American National Standard

Common Command Language for Online Interactive Information Retrieval

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Common Command Language for Online Interactive Information Retrieval

Abstract: This standard provides a basic set of nineteen command terms for use in online information retrieval systems and defines the vocabulary, syntax, and operational meaning of the commands.

Developed by the National Information Standards Organization

Approved August 6, 1992 by the American National Standards Institute

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Foreword

(This foreword is not a part of the American National Standard Common Command Language for Online Interactive Information Retrieval, ANSI/NISO Z39.58-1992. It is included for information only.)

This standard provides a basic set of commands to be used by those who communicate with online information retrieval systems. It is the result of work begun in 1980, when the focus of standardization was on commercial online systems. During development of the standard, its scope broadened to include information systems. However, this standard does not govern computer-to-computer communications; it applies to user-to-computer transactions only.

In the development of the standard, NISO Standards Committee G examined the command terms used by U.S. and foreign information retrieval systems, but used no existing system as a model. Throughout the development of the standard, the guiding principle directing the Standards Committee was that the command language should reflect the needs of users, not system designers, and that ease of use and consistency of format outweigh any difficulties systems designers may encounter to implement the standard. This focus on user needs led to the creation of a command language that uses a minimum of punctuation, allows great flexibility in the order in which elements are entered into a system, and is as consistent as possible in the appearance of command expressions.

The standard includes a number of compromises. In response to comments by systems designers and users, direct conflicts between existing systems and the standard command language were avoided whenever possible. Some inconsistencies that were deemed not too difficult to explain, such as the use of a command between field qualifiers, were introduced to minimize the ambiguities system designers might encounter in distinguishing between the command language and data.

In addition, in 1988 ISO 8777-1993, Information and Documentation - Commands for Interactive Text Searching, was nearing completion and approval. Mindful that having two different standards was counterproductive, the Standards Committee made every effort to make the two standards compatible, if not identical. Direct conflicts, like the SHOW command name, which performed one function in the NISO proposal and another in the ISO version, were resolved. (Z39.58 changed its command name to SEE.) Other differences, such as the symbols used for proximity operators, were harmonized. Only one major difference continues to exist between the two standards: ANSI/NISO Z39.58-1992 requires the processing of Boolean operators in a hierarchy specified by the standard; ISO 8777 requires that those operators be processed from left to right. This issue will, undoubtedly, be addressed in future versions of both standards.

A number of factors will influence the future of this standard. Very little research has been done on how people use online information retrieval systems. As more information becomes available, ideas about command languages may change. Changes in retrieval technology will certainly affect the provisions of this standard. In addition, the growing sophistication of users exposed to automation of all sorts, from business to pleasure, will need to be evaluated.

Suggestions for improving this standard are welcome. They should be sent to the National Information Standards Organization, P.O. Box 1036, Bethesda, MD 20827, (301) 975-2814.

This standard was processed and approved for submittal to ANSI by the National Information Standards Organization. NISO approval of this standard does not necessarily imply that all Voting Members voted for its approval. At the time it approved this standard, NISO had the following members:

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Common Command Language for Online Interactive Information Retrieval

1. Introduction

1.1. Purpose

The purpose of this standard is to simplify the use of online information retrieval systems by establishing a standard command language for use by people in communicating instructions to information retrieval systems. The command language defined in this standard consists of the vocabulary, syntax, and operational meaning of the commands.

Many online information retrieval systems exist, and new ones continue to be developed and offered for public or private use. All information retrieval systems offer basic information retrieval functions and many offer additional features. While basic functionality is identical in most information retrieval systems, their command languages vary markedly. The same function may have a different name in each system and, in some cases, the same command name represents different functions in different systems. This lack of consistency hinders the use of information retrieval systems and hinders the development of public and private information services.

By providing a single, uniform command language, this standard will produce the following benefits: a) users will need to learn only one command language to use many information retrieval systems; b) users and information system designers will develop a common vocabulary leading to better understanding of users' needs, resulting, ultimately in improved service; and c) a standard human-to-machine interface will simplify implementation of information retrieval in interlinked configurations of independent information retrieval systems. (For an example of a machine-to-machine protocol for the purpose of information retrieval see ANSI/NISO Z39.50-1992 American National Standard for Information Retrieval Application Service Definition and Protocol Specification for Open Systems Interconnection.)

The text of this standard is intended to give guidance to designers of information retrieval systems, including computer-based library catalogs and computer-based database access and search facilities.

1.2. Scope

The word online in this standard is used in an expansive sense and is no way meant to restrict the type of computer-based information retrieval system to which it applies. Similarly the word command is interpreted broadly.

Online, as used in this standard, is consistent with the common dictionary definition of being controlled directly by, or in direct communication with, a computer. This standard is addressed to all of the following types of computer-based information retrieval systems: centrally located services accessed via telecommunication networks; local systems such as those used in many public-access library catalogs; and compact-disk systems, to name only a few. All of these systems are ones in which a computer, at the command of a person, provides information through an information retrieval system. These systems are further identified by the attribute, as seen by the user, of being read-only services, that is, the user is not permitted to add new information or change existing information. This standard applies to computer-based services that provide read-only information retrieval functions.

Some computer-based services and software packages for personal computers allow the user to enter information or data, to manipulate it, to search it (that is, to perform information retrieval functions), and to produce reports (that is, to view retrieved information). This standard does not directly apply to such products or services. The designers of such products and services, however, may find this standard to be a useful guide in designing the information retrieval aspects of products and services that provide those functions as well as other functions.

The standard does not restrict or prohibit the use of other modes of user-system interaction such as menu or natural language interfaces or the use of a "native" non-standard command language along with the standard language. However, if the meaning of the standard command conflicts with the meaning of an identical command name in the "native" language, the function of the standard command name shall be performed.
2. Definitions

Character masking—Symbolizing unknown or unspecified characters in a search term by special characters that are defined to represent any character or characters, no characters, or blank spaces. Truncation is a special form of character masking.

Command expression—A complete request for the performance of a function. Table 3 illustrates the most complicated examples of a command expression.

Command name—A specially defined reserved word or abbreviation used to initiate a command expression.

Command specification—A string of characters that may follow a command name, specifying how and on what the command expression is to operate.

Database—A file or set of files that can be made accessible by computer.

Default—The value automatically assumed by the system, unless the user specifies a different value or values.

Field—A subset of a record, a set of related data treated as a unit and used to store a particular kind of data.

Field label—A string of characters used to uniquely identify a particular field or type of field defined in a record.

File—An organized collection of data, usually comprising related records.

Index—An organized or systematic list that specifies, indicates, or designates the information, contents, or topics in a database; contains entries such as words, phrases, or codes by which a record may be identified and retrieved.

Online search—The interactive search process, via computer, in which the searcher, by means of logical combinations of search terms and operators, examines the contents of one or more databases to obtain an answer or conclude the search.

Operator—A reserved word or symbol used to specify the relationship between two entities being searched for, except in the case of a ranging operator, where only one entity is involved. Operators include:

Booleans operators—The logical operators: AND, NOT and OR indicate that a Boolean function is to be performed on two search terms or search elements. When used in a search statement:

AND between two search terms or elements requires both terms to be present in the items to be retrieved;

NOT between two search terms or elements requires that the retrieved items contain the first search term and not the second;

OR between two search terms or elements requires that either one or the other or both (the inclusive OR) must be present.

Proximity operators—Operators that specify the relative position and distance between two search terms in the item to be retrieved.

Ranging operators—Operators that indicate that all values related quantitatively to the immediately following term are to be retrieved.

Print request identifier—The label assigned by the system or the user to a request initiated by the PRINT command.

Qualifier—A label used to select the field, index, or file from which a search term or combination of search terms is to be retrieved.

Record—A group of related data usually treated as a unit; a subset of file, a superset of field.

Reserved word—A word, abbreviation, or symbol that has a special meaning defined explicitly in the command language.

Restoration mark—A symbol used to restore the literal meaning of a reserved word or words.

Result set—The group of records retrieved by a search statement.

Result set identifier—The label assigned by the system or the user to a result set. The result set identifier for a given search statement is identical to its search statement identifier.

Saved search identifier—A label assigned by the system or by the user to a saved search strategy.

Search element—A search term or combination of search terms to be searched in the same index or indexes, with its qualifier or qualifiers (the qualifier may be implicit); or a result set identifier. A search element may contain one or more search terms, Boolean operators, ranging operators, proximity operators, or qualifiers; or a result set identifier.
2. Definitions

Character marking—Symbolizing unknown or unspeciﬁed characters in a search term by special characters that are deﬁned to represent any character or characters, no characters, or blank spaces. Truncation is a special form of character marking.

Command expression—A complete request for the performance of a function. Table 3 illustrates the most complicated examples of a command expression.

Command name—A specially deﬁned reserved word or abbreviation used to initiate a command expression.

Command speciﬁcation—A string of characters that may follow a command name, specifying how and on what the command expression is to operate.

Database—A file or set of files that can be made accessible by computer.

Default—The value automatically assumed by the system, unless the user speciﬁes a different value or values.

Field—A subset of a record, a set of related data treated as a unit and used to store a particular kind of data.

