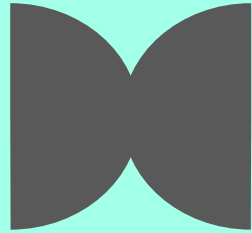


Bibliography Workshop



Melissa Beerbower
Professional
Development

Agenda



- Start a bibliography, using two documents: Bibliography.bib (connected to Article Draft.tex) and Annotated Bib.tex.
- Understand why Literature Searches are essential to mathematics research
- Read [Guide to Lit Searching for the Disinclined](#) , by Chad Topaz and May Mei
- Be organized!
- Practice doing a keyword search
- Practice doing a forward search using Google Scholar
- Practice doing a backward search using MathSciNet

Step 1: What if ...



Suppose that you spend all summer, 40 hours a week, for 6 weeks, researching a question. Then you spend 4 hours a week all of fall semester revising your paper, and then 40 hours during Winter Break finalizing your paper with your research team. The result of no less than 340 hours of work, your paper is your academic baby. You lovingly submit your article for publication. The reviewer returns it with one comment:

“This result was published in a paper from 3 years ago.”

Step 1: Example from my Research Project



Literature searches don't just prevent tragic scenarios. They also actively help you with your research. One thing you are guaranteed to get out of it is an introduction to your paper.

In Fall 2026, during a group research project, we reached a difficult point. We thought we knew how to count a special kind of Fubini Ranking, and we had code that backed up our conjectures, but we didn't have any formula. We went back to the literature and found that the basic unit of these Fubini Rankings was already counted, so we were able to cite that paper and complete our project.

Literature Search Assignment



In the spirit of this workshop, I am not going to redo work that has already been done. Instead, I am going to send you to Chad Topaz and May Mei's article, which I quote below,

"when you do a piece of scientific work, it's crucial to contextualize it. How does it fit in with other work that has been done? Think of your future work as being in dialogue with all past work. Which pieces are you talking to? What are you saying? Are you answering a question that was posed by another paper? Why should anyone care? You can't answer these questions without knowing the literature."

- Read [Guide to Lit Searching for the Disinclined](#), by Chad Topaz and May Mei.
 - **Step 1:** Recognize the value of the task.
 - **Step 2:** Get organized.
 - **Step 3:** Search for the first time and save files.
 - **Step 4:** Read for the first time.
 - **Step 5:** Do a backwards and forwards search.
 - **Step 6:** Do it all again
- Create a folder on your desktop for the articles you download.

Step 2: How to Conduct a Literature Search

Take care of your future self.

- **Organize** as you go. **Promptly** add articles to folder, citations to bib, abstracts to annotated bib.
- Use your annotated bib to prevent yourself from looking at the same irrelevant article repeatedly.
- Give documents descriptive titles. You want to be able to find them quickly later

Don't get distracted by side quests.

- Set aside a **meaningful length of time** for literature searching. No less than 45 minutes.
- **Focus** on the step you are at. When you are conducting searches, limit reading to abstracts and **keep going**.
- During the reading step, don't get distracted by looking up stuff online. Skim each article well and write **1-4 sentences** about its ir/relevance immediately. Aim to **complete each article in one sitting**.

Be consistent.

- Put all authors' names in the **same format**: either first initial and surname, or full name.
- Put all journals' names in the **same format**: either full name or abbreviated: [Serial Abbreviations](#).
- **Leave a note for yourself** at the top of your bib; doing this as you go could hamper your concentration.

Step 3: Keyword Search Example

Go to [Google Scholar](#) search for “Cayley permutations.”

 Google Scholar



 Articles

About 32,000 results (0.13 sec)

Any time

Since 2026

Since 2025

Since 2022

Custom range...

Sort by relevance

Sort by date

Any type

Review articles

☐ include patents

☒ include citations

 Create alert

Sorting **Cayley permutations** with pattern-avoiding machines

[G Cerbai](#) - arXiv preprint arXiv:2003.02536, 2020 - arxiv.org

... **permutations** is a class. We also show a new involution on the set of **Cayley permutations**, ...

Finally, we analyze two generalizations of pop-stack sorting on **Cayley** permutations. In both ...

