MathSciNet

Mathematical Reviews on the Web

Guiding you through the literature of mathematics

Everything you wanted to know … and then some

www.ams.org/mathscinet

AMS
AMERICAN MATHEMATICAL SOCIETY

Contents

Mathematical Reviews: Some history, some background

What do you think of when you hear the words "*Mathematical Reviews*"?

When they hear the phrase *Mathematical Reviews*, many people immediately think of the classic orange paper journal; many others today think of the Web-based product MathSciNet, while others may think of MathSci Disc or MathSci Online. All these products are generated from a single, carefully constructed database of bibliographic information and reviews covering the world's mathematical literature of the past 60 years. That database is assembled in the Ann Arbor offices of the American Mathematical Society, and making it available to the mathematical community in its many forms is one of the key publishing activities of the entire Society. These opening pages will give you some idea of how *Mathematical Reviews* (MR) has developed from its founding in 1940 into the complex operation it is today.
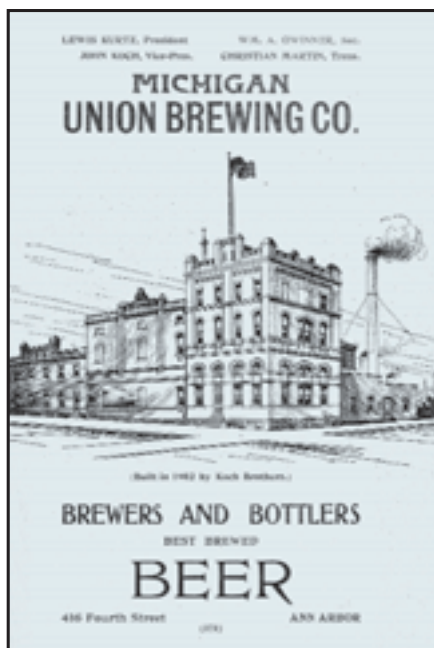
In 1931, the reviewing journal *Zentralblatt für Mathematik und ihre Grenzgebiete* (Zbl) was established in Germany with Otto Neugebauer as editor. During the 1930s, as a consequence of German National Socialism, an increasing number of mathematicians were barred from reviewing for Zbl. In response to this situation, in the late 1930s, the AMS undertook the sponsorship of a new international reviewing journal, *Mathematical Reviews*, and appointed Neugebauer (who by then had accepted an appointment at Brown University) as its first editor.

Courtesy of Brown University Archives

Otto Neugebauer

The first issue appeared in January 1940; it contained 32 pages and 176 reviews. Initially, the staff consisted of Neugebauer, W. Feller, and two others, but the journal always relied on the volunteer services of distinguished mathematicians to write the reviews. The list of reviewers in the first issue reads like a *Who's Who* of US mathematics and also includes distinguished mathematicians from elsewhere. The initial budget was $20,000 (but considerably less was spent) and the subscription price was $13.

Over the next 60 years, *Mathematical Reviews* grew dramatically (see page 4). There was a 25-fold increase in the annual number of reviews. The 3-person editorial board, which began work in 1942, grew to a 6-person board today. And the original 4-person staff became a staff of 70 in the Ann Arbor office, as well as many others in the Providence office who work on development

Michigan Union Brewing Co., now home of the Mathematical Reviews offices.

and distribution. Over 10,000 mathematicians around the world are reviewers for MR.

The editorial office was initially at Brown University in Providence, Rhode Island, but moved to the nearby AMS office in 1951 when the AMS moved from New York to Providence. Since 1965, the editorial office has been in Ann Arbor, in several different locations, including its present home in a suitably colored orange brick building, built as the Michigan Union Brewery in 1902.

First-generation production methods and subsidiary products

In the early days, much of the production was done by hand. As MR grew, keeping track of reviewers, what they had in hand, and the progress of reviews from receipt of the original to publication of the review was done with card files.

From quite early on, subsidiary products were offered, mostly as an offshoot of the production of the MR journal. As the number of MR volumes grew, the need for cumulative indexes to search the growing number of reviews became apparent. The first such index was an author index covering the 1940–59 volumes of MR, produced in 1961. Later cumulative indexes were published covering the periods 1960–64, 1965–72, 1973–79, and 1980–84. Cumulative subject indexes have also appeared.

The current awareness journal *Contents of Contemporary Mathematical Journals*, founded in 1969, was a biweekly that consisted of facsimiles of tables of contents from recently received journal issues together with a listing of the authors and their addresses. In mid-1974 the format changed: the contents now consisted of author and subject indexes with full bibliographic information for each item. In 1975, to reflect the new format, the name changed to *Current Mathematical Publications* (CMP), a journal which continues today as an early awareness journal.

The move to computers

The bibliographic data for items in MR and CMP appeared several times: with the review, in various indexes, and in MR card files. Initially, ditto sheets were used to save typing the same information multiple times, but clearly MR was an ideal candidate for computerization. The huge task of converting from card files to electronic storage of structured information on computers was started in the mid 1970s. Several generations of production databases have been used—housed first on a mainframe at the University of Michigan, then at the AMS headquarters in Providence (connected to MR by a telephone line), and since 1991 at the MR office in Ann Arbor.

Staff of Ann Arbor Brewery, 1936

In 1934, the Ann Arbor Brewery began operation at the facility at 416 Fourth Street. Brewing is a complicated process which brings together ingredients from diverse geographical areas and which requires careful attention to details.

