabilities P_k of the groups of descriptors in the query. For a group $\emptyset R$ operator:

$$P_k \approx \sum_{i=1}^{m_k} P_{d_i} \quad (9*3or)^*$$

where k is the group number (01 to 15);
 m_k is the number of descriptors in group no. k ;
 P_{d_i} is the probability of the i -th descriptor calculated according to (9*2).

For a group with AD operator:

$$P_k \approx C^{m_k-1} \prod_{i=1}^{m_k} P_{d_i} \quad (9*3ad)^{**}$$

* Terms of the type $-C_{12}P_{d_1}P_{d_2}$ (where C_{12} is the correlation factor and the product represents the probability of simultaneous assignment of descriptors d_1 and d_2) are neglected in (9*3or), as they normally are second-order corrections.

** The (m_k-1) -th degree of the average C-factor substitutes here the product of actual correlation coefficients (C_{12} , C_{13} , C_{23} , etc.).

where C is an average correlation factor; for the AGRIS file, C is unknown. C is estimated to be between 2 and 3.

Readers not familiar with the mathematical notations may find the following explanations useful:

$\sum_{i=1}^{m_k}$ is the sum of the terms following the symbol for values of i running from 1 to m_k ;

$\prod_{i=1}^{m_k}$ is the product of the terms following the symbol for values of i running from 1 to m_k .

We can now calculate the probability P_n of the Boolean expression in the query line as:

$$P_n \approx B_n \quad (9*4)$$

where B_n is an arithmetical expression obtained from the Boolean one in the query line by means of the following transformations:

- a) The operators AD , $\emptyset R$ and $N\emptyset$ are replaced with \cap , \cup and $\bar{}$ according to formulae (7*1), (7*2) and (7*3) respectively;
- b) Simple group numbers (k) are substituted by their probabilities (P_k) and overscored group numbers (\bar{k}) by $1-P_k$;
- c) Each \cup operator is replaced with a plus sign (+) and each \cap operator with multiplication (x) accompanied by a factor C .

Thus, the value of P_n can be calculated and then substituted in (9*1).

10. RESPONSE EVALUATION

Due to a number of reasons the response obtained may be both comprehensive and correct only by chance. These reasons are, e.g., errors in indexing (under- or over-indexing), inadequacies of the indexing tools, variations in interpreting the documents by the indexers who prepared the input, errors in query formulation, etc. Some definitions will be given below which can help us to evaluate numerically the response obtained.

Query target is a subset of the entire data base I. T consists of all the documents relevant to the question asked. The number of documents in the query target T is denoted as N_T .

Query yield is another subset Y of the same data base I. Y consists of those documents which have actually been selected (retrieved) as a result of the query. The number of documents in the query yield Y is denoted as N_Y .

Let us suppose that the query yield can e.g., by manual scanning be subdivided into:

-Hits, i.e. documents retrieved which are relevant to the questions asked,
and

-Noise, i.e. documents retrieved which are not relevant to the questions asked. If N_H and N_N are the numbers of documents in the hits and in the noise respectively, then evidently

$$N_Y = N_H + N_N$$

We have now all the quantities necessary to define the two main numerical characteristics of the response:

Recall ratio (completeness ratio) R is the ratio of the number of relevant documents retrieved N_H to the number of all the relevant documents in the data base N_T

$$R = \frac{N_H}{N_T} \quad (10*1a)$$

Relevance ratio (precision ratio) P is the ratio of the number of relevant documents retrieved N_H to the number of all the documents retrieved N_Y

$$P = \frac{N_H}{N_Y} \quad (10*2a)$$

Very often both recall and relevance are expressed in percent:

$$R\% = 100 \frac{N_H}{N_T} \% \quad (10*1b)$$

$$P\% = 100 \frac{N_H}{N_Y} \% \quad (10*2b)$$

By definition

$$0 \leq R \leq 1$$

$$0 \leq P \leq 1$$

and, accordingly,

$$0 \leq R\% \leq 100$$

$$0 \leq P\% \leq 100$$

It is clear from the above definitions and formulae that the relevance ratio can be calculated on the basis of

the query results only, while calculation of the recall requires some knowledge of documents which have not been retrieved. Hence, the relevance ratio is much easier to obtain. Precise calculation of the recall ratio is only possible for small data bases which allow for reasonably quick manual scanning. In practice the recall is estimated approximately - either by extrapolating N_T as the limit of N_Y for a series of queries encompassing each other or by manual scanning of a small part of the entire data base.

For a given data base the two quantities, R and P, are not independent of each other. Usually, an attempt to increase the recall (e.g. by broadening the query profile) leads to decreasing the relevance and vice versa. The relative speeds of these changes are an intrinsic characteristic of the data base itself. For a "good" data base reasonable gains in R (respectively, P) should not lead to very big losses in P (respectively, R). In any case, this interconnection is of statistical nature and should be averaged over a large number of queries. No attempts should be made to assess the quality of the file on the basis of an individual query or a small group of queries.

11. COMPUTER HARDWARE AND SOFTWARE REQUIREMENTS

The IBM system was originally written for DOS [5, 6, 7] and has been modified for INIS requirements in DOS [1, 2]. This DOS version has then been converted to OS [8] whereby only those parts needed for INIS-SDI purposes have been included, a special job set up is needed to generate retrospective files. This package has subsequently been modified for AGRIS requirements. Another simplification is that query input can be on cards only and not on console as in DOS.

Furthermore some blocking factors have been increased so that the programs are better suitable for IBM 3330 disk drives.

An additional program has been written which converts AGRIS output tapes to an internal format, which is the input format to the retrieval system. This means that for AGRIS Member States a complete set of programs would be available, which allows to process IRMS queries on AGRIS output tapes. As additional input file the AGRIS descriptor file and the pseudodescriptor list is required.

11.1. Hardware

- IBM 360 or 370 operated under OS (or VS)
- IBM 3330 or 2314 disk drive
Private disk space for dictionary file, bibliographic and inverted files, and work space (sort work areas, etc.)
- 120k partition
- One magnetic tape unit (preferably 9-track)
- Card reader
- Line printer (preferably with upper-lower case characters)

11.2. Software Requirements

Assembler, PL/1(F), IBM sort utility program, general IBM utility programs (like IEBGENER).

AGRIS/IRMS program package.

11.3. Input Data Files

Agrindex file (resp. AGRIS output tape)

AGRIS descriptor file

Pseudodescriptor file

Query cards (to be supplied by the user)

12. PROGRAM DESCRIPTION

The general flow chart is given as a figure in Appendix 7.1, an example of job control is listed in Appendix 8.

12.1. CVAG - Convert AGRIS Output Tapes to Internal Format (not used at AGRIS Input Unit)

Program CVAG reads the AGRIS output tapes and converts the data to the internal format used for processing at the AGRIS Input Unit.

This program is similar to program CVMI described in IAEA-INIS-14 (Rev.1) [3] which converts INIS input tapes. The main program may be used without change, however subroutine NXTTAG has to be modified in order to generate an AGRIS master file and not the INIS bibliographic check file.

Data Set Definitions

MAGTP	AGRIS output tape (for format see FAO-AGRIS-7 (Rev.0) [4])
SYSPRINT	System messages
ATMF	Agrindex file (output, max. record length 3500 characters, variable length records)

12.2. BIBTXT - Create Bibliographic Text File

Program BIBTXT reads the Agrindex file (output of program CVAG, see section 12.1), and creates the lines of text which the search program SEARCH (see section 12.6) will print in reply to queries. The text lines produced by BIBTXT are processed by program CVTBIB (see section 12.3) which creates the IRMS bibliographic file.

Output of this program is a file with fixed length records (record length 61), formatted as in the printed version

of Agrindex.

The record format is as follows:

t	text
1 2	61

The first character t of each record identifies blocks of lines as follows:

t = 'R' this record is the first line of the bibliographic description. It contains the RN of the document in pos. 2 to 7, the main subject category in pos. 8 to 10, and the literary indicators in position 11 (8 bits, a bit per indicator).

'R'	RN	CAT	LIT	not used
1 2	7 8	10	11	61

t = 'X': this record is the last line of a document and contains the information of tag 620 (object codes and geographic codes). Cols. 2-61 are blank if tag 620 was not present.

t = ' ': bibliographic text lines.

For any given AGRIS record there is one R-type record. No external routines are used.

Data set definitions

SYSPRINT PL/I messages

ATMF Agrindex file (input, max. record length 3500 characters, variable length records)

ATMXF Bibliographic text file (output, record length 61 characters, fixed length records)

12.3. CVTBIB - Convert Bibliographic File

This program creates the IRMS bibliographic file (BIBF) with an index file to the bibliographic file (XBIBF), and the IRMS direct search file.

It also assigns IRMS Dan's (Document Access Number). The IRMS DAN may differ from the AGRIS RN number, since the AGRIS RN number may have gaps due to record deletions, or does not start with 1, if not the complete AGRIS file is used for the IRMS data base.

If there is no parameter on the exec-card given, the DAN starts with 1; if the program is used to create a file to be added to a existing data base, the parameter on the exec-card must indicate the highest DAN of the existing data base (see Appendix 7.2).

The bibliographic file (BIBF) is created by using as input the fixed-size Agrindex file generated by BIBTXT (section 12.2) and the Agrindex file (generated by section 12.1). If several issues are processed, single Agrindex files have to be reassembled to represent one large Agrindex file. By the use of program CXBIB (see section 12.8) there is a possibility to update old IRMS files (see job flow in Appendix 7.2).

The record format of the bibliographic files is as follows:

DAN	SEQ	Text
-----	-----	------

1 3 4 5 6

65

where DAN is stored in binary (24 bits)

SEQ is the record sequence (packed). In the AGRIS implementation the record sequence is assigned as follows:

The index file is generated in QSAM, thus allowing the blocking to be done at execution time (e.g. block size = 6,000, record size = 6, record format = fixed-blocked).

The second output of program CTVBIB is the direct search file (DRSRCH) which contains the descriptor number (DNR) assigned to each DAN. This file, after a sort by DNR, is used as input to the IRMS program INV1 which creates the IRMS inverted file. The object code numbers are extracted from tag 620.

In addition to the object code numbers, the program also creates entries in the direct search file records for the following data elements:

- volume/issue numbers
- subject categories
- type of records
- literary indicators
- language
- country code of inputting centre
- geographical codes

In order to be able to retrieve by these data elements without changing the search program, they are treated as if they were normal descriptors. For this purpose a list of pseudodescriptors corresponding to the data elements mentioned above has been set up and each of the first six types of pseudodescriptors has been assigned a code number greater than 90000 (so that no conflicts arise with thesaurus descriptors). For the geographical codes a code greater than 80000 has been assigned identical with the corresponding code in the descriptor list; the descriptor and the pseudodescriptor entries for the geographical codes are consequently synonyms.

Program CTVBIB reads the file of pseudodescriptor data

and generates a table. This table is used to look up the code of a pseudodescriptor. The pseudodescriptor file must be sorted by ascending alphabetical sequence.

Description of the pseudodescriptors:

For each volume/issue number the program constructs a pseudodescriptor corresponding to the volume (e.g. \$VOL=06), to the first or second half of the volume (\$VOL=xx/A and \$VOL=xx/B), and to the exact volume/issue number (\$VOL=xx/nn), (see section 4.2.e).

For each subject category assigned the program generates three pseudodescriptors corresponding to the category, sub-category, and sub-subcategory (see section 4.2.a). For example, the category A21 generates the following pseudodescriptors.

\$CAT=A, \$CAT=A2, \$CAT=A21

It is easy to see that pseudodescriptor \$CAT=A2 will retrieve all documents in any A2x category, whereas \$CAT=A20 retrieves only documents assigned specifically to category A20.

For the type-of-record (see section 4.2.c) the program generates a pseudo-descriptor of the form: \$TYP=X where X is the type of record as indicated on the AGRIS work sheet (e.g. \$TYP=R).

For each literary indicator (see section 4.2.d) assigned the program generates a pseudo-descriptor of the form: \$LIT=X, where X is the literary indicator as cycled on the AGRIS work sheet (e.g. \$LIT=K).

For each language (see section 4.2.d) given in tag 600 the program generates a pseudodescriptor of the form: \$LAN=LL, where LL is the 2 character language code translated to upper case characters.

Entry point CLSBIB fills the last block with dummy information (hexadecimal FF), writes it onto disk, closes the files and finishes the index file in the same way. If this call is omitted, the bibliographic and the index file would be incomplete.

Data set definitions

SYSPRINT	PL/1 messages
BIBF	Bibliographic file (output, record length=65 characters, 3330 version: block size=13000 characters, 2314 version: block size=6500 characters)
XBIBF	Index to bibliographic file (output, record length=6 characters)
DRSRCH	Direct search file (output, record length=6 characters)
ATMF	Agrindex file (input)
ATMFx	Agrindex text file (input)

12.4. INV1 - Create Inverted File

INV1 is essentially the original IRMS program with the two modifications as described in INIS/IRMS [8]. A further simplification was that the part for retrospective search which updates an existing old inverted file has not been converted to OS. INV1 is an Assembler program, no external routines are used. The direct search file (generated by CVTBIB) after a sort by descriptor number and DAN, serves as input.

Output of INV1 is the IRMS inverted file (OMFILE), which has the following format:

12.5. DICTO - Create IRMS Thesaurus

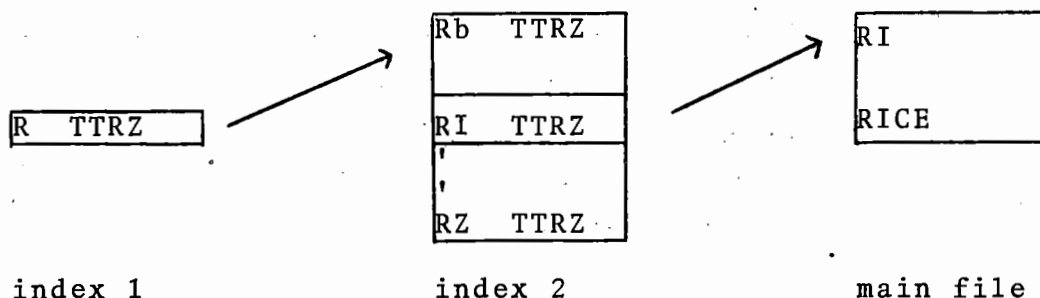
DICTO is a modified version of the original IRMS DICT1 program. All program parts used for updating an existing IRMS Thesaurus file have not been converted to OS.

Program DICTO enables one to create the IRMS Thesaurus as needed by the SEARCH program using as input the deck of pseudodescriptors and the INIS Thesaurus. The pseudo-descriptor deck must be sorted in ascending alphabetical sequence.

The AGRIS descriptors are truncated to 20 characters; those which give an ambiguous character string are listed (Appendix 2.2). In these cases the synonym form OBJ=xxxx has to be used.

The program constructs two indexes to access the file, the first index has the starting character of the term as entry, which points to the second index, where two starting characters of the term form the entry, which then points to the file.

Examples for term 'RICE':



Index 1 has record length 5 and consists of one block of 150 bytes, index 2 has record length 6 and may have up to 30 blocks, each one consisting of 150 bytes.

No external procedures are used.

Data set definitions

ØPFILE	Output print file (list of terms excluded because of ambiguity)
ØMFILE	AGRIS/IRMS Thesaurus file (output)
X2ØFILE	Index 2 to ØMFILE (output, record length=6 block size=150)
X1ØFILE	Index 1 to index 2 (output, record length=5 block size=150)
INISTH	AGRIS descriptor file (input)
INISAT	Pseudodescriptor file (input), same as used in program CVTBIB (see section <u>12.3</u>)

Please note that the descriptor file with its indexes are named differently when used as input in program SEARCH.

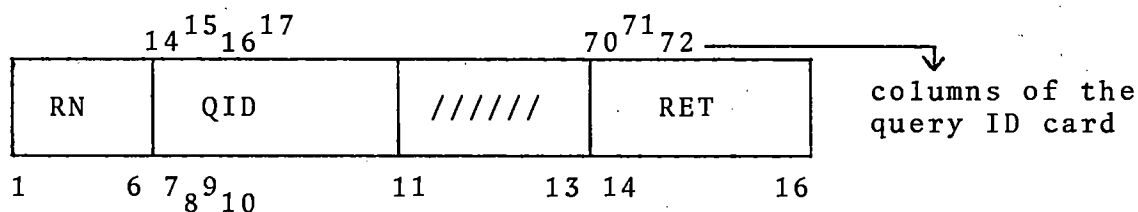
12.6. SEARCH - Retrieval Program

This is a modified version of the original IRMS search program. The following characteristics are valid for the OS version.

- a) TABLE1 of the inverted file is core resident (as in DOS).
- b) TABLE1 of the IRMS Thesaurus is core resident (as in DOS).
- c) The bibliographic file is accessed via a block index (similar to the track index of the DOS version) rather than an index sequential organization as in the IBM version.

The index is kept core resident although it is rather large. An area of 24000 bytes is provided. This allows for 4000 index entries, i.e. 4000 tracks can be addressed. The maximum area to be allocated is 32K and 5300 tracks can be addressed. For making a full 3330 disk drive addressable, some program modifications are necessary, e.g. the use of a double index is recommended.

The SEARCH program creates a file (RNFILE) containing for each document retrieved in a given run the AGRIS RN and the identification. It has the following format:



where RN: AGRIS RN number

QID: Query identification (col 14-17 of the query ID-card)

RET: Retriever identification (col 70-72 of the query ID-card)

For QID and RET see section 6.1.

The RNFILE is usually not used in the AGRIS/IRMS system in contrary to the INIS/IRMS system [8], where a special program is used to print the RNFILE. Therefore in AGRIS, output is usually suppressed by setting it to 'DUMMY'.

There is however one practical use in cases where the output is too large to be reasonably printed, one may suppress the printing of the normal output and assign the RNFILE data set to the printer (see Appendix 4.3). In that case one receives at least the list of RN numbers.

No external procedures are used for program SEARCH.

SEARCH is not able to execute correctly more than one NØ operator at a step.

There exist two versions of program SEARCH for the 3330 disk drives and the 2314 disk drives.

Data set definitions

BIBF	Bibliographic file (input)
XBIBF	Index to bibliographic file (input)
IMFILE	IRMS inverted file (input)
IFX1I	} Indexes to IMFILE (input)
IFX2I	
IFILE	IRMS dictionary file (input)
X1IFILE	} Indexes to IFILE (input)
X2IFILE	
ØPFILE	Printed output, DCB=(RECFM=FA, BLKSIZE=133)
TRSIT	} Work files
WRKFIL	
RNFILE	RN-file (output)
CARDF	Query input cards (input)

12.7. CXBIB - Create Index of Bibliographic File

The original IBM program package provided for creation of a retrospective data base by adding to an existing data base new information. This part has not been converted to OS. Instead a special job flow (see Appendix 7.2) has been used to perform this task without repeating on the old data base the most time consuming programs, namely CVTBIB and BIBTXT. Only the new data are sent through program BIBTXT and CVTBIB with a parameter indicating the DAN to start with. The old bibliographic file and the new one are read by the additional program CXBIB which creates a common bibliographic file with an index to it. Furthermore the old direct search file (sorted by DNR) must be kept to be merged with the new search file. The output of the merge step is then routed to program INV1.

