# REPORT OF THE WORKSHOP ON PRODUCTION AND UTILIZATION OF THE COMPUTER BASED INFORMATION SYSTEMS INIS AND INC(NSA)

NORDIC ATOMIC LIBRARIES JOINT SECRETARIAT

AB ATOMENERGI, STUDSVIK, SWEDEN, MAY 27 - 28, 1971

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## INTRODUCTION

The Nordic Atomic Libraries Joint Secretariat supported a Swedish proposal to arrange a workshop on the participation in the production of INIS and INC(NSA) and the utilization of the magnetic tapes from INC(NSA) and INIS. The workshop was intended for people working with input to INIS and NSA or with selective dissemination of information (SDI) based on magnetic tapes. Participants were invited from Denmark, Finland, Norway and Sweden, and the workshop was held at AB Atomenergi, Studsvik, Sweden, May 27 - 28, 1971. For each session a rapporteur was appointed and their contributions are put together with papers presented at the workshop.

## PARTICIPANTS

| | |
|---|---|
| Ahlin, Ingrid | AB Atomenergi, Sverige |
| Brygmann, Hans | Atomenergikommissionen, Danmark |
| Hermanson-Snickars, Folke | AB Atomenergi, Sverige |
| Illukka, Erkki | Teknillisen Korkeakoulun Kirjasto, Finland (Helsinki University of Technology Library) |
| Katajapuro, Leena | Teknillisen Korkeakoulun Kirjasto, Finland (Helsinki University of Technology Library) |
| Lindh, Rolf | AB Atomenergi, Sverige |
| Lindhe, Sören | AB Atomenergi, Sverige |
| Nyström, Anders | AB Atomenergi, Sverige |
| Ottosson, Lena | Biomedicinska Dokumentations-centralen, Sverige |
| Wood, Iain | Institutt for Atomenergi, Norge |

## OBSERVERS

| | |
|---|---|
| Gembel, Bengt | AB Atomenergi, Sverige |
| Hanski, Riitta | AB Atomenergi, Sverige |
| Johansson, Gerd | AB Atomenergi, Sverige |
| Larsson, Siv | AB Atomenergi, Sverige |
| Lindberg, Anita | AB Atomenergi, Sverige |
| Lundgren, Margit | AB Atomenergi, Sverige |

## PREPARATION OF INPUT TO INIS AND INC(NSA)

### Scanning of nuclear literature

Moderator: Sören Lindhe

Rapporteur: Folke Hermanson-Snickars

Procedures for coverage in the four nordic countries were described for the following two groups of items.

1. Journals and Serials
2. Reports and Theses

### Journals and Serials

#### Finland

About 25 selected journals are read and abstracted before they are filed in the library. About 10 minutes per issue are used if there are no items of interest, otherwise, about 30 minutes per abstract. Most of the journals were paid for. The Medical Central Library scans additional journals.

#### Norway

Journals in the NSA list (about 20 journals) are scanned. Some changes in the list have been suggested to DTIE. Journals are processed before they are shown in the library. Once a month the University Library is visited to scan another 50 journals and serials. The publications list Norsk Bokhandler Tidene is scanned for serials and books. Journals are paid for. Items of interest have been found in journals in geology, building, shipbuilding and electrotechnics.

#### Denmark

A paper was distributed with statistics for the Danish input to NSA and INIS (see appendix 1). There are about 50 Danish journals on the NSA-list. Many are medical journals which are not subscribed to by Risö because they are covered by a medical specialist at the University Library in Copenhagen by agreement.

Journals are distributed regularly to two subject specialists at Risö

(not members of the library staff) before they are circulated in the library.

One subject specialist is a chemist and the other one a physicist. Articles in Danish are only included if they refer to original Danish research.

#### Sweden

Reference was made to a paper presented at the symposium "Handling of nuclear information" 1970. (Nyström A: Decentralized input of bibliographic data. Experiences in a small country - Sweden. Handling of nuclear information. Proc. of a symp. Vienna, 16 - 20 Febr. 1970. IAEA, Vienna 1970, p. 631. (IAEA-SM-128/22)). See also appendix 2.

In the initial phase of INIS, publishers were asked to supply the library with one copy of their journals. The result was not promising. At present about 75 journals and serials are scanned. To cover medicine and agriculture, the library in 1970 - 71 subscribed to journals for 5.000 Sw. Cr.

An agreement was made with the Biomedical Documentation Center (BMDC) at Karolinska Institutet in Stockholm for scanning those journals abstracted by BMDC for MEDLARS from July 1970. Cataloguing is done at Studsvik. Most medical journals have good abstracts and present no problem.

### Reports and Theses

#### Finland

Reports from university departments for physics and theoretical physics are scanned. Theses from the University of Technology are all scanned. Theses from other institutions are covered by means of notifications of dissertations received from the institutions.

#### Norway

The input of non-conventional literature is small. Some reports are published as serials. There is a special problem with the Halden

project which is becoming more commercial. Open publication of re-
ports is restricted. Therefore, no abstracts or copies are submitted
to INC or INIS.

Theses are covered in Norsk Bokhandler Tidene. The Institutt sub-
scribes to a commercial coverage of newspaper items dealing with
atoms. This service is also used for coverage of theses.

Denmark

All Risö-reports are abstracted for NSA according to the NSA Subject
Scope, TID-4552 p. ii. Reports received from other Danish institu-
tions are scanned. Books and theses are selected from Dansk Bog-
fortegnelse.

Sweden

Reports from about 20 institutions are scanned. Books and theses are
covered by Svensk Bokförteckning. Patents are covered by the "Swed-
ish Patent Gazette". See also appendix 2.

Cooperation between the Nordic countries

One serial causes some trouble. Acta Polytechnica Scandinavica is
published in Stockholm but individual issues are often printed and
published in other countries. The question is if all issues should be
scanned and processed by Sweden or if each country has to cover all
issues only to find issues published in their own country. NALJS
meeting in Norway 15th of March 1971 recommended the first solution.
A modification was suggested to avoid conflict with the INIS philosophy
that each input center reports only what is published in their own coun-
try: Sweden scans Acta Pol. Scand. and inform the other countries
when there are issues in scope published outside Sweden.

Subject scope for INIS

Moderator: Folke Hermanson-Snickars
Rapporteur: Hans Brygmann

Input to NSA and INIS during 1970

|          | NSA | INIS |
|----------|-----|------|
| Sweden   | 320 | 50   |
| Norway   | 40  | 14   |
| Denmark  | 176 | 34   |
| Finland  | 123 | 7    |

As the Nordic contributions are relatively small, all four countries
think it technically possible for them to start full subject scope for
INIS by January 1972. But that would be a matter of policy, which we
cannot decide. The wish of some countries that INIS should cover all
subjects should not be supported. The proposal from UK concerning
a second stage scope seems reasonable. Wood's study of incorrect
categorization and material not in scope in Atomindex vol. 2, no. 3
should cause INIS to establish some central control of categorization
and subject scope.

## Indexing by the INIS thesaurus

Moderator: Folke Hermanson-Snickars

Rapporteur: Hans Brygmann

There is a conflict between mission-oriented and subject-oriented indexing. Indexing for a big system like INIS should not be too mission-oriented. New descriptions should be proposed with great restraint. They should not be very special. According to Wood individual reactor names should not be descriptors. There will be more and more of them, and they will be less and less useful. In order to ensure that descriptors remain valid you could perhaps date them and let them expire after a certain period if they are not renewed.

## Descriptive cataloguing

Moderator: Anders Nyström

Rapporteur: Erkki Illukka

The main points of cataloguing were presented with emphasis on content and structure. A bibliographic record is a logical structure which can contain the following parts: artifacts, bibliographic data and content. The content can be presented as a "free-text" or compressed references.

INIS data presentation was then discussed. A Nyström asked how Finland can avoid a possible duplication of titles caused by different levels of INIS presentation in the search system. E Illukka answered that the Text-Pack program automatically drops off duplicate records. The difficulty which arises because of splitting of documents was discussed. In Finland and in Sweden no difference is made between splits.

The non-standard use of different names for institutions was discussed. The difficulty was seen to be the use of different translations of national names and the variety among them. The decision was that the official national name should be preferred.

## INIS data presentation

Moderator: Anders Nyström

Rapporteur: Erkki Illukka

A Nyström said the following about INIS character set and national character sets:

The Nordic countries have been asked to report what paper-tape character sets they have on their paper-tape devices. These reports have been tabulated (p. 11 - 12) to illustrate the possibility of using one conversion program for all different types of codes.

The discrepancy between INIS character set and national paper-tape character subset can be solved by nesting of characters as described in IAEA-INIS-8.