The staff in Ann Arbor, MI who maintain and develop the MR Database.

Electronic products

For its first 40 years, the traditional hot-lead method was used for typesetting the MR journal. From 1980 on, however, both the bibliographic information and the review texts have been created and stored in electronic format. The 1973–79 cumulative index was produced from an electronic bibliographic file in the early 1980s. This, together with the ongoing current production, formed the backbone of the first electronic MR-related product, MathFile, which was released in 1982. Over the next 18 years, efforts were concentrated on electronic products. MathSci Disc first appeared in 1989, and MathSciNet went online in 1996. Now in 2000, the full MR data from 1940 to the present is available in multiple electronic formats, with MathSciNet representing the best access ever. To accomplish this, the older data was recreated in electronic format—first the bibliographic data for 1959–72, then the bibliographic data for 1940–58, and finally the reviews for 1940–79. Every year MathSciNet incorporates changes and new features that make accessing the database easier and more effective.

Number of Items in MR Database
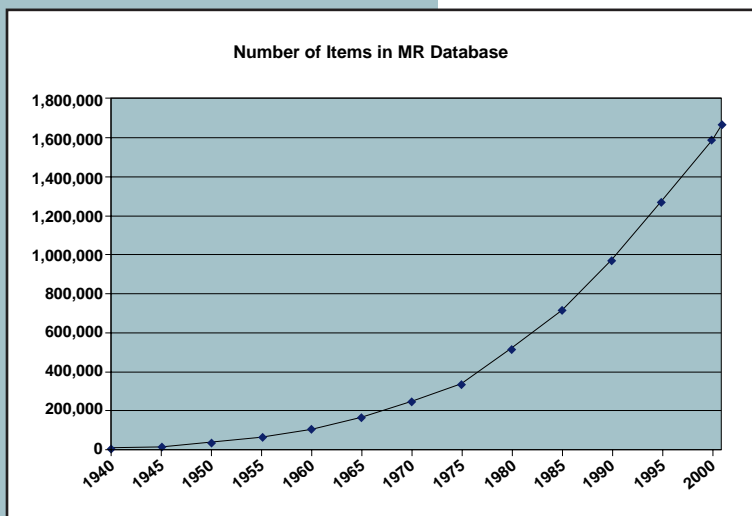
The production process today

As the MR database has expanded in size (see graph on page 4) and the number of products has grown, so has the complexity of the operation needed to generate them. But the basic underlying production process has remained the same:

Acquisition: Each year over 10,000 journal issues, monographs, and collections are acquired from over 1,000 sources.

Selection: The editors scan over 100,000 items (journal articles, proceedings articles, and monographs) and select about 70,000 for coverage.

Bibliographic data entered: Each working day, close to 300 new items are entered into the database.

Reviewer selection: The editors carefully match each item with a reviewer who has the appropriate interests and expertise.

Review processing: Reviews are copy-edited and edited and have references checked and put in uniform format; they are keyboarded (if necessary), proof-read, and corrected.

Generating the paper issue: Monthly, the reviews that are ready are collected into an issue, paginated, and scanned one last time for errors.

MathSci® *format*: Files of data in MathSci format are created regularly for MathSciNet, MathSci Disc, and MathSci Online.

Development: Throughout the year, staff continues work on development of the next version of MathSciNet, improving it and accommodating changes in technology.

The entire AMS staff takes great pride in the high quality of the MR Database and the related products as we step into the twenty-first century.

If you would like to read more about the history of *Mathematical Reviews*, two excellent articles can be found in:

[1] 90i:01060 Pitcher, Everett American Mathematical Society centennial publications. Vol. I. A history of the second fifty years, American Mathematical Society, 1939--1988. *American Mathematical Society, Providence, RI,* 1988. viii+346 pp. ISBN: 0-8218-0125-2 (Reviewer: Albert C. Lewis) 01A74 (01A60 01A80)
Review in linked PDF | Add citation to clipboard | Status History | Doc. Deliv

[2] 1 435 207 Jackson, Allyn Chinese acrobatics, an old-time brewery, and the "much needed gap": the life of Mathematical Reviews. *Notices Amer. Math. Soc.* 44 (1997), no. 3, 330--337. 01A74 (01A80)
Review in linked PDF | Add citation to clipboard | Status History | Doc. Deliv | Journal

Additional information about *Mathematical Reviews* is available at the MR 60th Anniversary Web site, www.ams.org/publications/60ann/AnniversaryYear.html.

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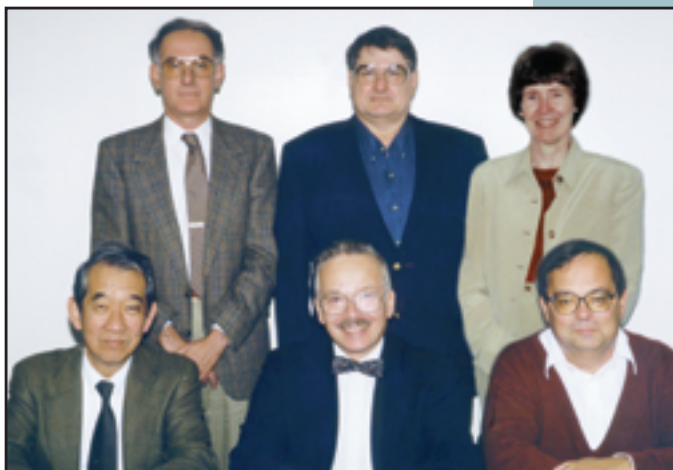
2000 *Mathematical Reviews* Editorial Committee

Front Row (l-r):
Yuji Ito,
Hugh L. Montgomery,
Heinz W. Engl

Second Row (l-r):
Jon L. Alperin,
Clarence Wilkerson,
Joyce R. McLaughlin

What is in the MR Database?

