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ABSTRACT

A timed comparison was made of two methods of searching. Five bibliographic searchers timed themselves while searching by possible main entries in the National Union Catalog. The authors then timed themselves searching the same items by title in the English Language Books by Title and in Library of Congress National Program for Acquisitions and Cataloging (LC NPAC) depository card file arranged by title. Comparisons revealed that, for a sample size of 771 items, searching by main entries in the National Union Catalog is 89.3 percent slower than searching by title in the LC NPAC file, and it is 84.8 percent slower than searching by title in the English Language Books by Title. (Author/EH)

BIBLIOGRAPHIC SEARCHING:

MAIN ENTRY VS. TITLE ACCESS, A COMPARATIVE TIME STUDY

A Research Paper

Presented to

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Research Paper

by

Richard J. Ortiz and Thomas P. Connole

August 1973

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TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Background

The bibliographic searcher in any library has a variety of information to gather and a variety of tasks to perform both in the gathering of that information and as a result of that information. Most generally, the bibliographic searcher has the following duties:

1. To establish the exact author and title of the item under consideration.
2. To establish its relationship, if any, to other editions of the same title.
3. To establish its bibliographic history, e.g., whether it is identical or closely related to another work published under a different title, belongs to a series of works, or is part of another work.
4. To determine whether or not the library already possesses a copy of the work, another edition or translation, or the whole of which it is a part.
5. To determine the cost of the work and the source from which it can be obtained.
6. To determine what the correct entry will be.[1]

The terms "bibliographic searching" or "searching" are more narrowly construed for the purposes of this introductory discussion to mean

"looking for an LC card for a particular item through bibliographic tools containing LC cards."[2]

The ultimate goal of searching in many libraries, including the Penrose Library at the University of Denver, is the pre-cataloging of the item. Normally, pre-cataloging involves the locating of an LC card for the item in the National Union Catalog (the NUC), i.e. locating a "match." The LC card is then reproduced, yielding "LC copy",[3] or a note is made as to where "LC"[4] can be found for future reproduction. In the case of an item in hand, LC copy is sent to the Cataloging Department along with the item. In the case of a request, a note is made on the request form as to where LC can be found. When the item arrives LC is located, a picture of it is taken, and the LC copy is then sent to Cataloging along with the item.

Problem Statement I: Main Entry Searching

In order to search the NUC effectively, the searcher must know not only precisely what item he is looking for but also precisely how that item might be represented in the NUC. The NUC, unlike public card catalogs, is a single-entry catalog whose single entry is a main entry determined by Library of Congress catalogers using ALA and AACR rules for main entry as applicable under the policy of superimposition. The AACR gives two definitions for main entry: 1) "The complete catalog record of a bibliographic entity, presented in the form by which the entity is to be uniformly identified and cited," and 2) "the heading under which such a record is represented in the catalog or, if there is no heading, the title."[5] In this study, the term "main entry" is used in the second sense, as a heading.

Under LC's policy of superimposition, a main entry is established by AACR rules only if no main entry has been established under the older ALA rules used previous to the adoption of the AACR rules.[6] Since both sets of rules are generally compatible, the bibliographic searcher at Penrose Library uses the AACR rules to judge possible main entries to guide his search.

The searcher, therefore, must not only be alert to that entry which is most likely to be the main entry, but also be alert to the possibility that under AACR rules a number of entries may be good candidates for selection as the main entry for a particular item. The partial or complete proceedings of a symposium, for example, may be entered under the name of the symposium, under the name of an editor, or under the distinct title of the item containing those proceedings.[7] In many areas AACR rules are so vague as to the choice of a main entry that the cataloger must use what he considers to be good judgment in the selection of his main entry. As M. Nabil Hamdy has concluded in a recent study of the AACR rules:

> Above all it is clear that the determination of the main entries according to the rules is a rather complex process and one which can result in inconsistent, arbitrary or subjective decisions. The selection of the main entry, as specified by the rules, requires a considerable amount of decision making and searching through reference sources, which is both time-consuming and costly."[8]

Similarly, the searching of an item through the NUC by possible main entries is both time-consuming and costly. The bibliographic searcher, being a sub-professional and being expected to find a match as quickly as possible, does not normally have the time to sit down with the AACR rules in hand and interpret them for each item he

searches. The searcher must instead rely on his general knowledge of the AACR rules and on his experience. He is, therefore, forced to list and search all the possible entries that in his judgment a Library of Congress cataloger might select as the main entry. Since there might be a number of author and corporate possibilities for main entry (as well as the possibility of title main entry) and since the names of authors and corporate bodies are subject to formalization under one or the other sets of rules used by the Library of Congress, as many as four possible main entries may confront the searcher and having to search five possible main entries for one item is not unheard of.

Problem Statement II: Title Searching

It is more and more being suggested by persons knowledgable in the library world that a search by title through a title access tool would be quicker and cheaper than a search by main entry or possible main entries through the NUC. The advantage of title access is obvious: in the vast majority of cases the searcher would be required to search only one bit of bibliographic information in order to locate the entire LC card. Occasionally two titles would have to be searched if the item had a distinctive title and were part of a set with a different title that the Library of Congress may have cataloged as a set or if the title of the item were unclear due to its presentation on the title page. A number of other circumstances might require a two-title search for an item, but an item having more than two possible titles is extremely rare.[9] Moreover, the searcher would have to be familiar only with those rules pertaining to the

recording of the title and these rules are considerably simpler than the rules for main entry.

A number of studies have been done which demonstrate the desirability of title access for the benefit of library patrons as well as bibliographic searchers. One such study, carried out at the University of Michigan by Tagliacozzo et al., reports that "the chance that a user would approach the catalogue with perfect or nearly perfect information is much higher in the case of titles than in the case of authors (70.0% v. 41.0%)."[10] Another study, done at the Atomic Weapons Research Establishment, Aldermaston, England, by Ayers et al., reports that, "...the title information was completely accurate for more than 90% of the sample, while the comparable figure for author information was under 75%."[11] Elizabeth Tate, in a study examining, "...the American library catalog in terms of its efficiency in locating books," reports simply that, "...the title is a more efficient finding device than the main entry..."[12] If the title is so superior to main entry in the location of items, it is only logical to exploit this superiority in order to make the bibliographic searcher's search through single-entry catalogs quicker and less costly.

In a time when bibliographic control is being hampered by slow and cumbersome cataloging rules that cannot keep up with the deluge of items being published and when library budgets for routine cataloging functions are being strained and even cut, libraries are becoming less interested in preserving the literary unit and more interested in being able to quickly and inexpensively locate a particular item. The recent vote of the National Program for Acquisi-

tions and Cataloging (NPAC) libraries to have depository cards from LC arranged by title rather than by main entry and OCLC's on-line title access capability are demonstrations of the demand for and the utility of title access tools. Moreover, the recent publication of Gale's English Language Books by Title[13] (1970), of Abel's MARC Plus: A Cataloging Service[14] (1973), and of Information Dynamics Corporation's LC/Title Register[15] (1973) are evidence that libraries are creating a commercial market for tools that permit the efficient location of bibliographic information. Hopefully, the results of this study will show not only that the research methodology adopted is a valid one, but also that the title approach to bibliographic searching, and beyond that to the bibliographic control of materials, is a practical and relatively inexpensive approach that ought to be tried.

Justification of the Study

This study was suggested to the authors by Dr. M. Nabil Hamdy, Associate Professor of Library Science, Graduate School of Librarianship, University of Denver. A literature search following Dr. Hamdy's suggestion revealed a complete lack of literature on the time and cost involved in searching by main entry versus the time and cost involved in searching by title. In a less formal sense, the study is further justified by the personal interest of the authors, both of whom are bibliographic searchers at the Penrose Library, University of Denver, and thus well aware of the great amount of time and money that goes into the main entry searching method used by the library.

Methodology

This study is to develop reliable data for the expression of time and cost of bibliographic searching. If this study is to develop such data, it must be concerned with the control of the following variables:

1. Who is to do the searching?
2. What is to be searched?
3. Where is the searching to be done?
4. What is the method of searching used?
5. What tools are to be used in searching?
6. What type of data is to be collected?
7. How is the data to be analyzed?

These variables as listed above suggest the discussion which follows.

The searching was done by five bibliographic searchers at the University of Denver, Penrose Library, Acquisitions Department. The authors shall assume that each searcher is competent; however, the data collected supplies enough information to include correction for varying competencies.

The material searched was selected from those library materials received by the Acquisitions Department from January to March 1973. All materials that were searched by the five bibliographic searchers, and that were estimated or known to have an imprint date of 1969 or later were included in the sample. The only restriction which was placed, but never met, was that the sample size should not exceed 1,000.

The searching was done in two libraries and three locations,

First the samples were searched by the five searchers at the bibliographies section of the reference collection, Penrose Library, using the Library of Congress' National Union Catalog (NUC) whose entry access is the main entry. The sample was then taken to the University of Colorado Norlin Library, Catalog Department, where it was searched by one of the authors through the file of Title II (T II) L.C. Depository Cards whose entry access is title. The same sample was then taken to the Penrose Library Acquisitions Department and searched by the other author through the Gale Research Company's English Language Books by Title (ELBT) whose entry access is title. Prior to searching in ELBT the sample was modified to conform to the limitations of this tool--all foreign language titles and all those titles whose imprint dates were estimated or known not to be between 1969-1971 were removed from the sample. Through this process, the sample size was reduced from 771 to 307.

The method of searching was therefore defined in two entry access modes. One was by title in the ELBT and T II. The other was by main entry in the NUC.

The searching in the ELBT and T II was done by the authors since it would have been detrimental for Penrose Library to allow the five searchers to re-search items in the ELBT and T II after having searched the items in the NUC.

In order to carry out the actual timing for each search the five searchers were given a two page manual entitled, "Search Rules." (See Appendix C, p. 100) This contains four main sections: a) objectives, b) general instructions, c) search methodology and d) timing methodology. A general meeting was held of those to be involved in

the search at which time the searchers were given an opportunity to question any statements they felt were unclear or ambiguous. Stopwatches were then made available to the searchers and the sample search began.

Since the entire searching process and the physical location of bibliographic tools vary from library to library, only the time involved in the search through the three tools (NUC, T II, and ELBT) was timed. The authors realize that this is only part of the total search mechanism.

The tools used for searching in this study were the Library of Congress' National Union Catalog, the Title II Library of Congress' Depository Card file, and the Gale Research Company's, English Language Books by Title. They are discussed in greater detail in the following section.

The type of data to be collected by the five searchers was explained in a second general meeting. The authors asked the searchers to do the following things: 1) continue to supply the cataloging department with pre-cataloging information, 2) time their search in the NUC with a stopwatch, 3) record this time in the appropriate place on the data sheet. (See "Search Rules", p. 2, Appendix C, p. 101), 4) record only a perfect match and identify it with a (✓) on the data sheet in the NUC search, and 5) make out a separate data sheet for each of the possible main entries searched. The data sheet was then submitted to careful scrutiny by the searchers and all questions were discussed.

The cost analysis by time variance method used in this study was chosen because it is a standard accounting method, widely used in

business and industry, and because it is an appropriate method by which to evaluate the searching procedure. In this method standard searching times and standard rates of pay are established and then compared with actual times and actual rates of pay on a per item basis. The standard time is standard in the sense that it is an average time; no arbitrary times are used. The time variance method yields tables that show standard times and real times for each of the tools in which the item was searched. Since time is the primary unit of data, the authors feel other libraries will be able to apply their particular rates of pay to the data and thus determine their own costs of searching. Such tables are readable and meaningful once the basic principles of the method are understood. The authors feel that cost, determined in this study as a function of time and rate of pay, will suffice to show the most inexpensive method of searching.

Tools Used in the Study

Three tools were chosen for study and comparison: the NUC; the ELBT[16]; and the LC NPAC depository card set (which shall hereafter be referred to as the "Title II file") arranged by title, located at the Norlin Library, University of Colorado, Boulder, Colorado. This Title II file also contains a negligible number of cards for items cataloged originally at the Norlin Library. The NUC and the Title II files were chosen because they are standard tools used by many libraries in their bibliographic searching operations. The Title II file, of course, is influenced by local filing, exclusion and weeding practices, but basically a Title II file arranged by title is a Title II file arranged by title.[17] The ELBT, probably

the littliest known and least used of the three tools, was chosen because it offers the location of LC cards by title in books catalog form. Moreover, since the ELBT uses the same font as the NUC, card reproduction facilities used for the NUC can also be used for card reproduction from the ELBT.

The NUC contains all catalog cards printed at the Library of Congress for monographs and serials cataloged by the Library of Congress as well as union catalog entries for the same types of items. The NUC is published monthly with three quarterly cumulations which are then replaced by annual cumulations at the end of the year except at the end of each fifth year when a quinquennial cumulation replaces the four previous annual cumulations along with the monthly and quarterly catalogs of the year immediately preceding the quinquennial cumulation. Thus, when the December issue appears, the searcher must search through at least six catalogs (three quarterly and three monthly) to cover that single year. Since quarterly cumulations are slow in appearing and since the yearly and quinquennial cumulations do not begin to appear for some months into the next year, it is not unusual that more than six NUC catalogs must be searched. For example, at the time of this writing, searchers at Penrose Library must search for an item published in 1972 through nine NUC catalogs--three 1972 monthlies, three 1972 quarterlies and three 1973 monthlies (the March 1973 quarterly has not yet appeared and the first volumes of the 1968-1972 quinquennial set are not expected until the end of the year).

When the study began, items were searched through any of the appropriate NUC catalogs held by Penrose Library at that time. They

are:

1969 - yearly cumulation

1970 - yearly cumulation

1971
- Jan.-March - quarterly cumulation
- April-June - quarterly cumulation
- July-Sept. - quarterly cumulation
- Oct.
- Nov.
- Dec.

1972
- Jan.-March - quarterly cumulation
- April-June - quarterly cumulation
- July
- August

During the course of the study, the July 1972 and August 1972 monthlies were superseded by the September 1972 quarterly and the October 1972, November 1972 and December 1972 monthlies were received. Since the study was done under normal working conditions, items were searched through appropriate NUC catalogs available at the time of any particular search. The NUC is alphabetically arranged according to LC rules for filing.

The ELBT contains all Library of Congress NPAC depository cards for books and serials in the English language for 1969 through 1971, arranging them by title. The card is not altered in any manner, hence the main entry still appears on the card although it is disregarded for arrangement purposes except when it is a title main entry or when it is used for sub-arrangement where more than one item have identical titles. The filing order of the cards follows the rules

outlined in the introduction to the ELBT (See Appendix F, p. 118). The ELBT was originally scheduled to be published in three quarterly issues and one yearly cumulated set each year. Apparently due to lack of interest in the tool, no quarterly issues for 1971 and 1972 were ever published. Thus the ELBT now consists of one 1969-1970 basic set and one 1971 yearly set. As of early spring of 1973, Gale Research, publishers of the ELBT, was trying to decide whether or not to publish a 1972 yearly set. Since no 1972 volumes have been received at Penrose Library as of late July of 1973, it is probable that publication has been indefinitely postponed.[18]

Hypothesis and Operational Definitions

The hypothesis of this study is that bibliographic searching by title takes less time than bibliographic searching by main entry. A corollary hypothesis of this study is that bibliographic searching by title is less costly than bibliographic searching by main entry. "Bibliographic searching by main entry" is defined as 1) looking for a match for a particular item in the NUC from the most recent NUC catalog through the 1969 annual cumulative volume on the basis of preselected possible main entry or main entries; and 2) looking for a match for a particular item in the NUC from the earliest appropriate catalog to the most recent on the basis of preselected possible main entry or main entries. A search is ended when the 1969 volume is closed, when the most recent NUC catalog is closed, or when a match is found. A flowchart of bibliographic searching by main entry is given in Appendix B, Flowchart II, p. 98. Time is measured by a stop-

watch started by the searcher himself when he opens a particular NUC catalog and stopped by him when that catalog is closed. This process is continued until all appropriate catalogs have been searched or until a match is found. "Bibliographic searching by title" is defined as 1) looking for a match for a particular item in the ELBT in the 1971 annual cumulation and then the 1969-1970 basic set or vice-versa (depending on the imprint date) on the basis of a title taken from a title page or represented as being a title on a request form and 2) looking for a match for a particular item in the appropriate catalog drawer of Norlin Library's Title II file. Flowcharts of bibliographic searching by title in the ELBT and the Title II files are given in Appendix B, Flowchart I, p. 97 and Flowchart III, p. 99, respectively. In the case of the ELBT, time is measured by a stopwatch started by the searcher himself when he opens a particular volume and stopped by him when that volume is closed. This process is repeated for the other appropriate volume if a match is not found in the previous volume. In the case of the Title II file, time is measured by a stopwatch started by the searcher himself when he pulls out the appropriate Title II file drawer and stopped by him when that drawer is pushed back into the cabinet or when a match is found. In cases where the drawer has to be entirely removed from the cabinet, time is measured by the searcher himself when he begins manipulating the cards in the drawer and stopped when he ceases to manipulate cards or when a match is found. Cost is defined as time used in searching multiplied by $/sec.

Limitations of the Study

There are four major limitations to this study. First, it is directly relevant only to those libraries that search the NUC for LC copy or information in the course of their searching and/or pre-cataloging processes. Although no figures or estimates have been found in print concerning the number of libraries using such a method, there is a general opinion among members of the profession here at the University of Denver that enough medium to large sized public and university libraries do rely on this method to make the study useful within the profession.

A second limitation is the restriction of items searched to items not excluded from Norlin Library's Title II file as determined by their exclusion policy.[19] This is a self-imposed limitation so that the Title II file can be used to measure time in real title searches rather than relying on a methodology that would only simulate a title search. Moreover, the Norlin Library's policy does not exclude such a large variety of types of cards that large numbers of cards would not be included in the file.

A third limitation is that, since the study was done in a particular library, the nature of the items available for searching--i.e., those acquired by Penrose Library--may not reflect the nature of items acquired by all libraries using this type of searching and/or pre-cataloging. The problem here is greatest, perhaps, in public libraries that tend to acquire heavily in popular fiction and popular non-fiction--both being areas where items tend to have an obvious single author and hence an obvious single main entry possibility.

The fourth and perhaps most serious limitation is that the

selection of possible main entries or main entry was done subjectively by five bibliographic searchers, including the authors of this study, all employed in the Acquisitions Department of Penrose Library. Such subjectivity in selecting possible main entries or main entry may result in bias. Since these searchers each have one to three years experience in searching, they are assumed to be competent and hence any resulting bias is non-systematic.

FOOTNOTES FOR CHAPTER I

[1]This list is taken from George Lowy, A Searcher's Manual (Shoe String Press, 1965), pp. 3-4.

[2]This is not an operational definition. Operational definitions are given on p. 10.

[3]LC Copy -- a photograph of an LC card, reproduced from the NUC and used for card production at Penrose Library, University of Denver.

[4]LC -- the actual card image as it appears in the NUC.

[5]Anglo-American Cataloging Rules...North American Text with supplement of additions and changes (Chicago: American Library Association, 1970), p. 345.

[6]For samples of the results of LC's superimposition policy see Carolyn Small, "Anglo-American Cataloging Rules: Selection and Form of Entry," Library Resources and Technical Services, XIII (Winter, 1969), p. 27.

[7]For some examples of conflicting main entries for the same item and other oddities see Appendix G, p. 120.

[8]M. Nabil Hamdy, The concept of main entry as represented in the Anglo-American Cataloging Rules. A critical appraisal with some suggestions: Author main entry vs. title main entry (Littleton, Colorado: Libraries Unlimited, Inc., 1973), pp. 129-30.

[9]For a rundown on the many ways a title can be abused by a cataloger, see Seymour Lubetzky, "Titles: Fifth Column of the Catalog," Library Quarterly, XI (October, 1941), pp. 412-423.

[10]Renata Tagliacozzo, Manfred Kochen and Lawrence Rosenberg, "Access and Recognition: From Users' Data to Catalogue Entries," Journal of Documentation, XXVI (September, 1970), p. 240.

[11]F. H. Ayers, Janice German, N. Loukes, and R. H. Searle, "Author versus Title: A comparative survey of the accuracy of the information which the user brings to the library catalogue," Journal of Documentation, XXIV (December, 1968), p. 268.

[12]Elizabeth L. Tate, "Main entries and citations: One test of the revised cataloging code," Library Quarterly, XXXIII (April, 1963), p. 185.

[13]English Language Books by Title (Detroit: Gale Research, 1969/70-).

[14]MARC Plus: A Cataloging Service (Richard Abel Co., 1973-). This tool is a microfiche index by title to MARC tape records. It is planned to include retrospective material from 1965 through 1972.

[15]LC/Title Register: English and Foreign Entries (Information Dynamics Corp., 1973-). This tool is a microfiche register by title of all NPAC depository cards printed at the Library of Congress. It is planned to include retrospective material from 1970 through 1972.

[16]See footnote 13.

[17]Exclusion and filing rules for the Norlin Library's Title II file appear in Appendices D and E, pp. 103-117.

[18]Gale Research Company, private communication, January 9, 1973.

[19]See footnote 17.

CHAPTER II

DATA ANALYSIS

Sample Description

The total number of samples is 771. Of the total, 307 were searched in ELBT, 771 in NUC and 771 in Title II. The ELBT sample consisted of 125 requests, 161 monographs, and 21 serials. The T II and NUC sample consisted of 177 requests, 572 monographs, and 22 serials. All three types of library materials (requests, monographs, and serials) were treated identically in the searching process.

Time Analysis

In order to describe and compare the amount of time involved in searching, it is best to express first the information gathered from Tables 1, 2, and 3 (see Appendix A, pp. 32-98) in tabular form.

Table I

	Total Time in hrs.	Total No. of Items	No. of Entries	Successful Match
ELBT	1.56	307	310	148
NUC*	9.62	307	441	215
T II*	1.03	307	310	215

*These data elements apply only to those same 307 items searched in ELBT.

Table I shows that the least time was taken when searched in T II, and that the most time was taken in NUC. There is little

appreciable difference between time taken in ELBT and T II, the difference being .53. However, using the main entry approach in NUC resulted in a difference of 8.59 when compared to T II and 8.06 when compared to ELBT. Therefore, searching by main entry resulted in 89.3% more time than T II title entry searching and 84.8% more time than ELBT title entry searching.

In searching, a perfect match for the item is also desired. If one takes this into consideration, the success of finding a perfect match was 27.3% higher in the title access tools.

Table II

	Total Time in hrs.	Total No. of Items	No. of Entries	Successful Match
NUC	23.74	771	1224	229
T II	3.03	771	784	361

Table II shows that the least time was taken when searched in Title II, and that the most time was taken in NUC. The table also indicates that for the same number of items (771) searching through the Title II was 87.1% faster than searching in the NUC and that the success of finding a perfect match was 36.6% higher in Title II than in NUC.

Cost Analysis

The cost analysis is to be carried out by the time variance method. This method is employed by cost accountants to determine overhead variances for budget control and product costing.[1]

The following definitions should preface an explanation of the actual methodology in using this technique.

Variable cost - "A cost which is uniform per unit, but which fluctuates in total in direct proportion to changes in the related total activity or volume."[2]

Standard cost - "A carefully predetermined cost that should be attained. Usually expressed per unit."[3]

Variance - "The deviation of actual results from the expected or budgeted result."[4]

Usage variance - "The standard price for a given resource, multiplied by the difference between the actual quantity used and the total standard quantity allowed for the number of good units produced."[5]

Efficiency variance - "Usage variance applied to labor and variable overhead."[6]

Before this method is employed one must establish a standard cost. The following is an explanation of this procedure.

Standard Cost

The

Standard Cost = Standard Rate of Pay × Standard Time.

	Rate of pay in $/mo.		Hours/wk.
Searcher A	$326	@	40
Searcher B	$340	@	32.5
Searcher C	$340	@	40
Searcher D	$340	@	32.5
Searcher E	$340	@	32.5
Totals:	$1,686/mo.		172.5 hrs/wk.

Reducing to like units expressed in dollars per second we have

Standard Rate of Pay = $.000625/sec.

The sample was then separated by person. Using the weighted average method, an average time was taken for each searcher per searching method. This resulted in the following standard times

NUC

$$\text{Searcher A} = \frac{1944.9 \text{ (total time in sec)}}{25 \text{ (no. of items)}} = 77.7 \text{ sec/item}$$

Similarly,

$$\text{Searcher B} = \frac{6753.5}{43} = 97.0 \text{ sec/item}$$

$$\text{Searcher C} = \frac{4560.6}{47} = 97.0 \text{ sec/item}$$

$$\text{Searcher D} = \frac{12446.0}{182} = 68.4 \text{ sec/item}$$

$$\text{Searcher E} = \frac{39771.4}{474} = 126.1 \text{ sec/item}$$

An average of these times gives us the

Standard Time = 93.2 sec/item

and

Standard Cost (NUC) = $.058/item

Similarly, other standards were established for T II where

Standard Cost (T II) = $.009/item.

After removing those samples which were not valid, a similar technique was employed which yielded a

Standard Cost (ELBT) = $.011/item.

To recapitulate,

Standard Cost (NUC) = $.058

Standard Cost (T II) = $.009

Standard Cost (ELBT) = $.011

Now that a standard cost has been established let us take the item number A1 and show how Tables 1, 2, and 3 of Appendix A (pp. 32-98) were computed.

in Entry Possibility No. 1 of Item #A1

Year/Vol ________ CALL NO.

Page ________

Card ________

in Entry

Heinemann, Cooper

tle

Studies in Aggadah and Folk-literature

te 1971

41
42
68
69
70
71
72
3

tes:

SEARCH		Time 1		Time 2		Time 3		TOTAL
	NUC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1v	1969							
[illegible]	1970							
[illegible]	1971							
1v	1971	[illegible]		1.1		[illegible]		57.4
1v	1971							
[illegible]	1972							
[illegible]	1972	[illegible]				1[illegible]		34.6
[illegible]	19[illegible]	6.[illegible]		13.4		11.7		31.6
[illegible]	1973							
[illegible]	1975							
							TOTAL:	123.6

4.7

[illegible]her 2.7

23

Item # A1

TITLE-TO-FILE

TITLE ENTRY SEARCH - #1

Title:

Studies in Aggadah and Folk-literature

1971-

SEARCH		TIME	
TITLE TO FILE		[illegible]	[illegible]
			12.7

TITLE ENTRY SEARCH - #2

Title:

SEARCH	TIME	
TITLE TO FILE	MIN	SEC

//

[illegible]

TITLE ENTRY SEARCH - #1

Title:

Studies in Aggadah and Folk-literature.