Sweden has decided to write a program for conversion of the Studsvik 8-channel paper-tape code to INIS-8 bit code for input to INIS on magnetic tape. In the next step the other NALJS countries were invited to send their tapes to Studsvik for conversion to a cooperate NALJS-magnetic tape input.

## Discussion

a) input: Wood said that they use their own paper tape device which has almost all 120 characters, only a few are missing, and the resulting paper tape is converted to INIS code by computer.

b) output: It was discussed about the use of INIS printer-chain which is an IBM standard-chain. The possibility of getting one to Scandinavia was also discussed and the price of it was regarded as the only difficulty.

Character sets on paper tape used in the Nordic countries for input preparation to INIS

| Paper tape punches | | | | | | | | INIS and DENMARK Graphic | | FINLAND Graphic | | NORWAY Graphic | | SWEDEN Graphic | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Upper case | Lower case | Upper case | Lower case | Upper case | Lower case | Upper case | Lower case |
| | 7 | 6 | | | | | 1 | A | a | A | a | A | a | A | a |
| | 7 | 6 | | | | 2 | | B | b | B | b | B | b | B | b |
| | 7 | 6 | 5 | | | 2 | 1 | C | c | C | c | C | c | C | c |
| | 7 | 6 | | | 3 | | | D | d | D | d | D | d | D | d |
| | 7 | 6 | 5 | | 3 | | 1 | E | e | E | e | E | e | E | e |
| | 7 | 6 | 5 | | 3 | 2 | | F | f | F | f | F | f | F | f |
| | 7 | 6 | | | 3 | 2 | 1 | G | g | G | g | G | g | G | g |
| | 7 | 6 | | 4 | | | | H | h | H | h | H | h | H | h |
| | 7 | 6 | 5 | 4 | | | 1 | I | i | I | i | I | i | I | i |
| | 7 | | 5 | | | | 1 | J | j | J | j | J | j | J | j |
| | 7 | | 5 | | | 2 | | K | k | K | k | K | k | K | k |
| | 7 | | | | | 2 | 1 | L | l | L | l | L | l | L | l |
| | 7 | | 5 | | 3 | | | M | m | M | m | M | m | M | m |
| | 7 | | | | 3 | | 1 | N | n | N | n | N | n | N | n |
| | 7 | | | | 3 | 2 | | O (letter) | o | O | o | O | o | O | o |
| | 7 | | 5 | | 3 | 2 | 1 | P | p | P | p | P | p | P | p |
| | 7 | | 5 | 4 | | | | Q | q | Q | q | Q | q | Q | q |
| | 7 | | | 4 | | | 1 | R | r | R | r | R | r | R | r |
| | | 6 | 5 | | | 2 | | S | s | S | s | S | s | S | s |
| | | 6 | | | | 2 | 1 | T | t | T | t | T | t | T | t |
| | | 6 | 5 | | 3 | | | U | u | U | u | U | u | U | u |
| | | 6 | | | 3 | | 1 | V | v | V | v | V | v | V | v |
| | | 6 | | | 3 | 2 | | W | w | W | w | W | w | W | w |
| | | 6 | 5 | | 3 | 2 | 1 | X | x | X | x | X | x | X | x |
| | | 6 | 5 | 4 | | | | Y | y | Y | y | Y | y | Y | y |
| | | 6 | | 4 | | | 1 | Z | z | Z | z | Z | z | Z | z |

| Paper tape punches | | | | | | | | Graphic (INIS and DENMARK) | | Graphic (FINLAND) | | Graphic (NORWAY) | | Graphic (SWEDEN) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Upper case | Lower case | Upper case | Lower case | Upper case | Lower case | Upper case | Lower case |
|  |  |  |  |  |  |  | 1 | α | 1 | = | 1 | ∨ | 1 | " | 1 |
|  |  |  |  |  |  | 2 |  | β | 2 | " | 2 | × | 2 | + | 2 |
|  |  |  | 5 |  |  | 2 | 1 | # | 3 | + | 3 | / | 3 | ? | 3 |
|  |  |  |  |  | 3 |  |  | @ | 4 | % | 4 | = | 4 | = | 4 |
|  |  |  | 5 |  | 3 |  | 1 | $ | 5 | & | 5 | ; | 5 | [ | 5 |
|  |  |  | 5 |  | 3 | 2 |  | = | 6 | ( | 6 | [ | 6 | ] | 6 |
|  |  |  |  |  | 3 | 2 | 1 | μ | 7 | ) | 7 | ] | 7 | ( | 7 |
|  |  |  |  | 4 |  |  |  | ' | 8 |  | 8 | ( | 8 | ) | 8 |
|  |  |  | 5 | 4 |  |  | 1 | ( | 9 | : | 9 | ) | 9 | ' | 9 |
|  |  | 6 |  |  |  |  |  | .) | 0 (Zero) | / | 0 | ∧ | 0 | & | 0 |
|  | 7 |  |  | 4 |  | 2 |  | Λ | π | no | no | no | no | no | no |
|  |  |  | 5 | 4 |  | 2 |  | Δ | γ | no | no | no | no | Ü | ü |
|  | 7 |  | 5 | 4 |  | 2 | 1 | [ | ] | ' | , | ø | ø | : | , |
|  | 7 |  |  |  |  |  |  | ; | / | no | no | + | - | ; | - |
|  | 7 | 6 | 5 |  |  |  |  | : | ω | - | . | AE | ae | / | . |
|  |  | 6 | 5 | 4 |  | 2 | 1 | - | , | Å | å | 10 | , | Å | å |
|  | 7 | 6 |  | 4 |  | 2 | 1 | Σ | . | Ä | ä | : | . | Ä | ä |
|  |  | 6 | 5 |  |  |  | 1 | ≠ | + | ~ | ´ | > | < | Ö | ö |
|  | 7 | 6 |  | 4 | 3 |  | 1 | overscore | underscore _ | ; | ü | no | no | no | no |
|  |  |  | 5 |  |  |  |  | space (SP) | | space | space | space | space | space | space |
|  | 7 | 6 | 5 | 4 | 3 | 2 | 1 | tape feed | | tape feed | tape feed | tape feed | tape feed | tape feed | tape feed |
|  | 7 | 6 | 5 | 4 | 3 |  |  | upper case (UC) | | upper case | upper case | upper case | upper case | upper case | upper case |
|  | 7 | 6 | 5 | 4 |  | 2 |  | lower case (LC) | | lower case | lower case | lower case | lower case | lower case | lower case |
|  |  | 6 | 5 | 4 | 3 | 2 |  | tab | | tab | tab | tab | tab | tab | tab |
| 8 |  |  |  |  |  |  |  | carriage return (CR) | | CR | CR | CR | CR | CR | CR |

no = stands for no operation

## UTILIZATION OF NSA- AND INIS-TAPES

### INIS and NSA format

Moderator: Anders Nyström

Rapporteur: Folke Hermanson-Snickars

INIS Record format is in principal a MARC-format. NSA-tapes are organized in two files: one entry file and one keyword file. The entries are ordered by NSA abstract number, and the items on the keyword file are ordered by abstract number, then by split, then by type selector, then by alphabetic sorting sequence of selectors. The structure of the keyword file and the entry file for reports and individual conference papers is shown in appendix 3.

Presentation of ABACUS

Rolf Lindh

See Tell, B V; Larsson, R; Lindh, R: Information retrieval with the
ABACUS program. In Handling of nuclear information. Proc. of a
symp., Vienna, 16-20 Febr. 1970. IAEA, Vienna 1970, p. 183.
(IAEA-SM-128/21).

Presentation of search programs used for INIS in Otaniemi

Erkki Illukka

See appendix 4.

Selective Dissemination of Information (SDI) on NSA magnetic tapes

Moderator: Anders Nyström
Rapporteur: Iain Wood

Following the coffee break, the discussion of Erkki Illukka's paper
continued briefly and was concluded. Anders Nyström had changed
the programme which followed to instruction in practical coding for
the ABACUS system for retrieval from NSA magnetic tapes. Based
on the preliminary version of his manual "Återvinning av litteratur-
referenser från magnetband" (Retrieval of literature references from
magnetic tape), he explained how the coding form should be filled out
and the structure and coding of a search profile. A demonstration pro-
file was then constructed as a group task led by Anders Nyström. The
participants thereafter constructed profiles on the following subjects
as individual tasks, assisted by Anders Nyström, Folke Hermanson-
Snickars and Anita Lindberg:

> Ingrid Ahlin - "Isotopes used in plant nutrition studies"
> Hans Brygmann - "Food preservation by radiosterilisation"
> Erkki Illukku - "Environmental pollution from reactor sites"
> Leena Katajapuro - "The role of invertebrates in the bioenrich-
> ment of radioelements"
> Iain Wood - "Nuclear transmutations in steels"

This occupied the time until the lunch break at 12.00 hrs.