Mathematical Reviews

There is an enormous amount of information in the MR Database. In the early days, of course, this information was strictly in the form of the paper issues of *Mathematical Reviews*. Now the information is held in an electronic database. This database can be accessed in a number of ways: through the traditional paper *Mathematical Reviews* issues, through the MathSciNet Web interface, and through MathSci Disc from SilverPlatter®. This booklet is primarily concerned with access through MathSciNet, but you should realize that each form of access is a different window on the same set of information. As a relational database, the MR Database has the capability of establishing connections between data items in many ways. Some of the information in the database is in the form of pointers to other information in the database. It would take a document much larger than this booklet to describe in detail the complete contents of the MR Database. Here we give an overview.

- **Bibliographic information**

The MR Database contains all the information that you would expect to put in the bibliography of your paper, together with other useful information:

- Author information
  - Name variations
  - Institution of author as listed on publication
  - All the other publications by the author
- Title
  - English translations of titles
  - Subsidiary title information
- Translation information
- Document type: journal, book, collection
- Pages on which the item appears
- Year of publication
- Publisher information
  - Address
  - Web site, if available

- **Journal information**
  - Title
  - Publisher
  - Frequency of publication
  - Links to papers published in the journal and indexed in the MR Database
  - ISSN, ISBN
  - Historical information
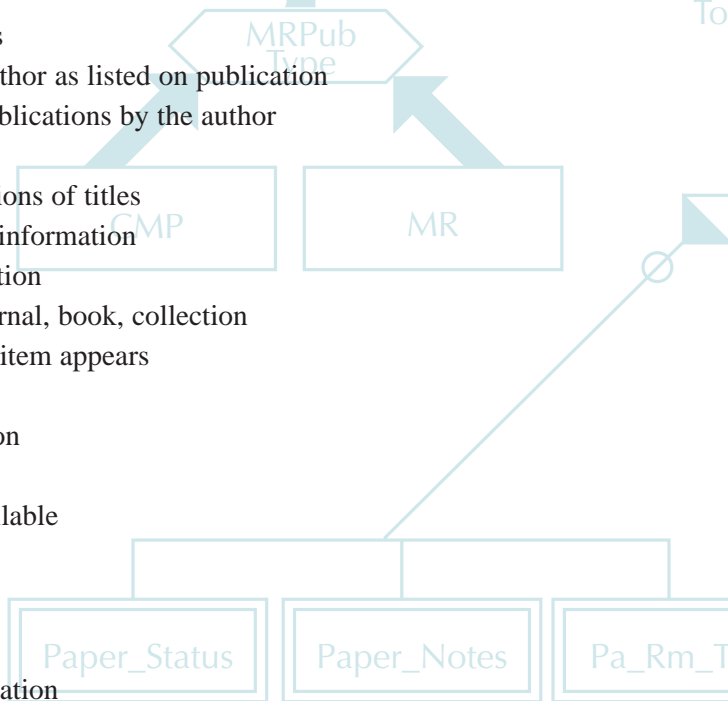
- **Institution information**
  - Name and code for institution
  - Department names
  - Address

- **Reviews**

  Signed reviews are the namesake of *Mathematical Reviews*. As you can see, the MR Database consists of far more than reviews, but these are the heart of the mission of MR. The reviews are written by mathematicians around the world, each with expertise in the area of the item under review. Your access to this collection of reviews can be thought of as forming the ultimate virtual university, in which you can at any time stroll down the hall and ask a group of colleagues what is happening in some area of mathematics. And—because a reviewer may refer to earlier items indexed in MR, and those references correspond to links in the database—you are consulting with a web of colleagues over time as well.

- **Index-only items**

  Mathematical Reviews currently enters close to 55,000 new reviews each year into its ever-growing database. Although the number of papers in all mathematical sciences is considerably larger, this number represents about the limit of what the staff and worldwide reviewers of MR can reasonably accomplish in a timely and cost-effective way. In fact, the total number of items entered into the MR Database each year is now over 70,000. We can do this by entering some items "index only", which is to say that everything described here, except a review, is entered for those items. In every other way these items are treated the same as those with a review. Deciding which papers to review and which to index is a difficult job for the editors.

- **Reviewer information**
  - Name of reviewer
  - Other items reviewed by the reviewer
  - Papers and books published by the reviewer

- **Mathematics Subject Classification (MSC)**

  The Mathematics Subject Classification (MSC) has been developed since 1940 as a way of organizing mathematical literature by subject area. The most current revision of the scheme is MSC2000. The system is used to categorize items covered in the MR Database. See pages 9, 11, and 19 for more details on how you can use the MSC as a tool to find items in your area of interest.