1971

SEARCH		TIME	
LIST		MIN	SEC
Cum	66-70		7.6
Yearly	1971		8.2
			15.8

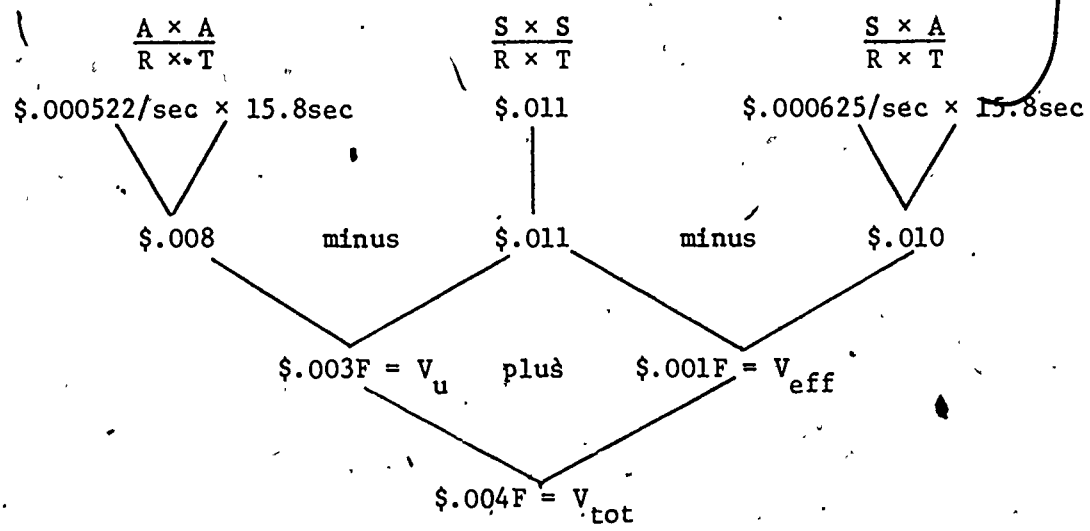
TITLE ENTRY SEARCH - #2

Title:

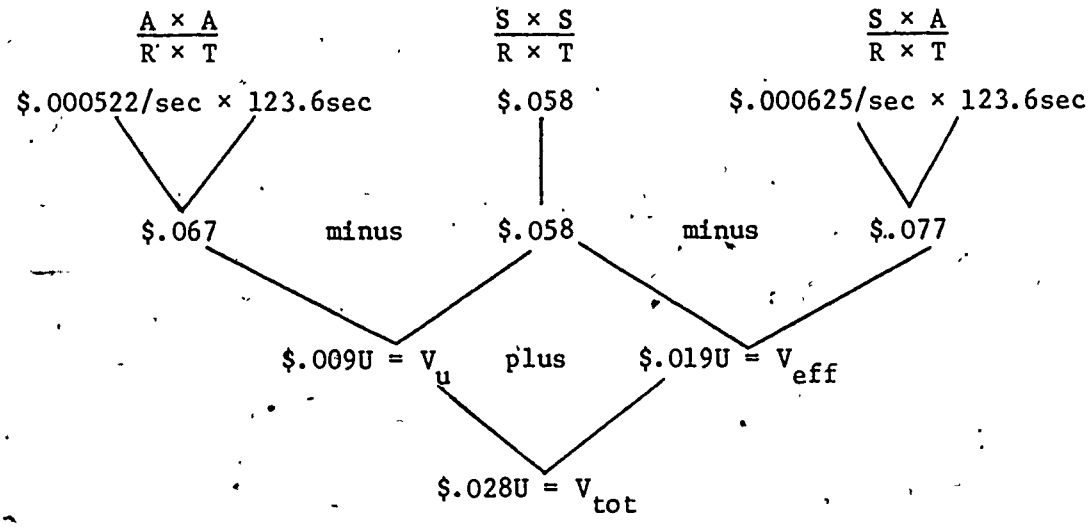
SEARCH		TIME	
[illegible]		MIN	SEC
Cum	[illegible]		
Yearly	19[illegible]		

Type of Main Entry:

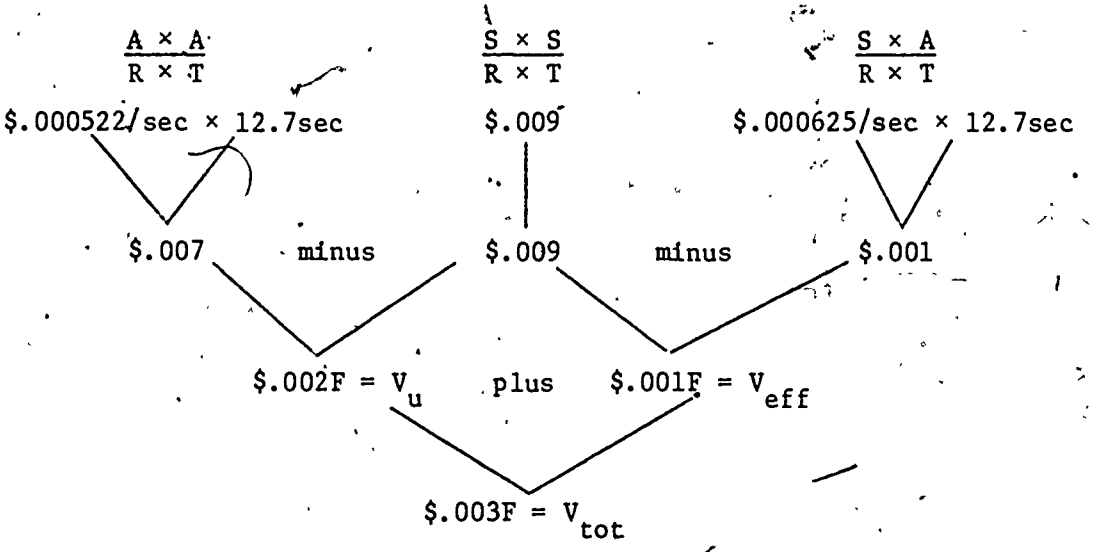
Item A1 for ELBT



Item A1 for NUC



Item A1 for Title II



Where

R = Rate of Pay in dollars per hour; T = Time in minutes taken for each search; U = Unfavorable; F = Favorable.

The variance is favorable if and only if the variance is less than the standard cost. The variance is unfavorable if and only if the variance is greater than the standard cost. The usage variance is equal to the absolute value of the standard cost minus the actual cost. The efficiency variance is equal to the absolute value of the standard cost minus the standard rate multiplied by the actual cost. Total variance is equal to the sum of the usage variance and the efficiency variance. The total variance is favorable if both the usage variance and the efficiency variance are favorable. The total variance is unfavorable if the efficiency variance and the usage variance are both unfavorable. If the usage variance and the efficiency variance differ in favorability, the two are subtracted and the larger determines the favorability or unfavorability as shown in the example above.

Table III

	Cost	V_u	V_{eff}	V_{tot}
NUC	$58.682	$15.356U	$10.820U	$26.176U
T II	$ 7.461	$ .621U	$ .074F	$ .547U

It is quite evident that if it costs $58.68 to search by main entry and $7.46 to search by title for the same number of items that searching by title in this study costs less than searching by main entry. How much less -- $51.22 less or in our case $.07 less per item.

Also, an efficiency expression of $.074F as compared with $10.82U can lead one to deduce that title entry searching is more efficient than main entry searching even though both methods are unfavorable when considering the total variance.

Sources of Error

There are no calculations in the time analysis to correct for dealing with the book catalog (NUC) and card catalog (T II). Such an operation is not within the scope of this study. The cost analysis by time variance method will correct for competencies of the various searchers which is the major source of variability in this study.

The amount of error due to regular stochastic processes is calculated in the following manner

$$SD = \sqrt{V_{tot}}$$

where

SD = Standard deviation

V_{tot} = total variance

Therefore the

$$SD_{(ELBT)} = \sqrt{.604U}$$

$$\approx .8$$

$$SD_{(NUC)} = \sqrt{26.176U}$$

$$\approx 5$$

$$SD_{(T\ II)} = \sqrt{.547U}$$

$$\approx .7$$

This results in an error possibility of 21.9% for ELBT, 18.9% for NUC and 9.3% for Title II.

FOOTNOTES FOR CHAPTER II

[1]Charles P. Horngren, Cost accounting: a managerial emphasis, 2nd ed. (Englewood Cliffs, New Jersey: Prentice-Hall, 1967), p. 229.

[2]Horngren, Cost accounting, p. 855.

[3]Horngren, Cost accounting, p. 854.

[4]Horngren, Cost accounting, p. 855.

[5]Ibid.

[6]Horngren, Cost accounting, p. 847.

CHAPTER III

CONCLUSIONS

Limitations imposed on the study do not reflect their sources of error as strongly with a larger and more representative sample. The authors feel the size of the sample enables them to be more conclusive in making statements about the two methods of searching.

This study has achieved its goal in that it has shown under the conditions and methodology previously indicated that main entry searching is more time consuming than title searching and that it is also more costly.

The question now arises as to which bibliographic tool libraries might use. Unfortunately, the publication of ELBT has been postponed indefinitely.[1] This leaves libraries with the choice of the NUC and T II. The cost of the NUC is $730/yr and $675 for the annual cumulation for a total of $1405/yr.[2] The University of Colorado Libraries estimates their cost of maintenance at $4,000/yr.[3] When one considers that searching the T II is 89.3% faster and that the success in finding a perfect match is 27.3% higher, libraries must decide their priorities and choose the method most applicable to their library situation.

FOOTNOTES FOR CHAPTER III

[1]Gale Research Company, private communication, January 9, 1973.

[2]U.S. Library of Congress Publications in Print, (Washington, D.C.: Library of Congress, 1972), p. 17.

[3]University of Colorado Libraries. Catalog Maintenance Division, private communication, July 26, 1973.

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University of Colorado Libraries. Catalog Maintenance Division, private communication, July 26, 1973.

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APPENDIX A

Table 1

ELBT

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
A	1	15.8	1	.008	.011	.010	.003F	.001F	.004F
	2	14.2	1*	.007	.011	.009	.004F	.002F	.006F
	3	26.3	1	.014	.011	.016	.003U	.005U	.008U
	4	11.0	1*	.006	.011	.007	.005F	.004F	.009F
	5	8.3	1*	.004	.011	.005	.007F	.006F	.013F
	6	17.4	1*	.009	.011	.010	.002F	.001F	.003F
	7	13.7	1*	.007	.011	.012	.001F	.002F	.006F
	8	12.2	1*	.006	.011	.008	.005F	.003F	.008F
	9	12.2	1*	.006	.011	.008	.005F	.003F	.008F
	10	15.0	1*	.008	.011	.009	.003F	.002F	.005F
	11	9.3	1*	.005	.011	.006	.006F	.005F	.011F
	12	11.5	1*	.006	.011	.007	.005F	.004F	.009F
	13	20.0	1*	.010	.011	.012	.001F	.001U	.000F
	14	11.7	1*	.006	.011	.007	.005F	.004F	.009F
	15	11.8	1*	.006	.011	.007	.005F	.004F	.009F
	16	6.4	1*	.003	.011	.004	.008F	.007F	.015F
	17	11.4	1*	.006	.011	.007	.005F	.004F	.009F
	18	16.2	1*	.008	.011	.010	.003F	.001F	.004F
	19	8.0	1*	.004	.011	.005	.007F	.006F	.013F
	20	11.2	1*	.006	.011	.007	.005F	.004F	.009F
	21	12.9	1*	.007	.011	.008	.004F	.003F	.007F
	22	28.6	1	.015	.011	.018	.004U	.007U	.011U
	23	15.0	1*	.008	.011	.009	.003F	.002F	.005F
	24	14.1	1*	.007	.011	.009	.004F	.002F	.006F
B	1	13.6	1*	.010	.011	.009	.001F	.002F	.003F
	3	30.8	1*	.028	.011	.025	.017U	.014U	.031U

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B 4	17.1	1	.012	.011	.011	.001U	.000	.001U
5	27.7	2	.019	.011	.017	.008U	.006U	.014U
7	8.6	1*	.006	.011	.005	.005F	.006F	.011F
8	27.4	1	.019	.011	.017	.008U	.006U	.014U
9	51.1	2	.028	.011	.025	.017U	.014U	.031U
10	21.4	1	.015	.011	.013	.004U	.002U	.006U
11	37.3	2	.026	.011	.023	.015U	.012U	.027U
12	34.3	1	.023	.011	.021	.012U	.010U	.022U
13	19.8	1*	.014	.011	.012	.003U	.001U	.004U
14	14.1	1*	.009	.011	.008	.002F	.003F	.005F
15	25.9	1	.018	.011	.016	.007U	.005U	.012U
16	18.8	1	.013	.011	.012	.002U	.001U	.003U
17	18.9	1	.013	.011	.012	.002U	.001U	.003U
18	28.4	1	.019	.011	.018	.008U	.009U	.017U
19	25.2	1	.018	.011	.016	.007U	.005U	.012U
20	23.8	1	.017	.011	.015	.006U	.004U	.010U
21	24.0	1	.017	.011	.015	.006U	.004U	.010U
22	21.0	1	.015	.011	.013	.004U	.002U	.006U
23	11.5	1	.036	.011	.032	.025U	.021U	.046U
R 1	7.7	1*	.005	.011	.005	.006F	.006F	.012F
R 2	7.6	1*	.015	.011	.004	.006F	.007F	.013F
R 3	7.6	1*	.012	.011	.011	.001U	.000	.001U
R 4	11.0	1*	.008	.011	.007	.003F	.004F	.007F
R 6	15.3	1*	.011	.011	.010	.000	.001F	.001F
R 7	9.9	1*	.007	.011	.006	.004F	.005F	.009F
R 8	12.5	1*	.009	.011	.008	.002F	.003F	.005F
R 9	10.2	1*	.007	.011	.006	.004F	.005F	.009F
R 10	23.5	1	.016	.011	.015	.005U	.004U	.009U

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A.	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B R 11	12.0	1*	.008	.011	.008	.003F	.003F	.006F
R 12	12.9	1	.009	.011	.008	.002F	.003F	.005F
R 13	17.6	1*	.012	.011	.011	.011U	.000	.001U
R 14	12.2	1*	.009	.011	.008	.002F	.003F	.005F
R 15	11.4	1*	.008	.011	.007	.003F	.004F	.007F
R 16	13.3	1*	.009	.011	.008	.002F	.003F	.005F
R 17	18.0	1	.013	.011	.011	.002U	.000	.002U
R 18	22.5	1	.016	.011	.014	.005U	.003U	.008U
R 19	22.0	1	.015	.011	.013	.004U	.002U	.006U
R 20	12.8	1	.009	.011	.008	.002F	.003F	.005F
R 21	21.1	1	.015	.011	.013	.004U	.002U	.006U
R 22	21.2	1*	.015	.011	.013	.004U	.002U	.006U
R 23	17.8	1	.012	.011	.011	.001U	.000	.001U
C 1	22.3	1*	.013	.011	.014	.002U	.003U	.005U
10	24.1	1	.014	.011	.015	.003U	.004U	.007U
13	18.7	1	.011	.011	.012	.000	.001U	.001U
14	21.3	1	.013	.011	.013	.002U	.002U	.004U
20	23.6	1	.014	.011	.014	.003U	.003U	.006U
22	21.2	1	.013	.011	.013	.002U	.002U	.004U
23	23.1	1	.014	.011	.014	.003U	.003U	.006U
27	21.4	1	.013	.011	.013	.002U	.002U	.004U
28	21.3	1	.013	.011	.013	.002U	.002U	.004U
30	23.5	1	.014	.011	.015	.003U	.004U	.007U
33	19.1	1	.011	.011	.011	.000	.000	.000
D 15	16.2	1	.011	.011	.010	.000	.001F	.001F
16	24.6	1	.017	.011	.015	.006U	.004U	.010U
17	20.3	1	.014	.011	.013	.003U	.002U	.005U
22	17.4	1*	.012	.011	.010	.001U	.001F	.000

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 23	8.3	.1*	.006	.011	.005	.005F	.006F	.001F
24	12.8	1*	.009	.011	.008	.002F	.003F	.005F
38	10.0	1*	.007	.011	.006	.004F	.005F	.009F
54	24.0	1	.017	.011	.015	.006U	.004U	.010U
79	25.1	1*	.018	.011	.016	.007U	.005U	.012U
111	23.0	1	.016	.011	.014	.005U	.003U	.008U
120	19.6	1	.014	.011	.012	.003U	.001U	.004U
121	21.4	1	.015	.011	.013	.004U	.002U	.006U
146	23.8	1*	.017	.011	.015	.006U	.004U	.010U
148	8.7	1*	.006	.011	.005	.005F	.006F	.011F
152	27.0	1*	.019	.011	.017	.008U	.006U	.014U
154	23.2	1	.016	.011	.015	.005U	.004U	.009U
158	12.1	1*	.009	.011	.008	.002F	.003F	.005F
164	9.7	1*	.007	.011	.006	.004F	.005F	.009F
170	16.4	1*	.011	.011	.010	.000	.001F	.001F
171	13.4	1*	.009	.011	.008	.002F	.003F	.005F
172	11.4	1*	.008	.011	.007	.003F	.004F	.007F
173	19.9	1*	.014	.011	.012	.003U	.001U	.004U
175	19.7	1	.014	.011	.012	.003U	.001U	.004U
176	9.5	1*	.007	.011	.006	.004F	.005F	.009F
177	24.5	1*	.017	.011	.015	.006U	.004U	.010U
178	19.9	1*	.014	.011	.012	.003U	.001U	.004U
183	20.9	1*	.015	.011	.013	.004U	.002U	.006U
192	22.7	1	.016	.011	.014	.005U	.003U	.008U
196	25.1	1	.018	.011	.016	.007U	.005U	.012U
E 9	31.4	1	.023	.011	.020	.010U	.009U	.019U
10	20.9	1	.015	.011	.013	.004U	.002U	.006U
11	20.6	1	.014	.011	.013	.003U	.002U	.005U

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E. 12	35.7	1	.025	.011	.022	.014U	.011U	.025U
13	37.9	1	.026	.011	.024	.015U	.013U	.028U
14	25.1	1	.018	.011	.016	.007U	.005U	.012U
15	16.3	1	.011	.011	.010	.000	.001F	.001F
16	21.4	1	.015	.011	.013	.004U	.002U	.006U
17	9.0	1*	.006	.011	.006	.005F	.005F	.010F
18	7.0	1*	.005	.011	.004	.006F	.007F	.013F
19	15.4	1*	.010	.011	.010	.001F	.001F	.002F
20	14.7	1*	.010	.011	.009	.001F	.002F	.003F
21	8.7	1*	.006	.011	.005	.005F	.006F	.011F
22	12.6	1*	.009	.011	.008	.002F	.003F	.005F
23	32.9	1*	.023	.011	.020	.012U	.009U	.021U
35	26.2	1	.018	.011	.016	.007U	.005U	.012U
61	14.1	1*	.010	.011	.009	.001F	.002F	.003F
65	22.6	1	.016	.011	.014	.005U	.003U	.008U
67	19.4	1*	.014	.011	.012	.003U	.001U	.004U
74	22.3	1	.016	.011	.014	.005U	.003U	.008U
98	16.1	1	.011	.011	.010	.000	.001F	.001F
99	24.1	1	.017	.011	.015	.006U	.004U	.010U
110	17.5	1	.012	.011	.011	.001U	.000	.001U
120	22.2	1	.016	.011	.014	.005U	.003U	.008U
130	20.9	1	.015	.011	.013	.004U	.002U	.006U
131	22.2	1	.016	.011	.014	.005U	.003U	.008U
143	21.2	1	.015	.011	.013	.004U	.002U	.006U
156	19.5	1	.014	.011	.012	.003U	.001U	.004U
157	21.2	1	.015	.011	.013	.004U	.002U	.006U
158	21.1	1	.015	.011	.013	.004U	.002U	.006U
159	26.0	1	.018	.011	.016	.007U	.005U	.012U

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 160	27.8	1	.019	.011	.017	.008U	.006U	.014U
165	17.4	1	.012	.011	.011	.001U	.000	.001U
173	23.4	1	.016	.011	.015	.005U	.004U	.009U
210	23.5	1	.016	.011	.015	.005U	.004U	.009U
212	24.0	1	.017	.011	.015	.006U	.004U	.010U
213	21.4	1	.015	.011	.013	.004U	.002U	.006U
214	18.2	1	.013	.011	.011	.002U	.000	.002U
218	25.0	1	.017	.011	.016	.006U	.005U	.011U
221	26.5	1	.019	.011	.017	.008U	.006U	.014U
222	22.0	1	.015	.011	.014	.004U	.003U	.007U
227	25.9	1	.018	.011	.016	.007U	.005U	.012U
229	27.8	1	.019	.011	.017	.008U	.006U	.014U
230	20.9	1	.015	.011	.013	.004U	.002U	.006U
233	8.6	1*	.006	.011	.005	.005F	.006F	.011F
234	11.1	1*	.007	.011	.007	.004F	.004F	.008F
235	10.5	1*	.007	.011	.007	.004F	.004F	.008F
236	11.9	1*	.008	.011	.007	.003F	.004F	.007F
237	16.2	1*	.011	.011	.010	.000	.001F	.001F
238	10.8	1*	.008	.011	.007	.003F	.004F	.007F
239	8.9	1*	.006	.011	.006	.005F	.005F	.010F
240	12.2	1*	.009	.011	.008	.002F	.003F	.005F
253	20.2	1	.014	.011	.013	.003U	.002U	.005U
272	21.2	1	.015	.011	.013	.004U	.002U	.008U
281	21.7	1	.015	.011	.014	.004U	.003U	.007U
292	25.5	1	.018	.011	.016	.007U	.005U	.012U
293	38.9	1*	.027	.011	.024	.016U	.013U	.029U
294	7.6	1*	.005	.011	.005	.006F	.006F	.012F
295	34.7	1*	.024	.011	.021	.013U	.010U	.023U

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 298	8.7	1*	.006	.011	.005	.005F	.006F	.011F
301	21.9	1	.015	.011	.014	.004U	.003U	.007U
302	19.8	1	.014	.011	.012	.003U	.001U	.004U
323	9.1	1*	.006	.011	.006	.005F	.005F	.010F
326	23.0	1*	.016	.011	.014	.005U	.003U	.008U
327	3.1	1*	.002	.011	.002	.009F	.009F	.018F
328	8.6	1*	.006	.011	.006	.005F	.005F	.010F
329	5.6	1*	.004	.011	.004	.007F	.007F	.014F
330	12.5	1*	.009	.011	.008	.002F	.003F	.005F
331	7.6	1*	.005	.011	.005	.006F	.006F	.012F
332	11.5	1*	.008	.011	.007	.003F	.004F	.007F
333	12.3	1*	.009	.011	.008	.002F	.003F	.005F
334	7.8	1*	.005	.011	.005	.006F	.006F	.012F
335	11.0	1*	.008	.011	.007	.003F	.004F	.007F
336	10.0	1*	.007	.011	.006	.004F	.005F	.009F
337	25.0	1*	.017	.011	.016	.006U	.005U	.011U
338	11.6	1*	.008	.011	.007	.003F	.004F	.007F
349	31.5	1	.022	.011	.020	.011U	.009U	.020U
R 14	13.1	1*	.009	.011	.008	.002F	.003F	.005F
R 15	24.0	1	.017	.011	.015	.006U	.004U	.010U
R 16	16.5	1*	.012	.011	.010	.001U	.001F	.000
R 17	9.9	1*	.007	.011	.006	.004F	.005F	.009F
R 18	26.3	1	.018	.011	.016	.007U	.005U	.012U
R 19	11.1	1*	.008	.011	.007	.003F	.004F	.007F
R 20	12.5	1*	.009	.011	.008	.002F	.003F	.005F
R 21	18.0	1*	.013	.011	.011	.002U	.000	.002U
R 22	8.0	1*	.006	.011	.005	.005F	.006F	.011F
R 23	11.2	1*	.008	.011	.007	.003F	.004F	.007F

* Successful match

Table 1 (Continued)

Item No.-	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 24	29.2	1	.020	.011	.018	.009U	.007U	.016U
R 25	8.7	1*	.006	.011	.005	.005F	.006F	.011F
R 26	13.2	1*	.009	.011	.008	.002F	.003F	.005F
R 27	30.8	1	.022	.011	.019	.011U	.008U	.019U
R 28	9.5	1*	.007	.011	.006	.004U	.005U	.009U
R 29	25.4	1	.018	.011	.016	.007U	.005U	.012U
R 30	8.4	1*	.006	.011	.005	.005F	.006F	.011F
R 31	12.9	1*	.009	.011	.008	.002F	.003F	.005F
R 34	13.6	1*	.010	.011	.009	.001F	.002F	.003F
R 37	30.3	1	.021	.011	.019	.010U	.008U	.018U
R 38	28.6	1	.020	.011	.018	.009U	.007U	.016U
R 39	13.8	1	.010	.011	.009	.001F	.002F	.003F
R 40	8.0	1*	.006	.011	.005	.005F	.006F	.011F
R 41	27.3	1*	.019	.011	.017	.018U	.006U	.014U
R 42	15.6	1*	.011	.011	.010	.000	.001F	.001F
R 43	17.2	1*	.012	.011	.010	.001U	.001F	.000
R 44	28.0	1*	.020	.011	.018	.009U	.007U	.016U
R 45	27.3	1*	.020	.011	.017	.009U	.006U	.015U
R 46	12.8	1*	.009	.011	.008	.002F	.003F	.005F
R 48	10.5	1*	.007	.011	.007	.004F	.004F	.008F
R 50	12.4	1*	.007	.011	.008	.004F	.003F	.007F
R 51	25.5	1*	.018	.011	.016	.007U	.005U	.012U
R 52	24.9	1*	.017	.011	.016	.006U	.005U	.011U
R 53	14.5	1*	.010	.011	.009	.001F	.002F	.003F
R 54	9.0	1*	.006	.011	.006	.005F	.005F	.010F
R 55	14.0	1*	.010	.011	.009	.001F	.002F	.003F
R 56	15.3	1*	.011	.011	.010	.000	.001F	.001F
R 57	15.9	1*	.011	.011	.010	.000	.001F	.001F