The second part of the session began at 13.00 hrs, and Anders Nyström
explained the form of the output from ABACUS as illustrated on page
13 of his manual. Copies of the actual retrieval printout from a search
using the sample profile in the manual were distributed to the partici-
pants. The relevancy of the references was then judged by each parti-
cipant individually, on the basis of the titles, on a special form.

The effectiveness of the various descriptor combinations was also as-
sessed. The forms were then collected for compilation of a general
concensus, which was later presented and showed both expected un-
animity on a few good "hits" and complete "misses" and very divergent
judgements on the other references.

Anders Nyström distributed statistics for references evaluated by participants. There were many variations. The customer´s evaluation depends on many factors and is not always the same in regard to the profile, but it gives, however, some information about customer´s interests.

Anders Nyström then explained how the quality of a profile may be judged graphically and statistically. How bibliographic data elements, e.g. corporate codes (TID-5059), may be used for retrieval was also explained. The session was concluded with a brief explanation of the procedures for changing the profiles in the search programme.

## Experiences of SDI in Finland and Sweden

See appendices 5 and 6.

## Discussion on economics etc.

Moderator: Sören Lindhe
Rapporteur: Leena Katajapuro

All the Nordic countries now do the same work for input. S Lindhe wondered if it were possible to specialize by subject, for example, Denmark in life science and Sweden in chemistry.

Finland has no special subject. Medical references are made in collaboration with the Medical Central Library.

Norway has had no problem thus far. Medical articles present no special difficulty because there are good abstracts. It was agreed that subject specialization is not necessary and might only cause new problems.

In Denmark the medical literature is scanned and indexed for Risö by a subject specialist in the University Library, Copenhagen. All other literature is scanned by subject specialists in the departments of Risö, and, for the present, indexed by the librarian/cataloguer in cooperation with authors and subject specialists. I Wood pointed out that it may be difficult at the beginning to find a subject specialist who can select descriptors.

F Hermanson-Snickars said that at Studsvik the difficulty is to select articles from the medical literature. Sweden therefore cooperates with Karolinska Institutet. The cataloguing is done in Studsvik where people are trained for this work.

S Lindhe pointed out that Risö has an agricultural department, and he asked if it would be possible to handle the Swedish agricultural material at Risö. H Brygmann answered that such an arrangement might perhaps be possible.

One important question was whether the indexer must be an expert in some subject. It is not necessary. The indexer can select the descriptors and check them with a specialist.

S Lindhe asked the participants to evaluate the conference and send the criticism to him by mail.

Wood wanted to know the possibility of exchange consulations in re-
trieval programs. There are many people who know much about the
programs, but they do not write details. Rolf Lindh said that Roland
Dahl (Gothenburg) has written a thesis about retrieval search.

F Hermanson-Snickars presented the costs of input for NSA and INIS.
The total time needed for input was more than one man-year and the
cost/item for NSA was about 150,- in Sweden. Input for INIS costs
about 250 Sw. Cr.

Swedish input manpower

| Activity | Time/unit min. | Number/year | h/year |
|---|---|---|---|
| Coverage | | | |
| a) Prim. sources | 1 | 6.000 | 315 |
| b) Sec. sources | 60 | 110 | |
| Selection and abstracting | 60 | 400 | 600 |
| Indexing | 30 | 100 | 75 |
| | 130 | | |
| Cataloguing | 15 | 400 | 150 |
| Punching, writing | 25 | 400 | 225 |
| Administration | | | 600 |
| | | | 1.990 |

H. Brygmann
Library
Danish Atomic Energy Commission
Research Establishment  Risö

26 May 1971

REPORTING OF DANISH PUBLICATIONS TO NSA AND INIS

### Records to NSA During the Year 1970

| | |
|---|---|
| Reports: | |
| RISO- | 16 |
| RISO-M- | 25 |
| Danish Atomic Energy Commission Annual Report | 1 |
| Tekniske Hoejskole, Lyngby (Denmark). Laboratoriet for Teknisk Fysik II | 2 |
| Analysed conference papers: | |
| RISO- | 26 |
| Journal articles: | |
| Acta Chem. Scand. | 13 |
| Acta Crystallogr., Sect. A | 14 |
| Acta Crystallogr., Sect. B | 20 |
| Acta Endocrinol. | 16 |
| Acta Endocrinol., Suppl. | 4 |
| Acta Neurol. Scand., Suppl. | 1 |
| Acta Ophthalmol. | 1 |
| Acta Orthop. Scand. | 1 |
| Acta Pathol. Microbiol. Scand. | 2 |
| Acta Pharm. Toxicol., Suppl. | 1 |
| Forsk. Udvikling - Uddannelse | 1 |
| Fysisk Tidsskr. | 1 |
| Int. J. Cancer | 3 |
| J. Appl. Crystallogr. | 11 |
| Kgl. Dan. Vidensk. Selsk., Mat.-Fys. Medd. | 4 |
| Nord. Veterinaermed. | 1 |
| Oikos | 2 |
| Scand. J. Clin. Lab. Invest. | 1 |
| Scand. J. Haematol. | 3 |
| Scand. J. Resp. Dis. | 1 |
| Tandlaegebladet | 1 |
| Ugeskr. Laeger | 4 |

Total 176 records

### Routines for Reporting to NSA

Reporting has been carried out since October 1967. All published Risö
reports are reported, regardless of subject. Other Danish report series
and journals, books and theses are scanned in order to report publica-
tions within the NSA subject scope. Patents have till now not been
scanned. According to an agreement with DTIE, 53 journals are scanned.
As the library staff includes no subject specialists, the selection of
relevant articles is made by subject specialists at Risö departments to
whom the library currently sends the journals. The medical literature
is scanned by a medical specialist at the University Library, Copenhagen.
If an English author abstract is lacking, the specialist writes the
abstract. Author abstracts are linguistically revised by the library's
English translators. Descriptive cataloguing and assignment of COSATI
subject categories are carried out by a librarian. Cataloguing together
with abstract is sent to DTIE on the INC-1 form. If the document is a
report, one copy of the report is included.

Records to INIS During the Year 1970

Reports:
| | |
|---|---|
| RISO- | 9 |
| RISO-M- | 1 |
| Danish Atomic Energy Commission Annual Report | 1 |

Analysed chapters of reports and conference papers:
| | |
|---|---|
| RISO- | 21 |

Journal articles:
| | |
|---|---|
| Nord. Veterinaermed. | 1 |
| Acta Chem. Scand. | 1 |

Total 34 records

Routines for Reporting to INIS

From the material sent to NSA those few publications that fall within the initial subject scope of INIS are selected. The selection is made by the librarian who also does the descriptive cataloguing. Indexing started in March 1971. Medical literature will be indexed by the subject specialist who scans medical journals for the library and who has participated in the course for indexers arranged by IAEA. The remaining literature is, for the time being indexed by the librarian in co-operation with specialists at Risö. The greatest problem seems to be that the Danish input is so small that there is no opportunity to gain thorough practical experience of the system.

The first input to INIS was sent on worksheets. Since February 1971, paper tapes have been used.

Swedish input to INC and INIS 1970

| | INC(NSA) | | INIS | |
|---|---|---|---|---|
| Type of document | 1.1-30.6 | 1.7-31.12 | 1.4-30.6 | 1.7-31.12 |
| Journals and serials | 69 | 85 | 8 | 19 |
| Reports | 55 | 58 | 10 | 12 |
| Books, patents and conf. proc. | 14 | 38 | 2 | 2 |
| Total | 138 | 181 | 20 | 33 |

Distribution by NSA subject category for Swedish input to INC 1970
===================================================================

| NSA Category | | % |
|---|---|---|
| 1.0 | CHEMISTRY | 10 |
| 2.0 | EARTH SCIENCES | 3 |
| 3.0 | ENGINEERING | 3 |
| 4.0 | INSTRUMENTATION | 6 |
| 5.0 | LIFE SCIENCES | 23 |
| 6.0 | METALS, CERAMICS AND OTHER MATERIALS | 5 |
| 7.0 | PHYSICS (GENERAL) | 20 |
| 8.0 | PHYSICS (HIGH ENERGY) | 9 |
| 9.0 | PHYSICS (NUCLEAR) | 14 |
| 10.0 | REACTOR TECHNOLOGY | 6 |
| 11.0 | GENERAL AND MISCELLANEOUS | 1 |
| | Total | 100 |