CXBIB is a PL/1 program, and has no external procedures.

Data set definitions

SYSPRINT	System messages
BIBF1	} Bibliographic files (input)
BIBF2	
BIBF	Bibliographic file (output)
XBIBF	Index to bibliographic file (output)

Since the index is not created by the Assembler macro instruction NOTE, the files can intermediately be created on magnetic tape.

Please note that the method does not take care of changed record or deleted records; i.e. any documents to be deleted from the data base are not removed!

13. FILE FORMATS

(* means changeable at execution time via DD statement)

1. Agrindex file (same format as INIS Atomindex file described in IAEA-INIS-14(Rev.1) [3])
2. Bibliographic Text File
 - Record size: 61
 - Block size: 6100*
3. Bibliographic File
 - main file: Record size: 65
 - Block size: 13000 for 3330 disk drives
 - 6500 for 2314 disk drives
 - index file: Record size: 6
 - Block size: 6000*
4. Direct Search File
 - Record size: 6
 - Block size: 6000*

5. Pseudodescriptor File

Record size: 80

Block size: 80*

6. Inverted File

- main file: Record size: 33

Block size: 2325

- index 1: Record size: 7

Block size: 280

- index 2: Record size: 7

Block size: 280

7. IRMS Dictionary File

- main file: Record size: 45

Block size: 1125

- index 1: Record size: 6

Block size: 150

- index 2: Record size: 5

Block size: 150

8. Descriptor (same format as INIS Thesaurus file described
in IAEA-INIS-14(Rev.1) [3])

Record size: 80

Block size: 1600*

9. RN File

Record size: 16

Block size: 1600*

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DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
-----	----	----	-----	----	----	-----	----	----
\$CAT=A	90003	663	\$CAT=H00	90059	576	\$CAT=P2	90124	27
\$CAT=A0	90002	261	\$CAT=H1	90063	2653	\$CAT=P20	90123	27
\$CAT=A00	90001	261	\$CAT=H10	90062	2653	\$CAT=Q	90127	3882
\$CAT=A5	90005	406	\$CAT=H2	90065	2732	\$CAT=Q0	90126	705
\$CAT=A50	90004	406	\$CAT=H20	90064	2732	\$CAT=Q00	90125	705
\$CAT=B	90008	212	\$CAT=H5	90067	486	\$CAT=Q1	90129	1963
\$CAT=B0	90007	12	\$CAT=H50	90066	486	\$CAT=Q10	90128	1963
\$CAT=B00	90006	12	\$CAT=H6	90069	685	\$CAT=Q2	90131	1163
\$CAT=B1	90010	49	\$CAT=H60	90068	685	\$CAT=Q20	90130	1163
\$CAT=B10	90009	49	\$CAT=K	90072	1626	\$CAT=Q3	90133	173
\$CAT=B5	90012	152	\$CAT=K0	90071	404	\$CAT=Q30	90132	173
\$CAT=B50	90011	152	\$CAT=K00	90070	404	\$CAT=Q4	90135	121
\$CAT=C	90015	453	\$CAT=K1	90074	576	\$CAT=Q40	90134	121
\$CAT=C0	90014	453	\$CAT=K10	90073	576	\$CAT=R	90138	87
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\$CAT=D5	90022	931	\$CAT=L10	90080	1974	\$CAT=S10	90142	1392
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\$CAT=E	90025	4988	\$CAT=L20	90083	474	\$CAT=S20	90144	232
\$CAT=E0	90024	125	\$CAT=L3	90086	2284	\$CAT=S3	90147	361
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\$CAT=E3	90029	696	\$CAT=L5	90090	2315	\$CAT=T00	90148	1180
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\$CAT=E5	90031	498	\$CAT=L6	90092	289	\$CAT=U0	90152	17
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\$CAT=E7	90033	1647	\$CAT=L7	90094	4727	\$CAT=U1	90155	400
\$CAT=E70	90032	1647	\$CAT=L70	90093	598	\$CAT=U10	90154	400
\$CAT=F	90036	13048	\$CAT=L72	90095	1154	\$CAT=U2	90157	165
\$CAT=F0	90035	2974	\$CAT=L73	90096	1837	\$CAT=U20	90156	165
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\$CAT=F10	90037	447	\$CAT=M0	90099	313	\$GG30	80003	74
\$CAT=F2	90040	3737	\$CAT=M00	90098	313	\$GG50	80004	148
\$CAT=F20	90039	103	\$CAT=M1	90102	412	\$GG55	80005	11
\$CAT=F21	90041	346	\$CAT=M10	90101	412	\$GG60	80006	34
\$CAT=F22	90042	961	\$CAT=M2	90104	152	\$GG70	80007	3
\$CAT=F23	90043	247	\$CAT=M20	90103	152	\$GG75	80008	8
\$CAT=F24	90044	68	\$CAT=M3	90106	56	\$GM10	80009	2
\$CAT=F25	90045	1827	\$CAT=M30	90105	56	\$GM11	80010	0
\$CAT=F26	90046	156	\$CAT=M4	90108	829	\$GM12	80011	0
\$CAT=F27	90047	167	\$CAT=M40	90107	829	\$GM13	80012	0
\$CAT=F28	90048	182	\$CAT=N	90111	2091	\$GM14	80013	0
\$CAT=F3	90050	1874	\$CAT=N0	90110	201	\$GM15	80014	0
\$CAT=F30	90049	1874	\$CAT=N00	90109	201	\$GM16	80015	0
\$CAT=F4	90052	706	\$CAT=N1	90113	778	\$GM17	80016	0
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\$CAT=F5	90054	635	\$CAT=N2	90115	1147	\$GM20	80018	22
\$CAT=F50	90053	635	\$CAT=N20	90114	1147	\$GM21	80019	2
\$CAT=F6	90056	4063	\$CAT=P	90118	1240	\$GM22	80020	6
\$CAT=F60	90055	4063	\$CAT=P0	90117	109	\$GM23	80021	3
\$CAT=F7	90058	617	\$CAT=P00	90116	109	\$GM24	80022	2
\$CAT=F70	90057	617	\$CAT=P1	90121	1111	\$GM25	80023	0
\$CAT=H	90061	6907	\$CAT=P10	90120	589	\$GM26	80024	21
\$CAT=H0	90060	576	\$CAT=P12	90122	542	\$GM27	80025	2

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
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SGM29	80027	0	SGM94	80087	1	SGZ31	80112	5
SGM30	80028	0	SGM95	80088	0	SGZ32	80113	9
SGM31	80029	9	SGM96	80089	6	SGZ33	80114	18
SGM32	80030	4	SGM97	80090	0	SGZ34	80115	30
SGM33	80031	1	SGM98	80091	0	SGZ35	80116	9
SGM34	80032	0	SGM99	80092	1	SGZ36	80117	4
SGM35	80033	3	SGU10	80150	0	SGZ37	80118	5
SGM36	80034	2	SGU11	80151	1	SGZ38	80119	4
SGM37	80035	0	SGO12	80152	0	SGZ39	80120	6
SGM38	80036	0	SGO13	80153	1	SGZ40	80121	40
SGM40	80037	1	SGO14	80154	1	SGZ50	80122	5
SGM41	80038	1	SGO15	80155	9	SGZ51	80123	3
SGM42	80039	0	SGO16	80156	0	SGZ52	80124	22
SGM43	80040	0	SGO17	80157	1	SGZ53	80125	2
SGM44	80041	0	SGO18	80158	0	SGZ54	80126	10
SGM45	80042	0	SGO19	80159	1	SGZ55	80127	4
SGM46	80043	0	SGO20	80160	238	SGZ56	80128	47
SGM47	80044	2	SGO21	80161	12	SGZ57	80129	7
SGM48	80045	1	SGO22	80162	1	SGZ58	80130	5
SGM49	80046	0	SGO23	80163	0	SGZ59	80131	1
SGM50	80047	0	SGO24	80164	0	SGZ60	80132	1
SGM51	80048	0	SGO25	80165	0	SGZ61	80133	0
SGM55	80049	19	SGO26	80166	0	SGZ62	80134	62
SGM56	80050	0	SGO27	80167	0	SGZ63	80135	18
SGM57	80051	0	SGO28	80168	0	SGZ64	80136	52
SGM58	80052	1	SGO29	80169	0	SGZ65	80137	53
SGM59	80053	0	SGO30	80170	0	SGZ70	80138	0
SGM60	80054	0	SGO31	80171	0	SGZ71	80139	0
SGM61	80055	0	SGO32	80172	0	SGZ72	80140	43
SGM62	80056	1	SGO33	80173	1	SGZ73	80141	1
SGM63	80057	0	SGO34	80174	0	SGZ74	80142	9
SGM64	80058	0	SGO35	80175	0	SGZ75	80143	0
SGM65	80059	0	SGO36	80176	2	SGZ76	80144	4
SGM66	80060	0	SGO37	80177	0	SGZ77	80145	0
SGM67	80061	7	SGO38	80178	0	SGZ78	80146	1
SGM68	80062	0	SGO39	80179	5	SGZ79	80147	6
SGM69	80063	0	SGO40	80180	1	SGZ80	80148	1
SGM70	80064	0	SGO41	80181	7	SGZ81	80149	1
SGM71	80065	0	SGO42	80182	0	SGO10	80150	0
SGM72	80066	0	SGO43	80183	1	SGO11	80151	1
SGM73	80067	0	SGO44	80184	0	SGO12	80152	0
SGM75	80068	25	SGZ10	80093	0	SGO13	80153	1
SGM76	80069	3	SGZ11	80094	25	SGO14	80154	1
SGM77	80070	4	SGZ12	80095	16	SGO15	80155	9
SGM78	80071	7	SGZ13	80096	2	SGO16	80156	0
SGM79	80072	10	SGZ14	80097	1	SGO17	80157	1
SGM80	80073	0	SGZ15	80098	10	SGO18	80158	0
SGM81	80074	6	SGZ16	80099	32	SGO19	80159	1
SGM82	80075	0	SGZ17	80100	9	SGO20	80160	238
SGM83	80076	18	SGZ20	80101	1	SGO21	80161	12
SGM84	80077	3	SGZ21	80102	21	SGO22	80162	1
SGM85	80078	0	SGZ22	80103	1	SGO23	80163	0
SGM86	80079	4	SGZ23	80104	2	SGO24	80164	0
SGM87	80080	2	SGZ24	80105	4	SGO25	80165	0
SGM88	80081	0	SGZ25	80106	129	SGO26	80166	0
SGM89	80082	1	SGZ26	80107	25	SGO27	80167	0
SGM90	80083	0	SGZ27	80108	4	SGO28	80168	0
SGM91	80084	0	SGZ28	80109	5	SGO29	80169	0
SGM92	80085	0	SGZ29	80110	62	SGO30	80170	0

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
\$G031	80171	0	\$G202	80231	5	\$G360	80291	27
\$G032	80172	0	\$G204	80232	20	\$G362	80292	15
\$G033	80173	1	\$G206	80233	10	\$G364	80293	5
\$G034	80174	0	\$G208	80234	15	\$G370	80294	30
\$G035	80175	0	\$G210	80235	14	\$G372	80295	3
\$G036	80176	2	\$G212	80236	15	\$G374	80296	62
\$G037	80177	0	\$G214	80237	118	\$G376	80297	1
\$G038	80178	0	\$G216	80238	3	\$G378	80298	4
\$G039	80179	5	\$G218	80239	42	\$G380	80299	4
\$G040	80180	1	\$G220	80240	8	\$G382	80300	2
\$G041	80181	7	\$G222	80241	0	\$G384	80301	3
\$G042	80182	0	\$G224	80242	4	\$G386	80302	2
\$G043	80183	1	\$G226	80243	9	\$G388	80303	0
\$G044	80184	0	\$G228	80244	0	\$G390	80304	10
\$G100	80185	119	\$G229	80245	11	\$G392	80305	1
\$G102	80186	5	\$G230	80246	27	\$G394	80306	2
\$G105	80187	4	\$G232	80247	78	\$G396	80307	0
\$G110	80188	18	\$G234	80248	6	\$G398	80308	1
\$G112	80189	4	\$G236	80249	45	\$G400	80309	1
\$G114	80190	4	\$G238	80250	0	\$G402	80310	2
\$G116	80191	0	\$G240	80251	29	\$G404	80311	195
\$G118	80192	18	\$G300	80252	14	\$G420	80312	0
\$G120	80193	2	\$G302	80253	118	\$G430	80313	348
\$G122	80194	0	\$G310	80254	15	\$G432	80314	5
\$G124	80195	3	\$G312	80255	1	\$G433	80315	2
\$G126	80196	1	\$G314	80256	1	\$G434	80316	14
\$G128	80197	0	\$G316	80257	0	\$G435	80317	3
\$G130	80198	73	\$G318	80258	24	\$G436	80318	54
\$G132	80199	33	\$G320	80259	34	\$G437	80319	12
\$G134	80200	0	\$G322	80260	2	\$G438	80320	6
\$G136	80201	24	\$G324	80261	4	\$G439	80321	3
\$G138	80202	0	\$G326	80262	52	\$G440	80322	0
\$G140	80203	64	\$G328	80263	3	\$G441	80323	41
\$G142	80204	3	\$G330	80264	1	\$G442	80324	21
\$G144	80205	18	\$G332	80265	0	\$G443	80325	10
\$G146	80206	48	\$G333	80266	0	\$G444	80326	4
\$G148	80207	38	\$G334	80267	0	\$G445	80327	9
\$G150	80208	20	\$G335	80268	0	\$G446	80328	4
\$G154	80209	0	\$G336	80269	0	\$G447	80329	5
\$G156	80210	1	\$G337	80270	0	\$G448	80330	1
\$G158	80211	9	\$G338	80271	0	\$G449	80331	6
\$G160	80212	0	\$G339	80272	8	\$G450	80332	10
\$G162	80213	2	\$G340	80273	0	\$G451	80333	3
\$G164	80214	29	\$G341	80274	37	\$G452	80334	4
\$G166	80215	15	\$G342	80275	0	\$G453	80335	5
\$G168	80216	10	\$G343	80276	2	\$G454	80336	16
\$G170	80217	2	\$G344	80277	11	\$G455	80337	9
\$G172	80218	2	\$G345	80278	1	\$G456	80338	5
\$G174	80219	4	\$G346	80279	0	\$G457	80339	10
\$G176	80220	4	\$G347	80280	0	\$G458	80340	5
\$G178	80221	31	\$G348	80281	0	\$G459	80341	7
\$G180	80222	1	\$G349	80282	1	\$G460	80342	0
\$G182	80223	4	\$G350	80283	1	\$G461	80343	0
\$G184	80224	31	\$G351	80284	5	\$G462	80344	2
\$G190	80225	30	\$G352	80285	98	\$G463	80345	8
\$G192	80226	13	\$G353	80286	2	\$G464	80346	22
\$G194	80227	3	\$G354	80287	161	\$G465	80347	10
\$G196	80228	11	\$G355	80288	33	\$G466	80348	5
\$G198	80229	4	\$G356	80289	37	\$G467	80349	4
\$G200	80230	21	\$G358	80290	36	\$G468	80350	6

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
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\$G469	80351	11	\$G605	80411	0	\$G694	80471	42
\$G470	80352	14	\$G606	80412	0	\$G696	80472	1028
\$G471	80353	0	\$G607	80413	0	\$G698	80473	8
\$G472	80354	7	\$G608	80414	1	\$G700	80474	7
\$G473	80355	7	\$G609	80415	0	\$G702	80475	2
\$G474	80356	2	\$G610	80416	0	\$G704	80476	14
\$G475	80357	25	\$G611	80417	0	\$G706	80477	3
\$G476	80358	6	\$G612	80418	0	\$G708	80478	6
\$G477	80359	1	\$G613	80419	0	\$G710	80479	15
\$G478	80360	7	\$G614	80420	0	\$G712	80480	0
\$G479	80361	12	\$G615	80421	0	\$G714	80481	28
\$G480	80362	0	\$G616	80422	0	\$G716	80482	2
\$G481	80363	10	\$G617	80423	0	\$G718	80483	5
\$G482	80364	3	\$G618	80424	0	\$G720	80484	5
\$G485	80365	5	\$G619	80425	0	\$G722	80485	2
\$G487	80366	1	\$G620	80426	0	\$G724	80486	2
\$G489	80367	1	\$G621	80427	0	\$G726	80487	21
\$G491	80368	1	\$G622	80428	0	\$G728	80488	1
\$G493	80369	5	\$G625	80429	0	\$G730	80489	25
\$G495	80370	7	\$G627	80430	0	\$G732	80490	673
\$G497	80371	4	\$G629	80431	19	\$G734	80491	0
\$G500	80372	40	\$G631	80432	3	\$G736	80492	0
\$G510	80373	240	\$G635	80433	256	\$G738	80493	7
\$G512	80374	60	\$G637	80434	0	\$G740	80494	0
\$G514	80375	690	\$G638	80435	0	\$G742	80495	4
\$G516	80376	149	\$G639	80436	0	\$G744	80496	26
\$G518	80377	156	\$G640	80437	0	\$G746	80497	5
\$G520	80378	44	\$G641	80438	0	\$G748	80498	20
\$G521	80379	2	\$G642	80439	0	\$G750	80499	50
\$G522	80380	0	\$G643	80440	0	\$G752	80500	0
\$G524	80381	3	\$G644	80441	0	\$G754	80501	1
\$G526	80382	10	\$G645	80442	0	\$G756	80502	1
\$G528	80383	15	\$G646	80443	0	\$G758	80503	0
\$G530	80384	94	\$G647	80444	0	\$G760	80504	0
\$G532	80385	17	\$G648	80445	0	\$G762	80505	0
\$G534	80386	18	\$G649	80446	0	\$G764	80506	0
\$G536	80387	238	\$G650	80447	2	\$G766	80507	0
\$G540	80388	0	\$G651	80448	1	\$G768	80508	0
\$G550	80389	0	\$G652	80449	0	\$G770	80509	8
\$G555	80390	0	\$G653	80450	0	\$G772	80510	47
\$G560	80391	1	\$G654	80451	1	\$G774	80511	3
\$G565	80392	7	\$G655	80452	0	\$G776	80512	24
\$G570	80393	97	\$G656	80453	0	\$G778	80513	7
\$G580	80394	17	\$G657	80454	0	\$G780	80514	2
\$G582	80395	0	\$G658	80455	0	\$G782	80515	37
\$G584	80396	23	\$G659	80456	0	\$G784	80516	1
\$G586	80397	2	\$G662	80457	42	\$G786	80517	12
\$G588	80398	1	\$G665	80458	0	\$G788	80518	6
\$G590	80399	10	\$G667	80459	0	\$G790	80519	3
\$G592	80400	42	\$G669	80460	2	\$G792	80520	1
\$G595	80401	0	\$G671	80461	0	\$G794	80521	1
\$G596	80402	0	\$G673	80462	3	\$G796	80522	1
\$G597	80403	0	\$G675	80463	1	\$G798	80523	12
\$G598	80404	0	\$G677	80464	0	\$G800	80524	31
\$G599	80405	0	\$G679	80465	0	\$G805	80525	1
\$G600	80406	0	\$G681	80466	4	\$G810	80526	107
\$G601	80407	0	\$G683	80467	0	\$G820	80527	0
\$G602	80408	0	\$G685	80468	0	\$G822	80528	2
\$G603	80409	0	\$G690	80469	55	\$G824	80529	13
\$G604	80410	0	\$G692	80470	19	\$G826	80530	18