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 58	12.2	1*	.009	.011	.008	.002F	.003F	.005F
R 59	11.1	1*	.008	.011	.007	.003F	.004F	.007F
R 60	13.0	1*	.009	.011	.008	.002F	.003F	.005F
R 61	22.9	1*	.016	.011	.014	.005U	.003U	.008U
R 62	16.5	1*	.012	.011	.010	.001U	.001F	.000
R 63	17.1	1*	.012	.011	.011	.001U	.000	.001U
R 64	25.4	1*	.018	.011	.016	.007U	.005U	.012U
R 65	21.4	1*	.015	.011	.013	.004U	.002U	.006U
R 66	25.2	1	.018	.011	.016	.007U	.005U	.012U
R 68	13.1	1*	.009	.011	.008	.002F	.003F	.005F
R 70	21.7	1	.015	.011	.014	.004U	.003U	.007U
R 71	18.7	1	.013	.011	.012	.002U	.001U	.003U
R 72	30.4	1	.021	.011	.019	.010U	.008U	.018U
R 73	19.4	1	.014	.011	.012	.003U	.001U	.004U
R 74	6.5	1	.005	.011	.004	.006F	.007F	.013F
R 75	8.2	1	.006	.011	.005	.005F	.006F	.011F
R 76	6.8	1	.005	.011	.004	.006F	.007F	.013F
R 78	11.6	1*	.008	.011	.007	.003F	.004F	.007F
R 79	16.7	1	.012	.011	.010	.001U	.001F	.000
R 80	25.0	1	.017	.011	.016	.006U	.005U	.011U
R 82	24.0	1	.017	.011	.015	.006U	.004U	.010U
R 83	15.8	1*	.011	.011	.010	.000	.001F	.001F
R 84	45.9	1	.032	.011	.029	.021U	.018U	.039U
R 86	19.5	1	.014	.011	.012	.003U	.001U	.004U
R 87	27.0	1	.019	.011	.017	.008U	.006U	.014U
R 88	10.3	1*	.007	.011	.006	.004F	.005F	.009F
R 89	21.8	1	.015	.011	.014	.004U	.003U	.007U
R 90	8.8	1*	.006	.011	.006	.005F	.005F	.010F

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 93	18.4	1	.013	.011	.012	.002U	.001U	.003U
R 94	26.4	1*	.018	.011	.017	.007U	.006U	.013U
R 95	17.7	1	.012	.011	.011	.001U	.000	.001U
R 96	23.2	1	.016	.011	.015	.005U	.004U	.009U
R 97	12.7	1	.009	.011	.008	.002F	.003F	.005F
R 98	24.1	1	.017	.011	.015	.006U	.004U	.010U
R 99	29.0	1	.020	.011	.018	.009U	.007U	.016U
R100	11.0	1*	.008	.011	.007	.003F	.004F	.007F
R101	26.0	1	.018	.011	.016	.007U	.005U	.012U
R102	10.8	1	.008	.011	.007	.003F	.004F	.007F
R103	16.3	1	.011	.011	.010	.000	.001F	.001F
R104	28.7	1	.020	.011	.018	.009U	.007U	.016U
R105	24.1	1	.017	.011	.015	.006U	.004U	.010U
R106	15.9	1*	.011	.011	.010	.000	.001F	.001F
R107	24.8	1	.017	.011	.016	.006U	.005U	.011U
R108	6.9	1*	.005	.011	.004	.006F	.007F	.013F
R109	14.2	1*	.010	.011	.009	.001F	.002F	.003F
R110	28.2	1	.020	.011	.018	.009U	.007U	.016U
R111	18.8	1	.013	.011	.012	.002U	.001U	.003U
R112	19.9	1*	.014	.011	.012	.003U	.001U	.004U
R113	23.5	1	.016	.011	.015	.005U	.004U	.009U
R114	25.5	1	.018	.011	.016	.007U	.005U	.012U
R117	17.5	1	.012	.011	.011	.001U	.000	.001U
R118	22.5	1	.016	.011	.014	.005U	.003U	.008U
R120	10.5	1*	.007	.011	.007	.004F	.004F	.008F
R121	13.4	1*	.009	.011	.008	.002F	.003F	.005F
R122	20.7	1	.014	.011	.013	.003U	.002U	.005U
R123	9.9	1*	.007	.011	.006	.004F	.005F	.009F

* Successful match

Table 1 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R124	11.1	1*	.008	.011	.007	.003F	.004F	.007F
R125	21.3	1	.015	.011	.013	.004U	.002U	.006U
R126	26.0	1	.018	.011	.016	.007U	.005U	.012U
R127	26.1	1	.018	.011	.016	.007U	.005U	.012U
R130	10.9	1*	.008	.011	.007	.003F	.004F	.007F
R131	18.0	1	.013	.011	.011	.002U	.000	.002U
R136	14.9	1	.010	.011	.009	.001F	.002F	.003F
R142	27.1	1	.019	.011	.017	.008U	.006U	.014U
R148	9.9	1	.018	.011	.016	.007U	.005U	.012U
307	5655.7	310.	3.626	3.168	3.314	.458U	.146U	.604U

* Successful match

Table 2

NUC

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
A	1	123.6	1	.067	.058	.077	.009U	.019U	.028U
	2	41.3	4*	.022	.058	.026	.036F	.032F	.068F
	3	467.9	4*	.244	.058	.292	.186U	.234U	.420U
	4	63.2	3*	.033	.058	.040	.025F	.018F	.043F
	5	45.5	3*	.024	.058	.028	.034F	.030F	.064F
	6	76.3	3*	.040	.058	.048	.018F	.010F	.028F
	7	32.3	3*	.017	.058	.020	.041F	.038F	.079F
	8	32.3	3*	.017	.058	.020	.041F	.038F	.079F
	9	30.0	3*	.016	.058	.019	.042F	.039F	.081F
	10	18.6	3*	.010	.058	.012	.048F	.046F	.094F
	11	16.8	3*	.009	.058	.011	.049F	.047F	.096F
	12	49.5	4*	.026	.058	.030	.032F	.028F	.060F
	13	28.3	3*	.015	.058	.018	.043F	.040F	.083F
	14	59.0	3	.030	.058	.037	.028F	.021F	.049F
	15	12.1	3*	.006	.058	.008	.052F	.050F	.102F
	16	37.1	3*	.019	.058	.023	.039F	.035F	.074F
	17	33.6	3	.018	.058	.021	.040F	.037F	.077F
	18	18.7	3*	.010	.058	.012	.048F	.046F	.094F
	19	47.3	3*	.025	.058	.030	.033F	.028F	.061F
	20	35.4	3*	.018	.058	.022	.040F	.036F	.076F
	21	15.9	3*	.008	.058	.010	.050F	.048F	.098F
	22	440.2	3	.230	.058	.275	.172U	.217U	.389U
	23	24.3	3*	.013	.058	.015	.045F	.043F	.088F
	24	26.5	3*	.014	.058	.017	.044F	.041F	.085F
	25	197.4	3*	.103	.058	.123	.045U	.065U	.110U
B	1	135.3	1*	.095	.058	.085	.037U	.027U	.064U

* Successful match.

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B 2	-----	7	----	.058	----	-----	-----	-----
3	123.7	1	.086	.058	.077	.028U	.019U	.047U
4	122.8	1	.086	.058	.077	.028U	.019U	.047U
5	-----	5	----	.058	----	-----	-----	-----
6	-----	4	----	.058	----	-----	-----	-----
7	-----	1	----	.058	----	-----	-----	-----
8	155.9	1	.110	.058	.097	.052U	.039U	.091U
9	354.3	4*	.248	.058	.221	.190U	.163U	.353U
10	283.7	2	.105	.058	.094	.047U	.036U	.083U
11	258.2	6	.180	.058	.161	.122U	.103U	.225U
12	185.7	1	.130	.058	.116	.072U	.058U	.130U
13	112.1	1*	.086	.058	.070	.028U	.012U	.040U
14	76.6	1*	.054	.058	.048	.004F	.010F	.014F
15	166.6	1	.116	.058	.104	.058U	.046U	.104U
16	95.1	1	.066	.058	.059	.008U	.001U	.009U
17	171.4	1	.120	.058	.107	.062U	.049U	.111U
18	79.5	1	.056	.058	.050	.002F	.008F	.010F
19	38.7	1*	.027	.058	.024	.031F	.034F	.065F
20	130.6	1	.091	.058	.082	.033U	.024U	.057U
21	162.1	1	.113	.058	.101	.055U	.043U	.098U
22	88.2	1	.062	.058	.055	.004U	.003F	.001U
R 1	27.7	1*	.019	.058	.017	.039F	.041F	.080F
R 2	62.9	3*	.044	.058	.040	.014F	.018F	.032F
R 3	27.5	1*	.019	.058	.017	.039F	.041F	.080F
R 4	73.0	2*	.051	.058	.047	.007F	.011F	.018F
R 6	20.8	1*	.015	.058	.013	.043F	.045F	.088F
R 7	61.4	2*	.043	.058	.038	.015F	.020F	.035F
R 8	29.2	1*	.020	.058	.018	.038F	.040F	.078F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B R 9	26.7	1*	.019	.058	.017	.039F	.041F	.080F
R 10	165.7	1*	.116	.058	.103	.058U	.045U	.103U
R 11	28.2	1*	.020	.058	.018	.038F	.040F	.078F
R 12	48.3	1	.034	.058	.030	.024F	.028F	.052F
R 13	376.6	2	.130	.058	.116	.072U	.058U	.130U
R 14	32.1	1*	.022	.058	.020	.036F	.038F	.074F
R 15	37.6	1*	.027	.058	.024	.031F	.034F	.065F
R 16	42.4	1*	.030	.058	.027	.028F	.031F	.059F
R 17	192.7	1	.134	.058	.120	.076U	.062U	.138U
R 18	59.1	1	.041	.058	.037	.017F	.021F	.038F
R 19	48.7	2	.034	.058	.030	.024F	.028F	.052F
R 20	38.4	1*	.027	.058	.024	.031F	.034F	.065F
R 21	99.5	2	.027	.058	.024	.031F	.034F	.065F
R 22	70.7	1*	.050	.058	.044	.008F	.014F	.022F
R 23	129.5	2	.057	.058	.051	.001F	.007F	.008F
R341	121.4	1	.084	.058	.076	.026U	.018U	.044U
C 1	-----	2	-----	.058	----	-----	-----	-----
2	209.0	3	.125	.058	.130	.067U	.072U	.139U
4	169.5	2	.102	.058	.106	.044U	.048U	.092U
5	197.5	2	.119	.058	.123	.061U	.065U	.126U
6	100.7	1	.060	.058	.063	.002U	.005U	.007U
7	31.8	1	.019	.058	.020	.039F	.038F	.077F
8	3.0	1	.002	.058	.002	.056F	.056F	.112F
9	-----	1	----	.058	----	-----	-----	-----
10	398.3	2	.239	.058	.249	.181U	.191U	.372U
11	157.1	3	.094	.058	.099	.036U	.041U	.077U
12	93.4	3	.056	.058	.058	.002F	.000	.002F
13	413.1	3	.248	.058	.258	.190U	.200U	.390U

* Successful match

Table 2 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
C	14	284.5	3	.170	.058	.178	.112U	.120U	.232U
	15	159.0	2	.095	.058	.100	.037U	.042U	.079U
	16	245.7	2	.047	.058	.153	.089U	.095U	.184U
	17	266.7	2	.160	.058	.167	.102U	.109U	.211U
	18	332.0	3	.199	.058	.208	.141U	.150U	.291U
	19	194.3	3	.117	.058	.121	.059U	.063U	.122U
	20	178.1	1	.107	.058	.111	.049U	.053U	.102U
	21	83.6	1	.050	.058	.052	.008F	.050F	.058F
	22	170.8	2	.102	.058	.107	.044U	.049U	.093U
	23	88.0	2	.053	.058	.055	.005F	.003F	.008F
	24	35.1	1	.021	.058	.022	.037F	.036F	.073F
	25	72.9	1	.044	.058	.046	.014F	.012F	.026F
	26	78.0	2	.047	.058	.049	.011F	.009F	.020F
	27	382.3	2	.229	.058	.239	.171U	.181U	.352U
	28	263.0	2	.158	.058	.164	.100U	.106U	.206U
	29	53.4	2	.032	.058	.033	.026F	.025F	.051F
	30	135.0	1	.081	.058	.084	.023U	.026U	.049U
	32	145.3	2	.087	.058	.090	.029U	.032U	.061U
	33	------	2	----	.058	----	------	------	------
	34	122.3	2	.073	.058	.076	.015U	.018U	.033U
	35	241.5	2	.145	.058	.151	.087U	.093U	.180U
	36	87.7	2	.053	.058	.055	.005F	.003F	.008F
	42	179.4	2	.108	.058	.112	.050U	.054U	.104U
	45	137.5	3	.083	.058	.086	.025U	.028U	.053U
	48	235.3	3	.141	.058	.147	.083U	.089U	.172U
	53	171.9	3	.103	.058	.107	.045U	.049U	.094U
	56	179.9	3	.108	.058	.112	.050U	.054U	.104U
	58	220.6	4	.132	.058	.138	.074U	.080U	.154U

* Successful match

Table 2 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
C	62	159.0	3	.095	.058	.099	.037U	.041U	.078U
	63	77.3	1	.046	.058	.048	.012F	.010F	.022F
D	1	188.6	2	.132	.058	.118	.074U	.060U	.134U
	2	157.7	2	.110	.058	.099	.052U	.041U	.093U
	3	95.6	1	.067	.058	.060	.011U	.002U	.013U
	4	160.2	2*	.112	.058	.100	.054U	.042U	.096U
	5	60.8	1	.042	.058	.038	.016F	.020F	.036F
	6	50.8	1	.035	.058	.032	.023F	.026F	.049F
	7	16.4	1*	.011	.058	.010	.047F	.048F	.095F
	8	119.6	2	.084	.058	.075	.026U	.017U	.043U
	9	302.1	3	.211	.058	.189	.153U	.131U	.284U
	10	329.2	4	.230	.058	.206	.172U	.148U	.320U
	11	12.7	1	.009	.058	.008	.049F	.050F	.099F
	13	50.9	1	.036	.058	.032	.022F	.026F	.048F
	14	40.4	1*	.028	.058	.025	.030F	.033F	.063F
	15	223.8	2	.156	.058	.140	.098U	.082U	.180U
	16	59.2	1	.041	.058	.037	.017F	.021F	.038F
	17	34.8	1	.024	.058	.022	.034F	.036F	.070F
	18	43.2	2*	.030	.058	.027	.028F	.031F	.059F
	19	161.8	3	.113	.058	.101	.055U	.043U	.098U
	20	27.8	1*	.019	.058	.017	.039F	.041F	.080F
	21	14.0	1*	.010	.058	.009	.048F	.049F	.097F
	22	27.5	1	.019	.058	.017	.039F	.041F	.080F
	23	36.5	1*	.026	.058	.023	.032F	.035F	.067F
	24	65.8	1	.046	.058	.041	.012F	.017F	.029F
	25	60.6	2*	.042	.058	.038	.016F	.020F	.036F
	26	127.6	2	.089	.058	.080	.031U	.022U	.053U
	27	39.1	1	.027	.058	.024	.031F	.034F	.065F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 28	47.5	1	.033	.058	.030	.025F	.020F	.045F
29	36.8	1	.026	.058	.023	.032F	.035F	.067F
30	48.7	1*	.034	.058	.030	.024F	.028F	.052F
31	67.1	1	.047	.058	.042	.011F	.016F	.027F
32	58.2	2*	.041	.058	.036	.017F	.022F	.039F
33	91.9	2	.064	.058	.057	.006U	.001F	.005U
34	123.9	2	.087	.058	.077	.029U	.019U	.048U
35	141.3	2	.099	.058	.089	.041U	.031U	.072U
36	67.5	1	.047	.058	.041	.011F	.017F	.028F
37	46.5	1	.033	.058	.029	.025F	.029F	.054F
38	37.3	1*	.026	.058	.023	.032F	.035F	.067F
39	79.8	1	.056	.058	.050	.002F	.008F	.010F
40	53.4	1	.037	.058	.033	.021F	.025F	.046F
41	125.5	2	.088	.058	.078	.030U	.020U	.050U
42	83.8	1	.059	.058	.052	.001U	.006F	.005F
44	47.2	1	.033	.058	.030	.055F	.025F	.053F
45	58.0	1	.041	.058	.036	.017F	.022F	.039F
46	61.5	1	.043	.058	.038	.015F	.020F	.035F
47	50.3	1	.035	.058	.031	.023F	.027F	.050F
50	60.1	1	.042	.058	.038	.016F	.020F	.036F
51	104.9	3	.073	.058	.067	.015U	.009U	.024U
53	8.9	1	.006	.058	.006	.052F	.052F	.104F
54	75.6	1	.053	.058	.047	.005F	.011F	.016F
57	23.5	1	.016	.058	.015	.042F	.043F	.085F
58	141.2	2	.099	.058	.089	.041U	.031U	.072U
59	7.0	1	.005	.058	.004	.053F	.054F	.107F
60	8.6	1	.006	.058	.005	.052F	.053F	.105F
61	4.1	1	.003	.058	.003	.055F	.055F	.110F

* Successful match

Table 2 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	62	15.0	1*	.010	.058	.009	.048F	.049F	.097F
	63	36.3	1	.025	.058	.023	.033F	.035F	.068F
	64	60.7	1	.042	.058	.038	.016F	.028F	.044F
	65	37.8	1	.026	.058	.024	.032F	.034F	.066F
	66	36.3	1	.025	.058	.023	.033F	.035F	.068F
	67	49.1	1	.034	.058	.031	.024F	.027F	.051F
	68	16.2	2	.011	.058	.010	.047F	.048F	.095F
	69	147.5	3	.103	.058	.092	.045U	.034U	.079U
	70	170.9	3	.119	.058	.107	.061U	.049U	.110U
	71	75.2	2	.053	.058	.047	.005F	.011F	.016F
	72	16.2	1*	.011	.058	.010	.047F	.048F	.095F
	73	136.7	3	.096	.058	.085	.038U	.027U	.065U
	74	154.2	3	.108	.058	.096	.050U	.038U	.088U
	75	60.9	1	.043	.058	.038	.015F	.020F	.035F
	76	49.1	1	.034	.058	.031	.024F	.027F	.051F
	77	122.0	1	.085	.058	.076	.027U	.018U	.045U
	78	103.1	2	.072	.058	.064	.014U	.006U	.020U
	79	114.5	1	.080	.058	.072	.022U	.014U	.036U
	80	19.2	1*	.013	.058	.012	.045F	.046F	.091F
	81	107.1	2	.075	.058	.067	.017U	.009U	.026U
	83	59.7	2*	.042	.058	.037	.016F	.021F	.037F
	84	61.9	3	.043	.058	.039	.015F	.019F	.034F
	85	100.0	1*	.070	.058	.063	.012U	.005U	.017U
	86	22.2	2	.016	.058	.014	.042F	.044F	.086F
	87	73.6	2	.051	.058	.046	.007F	.012F	.019F
	88	9.5	1	.007	.058	.006	.051F	.052F	.103F
	90	9.5	1	.007	.058	.006	.051F	.052F	.103F
	91	8.0	1*	.006	.058	.005	.052F	.053F	.105F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 92	46.4	1	.032	.058	.029	.026F	.029F	.055F
93	37.8	2*	.026	.058	.024	.032F	.034F	.066F
94	41.2	2*	.029	.058	.026	.029F	.032F	.061F
95	26.8	3	.019	.058	.017	.039F	.041F	.080F
96	222.3	3	.155	.058	.139	.097U	.081U	.178U
97	10.1	1	.007	.058	.006	.051F	.052F	.103F
98	133.8	3	.094	.058	.084	.036U	.026U	.062U
99	53.1	1	.037	.058	.033	.021F	.025F	.046F
100	71.2	1	.050	.058	.045	.008F	.013F	.021F
101	84.5	2	.059	.058	.053	.001U	.005F	.004F
102	40.9	1	.029	.058	.026	.029F	.032F	.061F
103	92.3	1	.065	.058	.058	.007U	.000	.007U
104	57.2	1	.040	.058	.036	.018F	.022F	.040F
105	138.7	2	.097	.058	.087	.039U	.029U	.068U
106	60.3	1	.042	.058	.037	.016F	.021F	.037F
107	101.6	2	.071	.058	.064	.013U	.006U	.019U
108	50.1	1	.035	.058	.031	.023F	.027F	.050F
109	60.6	1	.042	.058	.038	.016F	.020F	.036F
110	60.9	1	.043	.058	.038	.015F	.020F	.035F
111	164.6	2	.115	.058	.103	.057U	.045U	.102U
113	13.0	1	.009	.058	.008	.049F	.050F	.099F
114	65.1	1	.046	.058	.041	.012F	.017F	.029F
115	60.8	2	.042	.058	.038	.016F	.020F	.036F
116	-----	1	----	.058	----	-----	-----	-----
117	155.4	2*	.109	.058	.097	.051U	.039U	.090U
118	46.0	2	.032	.058	.029	.026F	.029F	.055F
119	92.6	2	.065	.058	.058	.007U	.000	.007U
120	113.9	1	.080	.058	.071	.022U	.013U	.035U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 121	162.8	2	.114	.058	.102	.056U	.044U	.100U
122	82.8	1	.058	.058	.052	.000	.006F	.006F
123	26.6	1*	.019	.058	.017	.039F	.041F	.080F
124	93.8	1	.066	.058	.057	.008U	.001F	.007U
125	12.5	1*	.009	.058	.007	.049F	.051F	.100F
126	65.9	1	.046	.058	.041	.012F	.017F	.029F
127	160.5	1	.112	.058	.100	.054U	.042U	.096U
128	62.9	1	.044	.058	.039	.014F	.019F	.033F
129	66.9	1	.047	.058	.042	.011F	.016F	.027F
130	51.1	1	.036	.058	.032	.022F	.026F	.048F
131	39.6	1	.028	.058	.025	.030F	.033F	.063F
132	60.9	1	.042	.058	.038	.016F	.020F	.036F
133	49.9	1	.035	.058	.031	.023F	.027F	.050F
137	-----	1	----	.058	----	-----	-----	-----
142	19.1	1	.013	.058	.012	.045F	.046F	.091F
143	38.7	1*	.027	.058	.024	.031F	.034F	.065F
144	10.5	1	.007	.058	.007	.051F	.051F	.102F
145	147.7	2	.103	.058	.092	.045U	.034U	.079U
146	228.5	2	.160	.058	.143	.102U	.085U	.187U
147	148.8	2	.104	.058	.093	.046U	.035U	.081U
148	25.4	2*	.018	.058	.016	.040F	.042F	.082F
149	6.3	1	.004	.058	.004	.054F	.054F	.108F
150	16.6	1	.012	.058	.010	.046F	.048F	.094F
151	103.0	3*	.072	.058	.064	.014U	.006U	.020U
152	109.0	2	.076	.058	.068	.018U	.010U	.028U
153	66.4	1	.046	.058	.042	.012F	.016F	.028F
154	31.7	1*	.022	.058	.020	.036F	.038F	.074F
155	138.6	2	.097	.058	.087	.039U	.029U	.068U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 156	9.0	1*	.000	.058	.006	.052F	.052F	.104F
157	52.8	1*	.037	.058	.033	.021F	.025F	.046F
158	33.6	1*	.023	.058	.021	.035F	.037F	.072F
159	72.1	1	.050	.058	.045	.008F	.013F	.021F
160	5.0	1*	.003	.058	.003	.055F	.055F	.110F
161	56.0	1*	.039	.058	.035	.019F	.023F	.042F
162	110.3	2	.077	.058	.069	.019U	.011U	.030U
163	26.5	1	.019	.058	.017	.039F	.041F	.080F
164	30.9	1*	.022	.058	.019	.036F	.039F	.075F
165	64.8	1	.045	.058	.041	.013F	.017F	.030F
166	16.4	1	.011	.058	.010	.047F	.048F	.095F
167	38.6	1	.027	.058	.024	.031F	.034F	.065F
168	56.4	1	.039	.058	.035	.019F	.023F	.042F
169	152.1	2	.106	.058	.095	.048U	.037U	.085U
170	109.7	1	.077	.058	.069	.019U	.011U	.030U
171	18.1	1*	.013	.058	.011	.045F	.047F	.092F
172	13.4	1*	.009	.058	.008	.049F	.050F	.099F
173	20.0	1*	.014	.058	.013	.014F	.045F	.059F
174	35.1	1*	.025	.058	.022	.032F	.036F	.068F
175	54.4	2	.038	.058	.034	.020F	.024F	.044F
176	19.2	1*	.013	.058	.012	.045F	.046F	.091F
177	12.7	1	.009	.058	.008	.049F	.050F	.099F
178	17.5	1	.012	.058	.011	.046F	.047F	.093F
179	211.2	4	.148	.058	.132	.090U	.074U	.164U
180	71.5	2	.050	.058	.045	.008F	.013F	.021F
181	214.1	3	.150	.058	.134	.092U	.076U	.168U
182	9.2	1	.006	.058	.006	.052F	.052F	.104F
183	30.0	1	.021	.058	.019	.037F	.039F	.076F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_{μ})	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 184	13.8	1	.010	.058	.009	.048F	.049F	.097F
185	28.0	2	.020	.058	.018	.038F	.040F	.078F
186	24.4	2	.017	.058	.015	.041F	.043F	.084F
187	64.4	1	.045	.058	.040	.051F	.018F	.069F
188	11.5	1	.008	.058	.007	.050F	.051F	.101F
189	65.9	1	.046	.058	.041	.012F	.017F	.029F
190	13.8	1	.096	.058	.086	.038U	.028U	.066U
191	13.8	1	.009	.058	.009	.049F	.049F	.098F
192	95.5	1	.067	.058	.060	.009U	.002U	.011U
193	64.8	2*	.045	.058	.041	.051F	.017F	.068F
194	7.6	1	.005	.058	.005	.053F	.053F	.106F
195	9.2	1	.006	.058	.006	.052F	.052F	.104F
196	66.5	1*	.046	.058	.042	.012F	.016F	.028F
197	31.0	1*	.022	.058	.019	.036F	.039F	.075F
198	15.7	1	.001	.058	.010	.047F	.048F	.095F
199	132.2	2	.092	.058	.083	.034U	.025U	.059U
200	22.2	1	.016	.058	.014	.042F	.044F	.086F
E 1	78.1	1	.055	.058	.059	.003F	.009F	.012F
2	79.3	1	.055	.058	.050	.003F	.008F	.011F
3	212.1	3	.158	.058	.133	.090U	.075U	.165U
4	260.9	6	.182	.058	.163	.124U	.105U	.229U
5	82.3	1	.058	.058	.051	.000	.007F	.007F
6	136.7	2	.096	.058	.085	.038U	.027U	.065U
7	158.0	2	.110	.058	.099	.052U	.041U	.093U
8	62.9	2	.044	.058	.039	.014F	.019F	.033F
9	480.6	3	.336	.058	.300	.278U	.242U	.520U
10	82.9	1*	.058	.058	.052	.000	.006F	.006F
11	239.7	2	.168	.058	.184	.110U	.126U	.236U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 12	63.7	2*	.045	.058	.040	.013F	.018F	.031F
13	294.0	2	.206	.058	.184	.148U	.126U	.274U
14	243.9	1	.170	.058	.152	.112U	.094U	.206U
15	189.1	3*	.132	.058	.118	.074U	.060U	.134U
16	281.2	2	.197	.058	.176	.139U	.118U	.257U
17	185.4	1	.130	.058	.116	.072U	.058U	.130U
18	197.1	1	.138	.058	.123	.080U	.065U	.145U
19	37.1	1*	.026	.058	.023	.032F	.035F	.067F
20	113.2	1	.079	.058	.071	.021U	.013U	.034U
21	107.7	1*	.075	.058	.067	.017U	.009U	.026U
22	96.1	1*	.067	.058	.060	.009U	.002U	.011U
23	167.0	2	.117	.058	.104	.059U	.046U	.105U
24	90.6	1*	.063	.058	.057	.005U	.001U	.004U
25	14.6	1*	.010	.058	.009	.048F	.049F	.097F
26	101.2	1	.071	.058	.063	.013U	.005U	.018U
27	106.5	1	.074	.058	.067	.016U	.009U	.025U
28	126.9	1	.089	.058	.079	.031U	.021U	.052U
29	174.6	2	.122	.058	.109	.064U	.051U	.115U
30	76.0	2	.053	.058	.048	.005F	.010F	.015F
31	191.7	2	.140	.058	.120	.082U	.062U	.144U
32	36.3	3	.025	.058	.023	.033F	.035F	.068F
33	193.2	3	.135	.058	.121	.077U	.063U	.140U
34	150.2	2	.105	.058	.094	.047U	.036U	.083U
35	294.4	2	.206	.058	.184	.148U	.126U	.274U
36	245.0	4	.171	.058	.153	.113U	.095U	.208U
37	116.0	3	.081	.058	.073	.023U	.015U	.038U
38	218.3	4	.151	.058	.136	.093U	.078U	.171U
39	173.8	2	.121	.058	.109	.063U	.051U	.114U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 40	64.6	1*	.045	.058	.040	.013F	.018F	.031F
41	273.2	3	.191	.058	.171	.133U	.113U	.246U
42	33.8	2	.024	.058	.021	.034F	.037F	.071F
43	114.9	2	.080	.058	.072	.022U	.014U	.036U
44	115.4	1	.081	.058	.072	.023U	.014U	.037U
45	165.1	2	.115	.058	.103	.057U	.045U	.102U
46	276.8	5	.193	.058	.173	.135U	.115U	.250U
47	307.4	4	.215	.058	.192	.157U	.134U	.291U
48	295.9	3	.207	.058	.185	.149U	.127U	.276U
49	147.3	4	.103	.058	.092	.045U	.034U	.079U
50	81.4	1	.057	.058	.051	.001F	.007F	.008F
51	94.9	1	.066	.058	.059	.008U	.001U	.009U
52	100.1	1	.070	.058	.063	.012U	.005U	.017U
53	73.7	1	.052	.058	.046	.006F	.012F	.018F
54	104.1	1	.072	.058	.065	.014U	.007U	.021U
55	88.3	1	.062	.058	.055	.004U	.003F	.001U
56	191.2	2	.134	.058	.120	.076U	.062U	.138U
57	13.7	1*	.009	.058	.009	.049F	.049F	.098F
59	70.1	1	.049	.058	.044	.009F	.014F	.023F
60	77.7	1	.054	.058	.049	.004F	.009F	.013F
61	174.5	1*	.122	.058	.109	.064U	.051U	.115U
63	40.8	1*	.029	.058	.026	.029F	.032F	.061F
64	83.5	1	.058	.058	.052	.000	.006F	.006F
65	65.2	1	.046	.058	.041	.012F	.017F	.029F
66	72.3	1	.051	.058	.045	.007F	.013F	.020F
67	81.6	1	.057	.058	.051	.001F	.007F	.008F
68	47.3	1*	.033	.058	.030	.025F	.028F	.053F
69	44.4	1	.031	.058	.028	.027F	.030F	.057F