- **Links to original articles**

  When the original item is available online, whether access is free or fee-based, every effort is made to include a link to that item. The number of such links is constantly increasing.

- **Links to other MR entries**

  If the review of an item mentions previous items in the MR Database, the text of the review includes reverse links to those previous items.

- **Citations**

  If the review of an item mentions previous items in the MR Database, there are new forward links constructed from each previous item to the new item. This means that an item anywhere in the database can have forward links to items that mention it in their review text.

How do I get my hands on all this information?

At the top of the MathSciNet search screens, and throughout MathSciNet, are 9 buttons—the Toolbar—offering a clearinghouse of activities that you might perform. Let's look at some questions that might inspire you to push each of the 9 buttons.

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MathSciNet *Mathematical Reviews* on the Web

Full Search	Search Author Database	Browse Current Books
Basic Search	Search Journals Database	Browse Current Journals
Search CML	Search MSC by Keyword	Browse by MSC

Q: Was there a paper on group theory by Jones that was published around 1981?

Full Search

Full Search is the default search in MathSciNet, and allows the greatest flexibility in specifying and combining search fields. It is described in detail on pages 10 through 13.

Q: Can I get a list of joint papers by Anderson and Bell?

Basic Search

You may find the Basic Search sufficient for the majority of your initial searches. Since there is only one field text box to fill in, there is less visual distraction on the page. After you have selected the search field and have typed your search criteria in the text field box, an <Enter> on your keyboard immediately begins the search. You can still use Boolean connectives to combine the criteria, as long as the field is the same. Quick Search, from the MathSciNet home page, is similar to Basic Search.

Current Site:
Providence, RI USA

Other Sites:
Houston, TX USA

Go

New Features

Basic Search   MSN-Support   Help

Start Search   Clear Screen

Author/Related

Headlines per page: ○ 5 ○ 10 ● 20 ○ 50 ○ 100 ○ 1000(max)

Q: How can I contact J. Jones, who is at Sussex State University?

Search CML

You may find as you work with MathSciNet that you would like to contact an author whose work is of interest to you. You might search the *Combined Membership List* (CML). If the author is a member of the American Mathematical Society, the American Mathematical Association of Two-Year Colleges, the Mathematical Association of America, the Society for Industrial and Applied Mathematics, or the Association for Women in Mathematics, there will be information in the CML. Rather than looking for your paper copy, click on this button to get immediate access to the Web interface on e-MATH, where you may well find an email address, for example.

Search the CML

Start Search   Clear Screen

Last Name:
First Name:
Position: Select from the list
State: Select from the list
Country: Select from the list
Member Organization: ☐ AMS ☐ MAA ☐ SIAM ☐ AMATYC ☐ AWM
Institution:
Institution State/Province: Select from the list
Institution Country: Select from the list

Start Search   Clear Screen

Q: How do I find all papers by the S. Smith who works in relativity theory?

Search Author Database The author database that MR has built up over the years is important enough to merit a more complete discussion on pages 14 and 15. It is important to you as a user to be aware of the difference between using Search Author Database and filling in a particular author name, with or without the use of the wildcard symbol (*), in either the Full Search or the Basic Search.

Q: Who publishes the *Ann Arbor J. Math.*? And when did it start publication?

Search Journals Database You may want to investigate papers published in a particular journal. Click this button and you can find complete bibliographic information, both current and historical, for a particular journal. This search tool is discussed in detail on page 18.

Q: How can I find all papers on ordinal notations?

Search MSC by Keyword Each Mathematics Subject Classification (MSC) consists of a code (of up to 5 numbers, letters, and punctuation symbols) together with a description. Items are assigned a primary classification and possibly one or more secondary classifications. Use this search to explore the structure of the MSC and to find the papers assigned particular classifications.

Q: What books have been published recently in combinatorics?

Browse Current Books View a list of books from the current issue of *Current Mathematical Publications* or the current issue of *Mathematical Reviews* (the most current online issues). From the CMP list, you can link to a book's listing in MathSciNet. This can serve as your "first alert" system for new books as they come out. Although they will typically not yet have reviews in the database, they will have complete bibliographic information. You may get the list of all the books in the current CMP or MR, or you may select a 2-digit MSC classification and browse only those titles.

Q: Has there been an issue of the *J. Excellent Math.* published recently, and if so, what articles does it include?

Browse Current Journals Select a journal represented in one of the two most recent issues of CMP and browse the items indexed in CMP. This mimics going to the library and browsing the most recent issues of your favorite journals. You may elect to browse the electronic journals, which in many cases will give you immediate access to the original document.

Q: What's been published most recently in operator theory (Section 47)?

Browse by MSC Select a 2-digit, 3-digit, or full 5-digit classification and browse the items in one of the two most recent issues of CMP or one of the two most recent issues of MR that are assigned that classification. This mimics turning directly to your sections of interest in the paper MR and CMP issues to see what has been reviewed or listed there.

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Doing a Full Search

Many users will find themselves doing a a good bit of the time. It will be useful to consider the various fields that can be given values from the Full Search screen and how these search fields connect to each other. The Full Search screen presents a combination of pull-down menus, buttons to click, and text fields to type in. Search results display as items, or headlines.

/mathscinet/search

The screen has four text input boxes accepting text associated to fields "glued together" by Boolean connectives. The search field is governed by its pull-down menu. Each box can be independently selected to be associated to any of the 12 search fields.