Distribution by INIS subject category for Swedish input to INIS 1970
====================================================================

| INIS Category | | % |
|---|---|---|
| A00 | PHYSICAL SCIENCES | 4 |
| B00 | CHEMISTRY, MATERIALS AND EARTH SCIENCES | 13 |
| C00 | BIOLOGY, AGRICULTURE, MEDICINE HEALTH AND SAFETY | 42 |
| D00 | ISOTOPES, ISOTOPE AND RADIATION APPLICATIONS | 2 |
| E00 | ENGINEERING AND TECHNOLOGY | 28 |
| F00 | ADDITIONAL ASPECTS OF NUCLEAR ENERGY | 11 |
| | Total | 100 |

U. S. AEC, Division of Technical Information Extension

KEYWORD FILE (Revision 1, October 1967)

Selector Record Header

| Year of Issue | NSA Issue No. | NSA Abstract Number | Serial Number | Overflow | Type of Item | NSA Section Subsection | Blanks | Total Character Count | Record Mark |
|---|---|---|---|---|---|---|---|---|---|
| Characters 2 | 2 | 7 | 6 | 1 | 2 | 4 | 7 | 4 | 1 |

Variable Fields

| Split | Type Selector | Character Count | Selector | ≀ | Selector Number | Record Mark | Split | Type Selector | Character Count | Selector |
|---|---|---|---|---|---|---|---|---|---|---|
| Characters 3 | 1 | 2 | | | 5 | 1 | 3 | 1 | 2 | |

| ≀ | Selector Number | Record Mark | Split | Type Selector | Character Count | ≀ | Selector | Selector Number | Record Mark | |
|---|---|---|---|---|---|---|---|---|---|---|
| Characters | 5 | 1 | 3 | 1 | 2 | | | 5 | 1 | |

*Revised fields indicated by asterisks.

U. S. AEC, Division of Technical Information Extension

ENTRY FILE (Revision 1, October 1967)

REPORTS & INDIVIDUAL CONFERENCE PAPERS (R), (RX)

Main Header

| Year of Issue | NSA Issue No. | NSA Abstract Number | Serial Number | NSA Section Subsection | Type of Item | N S A | Duplication Check Code | Displacement to Variable Counts | Displacement to Variable Fields | Total Character Count | Record Mark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Characters 2 | 2 | 7 | 6 | 4 | 2 | 3 | 12 | 2 | 3 | 6 | |

Subheader - Reports   Individual Conference Papers (R), (RX)

| Distribution Category | Report Origin | Classification | 004 | Report Number Count | 005 | Title Count | 006 | Author Count | 007 | Corporate Author Count | 012 | Date Count |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Characters 6 | 3 | 9 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| 014 | Contract Number Count | 020 | Pages Count | 022 | Language Count | 023 | Secondary Number Count | 024 | Availability Count | 025 | Drop Note Count | 026 | Field/Group (Words) Count | 027 | Field/Group (Codes) Count |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Characters 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| 031 | Short Title Count | 032 | Corporate Code Count | 033 | Source of Information; Country of Affil. Count | Blanks | Blanks | Record Mark |
|---|---|---|---|---|---|---|---|---|
| Characters 3 | 3 | 3 | 3 | 3 | 3 | 17 | | 1 |

Variable Fields

| Delimiter Subscript | Element | | Record Mark |
|---|---|---|---|
| 4 | Report Number | | |

| 5 | Title |
| 6 | Author(s) |
| 7 | Corporate Author |
| 12 | Date |
| 14 | Contract Number |
| 20 | Pages |
| 22 | Language |
| 23 | Secondary Number |
| 24 | Availability |
| 25 | Drop Note |
| 26 | Field Group (Words) |
| 27 | Field Group (Codes) |
| 31 | Short Title |
| 32 | Corporate Code |
| 33 | Source of Information; Country of Affiliation |

3:2

Search programs used for the International Nuclear Information System in Otaniemi

Erkki Illukka, Systems Analyst, Helsinki University of Technology Library (May 1971)

## 1. Available hardware

In Otaniemi we use three computers suited for information retrieval systems both as regards size and as regards equipment:

a) IBM SYSTEM 360/40 and 360/50
These computers can be used parallelly, because the computers have the same type of operating system and peripheral equipment.

b) UNIVAC 1108
This computer serves all universities in the country on a time sharing basis. It is best suited for mathematical computations.

Both IBM and Univac computers are used in Otaniemi for information retrieval systems. While Pandex SDI is run on the Univac, the INIS system uses IBM computers.

## 2. Software

The INIS system is both a SDI system and a system for retrospective searches. The software has been developed on the basis of IBM "Text-Pack". This is a software package consisting of a large number of programs in assembler language (27 000 punched cards). Accordingly the system cannot use the Univac computer.

The INIS system is based on a conversion of the tapes for the use of Text-Pack.

## 3. The conversion program

### 3.1. INIS - TEXT-PACK INPUT

The conversion program for INIS tapes has two stages.

3.1.1. First the INIS tapes are transformed to allow processing on the IBM 360. In this connection the INIS code is converted into the EBCDIC code and at the same time the structure of records and blocks is modified. The block length is 7000 characters which is the maximum block length of the disc. This is done in order to make the continued processing easier.

3.1.2. In the second stage the intermediary product is converted into the Text-Pack format. In this connection records within a document reference are converted from variable length records into fixed length records and they are rearranged.

### 3.2. NSA - TEXT-PACK

The conversion of NSA tapes is to a great extent similar to that of INIS tapes. There are two major differences, however.

a) In INIS tapes the same block can contain references to several documents - this is not the case in NSA.

b) On the NSA tape index terms have been separated to a separate file, while on the INIS tapes they are included in the same file with the document references. The conversion program for NSA combines the index terms with the document references and rearranges the records for Text-Pack.

### 3.3. THE CONVERSION PROGRAMS OF TEXT-PACK

As the system is based on searching free text, the feed data of INIS and NSA tapes cannot be used as such. Therefore the necessary information has to be extracted into a separate search tape with data reduction. In the search tape the words from each item have been grouped according to length and each group has been alphabetized. Necessary information has been attached to the words. In addition address tables have been constructed for the groups and their first letters. In connection with this conversion a word list is obtained.

## 4. Auxiliary programs used in the system

### 4.1. MERGING PROGRAMS

4.1.1. Merging Programs for SDI Service
By means of the merging program search tapes can be combined. At the same time the sequence of the records and references can be checked.

4.1.2. Merging Programs for Retro

4.1.2.1. A program combining the search tapes and text tapes for SDI searching is used because there is no point in keeping them apart in retrospective searching.

4.1.2.2. A Merging Program for Retrospective Search Tapes
The program is an ordinary merging routine which merges the references in the correct order. If the converted tape includes the same document number as the old tape, the old document reference is deleted.

### 4.2. PROGRAM FOR THE WORD LIST

This program gives the frequency list of words both as a total number and as the number of document references containing the word in question.

### 4.3. ROUTINES

In addition the system has several routines which contribute to its flexibility, e.g.

a) up-dating programs for feed data

b) programs for dictionaries

c) programs for producing permuted indexes

d) control programs for feed data

e) print-out programs for feed data

## 5. Search logic

The search logic can be divided into six parts

### 5.1. SEARCH BY RECORD TYPE

The search can be directed to records containing certain types of information, for example index terms, the title etc.

### 5.2. A LOGIC CONCERNING THE ORDER OF WORDS IN A RECORD

#### 5.2.1. "ADJ - Logic"
This combines two subsequent words to each other.

Example: REACTOR ADJ POWER ADJ CONTROL

#### 5.2.2. The "With-Logic"
The "with-logic" binds together two words in the same statement. A statement is defined to mean the totality within the same print-control which ends with a special character followed by two spaces.

Example: KITTEN WITH PUPPY (WITH CAT)

### 5.3. THE "ABSOLUTE LOGIC" (ABS)

This logic declares the hit in any part of the profile, if the conditions of this part have been satisfied.

### 5.4. LOGIC OPERATORS

Logic operators used are the usual "and", "or", and "not" operators. They link two words together from a reference, if other conditions have not been set.

Example: CAT AND DOG

### 5.5. OPERATIONS IN REGARD TO WORDS

#### 5.5.1. The Use of Masking
Masking can be used to generalize the search term in two ways:

a) Selectively; in this case the length of the mask can be 1...6 letters.

Example: INFOR$$$$$$

REACTOR$

./..

b) Unconditional masking; in this case only the root of the word is defined and the comparison takes place with all equally long or longer words.