* Successful match

Table 2 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E	70	56.1	1	.039	.058	.035	.019F	.023F	.042F
	71	84.2	1	.059	.058	.053	.001F	.005F	.006F
	72	251.5	2	.176	.058	.157	.118U	.099U	.217U
	73	33.8	2	.024	.058	.021	.034F	.037F	.071F
	74	314.0	2	.219	.058	.196	.161U	.138U	.299U
	75	55.6	2*	.039	.058	.035	.019F	.023F	.042F
	76	252.0	3	.177	.058	.158	.119U	.100U	.219U
	77	68.7	1	.048	.058	.043	.010F	.015F	.025F
	78	85.7	1	.060	.058	.054	.002U	.004F	.002F
	79	99.4	1	.069	.058	.062	.011U	.004U	.015U
	80	213.1	2	.149	.058	.133	.091U	.075U	.166U
	81	52.5	1*	.037	.058	.033	.021F	.025F	.046F
	82	81.6	1	.057	.058	.051	.001F	.007F	.008F
	84	50.1	1	.035	.058	.031	.023F	.027F	.050F
	85	603.5	4	.422	.058	.377	.364U	.321U	.685U
	86	54.6	1	.038	.058	.034	.020F	.024F	.044F
	87	105.0	1	.073	.058	.066	.015U	.008U	.023U
	88	96.1	1	.067	.058	.060	.009U	.002U	.011U
	90	90.1	1	.062	.058	.056	.004U	.002F	.002U
	91	89.4	1	.062	.058	.056	.004U	.002F	.002U
	92	148.2	1	.104	.058	.093	.046U	.035U	.081U
	93	68.4	1	.048	.058	.042	.010F	.016F	.026F
	94	71.7	1	.050	.058	.045	.008F	.013F	.021F
	96	91.8	1	.064	.058	.057	.006U	.001F	.005U
	97	135.6	1	.095	.058	.085	.037U	.027U	.064U
	98	67.5	1*	.047	.058	.042	.011F	.016F	.027F
	99	302.1	2	.211	.058	.189	.153U	.131U	.284U
	100	103.9	2	.073	.058	.065	.015U	.007U	.022U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 101	71.4	1	.050	.058	.045	.008F	.013F	.021F
102	81.6	2	.057	.058	.051	.001F	.007F	.008F
103	185.3	2	.129	.058	.116	.071U	.058U	.129U
104	62.4	1*	.045	.058	.039	.013F	.019F	.032F
105	188.2	2	.131	.058	.118	.073U	.060U	.133U
105a	25.6	1	.018	.058	.016	.040F	.042F	.082F
106	14.7	1	.010	.058	.009	.048F	.049F	.097F
107	15.8	1	.011	.058	.010	.047F	.048F	.095F
108	298.6	3	.209	.058	.187	.151U	.129U	.280U
109	93.3	1	.065	.058	.058	.007U	.000	.007U
110	66.7	1	.047	.058	.042	.011F	.016F	.027F
111	86.1	1	.060	.058	.054	.002U	.004F	.002F
112	188.8	1	.132	.058	.118	.074U	.060U	.134U
113	91.0	1*	.064	.058	.057	.006U	.001F	.005U
114	97.7	1	.068	.058	.061	.010U	.003U	.013U
116	7.7	1	.005	.058	.005	.053F	.053F	.106F
117	36.6	1	.026	.058	.023	.032F	.035F	.067F
118	140.3	2	.098	.058	.088	.040U	.030U	.070U
120	613.8	4	.429	.058	.384	.371U	.326U	.697U
121	238.2	4	.167	.058	.149	.109U	.091U	.200U
122	176.2	3	.123	.058	.110	.065U	.052U	.117U
123	74.0	2	.052	.058	.046	.006F	.012F	.018F
124	74.8	1*	.052	.058	.047	.006F	.011F	.017F
127	92.4	1	.065	.058	.058	.007U	.000	.007U
128	82.1	1	.057	.058	.051	.001F	.007F	.008F
129	221.7	3	.155	.058	.139	.097U	.081U	.178U
130	106.8	1	.075	.058	.067	.017U	.009U	.026U
131	101.9	1	.071	.058	.064	.013U	.006U	.019U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 132	-----	1	----	.058	----	-----	-----	-----
133	162.2	2	.113	.058	.101	.055U	.043U	.098U
135	89.7	1	.063	.058	.056	.005U	.002F	.003U
136	97.8	1	.068	.058	.061	.010U	.003U	.013U
137	127.0	3	.089	.058	.079	.031U	.021U	.052U
138	60.5	2	.042	.058	.038	.016F	.020F	.036F
138a	79.8	1	.056	.058	.050	.002F	.008F	.010F
139	127.8	2	.089	.058	.080	.031U	.022U	.053U
140	121.5	2	.085	.058	.076	.027U	.018U	.045U
141	150.0	2	.105	.058	.094	.047U	.036U	.083U
142	148.4	2	.104	.058	.093	.046U	.035U	.081U
143	185.4	1	.130	.058	.116	.072U	.058U	.130U
144	99.7	2	.070	.058	.062	.012U	.004U	.016U
145	94.9	2	.066	.058	.059	.008U	.001U	.009U
146	153.6	3	.107	.058	.096	.049U	.038U	.087U
147	207.2	2	.145	.058	.130	.087U	.072U	.159U
148	31.1	3	.022	.058	.019	.036F	.039F	.075F
149	20.9	2	.015	.058	.013	.043F	.045F	.088F
150	87.7	1	.061	.058	.055	.003U	.003F	.000
151	249.0	3	.174	.058	.156	.116U	.098U	.214U
152	43.3	1*	.038	.058	.027	.020F	.031F	.051F
153	93.9	1	.066	.058	.059	.008U	.001U	.009U
156	395.3	3	.251	.058	.247	.193U	.189U	.382U
157	119.7	1	.084	.058	.075	.026U	.017U	.043U
158	131.4	1	.092	.058	.082	.034U	.024U	.058U
159	98.0	2	.069	.058	.061	.011U	.003U	.014U
160	402.3	4	.281	.058	.251	.223U	.193U	.416U
161	248.6	3	.174	.058	.155	.116U	.097U	.213U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 162	177.7	2	.124	.058	.111	.066U	.053U	.119U
163	99.7	1	.070	.058	.062	.012U	.004U	.016U
164	114.9	1	.080	.058	.072	.022U	.014U	.036U
165	71.3	1*	.050	.058	.045	.008F	.013F	.021F
166	61.2	2	.043	.058	.038	.015F	.020F	.035F
167	47.6	1	.033	.058	.030	.025F	.028F	.053F
168	314.4	4*	.220	.058	.197	.162U	.139U	.301U
169	182.5	5	.128	.058	.114	.070U	.056U	.126U
170	137.6	3	.096	.058	.086	.038U	.028U	.066U
171	22.6	3	.016	.058	.014	.042F	.044F	.086F
172	199.9	3	.140	.058	.125	.082U	.067U	.149U
173	330.2	4	.231	.058	.206	.173U	.148U	.321U
174	209.4	3	.146	.058	.131	.088U	.073U	.161U
175	346.7	8	.242	.058	.217	.184U	.159U	.343U
176	53.2	2	.037	.058	.033	.021F	.025F	.046F
177	99.2	1	.069	.058	.062	.011U	.004U	.015U
178	-----	1	-----	.058	-----	-----	-----	-----
179	82.5	1	.058	.058	.052	.000	.006F	.006F
180	87.9	1	.061	.058	.055	.003U	.003F	.000
181	93.4	1	.065	.058	.058	.007U	.000	.007U
182	86.6	1	.061	.058	.054	.003U	.004F	.001F
183	246.4	3	.172	.058	.154	.114U	.096U	.210U
184	40.5	3*	.028	.058	.025	.030F	.033F	.063F
185	45.7	2	.032	.058	.029	.026F	.029F	.055F
186	7.8	2	.005	.058	.005	.053F	.053F	.106F
187	125.9	1	.088	.058	.079	.030U	.021U	.051U
188	254.5	2	.178	.058	.159	.120U	.101U	.221U
189	202.6	3	.142	.058	.127	.084U	.069U	.153U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 191	103.6	1	.072	.058	.065	.014U	.007U	.021U
193	87.3	1	.061	.058	.055	.003U	.003F	.000
198	408.2	4	.285	.058	.255	.227U	.197U	.424U
199	214.6	2	.150	.058	.134	.092U	.076U	.168U
200	79.5	1	.056	.058	.050	.002F	.008F	.010F
201	149.3	2	.104	.058	.093	.046U	.035U	.081U
203	120.0	1	.084	.058	.075	.026U	.017U	.043U
204	92.7	1	.065	.058	.058	.007U	.000	.007U
205	105.8	1	.075	.058	.066	.016U	.008U	.024U
206	153.3	3	.107	.058	.096	.049U	.038U	.087U
207	86.1	3	.060	.058	.054	.002U	.004F	.002F
208	84.2	2*	.059	.058	.053	.001U	.005F	.004F
210	291.5	2*	.204	.058	.182	.146U	.124U	.270U
212	178.6	1	.125	.058	.112	.067U	.054U	.121U
213	101.9	1	.071	.058	.064	.013U	.006U	.019U
214	96.6	1	.068	.058	.060	.010U	.002U	.012U
215	106.6	2	.075	.058	.067	.017U	.009U	.026U
216	240.6	3	.168	.058	.150	.110U	.092U	.202U
217	207.7	2	.145	.058	.130	.087U	.072U	.159U
218	230.1	2	.161	.058	.144	.103U	.086U	.189U
219	342.9	5	.240	.058	.214	.182U	.156U	.338U
220	78.0	2	.055	.058	.049	.003F	.009F	.012F
221	138.5	3	.097	.058	.087	.039U	.029U	.068U
222	472.9	4	.331	.058	.296	.273U	.238U	.511U
223	131.8	1	.092	.058	.082	.034U	.024U	.053U
224	147.5	2	.103	.058	.092	.045U	.034U	.079U
225	127.2	1	.089	.058	.080	.031U	.022U	.053U
226	250.6	2	.175	.058	.157	.117U	.099U	.216U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 227	133.9	2	.094	.058	.084	.036U	.026U	.062U
228	313.3	3	.219	.058	.196	.161U	.138U	.299U
229	124.9	1*	.087	.058	.078	.029U	.020U	.049U
230	146.8	1	.103	.058	.092	.045U	.034U	.079U
231	149.2	1	.104	.058	.093	.046U	.035U	.081U
232	130.4	1	.091	.058	.082	.033U	.024U	.057U
233	30.2	1*	.021	.058	.019	.037F	.039F	.076F
234	20.9	1	.015	.058	.013	.043F	.045F	.088F
235	29.4	1*	.021	.058	.018	.037F	.040F	.077F
236	32.8	1*	.027	.058	.024	.031F	.034F	.065F
237	48.1	1*	.034	.058	.030	.024F	.028F	.052F
238	46.7	1*	.032	.058	.029	.026F	.029F	.055F
239	44.4	1*	.031	.058	.028	.027F	.030F	.057F
240	42.5	1*	.030	.058	.027	.028F	.031F	.059F
241	193.9	2	.136	.058	.121	.078U	.063U	.141U
242	84.9	1	.059	.058	.053	.001U	.005F	.004F
243	65.0	1	.045	.058	.041	.013F	.017F	.030F
244	78.8	1	.055	.058	.049	.003F	.009F	.012F
245	2.0	1	.035	.058	.031	.023F	.027F	.050F
246	110.3	1	.077	.058	.069	.019U	.011U	.030U
247	90.5	1	.063	.058	.057	.005U	.001F	.004U
248	300.0	2	.210	.058	.188	.152U	.130U	.282U
249	202.0	2	.141	.058	.126	.083U	.068U	.151U
250	37.4	1	.026	.058	.023	.032F	.035F	.067F
251	121.7	1	.085	.058	.076	.027U	.018U	.045U
252	83.7	1	.059	.058	.052	.001F	.006F	.007F
253	154.3	1	.108	.058	.096	.050U	.038U	.088U
254	127.7	1	.089	.058	.080	.031U	.022U	.053U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 255	35.3	1	.025	.058	.022	.023F	.036F	.059F
O 256	236.2	2	.165	.058	.148	.107U	.090U	.197U
257	119.2	1	.083	.058	.075	.025U	.017U	.042U
258	244.0	2	.171	.058	.153	.113U	.095U	.208U
259	145.6	1	.102	.058	.091	.044U	.033U	.077U
260	86.8	1*	.061	.058	.054	.003U	.004F	.001U
261	102.2	1	.071	.058	.064	.013U	.006U	.019U
262	357.0	4	.250	.058	.223	.192U	.165U	.357U
263	116.4	1	.081	.058	.073	.023U	.015U	.038U
264	452.6	3	.316	.058	.283	.258U	.225U	.473U
265	55.9	1	.039	.058	.035	.019F	.023F	.042F
266	118.7	1	.083	.058	.074	.025U	.016U	.041U
267	259.6	2	.181	.058	.162	.123U	.104U	.227U
268	188.1	2	.131	.058	.118	.073U	.060U	.133U
269	274.5	2	.192	.058	.172	.134U	.114U	.248U
270	119.3	2	.083	.058	.075	.025U	.017U	.042U
271	135.2	2	.095	.058	.085	.037U	.027U	.064U
272	137.7	1*	.096	.058	.086	.038U	.028U	.066U
273	166.9	2	.117	.058	.104	.059U	.046U	.105U
274	57.2	1*	.040	.058	.036	.018F	.022F	.040F
275	121.8	1	.092	.058	.082	.034U	.024U	.058U
276	78.2	1	.055	.058	.049	.003F	.009F	.012F
277	252.4	2	.176	.058	.158	.118U	.100U	.218U
278	379.6	3	.265	.058	.237	.207U	.179U	.386U
279	196.5	1	.137	.058	.123	.079U	.065U	.144U
280	483.8	2	.338	.058	.302	.280U	.244U	.524U
281	555.9	6*	.389	.058	.347	.331U	.289U	.620U
282	118.7	2*	.083	.058	.074	.025U	.016U	.041U

* Successful match.

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 284	16.5	1*	.011	.058	.010	.047F	.048F	.095F
285	159.9	1	.112	.058	.100	.054U	.042U	.096U
286	97.0	1	.067	.058	.061	.009U	.003U	.012U
287	132.7	1	.093	.058	.083	.035U	.025U	.060U
288	118.3	1	.083	.058	.074	.025U	.016U	.041U
289	136.1	1	.095	.058	.085	.037U	.027U	.064U
290	143.3	1	.094	.058	.084	.036U	.026U	.062U
291	111.4	1	.078	.058	.070	.020U	.012U	.032U
292	357.7	2	.250	.058	.224	.192U	.166U	.358U
293	13.2	2*	.009	.058	.008	.049F	.050F	.099F
294	54.1	1*	.039	.058	.034	.019F	.024F	.043F
295	273.1	1	.191	.058	.171	.133U	.113U	.246U
296	120.9	1	.085	.058	.076	.027U	.018U	.045U
298	27.8	1*	.019	.058	.017	.039F	.041F	.080F
299	178.9	1*	.125	.058	.112	.067U	.064U	.131U
300	45.7	1*	.032	.058	.029	.026F	.029F	.055F
301	203.4	1	.142	.058	.127	.084U	.069U	.153U
302	699.1	3	.489	.058	.437	.431U	.379U	.810U
304	-----	1	----	.058	----	-----	-----	-----
305	-----	1	----	.058	----	-----	-----	-----
306	-----	1	----	.058	----	-----	-----	-----
307	-----	1	----	.058	----	-----	-----	-----
308	-----	1	----	.058	----	-----	-----	-----
309	-----	1	----	.058	----	-----	-----	-----
310	310.3	2	.217	.058	.192	.159U	.134U	.293U
311	-----	1	----	.058	----	-----	-----	-----
312	165.0	1	.115	.058	.103	.057U	.045U	.102U
313	90.6	1	.063	.058	.057	.005U	.001F	.004U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 314	158.1	1	.111	.058	.100	.053U	.042U	.095U
315	147.2	1	.103	.058	.092	.045U	.034U	.079U
316	-----	1	----	.058	----	-----	-----	-----
317	88.1	1*	.062	.058	.055	.004U	.003F	.001U
319	59.5	1*	.042	.058	.037	.016F	.021F	.037F
320	121.6	1	.085	.058	.076	.027U	.018U	.045U
321	120.3	1	.072	.058	.064	.014U	.006U	.020U
322	267.8	2	.187	.058	.167	.129U	.109U	.238U
323	48.6	1*	.034	.058	.030	.024F	.028F	.052F
324	44.5	1*	.031	.058	.028	.027F	.030F	.057F
326	65.5	1*	.046	.058	.041	.012F	.017F	.029F
327	16.4	1*	.011	.058	.010	.047F	.048F	.095F
328	20.6	1*	.014	.058	.013	.044F	.045F	.089F
329	225.3	1*	.157	.058	.141	.099U	.083U	.182U
330	-----	1	----	.058	----	-----	-----	-----
331	-----	1	----	.058	----	-----	-----	-----
332	21.5	1*	.015	.058	.013	.043F	.045F	.088F
333	16.8	1*	.012	.058	.011	.046F	.047F	.093F
334	20.0	1*	.014	.058	.013	.044F	.045F	.089F
335	-----	1	----	.058	----	-----	-----	-----
336	21.2	1*	.015	.058	.013	.043F	.045F	.088F
337	-----	1	----	.058	----	-----	-----	-----
338	-----	1	----	.058	----	-----	-----	-----
339	129.5	1	.091	.058	.081	.033U	.023U	.056U
342	119.7	1	.084	.058	.075	.026U	.017U	.043U
343	258.6	1	.181	.058	.162	.123U	.104U	.227U
344	275.8	2	.193	.058	.172	.135U	.114U	.249U
346	306.0	3	.214	.058	.191	.156U	.133U	.289U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 347	210.5	2	.147	.058	.132	.089U	.074U	.163U
348	103.2	2	.072	.058	.065	.014U	.007U	.021U
349	134.3	1	.094	.058	.084	.036U	.026U	.062U
R 1	89.0	2*	.063	.058	.056	.005U	.002F	.003U
R 2	136.7	1	.096	.058	.085	.038U	.027U	.065U
R 3	22.0	2*	.015	.058	.014	.043F	.044F	.087F
R 4	130.5	1	.091	.058	.082	.033U	.024U	.057U
R 5	121.3	1	.085	.058	.076	.027U	.018U	.045U
R 6	123.1	1	.086	.058	.077	.028U	.019U	.047U
R 7	85.0	1*	.059	.058	.053	.001U	.005F	.004F
R 8	57.2	1*	.040	.058	.036	.018F	.022F	.040F
R 9	39.3	1*	.027	.058	.025	.031F	.033F	.064F
R 10	186.6	2*	.131	.058	.117	.073U	.059U	.132U
R 11	57.3	1*	.040	.058	.036	.018F	.022F	.040F
R 12	101.9	1	.071	.058	.064	.013U	.006U	.019U
R 13	41.5	1*	.029	.058	.026	.029F	.032F	.061F
R 14	21.8	1*	.015	.058	.014	.043F	.044F	.087F
R 15	117.6	1*	.082	.058	.074	.024U	.016U	.040U
R 16	122.2	2*	.085	.058	.076	.027U	.018U	.045U
R 17	18.8	1*	.013	.058	.012	.045F	.046F	.091F
R 18	127.2	1	.089	.058	.080	.031U	.022U	.053U
R 19	22.1	1*	.015	.058	.014	.043F	.044F	.087F
R 20	15.0	1*	.010	.058	.009	.048F	.049F	.097F
R 21	33.0	1*	.023	.058	.021	.035F	.037F	.072F
R 22	24.5	1*	.017	.058	.015	.041F	.043F	.084F
R 23	29.4	2*	.021	.058	.018	.037F	.040F	.077F
R 24	161.4	1*	.113	.058	.101	.055U	.043U	.098U
R 25	28.0	1*	.020	.058	.018	.038F	.040F	.078F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 26	18.5	1*	.013	.058	.012	.045F	.046F	.091F
R 27	36.3	2*	.025	.058	.023	.033F	.035F	.068F
R 28	16.5	1*	.012	.058	.010	.046F	.048F	.094F
R 29	425.1	3*	.297	.058	.266	.239U	.208U	.447U
R 30	21.5	1*	.015	.058	.013	.043F	.045F	.088F
R 31	15.2	1*	.011	.058	.010	.047F	.048F	.095F
R 32	264.3	2*	.185	.058	.165	.127U	.107U	.234U
R 33	111.7	1*	.078	.058	.070	.020U	.012U	.032U
R 34	17.3	1*	.012	.058	.011	.046F	.047F	.093F
R 35	187.5	2*	.131	.058	.117	.073U	.059U	.132U
R 37	239.0	1	.167	.058	.149	.109U	.091U	.200U
R 38	212.5	1	.149	.058	.133	.091U	.075U	.166U
R 39	180.2	1*	.126	.058	.113	.068U	.055U	.123U
R 40	162.3	1*	.113	.058	.101	.055U	.043U	.098U
R 41	57.4	1*	.040	.058	.036	.018F	.022F	.040F
R 42	25.8	1*	.018	.058	.016	.040F	.042F	.082F
R 43	14.0	1*	.010	.058	.009	.048F	.049F	.097F
R 44	39.7	1*	.028	.058	.025	.030F	.033F	.063F
R 45	32.4	1*	.023	.058	.020	.035F	.038F	.073F
R 46	26.5	1*	.019	.058	.017	.039F	.041F	.080F
R 48	27.5	1*	.019	.058	.017	.039F	.041F	.080F
R 49	15.0	1*	.010	.058	.009	.048F	.049F	.097F
R 50	22.2	1*	.016	.058	.014	.042F	.044F	.086F
R 51	41.3	1*	.029	.058	.026	.029F	.032F	.061F
R 52	75.4	2*	.053	.058	.047	.005F	.011F	.016F
R 53	18.1	1*	.013	.058	.011	.045F	.047F	.092F
R 54	7.1	1*	.005	.058	.004	.053F	.054F	.107F
R 55	18.4	1*	.013	.058	.012	.045F	.046F	.091F