The choices of Author/Related, Title, MSC Primary/Secondary, and Anywhere seen in the picture are merely defaults.

The twelve search fields

The text input boxes do string searches according to the search fields selected. In most cases strings match only on full words, but the wildcard symbol (*) gives you flexibility. Normally the words within a field box are considered to be adjacent to each other, but Booleans (see page 12) and other proximity operators (see page 13) allow more flexibility.

Author/Related: An author of an item in the MR Database; an editor of a book or journal issue of collected papers; an individual associated by MR with an item (e.g., godel, k* in the Author field will yield the following items, among others, in the MR Database: Festschrifte for Gödel, obituaries of Gödel, items commenting on Gödel's work). While you might well search for all the papers connected with a particular author by filling in this field, on page 14 you will see that there are reasons to approach that search in a different way.

Author: Any of the authors of an item in the MR Database. (The narrower sense of "author".)

Title: Any word or collection of words that might be found in the title of the set of items in which you are interested.

Review Text: Any word or collection of words that might be found in the text of the review, for items that have reviews.

Journal: Any word or words that might form part of the title of a journal, or some or all of a valid MR journal abbreviation.

Institution Code: The institution code of an author identifies the institution address listed for the author in a given book or article; it simplifies searches based on institutions.

*Series***:** Any word or words that might form part of the title of a series.

*MSC Primary/Secondary***:** Using the MSC system of classifying mathematical research, this could be a 2-digit code or a 3-digit code (i.e., 2 decimal digits and a letter) or a full 5-digit classification code. All items receive a primary classification. Many receive one or more secondary classifications.

MSC Primary: This narrows the search by classification to just the primary classification.

*MR Number***:** The items with reviews in the MR Database are given MR numbers, the identification numbers assigned to items in the paper MR. Beginning in 1980, MR numbers are connected to the year and month of the publication of an issue of the paper *Mathematical Reviews* and to the 2-digit code of the primary Subject Classification of the item.

*Reviewer***:** Some or all of the name of the person who wrote the review of an item.

*Anywhere***:** A very powerful search field! The Anywhere field allows you to search all the other 11 search fields simultaneously. It even searches through fields not directly accessible as single fields in MathSciNet. Although *keyword* has specialized meanings in various research communities, many users will find it helpful to think of the word *Anywhere* (in the context of a search) as being the word *keyword*. See page 12 for more about the Anywhere field.

2 more search fields

*Select one***:** This field has five radio buttons which allow you to narrow the range of search chronologically. For both the first two buttons, "current" is understood as "when the data is loaded in the database," which is earlier than "when a paper publication 'hits the streets'." The default selection is the entire database. You might choose to view the database in 5-year blocks corresponding to the paper *Mathematical Reviews*. Or you might choose to narrow your search according to the nominal publication date of the items being searched.

Select one:
- ○ Current CMP issue through today
- ○ Current MR issue 2000j
- ○ MR Publication Year: From (includes year) 1940 ▾ and Before 2005 ▾
- ○ Publication Year = ▾
- ● Entire Database

*Document type***:** The document type field has four radio buttons. These allow you to narrow the search according to one of 3 document types—books, journals, and proceedings. The default is *All*, which doesn't narrow the search.

A viewing option

*Headlines per page***:** Headlines per page has six radio buttons. You can select how many headlines will be presented on a page in the search result screens. *Headline* is the phrase used in MathSciNet to describe the basic bibliographic information about a single item that results from a search.

☐ **[5]** 51 #8378 Henrici, Peter Applied and computational complex analysis. Volume 1: Power series---integration---conformal mapping---location of zeros. Pure and Applied Mathematics. *Wiley-Interscience [John Wiley & Sons], New York-London-Sydney,* 1974. xv+682 pp. (Reviewer: M. Marden) 30-02 (65F05)
Review in linked PDF | Add citation to clipboard | Doc Delv

No matter which number of headlines per page you select, if the total number of headlines returned by a search is greater, you will be given the opportunity to navigate through blocks of headlines, where the blocks contain the number of headlines per page you originally selected, or to retrieve the whole list. In this example you can page through 6457 search result items, 20 at a time (but we would recommend clicking View all Items or backing up and choosing a larger value for Headlines per page).
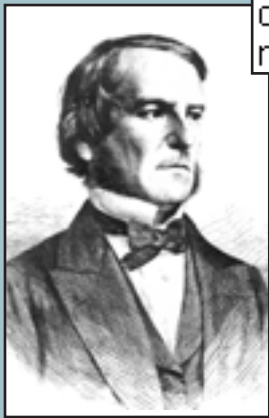
Items: **1 - 20** of **6457**   View all Items: 1 - 6457   Page 1 of 323   Select page: **1** 2 3 4 »

George Boole

Boolean connectives

You may never find the need to think deeply about how all the fields are logically connected, so feel free to ignore this discussion until the need arises. The text input boxes are connected by one of the selected Boolean connectives: AND, OR, and NOT—where NOT really means AND NOT. The choices in the 2 search fields below the text input boxes are understood to be joined by AND connectives, and the combination of these two fields is joined to the combination containing the choice(s) in the text input boxes with another AND. If you select one of the last 3 of the 5 radio buttons (under **Select one**) you must select a value for at least one of the fields in the text input boxes. In addition to these connectives, you may also insert your own connectives within any of the text input boxes: *and*, *or*, *not*. The entries in each text input box can be thought of as surrounded by parentheses. The top level combination of ingredients is understood to be without parentheses, with the connectives in the precedence: NOT, AND, OR, where the "NOT" part of "AND NOT" is evaluated first. Confusing? Sorry. The saving grace is that once you invoke the search, a fully parenthesized search string is presented at the top of the result window. So if you like to learn by the empirical method, you can use this string to help. Here is an example showing the parentheses.