Example: REAC$*

5.5.2. Text-Pack is able to process both capital letters and small letters. The alternatives are as follows:

a)@@-marked words qualify only words written altogether with capital letters.

b)@-marked words qualify only words starting with a capital letter, the rest of the word being in small letters.

c) # marked words qualify words only if they contain both capital and small letters.

### 5.6. THE USE OF HIT CRITERIA

The hit criteria define the number of concepts to be satisfied in order to produce a hit.

In SDI this is 1...9
In retro this is 1...19

## 6. Profiles

### 6.1. PROFILE FORMULATION

The profile consists of search terms, symbols and concepts.

a) The symbol is defined by the combination of search terms or of other symbols.

Example: AA     CAT AND DOG

ABC    AA OR AD

b) The concept consists of either search terms or symbols

Example: CON1  AA AND ABC

CON2  APRIL OR MAY

### 6.2. LIMITATIONS CONCERNING THE PROFILE

a) Only one type of logic operators can be used on the same logic level or in the same concept. Exeptions are "ADJ" and "with logics" which allow the use of "or logic".

Example: Correct

AAB    REACTOR$ OR POWER ADJ PLANT

Wrong

AAC    REACTOR$ OR POWER AND PLANT

./..

b) Search terms and symbols may not be mixed into the same statement.

Example:  Correct

      AA    CAT AND DOG

      Wrong (if AA has been defined as a symbol)

      ABC   AA AND HORSE

c) "Not logic" can be used in concepts only.

Example:  CON1  NOT AB OR AC OR AD

d) The most regrettable limitation is the upper limit of three for the number of logic levels.

Example:  Correct

|          | A1 | CAT AND DOG |
|----------|----|-------------|
| 2 levels | A2 | BOY AND HORSE |
|          | A3 | A1 OR A2 |
|          | A4 | DRIVE$$ |
|          | A5 | A3 AND A4 |

In addition the number of profile cards has been limited in SDI to 25 and in retro to 99.

## 7.   The differences between the SDI system and retrospective searching

### 7.1. ADDITIONAL PARAMETRES USED IN RETROSPECTIVE SEARCHING

7.1.1. The retrospective profile can be equipped with a heading by means of a title card.

7.1.2. Searching can be limited to a certain part of the data base by defining the sector to be covered by the profile in question.

Example:  RANGE AAA68A001226   AAA68A001925

        the boundary values

7.1.3. In the profile output can be limited to give only a part of the references.

Example:  PRINT 00$ (only titles)

7.1.4. In retrospective searching statistics can be obtained by means of a parameter on the title card.  This also gives a so called "trigger card" for each hit reference.

7.1.5. In the profile it is possible to define the maximum number of hits.  The assumed number in the system is 200.

### 7.2. DIFFERENCES IN THE OUTPUT

As mentioned above a statistic listing can be obtained in retrospective searching and "trigger cards" are obtained at the same time.  It is a

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great asset that it is possible to select the document references wanted in the output. In addition, it is possible at this late a stage to define output parameters as easily as in the profile.

### 7.3. OPERATIONAL DIFFERENCES BETWEEN THE SDI SYSTEM AND THE RETRO-SPECTIVE SYSTEM

The differences are due to the difference in the basic philosophy of the system.  In SDI, the number of profiles is assumed to be large and the data base small, while the situation in the retrospective system is the opposite.
Accordingly:

a) In the SDI system searching and text have been separated from each other and the hits are obtained after the search as document numbers.  In retro the output is references on the tape.

b) The SDI system allows a parallel search.

c) The answers in retro-searching are obtained through sorting the output.  In SDI the answers are obtained by transferring the document references on the disc and by random processing them from the disc.

d) In SDI the output in addition includes the evaluation card.

## 8.   Practical experiences

### 8.1. THE SDI SYSTEM

The following typical features have been revealed after some test runs.

a) The diagnostics and up-dating of profiles is easy to carry out and rather rapid.

b) Searching is relatively speedy, almost as fast as in the retrospective system.

c) The use of the memory depends on the size of the data base. Especially in the output stage there is a linear function.  With 32 bytes per document reference the size of the memory used (186 k.bytes) limits the data base to 2500...3000 document references.

### 8.2. EXPERIENCES FROM RETROSPECTIVE SEARCHING

As a general observation, it can be statet that both in regard to searching and in regard to profiles this system is considerably less flexible than SDI. Profiles are of course made for one run only. They cannot be updated or corrected by means of the program because the diagnostics disqualify erroneous profiles. The SDI system marks them erroneous without deleting them. On the other hand, the output operation in the retrospective system is more flexible and more versatile. It does, however, slow down the processing because the document references to be printed are selected before printing.

.&#47;..

## 9.   General

Generally it can be stated that both the SDI and the retro-system
work satisfactorily.  Computer time is not excessive.  The conversion
of tapes into the search format requires the main part of computer
time; that is about 70...80 % of the total.  The conversion of INIS
tapes vol. 1...vol. 2/4 (about 6500 document references) consumes
about 1,2 hours computer time.  Searching and output consumes about
0,2...0,5 hours depending on the number of hits and profiles. In
conclusion it can be statet that the systems supplement each other
exellently and that they have worked even better than we expected.

PART 1

### MINIMUM MACHINE CONFIGURATION

The TEXT-PAC System required a 256K System/360 Model 40
or 50 using OS/360, a card reader, a printer, four 9 track
tape drives, one 7 track tape drive and one 2311 (in addition
to system requirements) disk drive.

The core requirements for each individual program are
listed in the table below.

| Program # | Program Name | Approximate Core Requirements |
|---|---|---|
| TRC202 | Edit | 120K* |
| TRC043 | 1401 BCD Tape Edit | 100K* |
| TRC260 | 360 Condensed Text Edit | 100K* |
| TRC207 | Dictionary Compare | 135K* |
| TRC203 | Edit Print | 25K |
| TRC208 | Search for Missing Items | 25K |
| TRC210 | Edit Convert | 128K |
| TRC251 | Retrospective Merge | 64K |
| TRC252 | Retrospective Master Merge | 64K |
| TRC052 | Omaha to Dictionary | 24K |
| TRC204 | Dictionary Update | 10K |
| TRC206 | Dictionary Blocking | 10K |
| TRC250 | Edit Merge | 90K |
| TRC022 | Bulletin Print | 64K |
| TRC021 | Index Print | 32K |
| TRC001 | CIS Profile Update | 32K |
| TRC002 | CIS Profile Diagnostic | 32K |
| TRC003 | CIS Profile Print | 10K |
| TRC221 | Retro Question Diagnostic | 32K |
| TRC010 | CIS Memory Load | 128K* |
| TRC011 | CIS Search | 128K* |
| TRC012 | CIS Answer Inversion | 128K* |
| TRC013 | CIS Disk Load | 40K |
| TRC014 | CIS Print | 32K |
| TRC222 | Retro Memory Load | 128K* |
| TRC223 | Retro Search | 138K* |
| TRC226 | Retro Statistical | 128K* |
| TRC227 | Retro Text Expansion | 64K |
| TRC229 | Retro Print | 32K |
| TRC212 | Word Frequency-Omaha | 40K |

*   The actual core space required will depend
    on program options taken and amount of data
    processed.