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 56	24.8	1*	.017	.058	.016	.041F	.042F	.083F
R 57	28.8	1*	.020	.058	.018	.038F	.040F	.078F
R 58	20.0	1	.014	.058	.013	.044F	.045F	.089F
R 59	26.0	1*	.018	.058	.016	.040F	.042F	.082F
R 60	16.4	1*	.011	.058	.010	.047F	.048F	.095F
R 61	59.1	3*	.041	.058	.037	.017F	.021F	.038F
R 62	251.9	1*	.176	.058	.157	.118U	.099U	.217U
R 63	18.2	1*	.013	.058	.011	.045F	.047F	.092F
R 64	67.7	2*	.047	.058	.042	.011F	.016F	.027F
R 65	22.5	1*	.016	.058	.014	.042F	.044F	.086F
R 66	271.9	1	.190	.058	.170	.132U	.112U	.244U
R 67	130.7	1	.091	.058	.082	.033U	.024U	.057U
R 68	17.8	1*	.012	.058	.011	.046F	.047F	.093F
R 69	319.1	2	.223	.058	.199	.165U	.141U	.306U
R 70	140.2	1	.098	.058	.088	.040U	.030U	.070U
R 71	123.0	1	.086	.058	.077	.028U	.019U	.047U
R 72	146.2	1*	.102	.058	.091	.044U	.033U	.077U
R 73	87.4	1*	.061	.058	.055	.003U	.003F	.000
R 74	16.8	1*	.012	.058	.011	.046F	.047F	.093F
R 75	54.0	3*	.038	.058	.034	.020F	.024F	.044F
R 76	26.1	1*	.018	.058	.016	.040F	.042F	.082F
R 78	35.3	2*	.025	.058	.022	.033F	.036F	.069F
R 79	116.4	1	.081	.058	.073	.023U	.015U	.038U
R 80	132.8	1	.093	.058	.083	.035U	.025U	.060U
R 81	94.4	1	.066	.058	.059	.008U	.001U	.009U
R 82	54.7	1*	.038	.058	.034	.020F	.024F	.044F
R 83	162.0	1*	.113	.058	.101	.055U	.043U	.098U
R 84	120.0	1*	.084	.058	.075	.026U	.017U	.043U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 85	204.4	1	.143	.058	.128	.085U	.070U	.155U
R 86	61.2	1*	.043	.058	.038	.015F	.020F	.035F
R 87	102.6	1*	.072	.058	.064	.014U	.006U	.020U
R 88	129.2	1*	.090	.058	.081	.032U	.023U	.055U
R 89	108.6	1*	.076	.058	.068	.018U	.010U	.028U
R 90	137.7	1*	.096	.058	.086	.038U	.028U	.066U
R 91	392.7	3	.274	.058	.245	.216U	.187U	.403U
R 92	63.6	1*	.044	.058	.040	.014F	.018F	.032F
R 93	131.0	1*	.092	.058	.082	.034U	.024U	.058U
R 94	41.3	1*	.029	.058	.026	.029F	.032F	.061F
R 95	122.2	1*	.085	.058	.076	.027U	.018U	.045U
R 96	137.7	1	.096	.058	.086	.038U	.028U	.066U
R 97	116.2	1	.081	.058	.073	.023U	.015U	.038U
R 98	65.0	1	.045	.058	.041	.013F	.037F	.050F
R 99	160.3	1	.112	.058	.100	.054U	.042U	.096U
R100	11.8	1*	.008	.058	.007	.050F	.051F	.101F
R101	134.5	1*	.094	.058	.084	.036U	.026U	.062U
R102	11.0	1*	.008	.058	.007	.050F	.051F	.101F
R103	36.6	1*	.026	.058	.023	.032F	.035F	.067F
R104	152.3	1	.106	.058	.095	.048U	.037U	.085U
R105	265.8	1	.186	.058	.166	.028U	.108U	.136U
R106	16.5	1*	.012	.058	.010	.046F	.048F	.094F
R107	207.0	1	.145	.058	.129	.087U	.071U	.158U
R108	16.9	1*	.012	.058	.011	.046F	.047F	.093F
R109	32.4	1*	.023	.058	.020	.035F	.038F	.073F
R110	267.4	1	.187	.058	.167	.129U	.109U	.238U
R111	31.6	1*	.022	.058	.020	.036F	.038F	.074F
R112	204.5	1	.143	.058	.128	.085U	.070U	.155U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R113	4.9	1	.003	.058	.003	.055F	.055F	.110F
R114	78.6	1*	.055	.058	.049	.003F	.009F	.012F
R115	242.3	2*	.169	.058	.151	.111U	.093U	.204U
R117	147.8	1	.103	.058	.092	.045U	.034U	.079U
R118	220.6	2*	.154	.058	.138	.096U	.080U	.176U
R120	18.1	1*	.013	.058	.011	.045F	.047F	.092F
R121	23.2	1*	.016	.058	.015	.042F	.043F	.085F
R122	229.9	2*	.161	.058	.144	.103U	.086U	.189U
R123	18.2	1*	.013	.058	.011	.045F	.047F	.092F
R124	22.0	1*	.015	.058	.014	.043F	.044F	.087F
R125	110.1	1	.077	.058	.069	.019U	.011U	.030U
R126	203.9	1	.143	.058	.127	.085U	.069U	.154U
R127	24.6	2	.017	.058	.015	.041F	.043F	.084F
R128	182.5	1	.128	.058	.114	.070U	.056U	.126U
R129	66.7	2	.047	.058	.042	.011F	.016F	.027F
R130	102.7	1*	.072	.058	.064	.014U	.006U	.020U
R131	198.8	2*	.139	.058	.124	.081U	.066U	.147U
R132	176.6	1	.123	.058	.110	.065U	.052U	.117U
R133	17.6	1	.012	.058	.011	.046F	.047F	.093F
R134	143.4	1	.100	.058	.090	.042U	.032U	.074U
R135	372.4	1	.260	.058	.233	.202U	.075U	.277U
R136	92.6	1*	.065	.058	.058	.007U	.000	.007U
R137	57.8	2	.040	.058	.036	.018F	.022F	.040F
R138	160.9	1	.112	.058	.101	.054U	.043U	.097U
R139	161.8	1	.113	.058	.101	.055U	.043U	.098U
R140	143.1	1	.100	.058	.089	.042U	.031U	.073U
R141	282.5	1	.197	.058	.177	.139U	.119U	.258U
R142	137.3	1	.154	.058	.138	.096U	.080U	.176U

* Successful match

Table 2 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R142a	220.7	2	.096	.058	.086	.038U	.028U	.066U
R143	142.3	1	.099	.058	.089	.041U	.031U	.072U
R143a	144.2	1	.101	.058	.090	.043U	.032U	.075U
R144	135.2	1	.164	.058	.146	.106U	.088U	.194U
R144a	234.2	2	.095	.058	.085	.027U	.027U	.054U
R145	25.1	1	.018	.058	.016	.040F	.042F	.082F
R145a	238.7	2	.167	.058	.149	.109U	.091U	.200U
R146	134.2	1	.094	.058	.084	.036U	.026U	.062U
R146a	160.6	2	.112	.058	.100	.054U	.042U	.096U
R147	97.2	1*	.083	.058	.074	.025U	.016U	.041U
R147a	119.0	1	.070	.058	.061	.012U	.003U	.015U
R148	132.4	1	.173	.058	.154	.115U	.096U	.211U
R148a	247.1	1	.093	.058	.083	.035U	.025U	.060U
R149	113.2	1	.079	.058	.071	.021U	.013U	.034U
R149a	114.8	1	.080	.058	.072	.022U	.014U	.036U
R150	328.6	3	.230	.058	.205	.172U	.147U	.319U
R150a	101.6	1	.071	.058	.064	.013U	.006U	.019U
771	85476.4	1224	58.682	43.326	54.146	15.356U	10.820U	26.176U

* Successful match

Table 3

TITLE II

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (T_{tot})
A	1	12.7	1	.007	.009	.008	.002F	.001F	.003F
	2	14.7	1	.008	.009	.009	.001F	.000	.001F
	3	19.9	1	.010	.009	.012	.001U	.003U	.004U
	4	16.2	1*	.008	.009	.010	.001F	.001U	.000
	5	9.6	1*	.005	.009	.006	.004F	.003F	.007F
	6	18.6	1*	.010	.009	.012	.001U	.003U	.004U
	7	11.4	1*	.006	.009	.007	.003F	.002F	.005F
	8	14.0	1*	.007	.009	.009	.002F	.000	.002F
	9	17.1	1*	.009	.009	.011	.000	.002U	.002U
	10	12.1	1*	.006	.009	.008	.003F	.001F	.004F
	11	7.7	1*	.004	.009	.005	.005F	.004F	.009F
	12	12.5	1*	.007	.009	.008	.002F	.001F	.003F
	13	10.2	1*	.005	.009	.006	.004F	.003F	.007F
	14	11.5	1*	.006	.009	.007	.003F	.002F	.005F
	15	7.2	1*	.004	.009	.005	.005F	.004F	.009F
	16	10.1	1*	.005	.009	.006	.004F	.003F	.007F
	17	11.6	1*	.006	.009	.007	.003F	.002F	.005F
	18	8.3	1*	.004	.009	.005	.005F	.004F	.009F
	19	5.5	1*	.003	.009	.003	.006F	.006F	.012F
	20	15.9	1*	.008	.009	.010	.001F	.001U	.000
	21	14.0	1*	.007	.009	.009	.002F	.000	.002F
	22	5.5	1	.003	.009	.003	.006F	.006F	.012F
	23	8.2	1	.004	.009	.005	.005F	.004F	.009F
	24	14.5	1	.008	.009	.009	.001F	.000	.001F
	25	5.9	1*	.003	.009	.004	.006F	.005F	.011F
B	1	12.5	1*	.009	.009	.008	.000	.001F	.001F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B 2	24.6	1	.017	.009	.015	.008U	.006U	.014U
3	20.7	1	.014	.009	.013	.005U	.004U	.009U
4	9.7	1	.007	.009	.006	.002F	.003F	.005F
5	25.8	1	.026	.009	.024	.017U	.015U	.032U
6	51.6	2	.036	.009	.032	.027U	.023U	.050U
7	10.0	1*	.007	.009	.006	.002F	.003F	.005F
8	19.4	1*	.014	.009	.012	.005U	.003U	.008U
9	13.2	2*	.009	.009	.008	.000	.001F	.001F
10	11.0	1	.008	.009	.007	.001F	.002F	.003F
11	20.6	2	.013	.009	.013	.004U	.004U	.008U
12	19.3	1	.013	.009	.012	.004U	.003U	.007U
13	13.6	1*	.010	.009	.009	.001U	.000	.000
14	15.2	1*	.011	.009	.010	.002U	.001U	.003U
15	16.4	1	.011	.009	.010	.002U	.001U	.003U
16	23.9	1	.017	.009	.015	.008U	.006U	.014U
17	19.0	1	.013	.009	.012	.004U	.003U	.007U
18	13.5	1	.009	.009	.008	.000	.001F	.001F
19	21.0	1*	.015	.009	.013	.006U	.004U	.010U
20	8.0	1	.006	.009	.005	.003F	.004F	.007F
21	10.3	1*	.007	.009	.006	.002F	.003F	.005F
22	21.6	1	.015	.009	.014	.006U	.005U	.011U
R 1	14.2	1*	.010	.009	.009	.001U	.000	.001U
R 2	16.8	1*	.012	.009	.011	.003U	.002U	.005U
R 3	10.8	1*	.008	.009	.007	.001F	.002F	.003F
R 4	10.1	1*	.007	.009	.006	.002F	.003F	.005F
R 6	9.6	1*	.007	.009	.006	.002F	.003F	.005F
R 7	7.6	1*	.005	.009	.005	.004F	.004F	.008F
R 8	10.2	1*	.007	.009	.006	.002F	.003F	.005F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
B R 9	9.0	1*	.006	.009	.006	.003F	.003F	.006F
R 10	9.2	1	.006	.009	.006	.003F	.003F	.006F
R 11	8.1	1*	.006	.009	.005	.003F	.004F	.007F
R 12	8.5	1*	.006	.009	.005	.003F	.004F	.007F
R 13	9.0	1*	.006	.009	.006	.003F	.003F	.006F
R 14	13.5	1*	.009	.009	.008	.000	.001F	.001F
R 15	6.7	1*	.005	.009	.004	.004F	.005F	.009F
R 16	7.5	1*	.005	.009	.005	.004F	.004F	.008F
R 17	12.9	1*	.009	.009	.008	.000	.001F	.001F
R 18	12.9	1*	.009	.009	.008	.000	.001F	.001F
R 19	13.8	1	.010	.009	.009	.001U	.000	.000
R 20	13.6	1*	.010	.009	.009	.001U	.000	.001U
R 21	5.8	1*	.004	.009	.004	.005F	.005F	.010F
R 22	9.3	1*	.007	.009	.006	.002F	.003F	.005F
R 23	11.4	1	.008	.009	.007	.001F	.002F	.003F
R341	8.6	1*	.006	.009	.005	.003F	.004F	.007F
C 1	33.3	1*	.020	.009	.021	.011U	.012U	.023U
2	22.0	1*	.013	.009	.014	.004U	.005U	.009U
4	19.2	1*	.012	.009	.012	.003U	.003U	.006U
5	40.5	1	.024	.009	.025	.015U	.016U	.031U
6	32.3	1	.019	.009	.020	.010U	.011U	.021U
7	16.6	1	.010	.009	.010	.001U	.001U	.002U
8	12.3	1	.007	.009	.008	.002F	.001F	.003F
9	4.3	1	.003	.009	.003	.006F	.006F	.012F
10	14.5	1	.009	.009	.009	.000	.000	.000
11	12.2	1	.007	.009	.008	.002F	.001F	.003F
12	22.4	1	.013	.009	.014	.004U	.005U	.009U
13	28.0	1	.017	.009	.018	.008U	.009U	.017U

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
C	14	16.3	1	.010	.009	.010	.001U	.001U	.002U
	15	18.1	1	.011	.009	.011	.002U	.002U	.004U
	16	12.5	1*	.008	.009	.008	.001F	.001F	.002F
	17	14.7	1	.009	.009	.009	.000	.000	.000
	18	18.8	1	.011	.009	.012	.002U	.003U	.005U
	19	16.0	1	.010	.009	.010	.001U	.001U	.002U
	20	22.5	1	.014	.009	.014	.005U	.005U	.010U
	21	16.7	1	.010	.009	.010	.001U	.001U	.002U
	22	12.0	1	.007	.009	.008	.002F	.001F	.003F
	23	12.4	1	.007	.009	.008	.002F	.001F	.003F
	24	9.0	1*	.005	.009	.006	.004F	.003F	.007F
	25	14.8	1	.009	.009	.009	.000	.000	.000
	26	13.3	1	.008	.009	.008	.001F	.001F	.002F
	27	10.2	1	.006	.009	.006	.003F	.003F	.006F
	28	9.3	1	.006	.009	.006	.003F	.003F	.006F
	29	13.2	1	.008	.009	.008	.001F	.001F	.002F
	30	10.9	1*	.007	.009	.007	.002F	.002F	.004F
	32	17.8	1	.011	.009	.011	.002U	.002U	.004U
	33	10.3	1*	.006	.009	.006	.003F	.003F	.006F
	34	7.4	1*	.004	.009	.005	.005F	.004F	.009F
	35	8.5	1*	.005	.009	.005	.004F	.004F	.008F
	36	12.3	1	.007	.009	.008	.002F	.001F	.003F
	42	7.9	1	.005	.009	.005	.004F	.004F	.008F
	45	14.2	1	.009	.009	.009	.000	.000	.000
	48	13.7	1	.008	.009	.009	.001F	.000	.001F
	53	18.2	1	.011	.009	.011	.002U	.002U	.004U
	56	7.8	1*	.005	.009	.005	.004F	.004F	.008F
	58	16.1	1	.010	.009	.010	.001U	.001U	.002U

* Successful match

Table 3 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
C	62	9.7	1*	.006	.009	.006	.003F	.003F	.006F
	63	4.9	1	.003	.009	.003	.006F	.006F	.012F
D	1	18.5	1	.013	.009	.012	.004U	.003U	.007U
	2	18.2	1	.013	.009	.011	.004U	.002U	.006U
	3	26.8	1	.019	.009	.017	.010U	.008U	.018U
	4	17.6	1*	.012	.009	.011	.003U	.002U	.005U
	5	25.0	1	.017	.009	.016	.008U	.007U	.015U
	6	32.2	1	.023	.009	.020	.014U	.011U	.025U
	7	15.0	1*	.010	.009	.009	.001U	.000	.001U
	8	13.2	1*	.009	.009	.008	.000	.001F	.001F
	9	32.1	1	.022	.009	.020	.013U	.011U	.024U
	10	28.8	1	.020	.009	.018	.011U	.009U	.020U
	11	15.5	1	.011	.009	.010	.002U	.001U	.003U
	13	16.1	1	.011	.009	.010	.002U	.001U	.003U
	14	9.9	1*	.007	.009	.006	.002F	.003F	.005F
	15	19.0	1	.013	.009	.012	.004U	.003U	.007U
	16	29.1	1	.020	.009	.018	.011U	.009U	.020U
	17	33.0	1	.023	.009	.021	.014U	.012U	.026U
	18	14.0	1*	.010	.009	.009	.001U	.000	.001U
	19	24.5	1	.017	.009	.015	.008U	.006U	.014U
	20	4.9	1*	.003	.009	.003	.006F	.006F	.012F
	21	12.2	1*	.009	.009	.008	.000	.001F	.001F
	22	17.4	1*	.012	.009	.011	.003U	.002U	.005U
	23	8.5	1*	.006	.009	.005	.003F	.004F	.007F
	24	8.2	1*	.006	.009	.005	.003F	.004F	.007F
	25	24.0	1	.017	.009	.015	.008U	.006U	.014U
	26	37.0	1	.026	.009	.023	.017U	.014U	.031U
	27	12.6	1	.009	.009	.008	.000	.001F	.001F

* Successful match

Table 3 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	28	34.0	1	.024	.009	.021	.015U	.012U	.037U
	29	15.5	1	.011	.009	.010	.002U	.001U	.003U
	30	19.5	1	.014	.009	.012	.005U	.003U	.008U
	31	26.5	1	.019	.009	.017	.010U	.008U	.018U
	32	10.2	1*	.007	.009	.006	.002F	.003F	.005F
	33	23.8	1	.017	.009	.015	.008U	.006U	.014U
	34	15.0	1*	.010	.009	.009	.001U	.000	.001U
	35	18.8	1	.013	.009	.012	.004U	.003U	.007U
	36	19.8	1	.014	.009	.012	.005U	.003U	.008U
	37	26.6	1	.019	.009	.017	.010U	.008U	.018U
	38	22.8	1*	.016	.009	.014	.007U	.005U	.012U
	39	14.0	1	.010	.009	.009	.001U	.000	.000
	40	15.6	1	.011	.009	.010	.002U	.001U	.003U
	41	28.6	1	.020	.009	.018	.011U	.009U	.020U
	42	15.2	1	.011	.009	.010	.002U	.001U	.003U
	44	18.8	1	.013	.009	.012	.004U	.003U	.007U
	45	22.2	1	.016	.009	.014	.007U	.005U	.012U
	46	10.1	1*	.007	.009	.006	.002F	.003F	.005F
	47	28.4	1	.020	.009	.018	.011U	.009U	.020U
	50	26.5	1	.019	.009	.017	.010U	.008U	.018U
	51	18.2	1*	.013	.009	.011	.004U	.002U	.006U
	53	35.0	1	.024	.009	.022	.015U	.013U	.028U
	54	29.8	1	.021	.009	.019	.012U	.010U	.022U
	57	30.4	1	.021	.009	.019	.012U	.010U	.022U
	58	18.2	1	.013	.009	.011	.004U	.002U	.006U
	59	39.1	1	.027	.009	.024	.018U	.015U	.033U
	60	37.5	1	.026	.009	.023	.017U	.014U	.031U
	61	18.8	1	.013	.009	.012	.004U	.003U	.007U

* Successful match

Table 3 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	62	27.8	1	.019	.009	.017	.010U	.008U	.018U
	63	33.1	1	.023	.009	.021	.014U	.012U	.026U
	64	32.9	1	.023	.009	.021	.014U	.012U	.026U
	65	37.4	1	.026	.009	.023	.017U	.014U	.031U
	66	55.6	1*	.039	.009	.035	.030U	.026U	.056U
	67	23.2	1	.016	.009	.015	.007U	.006U	.013U
	68	27.1	1	.019	.009	.017	.010U	.008U	.018U
	69	17.9	1*	.013	.009	.011	.004U	.002U	.006U
	70	34.0	1*	.024	.009	.021	.015U	.012U	.027U
	71	16.0	1	.011	.009	.010	.002U	.001U	.003U
	72	21.0	1*	.015	.009	.013	.006U	.004U	.010U
	73	16.4	1	.021	.009	.019	.012U	.010U	.022U
	74	49.6	1*	.035	.009	.031	.026U	.022U	.043U
	75	33.9	1	.024	.009	.021	.015U	.012U	.027U
	76	30.8	1	.022	.009	.019	.013U	.010U	.023U
	77	33.1	1	.023	.009	.021	.014U	.012U	.026U
	78	22.4	1	.016	.009	.014	.007U	.005U	.012U
	79	22.6	1	.016	.009	.014	.007U	.005U	.012U
	80	15.0	1*	.010	.009	.009	.001U	.000	.001U
	81	26.4	1	.018	.009	.017	.009U	.008U	.017U
	83	25.0	1*	.017	.009	.016	.008U	.007U	.015U
	84	17.4	1*	.012	.009	.011	.003U	.002U	.005U
	85	15.0	1*	.010	.009	.009	.001U	.000	.001U
	86	10.3	1	.007	.009	.006	.002F	.003F	.005F
	87	13.0	1*	.009	.009	.008	.000	.001F	.001F
	88	10.7	1	.007	.009	.007	.002F	.002F	.004F
	90	16.0	1	.011	.009	.010	.002U	.001U	.003U
	91	5.1	1*	.004	.009	.003	.005F	.006F	.011F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D 92	11.2	1	.008	.009	.007	.001F	.002F	.003F
93	8.4	1*	.006	.009	.005	.003F	.004F	.007F
94	8.9	1*	.006	.009	.006	.003F	.003F	.006F
95	15.0	1*	.010	.009	.009	.001U	.000	.001U
96	9.6	1	.007	.009	.006	.002F	.003F	.005F
97	5.1	1*	.004	.009	.003	.005F	.006F	.011F
98	12.1	1*	.008	.009	.008	.001F	.001F	.002F
99	13.0	1	.009	.009	.008	.000	.001F	.001F
100	8.7	1	.006	.009	.005	.003F	.004F	.007F
101	9.0	1	.006	.009	.006	.003F	.003F	.006F
102	14.9	1	.010	.009	.009	.001U	.000	.001U
103	6.9	1	.005	.009	.004	.004F	.005F	.009F
104	14.3	1	.010	.009	.009	.001U	.000	.001U
105	10.3	1	.007	.009	.006	.002F	.003F	.005F
106	13.4	1	.008	.009	.007	.001F	.002F	.003F
107	8.6	1*	.006	.009	.005	.003F	.004F	.007F
108	10.9	1*	.008	.009	.007	.001F	.002F	.003F
109	7.7	1*	.005	.009	.004	.004F	.005F	.009F
110	9.8	1	.007	.009	.006	.002F	.003F	.005F
111	6.8	1*	.005	.009	.004	.004F	.005F	.009F
113	7.4	1	.005	.009	.005	.004F	.004F	.008F
114	13.7	1	.010	.009	.009	.001U	.000	.001U
115	6.4	1	.004	.009	.004	.005F	.005F	.010F
116	8.8	1	.006	.009	.006	.003F	.003F	.006F
117	10.0	1*	.007	.009	.006	.002F	.003F	.005F
118	8.3	1	.006	.009	.005	.003F	.004F	.007F
119	16.6	1	.012	.009	.010	.003U	.001U	.004U
120	12.1	1*	.008	.009	.008	.001F	.001F	.002F

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	121	14.9	1*	.010	.009	.009	.001U	.000	.001U
	122	11.2	1	.008	.009	.007	.001F	.002F	.003F
	123	8.7	1*	.006	.009	.005	.003F	.004F	.007F
	124	14.3	1	.010	.009	.009	.001U	.000	.001U
	125	11.2	1	.008	.009	.007	.001F	.002F	.003F
	126	6.0	1	.004	.009	.004	.005F	.005F	.010F
	127	8.7	1*	.006	.009	.005	.003F	.004F	.007F
	128	5.2	1*	.004	.009	.003	.005F	.006F	.011F
	129	13.7	1	.010	.009	.009	.001U	.000	.001U
	130	15.0	1*	.010	.009	.009	.001U	.000	.001U
	131	11.1	1	.008	.009	.007	.001F	.002F	.003F
	132	8.2	1	.006	.009	.005	.003F	.004F	.007F
	133	7.6	1	.005	.009	.005	.004F	.004F	.008F
	137	13.1	1*	.009	.009	.008	.000	.001F	.001F
	142	10.0	1	.007	.009	.006	.002F	.003F	.005F
	143	7.2	1*	.005	.009	.005	.004F	.004F	.008F
	144	9.2	1	.006	.009	.006	.003F	.003F	.006F
	145	17.0	1	.012	.009	.011	.003U	.002U	.005U
	146	10.2	1*	.007	.009	.006	.002F	.003F	.005F
	147	6.7	1*	.005	.009	.004	.004F	.005F	.009F
	148	7.8	1*	.005	.009	.005	.004F	.004F	.008F
	149	8.5	1*	.006	.009	.005	.003F	.004F	.007F
	150	11.0	1*	.008	.009	.007	.001F	.002F	.003F
	151	11.1	1*	.008	.009	.007	.001F	.002F	.003F
	152	10.0	1*	.007	.009	.006	.002F	.003F	.005F
	153	9.2	1*	.006	.009	.006	.003F	.003F	.006F
	154	12.5	1*	.009	.009	.008	.000	.001F	.001F
	155	5.7	1	.004	.009	.004	.005F	.005F	.010F