Field label—A string of characters used to uniquely identify a particular ﬁeld or type of ﬁeld deﬁned in a record.

File—An organized collection of data, usually comprising related records.

Index—An organized or systematic list that speciﬁes, indicates, or designates the information, contents, or topics in a database; contains entries such as words, phrases, or codes by which a record may be identiﬁed and retrieved.

Online search—The interactive search process, via computer, in which the searcher, by means of logical combinations of search terms and operators, examines the contents of one or more databases to obtain an answer or conclude the search.

Operator—A reserved word or symbol used to specify the relationship between two entities being searched for, except in the case of a ranging operator, where only one entity is involved. Operators include:

Boolean operators—The logical operators: AND, NOT and OR. Indicate that a Boolean function is to be performed on two search terms or search elements. When used in a search statement:

AND between two search terms or elements requires both terms to be present in the items to be retrieved;

NOT between two search terms or elements requires that the retrieved items contain the ﬁrst search term and not the second;

OR between two search terms or elements requires that either one or the other or both (the inclusive OR) must be present.

Proximity operators—Operators that specify the relative position and distance between two search terms in the items to be retrieved.

Ranging operators—Operators that indicate that all values related quantitatively to the immediately following term are to be retrieved.

Print request identiﬁer—The label assigned by the system or the user to a request initiated by the PRINT command.

Qualifier—A label used to select the ﬁeld, index, or ﬁle from which a search term or combination of search terms is to be retrieved.

Record—A group of related data usually treated as a unit; a subset of a ﬁle, a superset of ﬁeld.

Reserved word—A word, abbreviation, or symbol that has a special meaning deﬁned explicitly in the command language.

Restoration mark—A symbol used to restore the literal meaning of a reserved word or words.

Result set—The group of records retrieved by a search statement.

Result set identiﬁer—The label assigned by the system or the user to a result set. The result set identiﬁer for a given search statement is identical to its search statement identiﬁer.

Saved search identiﬁer—A label assigned by the system or by the user to a saved search strategy.

Search element—A search term or combination of search terms to be searched in the same index or indexes, with its qualiﬁer or qualiﬁers (the qualiﬁer may be implicit) or a result set identiﬁer.

Search statement—A particular FIND command speciﬁcation.

Search statement identiﬁer—The label assigned by the system or the user to a particular search statement. See also Result set identiﬁer.

Search strategy—A series of command expressions intended to satisfy a request for information. A search strategy may include a variety of database selection commands, commands to view index or thesaurus entries, and search and display commands.

Search term—A word or group of words that the FIND command speciﬁcation instructs the system to retrieve. A search term contains search words and may contain proximity operators but does not include Boolean or ranging operators or qualiﬁers.

Search word—A word that the system is capable of searching.

Separator—A character or series of characters used to set apart components of a command expression. Space, comma, semicolon, and parentheses are deﬁned in this standard as separators.

Session—The time spent and activities performed at a search workstation by a searcher without interruption (i.e., the underlying computer process or “connection” is not terminated) doing online, interactive searching of one or more databases to obtain information. Often bound by formal log-on and log-off procedures, a session may include several searches and database choices.

Thesaurus—A compilation of terms showing synonyms, hierarchies, and other relationships and dependencies between terms, the function of which is to provide a standardized, controlled vocabulary for information storage and retrieval. Thesauri typically cover one or more speciﬁed areas of knowledge.

Truncation—A special form of character marking that masks a character or characters at either end of a word. Word—A character or series of characters preceded and followed by separators. The characters may be alphanumeric symbols.

3. Conformance

An information retrieval system conforms to this standard when it recognizes and responds to every command speciﬁed and as speciﬁed by this standard; that is, if a function provided in a particular system is deﬁned in this standard, it shall be available to the user through a command expression that conforms to the vocabulary and syntax speciﬁed in this standard for that function. If a function is not available or cannot be performed by means of, or in accordance with, the standard command, the system shall so inform the user. Implicit command names are permitted, but if the user explicitly enters the command name, the conforming system shall recognize and accept it.

The standard does not prescribe or restrict the functions that a particular information retrieval system must implement; thus it does not represent a minimal or basic set of functions. The standard also does not represent an exhaustive set of functions. The choice and number of functions provided is left to the individual system designer. Some retrieval systems may incorporate fewer functions than speciﬁed here; others will provide additional functions.

Commands for functions not included in this standard should conform to the general command features and rules of syntax speciﬁed herein.

4. Linguistic and Typographic Conventions

Special linguistic and typographic conventions are followed in this standard when describing and illustrating commands. In accordance with the ANSI style manual (March 1991), the word shall is to be understood as denoting a mandatory requirement; the word should as denoting a recommendation.

Shall is used whenever the criterion for conformance with the speciﬁc recommendation requires that the system conform. Should is used wherever noncompliance with the speciﬁc recommendation is permissible. (From Style Manual for Preparation of Proposal American National Standards. 9 ed., 1991. Section 6.8.1 (p. 33))
5. Implementation

This standard does not specify the manner in which system designers implement the functions it describes. These command functions and the expected system responses are described from the user’s point of view. However, a formal syntax notation is also provided to describe the command language unambiguously for system designers (see Appendix A).

6. General Features and Rules of Syntax

6.1. Command Structure

The following general command structure is applied:

\[ \text{command expression} = \text{command name} + \text{command specification} \]

Command expressions begin with a command name or abbreviation. Not all command expressions require a command specification.

Examples:

- **command name** command specification
  - FIND bank? AND insurance
  - SCAN SU marine biology
  - EXPLAIN commands
  - STOP

A command expression concludes with whatever the system has defined, usually “Return”. There shall be no restriction on line length.

Command expressions for each command name in this standard are described in Section 7.

6.2. Command Names

Command names are familiar words from the English language selected to express the function to be performed.

6.3. Command Name Abbreviations

Command names shall be abbreviated by truncation of characters from the right. For all command names in this standard, the first three characters are specified as the standard abbreviation. The system is required to accept both the full form of the command name and the three-letter abbreviation.

In addition, any unambiguous right-truncated form of the command name, ranging from the single first letter to the full name, should be recognized and accepted by the system. If ambiguity does result from the user’s abbreviation of a command name in any case, the system should respond by asking for a fuller, unambiguous form of the command name.

6.4. Command Specification Components and Format

6.4.1. Components

A command specification may contain user-supplied data such as:

- search terms
- system-defined qualifiers (e.g., field labels)
- format identifiers
- standard-defined Boolean, proximity, and ranging operators
- character masking symbols
- result set identifiers

6.4.2. Format

The order and format of the components in a command expression are specified in Section 7. The system shall recognize and accept command expressions so entered.

6.5. Separators

Punctuation is kept to a minimum in the standard. Note that punctuation in data supplied by the user (for example, search words in a FIND command expression) is treated as part of the data and is not part of this standard. Punctuation that is part of the standard shall be treated as follows:

6.5.1. Space and Comma

Spaces are significant and are used to separate components of a command expression. A space shall appear after a command name when it is followed by a command specification. A space shall be used to separate qualifiers from search terms and operators from search terms. A space shall also be recognized as a separator between like components, such as field labels, within a command expression, except when field labels are being used as qualifiers in a FIND command expression. A space between search words is interpreted as the proximity operator \( W \) in this standard.
5. Implementation

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- `SCAN SUM marine biology`
- `EXPLAIN commands`
- `STOP`  

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A comma shall be used between qualifiers in a *FIND* command expression. The treatment of commas that occur within the text of data fields, such as within author fields that use the inverted form of personal names, is implementation-specific and is not governed by this standard.

Whenever a space is used as a separator, the system shall accept multiple spaces. Wherever a comma is used as a separator, the system shall accept multiple commas, and the system shall accept any number of spaces preceding or following any comma. For example, the following expressions are equivalent:

<table>
<thead>
<tr>
<th>FIND TI rheumatism and therapy</th>
<th>FIND TI, SUB rheumatism</th>
</tr>
</thead>
</table>

6.5.2. Semicolon

The semicolon (:) shall be used to separate command expressions in user-defined sequences of command expressions or for command "stacking" purposes, that is, when several commands are submitted to the system in a single transmission.

<table>
<thead>
<tr>
<th>Table 1 — Operators, symbols, and punctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator/Symbol</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>(</td>
</tr>
<tr>
<td>#</td>
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<tr>
<td>?</td>
</tr>
<tr>
<td>,</td>
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<tr>
<td>;</td>
</tr>
<tr>
<td>&quot;</td>
</tr>
<tr>
<td>ALL</td>
</tr>
<tr>
<td>AND</td>
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<tr>
<td>OR</td>
</tr>
<tr>
<td>GE</td>
</tr>
<tr>
<td>GT</td>
</tr>
<tr>
<td>LT</td>
</tr>
<tr>
<td>NE</td>
</tr>
<tr>
<td>Proximity operator, where word order is not specified. N alone is used to indicate adjacency in either order. A positive integer (n) may be used to specify the maximum number of intervening words.</td>
</tr>
<tr>
<td>S</td>
</tr>
<tr>
<td>ADD</td>
</tr>
<tr>
<td>Space</td>
</tr>
<tr>
<td>Wn</td>
</tr>
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# Table 2 — Summary of command names

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## 6.5.3. Parentheses

Parentheses act as implicit separators; that is, "(" shall be equivalent to "(" and to " ")". The treatment of parentheses that occur within the text of data fields, such as a parenthetic equivalent in a personal name, is implementation-specific and is not governed by this standard. A summary of operators, symbols, and punctuation is given in Table 1.