INIS DATA FLOW, CONVERSION
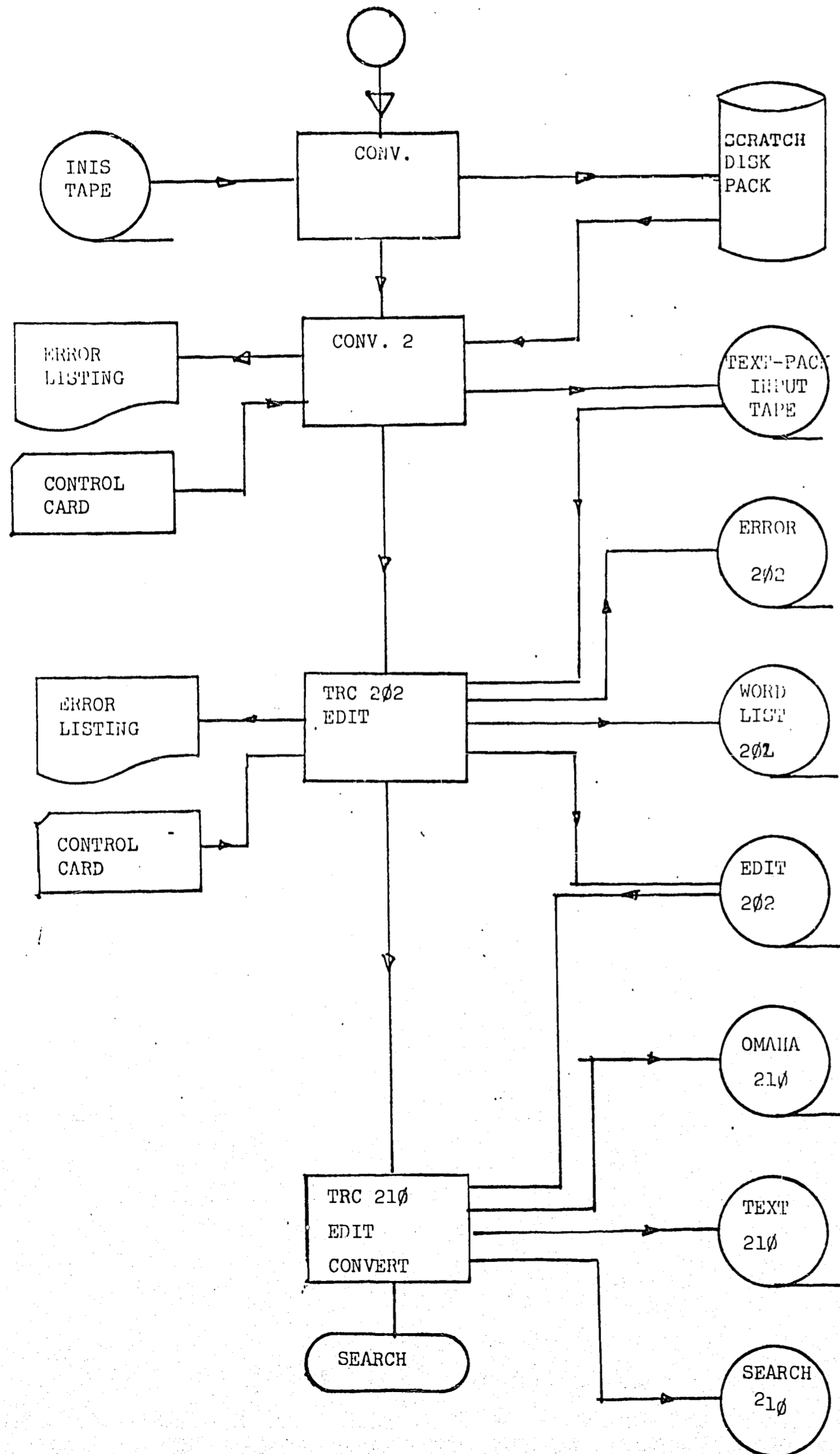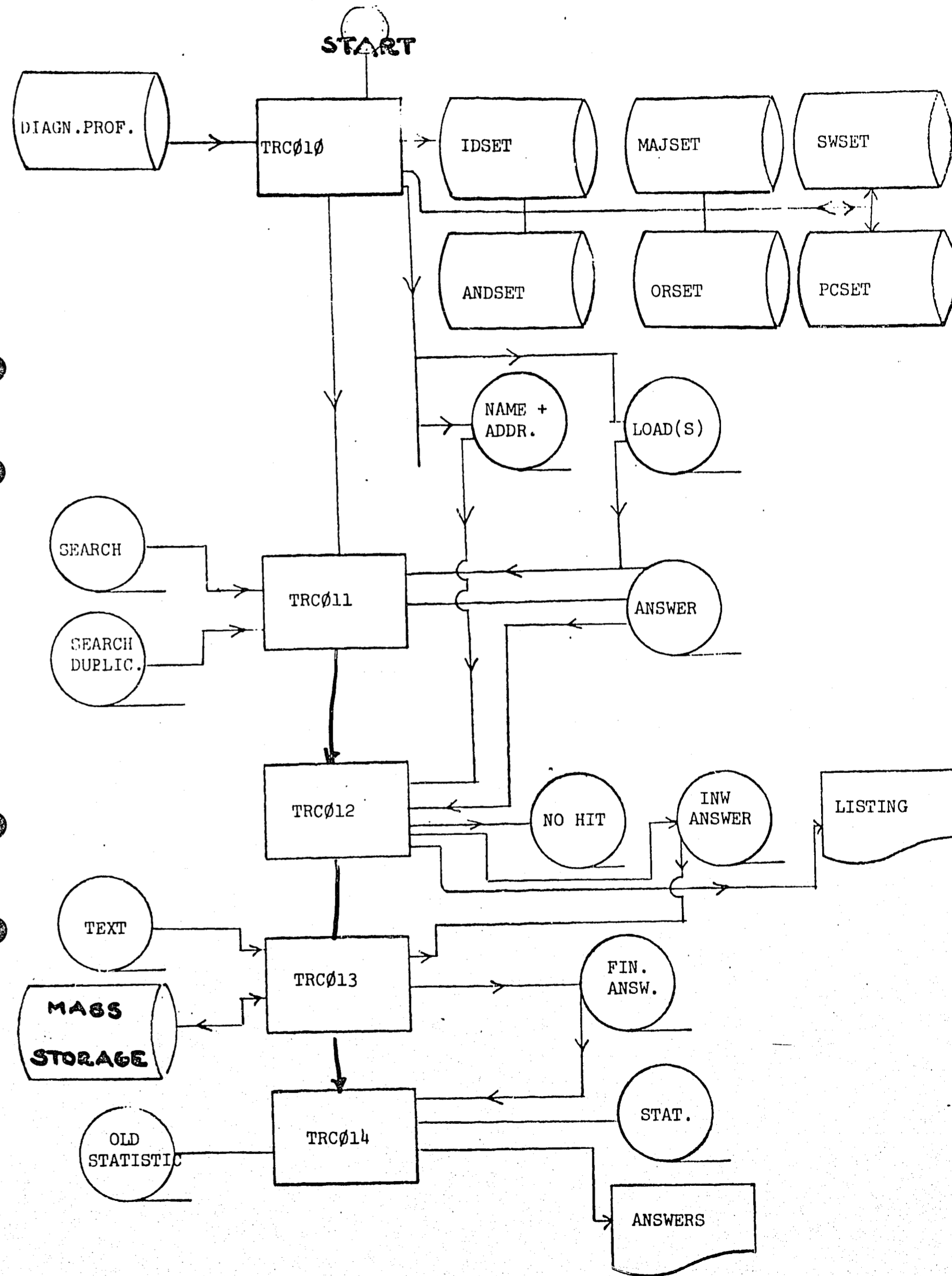
| WORD | WORD COUNT | DOCUMENT COUNT | WORD | WORD COUNT | DOCUMENT COUNT | WORD |
|---|---|---|---|---|---|---|
| Q | 3 | 3 | Q-VALUE | 2 | 2 | QP |
| QSO'S | 1 | 1 | QTDA | 1 | 1 | QU |
| QUA | 3 | 3 | QUADRATURE | 1 | 1 | QUADRIPUNCTATU |
| QUADRU | 1 | 1 | QUADRUP | 2 | 2 | QUADRUPOLE |
| CUADRUPOLES | 2 | 2 | QUAILS | 1 | 1 | QUALITATIVE |
| QUALITY | 3 | 2 | QUIN | 2 | 2 | QUANT |
| QUANTAL | 1 | 1 | QUANTI | 1 | 1 | QUANTIFICATION |
| QUANTITATIV | 1 | 1 | QUANTITATIVE | 40 | 39 | QUANTITIES |
| QUANTITY | 13 | 13 | QUANTIZATION | 2 | 2 | QUANTOMETER |
| QUANTOMETRIC | 1 | 1 | QUANTUM | 43 | 33 | QUANTUM-MECHANICAL |
| QUARK | 2 | 2 | QUARKS | 4 | 4 | QUARTERLY |
| QUARTZ | 1 | 1 | QUAS | 1 | 1 | QUASARS |
| QUASI | 3 | 3 | QUASI-ELASTIC | 1 | 1 | QUASI-GAMMA |
| QUASI-LINEAR | 1 | 1 | QUASI-STAGNATION | 1 | 1 | QUASI-STELLAR |
| QUASI-2-BODY | 1 | 1 | QUASIELASTIC | 1 | 1 | QUASIPARTICLE |
| QUATION | 2 | 2 | QUATIONS | 1 | 1 | QUEBEC |
| QUEEN | 3 | 3 | QUEEN'S | 4 | 4 | QUEENSLAND |
| QUEL | 1 | 1 | QUENCH-CONDENSED | 1 | 1 | QUENCY |
| QUES | 1 | 1 | QUID | 1 | 1 | QUIESCENT |
| QUIET | 1 | 1 | QUIJANO-RICO | 1 | 1 | QUIN |
| QUINN | 1 | 1 | QUINOLINE | 2 | 2 | QUINT |
| QUINTIN | 2 | 2 | | | | |