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	156	8.2	1*	.006	.009	.005	.003F	.004F	.007F
	157	14.6	1*	.010	.009	.009	.001U	.000	.001U
	158	7.4	1*	.005	.009	.005	.004F	.004F	.008F
	159	10.5	1*	.007	.009	.007	.002F	.002F	.004F
	160	10.6	1*	.007	.009	.007	.002F	.002F	.004F
	161	9.5	1	.007	.009	.006	.002F	.003F	.005F
	162	6.1	1*	.004	.009	.004	.005F	.005F	.010F
	163	5.3	1*	.004	.009	.003	.005F	.006F	.011F
	164	16.3	1*	.011	.009	.010	.002U	.001U	.003U
	165	8.5	1*	.006	.009	.005	.003F	.004F	.007F
	166	9.9	1*	.007	.009	.006	.002F	.003F	.005F
	167	11.5	1	.008	.009	.007	.001F	.002F	.003F
	168	11.8	1	.008	.009	.007	.001F	.002F	.003F
	169	6.6	1	.005	.009	.004	.004F	.005F	.009F
	170	7.4	1*	.005	.009	.005	.004F	.004F	.008F
	171	7.5	1*	.005	.009	.005	.004F	.004F	.008F
	172	14.6	1*	.010	.009	.009	.001U	.000	.001U
	173	5.6	1*	.004	.009	.004	.005F	.005F	.010F
	174	6.3	1*	.004	.009	.004	.005F	.005F	.010F
	175	6.7	1*	.005	.009	.004	.004F	.005F	.009F
	176	12.3	1*	.009	.009	.008	.000	.001F	.001F
	177	9.5	1*	.007	.009	.006	.002F	.003F	.005F
	178	9.1	1*	.006	.009	.006	.003F	.003F	.006F
	179	20.2	2*	.014	.009	.013	.005U	.004U	.009U
	180	7.6	1*	.005	.009	.005	.004F	.004F	.008F
	181	13.7	1	.010	.009	.009	.001U	.000	.001U
	182	7.9	1	.006	.009	.005	.003F	.004F	.007F
	183	5.6	1*	.004	.009	.004	.005F	.005F	.010F

* Successful match

Table 3 (Continued)

Item	No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
D	184	16.2	1	.011	.009	.010	.002U	.001U	.003U
	185	8.1	1*	.006	.009	.005	.003F	.004F	.007F
	186	8.7	1	.006	.009	.005	.003F	.004F	.007F
	187	19.5	1	.014	.009	.012	.005U	.003U	.008U
	188	12.2	1*	.009	.009	.008	.000	.001F	.001F
	189	18.0	1*	.013	.009	.011	.004U	.002U	.006U
	190	18.2	1	.013	.009	.011	.004U	.002U	.006U
	191	14.7	1	.010	.009	.009	.001U	.000	.001U
	192	9.7	1*	.007	.009	.006	.002F	.003F	.005F
	193	13.6	1	.010	.009	.009	.001U	.000	.001U
	194	8.0	1	.006	.009	.005	.003F	.004F	.007F
	195	7.2	1	.005	.009	.005	.004F	.004F	.008F
	196	4.3	1*	.003	.009	.003	.006F	.006F	.012F
	197	10.2	1	.007	.009	.006	.002F	.003F	.005F
	198	17.5	1	.012	.009	.011	.003U	.002U	.005U
	199	9.8	1	.007	.009	.006	.002F	.003F	.005F
	200	8.7	1	.006	.009	.005	.003F	.004F	.007F
E	1	10.3	1	.007	.009	.006	.002F	.003F	.005F
	2	9.3	1	.007	.009	.006	.002F	.003F	.005F
	3	13.2	1*	.009	.009	.009	.000	.000	.000
	4	33.9	2	.024	.009	.021	.015U	.012U	.027U
	5	16.5	1	.012	.009	.010	.003U	.001U	.004U
	6	12.3	1	.009	.009	.008	.000	.001F	.001F
	7	41.2	1	.029	.009	.026	.020U	.017U	.037U
	8	10.4	1	.007	.009	.007	.002F	.002F	.004F
	9	26.3	1	.018	.009	.016	.009U	.007U	.016U
	10	8.6	1*	.006	.009	.005	.003F	.004F	.007F
	11	13.2	1	.009	.009	.008	.000	.001F	.001F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 12	25.7	1	.018	.009	.016	.009U	.007U	.016U
13	21.7	1	.015	.009	.014	.006U	.005U	.011U
14	16.5	1	.012	.009	.010	.003U	.001U	.004U
15	10.0	1*	.007	.009	.006	.002F	.003F	.005F
16	14.1	1*	.010	.009	.009	.001U	.000	.001U
17	14.7	1*	.010	.009	.009	.001U	.000	.001U
18	9.6	1*	.007	.009	.006	.002F	.003F	.005F
19	11.5	1	.008	.009	.007	.001F	.002F	.003F
20	14.3	1*	.010	.009	.009	.001U	.000	.001U
21	14.2	1*	.010	.009	.009	.001U	.000	.001U
22	35.6	1*	.025	.009	.022	.016U	.013U	.029U
23	34.5	1	.024	.009	.022	.015U	.013U	.028U
24	14.1	1*	.010	.009	.009	.001U	.000	.001U
25	25.7	1	.018	.009	.016	.009U	.007U	.016U
26	18.0	1	.013	.009	.011	.004U	.002U	.006U
27	20.2	1	.014	.009	.013	.005U	.004U	.009U
28	24.0	1*	.017	.009	.015	.008U	.006U	.014U
29	13.2	1	.009	.009	.008	.000	.001F	.001F
30	16.5	1	.012	.009	.010	.003U	.001U	.004U
31	25.2	1	.018	.009	.016	.009U	.007U	.016U
32	16.5	1	.012	.009	.010	.003U	.001U	.004U
33	15.4	1	.011	.009	.010	.002U	.001U	.003U
34	16.5	1	.012	.009	.010	.003U	.001U	.004U
35	35.9	1	.025	.009	.022	.016U	.013U	.029U
36	14.4	1	.010	.009	.009	.001U	.000	.001U
37	20.3	1*	.014	.009	.013	.005U	.004U	.009U
38	31.6	2	.022	.009	.020	.013U	.011U	.024U
39	8.2	1	.006	.009	.005	.003F	.004F	.007F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 40	18.8	1	.013	.009	.012	.004U	.003U	.007U
41	54.7	2	.021	.009	.019	.012U	.010U	.022U
42	16.3	1	.011	.009	.010	.002U	.001U	.003U
43	19.6	1	.014	.009	.012	.005U	.003U	.008U
44	10.5	1	.007	.009	.007	.002F	.002F	.004F
45	22.9	1	.016	.009	.014	.007U	.005U	.012U
46	47.7	2	.033	.009	.030	.024U	.021U	.045U
47	23.0	2	.016	.009	.014	.007U	.005U	.012U
48	13.3	1	.009	.009	.008	.000	.001F	.001F
49	32.6	1	.023	.009	.020	.014U	.011U	.025U
50	16.2	1*	.011	.009	.010	.002U	.001U	.003U
51	21.6	1	.015	.009	.014	.006U	.005U	.011U
52	14.2	1	.010	.009	.009	.001U	.000	.001U
53	12.4	1*	.009	.009	.008	.000	.001F	.001F
54	19.5	1	.014	.009	.012	.005U	.003U	.008U
55	13.9	1	.010	.009	.009	.001U	.000	.001U
56	16.5	1	.012	.009	.010	.003U	.001U	.004U
57	23.8	1*	.017	.009	.015	.008U	.006U	.014U
59	18.5	1	.013	.009	.012	.004U	.003U	.007U
60	34.8	1	.024	.009	.022	.015U	.013U	.028U
61	16.9	1*	.012	.009	.011	.003U	.002U	.005U
63	13.8	1*	.010	.009	.009	.001U	.000	.001U
64	17.5	1*	.012	.009	.011	.003U	.002U	.005U
65	16.2	1	.011	.009	.010	.002U	.001U	.003U
66	18.4	1	.013	.009	.012	.004U	.003U	.007U
67	12.0	1*	.008	.009	.008	.001F	.001F	.002F
68	33.6	1*	.023	.009	.021	.014U	.012U	.026U
69	17.6	1*	.012	.009	.011	.003U	.002U	.005U

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E	70	22.7	1*	.016	.009	.014	.007U	.005U	.012U
	71	22.4	1	.016	.009	.014	.007U	.005U	.012U
	72	21.3	1	.015	.009	.013	.006U	.004U	.010U
	73	9.3	1	.007	.009	.006	.002F	.003F	.005F
	74	36.0	1	.025	.009	.023	.016U	.014U	.030U
	75	43.2	1	.030	.009	.027	.021U	.018U	.039U
	76	16.2	1	.011	.009	.010	.002U	.001U	.003U
	77	20.8	1	.015	.009	.013	.006U	.004U	.010U
	78	18.5	1	.013	.009	.012	.004U	.003U	.007U
	79	29.5	1	.021	.009	.018	.012U	.009U	.021U
	80	21.0	1	.015	.009	.013	.006U	.004U	.010U
	81	13.2	1*	.009	.009	.008	.000	.001F	.001F
	82	24.7	1*	.017	.009	.015	.008U	.006U	.014U
	84	10.0	1	.007	.009	.006	.002F	.003F	.005F
	85	10.4	1	.007	.009	.007	.002F	.002F	.004F
	86	4.1	1*	.003	.009	.003	.006F	.006F	.012F
	87	7.9	1	.006	.009	.005	.003F	.004F	.007F
	88	13.7	1	.010	.009	.009	.001U	.000	.001U
	90	9.0	1	.006	.009	.006	.003F	.003F	.006F
	91	15.2	1	.011	.009	.010	.002U	.001U	.003U
	92	12.0	1*	.008	.009	.008	.001F	.001F	.002F
	93	15.0	1	.010	.009	.009	.001U	.000	.001U
	94	9.5	1	.007	.009	.006	.002F	.003F	.005F
	96	9.1	1*	.006	.009	.006	.003F	.003F	.006F
	97	12.5	1*	.009	.009	.008	.000	.001F	.001F
	98	5.5	1*	.004	.009	.003	.005F	.006F	.011F
	99	36.0	1	.025	.009	.023	.016U	.014U	.030U
	100	24.5	1	.017	.009	.015	.008U	.006U	.014U

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E	101	22.0	1	.015	.009	.014	.006U	.005U	.011U
	102	23.8	1	.017	.009	.015	.008U	.006U	.014U
	103	25.4	1	.018	.009	.016	.009U	.007U	.016U
	104	10.0	1*	.007	.009	.006	.002F	.003F	.005F
	105	21.0	1	.015	.009	.013	.006U	.004U	.010U
	105a	16.2	1	.011	.009	.010	.002U	.001U	.003U
	106	14.2	1	.010	.009	.009	.001U	.000	.001U
	107	27.7	1*	.019	.009	.017	.010U	.008U	.018U
	108	39.1	1	.027	.009	.024	.018U	.015U	.033U
	109	5.6	1*	.004	.009	.004	.005F	.005F	.010F
	110	16.2	1*	.011	.009	.010	.002U	.001U	.003U
	111	36.8	1	.026	.009	.023	.017U	.014U	.031U
	112	23.0	1	.016	.009	.014	.007U	.005U	.012U
	113	9.2	1*	.006	.009	.006	.003F	.003F	.006F
	114	20.6	1	.014	.009	.013	.005U	.004U	.009U
	116	18.5	1	.013	.009	.012	.004U	.003U	.007U
	117	34.4	1	.024	.009	.022	.015U	.013U	.028U
	118	10.6	1	.007	.009	.007	.002F	.002F	.004F
	120	31.0	1	.022	.009	.019	.013U	.010U	.023U
	121	20.0	1*	.014	.009	.013	.005U	.004U	.009U
	122	30.9	1	.022	.009	.019	.013U	.010U	.023U
	123	15.0	1	.010	.009	.009	.001U	.000	.001U
	124	14.0	1*	.010	.009	.009	.001U	.000	.001U
	127	23.0	1	.016	.009	.014	.007U	.005U	.012U
	128	19.6	1	.014	.009	.012	.005U	.003U	.008U
	129	25.0	1	.017	.009	.016	.008U	.007U	.015U
	130	20.9	1	.015	.009	.013	.006U	.004U	.010U
	131	14.7	1	.010	.009	.009	.001U	.000	.001U

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 132	19.6	1	.014	.009	.012	.005U	.003U	.008U
133	15.3	1	.011	.009	.010	.002U	.001U	.003U
135	17.2	1	.012	.009	.011	.003U	.002U	.005U
136	14.5	1	.010	.009	.009	.001U	.000	.001U
137	10.0	1*	.007	.009	.006	.002F	.003F	.005F
138	10.7	1	.007	.009	.007	.002F	.002F	.004F
138a	14.3	1*	.010	.009	.009	.001U	.000	.001U
139	18.0	1	.013	.009	.011	.004U	.002U	.006U
140	17.2	1	.012	.009	.011	.003U	.002U	.005U
141	18.1	1	.013	.009	.011	.004U	.002U	.006U
142	17.5	1	.012	.009	.011	.003U	.002U	.005U
143	10.6	1	.007	.009	.007	.002F	.002F	.004F
144	17.0	1	.012	.009	.011	.003U	.002U	.005U
145	7.0	1	.005	.009	.004	.004F	.005F	.009F
146	9.6	1	.007	.009	.006	.002F	.003F	.005F
147	10.4	1	.007	.009	.007	.002F	.002F	.004F
148	5.3	1*	.004	.009	.003	.005F	.006F	.011F
149	14.5	1	.010	.009	.009	.001U	.000	.001U
150	27.9	1	.020	.009	.017	.001U	.008U	.019U
151	25.7	1	.017	.009	.015	.008U	.006U	.014U
152	24.8	1*	.017	.009	.016	.008U	.007U	.015U
153	5.7	1*	.004	.009	.004	.005F	.005F	.010F
156	9.7	1	.007	.009	.006	.002F	.003F	.005F
157	7.2	1	.005	.009	.005	.004F	.004F	.008F
158	10.3	1	.007	.009	.006	.002F	.003F	.005F
159	12.7	1	.009	.009	.008	.000	.001F	.001F
160	9.6	1*	.007	.009	.006	.002F	.003F	.005F
161	8.2	1	.006	.009	.005	.003F	.004F	.007F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 162	9.3	1	.007	.009	.006	.002F	.003F	.005F
163	7.6	1	.005	.009	.005	.004F	.004F	.008F
164	13.0	1	.009	.009	.008	.000	.001F	.001F
165	8.3	1*	.006	.009	.005	.003F	.004F	.007F
166	13.0	1	.009	.009	.008	.000	.001F	.001F
167	18.0	1	.013	.009	.011	.004U	.002U	.006U
168	12.5	1*	.009	.009	.008	.000	.001F	.001F
169	19.2	1*	.013	.009	.012	.004U	.003U	.007U
170	6.3	1*	.004	.009	.004	.005F	.005F	.010F
171	9.5	1	.007	.009	.006	.002F	.003F	.005F
172	12.0	1	.008	.009	.008	.001F	.001F	.002F
173	8.6	1	.006	.009	.005	.003F	.004F	.007F
174	13.1	1	.009	.009	.008	.000	.001F	.001F
175	13.7	2	.010	.009	.009	.001U	.000	.001U
176	14.2	1	.010	.009	.009	.001U	.000	.001U
177	5.9	1*	.004	.009	.004	.005F	.005F	.010F
178	13.7	1	.010	.009	.009	.001U	.000	.001U
179	12.2	1	.009	.009	.008	.000	.001F	.001F
180	13.1	1*	.009	.009	.008	.000	.001F	.001F
181	8.9	1*	.006	.009	.006	.003F	.003F	.006F
182	8.5	1	.006	.009	.005	.003F	.004F	.007F
183	9.5	1	.007	.009	.006	.002F	.003F	.005F
184	5.0	1*	.003	.009	.003	.006F	.006F	.012F
185	10.3	1	.007	.009	.006	.002F	.003F	.005F
186	23.6	2	.016	.009	.015	.007U	.006U	.013U
187	19.6	1	.014	.009	.012	.005U	.003U	.008U
188	11.7	1*	.008	.009	.007	.001F	.002F	.003F
189	12.2	1	.009	.009	.008	.000	.001F	.001F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 191	11.9	1	.008	.009	.007	.001F	.002F	.003F
193	12.2	1	.009	.009	.008	.000	.001F	.001F
198	11.7	1	.008	.009	.007	.001F	.002F	.003F
199	8.8	1	.006	.009	.006	.003F	.003F	.006F
200	8.0	1	.006	.009	.005	.003F	.004F	.007F
201	8.7	1	.006	.009	.005	.003F	.004F	.007F
203	13.1	1	.009	.009	.008	.000	.001F	.001F
204	13.4	1	.009	.009	.008	.000	.001F	.001F
205	7.3	1	.005	.009	.005	.004F	.004F	.008F
206	7.5	1	.005	.009	.005	.004F	.004F	.008F
207	10.0	1	.007	.009	.006	.002F	.003F	.005F
208	7.8	1*	.005	.009	.005	.004F	.004F	.008F
210	9.7	1*	.007	.009	.006	.002F	.003F	.005F
212	4.9	1	.003	.009	.003	.006F	.006F	.012F
213	12.6	1	.009	.009	.008	.000	.001F	.001F
214	23.6	1	.016	.009	.015	.007U	.006U	.013U
215	11.6	1	.008	.009	.007	.001F	.002F	.003F
216	10.4	1	.007	.009	.007	.002F	.002F	.004F
217	14.0	1	.010	.009	.009	.001U	.000	.001U
218	9.2	1*	.006	.009	.006	.003F	.003F	.006F
219	15.8	1	.011	.009	.010	.002U	.001U	.003U
220	9.5	1	.007	.009	.006	.002F	.003F	.005F
221	13.3	1	.009	.009	.008	.000	.001F	.001F
222	11.4	1	.008	.009	.007	.001F	.002F	.003F
223	11.4	1	.008	.009	.007	.001F	.002F	.003F
224	9.8	1	.007	.009	.006	.002F	.003F	.005F
225	5.3	1	.004	.009	.003	.005F	.006F	.011F
226	8.6	1*	.006	.009	.005	.003F	.004F	.007F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 227	14.0	1	.010	.009	.009	.001U	.000	.001U
228	9.3	1	.007	.009	.006	.002F	.003F	.005F
229	17.0	1*	.012	.009	.011	.003U	.002U	.005U
230	14.1	1	.010	.009	.009	.001U	.000	.001U
231	9.0	1	.006	.009	.006	.003F	.003F	.006F
232	11.6	1	.008	.009	.007	.001F	.002F	.003F
233	7.4	1*	.005	.009	.005	.004F	.004F	.008F
234	8.3	1*	.006	.009	.005	.003F	.004F	.007F
235	8.0	1*	.006	.009	.005	.003F	.004F	.007F
236	12.0	1	.008	.009	.008	.001F	.001F	.002F
237	6.0	1*	.004	.009	.004	.005F	.005F	.010F
238	7.5	1*	.005	.009	.005	.004F	.004F	.008F
239	7.7	1*	.005	.009	.005	.004F	.004F	.008F
240	9.5	1*	.007	.009	.006	.002F	.003F	.005F
241	9.1	1	.006	.009	.006	.003F	.003F	.006F
242	10.8	1	.008	.009	.007	.001F	.002F	.003F
243	14.8	1	.010	.009	.009	.001U	.000	.001U
244	9.7	1	.007	.009	.006	.002F	.003F	.005F
245	13.5	1	.009	.009	.008	.000	.001F	.001F
246	10.9	1	.008	.009	.007	.001F	.002F	.003F
247	3.4	1	.002	.009	.002	.007F	.007F	.014F
248	6.0	1	.004	.009	.004	.005F	.005F	.010F
249	11.0	1	.008	.009	.007	.001F	.002F	.003F
250	14.2	1	.010	.009	.009	.001U	.000	.001U
251	7.5	1*	.005	.009	.005	.004F	.004F	.008F
252	12.0	1	.008	.009	.008	.001F	.001F	.002F
253	6.7	1	.005	.009	.004	.004F	.005F	.009F
254	14.0	1*	.010	.009	.009	.001U	.000	.001U

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 255	7.7	1	.055	.009	.005	.004F	.004F	.008F
256	11.4	1	.008	.009	.007	.001F	.002F	.003F
257	13.7	1	.010	.009	.009	.001U	.000	.001U
258	14.9	1	.010	.009	.009	.001U	.000	.001U
259	6.4	1	.004	.009	.004	.005F	.005F	.010F
260	11.7	1*	.008	.009	.007	.001F	.002F	.003F
261	7.0	1	.005	.009	.004	.004F	.005F	.009F
262	18.1	2	.013	.009	.011	.004U	.002U	.006U
263	8.0	1	.006	.009	.005	.003F	.004F	.007F
264	11.4	1	.008	.009	.007	.001F	.002F	.003F
265	11.0	1	.008	.009	.007	.001F	.002F	.003F
266	10.6	1	.007	.009	.007	.002F	.002F	.004F
267	7.8	1	.005	.009	.005	.004F	.004F	.008F
268	12.3	1	.009	.009	.008	.000	.001F	.001F
269	13.2	1	.009	.009	.008	.000	.001F	.001F
270	7.9	1	.006	.009	.005	.003F	.004F	.007F
271	7.6	1	.005	.009	.005	.004F	.004F	.008F
272	11.7	1*	.008	.009	.007	.001F	.002F	.003F
273	9.9	1*	.007	.009	.006	.002F	.003F	.005F
274	13.6	1	.010	.009	.009	.001U	.000	.001U
275	9.1	1	.006	.009	.006	.003F	.003F	.006F
276	7.9	1*	.006	.009	.005	.003F	.004F	.007F
277	15.4	1*	.011	.009	.010	.002U	.001U	.003U
278	9.6	1	.007	.009	.006	.002F	.003F	.005F
279	9.3	1	.007	.009	.006	.002F	.003F	.005F
280	18.1	1*	.013	.009	.011	.004U	.002U	.006U
281	12.8	1*	.009	.009	.008	.000	.001F	.001F
282	8.0	1*	.006	.009	.005	.003F	.004F	.007F

* Successful match

Table 3 (Continued)

	Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E	284	9.8	1*	.007	.009	.006	.002F	.003F	.005F
	285	8.9	1*	.006	.009	.006	.003F	.003F	.006F
	286	8.8	1*	.006	.009	.006	.003F	.003F	.006F
	287	8.7	1*	.006	.009	.005	.003F	.004F	.007F
	288	6.6	1*	.005	.009	.004	.004F	.005F	.009F
	289	7.7	1	.005	.009	.005	.004F	.004F	.008F
	290	8.9	1	.006	.009	.006	.003F	.003F	.006F
	291	9.8	1	.007	.009	.006	.002F	.003F	.005F
	292	17.1	1*	.012	.009	.011	.003U	.002U	.005U
	293	6.5	1*	.005	.009	.004	.004F	.005F	.009F
	294	7.8	1*	.005	.009	.005	.004F	.004F	.008F
	295	11.9	1	.008	.009	.007	.001F	.002F	.003F
	296	9.1	1	.006	.009	.006	.003F	.003F	.006F
	298	13.6	1*	.010	.009	.009	.001U	.000	.001U
	299	6.0	1	.004	.009	.004	.005F	.005F	.010F
	300	7.9	1*	.006	.009	.005	.003F	.004F	.007F
	301	9.0	1*	.006	.009	.006	.003F	.003F	.006F
	302	8.0	1	.006	.009	.006	.003F	.004F	.007F
	304	8.8	1	.006	.009	.006	.003F	.003F	.006F
	305	6.9	1	.005	.009	.004	.004F	.005F	.009F
	306	16.7	1	.012	.009	.010	.003U	.001U	.004U
	307	8.7	1	.006	.009	.005	.003F	.004F	.007F
	308	8.7	1	.006	.009	.005	.003F	.004F	.007F
	309	8.7	1*	.006	.009	.005	.003F	.004F	.007F
	310	14.9	1	.010	.009	.009	.001U	.000	.001U
	311	9.1	1	.006	.009	.006	.003F	.003F	.006F
	312	8.8	1	.006	.009	.006	.003F	.003F	.006F
	313	7.8	1	.005	.009	.005	.004F	.004F	.008F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Time in Seconds	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 314	13.3	1	.009	.009	.008	.000	.001F	.001F
315	13.2	1	.009	.009	.008	.000	.001F	.001F
316	9.4	1	.007	.009	.006	.002F	.003F	.005F
317	16.0	1*	.011	.009	.010	.002U	.001U	.003U
319	14.0	1	.010	.009	.009	.001U	.000	.001U
320	11.3	1	.008	.009	.007	.001F	.002F	.003F
321	5.0	1*	.003	.009	.003	.006F	.006F	.012F
322	8.9	1*	.006	.009	.006	.003F	.003F	.006F
323	8.2	1*	.006	.009	.005	.003F	.004F	.007F
324	9.7	1*	.007	.009	.006	.002F	.003F	.005F
326	9.2	1*	.006	.009	.006	.003F	.003F	.006F
327	11.5	1*	.008	.009	.007	.001F	.002F	.003F
328	7.9	1*	.006	.009	.005	.003F	.004F	.007F
329	3.7	1*	.003	.009	.002	.006F	.007F	.013F
330	8.4	1*	.006	.009	.005	.003F	.004F	.007F
331	10.5	1*	.007	.009	.007	.002F	.002F	.005F
332	10.6	1*	.007	.009	.007	.002F	.002F	.004F
333	5.8	1*	.004	.009	.004	.005F	.005F	.010F
334	8.6	1*	.006	.009	.005	.003F	.004F	.007F
335	16.0	1*	.011	.009	.010	.002U	.001U	.003U
336	8.9	1*	.006	.009	.006	.003F	.003F	.006F
337	7.3	1*	.005	.009	.005	.004F	.004F	.008F
338	10.0	1*	.007	.009	.006	.002F	.003F	.005F
339	8.7	1	.006	.009	.005	.003F	.004F	.007F
342	7.9	1*	.006	.009	.005	.003F	.004F	.007F
343	7.1	1	.005	.009	.004	.004F	.005F	.009F
344	4.3	1*	.003	.009	.003	.006F	.006F	.012F
346	8.7	1	.006	.009	.005	.003F	.004F	.007F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E 347	15.0	1	.010	.009	.009	.001U	.000	.001U
348	12.3	1	.009	.009	.008	.000	.001F	.001F
349	14.0	1	.010	.009	.009	.001U	.000	.001U
R 1	18.1	1*	.013	.009	.011	.004U	.002U	.006U
R 2	11.1	1	.008	.009	.007	.001F	.002F	.003F
R 3	11.7	1*	.008	.009	.007	.001F	.002F	.003F
R 4	11.5	1	.008	.009	.007	.001F	.002F	.003F
R 5	12.1	1*	.008	.009	.008	.001F	.001F	.002F
R 6	11.5	1*	.008	.009	.007	.001F	.002F	.003F
R 7	24.8	2*	.017	.009	.016	.008U	.007U	.015U
R 8	10.1	1*	.007	.009	.006	.002F	.003F	.005F
R 9	18.8	1*	.013	.009	.012	.004U	.003U	.007U
R 10	7.9	1*	.006	.009	.005	.003F	.004F	.007F
R 11	15.4	1*	.011	.009	.010	.002U	.001U	.003U
R 12	6.8	1	.005	.009	.004	.004F	.005F	.009F
R 13	11.5	1*	.008	.009	.007	.001F	.002F	.003F
R 14	12.2	1*	.009	.009	.008	.000	.001F	.001F
R 15	10.5	1*	.007	.009	.007	.002F	.002F	.004F
R 16	12.0	1*	.008	.009	.008	.001F	.001F	.002F
R 17	11.6	1*	.008	.009	.007	.001F	.002F	.003F
R 18	9.7	1*	.007	.009	.006	.002F	.003F	.005F
R 19	9.1	1*	.006	.009	.005	.003F	.004F	.007F
R 20	11.1	1*	.008	.009	.008	.001F	.001F	.002F
R 21	11.9	1*	.008	.009	.007	.001F	.002F	.003F
R 22	9.0	1*	.006	.009	.006	.003F	.003F	.006F
R 23	12.5	1*	.009	.009	.008	.000	.001F	.001F
R 24	10.6	1*	.007	.009	.007	.002F	.002F	.004F
R 25	12.8	1*	.009	.009	.008	.000	.001F	.001F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 26	8.7	1*	.006	.009	.005	.003F	.004F	.007F
R 27	11.7	1*	.008	.009	.007	.001F	.002F	.003F
R 28	10.3	1*	.007	.009	.006	.002F	.003F	.005F
R 29	9.2	1*	.006	.009	.006	.003F	.003F	.006F
R 30	10.0	1*	.007	.009	.006	.002F	.003F	.005F
R 31	9.3	1*	.007	.009	.006	.002F	.003F	.005F
R 32	9.3	1*	.007	.009	.006	.002F	.003F	.005F
R 33	14.0	1*	.010	.009	.009	.001U	.000	.001U
R 34	9.8	1*	.007	.009	.006	.002F	.003F	.005F
R 35	13.1	1*	.009	.009	.008	.000	.001F	.001F
R 37	9.6	1*	.007	.009	.006	.002F	.003F	.005F
R 38	9.1	1	.006	.009	.006	.003F	.003F	.006F
R 39	14.5	1*	.010	.009	.009	.001U	.000	.001U
R 40	14.6	1*	.010	.009	.009	.001U	.000	.001U
R 41	10.8	1*	.008	.009	.008	.001F	.001F	.002F
R 42	16.5	1*	.012	.009	.010	.003U	.001U	.004U
R 43	12.2	1*	.009	.009	.008	.000	.001F	.001F
R 44	12.2	1*	.009	.009	.008	.000	.001F	.001F
R 45	13.0	1*	.009	.009	.008	.002F	.001F	.003F
R 46	12.0	1*	.008	.009	.008	.001F	.001F	.002F
R 48	11.9	1*	.008	.009	.007	.001F	.002F	.003F
R 49	10.8	1*	.008	.009	.007	.001F	.002F	.003F
R 50	11.0	1*	.008	.009	.007	.001F	.002F	.003F
R 51	11.8	1*	.008	.009	.007	.001F	.002F	.003F
R 52	15.1	1*	.011	.009	.009	.002U	.000	.002U
R 53	13.0	1*	.009	.009	.008	.000	.001F	.001F
R 54	14.1	1*	.010	.009	.009	.001U	.000	.001U
R 55	18.7	1*	.013	.009	.012	.004U	.003U	.007U