In this example, you might have thought you were choosing one or the other author/related possibility (we have been careless with *which* Birkhoff or *which* A* Clifford in this example—see the discussion on pages 14 and 15) and *semigroup* in the title and *universal* not in the review text. You were right about the title part, but not about the author/related part. This search produced *all* papers authored by anyone named Birkhoff, together with certain other papers authored by anyone named A* Clifford. This is because the AND and NOT have precedence over the OR. The picture above does not show the radio button selections, but as we used the defaults, the search was through the entire database, in all document types, with the results of the search presented in 20 headlines per screen.

What's the "Anywhere" field?

The Anywhere criterion is quite powerful. Anywhere is the ultimate wildcard in searching, because it allows you to search for all kinds of things. Use Anywhere when you have a search word in mind, but aren't sure where it might appear in the database. At the top of page 13 is a search that illustrates using lots of search criteria, among them the Anywhere field.

This search will find all articles in which Stanton or Erdos is an author/related, with the word *number* in the title, for which the primary classification or a secondary classification begins with the digits 05 (Combinatorics since 1940), where the word *birthday* appears in any of the possible fields of the database (including those that cannot be directly seen on MathSciNet), where the year of publication of the original piece was 1984 or earlier, and where that piece could be a book or in a journal or in a proceedings. If there are any items satisfying all these criteria, they will be displayed, 20 headlines at a time, on a results screen.

In this particular search example, there are three items returned.

The word *birthday* does not actually appear in the title field of either result, but rather in some subsidiary bibliographic information connected with the items in the database.

Here you can see another example of how the selections below the text fields are connected to the selections above.

Paul Erdős

From the film "N is a Number: A Portrait of Paul Erdős",
© 1993 by George Paul Csicsery.

Even more search possibilities

There are also proximity operators ADJ, ADJ1, ADJ2, etc., which give some flexibility in searching for phrases, where the connecting words may vary, but you want the *number* of intervening words to be the same. The ADJ operators count the number of words, *any* words, that are allowed to intervene between the words on either side of the ADJ operator. ADJ and ADJ1 mean the same thing: *no* words are allowed between, which is the default. So *prime adj1 decomposition* would yield the same results as *prime decomposition*. ADJ2 means that one word or no words are allowed between, so that *prime adj2 decomposition* in the title returns *prime ideal decomposition*, *prime tree decomposition*, as well as *prime decomposition*. ADJ3 means that two words, one word, or no words are allowed between. Get the idea? One reason to use the ADJ operators is that search strings involving explicit prepositions and/or articles such as *but*, *of*, *a*, or *the* may result in long search times.

How do I know which John Smith?

Frequently you will search in MathSciNet based on the name of an author. But every culture has its *John Smiths*—names that are very common. *Mathematical Reviews* has been working on this problem since its inception and through careful procedures and occasional detective work has made it possible for you to be very confident that you are finding the *John Smith* you have in mind. Contained within the database is a (hidden) mechanism to identify authors uniquely—author identification.

As an example, suppose you are interested in all of the publications of Kenneth A. Ross that are in the MR Database. You might start in the Basic Search screen, filling in the Author field in this way. The result would be:

It is tempting to say that 53 articles by Kenneth A. Ross (who published a paper in the *Pacific Journal of Mathematics* in 1997 together with George Willis) appear in the MR Database. In fact, this is not the case. There are two different people named Kenneth A. Ross who have published mathematical papers over the years. Although their middle names are, in fact, different, both have published using the middle initial A. How can we distinguish one from the other? This might depend on why we made the search in the first place. We might be interested in Riemann sums and know that a Kenneth A. Ross had published in this area and be interested in what else *that* Kenneth A. Ross had published. We could then click on the underlined Ross, Kenneth A. in the first headline and get the results above. These 52 headlines, through the miracle of MR author identification, are "certified" to belong to the same Kenneth A. Ross who published the first paper in the first search result screen. In fact, the 53 headlines in the original search do not all correspond to the same Kenneth A. Ross of the first headline. Only 43 of them do. Of the 52 items in the second search, 9 did not appear in the first search. That is because the Kenneth A. Ross we are interested in also published under the name K. A. Ross, K. Ross, and Kenneth Ross; our original string search did not find these. The 2 items above can be seen when we look at more of the previous headline list.