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Cayley permutations

M Mor, AS Fraenkel - Discrete mathematics, 1984 - Elsevier

... A **Cayley permutation** (C-permutation for short) of length n is a **permutation** p of n elements

... An enumeration formula for C-permutations is derived, which exhibits the equivalence to the ...

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[HTML] Pattern Avoidance in **Cayley Permutations**

H Golab - 2024 - search.proquest.com

... The goal of this thesis is to analyze certain collections of **Cayley permutations**. We will often use combinatorial species to derive exponential generating functions for these subsets, allow...

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Step 3: Download Relevant Info

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Cayley permutations

M Mor, A.S Fraenkel * [Show more](#)

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Article Recommended articles Cited by (26) Metrics

Abstract

A Cayley permutation (C-permutation for short) of length n is a permutation p of n elements with possible repetitions from a set $\{a_1, \dots, a_n\}$ of n elements with an order relation, subject to the condition that if an element a_i appears in p , then all elements $a_j < a_i$ also appear in p . An enumeration formula for C-permutations is derived, which exhibits the equivalence to the solution of many other combinatorial enumerative problems. A 1-1 correspondence between C-permutations and a subset of ordered rooted trees called Cayley trees is established, thus providing a simple and elementary proof for the enumeration formula for Cayley trees. Finally, algorithms for generating C-permutations, ranking ordinary permutations with repetitions and ranking C-permutations are given.

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- [Save to Refworks](#)
- [Export citation to RIS](#)
- [Export citation to BibTeX](#)
- [Export citation to text](#)

The second article is on *Science Direct*. Read the abstract. If it sounds like it *could* be relevant to your research (or to the history of your research question), **download the pdf** to your designated folder. Give it a descriptive name. Also **download the citation** and add it to your bib.

Step 4: Skim the Articles in your Folder



[How to Read a Research Paper](#), by Matt Baker

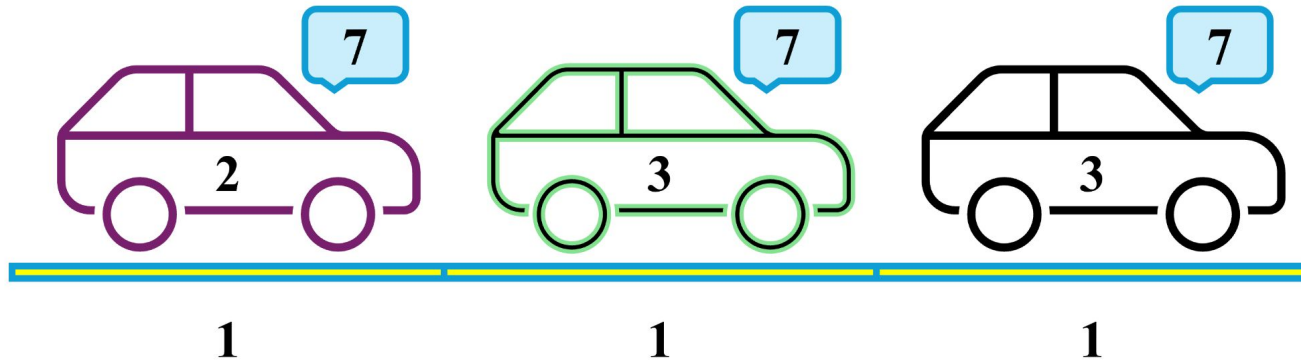
- **Speed Read:** A paper whose introduction you plan to read in order to get an overview of the results and then possibly skim further.
- **Substantial Skim:** A paper that you plan to skim all the way through, perhaps reading certain parts in detail.
- **Deep Dive:** A paper that you wish to thoroughly study and understand.

You are doing a Speed Read. Eventually, you will conduct a Substantial Skim of a few of the papers in your bibliography. This is not the time for that. At this stage in your research, you should discuss with your advisor if you think you should do a Deep Dive on a paper. Again, this is not the time for that.

Write **1-4** sentences about the relevance (or irrelevance, as needed) of each paper to your research in your annotated bibliography.

Keyword Search Practice

Repeat the process, but this time start with “Lucky Cars” (or any keyword relevant to your research project).