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 56	11.6	1*	.008	.009	.007	.001F	.002F	.003F
R 57	14.2	1*	.010	.009	.009	.001U	.000	.001U
R 58	9.9	1*	.007	.009	.006	.002F	.003F	.005F
R 59	17.2	1*	.012	.009	.011	.003U	.002U	.005U
R 60	12.6	1*	.009	.009	.008	.000	.001F	.001F
R 61	10.2	1*	.007	.009	.006	.002F	.003F	.005F
R 62	6.7	1*	.005	.009	.004	.004F	.005F	.009F
R 63	13.8	1*	.010	.009	.009	.001U	.000	.001U
R 64	13.5	1*	.009	.009	.008	.000	.001F	.001F
R 65	19.5	1*	.014	.009	.012	.005U	.003U	.008U
R 66	12.4	1*	.009	.009	.008	.000	.001F	.001F
R 67	11.4	1	.008	.009	.007	.001F	.002F	.003F
R 68	10.0	1*	.007	.009	.006	.002F	.003F	.005F
R 69	12.8	1*	.009	.009	.008	.000	.001F	.001F
R 70	11.1	1*	.008	.009	.008	.001F	.001F	.002F
R 71	9.1	1	.006	.009	.006	.003F	.003F	.006F
R 72	7.0	1*	.005	.009	.004	.004F	.005F	.009F
R 73	14.5	1*	.010	.009	.009	.001U	.000	.001U
R 74	10.8	1*	.008	.009	.007	.001F	.002F	.003F
R 75	9.4	1*	.007	.009	.006	.002F	.003F	.005F
R 76	11.2	1*	.008	.009	.007	.001F	.002F	.003F
R 78	17.5	1*	.012	.009	.011	.003U	.002U	.005U
R 79	15.0	1*	.010	.009	.009	.001U	.000	.001U
R 80	14.7	1	.010	.009	.009	.001U	.000	.001U
R 81	11.1	1	.008	.009	.007	.001F	.002F	.003F
R 82	10.3	1*	.007	.009	.006	.002F	.003F	.005F
R 83	14.0	1*	.010	.009	.009	.001U	.001F	.000
R 84	9.7	1*	.007	.009	.006	.002F	.003F	.005F

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R 85	14.6	1	.010	.009	.009	.001U	.000	.001U
R 86	11.3	1*	.008	.009	.007	.001F	.002F	.003F
R 87	19.8	1*	.014	.009	.012	.005U	.003U	.008U
R 88	12.1	1*	.008	.009	.008	.001F	.001F	.002F
R 89	10.0	1*	.007	.009	.006	.002F	.003F	.005F
R 90	13.1	1*	.009	.009	.008	.000	.001F	.001F
R 91	9.[illegible]	1	.007	.009	.006	.002F	.003F	.005F
R 92	8.0	1*	.006	.009	.005	.003F	.004F	.007F
R 93	11.0	1*	.008	.009	.007	.001F	.002F	.003F
R 94	13.0	1*	.009	.009	.008	.000	.001F	.001F
R 95	13.6	1*	.010	.009	.008	.001U	.001F	.000
R 96	16.3	1	.011	.009	.010	.002U	.001U	.003U
R 97	8.5	1*	.006	.009	.005	.003F	.004F	.007F
R 98	14.4	1*	.010	.009	.009	.001U	.000	.001U
R 99	18.2	1*	.013	.009	.011	.004U	.002U	.006U
R100	13.1	1*	.009	.009	.008	.000	.001F	.001F
R101	11.8	1*	.008	.009	.007	.001F	.002F	.003F
R102	13.1	1*	.009	.009	.008	.000	.001F	.001F
R103	12.1	1*	.008	.009	.008	.001F	.001F	.002F
R104	12.0	1*	.008	.009	.008	.001F	.001F	.002F
R105	8.1	1	.006	.009	.005	.003F	.004F	.007F
R106	13.0	1*	.009	.009	.008	.000	.001F	.001F
R107	9.0	1*	.006	.009	.006	.003F	.003F	.006F
R108	11.1	1*	.008	.009	.007	.001F	.002F	.003F
R109	14.1	1*	.010	.009	.009	.001U	.000	.001U
R110	7.6	1*	.005	.009	.005	.004F	.004F	.008F
R111	8.9	1*	.006	.009	.006	.003F	.003F	.006F
R112	16.6	1*	.012	.009	.010	.003U	.001U	.004U

* Successful match

Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R113	16.5	1*	.012	.009	.010	.003U	.001U	.004U
R114	15.4	1*	.011	.009	.010	.002U	.001U	.003U
R115	11.9	1*	.008	.009	.007	.001F	.002F	.003F
R117	14.0	1*	.010	.009	.009	.001U	.000	.001U
R118	12.3	1*	.009	.009	.008	.000	.001F	.001F
R120	10.9	1*	.008	.009	.007	.001F	.002F	.003F
R121	10.9	1*	.008	.009	.007	.001F	.002F	.003F
R122	11.6	1*	.008	.009	.007	.001F	.002F	.003F
R123	10.0	1*	.007	.009	.006	.002F	.003F	.005F
R124	17.2	1*	.012	.009	.011	.003U	.002U	.005U
R125	15.1	1*	.011	.009	.009	.002U	.000	.002U
R126	10.2	1	.007	.009	.006	.002F	.003F	.005F
R127	10.9	1*	.008	.009	.007	.001F	.002F	.003F
R128	13.2	1*	.009	.009	.008	.000	.001F	.001F
R129	17.6	1	.012	.009	.011	.003U	.002U	.005U
R130	13.0	1*	.009	.009	.008	.000	.001F	.001F
R131	10.2	1*	.007	.009	.006	.002F	.003F	.005F
R132	10.9	1	.008	.009	.007	.001F	.002F	.003F
R133	15.1	1*	.011	.009	.009	.002U	.000	.002U
R134	18.0	1	.013	.009	.011	.004U	.002U	.006U
R135	18.0	1	.013	.009	.011	.004U	.002U	.006U
R136	5.8	1*	.004	.009	.004	.005F	.005F	.010F
R137	11.9	1	.008	.009	.007	.001F	.002F	.003F
R138	10.9	1	.008	.009	.007	.001F	.002F	.003F
R139	12.4	1	.009	.009	.008	.000	.001F	.001F
R140	16.8	1	.012	.009	.011	.003U	.002U	.005U
R141	13.0	1	.009	.009	.008	.000	.001F	.001F
R142	11.0	1*	.010	.009	.009	.001U	.000	.001U

* Successful match

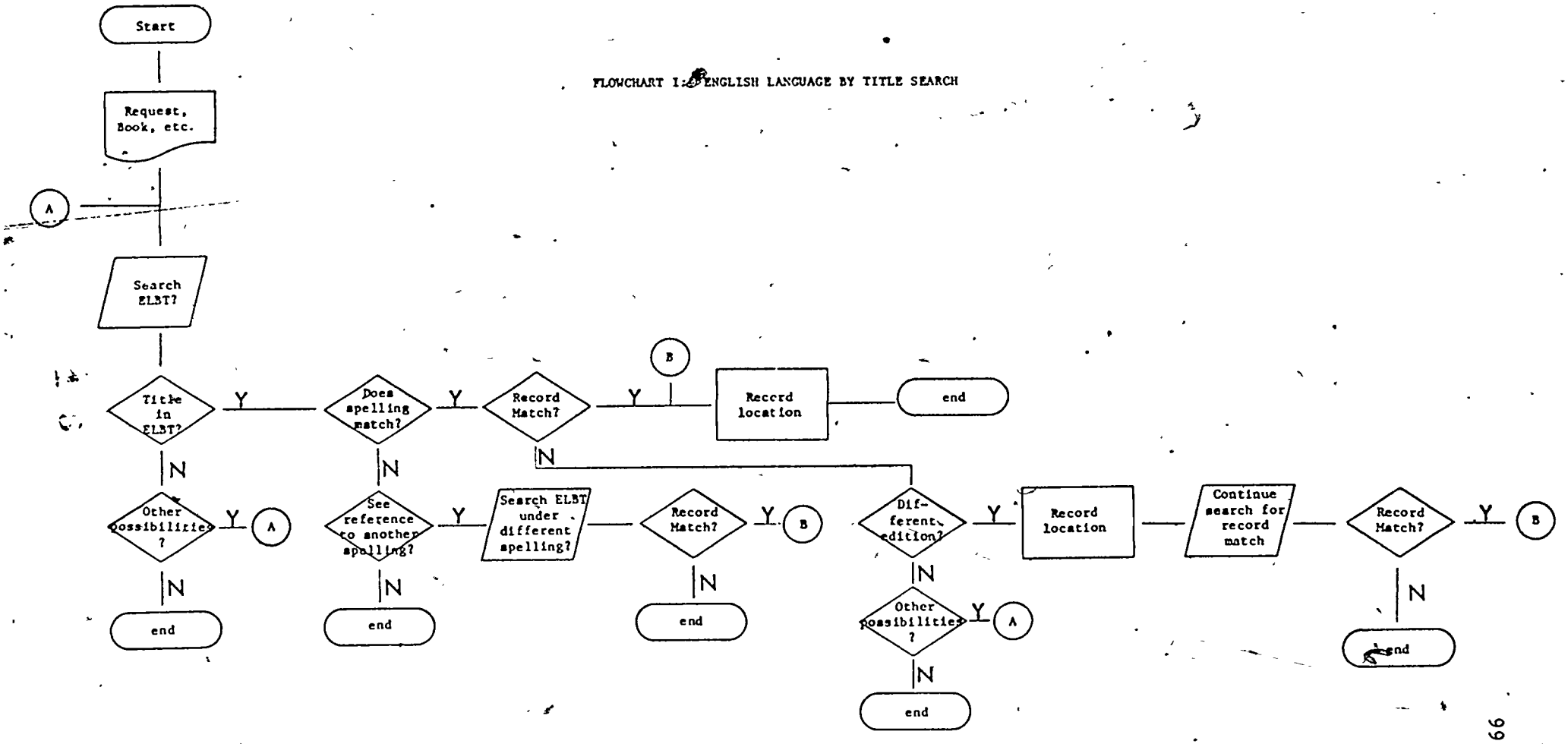
Table 3 (Continued)

Item No.	Search Time in Seconds	No. of Entries Searched	A × A	S × S	S × A	Usage Variance (V_u)	Efficiency Variance (V_{eff})	Total Variance (V_{tot})
E R142a	15.0	1	.008	.009	.007	.001F	.002F	.003F
R143	6.9	1*	.005	.009	.004	.004F	.005F	.009F
R143a	11.0	1	.008	.009	.007	.001F	.002F	.003F
R144	14.8	1	.013	.009	.012	.004U	.003U	.007U
R144a	18.6	1*	.010	.009	.009	.001U	.000	.001U
R145	9.0	1*	.006	.009	.005	.003F	.004F	.007F
R145a	8.3	1	.006	.009	.006	.003F	.003F	.006F
R146	9.8	1	.007	.009	.006	.002F	.003F	.005F
R146a	11.5	1	.008	.009	.007	.001F	.002F	.003F
R147	9.8	1*	.006	.009	.005	.003F	.004F	.007F
R147a	8.6	1	.007	.009	.006	.002F	.003F	.005F
R148	14.0	1	.011	.009	.010	.002U	.001U	.003U
R148a	16.1	1	.010	.009	.009	.001U	.000	.001U
R149	12.5	1	.009	.009	.008	.000	.001F	.001F
R149a	15.0	1	.010	.009	.009	.001U	.000	.001U
R150	16.0	1	.011	.009	.010	.002U	.001U	.003U
R150a	15.7	1	.010	.009	.010	.001U	.001U	.002U
771	10920.1	784	7.461	6.840	6.766	.621U	.074F	.547U

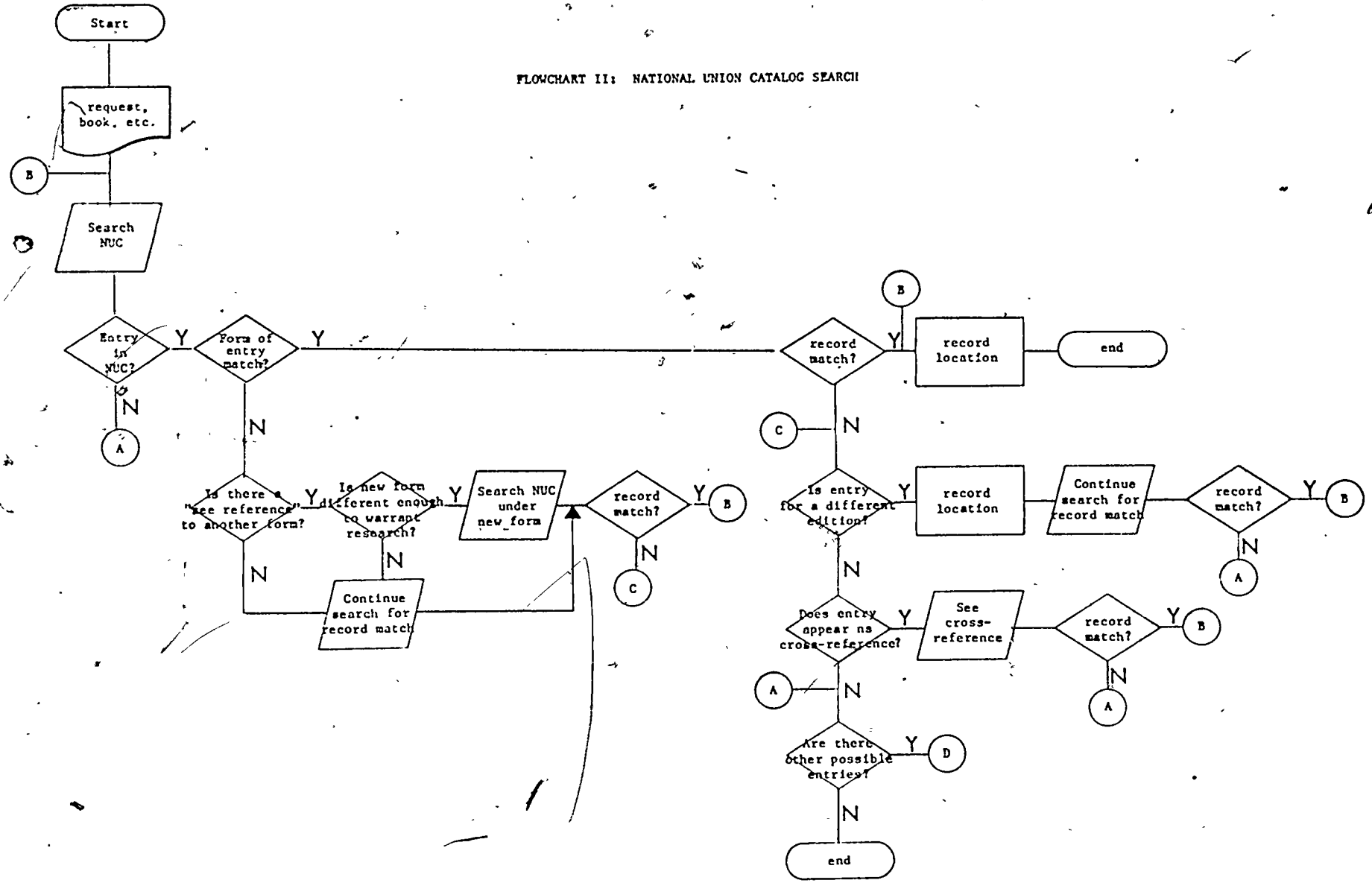
* Successful match

APPENDIX B

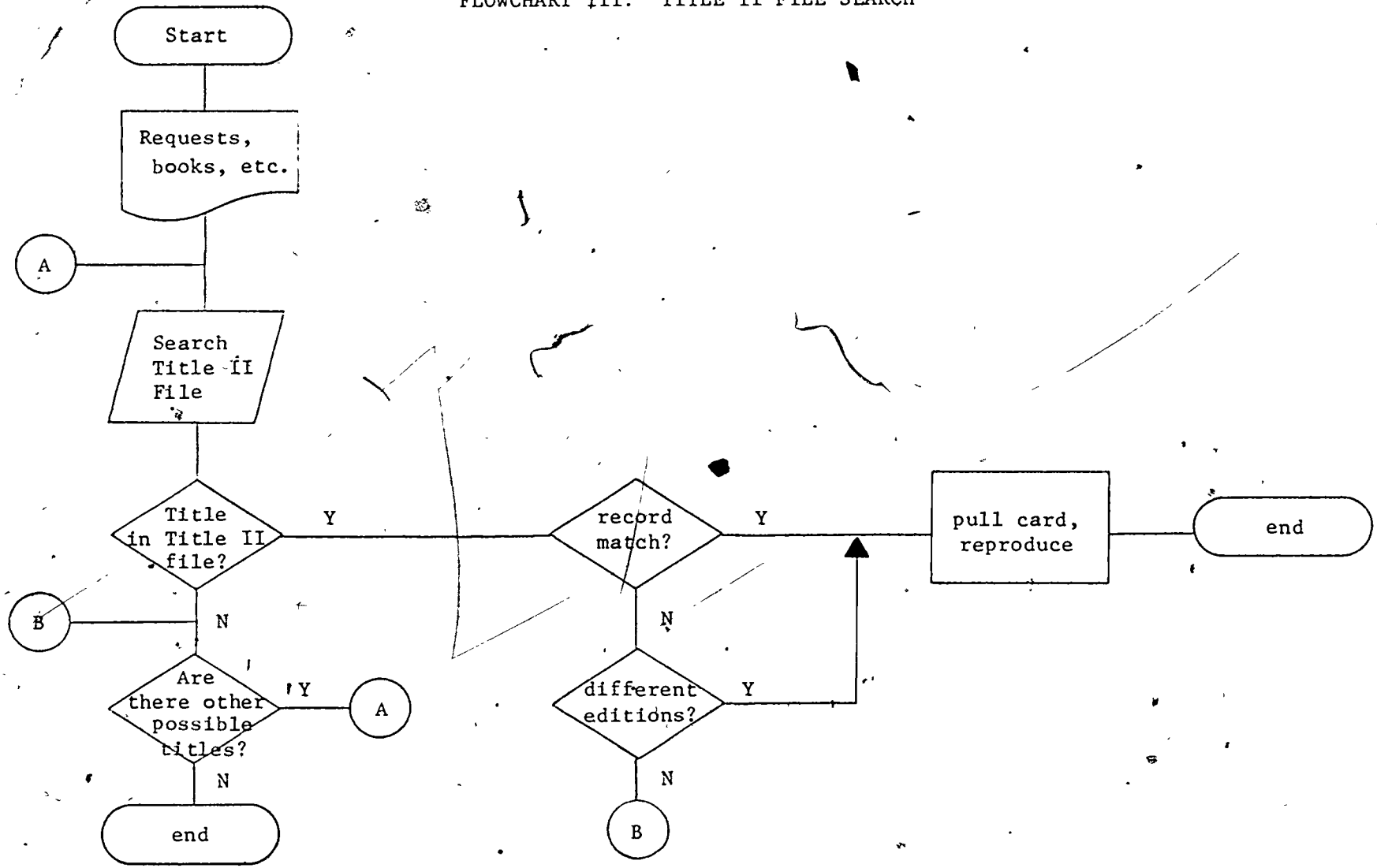
FLOWCHART I: ENGLISH LANGUAGE BY TITLE SEARCH



FLOWCHART II: NATIONAL UNION CATALOG SEARCH



FLOWCHART III: TITLE II FILE SEARCH



APPENDIX C

SEARCH RULES

Objectives: To know

1. what was searched.
2. the time required for the search.

General Instructions:

1. Search time will be taken for the NUC only.
2. Record all times in the appropriate squares provided on the search slip.
3. Any search timed that you feel is appropriate and for which a square has not been provided, should be recorded on the back of the search slip with an explanation of what was searched.
4. When a perfect LC match is found, mark the appropriate box with a check after you record the time.
5. Any further questions should be directed to Tom Connole or Richard Ortiz.
6. Attach all search slips to the item searched.

Search Methodology:

1. Search as you would normally search the item, but be consistent (e.g., if you normally search forward through the monthlies and quarterlies, always search forward through the monthlies and quarterlies).
2. Each entry possibility is considered distinct and should be entered on a separate search slip with specific timing for that possibility (e.g., x-references will be considered another possibility and will be timed appropriately).

Timing Methodology:

1. Start the stop watch when opening a specific volume or when starting to leaf from one point within a volume to another point within the same volume.
2. Stop the stop watch when useful copy or cross reference is found (do not include time taken to record the location) or when you are convinced there is no useful copy at that point (do not include time taken to record the failure to locate useful copy).
3. Wear the stop watch where it is most comfortable, but be as consistent as possible.
4. Do not include any travel time -- i.e. the time taken in replacing and obtaining volumes from the shelf.

Thank you,

Tom Connole and Richard Ortiz

Main Entry Possibility No. ___ of Item # ___

Item # _____

LC Year/Vol _____ CALL NO.

LC Page _____

LC Card _____

Main Entry

Title

Date

M

1941

1962

1968

1969

1970

1971

1972

1973

Notes:

SEARCH	Time 1		Time 2		Time 3		TOTAL
NUC	MIN	SEC	MIN	SEC	MIN	SEC	
Yrly 1969							
Yrly 1970							
Yrly 1971							
Qtly 1971							
Mtly 1971							
Yrly 1972							
Qtly 1972							
Mtly 1972							
Qtly 1973							
Mtly 1973							

TOTAL: _____

Searcher _____

TITLE II FILE

TITLE ENTRY SEARCH - #1

Title:

SEARCH	TIME		
TITLE II FILE	MIN	SEC	

TITLE ENTRY SEARCH - #2

Title:

SEARCH	TIME		
TITLE II FILE	MIN	SEC	

ELBT

TITLE ENTRY SEARCH - #1

Title:

SEARCH	TIME		
ELBT	MIN	SEC	
Cum 69-70			
Yearly 1971			

TITLE ENTRY SEARCH - #2

Title:

SEARCH	TIME		
ELBT	MIN	SEC	
Cum 69-70			
Yearly 1971			

Type of Main Entry:

Penrose Library Search Slip

LC Year/Vol _____ CALL NO.

LC Page _____

LC Card _____

Main Entry

Title

Date

M
1941
1962
1968
1969
1970
1971
1972
1973

Notes:

Searcher: _____

APPENDIX D

PROCEDURE FOR NEW L.C. PROOF

1 Feb 71

1. Sort

I. Discard

A. Motion pictures and film strips: denoted by the word motion picture or the word filmstrip in italics.

B. Cross references: denoted by the word see between two entries or X in the lower right-hand corner.

C. BF, Q, R, S, T, U, V call numbers in all languages except English, French, and German.

D. Cards for all titles not in Roman alphabet and cards for all titles in Slavic languages (Russian, Polish, Yugoslavian, etc.) and Eastern languages (Turkish, Indonesian) and Rumanian language and Scandinavian languages (Norwegian, Swedish, Finnish, Dutch (the Netherlands)).

1. These languages can be recognized by the place of publication or the L.C. designation. When making a decision let the language of the title have priority in decision making. The place of publication of L.C. designation may not coincide with the language of the title in some cases and should be used only as an aid when in doubt.