## 6.6. Uppercase and Lowercase Alphabetic Character Input

The system shall accept user input without discriminating between upper- and lowercase letters.

## 7. Summary Descriptions of Commands

Each command is described in a uniform manner: name, abbreviation, function, examples, and explanatory or clarifying remarks.

See Appendix A for a complete formal description of command language syntax in the Backus-Naur Format (BNF) notation. Appendix B contains an extensive list of examples of the standard command language. Table 2 provides a summary of command names.
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---

**Examples:**
- BACK 55-S10
- CHOOSE myname S1-84
- DELETE 1-6
- DEF mydefinition
- DEL myprintrequest

**Remarks:**
- The DELETE command requires a specification. Possible specifications shall include search statement or result set identifiers, saved search identifiers, user-defined command names or user-defined sequences of command expressions, and print request identifiers.

If records are to be deleted from result sets, the record identifiers shall immediately follow the result set identifier to which they belong. When records are to be deleted, only one result set identifier shall be used for each DELETE command expression.

**7.5. Command Name: DISPLAY**

**Command Abbreviation:** DIS

**Function:** Displays at the user's terminal the results of a search of the database(s).

**Examples:**
- DISPLAY 1-3 SHORT
- DISPLAY ALL
- DIS 54 1 LONG
- DIS ALL 33

**Remarks:**
- The DISPLAY command does not require a specification but may include one or more of the following: a result set identifier; one or more format identifiers; one or more record identifiers.

When no result set is specified, the system shall assume the result set of the most recently used search statement. A search statement has been used when it has been part of a DISPLAY, FIND, PRINT, or SORT command expression.

Only one result set identifier shall be specified in a single DISPLAY command.

When no format specification is included, the system shall assume the default display format. (Note: It is possible to change the default format using a SET command expression.) Additional predefined formats are permitted. Field labels may be used to specify particular fields to be displayed.

When no record identifiers are specified, the system shall display at least the first record in the result set.

The user may enter the elements of the DISPLAY command specification in any order.
Note: In this standard, Sn, followed by a positive integer (Sn), is reserved as a label to identify a particular search statement or result set.

The number of display formats and the choice of labels to identify formats are implementation-specific. Format labels should be clearly distinguishable from the result set identifier and record identifiers. At least two display formats are recommended, SHORT and LONG. The contents of these formats are implementation-specific and are not specified in this standard. Implementers are encouraged to provide additional formats where applicable.

Record identifiers (e.g., numbers) supplied in a command specification shall be separated by either a space or a comma. A range of record identifiers shall be indicated with a hyphen. The specification ALL shall indicate that all the records of the result set are to be displayed.

7.6. Command Name: EXPLAIN
Command Abbreviation: EXP

Function: Obtains information about the system, its use, and its database(s). This is information that is not session-specific.

Examples: EXPLAIN
           EXPLAIN COMMANDS
           EXP DATABASES
           EXP SUBJECT HEADING

Remarks: No specification is required for the EXPLAIN command. When EXPLAIN is entered alone, the system shall display a list of topics that can be explained.

A topic may be specified by the user, but only one topic shall be specified in one EXPLAIN command.

If a topic named in an EXPLAIN command is not included in the system's EXPLAIN topics file, the system should indicate that there is no explanation for the topic specified and should display a list of topics that can be explained.

See also HELP.

7.7. Command Name: FIND
Command Abbreviation: FIN

Function: Searches for records in the database and reexecutes saved search strategies.

Examples: FIND ecosystems
          FIND conversion tables
          FIND behavior?1r
          FIND AU eliot AND TI cats
          FIN TI,AB toxic shock syndrome
          FIN TI treaties AND S3
          FIN TI hamlet AND PD 1800-1900
          FIN S1 AND S2
          FIN savedsearch

Note: Specific values for qualifiers are system- or database-dependent and are not defined in this standard. Field labels used in examples in this standard are for illustration only. The choice and form of labels for field and index qualifiers are not specified in this standard.

Remarks: The FIND command invokes a search of one or more of the system's databases. For systems that permit the creation and retention of result sets, the system response should include a result set identifier and the number of items retrieved. S, followed by a positive integer, shall be used to identify a search statement or result set.

The FIND command requires a specification consisting of one or more search terms or search elements. These terms or elements may be combined using one or more Boolean operators, proximity operators, or ranging operators. A search term or grouped combination of search terms may be preceded by a qualifier or qualifiers. See Table 3 for a representation of the components of a FIND command.

The FIND command shall also be used to recall and reexecute a saved search strategy.

7.7.1 Qualifying Search Terms
Search terms may be qualified to restrict or direct a search to specific indexes or data units (e.g., fields or paragraphs).

If no qualifier is used, the system shall search its default index; the choice of the default index is implementation-specific and is not specified in this standard.

If one or more qualifiers are used, they shall precede the search term or group of search terms to which they apply. A comma shall be used between qualifiers and shall function as the Boolean OR.

Examples: FIND AU orwell
          FIND AU haley AND TI roots
          FIND TI,AB acid rain

Qualifiers may apply to more than one search term in a complex search statement. The first qualifier or group of qualifiers separated by commas that act as OR encountered in a search statement shall apply over the next search term or all
Note: In this standard, S, followed by a positive integer (Sn), is reserved as a label to identify a particular search statement or result set.

The number of display formats and the choice of labels to identify formats are implementation-specific. Format labels should be clearly distinguishable from the result set identifier and record identifiers. At least two display formats are recommended, SHORT and LONG. The contents of these formats are implementation-specific and are not specified in this standard. Implementers are encouraged to provide additional formats where applicable.

Record identifiers (e.g., numbers) supplied in a command specification shall be separated by either a space or a comma. A range of record identifiers shall be indicated with a hyphen. The specification: ALL shall indicate that all the records of the result set are to be displayed.

7.6. Command Name: EXPLAIN

Command Abbreviation: EXP

Function: Obtains information about the system, its use, and its database(s). This is information that is not session-specific.

Examples: EXPLAIN EXPLAIN COMMANDS EXP DATABASES EXP SUBJECT READING

Remarks: No specification is required for the EXPLAIN command. When EXPLAIN is entered alone, the system shall display a list of topics that can be explained.

A topic may be specified by the user, but only one topic shall be specified in one EXPLAIN command.

If a topic named in an EXPLAIN command is not included in the system’s EXPLAIN topics file, the system should indicate that there is no explanation for the topic specified and should display a list of topics that can be explained.

See also HELP.

7.7. Command Name: FIND

Command Abbreviation: FIN

Function: Searches for records in the database and reexecutes saved search strategies.

Examples: FIND ecosystems FIND conversion tables FIND behavio?r FIND AU elio AND TI cats

FIN T6,AB toxic shock syndrome FIN T7 treatments AND S3 FIN T7 hamlet AND ?D 1800-1900 FIN S1 AND S2 FIN savesearch

Note: Specific values for qualifiers are system- or database-dependent and are not defined in this standard. Field labels used in examples in this standard are for illustration only. The choice and form of labels for field and index qualifiers are not specified in this standard.

Remarks: The FIND command invokes a search of one or more of the system’s databases. For systems that permit the creation and retention of result sets, the system response should include a result set identifier and the number of items retrieved. S, followed by a positive integer, shall be used to identify a search statement or result set.

The FIND command requires a specification consisting of one or more search terms or search elements. These terms or elements may be combined using one or more Boolean operators, proximity operators, or ranging operators. A search term or grouped combination of search terms may be preceded by a qualifier or qualifiers. See Table 3 for a representation of the components of a FIND command.

The FIND command shall also be used to recall and reexecute a saved search strategy.

7.7.1. Qualifying Search Terms

Search terms may be qualified to restrict or direct a search to specific indexes or data units (e.g., fields or paragraphs).

If no qualifier is used, the system shall search its default index; the choice of the default index is implementation-specific and is not specified in this standard.

If one or more qualifiers are used, they shall precede the search term or group of search terms to which they apply. A comma shall be used between qualifiers and shall function as the Boolean OR.

Examples: FIND AU orwell
FIND AU/alden AND TI roots FIND TILAB acid rain

Qualifiers may apply to more than one search term in a complex search statement. The first qualifier or group of qualifiers separated by commas that act as OR encountered in a search statement shall apply over the next search term or all search terms enclosed in parentheses that follow the qualifier(s). Where no parentheses group search terms, the qualifier(s) shall extend only to those words preceding the next Boolean operator.

Examples: FIND AU (asimov OR bradbury)
AND SU science fiction
FIND TILAB (import tariffs OR protectionism)
FIND T7 (skin cancer OR melanoma) AND diagnosis
FIND AU twain and huckleberry

7.7.2. Character Masking

Two symbols are defined to enable the user to specify character masking in a search word.