Step 5: Widening your Search

Go back to Mor and Fraenkel's paper on *Science Direct*. At the bottom of the page, you will find **references** from the article. Checking these articles is called a **backward** search. There is also a **Cited by** page. Checking these articles is called a **forward** search. You will complete backward and forward searches for every article that you concluded was relevant from your keyword search.

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Algorithm 306, Permutations with repetitions
Comm. ACM, 10 (7) (July 1967), pp. 450-451
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On the analytical forms called trees
Collected Mathematical Papers, Vol. 4, Cambridge University Press, Cambridge (1891), pp. 112-115
[Google Scholar »](#)

Cited by (26)

Metrics

Cited by (26)

Research article

Transport of patterns by Burge transpose

Cerbai G., Claesson A.

European Journal of Combinatorics • Volume 108 • 2023 • Article 103630

[Show abstract](#) ✓

Research article ● Open archive

Some canonical sequences of integers

Bernstein M., Sloane N.J.A.

Linear Algebra and Its Applications • Volumes 226-228 • 1995

[Show abstract](#) ✓

Research article ● Open archive

The use and usefulness of numeration systems

Fraenkel A.S.

Information and Computation • Volume 81 • 1989

[Show abstract](#) ✓

Step 5: Forward Search Example

[Google Scholar](#) is your best friend for a forward search.

Click on “cited by 11.” See this list of 11 citations? This is your to-do list. Read the abstract of each. If it sounds like it could be relevant to your paper, download the pdf to your folder, and add the citation to your bib.



Parking functions, Fubini rankings, and Boolean intervals in the weak order of $\mathfrak{S}_n$

☐ Search within citing articles

Inversions in parking functions

K Celano, J Elder, KP Hadaway, PE Harris... - arXiv preprint arXiv ..., 2025 - arxiv.org

In this paper, we obtain a q-exponential generating function for inversions on parking functions via symmetric function theory and also through a direct bijection to rooted labeled ...

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Enumerating Vector Parking Functions and their Outcomes Based on Specified Lucky Cars

M Ferreri, PE Harris, L Martinez, E Swartz - arXiv preprint arXiv ..., 2025 - arxiv.org

In a parking function, a car is considered lucky if it is able to park in its preferred spot. Extending work of Harris and Martinez, we enumerate outcomes of parking functions with a ...

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Restricted Fubini Rankings and Restricted Unit Interval Parking Functions

C Barreto, P Harris, JL Ramírez, S Ramírez... - arXiv preprint arXiv ..., 2025 - arxiv.org

We study three natural types of restrictions on Fubini rankings and unit interval parking functions, which are motivated by their correspondence with ordered set partitions. For each ...

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Metered parking functions

S Daugherty, PE Harris, I Klein, M McClinton - arXiv preprint arXiv ..., 2024 - arxiv.org

We introduce a generalization of parking functions called $\$t$ -metered $\$(m, n)$ $\$$ -parking functions, in which one of $\$m$ $\$$ cars parks among $\$n$ $\$$ spots per hour then leaves after $\$t$...

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Parking functions and Łukasiewicz paths

T Selig, H Zhu - Discrete Mathematics Letters, 2024 - dmlett.com

We present a bijection between two well-known objects in the ubiquitous Catalan family:

Google Scholar

Parking Functions, Fubini Rankings, and Boolean Intervals



Articles

About 94 results (0.05 sec)

Any time

Since 2026

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Custom range...

Parking functions, Fubini rankings, and Boolean intervals in the weak order of $\mathfrak{S}_n$

J Elder, PE Harris, J Kretschmann, J Mori - arXiv preprint arXiv ..., 2023 - arxiv.org

... connection to a subset of parking functions, which we call unit Fubini rankings, we provide a

... number of Boolean intervals in $W(S_n)$, and the total number of Boolean intervals of rank k in ...

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Step 5: Backward Search Example

MathSciNet is your best friend for backward searches.

See this list of 13 references? This is your to-do list. Read the abstract of each. If it sounds like it could be relevant to your paper, download the pdf to your folder, and add the citation to your bib.