II. Keep

A. In other words keep only English, French, German, Spanish, Portuguese, Italian and Latin language titled cards. Also, Q, R, S, T, U, V and BF call numbers in English, French and German. All other titles in all other languages can be discarded.

III. Remaining cards are separated according to the following:

A. Government Documents: those cards authored by the U.S., United Nations and Colorado.

1. In addition, U.S. cards must have been published by the U.S. Government Printing Office.

2. Note: Follow the above rules for sorting government documents, i.e. discard cross refs. Also separate government document information cards.

B. Music

1. Phonodiscs and records: denoted by phonodisc or record in italics.

2. M call numbers:
Example: M801.B4 not MN, ML, etc.

C. Information cards

D. Phonotapes: denoted by phonotapes in italics

E. "Our proof" (As in II. above).

IV. Next

A. Send phonotapes to audiovisual, government documents and music to their libraries.

B. First letter information cards and leave in an accessible place.

C. Tickometerize the other cards as follows:
   1. Proof sheets to be dated: our proof, music, gov. docs.
   2. Proof sheets to be green stamped: our proof, gov. docs.
   3. Proof sheets to be speed striped: our proof, music, gov. docs.

PROCEDURE FOR PREPARING MASTER FILES AND REFILES

1. Remove (peel off labels and liquid paper typing) any location notes and/or library designation (CoU) appearing below the call number.
2. Check front of cards for Microforms, designated by the word Microform in the call number position, and theses, designated by initial call line of T1953-date. Check verso for recats and transfers, designated by abbreviation r or tr before the cataloger's initials; cancel with a vertical line any uncancelled request lines; and line through any uncancelled B's (abbreviation for bindery) Microforms, theses, recats and transfers are to be returned to Roz.

PROCEDURE FOR NEW L.C. PROOF

28 Jan 72

Sorting

I. Keep

A. All English, French, and German language titled cards.

B. Spanish, Portuguese, Italian, and Latin language titled cards for all call numbers except BF, Q, R, S, T, U, and V.

C. Government Documents: those cards authored by the U.S., United Nations, or Colorado.

1. In addition U.S. cards must have been published by the U.S. Government Printing Office in order to be sent to Gov. Doc.'s. Those cards not published by the U.S. Gov. Print. Office are kept but are filed in the proof/master file.
2. Discard X-references for documents. Separate government document information cards and file with the other information cards.

D. Music

1. phonodiscs, phonotapes, and records: denoted by the word phonodisc, phonotape, or record in italics or by an M or R in the lower right-hand corner of card.
2. M call numbers:
   Example: M801.B4, not MN, ML, etc.

E. Information cards

II. Discard

A. Motion pictures, film strips, and microfilm: denoted by the word motion picture, filmstrip, or microfilm in italics or by an F in the lower right-hand corner of the card.

B. Cards for all titles not in Roman alphabet, Slavic languages (Russian, Polish, Yugoslavian, etc.), Eastern languages (Turkish, Indonesian), African languages. Romanian language, and Scandinavian languages (Norwegian, Swedish, Finnish, Danish and Dutch (the Netherlands).

1. These languages can be recognized by the place of publication or the L.C. designation. When making a decision let the language of the title have priority in decision making. The place of publication or L.C. designation may not coincide with the language of the title in some cases and should be used only as an aid when in doubt.

III. Next

A. Tickometerize the remaining "keep" cards as follows:
   1. Proof sheets to be dated: our proof, music, gov. docs.
   2. Proof sheets to be green stamped: our proof, gov. docs.
   3. Proof sheets to be speed striped with current color: our proof, music, gov. docs.

B. Put Music (i.e., phonodiscs, phonotapes, records, M call numbers) and Gov Doc. cards in appropriate boxes. (Cards are sent once a week to the libraries).

C. First letter information cards and file in the boxes on shelves behind LAIII's desk.

D. First letter and pre-file our proof, keeping each letter rubber-banded together separately.

PROCEDURE FOR PREPARING MASTER FILES AND REFILES

1. Remove (peel off labels and liquid paper typing) any location notes and/or library designation (CoU) appearing below the call number.
2. Count master files and refiles separately and record numbers in blue ring binder.
3. Combine refiles and masterfiles and prefile and distribute.

APPENDIX E

FILING RULES FOR

TITLE ARRANGEMENT

OF

PROOF/MASTER FILE

University of Colorado

Norlin Library

Technical Services Division

April 1972

FILING RULES FOR TITLE ARRANGEMENT OF PROOF SHEETS

I. Basic rule

A. Arrange all entries by title, both English and foreign language, alphabetically according to the order of the English alphabet. All non-Roman alphabets are to be arranged by the romanized form. Card in the Cyrillic alphabet usually have the title transliterated in the lowerright hand corner.

B. Arrange word by word, alphabeting letter by letter within the word. Apply the principle of "nothing before something," considering the space between words as "nothing."

EXAMPLE:

New Amsterdam	NOT	New Amsterdam
New England		Newark
New wives for old		New England
Newark		Newman
Newman		New wives for old

C. Disregard the modification of all letters, including the umlaut. Arrange ä, à, á, ē, ī, ö, ø, ü, as a, e, i, o, u; ç, ć, č, ł, ñ, š, ž, as c, l, n, s, z.

Icelandic and Anglo-Saxon:
Đ đ ð File as d
Þ þ (Thorn) File as th

D. Arrangement of identical titles:
Arrange all titles, whether title main entry or not, in the following order:
1. Title.
2. Main entry (skip this step if title is a title m.e.)
3. Date of publication (reverse chronological order)
4. Place of publication (alphabetically, i.e., London precedes New York)
5. Publisher (alphabetically, i.e., Macmillan precedes Scarecrow)

E. Disregard any printed filing titles that may appear on proof sheets.

II. Signs and symbols

A. Signs at the beginning of a title, such as ..., or ---, are to be disregarded, the title being arranged by the word that follows the signs.

B. Ampersand and other symbols
Alphabet the character "&" as "and", "et", "und", etc. according to the language used. c/o as "in care of", w/ as "with", w/o as "without," @ as "at".

III. Initials

A. Arrange an initial before a word beginning with the same first letter.

B. Arrange initials standing for names of organizations, broadcasting stations, etc., whether punctuated or not, as initials and not as abbreviations, i.e., not as if spelled out in full.

C. Note that initials are often written without periods, and sometimes in lower case or a combination of caps and lower case, rather than all caps.

D. Acronyms

1. File as a word when written with a combination of caps and lower case: Agard, Algol, Cobol, Snobol, Fortran, Nato.

2. File as initials when written in all caps, whether there are spaces and/or periods between the letters or not: NATO, U.N.E.S.C.O., S E A T O, SAC.

IV. Abbreviations

A. Arrange abbreviations as if spelled in full; e.g., Dr., Mr., Mrs., Mlle., S., Ste., etc., as Doctor, (or in German, Doktor), Mister, Mistress, Mademoiselle, San or Sanctus, Saint, Sainte, etc. Also Ha (Greek 'A) as Hagios. This includes initials and other abbreviations used for geographical names; e.g., N.Y., as New York, Gt. Brit. as Great Britain.

B. Disregard the abbreviations k., K.K., I., R., etc. (standing for Kaiserlich, Königlich, Imperiale, Reale, etc.) at the beginning of names of foreign learned academies, societies, etc., and arrange by the word following the abbreviations. The words for which these abbreviations stand are not familiarly known or spoken as part of the name. In the names of English societies, Imperial and Royal are not to be disregarded:

V. Elisions

Arrange elisions as they are printed and not as if spelled in full. Treat as one word the contraction of two words resulting from an elision. Example: can't, don't. Exception: Foreign articles and prepositions with a final vowel elided are to be treated as separate words and not as contractions.

EXAMPLE: . Bibliothèque d'anthropologie
Bibliothèque d'histoire

Bibliothèque de la révolution
C'est
Cap'n Eri
Capo d'anno
De l'intelligence
De la vida internacional
Flower o' the lily
Flower of destiny
Who is who in literature
Who'd be king
Whom the gods destroy
Who's who
Whose home is the wilderness

VI. Initial article

A. In alphabeting titles, disregard an initial article regardless of case in all languages. (See Appendix A - Articles to be disregarded).

B. In case the form of the indefinite article is the same as that of the numeral "one" (e.g. the French "un" or "une") care must be taken to distinguish the use, because the numeral is to be regarded in filing.

VII. Punctuation marks. Possessive case, etc.

In alphabeting titles, ignore commas, colons, and semicolons. File until you come to a period or a question mark, unless the title contains an author statement.

EXAMPLE: Arctic adventure, by Henry Wilson. In this case, stop after the title; that is, after adventure. This holds true for all languages. Even if you are unsure of which words mean by (par, por, von, de), you can tell by the form: title, comma, short word, author's name.

VIII. Numerals

A. Numbers at the beginning of titles will file before initials, at the beginning of the alphabet. Ignore transliterations of numbers.

EXAMPLE: 4 [i.e. Quattro] Movimenti per un significato.

file as: 4 Movimenti per un significato.

B. Spelled numbers should be filed alphabetically:
Fourth annual report
Henry the sixth.

C. Interfile cardinal and ordinal numbers.

D. Dates will be regarded as numerals and will be filed in their numerical sequence with other numerals.

E. Numerals will be filed chronologically before alpha characters in the same position.

EXAMPLE: Contratto collettivo nazionale di lavoro 10 giugno 1952.
" " " " " 11 novem 1965.
" " " " " 13 luglio 1967.
" " " " " 25 luglio 1966.
" " " " " manuale.

COMPREHENSIVE EXAMPLE: 4 Movimenti.
5th European Conference.
14-18: the education ...
Die 95 [Fünfundneunzig] Thesen.
300 years
The 1971 encyclopedia ...
2,000 years of art.

IX. Words spelled in two ways.

When title headings begin with a word that may be spelled in two ways, arrange according to the spelling that is given. Do not inter-file titles which have different spellings.

X. Hyphened and compound words

A. Arrange Hyphened words as separate words if the two parts can stand alone.

B. Arrange as one word, compound words that are printed as one.

C. Arrange as one word, words with a hyphened prefix such as anti-, co, electro-, ex-, inter-, mid-, non-, pan-, post-, pre-, pro-, re-, trans-, tri-, etc. These prefixes cannot stand alone as words.

EXAMPLE: folk lore (file as 2 words)
folk-lore (file as 2 words)
folklore (file as 1 word)

XI. Names

A. Names compounded of two words

Arrange names consisting of two or more words, with or without a hyphen as separate words. This includes names beginning with New, Old, East, North, Saint, San, Santa, etc.

B. Names with a prefix

1. Arrange a name with a prefix as one word. This includes names in which an article or a preposition is written as part of the name and is not transposed; such names as ApThomas, D'Arcy, Des Barres, Du Challu, Fitz Allen, (Fitz is regarded as a prefix), Le Sage, L'Estrange, MacFingal, O'Neal, Van Allen, Zum Felde, Zur Brücke, ZuTavern, Kis-Erös (Hungarian), etc.

2. Names beginning with a prefix M' and Mc are filed as if spelled Mac, because they are so pronounced.

C. Oriental names

1. Mohammedan (Arabic, Persian, Turkish) and Hebrew names. Disregard the initial article al- or el- (or the assimilated forms ad-, as-, az-) prefixed to Arabic, etc., names (e.g., al-Ghazzali) and the article ha- or he- prefixed to Hebrew names. But when the article comes between the parts of a name (e.g., 'Abd al Latif) it is to be regarded.

2. Chinese names.
Arrange Chinese names by the first part (family name) whether it is separated by a comma or not. But an old Chinese name that consists of only two hyphened syllables (e.g., Lao-Tzu, "the Old One") is to be filed as a two-word phrase.

D. Names spelled differently

Arrange separately names that differ in spelling however slightly.

XII. General arrangement under title.

A. At the beginning of a title the author's name, even in the possessive case, should be regarded.

EXAMPLE: Byron adaptations.
Byron's Childe Harolds pilgrimage.
Byron's genius.
Byron's poetical works.

B. Editions: Arrange editions of identically worded titles by date, in reverse chronological order, i.e., latest date first.

C. Translations: Arrange each translation alphabetically by its own title.

XIII. Sections which are exceptions to normal filing rules

A. Proceedings.

All titles beginning with the word "Proceedings" and having an author entry will be sub-arranged alphabetically by the author entry. Title main entries beginning with the word "Proceedings" are arranged alphabetically word-by-word in a section following the author/title cards.

B. Works, Poems, Letters, etc.

Several sections of the file will not be arranged word for word. Any title in these sections which has the form: (Poems) of (author's name). will be filed as if there were a period preceding the word "of". These titles will be inter-filed with titles taking the form Poems.

EXAMPLE: Poems of William Wordsworth.
and
Poems. [author on card is Wordsworth]
Inter-file these two titles as if each said Poems.

Sections arranged in this manner include: Complete... (works, poems, etc.), Letters, Oeuvres, Oeuvres complètes, Poems, Poetical works, Report, Werke, and Works.

APPENDIX A

(Modification of American Library Association, ALA rules for filing catalog cards, 2nd ed., Chicago, 1968, pp. 233-236)

INITIAL ARTICLES TO BE DISREGARDED IN FILING

The following table lists definite and indefinite articles in various languages (all genders and both numbers) which should be disregarded. Under each language they are listed in the following order: Singular--masculine, feminine, neuter; Plural--same; an elided form follows its corresponding word or group of words; each article is listed only once under each language. The words in parentheses are variant or dialect forms. An alphabetical index to all articles in the table follows the table.

*Before an indefinite article indicates that the same form is also used for the cardinal numeral "one," therefore care must be taken to distinguish the meaning.

Language	Definite article	Indefinite article
Arabic	al-, el-	none
Bohemian, see Czech		
Bulganian		none
Croatian, see Serbo-Croatian		
Czech (Bohemian)	No articles	
Danish	Den, Det, De(Di)	*En, *Et
Dutch	De, Het, 't, 's	*Een, Eene, 'n
English	The	A, An
Estonian	No articles	
Finnish	No articles	
French	Le, La, L', Les	*Un, *Une
German	Der, Die, Das	*Ein, *Eine,[1]
Greek, Classical (Romanized)	Ho, Hē, Tō, Hoi, Hai, Ta, To	none
Greek, Modern (Romanized)	Ho, Hē, To, Hoi, Hai, Ta,	*Henas(Heis), *Mia *Hena(Hen)
Hebrew (Romanized)	Ha-(Ho-),He-	none
Hungarian	A, Az	*Egy
Idelandic (Modern)	Hinn, Hin, Hio, Hinir, Hanar	none
Italian	Il, La, Lo, I, Gli, Gl', Le, L'	*Un, *Uno, *Una, *Un'
Latin	No articles	
Latvian, see Lettish		
Lettish	No articles	

1. The numerals "Ein" and "Eine" are sometimes spaced (E i n; E i n e) to distinguish them from the indefinite article.

Language	Definite article	Indefinite article
Lithuanian	No articles	
Norwegian (Riksmal)	Den, Det, De	*En, *Et
Norwegian (Nynorsk) (formerly called Landsmal)	Den, Det, Dei	*Ein, *Ei, *Eit
Polish	No articles	
Portuguese	O, A,[2] Os, As[2]	*Um, *Uma
Rumanian		*Un, *Una, *O
Russian	No articles	
Serbo-Croatian	No articles	
Slovak	No articles	
Slovenian	No articles	
Spanish	El, La, Lo, Los, Las	*Un, *Una
Swedish	Den, Det, De	*En, *Ett
Turkish (New)	none	*Bir
Ukrainian	No articles	
Welsh	Y, Yr	none
Yiddish (Romanized)	Der, Di, Die, Dos(Das)	A, An, *Eyn, *Eyne

2. The words "a" and "as" with accents in Portuguese are not articles and must be regarded in filing.

ALPHABETICAL INDEX TO ARTICLES IN ABOVE TABLE

*Before an indefinite article indicates that the same form is also used for the cardinal numeral "one", therefore care must be taken to distinguish the meaning.

A	English, Hungarian, Portuguese, Yiddish
al-	Arabic
An	English, Yiddish
As	Portuguese
Az	Hungarian
Bir	Turkish
Das	German, Yiddish
De	Danish, Dutch, Norwegian(Riksmal), Swedish
Dei	Norwegian(Nynorsk)
Den	Danish, Norwegian, Swedish
Der	German, Yiddish
Det	Danish, Norwegian, Swedish
Di	Danish, Yiddish
Die	German, Yiddish
Dos	Yiddish
*Een, Eene	Dutch
*Egy	Hungarian
*Ei	Norwegian(Nynorsk)
*Ein	German, Norwegian(Nynorsk)
*Eine	German
*Eit	Norwegian(Nynorsk)
El	Spanish
el-	Arabic
*En	Danish, Norwegian(Riksmal), Swedish
*Et	Danish, Norwegian(Riksmal)
*Ett	Swedish
*Eyn, *Eyne	Yiddish
Gl', Gli	Italian
ha	Hebrew
Hai	Greek
Hē	Greek
he-	Hebrew
*Heis	Greek, Modern
*Hen, *Hena, *Henas	Greek, Modern
Het	Dutch
Hið	Icelandic
Hin, Hinar, Hinir, Hinn	Icelandic
Ho	Greek
ho-	Hebrew
Hoi	Greek
I, Il	Italian
L'	French
La	French, Italian, Spanish

Las	Spanish
Le	French, Italian
Les	French
Lo	Italian, Spanish
Los	Spanish
*Mia	Greek, Modern
'n	Dutch
O	Portuguese, *Rumanian
Os	Portuguese
's	Dutch
't	Dutch
Ta	Greek
The	English
To	Greek
To	Greek, Classical
*Um, *Uma	Portuguese
*Un	French, Italian, Rumanian, Spanish
*Un'	Italian
*Una	Italian, Runamian, Spanish
*Une	French
*Uno	Italian
Y, Yr	Welsh

No articles: Czech (Bohemian), Estonian, Finnish, Latin, Lettish, Lithuanian, Polish, Russian, Serbo-Croatian, Slovak, Slovenian, Ukrainian.

APPENDIX F

Introduction

Traditionally, and for reasons good and sufficient in themselves, published bibliographies, catalogs, and other records pertaining to books are usually arranged by the established author entry, most commonly by the surname of a person.

The author-entry system has not been without shortcomings, however. Author entry has meant, for example, that the entire bibliographic record is inaccessible if an author's name is lacking, incomplete, or incorrect, even if the title is correct. If there is any doubt about the author's name, or if the work is attributed to a corporate author of uncertain identity, considerable searching is required to locate the entry in question.

In technical processing activities, these drawbacks to the author-entry system have meant that skilled personnel familiar with the possible problems has been required for such activities as searching. It has also meant that duplication of purchases, inaccurate reports of holdings, and other unhappy consequences have sometimes resulted from failure by even experienced librarians to look in just the right place in catalogs or files.

Today, however, this traditional approach is recognized as not necessarily the *only* system, and many libraries, book dealers, and others maintain certain records in title rather than author sequence.

Access by title is possible, of course, in most public catalogs of an individual library's holdings, and in certain published bibliographies, such as *Cumulative Book Index* and *Books in Print*. Valuable as they are, however, these and other records which permit access by title all have individual gaps in coverage (with respect to place or date of publication, type of publisher, etc.) which limit their usefulness.

These volumes of *English Language Books by Title: A Catalog of Library of Congress Printed Cards* represent the beginning of a sustained effort to provide bibliographic control by title on a basis which is both broader in geographic scope and more comprehensive with respect to types of material covered than any existing published record. (The present volumes will be followed by quarterly and annual supplements.)

English Language Content Is Only Criterion

English Language Books by Title is based on Library of Congress printed cards, although LC is not, of course, connected with the publication in any capacity. Specifically the material in this 1969-1970 cumulation is taken from complete sets of depository cards distributed by the Library of Congress during 1969-70. Cards selected for inclusion in the cumulation pertain to materials believed to be completely or principally in the English language. The place of origin of these materials is *not* a factor in selection for inclusion; works in English are included in *ELBT* regardless of the place of publication.

Similarly, the *publisher* is not considered in selection of items for *ELBT*. Certain types of publication — such as those issued by governmental agencies, associations, state agencies, etc., are omitted from many other bibliographic tools, but are included in *ELBT*.

ELBT includes entries for publications in microform, in addition to entries for books, maps and periodicals. It does *not* include cards for music scores and phonorecords or motion pictures and filmstrips. (Separate volumes covering films and *arranged by title* are published as part of the *National Union Catalog*.)

The *full text* of the Library of Congress card is reproduced in *ELBT*. This means that when an LC entry for a book is found, a catalog card can be prepared *immediately without reference to any other source*. Furthermore, the reduction ratio used is the same as that used in LC's own printed catalogs, and the Polaroid camera and other similar cataloging devices used with LC catalogs are entirely compatible with entries in *ELBT*.

In summary, this publication of 1969-1970 cataloging in title sequence provides an alternative means of access to more than 160,000 English language titles. Included are the following types of material, many of which are not listed in any other source by title:

a) Books and monographs of commercial publishers
b) Publications of university presses
c) Publications of institutes, research units, and other bodies connected with universities
d) Local, state, federal, and foreign government publications
e) Reprinted monographs and other materials
f) Pamphlets
g) Reports and other materials issued by both commercial and nonprofit research centers and by professional conferences, meetings, and symposia
h) Maps, atlases, and gazeteers
i) Microforms
j) Association and society publications
k) Other published materials in English cataloged by the Library of Congress, *regardless of publisher or country of origin*.

How Entries Are Arranged

Alphabetical order has, in general, been based on the *Filing Rules for the Dictionary Catalogs of the Library of Congress* (1956). The following are some of the key practices followed:

a) Subtitles which are an essential part of the overall title are taken into consideration in arrangement.
b) When several titles are identical, they are arranged by the author of the work. (This is especially applicable for works with common titles such as *Report, Proceedings, Transactions, Works*, etc.)
c) Editions of the same work are subarranged by date of publication, then if necessary by place of publication and publisher.

d) Titles beginning with initials are placed at the beginning of the letter of the alphabet represented by the first initial of the title.

e) Variant spellings of entry words have usually been interrelated by cross references

How Title Access Helps Librarians and Researchers

In a survey of the needs of potential users, librarians said that *TLBI* will:

a) Give added flexibility to search and research activities which until now have been handicapped by the almost exclusive use of author names as the basis for organizing catalogs, indexes, bibliographies, etc.

b) Simplify searching and permit use of subprofessionals for this function.

c) Make possible the *immediate* preparation of catalog cards by the Polaroid process or similar methods, once the entry is found, since final printed LC cards are used for compiling *TLBI*. The complete text of LC cards is reproduced, using the same reduction ratio as is used for LC printed catalogs.

d) Provide a means of handling the frequent inquiries concerning books whose authors are not known.

e) Give an alternate point of entry when the title is clearly established but the author is uncertain, or is cited incorrectly.

f) Help eliminate confusion when main entry information in inter-library loan requests does not correspond with main entry established by the lending library.

g) Enable the determination of LC card order number when author entry is in doubt.

The editors believe these expectations will be fully met. They will appreciate learning of other situations in which this comprehensive title catalog is useful, as well as receiving any suggestions as to how it can be made even more valuable.

APPENDIX G

East African Academy.

Human adaptation in tropical Africa; papers presented at a plenary session on the theme "Man in his East African environment" at the fourth symposium of the East African Academy, Kampala, September 1966. Edited by R. J. Olembo. [Nairobi, East African Pub. House [1968]

153 p. illus. 22 cm. 15.00

Includes bibliographies.

1. Anthropo geography—Africa, East. I. Olembo, R. J., ed. II. Title.

GF721.E2E2 72-980955
MARC

Library of Congress 71 [2]

Human adaptation in tropical Africa; papers presented at a plenary session on the theme "man in his East African environment" at the fourth symposium of the East African Academy, Kampala, September 1966. Edited by R. J. Olembo. [Nairobi, East African Pub. House [1968]

153 p. 22 cm.

Includes bibliographical references.

1. Africa, East—Congresses. I. Olembo, R. J., ed. II. East African Academy.

DT421.H84 70-13478
MARC

Library of Congress 70 [2]

Lang, David Marshall
A guide to Eastern literatures: edited by David M. Lang. New York, Praeger [1971]
x, 500 p. 24 cm. $15.00
Includes bibliographies.

1. Oriental literature. 2. Oriental literature—Bio-bibliography.

PJ307.L3 1971b 809.8'95 79-157114
rev MARC

Library of Congress 71 [r72h3]

A Guide to Eastern literatures. Edited by David M. Lang. New York, Praeger [1971]
x, 500 p. 24 cm. $15.00
Includes bibliographies.

1. Oriental literature. 2. Oriental literature—Bio-bibliography. I. Lang, David Marshall, ed.

PJ307.G8 809.8'95 79-157114
MARC

Library of Congress 71 [7]

Johnston, Ronald Carlyle, comp.

Two old French Gauvain romances. Part I. Le chevalier à l'Épée and La mule sans frein, edited with introduction, notes and glossary by R. C. Johnston and D. D. R. Owen. Part II. Parallel readings with Sir Gawain and the Green Knight, by D. D. R. Owen. Edinburgh, Scottish Academic Press; London, Distributed by Chatto and Windus, 1972.
vii, 208 p. 23 cm. £3.00 B 73-03343
Old French text; English introductions, notes and commentary.
Bibliography: p. 28-29.
1. French poetry—Old French. 2. Gawain—Romances. I. Owen, Douglas David Roy, joint comp. II. Le chevalier à l'Épée. 1972. III. Païens de Maisières, 13th cent. La mule sanz frain. 1972. IV. Title.

PQ1314.J6 841'.1 73-160992
ISBN 0-7011-1871-7 MARC
Library of Congress 73 [4]

Two Old French Gauvain romances: part I, Le chevalier à l'Épée and La mule sans frein. Edited with introd., notes and glossary by R. C. Johnston and D. D. R. Owen. Part II, Parallel readings with Sir Gawain and the Green Knight, by D. D. R. Owen, New York, Barnes & Noble [1973, c1972]

vii, 208 p. 23 cm.

Bibliography: p. 28-29.

1. Le chevalier à l'Épée. 2. Païens de Maisières, 13th cent. La mule sanz frain. I. Johnston, Ronald Carlyle, 1907- ed. II. Owen, Douglas David Roy, ed. III. Le chevalier à l'Épée. 1973. IV. Païens de Maisières, 13th cent. La mule sanz frain. 1973.

PQ1441.C6 1973 841'.1'080351 73-161263
ISBN 0-06-495323-8 MARC
Library of Congress 73 [4]