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\$G828	80531	29	\$G915	80591	0	\$LAN=AR	90192	44
\$G830	80532	0	\$G916	80592	232	\$LAN=BE	90232	0
\$G831	80533	18	\$G917	80593	32	\$LAN=BG	90193	0
\$G832	80534	43	\$G918	80594	0	\$LAN=CH	90194	7
\$G834	80535	1	\$G919	80595	455	\$LAN=CS	90195	910
\$G836	80536	0	\$G920	80596	1	\$LAN=DA	90196	497
\$G838	80537	216	\$G921	80597	11	\$LAN=DE	90202	3404
\$G840	80538	1	\$G922	80598	86	\$LAN=EE	90199	0
\$G842	80539	547	\$G923	80599	1	\$LAN=EN	90198	23470
\$G844	80540	44	\$G924	80600	9	\$LAN=ES	90226	4362
\$G845	80541	66	\$G925	80601	0	\$LAN=FI	90200	1
\$G846	80542	96	\$G926	80602	22	\$LAN=FR	90201	6126
\$G847	80543	46	\$G927	80603	4	\$LAN=GR	90203	0
\$G848	80544	26	\$G928	80604	1	\$LAN=HE	90204	1
\$G849	80545	3	\$G929	80605	10	\$LAN=HI	90205	0
\$G850	80546	27	\$G930	80606	10	\$LAN=HU	90206	0
\$G851	80547	210	\$G931	80607	0	\$LAN=IN	90208	0
\$G852	80548	13	\$G932	80608	13	\$LAN=IS	90207	1
\$G854	80549	673	\$G933	80609	0	\$LAN=IT	90209	2165
\$G856	80550	0	\$G934	80610	3	\$LAN=JA	90210	6386
\$G858	80551	20	\$G935	80611	33	\$LAN=KO	90211	0
\$G860	80552	9	\$G936	80612	9	\$LAN=LA	90212	35
\$G862	80553	20	\$G937	80613	3	\$LAN=LI	90214	2
\$G864	80554	20	\$G938	80614	0	\$LAN=LV	90213	0
\$G866	80555	12	\$G939	80615	0	\$LAN=MA	90215	0
\$G867	80556	66	\$G940	80616	1	\$LAN=NL	90197	1043
\$G868	80557	11	\$G941	80617	0	\$LAN=NO	90216	24
\$G870	80558	7	\$G942	80618	1	\$LAN=OTHER	90231	25
\$G872	80559	29	\$G943	80619	0	\$LAN=PE	90217	0
\$G874	80560	0	\$G944	80620	0	\$LAN=PL	90218	0
\$G876	80561	16	\$G945	80621	4	\$LAN=PT	90219	1043
\$G878	80562	5	\$G946	80622	0	\$LAN=RO	90220	21
\$G880	80563	10	\$G947	80623	0	\$LAN=RU	90221	877
\$G882	80564	12	\$G948	80624	0	\$LAN=SA	90222	0
\$G884	80565	330	\$G949	80625	0	\$LAN=SH	90223	29
\$G885	80566	57	\$G950	80626	3	\$LAN=SK	90224	208
\$G888	80567	112	\$G951	80627	0	\$LAN=SN	90225	0
\$G890	80568	6	\$G952	80628	5	\$LAN=SV	90227	30
\$G892	80569	320	\$G953	80629	0	\$LAN=TR	90228	0
\$G893	80570	0	\$G954	80630	0	\$LAN=UK	90229	3
\$G895	80571	27	\$G955	80631	0	\$LAN=UR	90230	0
\$G896	80572	4	\$G956	80632	1	\$LIT=E	90119	23218
\$G897	80573	58	\$G957	80633	3	\$LIT=K	90158	4650
\$G898	80574	0	\$G958	80634	0	\$LIT=L	90159	25
\$G899	80575	1	\$G959	80635	0	\$LIT=N	90160	1413
\$G900	80576	67	\$G960	80636	0	\$LIT=U	90161	614
\$G901	80577	10	\$G961	80637	0	\$LIT=V	90165	5135
\$G902	80578	2	\$G962	80638	0	\$LIT=W	90162	685
\$G903	80579	2	\$G963	80639	0	\$LIT=Y	90164	183
\$G904	80580	164	\$G964	80640	0	\$LIT=Z	90163	1780
\$G905	80581	24	\$G965	80641	17	\$TYP=B	90167	4821
\$G906	80582	432	\$G966	80642	0	\$TYP=C	90170	85
\$G907	80583	5	\$G967	80643	0	\$TYP=D	90171	0
\$G908	80584	0	\$G968	80644	2	\$TYP=F	90172	0
\$G909	80585	873	\$G969	80645	2	\$TYP=G	90173	34
\$G910	80586	7	\$G970	80646	3	\$TYP=J	90166	41382
\$G911	80587	15	\$G971	80647	0	\$TYP=P	90169	9
\$G912	80588	7	\$G972	80648	2	\$TYP=R	90168	2095
\$G913	80589	0	\$LAN=AF	90190	0	\$TYP=T	90174	0
\$G914	80590	4	\$LAN=AL	90191	0	\$VOL=01	90175	48426

DESCRIPTOR	CCDE	FREQ	DESCRIPTOR	CODE	FREQ.	DESCRIPTOR	CODE	FREQ
\$VOL=01/A	90182	20574	CAMELS	05220	4	DOMESTICATED BIRDS -	06900	45
\$VOL=01/B	90189	27852	CANNED FISHERY PRODU	09820	15	DOMESTICATED MAMMALS	05000	211
\$VOL=01/01	90176	2557	CANNED OR DRIED MEAT	09720	35	DOMESTICATED MAMMALS	05900	68
\$VOL=01/02	90177	3293	CAPERS	02220	0	DOUGLAS-FIR	03110	33
\$VOL=01/03	90178	2639	CARNAUBA PALM	02420	0	DRIED EGGS	09620	2
\$VOL=01/04	90179	2946	CARP	08110	83	DRIED FISHERY PRODUC	09830	14
\$VOL=01/05	90180	3302	CARROTS	01530	60	DRUG PLANTS - GENERA	02700	33
\$VOL=01/06	90181	5837	CASHEWS	01220	16	DRUG PLANTS - OTHER	02790	41
\$VOL=01/07	90183	5033	CASSAVA	01540	64	DUCKS	06200	80
\$VOL=01/08	90184	5897	CASTOR-OIL PLANT	00331	32	ECHINODERMS	08630	11
\$VOL=01/09	90185	4758	CATS	05500	138	EDIBLE AROIDS	01550	10
\$VOL=01/10	90186	2937	CAULIFLOWERS AND BRO	01623	36	EDIBLE FUNGI	01885	112
\$VOL=01/11	90187	4480	CEARA RUBBER	02430	0	EDIBLE NUTS - GENERA	01200	5
\$VOL=01/12	90188	4747	CELERY	01630	26	EDIBLE NUTS - OTHER	01280	4
ABACA	00410	25	CEREALS - GENERAL	00100	412	EELS	08120	35
AFRICAN MAHOGANY	03210	0	CEREALS - OTHER	00190	65	EGG PRODUCTS - GENER	09600	17
ALCOHOLIC DRINKS	09920	413	CEREALS - OTHER (OLD	00195	1	EGG PRODUCTS - OTHER	09690	13
ALGAE	03410	187	CHAYOTE	01810	1	EGGPLANTS	01830	38
ALLSPICE	02210	2	CHEESES	09430	219	ELMS	03230	25
ALMONDS	01210	23	CHERRIES	00714	74	EQUIDAE - GENERAL	05100	21
ANGIOSPERM TREES - G	03200	50	CHESTNUTS	01225	23	EQUIDAE - OTHER	05190	7
ANGIOSPERM TREES - O	03290	204	CHICK PEAS	01430	20	EUCALYPTS	03240	52
APPLES	00710	374	CHICKENS	06100	1116	FATS AND OILS - GENE	09500	96
APRICOTS	00712	35	CHICORY AND ENDIVE	01640	18	FATS AND OILS - OTHE	09590	16
AQUATIC ANIMALS - GE	08000	25	CHILLIES	02230	24	FEED CEREALS	01940	66
AQUATIC ANIMALS - OT	08790	7	CHIVES	01710	1	FEED CRUCIFERS	01960	9
ARROWROOTS	01510	1	CINCHONA	02750	0	FEED GRASSES	01930	499
ASPARAGUS	01610	39	CINNAMON	02240	6	FEED LEGUMES - GENER	01950	58
ASSES	05110	4	CITRUS	01010	4	FEED LEGUMES - OTHER	01959	26
AVOCADOES	01110	27	CITRUS	01112	110	FEED ROOTS	01970	7
BALATA	02410	0	CITRUS FRUITS - GENE	01000	183	FENNEL	02255	1
BAMBOOS	00420	16	CITRUS FRUITS - OTHE	01090	18	FIBRE PLANTS - GENER	00400	18
BANANAS	01112	110	CLAMS	08410	13	FIBRE PLANTS - OTHER	00590	19
BARLEY	00110	385	CLOVE	02250	3	FIGS	00930	5
BEANS (PHASEOLUS)	01410	338	CLOVERS	01951	89	FIRS	03120	31
BEECHES	03220	21	COCA	02720	1	FISH - GENERAL	08100	184
BEEF CATTLE	05213	539	COCONUT	00311	74	FLAVOURING AND PERFU	02200	28
BEES - GENERAL	07100	32	COELENTERATES	08620	4	FLAX	00440	44
BEETS	01520	29	COFFEE	02120	117	FLOURS AND SEMOLINAS	09210	81
BETEL-NUT PALMS	02710	1	COOKING OILS	09520	53	FOODS - GENERAL	09000	352
BEVERAGE PRODUCTS -	09900	19	COPAL PLANTS	02440	0	FOODS - OTHER	09990	85
BEVERAGE PRODUCTS -	09950	9	COTTON	00430	336	FORAGE TREES AND SHR	01980	9
BISCUITS AND PASTRIE	09240	13	COVER CROPS - GENERA	02000	7	FRESH EGGS	09610	77
BLACKBERRIES	00910	5	COVER CROPS - OTHER	02090	6	FRESH FISH AND SHELL	09810	51
BLUEBERRIES	00920	16	COWPEAS	01440	70	FRESH FRUITS AND VEG	09110	66
BOVIDAE - GENERAL	05210	44	CRABS	08320	19	FRESH MEAT	09710	285
BOVIDAE - OTHER	05219	49	CROCODILES AND ALLIG	08510	2	FRESHWATER FISH - OT	08140	119
BOVINES - GENERAL	05212	1552	CRUSTACEANS - GENERA	08300	19	FROGS	08520	17
BRASSICAS - GENERAL	01620	34	CRUSTACEANS - OTHER	08390	23	FRUIT AND VEGETABLE	09140	45
BRASSICAS - OTHER	01629	16	CUCUMBERS AND GHERKI	01821	154	FRUIT CROPS - GENERA	00600	174
BRAZIL NUTS	01215	1	CUCURBIT FRUITS - GE	00800	10	FRUIT CROPS - OTHER	01290	1
BREADS	09230	51	CUCURBIT FRUITS - OT	00890	8	FRUIT VEGETABLES - G	01800	16
BROAD BEANS (VICIA)	01420	105	CUCURBIT VEGETABLES	01820	14	FRUIT VEGETABLES - O	01880	3
BRUSSELS SPROUTS	01621	24	CUCURBIT VEGETABLES	01829	2	GAMBOGE	02610	1
BRYOZOA	08610	0	CURRENTS	00925	11	GAME ANIMALS	08810	123
BULBOUS VEGETABLES -	01700	2	DAIRY CATTLE	05214	880	GARLIC	01720	29
BULBOUS VEGETABLES -	01790	6	DATE PALMS	01114	11	GEESE	06300	41
BUTTER	09420	60	DERRIS	02810	0	GEO=GG10	80001	8
CABBAGES	01622	73	DOGS	05400	460	GEO=GG20	80002	30
CACAO	02110	90	DOMESTICATED BIRDS -	06000	302	GEO=GG30	80003	74

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
GEO=GG50	80004	148	GEO=GM70	80064	0	GEO=G041	80181	7
GEO=GG55	80005	11	GEO=GM71	80065	0	GEO=G042	80182	0
GEO=GG60	80006	34	GEO=GM72	80066	0	GEO=G043	80183	1
GEO=GG70	80007	3	GEO=GM73	80067	0	GEO=G044	80184	0
GEO=GG75	80008	8	GEO=GM75	80068	25	GEO=GZ10	80093	0
GEO=GM10	80009	2	GEO=GM76	80069	3	GEO=GZ11	80094	25
GEO=GM11	80010	0	GEO=GM77	80070	4	GEO=GZ12	80095	16
GEO=GM12	80011	0	GEO=GM78	80071	7	GEO=GZ13	80096	2
GEO=GM13	80012	0	GEO=GM79	80072	10	GEO=GZ14	80097	1
GEO=GM14	80013	0	GEO=GM80	80073	0	GEO=GZ15	80098	10
GEO=GM15	80014	0	GEO=GM81	80074	6	GEO=GZ16	80099	32
GEO=GM16	80015	0	GEO=GM82	80075	0	GEO=GZ17	80100	9
GEO=GM17	80016	0	GEO=GM83	80076	18	GEO=GZ20	80101	1
GEO=GM18	80017	0	GEO=GM84	80077	3	GEO=GZ21	80102	21
GEO=GM20	80018	22	GEO=GM85	80078	0	GEO=GZ22	80103	1
GEO=GM21	80019	2	GEO=GM86	80079	4	GEO=GZ23	80104	2
GEO=GM22	80020	6	GEO=GM87	80080	2	GEO=GZ24	80105	4
GEO=GM23	80021	3	GEO=GM88	80081	0	GEO=GZ25	80106	129
GEO=GM24	80022	2	GEO=GM89	80082	1	GEO=GZ26	80107	25
GEO=GM25	80023	0	GEO=GM90	80083	0	GEO=GZ27	80108	4
GEO=GM26	80024	21	GEO=GM91	80084	0	GEO=GZ28	80109	5
GEO=GM27	80025	2	GEO=GM92	80085	0	GEO=GZ29	80110	62
GEO=GM28	80026	1	GEO=GM93	80086	0	GEO=GZ30	80111	4
GEO=GM29	80027	0	GEO=GM94	80087	1	GEO=GZ31	80112	5
GEO=GM30	80028	0	GEO=GM95	80088	0	GEO=GZ32	80113	9
GEO=GM31	80029	9	GEO=GM96	80089	6	GEO=GZ33	80114	18
GEO=GM32	80030	4	GEO=GM97	80090	0	GEO=GZ34	80115	30
GEO=GM33	80031	1	GEO=GM98	80091	0	GEO=GZ35	80116	9
GEO=GM34	80032	0	GEO=GM99	80092	1	GEO=GZ36	80117	4
GEO=GM35	80033	3	GEO=G010	80150	0	GEO=GZ37	80118	5
GEO=GM36	80034	2	GEO=G011	80151	1	GEO=GZ38	80119	4
GEO=GM37	80035	0	GEO=G012	80152	0	GEO=GZ39	80120	6
GEO=GM38	80036	0	GEO=G013	80153	1	GEO=GZ40	80121	40
GEO=GM40	80037	1	GEO=G014	80154	1	GEO=GZ50	80122	5
GEO=GM41	80038	1	GEO=G015	80155	9	GEO=GZ51	80123	3
GEO=GM42	80039	0	GEO=G016	80156	0	GEO=GZ52	80124	22
GEO=GM43	80040	0	GEO=G017	80157	1	GEO=GZ53	80125	2
GEO=GM44	80041	0	GEO=G018	80158	0	GEO=GZ54	80126	10
GEO=GM45	80042	0	GEO=G019	80159	1	GEO=GZ55	80127	4
GEO=GM46	80043	0	GEO=G020	80160	238	GEO=GZ56	80128	47
GEO=GM47	80044	2	GEO=G021	80161	12	GEO=GZ57	80129	7
GEO=GM48	80045	1	GEO=G022	80162	1	GEO=GZ58	80130	5
GEO=GM49	80046	0	GEO=G023	80163	0	GEO=GZ59	80131	1
GEO=GM50	80047	0	GEO=G024	80164	0	GEO=GZ60	80132	1
GEO=GM51	80048	0	GEO=G025	80165	0	GEO=GZ61	80133	0
GEO=GM55	80049	19	GEO=G026	80166	0	GEO=GZ62	80134	62
GEO=GM56	80050	0	GEO=G027	80167	0	GEO=GZ63	80135	18
GEO=GM57	80051	0	GEO=G028	80168	0	GEO=GZ64	80136	52
GEO=GM58	80052	1	GEO=G029	80169	0	GEO=GZ65	80137	53
GEO=GM59	80053	0	GEO=G030	80170	0	GEO=GZ70	80138	0
GEO=GM60	80054	0	GEO=G031	80171	0	GEO=GZ71	80139	0
GEO=GM61	80055	0	GEO=G032	80172	0	GEO=GZ72	80140	43
GEO=GM62	80056	1	GEO=G033	80173	1	GEO=GZ73	80141	1
GEO=GM63	80057	0	GEO=G034	80174	0	GEO=GZ74	80142	9
GEO=GM64	80058	0	GEO=G035	80175	0	GEO=GZ75	80143	0
GEO=GM65	80059	0	GEO=G036	80176	2	GEO=GZ76	80144	4
GEO=GM66	80060	0	GEO=G037	80177	0	GEO=GZ77	80145	0
GEO=GM67	80061	7	GEO=G038	80178	0	GEO=GZ78	80146	1
GEO=GM68	80062	0	GEO=G039	80179	5	GEO=GZ79	80147	6
GEO=GM69	80063	0	GEO=G040	80180	1	GEO=GZ80	80148	1