7.7.2.1. Variable Number of Characters

The symbol # shall be used to indicate that a precise number of characters is to be masked. Multiple # symbols shall be used to indicate that a number of characters greater than one and equal to the number of # symbols to be masked.

Examples: FIND T7 working woman
FIND SU psychology
FIND socrates
7.7.3. Boolean Operators

The Boolean operators AND, OR, and NOT are used to express logical relationships between search terms or elements, previous result sets, or both.

Examples:
- FIND chopin AND etudes
- FIND S3 AND S5
- FIND SU neoplasin OR AB cancer
- FIND mark twain OR samuel clemens
- FIND S1 NOT T1 solar radiation

7.7.4. Ranging Operators

The operators GT or > (greater than), LT or < (less than), NE (not equal to), GE or >= (greater than or equal to), and LE or <= (less than or equal to) shall be used to assign values to parameters in a command specification. Both the abbreviations and the symbols shall be available as ranging operators.

The hyphen, -, (through), shall be used between two values to express the range between the values, inclusive of the start and end values. The form VALUE- (where VALUE means a rangeable search term) specifies a range of values from and including VALUE, and all higher values. The form -VALUE specifies a range of values from the lowest value to and including VALUE.

Examples:
- FIND AU dickens AND PD LT 1890
- FIND PD GE 1986
- FIND PD >= 1986
- FIND S5 AND PD 1950-1980
- FIND T1 basic algebra AND ED 4-
- FIND AN 99887766-
- FIND PD -1800

7.7.5. Proximity Operators

Proximity operators are used to specify the relative position and distance of two search words or search terms.

A space between two search words in a search expression shall mean immediate adjacency in the order entered. Two explicit proximity operators are also defined in this standard.

7.7.5.1. Word Order Specified

The proximity operator W shall be used between two search words in a search statement to specify precise word order.

W alone between two words shall indicate adjacency in the order entered in the search statement.

The form Wn, where n is a positive integer, shall be used to specify the maximum distance within which the target words must occur in the order specified in the search statement.

Examples:
- FIND SU microcomputer W software
- FIND T1 integrated W2 systems
- FIND strategic defense initiative

7.7.5.2. Word Order Not Specified

The proximity operator N shall be used in a search statement when precise word order is not specified.

N alone between two words shall indicate adjacency of the words, in either order.

The form Nn, where n is a positive integer, shall be used to specify a maximum distance within which the target words must occur, in either order.

Examples:
- FIND AB cataloging N online
- FIND T1 radiation N3 risks
- FIND income tax N2 reform

7.7.6. Order of Precedence for Evaluating Operators

The order of precedence for the execution of character masking symbols, proximity operators, and Boolean operators in a search statement, from highest to lowest, shall be:

Character masking symbols
Proximity operators
Boolean operators AND / NOT
Boolean operator OR

Parentheses shall be used to override the above order of execution of the operators. Parentheses shall also be used for nesting Boolean expressions within a search statement.

The methods and degree of complexity available for executing this order of precedence are system-dependent.

Examples:
- FIND political AND parties OR republicans OR democrats
- FIND (drug abuse OR narcotic addiction) AND adolescents
- FIND cognitive W3 development AND (child? OR adolescent?)

7.7.7. Restoration Marks for Use of Reserved Words or Symbols

In order to use a reserved command word, abbreviation, symbol, or operator as a search
7.7.3. Boolean Operators

The Boolean operators AND, OR, and NOT are used to express logical relationships between search terms or elements, previous search results, or both.

Examples: FIND chapin AND etudes
FIND SS AND SS
FIND SU neoplasm OR AB cancer
FIND mark twain OR samuel clemens
FIND SI NOT TJ solar radiation

7.7.4. Ranging Operators

The operators GT or > (greater than), LT or < (less than), NE (not equal to), GE or >= (greater than or equal to), and LE or <= (less than or equal to) shall be used to assign values to parameters in a command specification. Both the abbreviations and the symbols shall be available as ranging operators. The hyphen, -, (through), shall be used between two values to express the range between the values, inclusive of the start and end values. The form VALU-E (where VALUE means a rangeable search term) specifies a range of values from and including VALUE, and all higher values. The form =VALUE specifies a range of values from the lowest value to and including VALUE.

Examples: FIND AU/dickens AND/PD/LT1890
FIND PD GE 1896
FIND PD <= 1900
FIND SS AND FT 1950-1980
FIND TI basic algebra AND ED 4
FIND AN 99807676-
FIND PD 1980

7.7.5. Proximity Operators

Proximity operators are used to specify the relative position and distance of two search words or search terms. A space between two search words in a search expression shall maintain immediate adjacency in the order entered. Two explicit proximity operators are also defined in this standard.

7.7.5.1. Word Order Specified

The proximity operator W shall be used between two search words in a search statement to specify precise word order.

W alone between two words shall indicate adjacency in the order entered in the search statement.

The form Wn, where n is a positive integer, shall be used to specify the maximum distance within which the target words must occur in the order specified in the search statement.

Examples: FIND SU microcomputer W software
FIND TI integrated W2 systems
FIND strategic defense initiative

7.7.5.2. Word Order Not Specified

The proximity operator N shall be used in a search statement when precise word order is not specified.

N alone between two words shall indicate adjacency of the words, in either order.

The form NN, where n is a positive integer, shall be used to specify a maximum distance within which the target words must occur, in either order.

Examples: FIND AB cataloging N online
FIND TI radiation N3 risks
FIND income tax N2 reform

7.7.6. Order of Precedence for Evaluating Operators

The order of precedence for the execution of character masking symbols, proximity operators, and Boolean operators in a search statement, from highest to lowest, shall be:

Character masking symbols
Proximity operators
Boolean operators AND/or NOT
Boolean operator OR

Parentheses shall be used to override the above order of execution of the operators. Parentheses shall also be used for nesting Boolean expressions within a search statement.

The methods and degree of complexity available for executing this order of precedence are system-dependent.

Examples: FIND political AND parties OR republicans OR democrats
FIND (drug abuse OR narcotic addiction) AND adolescents
FIND cognitive W3 development AND (child? OR adolescent?)

7.7.7. Restoration Marks for Use of Reserved Words or Symbols

In order to use a reserved command word, abbreviation, symbol, or operator as a search word, double quotation marks, " ", shall be used to restore its literal meaning. A summary of operators, symbols, and punctuation is given in Table 1.

Examples: FIND TI "au"
FIND AU "robert w jones"
FIND TI "to be or not to be"
FIND "mr" Roberts

7.8. Command name: FORWARD

Command Abbreviation: FOR

Function: Presents continuing data, or data following displayed data or items in a list.

Examples: FORWARD FOR 5

Remarks: The FORWARD command requires no specification. If no value is specified, the system-defined default value shall apply. If a specification is included, the system shall present that number of additional units.

It is possible to use FORWARD after the execution of these commands: DISPLAY, RELATE, REVIEW, SCAN, and any other command whose response may fill more than one screen or page.

FORWARD is not a substitute for a search statement or other command specification. See also BACK.

7.9. Command Name: HELP

Command Abbreviation: HEL

Function: Obtains online assistance or instruction specific to the user's situation or context of the interaction.

Examples: HELP HEL

Remarks: No specification is defined in this standard for the HELP command and a specification shall not be required in its use. The existence of a specification is system-dependent. When the user enters the HELP command, the system shall respond with assistance specific to the current situation or context of interaction. See also EXPLAIN.

7.10. Command Name: PRINT

Command Abbreviation: PRI

Function: Requests offline printing of the results of searches of the database(s).

Examples: PRINT S1 ALL LONG
PRI S1-12 AU TI SU

Remarks: The PRINT command does not require a specification but may include one or more of the following: a result set identifier; one or more format identifiers; one or more record identifiers.

When no result set is specified, the system shall assume the result set of the most recently used search statement. A search statement has been used when it has been part of a DISPLAY, FIND, PRINT, or SORT command expression.

More than one result set identifier may be included if all other specifications apply equally to all the result sets identified.

When no format specification is included, the system shall assume the default print format. (Note: It is possible to change the default format using a SET command expression). Additional predefined formats are permitted. Field labels may be used to specify particular fields for printing.

When no record identifiers are specified, the system shall print at least the first record in the result set.

The user may enter the elements of the PRINT command specification in any order.

Note: In this standard, S, followed by a positive integer (Sin), is reserved as a label to identify a particular result set.

The number of print formats and the choice of labels to identify formats are implementation-specific. Format labels should be clearly distinguishable from the result set identifier and record identifiers.

At least two print formats are recommended, SHORT and LONG. The contents of these formats are implementation-specific and are not specified in this standard. Implementers are encouraged to provide additional formats where applicable.

Record identifiers (e.g., numbers) supplied in a command specification shall be separated by a space or a comma. A range of record identifiers shall be indicated as a set. The specification ALL shall indicate that all the records of the result set are to be printed.

The system should supply a unique print request identifier for subsequent use.

7.11. Command Name: RELATE

Command Abbreviation: REL

Function: Displays terms logically related to
the search term (e.g., associated terms from a thesaurus or list of controlled terms).