NBR OF DIFFERENT WORDS IS    64          TOTAL NBR OF WORDS IS    201

WORD FREQUENCY LISTING

4:11

EDIT, PRINT

RRR 68R0 01699                     CO. CONFIDENTIAL    29/01/71    4:12

00  AD-662477.  DYNAMIC BALANCING OF ROTORS USED IN INSTRUMENT MAKING.
APRIL 1967.
68R 01699
00  DDC
10  MYACHIN, VYE
20  FOREIGN TECH. DIV., WRIGHT PATTERSON AFB, OHIO
21  AD-662477  FTD-MT-24-97-67
30  DYNAMIC BALANCING CONSISTS OF DETERMINING THE MAGNITUDE AND
40  LOCATION OF THE IMBALANCE AND THEN ELIMINATING OR CONTROLLING IT
WHILE A ROTOR IS ROTATING. THESE TWO PROBLEMS ARE SOLVED SEPARATELY
AT DIFFERENT STAGES. THE AUTHOR SOLVES THE FIRST PROBLEM BY CHANGING
THE ROTARY MOTION OF THE ROTOR INTO ANGULAR OSCILLATORY MOTION ABOUT
ITS AXIS WHERE THE MAXIMUM ANGULAR DEVIATION IS ON THE ORDER OF A FEW
DEGREES. THE ANGULAR LOCATION OF THE IMBALANCE AS WELL AS ITS
MAGNITUDE ARE DETERMINED BY THE SAME TRANSDUCERS.  15P.
01-AEROSPACE              12-INSTRUMENTATION
60  ATTITUDE CONTROL              GYROSCOPES
61

VHF

AD-662713. TABULATIONS OF VHF PROPAGATION DATA OBTAINED OVER
IRREGULAR TERRAIN AT 20, 50, AND 100-MHZ, PART II- COLORADO MOUNTAIN
DATA. AUGUST 1967.
DDC
68B 01744          PAGE   22

WALDORF

AD-662962. INVESTIGATION OF DYNAMIC BEHAVIOR OF THE NAVY X-BAND
ANTENNA AT WALDORF, MARYLAND. OCTOBER 1967.
DDC
68B 01757          PAGE   20

WALLS

AD-662243. FLOW IN CHANNELS WITH PERMEABLE WALLS. JUNE 1967.
DDC
68B 01702          PAGE   2

WATER

AD-662621. WATER STANDARDS IN RELATION TO SPACECRAFT CONTAMINANTS
AND AEROSPACE MONITORING. DECEMBER 1966.
DDC
68B 01750          PAGE   24

WAVE

AD-662760. SURFACE WAVE PROPAGATION FOR LINEAR VISCO-ELASTIC SOLIDS.
SEPTEMBER 1967.
DDC
68B 01701          PAGE   2

AD-662768. AN APPROXIMATE METHOD FOR CALCULATING THE PARAMETERS OF A
DETACHED BOW WAVE. AUGUST 1967.
DDC
68B 01727          PAGE   18

WAVE PROPAGATION

AD-662713. TABULATIONS OF VHF PROPAGATION DATA OBTAINED OVER
IRREGULAR TERRAIN AT 20, 50, AND 100-MHZ, PART II- COLORADO MOUNTAIN
DATA. AUGUST 1967.
DDC
68B 01744          PAGE   22

WHISPERED

AD-662688. SPEECH SPECTRAL MOMENT CONVERGENCE VOICED VOICELESS
CONSONANT CONTRASTS IN WHISPERED SPEECH. SEPTEMBER 1967.
DDC
68B 01732          PAGE   17

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QUESTION NUMBER F00004
DIAGNOSTIC SUCCESSFULLY COMPLETED - NO CORRECTIONS NECESSARY

QUESTION NUMBER F00017
ERROR - LOGICAL CONNECTOR NOT RECOGNIZABLE - CARD IMAGE FOLLOWS
    F00017 CON6   AA AND CC

```
F00017QIS N NS PROFIILI F17                          FINAL A
F00017 TITLE NSA-HAKU  VOL 6/25  / TEXT-PACK
F00017 A1      VENTILATA* OR FILTA*
F00017 A2      AIR ADJ CONDITIONXX
F00017 A3      EXHAUST ADJ SYSTEMX
F00017 AA      A1 OR A2 OR A3
F00017 BB      AIR OR GASA*
F00017 C1      RADIOACTIVAXXX OR FSCTOPA*
F00017 C2      FISSION ADJ PRODUCTA
F00017 CC      C1 OR C2
F00017 DD      HOODA* OR LABORATORA OR SHELTERA
F00017 EE      NUCLEAR OR REACTORA OR WORKA*
F00017 FF      POWERA* OR PLANTA OR AREAXX
F00017 GG      CLEANA* OR PURIFICATA* OR PURGING OR CONT
F00017 K1      EE AND FF
F00017 K2      BB AND GG
F00017 CON1    AA AND K1
F00017 CON2    AA AND BB
F00017 CON3    AA AND DD
F00017 CON4    DD AND K2
F00017 CON5    K1 AND K2
F00017 CON6    AA AND CC
```

QUESTION NUMBER F00021
DIAGNOSTIC SUCCESSFULLY COMPLETED - NO CORRECTIONS NECESSARY

QUESTION NUMBER F00034
DIAGNOSTIC SUCCESSFULLY COMPLETED - NO CORRECTIONS NECESSARY

QUESTION NUMBER F00050
DIAGNOSTIC SUCCESSFULLY COMPLETED - NO CORRECTIONS NECESSARY

100007 IS N LE KATAJAPURO
100007 TITLE RETROSPEKTIIVINEN HAKU INIS NAUHAT VOL1+VOL2/1-3
100007 A2    CHANNELA# CONTRCLOIA,4IA,5IA   WITH IONA
100007 A3    AIA CONTRCLO6IA OR BIX CONTRCLO6IA
100007 A4    IMPLANTATION CONTRCLOIA,4IA,5IA
100007 A6    A2 OR A4
100007 CONI  A3 AND A6

| Q. NO. | ANSWER NUMBER | REQ. | FOUND | WORD MATCHES FOUND =(FIRST WORD - WITH) &(FIRST WORD - WITH/AND) +(FIRST WORD - ADJ A(AND) *(FIRST WORD-ADJACENCY) | |
|---|---|---|---|---|---|
| 100007 | | | | | |
| 100007 | INS70I000717 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I001909 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I002604 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I002611 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I002613 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I002617 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I002636 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I002643 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I002650 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I002655 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I003532 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I004279 | 1 | 1 | &CHANNEL | ION |
| 100007 | INS70I004286 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I005834 | 1 | 1 | AIMPLANTATION | |
| 100007 | INS70I005841 | 1 | 1 | AIMPLANTATION | |

15 HITS

RETROSPECTIVE STATISTICAL

RETROSPEKTIIVINEN HAKU INIS NAUHAT VOL1+VOL2/1-3

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LATTICE LOCATION AND DOPANT BEHAVIOR OF GROUP II AND IV ELEMEGS
IMPLANTED IN SILICON.   (1970).

MEYER, O.; JOHANSSON, N.G.E.; PICRAUX, S.T.; MAYER, J.W.
(CALIFORNIA INST. OF TECH., PASADENA (USA)).

SOLID STATE COMMUN.
V. 8(7) P. 529-531.
UK 000000AS9

1065000.
SILICON; ION IMPLANTATION; CRYSTAL DOPING; SELENIUM COMPOUNDS;
TELLURIUM COMPOUNDS; ZINC COMPOUNDS; CADMIUM COMPOUNDS; MERCURY
COMPOUNDS; LATTICES; ION CHANNELING; HALL EFFECT; INTERSTIALS;
DETECTION.

B25

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ENERGY LOSS OF HEAVY IONS ALONG LONG-INDEX DIRECTIONS IN GOLD SINGLE
CRYSTALS.   (JAN 1970).

BOETTIGER, J.; BASON, F. (AARHUS UNIV. (DENMARK)).

RADIAT. EFF.
V. 2 P. 105-110.
US 000000AS9

0001000.
ANISOTROPY; ATOMS; ENERGY; GOLD; ION BEAMS; LATTICES; LOSSES;
MONOCRYSTALS; MOTION; SLOWDOWN; VARIATIONS; KEV RANGE; MEV RANGE;
ATOMIC NUMBER; ENERGY LOSSES; ION CHANNELING; MEV RANGE 01-10.

B22

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DETERMINATION OF CHANNELING PROBABILITY FROM TRANSMITTED-PARTICLE
ENERGY SPECTRA.   (2 MAR 1970).

ALTMAN, M.R. (RUTGERS--THE STATE UNIV., NEW BRUNSWICK, N.J.
(USA)); FELDMAN, L.C.; GIBSON, W.M.