Search Author Database on the MathSciNet toolbar is a different, and in many ways, a better approach to this search. Beginning with the same search string as before we get:

From this we can now see that there are exactly two authors in the MR Database who might write papers under the name "Kenneth A. Ross." The radio buttons list names that have been selected in the database to remove ambiguities, even though they may not have ever been used by an author. The list shows us name strings associated to each of the two authors by the database. We can investigate the publications of each by clicking the appropriate radio button and "View All Items". Moreover, we can even combine this with a Full Search, specifying other search criteria, but always being assured that the Kenneth A. Ross we get is the one we are interested in. For example, we might be interested in references in the work of Kenneth A. Ross to *monotonic* functions. Using the two entries given by Search Author Database and using "monotonic" in the Anywhere field we get:

for **Kenneth Allen Ross**, who has published papers contained in the MR Database using various different name strings (but *not*, as it happens, Kenneth Allen Ross), and

for **Kenneth Andrew Ross**, who has published papers under Kenneth A. Ross (but *not*, as it happens, Kenneth Andrew Ross), respectively. In each case, you can be confident that all the items that you get are by the same person.

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The best format for author name is: Lastname, firstinitial*

Author Name: ross, kenneth a

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Items: **1 - 2 of 2**   Page 1 of 1   Select page: **1**

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1. ○ Ross, Kenneth Allen
   - Ross, K.
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82b:26011 26A42 (28A25)
Ross, Kenneth A.
Another approach to Riemann-Stieltjes integrals.
Amer. Math. Monthly **87** (1980), no. 8, 660--662.

Items Authored by Ross, Kenneth Andrew AND Anywhere=monotonic   MSN-Support   Help

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98d:68061 68P15 (68N17)
Ross, Kenneth A (1-CLMB); Sagiv, Yehoshua(IL-HEBR)
Monotonic aggregation in deductive databases. (English. English summary)
11th Annual ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (San Diego, CA, 1992).
J. Comput. System Sci. **54** (1997), no. 1, part 1, 79--97.

Will the *real* Kenneth A. Ross please stand up?

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A particular search that is successful will return a list of headlines. You may link in a variety of directions from each headline. You may select a particular item from the headline list returned by a search by clicking on its MR or CMP number. From the resulting full item you can link in even more directions.

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Link to institutional information.

Link to all papers in the MR Database by a given author.

Link to journal bibliographic information.

Link to all papers in the database in this particular journal issue.

91g:11066 11G18 (11F32 11F80 11S37)
Ribet, K. A.(1-CA)
On modular representations of $[{\rm Gal}](\overline{Q}/{Q})$ arising from modular forms.
Invent. Math. **100** (1990), no. 2, 431–476.

In this paper the author proves a conjecture of Serre concerning the level of an irreducible modular Galois representation $\rho\colon\operatorname{Gal}(\overline{\bold Q}/\bold Q)\to\operatorname{GL}(2,\bold F)$, where $\bold F$ is a finite field of odd characteristic l. Perhaps the most remarkable application of the paper is to Fermat's last theorem. A proof is sketched to show that if it is true, as the conjecture of Taniyama, Shimura, and Weil predicts, that every elliptic curve over $\bold Q$ is modular, then Fermat's last theorem is also true. That such a conclusion

The paper makes use of some of the finer properties of Neron models of Jacobians (due to Raynaud) and of the reduction of modular curves (Deligne, Rapoport) and Shimura curves (Cherednik, Drinfeld). This preliminary material is summarized in the early part of the paper.

Link to papers reviewed by the same reviewer.

Reviewed by *Glenn Stevens*

Link to citations of this paper in other reviews.

Cited in: 98h:11076 97m:11076 97m:11070 97f:11041 97b:11065 97b:11043 96j:11072 96d:11071 95e:11052 94i:11023 93j:11035 93h:11053 93d:11056 93c:14020

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[1] 1 754 687 Ribet, Kenneth A. Torsion points on $J\sb 0(N)$ and Galois representations. *Arithmetic theory of elliptic curves (Cetraro, 1997)*, 145–166, Lecture Notes in Math., 1716, *Springer, Berlin*, 1999. 11Gxx (11Fxx)
Review in linked PDF | Add citation to clipboard | Doc. Del.

[2] 1 754 684 Coates, J.; Greenberg, R.; Ribet, K. A.; Rubin, K. Arithmetic theory of elliptic curves. Lectures from the 3rd C.I.M.E. Session held in Cetraro, July 12–19, 1997. Edited by C. Viola. Lecture Notes in Mathematics, 1716. *Springer-Verlag, Berlin; Centro Internazionale Matematico Estivo (C.I.M.E.), Florence*, 1999. viii+234 pp. ISBN: 3-540-66546-3 11-06 (11G05)
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Kenneth Ribet

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line at the right. The Article link takes you to the original article in the *American Journal of Mathematics*. (To access this, you will need a subscription to JSTOR.) a Journal link indicates that an online copy of the original item is available, but some additional navigation will be required after the icon is clicked.

☐ [34] 85a:14030 Ribet, Kenneth A. Hodge classes on certain types of abelian varieties. *Amer. J. Math.* **105** (1983), no. 2, 523--538. (Reviewer: Yu. G. Zarkhin) 14K22 (11G10 11G40 14C30)
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where you find full bibliographic information about the journal *Inventiones Mathematicae*. For this journal you can link to a home page offering further information. You can list all the issues of the journal in the database by clicking on the button, allowing you to browse other papers occurring in the same journal.

In the full item to the left, the *Cited in* list at the bottom lists all reviews in the MR Database which cite the paper by Ribet. One of those reviews is 98h:11076. In the text of that review there is a link backward to the full item for the Ribet paper.

Invent. Math.