Examples:  RELATE DE neoplasm
            REL educational counseling
            REL CN NT United States Congress Senate

Remarks:  The RELATE command requires a command specification. The command specification shall include the search term to be searched for in the thesaurus. The command specification may include a qualifier, or a relationship indicator, or both. A comma shall be used to separate multiple qualifiers. The command specification shall include the search term to be searched for in the thesaurus.

Terms in any displayed list resulting from the use of the RELATE command shall have identifiers (e.g., numbers) that may be used for subsequent reference.

7.12. Command Name: REVIEW
Command Abbreviation: REV
Function:  Presents the search history of the current session.

Examples:  REVIEW
            REVIEW S1-S10
            REV S4 S6
            REV savedstrategy

Remarks:  The REVIEW command does not require a specification. If entered alone, the system shall respond with a display of the search history for the entire session. One or more search statement identifiers, a range of identifiers, or a saved search strategy name may be specified.

The contents of a search history are implementation-specific and could include the number of items retrieved, the time elapsed, cost information, or other data.

See also SEE.

7.13. Command Name: SAVE
Command Abbreviation: SAV
Function:  Saves search strategies for subsequent use.

Examples:  SAVE
            SAVE S4 S8
            SAV savename
            SAV S4-S8 savedstrategy

Remarks:  The SAVE command does not require a specification. When SAVE is entered alone, with no specification, the system shall, by default, save all previous search statements in the search session and assign a unique identifier to the entire saved search strategy.

If only the user-supplied saved search identifier follows the command name, the system shall save all previous search statements under the user-supplied identifier.

The system shall ensure that saved search identifiers are unambiguous and will not be confused with search words. The method for this disambiguation is system-dependent. It may be done by modifying the user's name for the saved search strategy and so informing the user.

The command expression "FIND savedsearch", where "savedsearch" is the identifier of a saved search strategy, shall be used to execute saved search strategies.

The command expression "SEE SAVES" shall be used to view a list of saved search strategies.

The command expression "REVIEW savedsearch," where "savedsearch" is the identifier of a saved search strategy, shall be used to view the search statements in a particular saved search strategy.

The permanence of saved search strategies is system-dependent.

7.14. Command Name: SCAN
Command Abbreviation: SCA
Function:  Displays an ordered list of index terms (e.g., an alphabetical list of author names, titles, or subjects).

Examples:  SCAN
            SCAN SU
            SCAN AU orwell
            SCA einstein
            SCA foreign policy

Remarks:  The SCAN command does not require a specification. When entered alone, the system shall display a list of terms from the beginning of a basic or default index. If only a qualifier follows the SCAN command name, the system shall display terms in sequence from the beginning of the index designated by the qualifier.

The specification of a SCAN command expression indicates the portion or neighborhood of a default or user-specified index to be displayed for scanning purposes. If no match is found for the search term, an ordered list of terms where it would be found shall be displayed. The size of the neighborhood is implementation-specific.
the search term (e.g., associated terms from a thesaurus or list of controlled terms).

Examples: RELATE DE neoplasm
REL educational counseling
REL CN NT United States Congress Senate

Remarks: The RELATE command requires a command specification. The command specification shall be a search term or be searched for in the thesaurus. The command specification may include a qualifier, or a relationship indicator, or both. A comma shall be used to separate multiple qualifiers. The command specification shall include the search term to be searched for in the thesaurus.

Terms in any displayed list resulting from the use of the RELATE command shall have identifiers (e.g., numbers) that may be used for subsequent reference.

7.12. Command Name: REVIEW
Command Abbreviation: REV

Function: Presents the search history of the current session.

Examples: REVIEW
REVIEW S1-S10
REV 5 6
REBV savedstrategy

Remarks: The REVIEW command does not require a specification. If entered alone, the system shall respond with a display of the search history for the entire session. One or more search statement identifiers, a range of identifiers, or a saved search strategy name may be specified.

The contents of a search history are implementation-specific and can include the number of items retrieved, the time elapsed, cost information, or other data.
See also SEE.

7.13. Command Name: SAVE
Command Abbreviation: SAV

Function: Saves search strategies for subsequent use.

Examples: SAVE
SAVE 5 8
SAVE savename
SAVE S4-S8 savedstrategy

Remarks: The SAVE command does not require a specification. When SAVE is entered alone, the system shall display a list of terms from the beginning of a basic or default index. If only a qualifier follows the SAVE command name, the system shall display terms in sequence from the beginning of the indexed term designated by the qualifier.

The specification of a SAVE command expression indicates the portion or neighborhood of a default or user-specified index to be displayed for scanning purposes. If no match is found for the search term, an ordered list of terms where it would be found shall be displayed. The size of the neighborhood is implementation-specific.

Terms in any displayed list resulting from the use of the SCAN command shall have identifiers (e.g., numbers) that may be used for subsequent reference.

7.15. Command Name: SEE
Command Abbreviation: SEE

Function: Displays session information (pre-defined by the system or SET by the user) and other, non-instructional information pertinent to the system or session.

Examples: SEE
SEE NEWS
SEE DISPLAY
SEE COST
SEE SAVES

Remarks: The SEE command does not require a specification. When SEE is entered alone, the system shall display a list of available information topics and parameters whose default values can be viewed. For every SET parameter there shall be a corresponding SEE parameter, but not vice versa.

When a parameter is specified following the SEE command name, the system shall respond by displaying the current value of the parameter specified.

The specification SAVES shall be used to request a list of saved search strategies.
See also REVIEW.

7.16. Command Name: SET
Command Abbreviation: SET

Function: Changes default values of settings that control some characteristics of a session.

Examples: SET DISPLAY LONG
SET LINESIZE 80
SET SCROLLING OFF
SET LOCATION main

Remarks: The SET command does not require a specification. When SET is used without a specification, the system shall provide a list of all settable options. When SET is used with a specification, the specification consists of the system-defined setting name or label and the value to which it is to be set.

Modifiable settings whose values can be assigned by the user are system-dependent and are not defined in this standard. The system-defined name or label for a parameter that can be set shall follow the SET command name.

The permanence of SET values is system-dependent.

7.17. Command Name: SORT
Command Abbreviation: SOR

Function: Arranges records in a result set by specified fields.

Examples: SORT TI PD
SOR AU SS 20-30

Remarks: At least one qualifier must be specified for the SORT command. If more than one sort qualifier is specified, the priority of sorting (primary, secondary, and so on) shall be from left to right. The default sort order shall be defined by the system.

If no result set identifier is specified, the system shall default to the result set of the most recently used search statement. A search statement has been used when it has been part of a DISPLAY, FIND, PRINT, or SORT command expression.

If no record identifier or range of records is specified, all records in the result set shall be sorted.

7.18. Command Name: START
Command Abbreviation: STA

Function: Initiates a new session and initializes all settings to their default values.

Examples: START
START STA

Remarks: No command specification is defined or required. If the system requires a specification or additional steps to begin a session and the user enters START alone, the system should specifically request or prompt for the additional information or steps. In some systems START may initiate log-on procedures; in some systems START may purge the results of previous searches. These are implementation-specific options.

7.19. Command Name: STOP
Command Abbreviation: STO

Function: Ends a session.

Examples: STOP
STO
Remarks: No command specification is defined or required. If the system requires a specification or additional steps to terminate a session and the user enters STOP alone, the system should specify specifically request or prompt for the additional information or required steps. In some systems, STOP may initiate log-off procedures; this is an implementation-specific option.
Appendix A
Formal Description of Command Language Syntax (Backus-Naur Form)
(This appendix is not a part of American National Standard Common Command Language for Online
Interactive Information Retrieval, ANSI/NISO Z39.58-1992. It is included for information only.)

Note: This BNF section uses the word command in place of the term command expression in order to
conservate space.

Notation:
<> surrounds each defined entity or terminal symbol
|  | surrounds a required group
|  | surrounds an optional entity
-  - indicates an alternative
  - indicates negation
    - indicates that the preceding group or entity may be repeated indefinitely

\[
\text{command_expression} ::= \text{command}\{;\text{semicolon}\}\text{command}\} ...
\]
\[
\text{command} ::= \text{back_command} | \text{choose_command} | \text{define_command} | \text{delete_command} | \text{display_command} | \text{explain_command} | \text{find_command} | \text{help_command} | \text{forward_command} | \text{cprint_command} | \text{relate_command} | \text{review_command} | \text{save_command} | \text{scan_command} | \text{set_command} | \text{sort_command} | \text{start_command} | \text{stop_command}
\]
\[
\text{command_name} ::= \text{BAC} | \text{BACK} | \text{CHO} | \text{CHOOSE} | \text{DEF} | \text{DEFINE} | \text{DEL} | \text{DELETE} | \text{DIS} | \text{DISPLAY} | \text{EXP} | \text{EXPLAIN} | \text{FIN} | \text{FIND} | \text{FOR} | \text{FORWARD} | \text{HEL} | \text{HELP} | \text{PR} | \text{PRINT} | \text{REL} | \text{RELATE} | \text{REV} | \text{REVIEW} | \text{SAV} | \text{SAVE} | \text{SCH} | \text{SCAN} | \text{SEE} | \text{SET} | \text{SORT} | \text{STA} | \text{START} | \text{STO} | \text{STOP}
\]
\[
\text{space} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{comma} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{hyphen} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{semicolon} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{restoration} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{open_brace} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{space_integer} ::= \text{<space>-} \text{<space>-} \text{<space>-} ...
\]
\[
\text{char} ::= \text{<any_searchable_char>}
\]
\[
\text{any_searchable_char} ::= \text{any character locally defined as searchable}
\]
\[
\text{term} ::= \text{word}\{\text{space}\}\text{word}\} ...
\]
\[
\text{word} ::= \text{char} | \text{var_mask} | \text{exact_mask} | \text{format} | \text{field} | \text{list} | \text{list} | \text{list} | \text{list} | \text{list} | \text{list} | \text{list} | \text{list}
\]
\[
\text{var_mask} ::= \text{<term>}
\]
\[
\text{exact_mask} ::= \text{<term>}
\]
\[
\text{format} ::= \text{<format_name> | \text{field_list}}
\]
\[
\text{format_name} ::= \text{<term>}
\]
\[
\text{field_list} ::= \text{<field_id> | <field_id>} ...
\]
\[
\text{field_id} ::= \text{locally defined label or name for a field}
\]
<qualifier_list> ::= <qualifier_id>[<comma><qualifier_id>]...
<qualifier_id> ::= locally defined label or name for a qualifier