DESCRIPTOR	CCDE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
GEO=G281	80149	1	GEO=G154	80209	0	GEO=G336	80269	0
GEO=G010	80150	0	GEO=G156	80210	1	GEO=G337	80270	0
GEO=G011	80151	1	GEO=G158	80211	9	GEO=G338	80271	0
GEO=G012	80152	0	GEO=G160	80212	0	GEO=G339	80272	8
GEO=G013	80153	1	GEO=G162	80213	2	GEO=G340	80273	0
GEO=G014	80154	1	GEO=G164	80214	29	GEO=G341	80274	37
GEO=G015	80155	9	GEO=G166	80215	15	GEO=G342	80275	0
GEO=G016	80156	0	GEO=G168	80216	10	GEO=G343	80276	2
GEO=G017	80157	1	GEO=G170	80217	2	GEO=G344	80277	11
GEO=G018	80158	0	GEO=G172	80218	2	GEO=G345	80278	1
GEO=G019	80159	1	GEO=G174	80219	4	GEO=G346	80279	0
GEO=G020	80160	238	GEO=G176	80220	4	GEO=G347	80280	0
GEO=G021	80161	12	GEO=G178	80221	31	GEO=G348	80281	0
GEO=G022	80162	1	GEO=G180	80222	1	GEO=G349	80282	1
GEO=G023	80163	0	GEO=G182	80223	4	GEO=G350	80283	1
GEO=G024	80164	0	GEO=G184	80224	31	GEO=G351	80284	5
GEO=G025	80165	0	GEO=G190	80225	30	GEO=G352	80285	98
GEO=G026	80166	0	GEO=G192	80226	13	GEO=G353	80286	2
GEO=G027	80167	0	GEO=G194	80227	3	GEO=G354	80287	161
GEO=G028	80168	0	GEO=G196	80228	11	GEO=G355	80288	33
GEO=G029	80169	0	GEO=G198	80229	4	GEO=G356	80289	37
GEO=G030	80170	0	GEO=G200	80230	21	GEO=G358	80290	36
GEO=G031	80171	0	GEO=G202	80231	5	GEO=G360	80291	27
GEO=G032	80172	0	GEO=G204	80232	20	GEO=G362	80292	15
GEO=G033	80173	1	GEO=G206	80233	10	GEO=G364	80293	5
GEO=G034	80174	0	GEO=G208	80234	15	GEO=G370	80294	30
GEO=G035	80175	0	GEO=G210	80235	14	GEO=G372	80295	3
GEO=G036	80176	2	GEO=G212	80236	15	GEO=G374	80296	62
GEO=G037	80177	0	GEO=G214	80237	118	GEO=G376	80297	1
GEO=G038	80178	0	GEO=G216	80238	3	GEO=G378	80298	4
GEO=G039	80179	5	GEO=G218	80239	42	GEO=G380	80299	4
GEO=G040	80180	1	GEO=G220	80240	8	GEO=G382	80300	2
GEO=G041	80181	7	GEO=G222	80241	0	GEO=G384	80301	3
GEO=G042	80182	0	GEO=G224	80242	4	GEO=G386	80302	2
GEO=G043	80183	1	GEO=G226	80243	9	GEO=G388	80303	0
GEO=G044	80184	0	GEO=G228	80244	0	GEO=G390	80304	10
GEO=G100	80185	119	GEO=G229	80245	11	GEO=G392	80305	1
GEO=G102	80186	5	GEO=G230	80246	27	GEO=G394	80306	2
GEO=G105	80187	4	GEO=G232	80247	78	GEO=G396	80307	0
GEO=G110	80188	18	GEO=G234	80248	6	GEO=G398	80308	1
GEO=G112	80189	4	GEO=G236	80249	45	GEO=G400	80309	1
GEO=G114	80190	4	GEO=G238	80250	0	GEO=G402	80310	2
GEO=G116	80191	0	GEO=G240	80251	29	GEO=G404	80311	195
GEO=G118	80192	18	GEO=G300	80252	14	GEO=G420	80312	0
GEO=G120	80193	2	GEO=G302	80253	118	GEO=G430	80313	348
GEO=G122	80194	0	GEO=G310	80254	15	GEO=G432	80314	5
GEO=G124	80195	3	GEO=G312	80255	1	GEO=G433	80315	2
GEO=G126	80196	1	GEO=G314	80256	1	GEO=G434	80316	14
GEO=G128	80197	0	GEO=G316	80257	0	GEO=G435	80317	3
GEO=G130	80198	73	GEO=G318	80258	24	GEO=G436	80318	54
GEO=G132	80199	33	GEO=G320	80259	34	GEO=G437	80319	12
GEO=G134	80200	0	GEO=G322	80260	2	GEO=G438	80320	6
GEO=G136	80201	24	GEO=G324	80261	4	GEO=G439	80321	3
GEO=G138	80202	0	GEO=G326	80262	52	GEO=G440	80322	0
GEO=G140	80203	64	GEO=G328	80263	3	GEO=G441	80323	41
GEO=G142	80204	3	GEO=G330	80264	1	GEO=G442	80324	21
GEO=G144	80205	18	GEO=G332	80265	0	GEO=G443	80325	10
GEO=G146	80206	48	GEO=G333	80266	0	GEO=G444	80326	4
GEO=G148	80207	38	GEO=G334	80267	0	GEO=G445	80327	9
GEO=G150	80208	20	GEO=G335	80268	0	GEO=G446	80328	4

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
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GEO=G447	80329	5	GEO=G550	80389	0	GEO=G652	80449	0
GEO=G448	80330	1	GEO=G555	80390	0	GEO=G653	80450	0
GEO=G449	80331	6	GEO=G560	80391	1	GEO=G654	80451	1
GEO=G450	80332	10	GEO=G565	80392	7	GEO=G655	80452	0
GEO=G451	80333	3	GEO=G570	80393	97	GEO=G656	80453	0
GEO=G452	80334	4	GEO=G580	80394	17	GEO=G657	80454	0
GEO=G453	80335	5	GEO=G582	80395	0	GEO=G658	80455	0
GEO=G454	80336	16	GEO=G584	80396	23	GEO=G659	80456	0
GEO=G455	80337	9	GEO=G586	80397	2	GEO=G662	80457	42
GEO=G456	80338	5	GEO=G588	80398	1	GEO=G665	80458	0
GEO=G457	80339	10	GEO=G590	80399	10	GEO=G667	80459	0
GEO=G458	80340	5	GEO=G592	80400	42	GEO=G669	80460	2
GEO=G459	80341	7	GEO=G595	80401	0	GEO=G671	80461	0
GEO=G460	80342	0	GEO=G596	80402	0	GEO=G673	80462	3
GEO=G461	80343	0	GEO=G597	80403	0	GEO=G675	80463	1
GEO=G462	80344	2	GEO=G598	80404	0	GEO=G677	80464	0
GEO=G463	80345	8	GEO=G599	80405	0	GEO=G679	80465	0
GEO=G464	80346	22	GEO=G600	80406	0	GEO=G681	80466	4
GEO=G465	80347	10	GEO=G601	80407	0	GEO=G683	80467	0
GEO=G466	80348	5	GEO=G602	80408	0	GEO=G685	80468	0
GEO=G467	80349	4	GEO=G603	80409	0	GEO=G690	80469	55
GEO=G468	80350	6	GEO=G604	80410	0	GEO=G692	80470	19
GEO=G469	80351	11	GEO=G605	80411	0	GEO=G694	80471	42
GEO=G470	80352	14	GEO=G606	80412	0	GEO=G696	80472	1028
GEO=G471	80353	0	GEO=G607	80413	0	GEO=G698	80473	8
GEO=G472	80354	7	GEO=G608	80414	1	GEO=G700	80474	7
GEO=G473	80355	7	GEO=G609	80415	0	GEO=G702	80475	2
GEO=G474	80356	2	GEO=G610	80416	0	GEO=G704	80476	14
GEO=G475	80357	25	GEO=G611	80417	0	GEO=G706	80477	3
GEO=G476	80358	6	GEO=G612	80418	0	GEO=G708	80478	6
GEO=G477	80359	1	GEO=G613	80419	0	GEO=G710	80479	15
GEO=G478	80360	7	GEO=G614	80420	0	GEO=G712	80480	0
GEO=G479	80361	12	GEO=G615	80421	0	GEO=G714	80481	28
GEO=G480	80362	0	GEO=G616	80422	0	GEO=G716	80482	2
GEO=G481	80363	10	GEO=G617	80423	0	GEO=G718	80483	5
GEO=G482	80364	3	GEO=G618	80424	0	GEO=G720	80484	5
GEO=G485	80365	5	GEO=G619	80425	0	GEO=G722	80485	2
GEO=G487	80366	1	GEO=G620	80426	0	GEO=G724	80486	2
GEO=G489	80367	1	GEO=G621	80427	0	GEO=G726	80487	21
GEO=G491	80368	1	GEO=G622	80428	0	GEO=G728	80488	1
GEO=G493	80369	5	GEO=G625	80429	0	GEO=G730	80489	25
GEO=G495	80370	7	GEO=G627	80430	0	GEO=G732	80490	673
GEO=G497	80371	4	GEO=G629	80431	19	GEO=G734	80491	0
GEO=G500	80372	40	GEO=G631	80432	3	GEO=G736	80492	0
GEO=G510	80373	240	GEO=G635	80433	256	GEO=G738	80493	7
GEO=G512	80374	60	GEO=G637	80434	0	GEO=G740	80494	0
GEO=G514	80375	690	GEO=G638	80435	0	GEO=G742	80495	4
GEO=G516	80376	149	GEO=G639	80436	0	GEO=G744	80496	26
GEO=G518	80377	156	GEO=G640	80437	0	GEO=G746	80497	5
GEO=G520	80378	44	GEO=G641	80438	0	GEO=G748	80498	20
GEO=G521	80379	2	GEO=G642	80439	0	GEO=G750	80499	50
GEO=G522	80380	0	GEO=G643	80440	0	GEO=G752	80500	0
GEO=G524	80381	3	GEO=G644	80441	0	GEO=G754	80501	1
GEO=G526	80382	10	GEO=G645	80442	0	GEO=G756	80502	1
GEO=G528	80383	15	GEO=G646	80443	0	GEO=G758	80503	0
GEO=G530	80384	94	GEO=G647	80444	0	GEO=G760	80504	0
GEO=G532	80385	17	GEO=G648	80445	0	GEO=G762	80505	0
GEO=G534	80386	18	GEO=G649	80446	0	GEO=G764	80506	0
GEO=G536	80387	233	GEO=G650	80447	2	GEO=G766	80507	0
GEO=G540	80388	0	GEO=G651	80448	1	GEO=G768	80508	0

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
GEO=G770	80509	8	GEO=G892	80569	320	GEO=G953	80629	0
GEO=G772	80510	47	GEO=G893	80570	0	GEO=G954	80630	0
GEO=G774	80511	3	GEO=G895	80571	27	GEO=G955	80631	0
GEO=G776	80512	24	GEO=G896	80572	4	GEO=G956	80632	1
GEO=G778	80513	7	GEO=G897	80573	58	GEO=G957	80633	3
GEO=G780	80514	2	GEO=G898	80574	0	GEO=G958	80634	0
GEO=G782	80515	37	GEO=G899	80575	1	GEO=G959	80635	0
GEO=G784	80516	1	GEO=G900	80576	67	GEO=G960	80636	0
GEO=G786	80517	12	GEO=G901	80577	10	GEO=G961	80637	0
GEO=G788	80518	6	GEO=G902	80578	2	GEO=G962	80638	0
GEO=G790	80519	3	GEO=G903	80579	2	GEO=G963	80639	0
GEO=G792	80520	1	GEO=G904	80580	164	GEO=G964	80640	0
GEO=G794	80521	1	GEO=G905	80581	24	GEO=G965	80641	17
GEO=G796	80522	1	GEO=G906	80582	432	GEO=G966	80642	0
GEO=G798	80523	12	GEO=G907	80583	5	GEO=G967	80643	0
GEO=G800	80524	31	GEO=G908	80584	0	GEO=G968	80644	2
GEO=G805	80525	1	GEO=G909	80585	873	GEO=G969	80645	2
GEO=G810	80526	107	GEO=G910	80586	7	GEO=G970	80646	3
GEO=G820	80527	0	GEO=G911	80587	15	GEO=G971	80647	0
GEO=G822	80528	2	GEO=G912	80588	7	GEO=G972	80648	2
GEO=G824	80529	13	GEO=G913	80589	0	GINGER	02260	18
GEO=G826	80530	18	GEO=G914	80590	4	GLOBE ARTICHOKE	01650	10
GEO=G828	80531	29	GEO=G915	80591	0	GOATS	05250	146
GEO=G830	80532	0	GEO=G916	80592	232	GOOSEBERRIES	00935	3
GEO=G831	80533	18	GEO=G917	80593	32	GRAPEFRUITS	01020	15
GEO=G832	80534	43	GEO=G918	80594	0	GRAPES	00940	418
GEO=G834	80535	1	GEO=G919	80595	455	GROUNDNUT	00332	124
GEO=G836	80536	0	GEO=G920	80596	1	GUAVAS	01116	7
GEO=G838	80537	216	GEO=G921	80597	11	GUINEA FOWL	06400	10
GEO=G840	80538	1	GEO=G922	80598	86	GUM ARABIC	02450	3
GEO=G842	80539	547	GEO=G923	80599	1	GUM TRAGACANTH	02460	0
GEO=G844	80540	44	GEO=G924	80600	9	GUTTA-PERCHA	02470	0
GEO=G845	80541	66	GEO=G925	80601	0	HAZELS	01230	14
GEO=G846	80542	96	GEO=G926	80602	22	HEMP	00450	15
GEO=G847	80543	46	GEO=G927	80603	4	HEMP, DRUG PLANT	02730	5
GEO=G848	80544	26	GEO=G928	80604	1	HENNA	02620	0
GEO=G849	80545	3	GEO=G929	80605	10	HEVEA RUBBER	02480	13
GEO=G850	80546	27	GEO=G930	80606	10	HIBISCUS FIBRES	00460	20
GEO=G851	80547	210	GEO=G931	80607	0	HONEY	09340	38
GEO=G852	80548	13	GEO=G932	80608	13	HONEY-BEES	07110	122
GEO=G854	80549	673	GEO=G933	80609	0	HOPS	02270	44
GEO=G856	80550	0	GEO=G934	80610	3	HORSES	05120	362
GEO=G858	80551	20	GEO=G935	80611	33	INDIA RUBBER	02490	0
GEO=G860	80552	9	GEO=G936	80612	9	INDIGO	02630	1
GEO=G862	80553	20	GEO=G937	80613	3	INSECTS - GENERAL	07000	339
GEO=G864	80554	20	GEO=G938	80614	0	INSECTS - OTHER	07900	270
GEO=G866	80555	12	GEO=G939	80615	0	JERUSALEM ARTICHOKE	01560	13
GEO=G867	80556	66	GEO=G940	80616	1	JUTE	00470	25
GEO=G868	80557	11	GEO=G941	80617	0	KALES	01624	4
GEO=G870	80558	7	GEO=G942	80618	1	KAPOK TREES	00480	1
GEO=G872	80559	29	GEO=G943	80619	0	KARAYA GUM	02500	0
GEO=G874	80560	0	GEO=G944	80620	0	KOHLRABI	01625	3
GEO=G876	80561	16	GEO=G945	80621	4	KOLA	02130	1
GEO=G878	80562	5	GEO=G946	80622	0	LABLAB	01450	4
GEO=G880	80563	10	GEO=G947	80623	0	LABORATORY ANIMALS	08830	892
GEO=G882	80564	12	GEO=G948	80624	0	LAC INSECTS	07200	6
GEO=G884	80565	330	GEO=G949	80625	0	LARCHES	03130	27
GEO=G885	80566	57	GEO=G950	80626	3	LEES	01730	7
GEO=G888	80567	112	GEO=G951	80627	0	LEMON GRASS	02280	0
GEO=G890	80568	6	GEO=G952	80628	5	LEMONS	01030	16

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
LENTILS	01460	7	OBJ=0220	00220	280	OBJ=1000	01000	183
LESPEDEZAS	01952	1	OBJ=0230	00230	177	OBJ=1010	01010	4
LETTUCES	01660	74	OBJ=0240	00240	1	OBJ=1020	01020	15
LICHENS	03420	23	OBJ=0250	00250	4	OBJ=1030	01030	16
LIGNUM VITAE	03250	0	OBJ=0260	00260	2	OBJ=1040	01040	5
LIMES	01040	5	OBJ=0290	00290	2	OBJ=1050	01050	75
LINSEED	00333	8	OBJ=0300	00300	26	OBJ=1060	01060	83
LITCHIS	01118	2	OBJ=0310	00310	5	OBJ=1090	01090	18
LLAMAS	05230	9	OBJ=0311	00311	74	OBJ=1100	01100	23
LOBSTERS AND CRAYFIS	08330	15	OBJ=0312	00312	43	OBJ=1110	01110	27
LOGWOOD	02640	0	OBJ=0313	00313	81	OBJ=1112	01112	110
LUCERNE	01953	210	OBJ=0314	00314	1	OBJ=1112	01112	110
MACADAMIAS	01235	2	OBJ=0315	00315	3	OBJ=1114	01114	11
MADDER	02650	0	OBJ=0329	00329	3	OBJ=1116	01116	7
MAHOGANIES	03260	12	OBJ=0330	00330	22	OBJ=1118	01118	2
MAIZE	00120	885	OBJ=0331	00331	32	OBJ=1120	01120	33
MANGOES	01120	33	OBJ=0332	00332	124	OBJ=1122	01122	25
MANGROVE	02660	3	OBJ=0333	00333	8	OBJ=1124	01124	25
MAPLES	03265	17	OBJ=0334	00334	85	OBJ=1126	01126	24
MARGARINES	09510	7	OBJ=0335	00335	12	OBJ=1190	01190	38
MARINE FISH - OTHER	08150	292	OBJ=0336	00336	420	OBJ=1200	01200	5
MARINE WORMS	08640	2	OBJ=0337	00337	95	OBJ=1210	01210	23
MASTIC	02510	2	OBJ=0390	00390	7	OBJ=1215	01215	1
MATE	02140	2	OBJ=0400	00400	18	OBJ=1220	01220	16
MEAT EXTRACTS	09740	6	OBJ=0410	00410	25	OBJ=1225	01225	23
MEAT PRODUCTS - GENE	09700	211	OBJ=0420	00420	16	OBJ=1230	01230	14
MEAT PRODUCTS - OTHER	09790	32	OBJ=0430	00430	336	OBJ=1235	01235	2
MELONS	00810	71	OBJ=0440	00440	44	OBJ=1240	01240	17
MILK AND CREAM	09410	488	OBJ=0450	00450	15	OBJ=1245	01245	4
MILK PRODUCTS - GENE	09400	340	OBJ=0460	00460	20	OBJ=1250	01250	12
MILK PRODUCTS - OTHER	09490	201	OBJ=0470	00470	25	OBJ=1280	01280	4
MILLETS	00130	62	OBJ=0480	00480	1	OBJ=1290	01290	1
MINTS	02290	14	OBJ=0490	00490	1	OBJ=1300	01300	262
MIXED SOWN PASTURES	01920	48	OBJ=0500	00500	8	OBJ=1400	01400	61
MOLLUSCS - GENERAL	08400	18	OBJ=0510	00510	12	OBJ=1410	01410	338
MOLLUSCS - OTHER	08490	25	OBJ=0590	00590	19	OBJ=1420	01420	105
MULCH CROPS AND GREE	02030	7	OBJ=0600	00600	174	OBJ=1430	01430	20
MULES	05130	2	OBJ=0700	00700	64	OBJ=1440	01440	70
MUSSELS	08420	19	OBJ=0710	00710	374	OBJ=1450	01450	4
MUSTARDS	02300	15	OBJ=0712	00712	35	OBJ=1460	01460	7
NATURAL PASTURES AND	01910	87	OBJ=0714	00714	74	OBJ=1470	01470	184
NON-CEREAL FLOURS	09310	6	OBJ=0716	00716	141	OBJ=1480	01480	15
NUTMEG	02310	0	OBJ=0718	00718	129	OBJ=1490	01490	22
OAKS	03270	63	OBJ=0720	00720	42	OBJ=1500	01500	20
OATS	00140	138	OBJ=0722	00722	0	OBJ=1510	01510	1
OBJ=0100	00100	412	OBJ=0790	00790	25	OBJ=1520	01520	29
OBJ=0110	00110	385	OBJ=0800	00800	10	OBJ=1530	01530	60
OBJ=0120	00120	885	OBJ=0810	00810	71	OBJ=1540	01540	64
OBJ=0130	00130	62	OBJ=0820	00820	23	OBJ=1550	01550	10
OBJ=0140	00140	138	OBJ=0890	00890	8	OBJ=1560	01560	13
OBJ=0150	00150	1190	OBJ=0900	00900	8	OBJ=1565	01565	2
OBJ=0160	00160	58	OBJ=0910	00910	5	OBJ=1570	01570	37
OBJ=0170	00170	163	OBJ=0920	00920	16	OBJ=1575	01575	2
OBJ=0180	00180	816	OBJ=0925	00925	11	OBJ=1580	01580	65
OBJ=0185	00185	16	OBJ=0930	00930	5	OBJ=1585	01585	4
OBJ=0190	00190	65	OBJ=0935	00935	3	OBJ=1587	01587	17
OBJ=0195	00195	1	OBJ=0940	00940	418	OBJ=1590	01590	28
OBJ=0200	00200	11	OBJ=0950	00950	24	OBJ=1600	01600	21
OBJ=0210	00210	476	OBJ=0960	00960	159	OBJ=1610	01610	39
OBJ=0215	00215	3	OBJ=0990	00990	55	OBJ=1620	01620	34