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ISSN: 0020-9910.
CODEN: INVMBH.
12 issues/4 vols./yr.
Indexed cover-to-cover
Status: Current
http://link.springer.de/link/service/journals/00222/index.htm

List issues for this journal

curves defined over ${\bf Q}$ imply that ϱ is absolutely irreducible. Then Ribet's theorem [Invent. Math. 100 (1990), no. 2, 431--476; MR 91g:11066] on lowering the level of a modular form guarantees that there is a cusp form mod p of weight 2 and level $N(\varrho)$. It follows from the non-existence of such

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99d:11043 11F (1S40 33C45)
Solé, Patrick
Sato-Tate conjectures and Chebyshev polynomials. (English. English summary)
Ramanujan J. **1** (1997), no. 2, 211--220. Journal

d\beta - \int\sb a\sp x d\gamma \right\vert \leq 2C$. The author modifies this result as follows. Suppose we have a sequence of measures $d\beta\sb \lambda$ such that for large λ the preceding moment coincidence holds asymptotically, namely, $$ \int\sb a\sp b x\sp i d\beta\sb \lambda = \int\sb a\sp b x\sp i d\gamma (1 + o(1)) $$ for $i=1, 2, \cdots , t$. Then, uniformly on $x\in [a,b]$, we have $$ \Big\vert \int\sb a\sp x d\beta\sb \lambda - \int\sb a\sp x d\gamma\Big \vert \leq 2C(1+o(1)). $$ He then applies it in the context of the Ramanujan function to derive the

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$2C$. The author modifies this result as follows. Suppose we have a sequence of measures $d\beta_\lambda$ such that for large λ the preceding moment coincidence holds asymptotically, namely,

$$\int_a^b x^i d\beta_\lambda = \int_a^b x^i d\gamma(1+o(1))$$

for $i = 1, 2, \cdots, t$. Then, uniformly on $x \in [a, b]$, we have

$$\left| \int_a^x d\beta_\lambda - \int_a^x d\gamma \right| \leq 2C(1+o(1)).$$

He then applies it in the context of the Ramanujan function to derive

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We search for the phrase *diophantine equations*.

Julia Robinson, who did important work on Diophantine equations.

Now you can look for all the papers in a particular 5-digit classification, with a sense as you do so of how the classification you might be interested in fits in with other "nearby" classifications. There have been a number of adjustments to the classification scheme over the years, and you can get some information about those changes here.

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10 (1940–1984) Number Theory
☑ **10B** (1973–1984) Diophantine equations [See also 14Gxx.]
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☑ **10.10** (1959–1972) Diophantine equations, general

11 (1985–now) Number theory
☑ **11D** (1985–now) Diophantine equations [See also 11Gxx, 14Gxx]
☑ **11Dxx** (1985–now) Diophantine equations [See also 11Gxx, 14Gxx]
☑ **11D45** (2000–now) Counting solutions of Diophantine equations

☑ **11J** (1985–now) Diophantine approximation, transcendental number theory [See also 11K60]
☑ **11J87** (1980–1990) Applications to Diophantine equations and other arithmetic problems

☑ **11Y** (1985–now) Computational number theory [See also 11-04]
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▶ [80 Classical thermodynamics, heat transfer ▾]

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☐ [1] 1 767 700 Olähbig, Ernest S. I.; Bruhn, Gerhard W. Der Entropie-Motor der Entropy Systems Inc., Ohio---ein Flop? (German) [The entropy engine of Entropy Systems Inc., Ohio---a flop?] *Mitt. Dtsch. Math.-Ver.*, **2000**, no. 2, 39--44. 80A10
Review in linked PDF | Add citation to clipboard |

☐ [2] 1 768 749 Bender, Carl M.; Brody, Dorje C.; Meister, Bernhard K. Quantum mechanical Carnot engine. *J. Phys. A* **33** (2000), no. 24, 4427--4436. 80Axx
Review in linked PDF | Add citation to clipboard |

☐ [3] 1 769 205 Wu, Biao A numerical method for computing the solidification front in a cooling model. (Chinese) *J. Zhejiang Univ. Sci. Ed.* **27** (2000), no. 1, 42--46. 80Mxx
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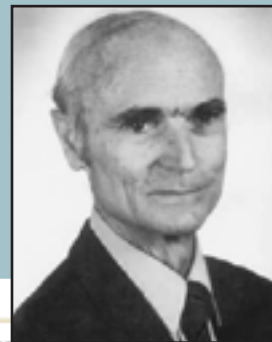
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☐ [1] 99c:51027 Martini, Horst On the theorem of Napoleon and related topics. *Math. Semesterber.* **43** (1996), no. 1, 47--64. (Reviewer: H. S. M. Coxeter) 51M20 (01A99)
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Matches for: Reviewer=taussky-todd   MSN-Support   Help

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☐ [1] 95d:15004 Fitzgerald, Robert W. Characteristic polynomials of symmetric matrices. *Linear and Multilinear Algebra* **36** (1994), no. 4, 233--237. (Reviewer: O. Taussky-Todd) 15A18 (11C20 15A36)
Review in linked PDF | Add citation to clipboard | Doc Dets

☐ [2] 90e:15011 Adkins, William A. Simultaneous diagonalization of matrices parametrized by a projective algebraic curve. *Linear Algebra Appl.* **116** (1989), 101--108. (Reviewer: O. Taussky-Todd) 15A21 (14M99 15A22)
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