PHYS. REV. LETT.
V. 24 P. 464-467.
US 000000AS9

ANSWERS FROM RETROSPECTIVE SEARCH

FINNISH EXPERIENCE FROM SDI-SERVICE BASED ON NUCLEAR SCIENCE ABSTRACTS

Leena Katajapuro, B.Sc.                                        May 1971
Helsinki University of Technology Library

The Finnish Atomic Energy Commission (FAEC) has financed the NSA SDI-service, which is free of charge for users during the current experimental period. The regular SDI-service was started in March 1970. In the beginning the number of profiles was 26, and in twelve months it tripled, so that it in May 1971 amounted to 77.

DISTRIBUTION OF USERS BY EMPLOYMENT (21 May 1971)

|  | Profiles | Percentage |
|---|---|---|
| Helsinki University of Technology | 27 | 35,0 |
| Other universities | 17 | 22,1 |
| Research groups of FAEC | 6 | 7,8 |
| Research Institutes | 8 | 10,4 |
| Industry | 18 | 23,4 |
| Individuals | 1 | 1,3 |
| Total | 77 | 100,0 |

As an attempt to evaluate the system, we compiled statistics from 24 runs from 27 March 1970 to 2 April 1971, which corresponded to NSA issues from vol. 24, no. 5 to vol. 25, no. 6. The number of output references was 19 403, of which 16 733 have been evaluated by the users (evaluation percentage = 86%).

RELEVANCE EVALUATION BY NSA SDI-USERS

|  | References | Percentage |
|---|---|---|
| 1) Completely relevant | 5 085 | 30,4 |
| 2) Completely relevant, but seen earlier | 1 048 | 6,3 |
| 3) Partially relevant | 3 868 | 23,1 |
| 4) Cannot evaluate, because the citation does not provide enough detail | 1 875 | 11,2 |
| 5) Irrelevant | 4 848 | 29,0 |
| 6) Irrelevant, because interest has changed | 9 | 0,0 |
| Total | 16 733 | 100,0 |

SUMMARY OF RELEVANCE EVALUATION

|  | References | Percentage |
|---|---|---|
| 1 to 3 "relevant" | 10 001 | 59,8 |
| 4 to 6 "irrelevant" | 6 732 | 40,2 |
| Total | 16 733 | 100,0 |

Appendix 1 shows the relevance distribution from run to run. Since the twelfth run of 4 October 1970, keywords were introduced in the search in addition to title words. As a result the relevance percentage improved somewhat, and the columns illustrate that the share of completely relevant references increased in relation to the share of references with some relevance.

The following tables show in greater detail that the number of references per profile increased when keywords were introduced in the search. The previous mean value of 11 references per profile increased to 16 references per profile. The search with keywords did not succeed in the run XI.

| RUN | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of profiles | 26 | 26 | 26 | 56 | 56 | 56 | 60 | 60 | 60 | 58 | 67 | 66 |
| Output ref./prof. | 10 | 11 | 13 | 15 | 11 | 10 | 9 | 10 | 11 | 9 | 7 | 19 |
| Output ref.,total | 249 | 285 | 340 | 831 | 598 | 552 | 555 | 583 | 648 | 545 | 450 | 1272 |
| Evaluated ref. | 233 | 236 | 285 | 802 | 472 | 449 | 523 | 561 | 619 | 459 | 409 | 1090 |
| Evaluation % | 94% | 83% | 84% | 97% | 79% | 81% | 94% | 96% | 96% | 84% | 91% | 86% |
| Relevant | 141 | 166 | 170 | 408 | 183 | 204 | 295 | 285 | 369 | 308 | 246 | 560 |
| Percentage | 61% | 70% | 60% | 51% | 39% | 45% | 56% | 51% | 60% | 67% | 60% | 51% |

| RUN | XIII | XIV | XV | XVI | XVII | XVIII | XIX | XX | XXI | XXII | XXIII | XXIV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of profiles | 67 | 70 | 71 | 78 | 83 | 83 | 75 | 68 | 70 | 69 | 71 | 71 |
| Output ref./prof. | 15 | 16 | 2 | 16 | 8 | 17 | 9 | 15 | 17 | 15 | 20 | 22 |
| Output ref.,total | 978 | 1138 | 161 | 1217 | 697 | 1398 | 712 | 990 | 1177 | 1032 | 1431 | 1564 |
| Evaluated ref. | 832 | 1020 | 155 | 1075 | 600 | 1183 | 556 | 926 | 1083 | 837 | 1252 | 1076 |
| Evaluation % | 85% | 90% | 96% | 88% | 86% | 85% | 78% | 94% | 92% | 81% | 87% | 69% |
| Relevant | 465 | 592 | 79 | 787 | 376 | 813 | 345 | 617 | 741 | 504 | 744 | 603 |
| Percentage | 56% | 58% | 51% | 73% | 63% | 69% | 62% | 67% | 68% | 60% | 60% | 56% |

The results indicate that the use of keywords in the search would give
better results. We have, however, observed a decrease in the relevance
percentage in regard to some profiles after the profiles had been re-
constructed to include keywords. In comparing output relevance
of five profiles before and after title words had been replaced by key-
words, the relevance percentage was observed to decrease in all of them.
This comparison was made during the periods from 1 September 1970 to
14 October 1970, when title words alone were used in the search, and
from 7 February 1971 to 2 April 1971, when most of the search terms
were keywords. Statistically this small sample does not allow conclu-
sion to be made. The comparison hints, however, that might be unwise
to strive for the exclusive use of keywords in search profiles.

| | RUNS USING TITLE WORDS (1 Sep 1970 to 14 Oct 1970) | | | RUNS USING KEYWORDS AND SOME TITLE WORDS (7 Feb 1971 to 2 Apr 1971) | | |
|---|---|---|---|---|---|---|
| Profile No. | No.of output ref. | Average ref/prof | 1 to 3 | No.of output ref. | Average ref/prof | 1 to 3 |
| 1 | 48 | 10 | 36 75% | 97 | 19 | 63 65% |
| 2 | 101 | 20 | 74 73% | 118 | 24 | 84 71% |
| 3 | 170 | 34 | 129 76% | 860 | 172 | 504 59% |
| 4 | 16 | 3 | 2 13% | 3 | 0,6 | 0 0% |
| 5 | 157 | 31 | 134 85% | 243 | 49 | 190 78% |
| Average of all the profiles in the service | | 12 | 59% | | 18 | 62% |

An inquiry to NSA SDI-users was circulated in November 1970. Among 67
users there were 35 who considered that they were able to evaluate the
service on the basis of their experiences from the reference lists.

The evaluation was as follows:

5   users regarded the service as particularly valuable
25  evaluated it as rather valuable
5   evaluated it as rather worthless, and
nobody as completely worthless.

Among these users there were 20 who had had an opportunity to compare
the speed of the SDI-service with that of the printed version of NSA
and there were 11 who regarded the speed as exceedingly valuable. It
has often happened that a user after getting his reference list has
ordered copies of interesting journal articles before the journal has
arrived in our library.

During the experimental period of the service, which will be continued
through 1971, the Finnish Atomic Energy Commission wants to offer free
of charge an opportunity to all prospective users to get acquainted with
our SDI-service. It is our intention, through more effective PR, to
try to recruit more users especially from the business enterprize
sector.

SWEDISH EXPERIENCE FROM AN SDI-SERVICE BASED ON "NUCLEAR SCIENCE ABSTRACTS".

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Folke Hermanson-Snickars                          Completed in Aug 1971

An SDI-service based on scanning of NSA-tapes has operated at Studsvik since March 1970 using the ABACUS-program on an IBM 360:30F. It is possible to use both natural language to match words in titles and descriptors from the EURATOM thesaurus to match indexing terms. The profiles were formulated with both types of search elements.

Owing to an error in the program all keywords on the selector file were not available for searching during the first eleven runs (issue no. 5, 6, 8, 9, 11-17), and statistics for these issues have been omitted.

From vol. 24:18 to vol. 25:12 18.331 hits have been distributed to about 70 users. Each user was asked to assess whether each item was of immediate interest (1 and 2), general interest (3), no interest (5 and 6), or insuf- fient information was given for deciding (4). 9,609 of the hits were evaluated (61%), and for those precision was calculated. As a measure of the precision was used the ratio between the number of references which were of immediate or general interest and the total number of evaluated references.

For vol. 24 the precision was 62% and for vol. 25, 64%.

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RELEVANSEVALUERING I FINLAND

% RELEV.

IRRELEV. %

Legend:
- □ = 1
- □ = 1-3
- ▦ = 1
- ▦ = 5