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
OBJ=1621	01621	24	OBJ=2140	02140	2	OBJ=2760	02760	295
OBJ=1622	01622	73	OBJ=2150	02150	90	OBJ=2790	02790	41
OBJ=1623	01623	36	OBJ=2160	02160	1	OBJ=2800	02800	4
OBJ=1624	01624	4	OBJ=2190	02190	2	OBJ=2810	02810	0
OBJ=1625	01625	3	OBJ=2200	02200	28	OBJ=2820	02820	4
OBJ=1629	01629	16	OBJ=2210	02210	2	OBJ=2890	02890	1
OBJ=1630	01630	26	OBJ=2220	02220	0	OBJ=3000	03000	378
OBJ=1640	01640	18	OBJ=2230	02230	24	OBJ=3100	03100	53
OBJ=1650	01650	10	OBJ=2240	02240	6	OBJ=3110	03110	33
OBJ=1660	01660	74	OBJ=2250	02250	3	OBJ=3120	03120	31
OBJ=1665	01665	0	OBJ=2255	02255	1	OBJ=3130	03130	27
OBJ=1670	01670	89	OBJ=2260	02260	18	OBJ=3140	03140	299
OBJ=1680	01680	3	OBJ=2270	02270	44	OBJ=3150	03150	75
OBJ=1690	01690	29	OBJ=2280	02280	0	OBJ=3190	03190	94
OBJ=1700	01700	2	OBJ=2290	02290	14	OBJ=3200	03200	50
OBJ=1710	01710	1	OBJ=2300	02300	15	OBJ=3210	03210	0
OBJ=1720	01720	29	OBJ=2310	02310	0	OBJ=3220	03220	21
OBJ=1730	01730	7	OBJ=2320	02320	22	OBJ=3230	03230	25
OBJ=1740	01740	97	OBJ=2330	02330	1	OBJ=3240	03240	52
OBJ=1750	01750	0	OBJ=2340	02340	0	OBJ=3250	03250	0
OBJ=1790	01790	6	OBJ=2350	02350	2	OBJ=3260	03260	12
OBJ=1800	01800	16	OBJ=2360	02360	0	OBJ=3265	03265	17
OBJ=1810	01810	1	OBJ=2370	02370	2	OBJ=3270	03270	63
OBJ=1820	01820	14	OBJ=2380	02380	10	OBJ=3275	03275	61
OBJ=1821	01821	154	OBJ=2383	02383	1	OBJ=3280	03280	4
OBJ=1822	01822	15	OBJ=2385	02385	1	OBJ=3285	03285	2
OBJ=1823	01823	14	OBJ=2387	02387	0	OBJ=3290	03290	204
OBJ=1829	01829	2	OBJ=2390	02390	42	OBJ=3300	03300	797
OBJ=1830	01830	38	OBJ=2400	02400	11	OBJ=3300	03300	797
OBJ=1840	01840	12	OBJ=2410	02410	0	OBJ=3400	03400	6
OBJ=1845	01845	42	OBJ=2420	02420	0	OBJ=3410	03410	187
OBJ=1850	01850	386	OBJ=2430	02430	0	OBJ=3420	03420	23
OBJ=1880	01880	3	OBJ=2440	02440	0	OBJ=3430	03430	142
OBJ=1885	01885	112	OBJ=2450	02450	3	OBJ=3490	03490	103
OBJ=1890	01890	0	OBJ=2460	02460	0	OBJ=5000	05000	211
OBJ=1900	01900	279	OBJ=2470	02470	0	OBJ=5100	05100	21
OBJ=1910	01910	87	OBJ=2480	02480	13	OBJ=5110	05110	4
OBJ=1920	01920	48	OBJ=2490	02490	0	OBJ=5120	05120	362
OBJ=1930	01930	499	OBJ=2500	02500	0	OBJ=5130	05130	2
OBJ=1940	01940	66	OBJ=2510	02510	2	OBJ=5190	05190	7
OBJ=1950	01950	58	OBJ=2520	02520	1	OBJ=5200	05200	118
OBJ=1951	01951	89	OBJ=2590	02590	7	OBJ=5210	05210	44
OBJ=1952	01952	1	OBJ=2600	02600	5	OBJ=5212	05212	1552
OBJ=1953	01953	210	OBJ=2610	02610	1	OBJ=5213	05213	539
OBJ=1954	01954	10	OBJ=2620	02620	0	OBJ=5214	05214	880
OBJ=1955	01955	6	OBJ=2630	02630	1	OBJ=5219	05219	49
OBJ=1956	01956	22	OBJ=2640	02640	0	OBJ=5220	05220	4
OBJ=1959	01959	26	OBJ=2650	02650	0	OBJ=5230	05230	9
OBJ=1960	01960	9	OBJ=2660	02660	3	OBJ=5240	05240	953
OBJ=1970	01970	7	OBJ=2665	02665	0	OBJ=5250	05250	146
OBJ=1980	01980	9	OBJ=2670	02670	18	OBJ=5290	05290	19
OBJ=1990	01990	17	OBJ=2675	02675	0	OBJ=5300	05300	1398
OBJ=2000	02000	7	OBJ=2680	02680	4	OBJ=5400	05400	460
OBJ=2030	02030	7	OBJ=2690	02690	3	OBJ=5500	05500	138
OBJ=2040	02040	0	OBJ=2700	02700	33	OBJ=5600	05600	237
OBJ=2090	02090	6	OBJ=2710	02710	1	OBJ=5900	05900	68
OBJ=2100	02100	6	OBJ=2720	02720	1	OBJ=6000	06000	302
OBJ=2110	02110	90	OBJ=2730	02730	5	OBJ=6100	06100	1116
OBJ=2120	02120	117	OBJ=2740	02740	4	OBJ=6200	06200	80
OBJ=2130	02130	1	OBJ=2750	02750	0	OBJ=6300	06300	41

DESCRIPTOR	CCDE	FREQ	DESCRIPTOR	CCDE	FREQ	DESCRIPTOR	CODE	FREQ
OBJ=6400	06400	10	OBJ=9210	09210	81	PAPAYAS	01122	25
OBJ=6500	06500	20	OBJ=9220	09220	20	PARSNIPS	01565	2
OBJ=6600	06600	126	OBJ=9230	09230	51	PASTA	09220	20
OBJ=6700	06700	23	OBJ=9240	09240	13	PEACHES	00716	141
OBJ=6900	06900	45	OBJ=9250	09250	15	PEARS	00718	129
OBJ=7000	07000	339	OBJ=9290	09290	18	PEAS	01470	184
OBJ=7100	07100	32	OBJ=9300	09300	40	PECANS	01240	17
OBJ=7110	07110	122	OBJ=9310	09310	6	PEPPER	02320	22
OBJ=7200	07200	6	OBJ=9320	09320	179	PEPPERS	01845	42
OBJ=7300	07300	80	OBJ=9330	09330	14	PERSIMMONS	01124	25
OBJ=7400	07400	8	OBJ=9340	09340	38	PESTICIDE CROPS - GE	02800	4
OBJ=7900	07900	270	OBJ=9350	09350	29	PESTICIDE CROPS - OT	02890	1
OBJ=8000	08000	25	OBJ=9390	09390	15	PIGEON PEAS	01480	15
OBJ=8100	08100	184	OBJ=9400	09400	340	PIGEONS	06500	20
OBJ=8110	08110	83	OBJ=9410	09410	488	PINEAPPLES	01126	24
OBJ=8120	08120	35	OBJ=9420	09420	60	PINES	03140	299
OBJ=8130	08130	134	OBJ=9430	09430	219	PISTACHIOS	01245	4
OBJ=8140	08140	119	OBJ=9490	09490	201	PLUMS	00720	42
OBJ=8150	08150	292	OBJ=9500	09500	96	POPLARS	03275	61
OBJ=8200	08200	16	OBJ=9510	09510	7	POTATOES	00210	476
OBJ=8300	08300	19	OBJ=9520	09520	53	PROCESSED CEREALS	09250	15
OBJ=8310	08310	57	OBJ=9590	09590	16	PROCESSED COFFEE AND	09910	51
OBJ=8320	08320	19	OBJ=9600	09600	17	PROCESSED EGGS	09630	16
OBJ=8330	08330	15	OBJ=9610	09610	77	PROCESSED MEAT	09730	157
OBJ=8390	08390	23	OBJ=9620	09620	2	PSEUDOCEREALS	00185	16
OBJ=8400	08400	18	OBJ=9630	09630	16	PUMPKINS	01822	15
OBJ=8410	08410	13	OBJ=9690	09690	13	PYRETHRUM	02820	4
OBJ=8420	08420	19	OBJ=9700	09700	211	QUEBRACHO	02665	0
OBJ=8430	08430	26	OBJ=9710	09710	285	QUINCES	00722	0
OBJ=8440	08440	41	OBJ=9720	09720	35	RABBITS	05600	237
OBJ=8490	08490	25	OBJ=9730	09730	157	RADISHES	01570	37
OBJ=8500	08500	8	OBJ=9740	09740	6	RAMIE	00490	1
OBJ=8510	08510	2	OBJ=9790	09790	32	RAPE	00334	85
OBJ=8520	08520	17	OBJ=9800	09800	71	RASPBERRIES	00950	24
OBJ=8530	08530	5	OBJ=9810	09810	51	RATTAN	00500	8
OBJ=8590	08590	9	OBJ=9820	09820	15	RHUBARB	01665	0
OBJ=8600	08600	4	OBJ=9830	09830	14	RICE	00150	1190
OBJ=8610	08610	0	OBJ=9850	09850	59	ROOT VEGETABLES - GE	01500	20
OBJ=8620	08620	4	OBJ=9900	09900	19	ROOT VEGETABLES - OT	01590	28
OBJ=8630	08630	11	OBJ=9910	09910	51	RUBBER AND WAX PLANT	02590	7
OBJ=8640	08640	2	OBJ=9920	09920	413	RUE	02330	1
OBJ=8650	08650	0	OBJ=9930	09930	21	RUMINANTS - GENERAL	05200	118
OBJ=8690	08690	3	OBJ=9950	09950	9	RUMINANTS - OTHER	05290	19
OBJ=8700	08700	6	OBJ=9990	09990	85	RYE	00160	58
OBJ=8710	08710	17	UCTOPUS AND SQUIDS	08430	26	SAFFLOWER	02670	18
OBJ=8720	08720	14	OIL CROPS - GENERAL	00300	26	SAFFRON	02675	0
OBJ=8790	08790	7	OIL HERBS AND BUSHES	00330	22	SAGO PALM	00215	3
OBJ=8800	08800	8	OIL HERBS AND BUSHES	00390	7	SALMON AND TROUT	08130	134
OBJ=8810	08810	123	OIL PALMS	00312	43	SAPODILLA	02520	1
OBJ=8830	08830	892	OIL-PRODUCING TREES	00310	5	SARSAPARILLA	02340	0
OBJ=8860	08860	16	OIL-PRODUCING TREES	00329	3	SASSAFRAS	02350	2
OBJ=8890	08890	33	OKRA	01840	12	SEALS AND SEALIONS	08720	14
OBJ=9000	09000	352	OLIVE	00313	81	SESAME	00335	12
OBJ=9100	09100	59	ONIONS	01740	97	SHADE PLANTS	02040	0
OBJ=9110	09110	66	OPIMUM POPPIES	02740	4	SHALLOTS	01750	0
OBJ=9120	09120	55	ORANGES	01060	83	SHEA BUTTER TREE	00314	1
OBJ=9130	09130	37	ORNAMENTAL AND PLUMA	06700	23	SHEEP	05240	953
OBJ=9140	09140	45	ORNAMENTAL PLANTS	03300	797	SHELLFISH - GENERAL	08200	16
OBJ=9190	09190	22	ORNAMENTAL TREES AND	03300	797	SHRIMPS AND PRAWNS	08310	57
OBJ=9200	09200	138	OYSTERS	08440	41	SISALS	00510	12

DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ	DESCRIPTOR	CODE	FREQ
SORGHUMS	00170	163						
SOY BEAN	00336	420						
SPANISH CEDARS	03280	4						
SPINACH	01670	89						
SPONGES	08650	0						
SPRUCES	03150	75						
SQUASHES AND MARROWS	01623	14						
STARCHES	09350	29						
STIMULANT CROPS - GE	02100	6						
STIMULANT CROPS - OT	02190	2						
STRAWBERRIES	00960	159						
STYLOSANTHES	01954	10						
SUGAR	09320	179						
SUGAR AND STARCH CRO	00290	2						
SUGAR CONFECTIONERIE	09330	14						
SUGAR MAPLES	00250	4						
SUGAR PALMS	00260	2						
SUGAR SORGHUM	00240	1						
SUGAR-BEETS	00220	280						
SUGAR-CANE	00230	177						
SUNFLOWER	00337	95						
SWEDES	01575	2						
SWEET BAY	02360	0						
SWEET POTATOES	01580	65						
SWEETCLOVERS	01955	6						
SWINE	05300	1398						
TAN AND DYE PLANTS -	02600	5						
TAN AND DYE PLANTS -	02690	3						
TANGERINES	01050	75						
TEA	02150	90						
TEAKS	03265	2						
TEMPERATE BERRY FRUI	00990	55						
TEMPERATE TREE FRUIT	00790	25						
TOBACCO	02760	295						
TOMATOES	01650	386						
TROPICAL FRUITS - GE	01100	23						
TROPICAL FRUITS - OT	01190	38						
TUNG OIL TREE	00315	3						
TURKEYS	06600	126						
TURMERIC	02370	2						
TURNIPS	01565	4						
TURTLES	08530	5						
UMBELLIFEROUS HERBS	02380	10						
VANILLA	02383	1						
VEGETABLES - GENERAL	01300	262						
VEGETABLES - OTHER	01890	0						
VETCHES	01956	22						
VETIVER	02385	1						
WALNUTS	01250	12						
WATERCRESS	01680	3						
WATERMELONS	00820	23						
WATTLES	02680	4						
WHALES AND PORPOISES	08710	17						
WHEAT	00180	816						
YAMS	01587	17						
YEASTS	03430	142						
YLANG-YLANG	02387	0						
YUCO	02160	1						

APPENDIX 2: LIST OF OBJECT CODES EXCLUDED

2.1: List of object codes with text too long for inclusion in AGRIS/IRMS Thesaurus

TERMS LONGER 30 CHARACTER (EXCLUDED FROM THESAURUS GENERATION)

02000	SUGAR AND STARCH CROPS - GENERAL
07000	TEMPERATE TREE FRUITS - GENERAL
09000	TEMPERATE BERRY FRUITS - GENERAL
14000	LEGUMINOUS GRAINS AND VEGETABLES - GENERAL
14900	LEGUMINOUS GRAINS AND VEGETABLES - OTHER
16000	GREENS AND LEAFY VEGETABLES - GENERAL
16900	GREENS AND LEAFY VEGETABLES - OTHER
19000	PASTURES AND FEED CROPS - GENERAL
19900	PASTURES AND FEED CROPS - OTHER
23900	FLAVOURING AND PERFUME PLANTS - OTHER
24000	RUBBER AND WAX PLANTS - GENERAL
30000	FOREST AND ORNAMENTAL TREES - GENERAL
31000	CONIFERS AND OTHER GYMNOSPERMS - GENERAL
31900	CONIFERS AND OTHER GYMNOSPERMS - OTHER
34000	PLANTS UTILIZED BY MAN - OTHER GENERAL
34900	PLANTS UTILIZED BY MAN - OTHER SPECIFIC
73000	INSECTS USED FOR BIOLOGICAL CONTROL
74000	INSECT POLLINATORS (OTHER THAN BEES)
85000	REPTILES AND BATRACHIONS - GENERAL
85900	REPTILES AND BATRACHIONS - OTHER
86000	AQUATIC INVERTEBRATES - OTHER GENERAL
86900	AQUATIC INVERTEBRATES - OTHER SPECIFIC
87000	AQUATIC VERTEBRATES - OTHER GENERAL
88000	ANIMALS UTILIZED BY MAN - OTHER GENERAL
88600	PET ANIMALS (OTHER THAN CATS, DOGS, RABBITS)
88900	ANIMALS UTILIZED BY MAN - OTHER SPECIFIC
91000	FRUIT AND VEGETABLE PRODUCTS - GENERAL
91200	CANNED OR DRIED FRUITS AND VEGETABLES
91300	PROCESSED FRUITS AND VEGETABLES
91900	FRUIT AND VEGETABLE PRODUCTS - OTHER
92000	CEREALS AND BAKERY PRODUCTS - GENERAL
92900	CEREALS AND BAKERY PRODUCTS - OTHER
93000	SUGAR AND STARCH PRODUCTS - GENERAL
93900	SUGAR AND STARCH PRODUCTS - OTHER
98000	FISH AND MARINE FOOD PRODUCTS - GENERAL
98500	FISH AND MARINE FOOD PRODUCTS - OTHER
99300	FRUIT-BASED NON-ALCOHOLIC DRINKS