<record_list> ::= <record_spec>[<comma><space><record_spec>]...
<record_spec> ::= <record_id> | {<record_id><hyphen><record_id>}
<record_id> ::= <positive_integer>

<search_id_list> ::= <search_id_spec>[<comma><space><search_id_spec>]...
<search_id_spec> ::= <search_id> | {<search_id><hyphen><search_id>}
<search_id> ::= <positive_integer>

<search_term> ::= {[<search_word><space><search_word>]}...
    | {<restoration><word><space><word>...<restoration>}
<search_word> ::= <word> | <reserved_word>
<reserved_word> ::= <command_name> | <bool_op> | <saved_search_name> | <field_id>

<scan_term_list> ::= {[<scan_term_spec><comma><space><scan_term_spec>]...}
<scan_term_spec> ::= {[<scan_term_id><hyphen><scan_term_id>]
<scan_term_id> ::= locally defined identifier for a term returned by a SCAN command

[value_group] ::= {[<value_field><space><range_op><space><value>]}...
    | {<value_field><space><value_param>}
[value_param] ::= {[<value><hyphen><value>]} | {[<value><hyphen><value>...<hyphen><value>]
[value_field] ::= field defined locally as having a possible value argument
<value> ::= locally defined

<bool_op> ::= <AND> | <OR> | <NOT>
 prox_op ::= {[W]<positive_integer>]} | {[N]<positive_integer>]
 range_op ::= <GT> | <LT> | <LE> | <GE> | == | <> | <>)

COMMAND SYNTAX

BACK
<back_command> ::= {[BACK] | <BAC>}[<space><positive_integer>]

CHOOSE
<choose_command> ::= {[<CHOOSE] | <CHO>}[<space><database_id>]
    | {[<comma><space><database_id>]...}
<database_id> ::= <word>

DEFINE
<define_command> ::= {[<DEFINE> | <DEF>]<define_word><space>
    | {<command_expression><semicolon>
        | <command_name>}
<define_word> ::= <word> | <reserved_word>

DELETE
<delete_command> ::= {[<DELETE> | <DEL>]<search_id><space><record_list>]
    | <saved_search_name> | <print_request_id>
    | <define_word> | <search_id_list>]

DISPLAY
<display_command> ::= {[<DISPLAY> | <DIS>]<space><format>
    | <space><search_id><space><record_elem>]

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<record_spec> ::= <record_id> | [<record_id><hyphen><record_id>]  
<record_id> ::= <positive_integer>  
<format> ::= <format_name> | <field_list>  
<format_name> ::= <word>  

RELATE  
<relate_command> ::= [<RELATE> | <REL>][<space><qualifier_list>]  
[<space><relate_ind>]<space><term>  
<relate_ind> ::= locally defined relationship indicator  
<qualifier_list> ::= <qualifier_id>[<comma><qualifier_id>]...  
<qualifier_id> ::= locally defined label or name for a qualifier  
<term> ::= <word>[<space><word>]...  

REVIEW  
<review_command> ::= [<REV> | <REV>][<space><search_id_list>]  
<search_id_list> ::= <search_id_spec>  
[<comma><space><search_id_spec>]...  
<search_id_spec> ::= <search_id> | [<search_id><hyphen><search_id>]  
<search_id> ::= <S><positive_integer>  

SAVE  
<save_command> ::= [<SAVE> | <SAV>][<space><search_id_list>]  
[<space><saved_search_name>]  
<search_id_list> ::= <search_id_spec>[<comma><space><search_id_spec>]...  
<search_id_spec> ::= <search_id> | [<search_id><hyphen><search_id>]  
<search_id> ::= <S><positive_integer>  
<saved_search_name> ::= <word> <reserved_word>  

SCAN  
<scan_command> ::= [<SCAN> | <SCA>][<space><field_list>]  
[<space><term>]  
<field_list> ::= <field_id>[<comma><field_id>]...  
<field_id> ::= locally defined label or name for a field  
<term> ::= <word>[<space><word>]...  

SEE  
<see_command> ::= [<SEE>][<space><see_param> | <SAVES>][<space><see_param>]  
<see_param> ::= one of a locally defined set of parameters  

SET  
<set_command> ::= [<SET>][<space><set_param><space><set_value>]  
<set_param> ::= parameter which may be set by the user  
<set_value> ::= legal parameter values  

SORT  
<sort_command> ::= [<SORT> | <SOR>][<space><field_list>]  
[<space><record_list>]  

START  
<start_command> ::= [<START> | <STA>]  

STOP  
<stop_command> ::= [<STOP> | <STO>]
Appendix B

Examples of Command Expressions

(THIS appendix is not a part of American National Standard Common Command Language for Online Interactive Information Retrieval, ANSI/NISO Z39.58-1992. It is included for information only.)

Referenced at Section Command Expression

7.1 BACK
    presents preceding data according to default setting

BAC 15
    presents 15 units of preceding data

7.2 CHOOSE books
    selects the "books" file for searching

CHO eric nits
    selects the "eric" and "nits" files for searching

7.3 DEFINE list DISPLAY SHORT I-10
    gives the name "list" to the command expression DISPLAY SHORT 1-10

DEF sortlist SORT AT TD PD; DISPLAY ALL SHORT
    gives the name "sortlist" to the sequence of command expressions

SORT AT TD PD followed by DISPLAY ALL SHORT

DEF view DISPLAY
    Renames the command name DISPLAY to "view"

7.4 DELETE S1
    deletes search strategy and its result set S1

DEL 5 4 6 8
    deletes record numbers 4, 6, and 8 from result set S5

DEL mysearch
    deletes all search statements saved under the name "mysearch"

DEL mysearch myprimitive mydefinition
    deletes all search statements in the saved search strategy "mysearch,"
    deletes the print request labeled "myprimitive," and deletes the
    user-supplied definition called "mydefinition"

7.5 DISPLAY
    displays at the user's terminal the first record of the most recently used
    search statement in the default format

DIS S4
    displays at the user's terminal at least the first record of result set S4 in
    the default format

DIS ALL
    displays at the user's terminal all records in the default format from the
    most recently used search statement

DIS 1-5 7 9-11 13
    displays records 1-5, 7, 9-11, and 13 in the default format from the most
    recently used search statement
Referenced at Section  Command Expression

DIS LONG  
displays at least the first record from the most recently used search statement in the LONG format

DIS S4 1-3  
displays records 1 through 3 in the default format from result set S4; this command expression is equivalent to: DIS 1-3 S4

DIS S4 1-3 LONG  
displays records 1 through 3 in the LONG format from result set S4; this command expression is equivalent to:
  DIS 1-3 S4 LONG  
  DIS S4 LONG 1-3  
  DIS LONG S4 1-3  
  and the other permutations of the display parameters

DIS 1-3 LONG INDENTED NOPAGING  
displays records 1 through 3 of the most recently used search statement in the LONG format with additional format options of INDENTED and NOPAGING

7.6  EXPLAIN  
lists the topics that can be explained

EXP commands  
provides explanation of available commands

7.7  Note: In the FIND examples, the phrase “immediately preceding” is used to mean “adjacent to and preceding”

FIND ecosystems  
searches for the word “ecosystems” in the default index

FIN conversion tables  
searches for “conversion” immediately preceding “tables” in the default index

FIN mysearch  
expects the strategy saved under the name “mysearch”

FIN S1  
re-executes search statement S1

FIN mysearch2 AND S3  
retrieves all records resulting from the execution of the search strategy named “mysearch2” that also belong to the result set S3 (or result from the re-execution of search statement S3)

FIN mysearch AND animal behavior  
retrieves all records resulting from the execution of the saved search strategy named “mysearch” that also have “animal” immediately preceding “behavior” in the default index

7.7.1  FIN SU library automation  
searches the subject index(es) for “library” immediately preceding “automation”

FIN SU, TI, SE library automation  
sources for “library” immediately preceding “automation” in either the subject, title, or series indexes, or in more than one of those indexes
### Command Expression