Elder, Jennifer (1-MWSU-CMP); Harris, Pamela E. (1-WIM); Kretschmann, Jan (1-WIM); Martínez Mori, J. Carlos (1-GAIT-I)

Parking functions, Fubini rankings, and Boolean intervals in the weak order of $\mathfrak{S}_n$. (English summary)

J. Comb. **16** (2025), no. 1, 65–89.

Classifications

05A05 - Permutations, words, matrices

05A15 - Exact enumeration problems, generating functions

05A19 - Combinatorial identities, bijective combinatorics

06A07 - Combinatorics of partially ordered sets

References

[Hide references](#) [Search References](#)

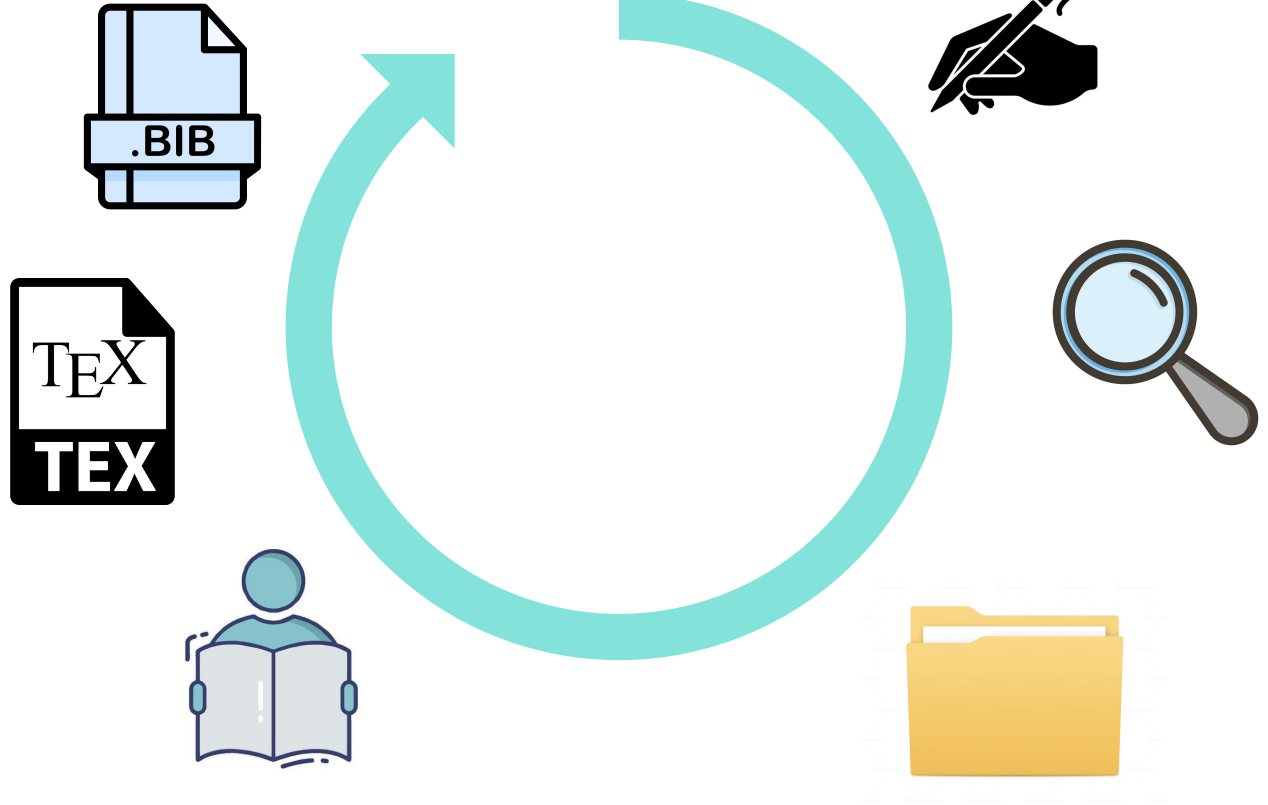
This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.

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Step 6: Ongoing Process

Bibliographies are an ongoing process.

- Research question
- Lit Search
- Save articles
- Read articles
- Add to annotated bib
- Add to bib
- Continue researching and writing always



References & Acknowledgements



Thanks to Chad Topaz and May Mei for sharing their expertise online so we can go back to it as many times as we need to:

“Keep repeating this step until you cease getting relevant new papers.”