2.2: List of ambiguous terms excluded from AGRIS/IRMS
Thesaurus

DESCRIPTORS WITH MULTIPLE DESCRIPTOR NUMBERS

BEVERAGE PRODUCTS - OTHER	9.950
BULBOUS VEGETABLES - OTHER	1.790
CUCURBIT VEGETABLES - OTHER	1.829
DOMESTICATED BIRDS - OTHER	6.900
DOMESTICATED MAMMALS - OTHER	5.900
OIL HERBS AND BUSHES - OTHER	390
OIL-PRODUCING TREES - OTHER	329
TAN AND DYE PLANTS - OTHER	2.690

END OF JOB

2.632	RECORDS EDITED IN UPDATED VOCABULARY FILE
18	PADDED RECCRDS
106	BLOCKS EDITED IN UPDATED VOCABULARY FILE

APPENDIX 3: AGRIS WORKSHEET HEADER

AGRIS Form 1 (Rev. 1)



I	C	YEAR	SERIAL NUMBER
		7	

001

TRN

Input Sheet number	total no. of Input Sheets

002

Input Sheet number

total no. of Input Sheets

REVISE	WITHDRAW
R	W

003

Input change

NEW	CHANGED	DELETED
N	C	D

004

record status

affected RN

005

INPUT SHEET

008							
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(PRIMARY) SUBJECT CATEGORIES

TRANSL.	GENERIC.
T	/

006

related RN	(TRN)

007

MONOGRAPH	STANDARD	DRAWING	FILM	MAP OR ATLAS	PHONO.	SERIAL ARTICLE	PATENT	REPORT	COMPUT. MEDIUM
B	C	D	E	G	H	J	P	R	T

TYPE OF RECORD

ANALYTICAL	MONOGRAPH	SERIAL	COLLECT.
A	M	S	C

BIBLIOG. LEVEL

CONFERENCE	DICTIONARY	NUMERICAL DATA	THESIS OR DISS.	LEGISLATION	BIBLIOGRAPHY	MAP (S)	INCLUDED	SUMMARY	NON CONVENTION
K	L	N	U	W	Z	Y	E	V	

LITERARY INDICATOR

1

009

LEVEL

(Use a separate Input Sheet for each level circled in the Bibliographic Level box starting with the left-most level and enter code in box 009. For serial entries use section 2 of this Input Sheet).

Tag	Data (enter by Typewriter only)
Personal Name (s) (Affiliation (s))	100

APPENDIX 4: SAMPLE QUERIES

The queries have been executed with the AGRIS data base of volume 1 with 48,326 retrieval documents.

4.1. Sample Query 1

Query: Data on cultivation and protection of asparagus

Comments: This sample illustrates the use of the highest hierarchical levels of the subject categories to capture data throughout more specific levels. The operator in group 02 could as well be specified as AD, since there is only one operator.

4.2. Sample Query 2

Query: Bibliographies in languages other than English relating to oil or fibre crops except cotton.

Comments: The sample illustrates the need for all required object codes to be included. Since one group may contain only up to 10 descriptors, the object codes related to all oil and fibre crops have been spread in group 01 to 04. Group 05 and 07 could be merged as one group with OR operator, but it is good practice to combine only logically connected terms in one group.



CODING SHEET

+

Name:
Phone:
Job:

+

Date:
Language:

+

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
00=SEMINAR: Q25 PHILIPPINES - FEB 1976 LEATHERDALE															RETR:LEA															0501525																																																	
01, ØR, P=SCAT=F, SCAT=H.																														0501525																																																	
02, ØR, P=ASPARAGUS.																														0501525																																																	
99, 50=01AD02																														0501525																																																	
00=SEMINAR: Q26 PHILIPPINES - FEB 1976 LEATHERDALE															RETR:LEA															0501526																																																	
01, ØR=ØBJ=0300, ØBJ=0310, ØBJ=0311, ØBJ=0312.																														0501526																																																	
01, ØR=ØBJ=0313, ØBJ=0314, ØBJ=0315, ØBJ=0329.																														0501526																																																	
02, ØR=ØBJ=0330, ØBJ=0331, ØBJ=0332, ØBJ=0333.																														0501526																																																	
02, ØR=ØBJ=0334, ØBJ=0335, ØBJ=0336, ØBJ=0337.																														0501526																																																	
03, ØR=ØBJ=0390, ØBJ=0400, ØBJ=0410, ØBJ=0420.																														0501526																																																	
03, ØR=ØBJ=0440, ØBJ=0450, ØBJ=0460, ØBJ=0470.																														0501526																																																	
04, ØR=ØBJ=0480, ØBJ=0490, ØBJ=0500, ØBJ=0510, ØBJ=0590.																														0501526																																																	
05, ØR=ØBJ=0430.																														0501526																																																	
06, AD=SLIT=Z.																														0501526																																																	
07, AD=SLAN=EN.																														0501526																																																	
99, 50=((01ØR02ØR03ØR04)AD06)NØ(07ØR05)																														0501526																																																	

4.1: Sample Query 1

IRMS SYSTEM

00=SEMINAR: Q25 PHILIPPINES - FEB 1976 LEATHERDALE

01,OR,P=\$CAT=F,\$CAT=H.

02,OR,P=ASPARAGUS.

99

QU,50=01AD02

RETR:LEA 0501525

0501525

0501525

PRINT OUT THESAURUS

\$CAT=F 90036

\$CAT=H 90061

ASPARAGUS 1610

LAST ANSWER N= 32

- 3817 003817 V.01/02 CAT=F60 TYP=J LIT=E
Nakamura, H. (Hokkaido Univ. of Education, Sapporo (Japan)); Watanabe, K.; Mizutani, J. (Hokkaido Univ., Sapporo (Japan). Faculty of Agriculture). The free sugars of green asparagus (*Asparagus officinalis* L.) and leaf buds of taranoki (*Aralia elata* Seem.). (Ja). Journal of the Agricultural Chemical Society of Japan (Japan). (Apr 1974). v. 48(4) p. 275-277. Illus.; 5 ref.; Summary (En); Received for publication 6 Nov 1973.
1610;3290.
- 6556 006556 V.01/03 CAT=F50 TYP=J LIT=E
Kamala, T. (Andhra Univ., Waltair (India)). Cytology of tetrasomic *Brassica campestris* (2n=20+2). (En). Cytologia (Japan). (Jun 1974). v. 39(2) p. 253-255. Illus.; 1 ref.; Summary (En); Received for publication 8 Sep 1972.
1610.
- 6760 006760 V.01/03 CAT=F60 TYP=J
Srivastava, V.K. (Dep. Nutrition, Univ. Guelph (Canada)); Hill, D.C. Glucosinolate hydrolytic products given by *Sinapis alba*, and *Brassica napus* thioglucosidases. (En). Phytochemistry (UK). (1974). v. 13(7) p. 1043-1046. 13 ref.
1610.
- 8853 008853 V.01/04 CAT=F00 TYP=J
Anon. Always willing to experiment. (En). Arable Farming (UK). (1974). v. 1(8) p. 23, 25.
1610;1680/G842.
- 12068 012068 V.01/05 CAT=F00 TYP=J
Anon. Always willing to experiment. (En). Arable Farming (UK). (1974). v. 1(8) p. 23, 25.
1610;1680/G842.
- 12069 012069 V.01/05 CAT=F00 TYP=J
Anseume, D. [The improvement of yield in Asparagus crops]. (Fr). Peut-on ameliorer le rendements dans les aspergeraies. Entreprise Agricole (France). ISSN 0046-2152. (Dec 1974). (no.61) p. 22-23.
1610.
- 12495 012495 V.01/05 CAT=F50 TYP=J
Verma, S.C. (Dep. Agric. Bot., UCW, Aberystwyth (UK)); Rees, H. Nuclear DNA and the evolution of allotetraploid Brassicae. (En). Heredity (UK). (1974). v. 33(1) p. 61-68. 9 ref.
1610.

- 13006 013006 V.01/05 CAT=H20 F40 TYP=J LIT=E
 Gehlker, H. (Regierungspraesidium Stuttgart (Germany, F.R.). Referat Pflanzliche Erzeugung); Scholl, W. (Staatliche Landwirtschaftliche Untersuchungs- und Forschungsanstalt Augustenberg, Karlsruhe (Germany, F.R.)). Ecological factors and problems of cultivation in the case of parasitic root rot of asparagus. (De). Oekologische Faktoren und Anbauprobleme bei der parasitaeren Wurzelfaeule des Spargels. Zeitschrift fuer Pflanzenkrankheiten und Pflanzenschutz (Germany, F.R.). ISSN 0044-3271. (1974). v. 81(7) p. 394-406. 2 tables; 18 ref. Summaries (De, En). 1610.
- 21471 021472 V.01/07 CAT=F00 TYP=J
 Bolt, J. Always a market for asparagus. (En). Arable Farming (UK). (1974). v. 1(12) p. 19, 23. 1610.
- 21472 021473 V.01/07 CAT=F00 TYP=J LIT=KZE
 Graifenberg, A. (Pisa Univ. (Italy). Istituto di Orticoltura e Floricoltura). [Some aspects of cultivation of asparagus in greenhouse without heating]. (It). Alcuni aspetti della coltivazione dell'asparago in serra fredda. Tecnica Agricola (Italy). (Jun 1974). v. 26(3) p. 885-899. 7 graphs; Bibliography (8 ref); Summaries (En, It). Arrived in Mar 1975. Societa Orticola Italiana. 1. Convegno Nazionale sulla tecnica delle coltivazioni ortive in serra. Ragusa (Italy). 22 Nov 1971. 1610/G909.
- 21991 021992 V.01/07 CAT=F30 TYP=J
 Hoof, P. van. Louvain Univ., Louvain-la-Neuve (Belgium). Lab. de Cytogenetique. [In vitro vegetative propagation of asparagus]. (Fr, Nl). Propagation vegetative in vitro de l'asperge. Revue de l'Agriculture (Belgium). ISSN 0035-1296. (Jan 1975). v. 28(1) p. 117-126. 15 ref. Nl. ed.: De vegetative voortplanting van de asperge in vitro, in: Landbouwtijdschrift. 1610.
- 22664 022665 V.01/07 CAT=H10 TYP=J LIT=E
 Talatschian, P. (Giessen Univ. (Germany, F.R.). Inst. fuer Phytopathologie). Development of the population of phytoparasitic nematodes on stubble-plants with special consideration of oil radish. (De). Populationsentwicklung phytoparasaerer Nematoden an Stoppelfruechten unter besonderer Beruecksichtigung von Oelrettich. Zeitschrift fuer Pflanzenkrankheiten und Pflanzenschutz (Germany, F.R.). ISSN 0044-3271. (1974). v. 81(9) p. 538-549. 4 illus., 2 tables; 33 ref. Summaries (De, En). 1570; 0334; 1610.
- 26414 026415 V.01/08 CAT=F00 E70 TYP=J
 Anon. [Asparagus: experiment results and perspectives of Export and Marketing Office [Morocco]]. (Fr). Asperges: bilan et perspectives de l'experience de l'O.C.E. (Office de Commercialisation et d'Exportation). Maroc Agricole (Morocco). (Jan 1975). (no.71) p. 6-9. 1610/G236.
- 26415 026416 V.01/08 CAT=F00 TYP=J LIT=E
 Greiner, H.D. (Hohenheim Univ. (Germany, F.R.). Abt. fuer Mikrobiologie und Phytopathologie). Vegetative propagation of asparagus [Asparagus officinalis L.] by shoot apex culture. (De). Vegetative Vermehrung von Spargel [Asparagus officinalis L.] durch die Kultur von Sprossspitzen. Gartenbauwissenschaft (Germany, F.R.). ISSN 0016-478X.

(1974). v. 39(5-6) p. 549-554. 1 illus., 2 tables; 8 ref.
Summaries (De, En).
1610.

- 28187 028188 V.01/08 CAT=H10 TYP=J LIT=E
Capinera, J.L.; Lilly, J.H. Bionomics and biotic control of the asparagus beetle, *Crioceris asparagi*, in western Massachusetts [*Tetrastichus asparagi*, insect pests]. (En). Environmental Entomology (USA). ISSN 0046-2254. (Feb 1975). v. 4(1) p. 93-96. 10 ref.; Summary (En).
1610/G453.
- 32268 032270 V.01/09 CAT=F23 TYP=J
Antoine, P.P. [Soils classification and mapping: current American approach [Morocco]]. (Fr). Classification et cartographie des sols: l'approche americaine actuelle. Hommes, Terres et Eaux (Morocco). (1974). (no.12) p. 21-45. 3 tables, chart, 6 ref.
1610/G236.
- 32419 032421 V.01/09 CAT=F25 F00 TYP=J
Lubet, E.; Juste, C. (Institut National de la Recherche Agronomique, 33 - Pont-de-la-Maye (France). Station d'Agronomie); Sendrane, P. (Chambre d'Agriculture des Landes, 40 - Mont de Marsan (France)). [Planting density, maintenance nitrogen and potassium fertilization and production of asparagus bed in Landes sand]. (Fr). Densite de plantation, fertilisation d'entretien azotee et potassique et production d'une aspergeraie etablie sur les sables des Landes. Pepinieristes, Horticulteurs, Maraichers (France). ISSN 0031-5087. (Apr 1975). (no.156) p. 25-32. Illus.; graphs; 9 tables; 5 ref.
1610/G906.
- 33071 033073 V.01/09 CAT=F60 F25 F00 TYP=J LIT=E
Tendille, C.; Lecerf, M. (Institut National de la Recherche Agronomique, 78 - Versailles (France). Station de Physiologie Vegetale). Propagation of asparagus (*Asparagus Officinalis* L.). Influence of various factors, especially of mineral nutrition, on the growth of asparagus meristems and deriving plantlets and on the production of adult plants. (Fr). La multiplication vegetative de l'asperge (*Asparagus Officinalis* L.). Action de divers facteurs, en particulier de la nutrition minerale, sur le developpement des meristemes d'asperge, sur la croissance des plantules issues de ces meristemes et sur la production de plantes adultes. Annales de l'Amelioration des Plantes (France). ISSN 0003-4053. (1974). v. 24(3) p. 269-282. Illus.; graphs; tables; 6 ref.; summaries (En, Fr).
1610.
- 33072 033074 V.01/09 CAT=F60 F25 TYP=J
Tendille, C. (Institut National de la Recherche Agronomique, 78 - Versailles (France). Station de Physiologie Vegetale). [Vegetative propagation of asparagus officinalis L. Influence of various factors and of mineral nutrition on asparagus meristems development and on obtaining full-grown asparagus issued of this meristems]. (Fr). La multiplication vegetative de l'asperge (*Asparagus Officinalis* L.). Influence des divers facteurs et en particulier de la nutrition minerale sur le developpement des meristemes d'asperge et sur l'obtention d'asperges adultes issues de ces meristemes. Comptes Rendus des Seances de l'Academie d'Agriculture de France (France). ISSN 0001-3986. (20 Nov 1974). v. 60(15) p. 1172-1179. 2 tables.
1610.

- 33073 033075 V.01/09 CAT=F60 TYP=J LIT=E
Yanagawa, H.; Egami, F. (Mitsubishi-Kasei Inst. of Life Sciences, Tokyo (Japan)). Asparagusate dehydrogenases and lipoyl dehydrogenase from asparagus mitochondria. (En). Biochimica et Biophysica Acta (Netherlands). Enzymology. (19 Apr 1975). v. 384(2) p. 342-352. Summary (En); 25 ref. 1610.
- 33706 033709 V.01/09 CAT=H20 TYP=J LIT=E
Molot, P.M.; Leroux, J.P. (Institut National de la Recherche Agronomique, 84 - Montfavet (France). Station de Pathologie Vegetale). Soil fumigation against Rhizoctonia violacea of Asparagus. (Fr). Efficacite de quelques fumigants contre le Rhizoctone violet de l'Asperge. Revue de Zoologie Agricole et de Pathologie Vegetale (France). ISSN 0035-1806. (1974). v. 73(3) p. 105-109. Illus.; tables; 8 ref.; summary (En). 1610.
- 36790 036793 V.01/10 CAT=F00 TYP=J
Stewart, T.A. Direct drilling brassica crops. (En). Agriculture in Northern Ireland (UK). (1975). v. 50(1) p. 14-20. pl.; tab. 1610/G846.
- 40337 040340 V.01/11 CAT=F30 TYP=J LIT=E
Matsubara, S. (Okayama Univ. (Japan). Faculty of Agriculture); Clore, W.J. (Washington State Univ., Pullman (USA) Coll. of Agriculture). Vegetative propagation of asparagus from lateral buds. (En). Scientific Reports of the Faculty of Agriculture - Okayama University (Japan). (Mar 1974). (no.43) p. 19-26. Illus.; 7 ref.; Summaries (En, Ja); Received for publication 1 Dec 1973. 1610.
- 40670 040674 V.01/11 CAT=F60 TYP=J
Bui Dang Ha, D. (Laboratoire de Physiologie Pluricellulaire, 91190 Gif-sur-Yvette (France)); Norreel, B.; Masset, A. Regeneration of Asparagus officinalis L. through callus cultures derived from protoplasts. (En). Journal of Experimental Botany (UK). (1975). v. 26(91) p. 263-270. 11 ref. 1610.
- 40994 040998 V.01/11 CAT=H10 TYP=J LIT=E
Tamaki, G.; Moffitt, H.R.; Turner, J.E. The influence of perennial weeds on the abundance of the redbacked cutworm [Euxoa ochrogaster] on asparagus [insect pests, control]. (En). Environmental Entomology (USA). ISSN 0046-2254. (15 May 1975). v. 4(2) p. 274-276. 2 ref.; Summary (En). 1610.
- 43211 043217 V.01/11 CAT=Q10 F60 TYP=J LIT=E
Crivelli, G.; Bonocore, C. (Istituto Sperimentale per la Valorizzazione Tecnologica dei Prodotti Agricoli, Milan (Italy)). [Nominal duration of deep freezing and structural changes in vegetal products, [7]. Observations on asparagus (Asparagus officinalis L.)]. (It). Durata nominale di congelazione e modificazioni strutturali nei prodotti vegetali, [7]. Osservazioni sull'asparago (Asparagus officinalis L.). Freddo (Italy). (Feb 1975). v. 29(1) p. 3-8. 14 illus. Summary (It). Arrived in Apr. 1610.