<table>
<thead>
<tr>
<th>Referenced at Section</th>
<th>Command Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIS LONG</td>
<td>displays at least the first record from the most recently used search statement in the LONG format</td>
</tr>
<tr>
<td>DIS S4 1-3</td>
<td>displays records 1 through 3 in the default format from result set S4; this command expression is equivalent to: DIS 1-3 S4</td>
</tr>
<tr>
<td>DIS S4 1-3 LONG</td>
<td>displays records 1 through 3 in the LONG format from result set S4; this command expression is equivalent to: DIS 1-3 S4 LONG</td>
</tr>
<tr>
<td>and the other permutations of the display parameters</td>
<td></td>
</tr>
<tr>
<td>DIS 1-3 LONG INDENTED NOPAGING</td>
<td>displays records 1 through 3 of the most recently used search statement in the LONG format with additional format options of INDENTED and NOPAGING</td>
</tr>
</tbody>
</table>

7.6 EXPLAIN lists the topics that can be explained
EX commands provides explanation of available commands

7.7 Note In the FIND examples, the phrase "immediately preceding" is used to mean "adjacent to and preceding"
FIND ecosystems searches for the word "ecosystems" in the default index
FIND conversion tables searches for "conversion" immediately preceding "tables" in the default index
FIN mysearch executes the strategy saved under the name "mysearch"
FIN S1 re-executes search statement S1
FIN mysearch2 AND S3 retrieves all records resulting from the execution of the search strategy named "mysearch2" that also belong to the result set S3 (or result from the re-execution of search statement S3)
FIN mysearch AND animal behavior retrieves all records resulting from the execution of the saved search strategy named "mysearch" that also have "animal" immediately preceding "behavior" in the default index

7.7.1 FIN SU library automation searches the subject index(es) for "library" immediately preceding "automation"
FIN SU, TL, SE library automation searches for "library" immediately preceding "automation" in either the subject, title, or series indexes, or in more than one of those indexes

### Referenced at Section

<table>
<thead>
<tr>
<th>Command Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN AU (asimov OR bradbury) AND SU science fiction searches for records with &quot;asimov&quot; or &quot;bradbury&quot; or both in the author index and with &quot;science&quot; immediately preceding &quot;fiction&quot; in the subject index</td>
</tr>
<tr>
<td>FIN TL, AB (import tariffs OR protectionism) searches for records with the word &quot;import&quot; immediately preceding &quot;tariffs&quot; or with the word &quot;protectionism&quot; or with both, in either the title index or the abstract index or both</td>
</tr>
<tr>
<td>FIN TL (skin cancer OR melanoma) AND diagnosis? searches for records with the word &quot;skin&quot; immediately preceding &quot;cancer&quot; or with the word &quot;melanoma&quot; or both in the title index that also have words of any length beginning &quot;diagnosis&quot; in the default index</td>
</tr>
<tr>
<td>FIN AU twin AND huckleberry searches for records with &quot;twin&quot; in the author index and with &quot;huckleberry&quot; in the default index</td>
</tr>
</tbody>
</table>

FIN behavio?1r searches for the words "behavior" or "behaviour" in the default index
FIN SU cancer?therapy searches for records with the word "cancer" adjacent to any word ending in "therapy" in the subject index
FIN SU online catalog? searches for "online" immediately preceding any word beginning with "catalog" in the subject index
FIN TL, AB, DE sulf?2ur searches for "sulfur" or "sulphur" in the title, abstract, or descriptor indexes
FIN TL working woman searches for records with "working" immediately preceding "woman" or "women" in the title index
FIN S2 psychology searches for the words "psychology" or "psychiatry" (but not for "psychotherapy") in the subject index

7.7.3 FIN chopin AND etudes searches for records with both "chopin" and "etudes" in the default index
FIN careers OR tooth decay searches for either "careers" or for "tooth" immediately preceding "decay" or for both in the default index
FIN SU neoplasm OR AU cancer searches for records with "neoplasm" in the subject index or "cancer" in the abstract index
FIN AU william shakespeare AND TL julius caesar searches for all records with "william" immediately preceding "shakespeare" in the author index and with "julius" immediately preceding "caesar" in the title index
FIN S3 AND S5 retrieves all records common to both result sets S3 and S5
FIN S1 NOT TL solar radiation retrieves all records in result set S1 that do not have the word "solar" immediately preceding the word "radiation" in the title index
7.7.4

FIN AU dickens and PD LT 1890
searches for all records with “dickens” in the author index and a
publication date earlier than 1890

FIN S8 AND PD 1950-1980
retrieves all records in result set S8 with publication dates ranging from
1950 up to and including 1980

FIN TI basic algebra and ED 4-
searches for all records with “basic” immediately preceding “algebra”
in the title index that have edition statements higher than 3

FIN AN 99887766-
finds all accession numbers from 99887766 up

FIN PD -1800
finds all publication dates up to and including 1800

7.7.5

FIN SU microcomputer W software
searches the subject index for “microcomputer” immediately preceding
“software”

FIN TI integrated W2 systems
searches for “integrated” preceding and within two words of systems
in the title index

FIN strategic defense initiative
searches for “strategic” immediately preceding “defense” and “de-

defense” immediately preceding “initiative” in the default index

FIN AU robert W jones
searches for records with “robert” immediately preceding “jones” in
the author index (compare to FIN robert “w” jones, Appendix B,
Section 7.7.7)

FIN AB cataloging N online
searches for “cataloging” immediately preceding “online” in either
order in the abstract index

FIN TI radiation N3 risks
searches for “radiation” within three words of “risks” in either order in
the title index

FIN income tax N2 reform
retrieves all records with “income” immediately preceding “tax” within
two words on either side of “reform” in the default index

7.7.6

FIND political AND parties OR republicans OR democrats
searches for all records containing both “political” and “parties” in the
default index, or containing “republicans” or “democrats” in the
default index.
FIN S4 AND SS NOT eagles
retrieves all records common to result sets S4 and SS that do not have
"eagles" in the default index

FIN (wildflowers OR wild flowers) AND S1
retrieves all records either with "wildflowers" or with "wild" immedi-
ately preceding "flowers" in the default index that also are in result set
S1

FIN william AND shakespeare AND PD LE 1800
retrieves all records with both "william" and "shakespeare" in the
default index that have a publication date earlier than or equal to 1800

FIN ALL dickens and PD LT 1890
searches for all records with "dickens" in the author index and a
publication date earlier than 1890

FIN S8 AND PD 1950-1980
retrieves all records in result set S8 with publication dates ranging from
1950 up to and including 1980

FIN TI basic algebra and ED 4-
searches for all records with "basic" immediately preceding "algebra"
in the title index that have edition statements higher than 3

FIN AN 99887766-
finds all accession numbers from 99887766 up
FIN PD -1800
finds all publication dates up to and including 1800

FIN SU microcomputer W software
searches the subject index for "microcomputer" immediately preceding
"software"

FIN TI integrated W2 systems
searches for "integrated" preceding and within two words of systems
in the title index

FIN strategic defense initiative
searches for "strategic" immediately preceding "defense" and "de-
defense" immediately preceding "initiative" in the default index

FIN AU Robert W Jones
searches for records with "Robert" immediately preceding "Jones" in
the author index (compare to FIN AU Robert W Jones, Appendix B, Section 7.7.7)

FIN AB cataloging N online
searches for "cataloging" immediately preceding "online" in either
order in the abstract index

FIN TI radiation N3 risks
searches for "radiation" within three words of "risks" in either order in
the title index

FIN income tax N2 reform
retrieves all records with "income" immediately preceding "tax" within
two words on either side of "reform" in the default index

FIND political AND parties OR republicans OR democrats
searches for all records containing both "political" and "parties" in the
default index, or containing "republicans" or "democrats" in the
default index.