- 44327 044333 V.01/12 CAT=F00 TYP=J
Anon. [Asparagus]. (Fr). L'asperge. Voix des Cultures.
Fruits, Legumes, Tabacs (France). ISSN 0042-8361. (Mar
1975). (no.335) p. 23-24.
1610.
- 44997 045003 V.01/12 CAT=F30 TYP=J LIT=E
Aynsley, J.S.; Marston, M.E. (Nottingham Univ. (UK).
Dept. of Agriculture and Horticulture). Aerial plantlet
formation in *Asparagus officinalis* L. (En). *Scientia
Horticulturae* (Netherlands). (Jun 1975). v. 3(2) p. 149-155.
Summary (En); 9 ref.
1610.
- 44998 045004 V.01/12 CAT=F30 F60 TYP=J LIT=ZE
Dore, C. (INRA Centre National de Recherches
Agronomiques, 78 -Versailles (France). Station de Genetique
et d'Amelioration des Plantes). Clonal multiplication of
asparagus through in vitro culture : its use in breeding.
(Fr). La multiplication clonale de l'asperge (*Asparagus
officinalis* L.) par culture in vitro : son utilisation en
selection. *Annales de l'Amelioration des Plantes* (France).
ISSN 0003-4053. (1974). v. 25(2) p. 201-224. Illus.; tables;
bibliography p. 221-223; summaries (En, Fr).
1610.
- 45124 045130 V.01/12 CAT=F50 F60 TYP=J LIT=E
Iwasaki, F. (Tokyo Univ. of Education (Japan). Faculty of
Agriculture). Histochemical observation on embryo
development in *Brassica* varieties. (Ja). *Japanese Journal of
Breeding* (Japan). (Feb 1975). v. 25(1) p. 46-51. 19 ref.;
Summary (En); Received for publication 17 Aug 1974.
1610.
- 45373 045379 V.01/12 CAT=F60 F00 TYP=J LIT=E
Hunault, G. (Paris-7 Univ., 75 (France). Lab. de Geologie
Appliquee). Influence of various media on the growth of
Asparagus tissues (*Asparagus officinalis* L.) cultivated in
vitro. (Fr). Influence de differents milieux de culture sur
la croissance de tissus d'asperge (*Asparagus officinalis* L.)
cultives in vitro. *Comptes Rendus Hebdomadaires des Seances
de l'Academie des Sciences. Serie D* (France). ISSN
0001-4036. (16 Jun 1975). v. 280(23) p. 2661-2664. Illus.;
14 ref.; summaries (En, Fr).
1610.
- 45374 045380 V.01/12 CAT=F60 F50 TYP=J LIT=E
Paliwal, N.; Barma, B.; Paliwal, G.S. (University of
Delhi (India). Department of Botany). A comparative study of
the effect of morphactin and Niagara on the leaf epidermis
(*Brassica campestris*, *Vicia faba*, *Papaver somniferum*). (En).
Biologia Plantarum (Czechoslovakia). ISSN 0006-3134. (May
1975). v. 17(3) p. 189-197. 2 illus., 2 tables; 9 ref.;
Summaries (Cs, En).
1610;1420;2710.

END OF REQUEST

4.2: Sample Query 2

IRMS SYSTEM

00=SEMINAR: Q26 PHILIPPINES - FEB 1976 LEATHERDALE	RETR:LEA 0501526
01,OR=OBJ=0300,OBJ=0310,OBJ=0311,OBJ=0312.	0501526
01,OR=OBJ=0313,OBJ=0314,OBJ=0315,OBJ=0329.	0501526
02,OR=OBJ=0330,OBJ=0331,OBJ=0332,OBJ=0333.	0501526
02,OR=OBJ=0334,OBJ=0335,OBJ=0336,OBJ=0337.	0501526
03,OR=OBJ=0390,OBJ=0400,OBJ=0410,OBJ=0420.	0501526
03,OR=OBJ=0440,OBJ=0450,OBJ=0460,OBJ=0470.	0501526
04,OR=OBJ=0480,OBJ=0490,OBJ=0500,OBJ=0510,OBJ=0590.	0501526
05,OR=OBJ=0430.	0501526
06,AD=\$LIT=Z.	0501526
07,AD=\$LAN=EN.	0501526
99	
QU,50=((01OR02OR03OR04)AD06)NO(07OR05)	

TEMPORARY ANSWER N= 12 QU=01,02,03,04,06

- 3457 003457 V.01/02 CAT=F30 TYP=J LIT=ZE
Takagi, Y. (Institute of Radiation Breeding, Ohmiya, Ibaraki (Japan)). Studies on varietal differences of radiosensitivity in soybean. (Ja). Bulletin of the Institute of Radiation Breeding (Japan). Acta Radiobotanica et Genetica. (Mar 1974). (no.3) p. 45-87. Illus.; 50 ref.; Summary (En).
0336.
- 6304 006304 V.01/03 CAT=F25 TYP=B LIT=NUZE
Anunciado, I.S. University of the Philippines at Los Banos, College, Laguna. Thesis (M.S. Horticulture, Plant Nutrition). Coconut button and fruit abscission in relation to palm nutrition. (En). College, Laguna (Philippines). UPLB. 1974. 84 leaves. 21 illus. 21 tables. Bibliography (80 ref.) Summaries (En).
0311.
- 6549 006549 V.01/03 CAT=F50 F70 TYP=J LIT=ZE
Maeda, K. (Kochi Univ., Nankoku (Japan). Faculty of Agriculture). Floral morphology and its application to the botanical classification of the peanut cultivars, Arachis hypogaea L. (Ja). Memoirs of the Faculty of Agriculture - Kochi University (Japan). (1974). (no.23) p. 1-53+1. Illus., 3 plates; 138 ref.; Summary (En).
0332.
- 8814 008814 V.01/04 CAT=F00 TYP=J LIT=ZE
Jacoboni, N. (Perugia Univ. (Italy). Istituto di Coltivazioni Arboree). [How to valorize and qualify olive oil production]. (It). Come valorizzare e qualificare la produzione dell'olio d'oliva. Agricoltura (Italy). ISSN 0007-1237. (Nov 1974). v. 23(11) p. 52-59. 22 ref. Summary (It).
0313/G909.
- 9030 009030 V.01/04 CAT=F22 F60 TYP=B LIT=UZEV
Supa-Udomlerk, B. University of the Philippines at Los Banos, College, Laguna. Thesis (Ph. D in Soil Science). Manganese-phosphorus interactions in soils and in soybean (Glycine max merrill). (En). College, Laguna (Philippines). UPLB. 1974. 110 leaves. 20 illus., 44 tables; 78 ref. Summaries (En); *UPLB.
0336/G732.
- 11873 011873 V.01/05 CAT=E70 TYP=B LIT=Z
Marloic, M. (Institut National de la Recherche Agronomique, 75 - Paris (France). Station Centrale d'Economie et de Sociologie Rurales). [The world market of oil cakes. A new international division of work]. (Fr). Le

marche mondial des tourteaux oleagineux : une nouvelle division internationale du travail. Paris (France). INRA. Feb 1974. 98 p. Bibliography.

0300.

- 28624 028625 V.01/08 CAT=H60 TYP=B LIT=UZEV
Díaz Miranda, J.D. Universidad de Concepcion, Chillan (Chile). Escuela de Agronomia. Tesis (Ing. Agr.). [Study of weed competition in two varieties of soybeans (Glycine max L. Merrill)]. (Es). Estudio de competencia de malezas en dos variedades de soya (Glycine max L. Merrill). Chillan (Chile). UC. 1974. 66 p. Bibliography p. 60-66 (65 ref.) Summaries (En, Es) *Biblioteca Instituto Nacional de Investigaciones Agricolas, Santiago (Chile).
0336.
- 32400 032402 V.01/09 CAT=F25 TYP=B LIT=UZEV
Khawaja, Akhtar-ul Islam. University of the Philippines at Los Banos, College, Laguna. Thesis (Ph.D. in Soil Science). Assessing fertility status of soils deposited by flood, raising soybean, Glycine max as test crop. (En). College, Laguna (Philippines). UPLB. 1975. 159 leaves. 24 illus., 20 tables; Bibliography (89 ref.) Summaries (En) *UPLB Library (Philippines).
0336.
- 32592 032594 V.01/09 CAT=F30 TYP=B LIT=Z
Harries, H.C.; Hardon, J.J. Oil crops. (En, Es, Fr). Leon, J. (ed.). FAO, Rome (Italy). Handbook of plant introduction in tropical crops. Rome (Italy). FAO. 1974. p. 65-89.
FAO Agricultural Studies (FAO). Etudes Agricoles de la FAO (FAO) - FAO Estudios Agropecuarios (FAO).
FAO-ACCESS.No.--28883; Bibliography, vp. (63 ref.).
0311;0312.
- 35699 035702 V.01/09 CAT=Q00 TYP=B LIT=UZV
Deroanne, C. Faculte des Sciences Agronomiques de l'Etat, Gembloux (Belgium). These (Docteur en Sciences Agronomiques). [Contribution to the study of glycerides crystallization. Application to palm-oil fractionation]. (Fr). Contribution a l'etude de la cristallisation des glycerides. Application au fractionnement de l'huile de palme. Gembloux (Belgium). Author. 1975. 301 p. Bibliography: 220 ref. *Bibliotheque Centrale, Faculte des Sciences Agronomiques de l'Etat, Gembloux (Belgium).
0312.
- 37238 037241 V.01/10 CAT=F60 F25 TYP=B LIT=UZEV
Margate, R.Z. University of the Philippines at Los Banos, College, Laguna. Thesis (M.S. in Horticulture). Nutrient composition and growth of pineapple and coconut intercrops as influenced by nitrogen, phosphorous and potassium. (En). College, Laguna (Philippines). UPLB. Apr 1975. 85 leaves. 5 illus., 22 tables; Bibliography (108 ref.) Summaries (En) *UPLB Library (Philippines).
1126;0311.
- 39834 039837 V.01/11 CAT=F00 TYP=R LIT=KZV
FAO, Rome (Italy). Commodities and Trade Div. Supplement to bibliography on jute, kenaf and allied fibres. (En, Es, Fr). Committee on Commodity Problems. Intergovernmental Group on Jute, Kenaf and Allied Fibres - 10. Session. Rome (Italy). 21 May 1975. Supplement a la bibliographie sur le jute, le kenaf et les fibres apparentees. Suplemento a la bibliografia sobre el yute, kenaf y fibras afines. FAO-ESC--CCP-JU-75/6. Mar 1975. 22 p.

FAO-ACCESS.No.--29434.
0460;0470.

LAST ANSWER N= 6
 3457 6549 8814 11873 28624 35699
END OF REQUEST

4.3: Printout of RNFILE for Query 1 and Query 2

RN	QID	RET
003817	Q25	LEA
006556	Q25	LEA
006760	Q25	LEA
008853	Q25	LEA
012068	Q25	LEA
012069	Q25	LEA
012495	Q25	LEA
013006	Q25	LEA
021472	Q25	LEA
021473	Q25	LEA
021992	Q25	LEA
022665	Q25	LEA
026415	Q25	LEA
026416	Q25	LEA
028188	Q25	LEA
032270	Q25	LEA
032421	Q25	LEA
033073	Q25	LEA
033074	Q25	LEA
033075	Q25	LEA
033709	Q25	LEA
036793	Q25	LEA
040340	Q25	LEA
040674	Q25	LEA
040998	Q25	LEA
043217	Q25	LEA
044333	Q25	LEA
045003	Q25	LEA
045004	Q25	LEA
045130	Q25	LEA
045379	Q25	LEA
045380	Q25	LEA
003457	Q26	LEA
006304	Q26	LEA
006549	Q26	LEA
008814	Q26	LEA
009030	Q26	LEA
011873	Q26	LEA
028625	Q26	LEA
032402	Q26	LEA
032594	Q26	LEA
035702	Q26	LEA
037241	Q26	LEA
039837	Q26	LEA

APPENDIX 5: SOME USEFUL LAWS OF BOOLEAN ALGEBRA

1. $a \subset b \equiv a \cap b = a$
2. $a \subset b \equiv a \cup b = b$
3. $a \cap b \equiv b \cap a$
4. $a \cap (b \cap c) \equiv (a \cap b) \cap c \equiv a \cap b \cap c$
5. $a \cup b \equiv b \cup a$
6. $a \cup (b \cup c) \equiv (a \cup b) \cup c = a \cup b \cup c$
7. $a \cap \bar{a} = 0$ (no documents retrieved)
8. $a \cup \bar{a} = I$ (all documents retrieved)
9. $\bar{a} \cup \bar{b} \equiv \overline{(a \cap b)}$
10. $\bar{a} \cap \bar{b} \equiv \overline{(a \cup b)}$
11. $\overline{(a \cup \bar{b})} \equiv \bar{a} \cap b$
12. $\overline{(\bar{a} \cup b)} \equiv a \cap \bar{b}$
13. $\overline{(a \cap \bar{b})} \equiv \bar{a} \cup b$
14. $a \cup (a \cap b) \equiv a$
15. $\bar{a} \cap \bar{b} \cap \bar{c} \cap \dots \equiv \overline{(a \cup b \cup c \cup \dots)}$
16. $(a \cup b) \cap c \equiv (a \cap c) \cup (b \cap c)$

Symbols used: \cup logical "or"

\cap logical "and"

$\bar{}$ (overscore) logical complement
(i.e. the subset of documents
where a descriptor is not
present)

\subset "implies" (subset-symbol)

\equiv "is equivalent to"

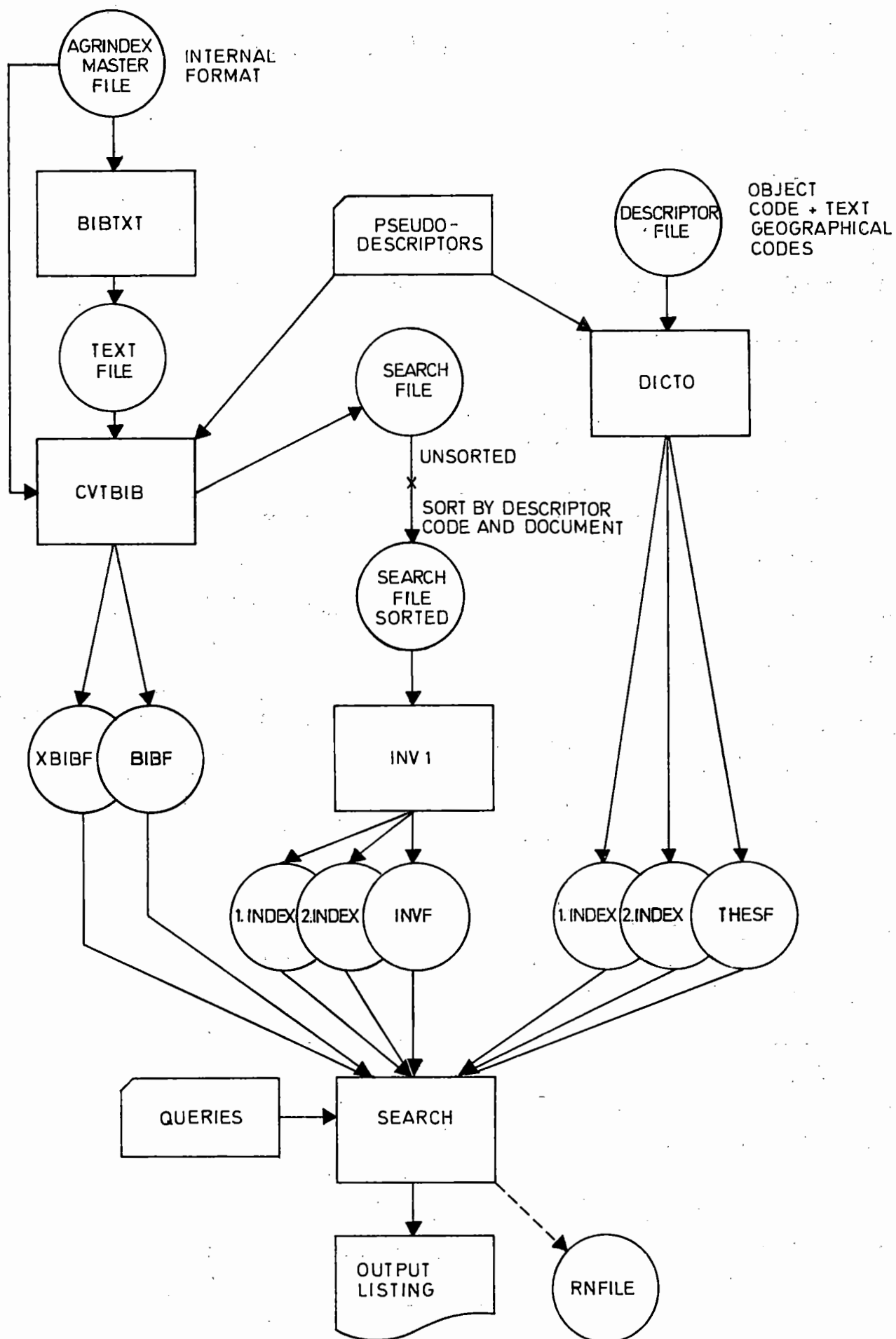
APPENDIX 6: LIST OF ERROR MESSAGES

<u>Message</u>	<u>Description</u>	<u>Action taken by program</u>
CARD CODE IS WRONG	Columns 74-75 do not contain '05'	The card is ignored. This may, however, generate other error messages
NOT IDENTIFICATION LINE	The first card is not a title card (ID=00)	The query is not processed
SEQUENTIAL ERROR IN REQUEST	The cards are out of sequence. Either the group numbers are not in ascending order or two queries have the same query number (col. 76-80)	The query is not processed
MORE THAN FOUR LINES IN GROUP xx	A group may not consist of more than 4 cards	The excess card(s) are ignored and processing continues (the descriptors on the excess cards will not participate in the search)
MORE THAN TWO LINES IN QLINE	The number of query cards may not exceed two	The excess card(s) are ignored and processing continues
GROUP NUMBER xx IS WRONG	The group number must be between 01 and 15	The card is ignored
THERE IS NO QLINE	The query card is missing	The query is not processed
QLINE IS WRONG	The query card contains a format or syntax error (e.g unbalanced parenthesis)	Only the correct portion of the query card is processed (if possible)
GROUP USED SEVERAL TIMES IN QLINE	A given group number may not be used more than once in the query. Define a new group number with the same descriptors and resubmit the query	Only the correct portion of the query card is processed

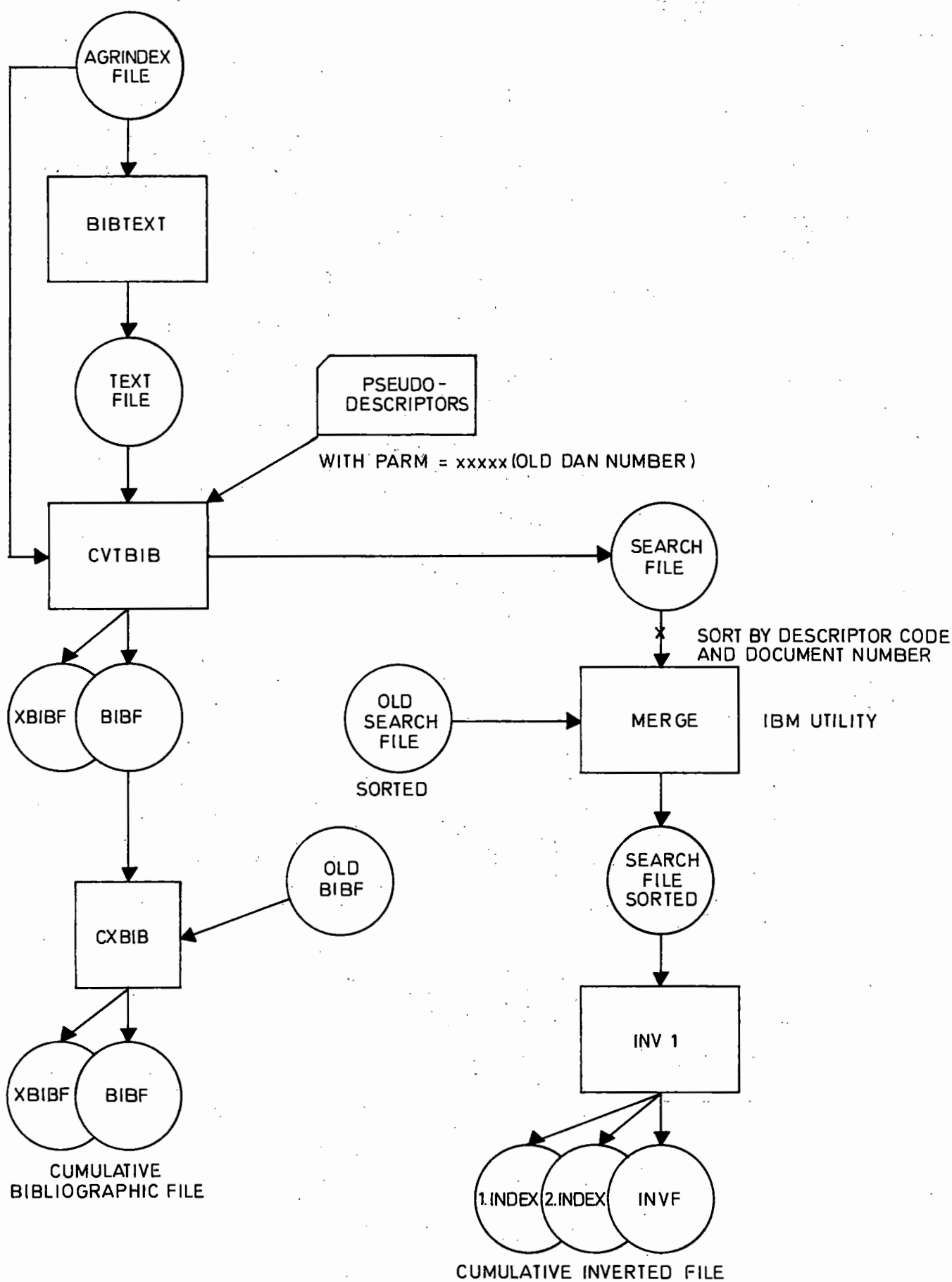
<u>Message</u>	<u>Description</u>	<u>Action taken by program</u>
GROUP NUMBER IS WRONG IN QLINE	A group number used in the query is not between 01 and 15	Only the correct portion of the query card is processed (if possible)
ERRONEOUS LOGICAL CONNECTOR IN QLINE	Either a wrong logical operator has been used (i.e. other than AD, ØR, or NØ), or a level of paren- thesis contains two different logical operators. For example the following expres- sion would produce this message: 01AD02ØR03 The above should be corrected to either of the following (which- ever applies): (01AD02)ØR03 or 01AD(02ØR03)	Only the correct portion of the query card is processed
UNDEFINED GROUP IN QLINE	A group number used in the query has not been defined	Only the correct portion of the query card is processed
ERRONEOUS LOGICAL CONNECTOR IN GROUP xx	The descriptor cards may only contain one of the logical operators AD or ØR	The query is not processed
GROUP FORMAT xx IS WRONG	Format error in a descriptor card (the correct format is des- cribed in Section <u>6.2</u> of this report)	The query is not processed
DESCRIPTORS WRONG OR UNKNOWN IN GROUP xx	The descriptor card xx contains a des- criptor longer than 20 characters, or the last descriptor in the card is not followed by a period	The query is not processed

<u>Message</u>	<u>Description</u>	<u>Action taken by program</u>
x DESCRIPTORS WRONG OR UNKNOWN	Descriptor x is not in the IRMS Thesaurus	The query is not processed
MORE THAN TEN DESCRIPTORS IN GROUP xx	A descriptor group may not contain more than 10 descriptors. Split the group into two or more different groups	The excess descriptors are ignored and processing continues
DNR nnnnn UNKNOWN	The descriptor with descriptor number nnnnn has not been used in indexing the documents in the data base. This has no effect on the query processing. In order to find out which descriptor causes this message, use the thesaurus print option (see Section 6.2) to receive the list of descriptors and des- criptor codes.	The query is processed correctly

APPENDIX 7.1: GENERATION OF IRMS FILES AND SEARCH PROGRAM



APPENDIX 7.2: GENERATION OF RETROSPECTIVE IRMS FILES



APPENDIX 8: JOB CONTROL STATEMENTS

The following printouts show the job control statements used at the AGRIS Input Unit for the monthly retrieval services.

Three jobs are to be executed in sequence, whereby no permanent disk space is used. The data files are kept as a multi-file volume on magnetic tape (reel number 001471).

Job 1 XFES30 generates the AGRIS/IRMS Thesaurus and its two indexes.

Job 2 XFES31 generates the bibliographic file with its index and the inverted file with its two indexes.

The result of Job 1 and Job 2 is stored as 8 files on one magnetic tape (IEBGENER steps).

Job 3 XFES32 restores the disk files (program INALLOC) from magnetic tape and executes the SEARCH program.

Program INALLOC is equivalent to 8 IEBGENER steps however faster since 1 step only is executed.

Generation of AGRIS/IRMS Thesaurus

```
//XFES30 JOB (W2631,FE,T),537-SCHMID,
// TYPRUN=SCAN,PROFILE='ETIME=0,CTIME=0,RUN=TEST'
//JOB LIB DD DSN=XIA.LINKLIB,DISP=SHR
//DICT EXEC PGM=INDICTO
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//OMFILE DD DSN=&&THESF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=1125),SPACE=(TRK,(50,20),RLSE)
//X1OFILE DD DSN=&&X1THESF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=150),SPACE=(TRK,(1,1),RLSE)
//X2OFILE DD DSN=&&X2THESF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=150),SPACE=(TRK,(1,1),RLSE)
//OPFILE DD SYSOUT=A,DCB=(RECFM=F,BLKSIZE=133)
//INISAT DD DSN=XIA.PSEUDO,DISP=SHR
//INISTH DD DSN=XIA.AGTHF,DISP=SHR
//THESF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&THESF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.THESF,DISP=(,KEEP),UNIT=2400,
// VOL=(,RETAIN,SER=001471),DCB=(RECFM=F,BLKSIZE=1125)
//X1THESF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&X1THESF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.X1THESF,DISP=(,KEEP),UNIT=2400,LABEL=2,
// VOL=(,RETAIN,REF=*.THESF.SYSUT2),DCB=(RECFM=F,BLKSIZE=150)
//X2THESF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&X2THESF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.X2THESF,DISP=(,KEEP),UNIT=2400,LABEL=3,
// VOL=(,RETAIN,REF=*.THESF.SYSUT2),DCB=(RECFM=F,BLKSIZE=150)
//
```

Generation of Bibliographic and Inverted File

```
//XFES31 JOB (W2631,FE,T),537-SCHMID,
// TYPRUN=SCAN,PROFILE='ETIME=0,CTIME=0,RUN=TEST'
//JOB LIB DD DSN=SYS1.LINKTEST,DISP=SHR
//BIB EXEC PGM=FEBIBTXT,TIME=50
//SYSPRINT DD SYSOUT=A
//ATMF DD DSN=XIA.AGX(0),DISP=OLD
//TEXTF DD DSN=&&TEXTF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,BLKSIZE=6100,LRECL=61),SPACE=(TRK,(300,50),RLSE)
//SYSUDUMP DD SYSOUT=A
//CVTBIB EXEC PGM=FECVTBIB,TIME=30
//SYSPRINT DD SYSOUT=A
//ATMF DD DSN=XIA.AGX(0),DISP=OLD
//ATMXF DD DSN=&&TEXTF,DISP=(OLD,DELETE)
//BIBF DD DSN=&&BIBF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=1300),SPACE=(TRK,(300,50),RLSE)
//XBIBF DD DSN=&&XBIBF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,BLKSIZE=6000,LRECL=6),SPACE=(TRK,(20,20),RLSE)
//ATFIL DD DSN=XIA.PSEUDO,DISP=SHR
//DRSRCH DD DSN=&&DRSRCH,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,BLKSIZE=6000,LRECL=6),SPACE=(TRK,(100,50),RLSE)
//LIST DD SYSOUT=A
//SORT EXEC PGM=IGHRC000
//SYSOUT DD SYSOUT=A
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD SPACE=(TRK,100,,CONTIG),UNIT=SYSDA
//SORTWK02 DD SPACE=(TRK,100,,CONTIG),UNIT=SYSDA
//SORTWK03 DD SPACE=(TRK,100,,CONTIG),UNIT=SYSDA
//SORTIN DD DSN=&&DRSRCH,DISP=(OLD,DELETE)
//SORTOUT DD DSN=&&DRSRCH1,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,BLKSIZE=6000,LRECL=6),SPACE=(TRK,(100,50),RLSE)
//SYSIN DD *
//IRINV EXEC PGM=IRINV,TIME=10
//IDFILE DD DSN=&&DRSRCH1,DISP=(OLD,DELETE)
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//OMFILE DD DSN=&&INVF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=2325),SPACE=(TRK,(100,20),RLSE)
//X1OFILE DD DSN=&&X1INVF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=1400),SPACE=(TRK,(1,1),RLSE)
//X2OFILE DD DSN=&&X2INVF,DISP=(,PASS),UNIT=SYSDA,
// DCB=(RECFM=F,BLKSIZE=280),SPACE=(TRK,(10,5),RLSE)
//INV EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&INVF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.INVF,DISP=(,KEEP),UNIT=2400,LABEL=4,
// VOL=(,RETAIN,SER=001471),DCB=(RECFM=F,BLKSIZE=2325)
//X1INV EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&X1INVF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.X1INVF,DISP=(,KEEP),UNIT=2400,LABEL=5,
// VOL=(,RETAIN,REF=*.INV.SYSUT2),DCB=(RECFM=F,BLKSIZE=1400)
//X2INV EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&X2INVF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.X2INVF,DISP=(,KEEP),UNIT=2400,LABEL=6,
// VOL=(,RETAIN,REF=*.INV.SYSUT2),DCB=(RECFM=F,BLKSIZE=280)
//BIBF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&BIBF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.BIBF,DISP=(,KEEP),UNIT=2400,LABEL=7,
// VOL=(,RETAIN,REF=*.INV.SYSUT2),DCB=(RECFM=F,BLKSIZE=13000)
```

```
//XBIBF EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DSN=&&XBIBF,DISP=(OLD,DELETE)
//SYSUT2 DD DSN=XFE.XBIBF,DISP=(,KEEP),UNIT=2400,LABEL=8,
// VOL=(,RETAIN,REF=*.INV.SYSUT2),DCB=(RECFM=FB,BLKSIZE=6000,LRECL=6)
//
```

//

Search Program Execution

```

//XFES32 JOB (W2631,FE,T),537-SCHMID,
// TYPRUN=SCAN,PROFILE='ETIME=0,CTIME=0,RUN=TEST'
//ONLYSTEP EXEC XIRZSRCH
XXXIRZ0003 PROC                                00000010
XXCOPY8 EXEC PGM=INALLOC                        00000020
//COPY8.F1 DD DSN=XFE.THESF,VOL=SER=001471
X/F1 DD DSN=XIRS.THESF,DISP=OLD,UNIT=2400,LABEL=1, 00000030
XX VOL=(PRIVATE,RETAIN,SER=001167),DCB=(RECFM=F,BLKSIZE=1125) 00000040
XXF01 DD DSN=&&THESF,DISP=(,PASS),UNIT=SYSDA, 00000050
XX DCB=*.F1,SPACE=(TRK,(100,50),RLSE) 00000060
//COPY8.F2 DD DSN=XFE.X1THESF
X/F2 DD DSN=XIRS.X1THESF,DISP=OLD,UNIT=2400,LABEL=2, 00000070
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=150) 00000080
XXF02 DD DSN=&&X1THES,DISP=(,PASS),UNIT=SYSDA, 00000090
XX DCB=*.F2,SPACE=(TRK,(100,50),RLSE) 00000100
//COPY8.F3 DD DSN=XFE.X2THESF
X/F3 DD DSN=XIRS.X2THESF,DISP=OLD,UNIT=2400,LABEL=3, 00000110
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=150) 00000120
XXF03 DD DSN=&&X2THES,DISP=(,PASS),UNIT=SYSDA, 00000130
XX DCB=*.F3,SPACE=(TRK,(100,50),RLSE) 00000140
//COPY8.F4 DD DSN=XFE.INVF
X/F4 DD DSN=XIRS.INVF1,DISP=OLD,UNIT=2400,LABEL=4, 00000150
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=2325) 00000160
XXF04 DD DSN=&&INVF1,DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(100,50),RLSE), 00000170
XX DCB=*.F4 00000180
//COPY8.F5 DD DSN=XFE.X1INVF
X/F5 DD DSN=XIRS.X1INVF1,DISP=OLD,UNIT=2400,LABEL=5, 00000190
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=1400) 00000200
XXF05 DD DSN=&&X1INVF,DISP=(,PASS),UNIT=SYSDA, 00000210
XX DCB=*.F5,SPACE=(TRK,(100,50),RLSE) 00000220
//COPY8.F6 DD DSN=XFE.X2INVF
X/F6 DD DSN=XIRS.X2INVF1,DISP=OLD,UNIT=2400,LABEL=6, 00000230
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=280) 00000240
XXF06 DD DSN=&&X2INVF,DISP=(,PASS),UNIT=SYSDA, 00000250
XX DCB=*.F6,SPACE=(TRK,(100,50),RLSE) 00000260
//COPY8.F7 DD DSN=XFE.BIBF
X/F7 DD DSN=XIRS.BIBF,DISP=OLD,UNIT=2400,LABEL=7, 00000270
XX VOL=REF=*.F1,DCB=(RECFM=F,BLKSIZE=13000) 00000280
XXF07 DD DSN=&&BIBF,DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(100,50),RLSE), 00000290
XX DCB=*.F7 00000300
//COPY8.F8 DD DSN=XFE.XBIBF
X/F8 DD DSN=XIRS.XBIBF,DISP=OLD,UNIT=2400,LABEL=8, 00000310
XX VOL=REF=*.F1,DCB=(RECFM=FB,LRECL=6,BLKSIZE=6000) 00000320
XXF08 DD DSN=&&XBIBF,DISP=(,PASS),UNIT=SYSDA,SPACE=(TRK,(100,50),RLSE), 00000330
XX DCB=*.F8 00000340
XXSEARCH EXEC PGM=IRSEARCH,TIME=100 00000350
XXSYSPRINT DD SYSOUT=A 00000360
XXSYSUDUMP DD SYSOUT=A 00000370
XXIFILE DD DSN=&&THESF,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F1 00000380
XXX1IFILE DD DSN=&&X1THES,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F2 00000390
XXX2IFILE DD DSN=&&X2THES,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F3 00000400
XXIMFILE DD DSN=&&INVF1,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F4 00000410
XXIFX1I DD DSN=&&X1INVF,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F5 00000420
XXIFX2I DD DSN=&&X2INVF,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F6 00000430
XXBIBF DD DSN=&&BIBF,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F7 00000440
XXXBIBF DD DSN=&&XBIBF,UNIT=SYSDA,DISP=(OLD,DELETE),DCB=*.COPY8.F8 00000450
XXCARDF DD DDNAME=SYSIN 00000460
//SEARCH.OPFILE DD DEST=CENTRAL,SYSOUT=G
X/OPFILE DD SYSOUT=(G,,3PLY),DCB=(RECFM=FA,BLKSIZE=133) 00000470
XXTRSIT DD UNIT=SYSDA,SPACE=(TRK,20),DCB=(RECFM=F,BLKSIZE=1500) 00000480
XXWRKFIL DD UNIT=SYSDA,SPACE=(TRK,20),DCB=(RECFM=F,BLKSIZE=3500) 00000490
//SEARCH.RNFILE DD DUMMY,DCB=(RECFM=F,BLKSIZE=16)
X/RNFILE DD DSN=XIR.RNF,DISP=OLD 00000500
//SEARCH.SYSIN DD *
XXSORTRN EXEC PGM=IGHRC000 00000510

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XXSYSOUT DD SYSOUT=A	00000520
XXSORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR	00000530
XXSORTWK01 DD UNIT=SYSDA,SPACE=(TRK,20,,CONTIG)	00000540
XXSORTWK02 DD UNIT=SYSDA,SPACE=(TRK,20,,CONTIG)	00000550
XXSORTWK03 DD UNIT=SYSDA,SPACE=(TRK,20,,CONTIG)	00000560
XXSORTWK04 DD UNIT=SYSDA,SPACE=(TRK,20,,CONTIG)	00000570
//SORTRN.SORTIN DD DUMMY,DCB=(RECFM=F,BLKSIZE=16)	
X/SORTIN DD DSN=XIR.RNF,DISP=OLD	00000580
//SORTRN.SORTOUT DD DUMMY,DCB=(RECFM=F,BLKSIZE=16)	
X/SORTOUT DD DSN=XIR.RNF,DISP=OLD	00000590
XXSYSIN DD DSN=SYS1.COMMON(INSORT53),DISP=SHR	00000600
XXRNLIST EXEC PGM=INRNLIST	00000610
XXSYSPRINT DD SYSOUT=A	00000620
XXSYSUDUMP DD SYSOUT=A	00000630
//RNLIST.RNF.ILE DD DUMMY,DCB=(RECFM=F,BLKSIZE=16)	
X/RNF.ILE DD DSN=XIR.RNF,DISP=SHR	00000640
//RNLIST.LIST DD SYSOUT=A	
X/LIST DD SYSOUT=(G,,3PLY)	00000650
//	//