FIN(TI war AND peace)
searches for "war" immediately preceding the word "and" and the word
"and" immediately preceding the word "peace" in the title index

FIN "au" searches for the word "au" in the title index

FIN AU "w" Jones
searches for "Robert" immediately preceding the initial "w" and "w"
immediately preceding "Jones" (compare to FIN AU Robert W Jones,
Appendix B, Section 7.7.5)

FIN AU "Robert W Jones"
equivalent to the search expression above

FIN "mr" Roberts
searches for the word "mr" immediately preceding "Roberts" in the
default index (for those files where MR is a qualifier label)

FIN CP"14"
s searches for all records with words beginning with the character "C"
and ending with the character "14" with any number of intervening
characters, such as "CI4" or "carbon14," in the default index

FORWARD
presents the system's default number of succeeding data units

FOR 15
presents 15 succeeding data units

HELP
gives a context-specific help message

PRINT
prints at least the first record of the most recently used search statement
in the default format

PRI S4
prints at least the first record of result set S4 in the default format

PRI ALL
prints all records in the default format from the most recently used
search statement

PRI 1-5 7 9-11 13
prints records 1-5, 7, 9-11, and 13 in the default format from the most
recently used search statement

PRI LONG
prints at least the first record from the most recently used search state-
ment in the LONG format

PRI S4 1-3
prints records 1 through 3 in the default format from result set S4; this
command expression is equivalent to: PRI 1-3 S4
PRI S4 1-3 LONG
  prints records 1 through 3 in the LONG format from result set S4; this
  command expression is equivalent to:
  PRI 1-3 S4 LONG
  PRI S4 LONG 1-3
  PRI LONG S4 1-3
  and the other permutations of the print parameters
PRI 1-3 LONG INDENTED NOPAGING
  prints records 1 through 3 of the most recently used search statement
  in the LONG format with additional format options of INDENTED and
  NOPAGING

7.11 RELATE sexism
  displays a list of thesaurus terms related to the term “sexism”
REL educational counseling
  displays a list of thesaurus terms related to the term “educational
  counseling”
REL DE neoplasm
  displays a list taken from a thesaurus of descriptor terms related to
  “neoplasm”
REL AU mark twain
  displays a list taken from a thesaurus of author names related to “mark
  twain”
REL CN NT United States Congress Senate
  displays a list, from the Corporate Name thesaurus, of terms in the
  “narrower term” relationship to “United States Congress Senate”

7.12 REVIEW
  displays the search history for the entire search session
REV S1-S10
  displays search statements S1 through S10
REV S4 S6
  displays search statements S4 and S6
REV savedstrategy
  displays the search statements saved under the name “savedstrategy”

7.13 SAVE
  saves all previous search statements and assigns a unique identifier to
  the saved search strategy
SAV S1-S5 S7 S10
  saves search statements S1 through S5, S7, and S10 and assigns a
  unique identifier to the saved search strategy
SAV mybesteffort
  saves all previous search statements under the name “mybesteffort”
SAV S6 S8 newtry
  saves search statements S6 and S8 under the name “newtry”
SAV newtry S6 S8
  equivalent to the command expression above

7.14 SCAN
  retrieves and displays an ordered (e.g., alphabetical) list of terms
  starting from the beginning of the default index
Referenced at Section | Command Term
--- | ---
PRI S4 1-3 LONG | retrieves and displays an ordered list of terms from the default index in the vicinity of “einstein”
PRI 1-3 S4 LONG | SCA
PRI S4 LONG 1-3 | SCA albertainstein
PRI LONG S4 1-3 | retrieves and displays an ordered list of terms from the default index in the vicinity of “albertainstein”
PR1 1-3 LONG INDENTED NOFAGING | SCA SU
prints records 1 through 3 of the most recently used search statement in the LONG format with additional format options of INDENTED and NOFAGING | retrieves and displays an ordered list of terms from the beginning of the subject index
PR1 1-3 LONG INDENTED NOFAGING | SCA SU prehistoric man
and the other permutations of the print parameters | retrieves and displays an ordered list of subject terms in the vicinity of “prehistoric man”
PR1 1-3 LONG INDENTED NOFAGING | SEE
prints records 1 through 3 of the most recently used search statement in the LONG format with additional format options of INDENTED and NOFAGING | displays a list of topics or parameters whose contents or values may be viewed with the SEE command name
REL relate sexism | SEE TIME
| displays a list of saved search strategies
REL educational counseling | SET
| displays a list of all settable options
REL neoplasms | SET DISPLAY LONG
| changes the display default format to LONG
REL neoplasms displays a list taken from a thesaurus of descriptor terms related to “neoplasms” | SET MODE TUTORIAL
REL Au mark twain | changes the default mode to TUTORIAL
REL Au mark twain displays a list taken from a thesaurus of author names related to “mark twain” | SOR Au Ti
| sorts the result set of the most recently used search statement in ascending order first by author and then by title
REL CN NT United States Congress Senate | SOR Au Ti S4
| sorts the result set of the most recently used search statement in ascending order first by author, then by title; equivalent to SOR S4 Au Ti
| sorts result set S4 in ascending order first by author, then by title; equivalent to SOR S4 Au Ti
| sorts records 1-100 of the result set of the most recently used search statement in ascending order by author, then by title
| sorts records 1 through 100 of result set S4 in ascending order by author, then by title; equivalent to: SOR S4 1-100 Au Ti
| SORT Au Ti S4 1-100 sorts records 1-100 of the result set of the most recently used search statement in ascending order by author, then by title
| equivalent to:
| SOR S4 Au Ti S4 1-100
| SOR S4 Au Ti S4 1-100 S4
| SOR 1-100 Au Ti S4
| SOR 1-100 Au Ti S4
| START initializes all default settings
| STOP ends a session
7.11 RELATE sexism displays a list of thesaurus terms related to the term “sexism”
REL educational counseling displays a list of thesaurus terms related to the term “educational counseling”
REL neoplasms displays a list taken from a thesaurus of descriptor terms related to “neoplasms”
REL Au mark twain displays a list taken from a thesaurus of author names related to “mark twain”
REL CN NT United States Congress Senate displays a list, from the Corporate Name thesaurus, of terms in the “narrower term” relationship to “United States Congress Senate”
7.12 REVIEW displays the search history for the entire search session
REV S1-S10 | displays search statements S1 through S10
REV S4 S6 | displays search statements S4 and S6
REV savedstrategy displays the search statements saved under the name “savedstrategy”
7.13 SAVE | saves all previous search statements and assigns a unique identifier to the saved search strategy
SAVE S1-S5 S7 S10 saves search statements S1 through S5, S7, and S10 and assigns a unique identifier to the saved search strategy
SAVE mybesteffort | saves all previous search statements under the name “mybesteffort”
SAVE S6 S8 newtry saves search statements S6 and S8 under the name “newtry”
SAVE newtry S6 S8 equivalent to the command expression above
7.14 SCAN retrieves and displays an ordered (e.g., alphabetical) list of terms starting from the beginning of the default index
NISO Standard Evaluation Form

Standards are intended to be useful. However, information on where, when, and how standards are used, and with what results, is difficult to obtain. The purpose of this form is to provide users of this document with a convenient way to communicate about that use to those responsible for the NISO Standard. Your feedback can have an important effect, not only on future versions of this NISO Standard, but on the way other NISO Standards are created. If you have used (or are planning to use) this NISO Standard in any way, please complete this form and return it at your earliest convenience. Thank you for helping us to improve the NISO Standards you use.

1. How did you learn about this NISO Standard?
   - Written citation/reference. Source: __________________________
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   - Full use (unmodified)  Modified use _________________________
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   - Governmental  Nonprofit (academic/educational) _________________________
   - Personal  Nonprofit (other), please specify: _________________________
   - For profit  __________________________________________

4. During what year will this NISO Standard first be used? _________________________

5. How would you rate this NISO Standard in terms of:

<table>
<thead>
<tr>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
<th>No Opinion</th>
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<tbody>
<tr>
<td>Readability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Presentation</td>
<td>1</td>
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</tr>
<tr>
<td>Application</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

6. How could this NISO Standard be improved in terms of its presentation, readability, application, etc.?

   ____________________________________________________________

7. Would you be interested in working on revisions to this NISO Standard or on other NISO Standards in the same area? ____ Yes ____ No

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<th>Standard</th>
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<td>Z39.2-1985</td>
<td><strong>Bibliographic Information Interchange</strong>&lt;br&gt;This standard specifies the requirements for a generalized interchange format that will accommodate data describing all forms of material. It describes a generalized structure designed specifically for exchange of data between processing systems and not necessarily for use as a processing format within systems. It may be used for the communication of records in any media.</td>
</tr>
<tr>
<td>Z39.47-1993</td>
<td><strong>Extended Latin Alphabet Coded Character Set for Bibliographic Use (ANSEL)</strong>&lt;br&gt;Character sets are a basic building block of automated information systems. Z39.47-1993 provides a table of coded values for the representation of characters of the extended Latin alphabet in machine readable form for thirty-five languages written in the Latin alphabet and for fifty-one romanized languages.</td>
</tr>
<tr>
<td>Z39.50-1992</td>
<td><strong>Information Retrieval Application Service Definition and Protocol Specification for Open Systems Interconnection</strong>&lt;br&gt;Z39.50 is at the heart of today's automated library systems. Implementation of this standard makes it possible for any library to extend its reach beyond the four walls of its own collection to tap the resources of remote collections and databases. Best of all, users don't have to learn the user interface of the remote system. Definitions, models, and numerous examples are given. This standard is under continuous maintenance by the &quot;Z39.50 Implementors Group&quot; - or ZIG - so it is kept up to date and is responsive to user needs.</td>
</tr>
<tr>
<td>Z39.67-1993</td>
<td><strong>Computer Software Description</strong>&lt;br&gt;Z39.67 gives guidelines for unequivocally describing software in advertising, on the packaging and carrier and labels, and on title screens.</td>
</tr>
<tr>
<td>ISO/ANSI/NISO 12083</td>
<td><strong>Electronic Manuscript Preparation and Markup</strong>&lt;br&gt;This international standard is a revision and expansion of Z39.59-1988. In complete conformance with ISO8879 (SGML - Standard Generalized Markup Language), it provides a toolkit for development of customized SGML applications. Four Document Type Definitions (DTDs) are specified: for books, serials, articles, and mathematics. Instructions for the preparation of texts for the near automatic conversion to grade-2 braille and for publication in large-print and computer voice editions are included.</td>
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