

*Seven swans a-swimming--*

*Six geese a-laying*

**FIVEEE  
GOLDEN  
RINGSSS!**



B 20  
20

## “WHAT DO YOU HOPE HAPPENS IN 2021?”

Well, we're here again. Standing at the cusp of exams as we gaze toward the New Year. For me, this time around is especially important, as it will be my last.

Yes, dear **mathNEWS** readers, my time at UWaterloo (and hence, my time at **mathNEWS** as well) is drawing to a close. A little over two weeks and four exams from now, I will be ending my final academic term. This is a moment I have had on my mind since April of 2019, when the first subset of my friends completed their studies and started looking toward their careers.

This year particularly has been quite draining for me, what with the obvious state of the world weighing on us all. I have also been in academic terms non-stop since January to finish off all of my remaining courses. This was quite the shock compared to 2019, when I spent four months in Japan followed by four months of co-op. In fact, before 2020 I had not been in class at UW since Spring 2018.

But I digress. As this is my last term as a **mathNEWS** Editor, I would like to take a moment to thank all of the other Editors I have worked with since I joined in Fall 2018. A special shout-out to terrified who has endured at my side for nearly my entire tenure. He and I have shared many a headache during our time here, and I wish him all the strength and luck I can spare to get him through the coming headaches.

I have not written for **mathNEWS** recently, but if you, our gorgeous, effervescent reader, want to go back to where it all began for me, check out my first article for **mathNEWS**, [What is an Actuary?](#) from 137.1. I would also encourage you to check out [A Ransom Note to DIE For](#) in 137.2. Both utter masterpieces (like you).

But first, don't forget to read this issue, right in front of you! We have an interview with Prof. Peijun Sang right on the next page and a bevy of damn fine articles thereafter.

Keep safe and come back for more in 2021.

confusED  
Editor, **mathNEWS**

clarifED  
Editor, **mathNEWS**

**ABALD MAN** | I eat **mathNEWS** pizza

**CC** | Abald Man: Knows what's up.  
**mathNEWS**: Prod night in MC.  
Pizza: In my face.

**JEFF** | 2020 reboot and plot rewrite

**BEYOND META** | What is this thing you call hope? Perhaps I will learn again to feel that next year.

**KEYBOARD PERSON** | I custom-ordered a keyboard in Q1 2018. It was supposed to be finished Q3 that year. With any luck I'll have it in 2021.

**TENDSTOFORTYTWO** | A keyboard review in **mathNEWS** from Keyboard person.

**FINCHEY** | A massive tornado touches down on me as I go out for a mundane morning walk, smiting my corporeal form off this earth once and for all.

**WALDO@<3.LE-GASP.CA** | I find health and happiness again like I had in 2019

**APHF** | Coronavirus 2 comes out after the viral success of the viral success of the first one

**DERIVING FOR DICK** | 2022

**BOLDBLAZER** | It'd be amazing if there were an official announcement that there will be Pokemon Diamond and Pearl remakes for the Switch or that Nintendo says that they have permanently fixed the joycon drift problems.

**GOD&PEED** | I'm just hoping they fix my internet, man.

**CLARIFIED** | We finally get around to making the missing **mathNEWS** anthologies. Once this term is over, we'll be 5 anthologies behind schedule... It keeps me up at night.

**TERRIFIED** | If Spring 2021 isn't at least partially in person I'm rioting

**CONFUSED** | Diamond and Pearl remakes

## ARTICLE OF THE ISSUE

Give a big hand up for girafarig's [Falling Asleep After Landing on a Rainy Autumn Ontario](#) for winning this issue's Article of the Issue! I'll be honest: this issue was absolutely packed with so many thoughtful, quality pieces that it was hard to choose. The Issue of the Volume, perhaps?

# I'm not confusED anymore, just confused.

JAMIE ANDERSON, **mathNEWS** EDITOR FOR FALL 2020  
ALONG WITH TERRY CHEN, GEORGE LAMBROU, AND CLARA XI

# mathASKS 144.6

## FEATURING PROFESSOR PEIJUN SANG

### ABALD MAN: THOUGHTS AND FEELINGS ON STAT 231?

Though I've got no experience of teaching STAT 231, I think this might be the most difficult course for me to teach.

### QUANTUM GOOSE: WHAT'S THE BEST COMPLIMENT YOU'VE RECEIVED FROM A STUDENT?

You're a very responsible professor and you really care about your students' success.

### TENDSTOFORTYTWO: ARE THERE ANY TOPICS THAT YOU TEACH IN STAT 330 THAT YOU THINK WOULD BE MORE SUITED FOR STAT 230/231, OR VICE-VERSA?

My biggest concern about these courses is that statistical inferences like hypothesis testing and confidence intervals are covered in STAT 231, but students can hardly fully understand these results. Though I explain some theories like t-test or F-test in STAT 330, students have no chance to apply them to their STAT 231 course. Actually, statistical inference plays a central role in statistical analysis as it serves as a systematic tool to quantify uncertainty in model fitting or parameter estimation. However, only in STAT 450 can students be exposed to more serious treatments of statistical inference.

### TLLLOW PRINCESS: WHERE IS YOUR FAVOURITE TOILET ON CAMPUS?

Toilets at M3.

### CLARIFIED: WHAT WOULD YOU LOVE TO HAVE FOR BREAKFAST? AND ON THE FLIP SIDE — WHAT DO YOU USUALLY HAVE FOR BREAKFAST?

Oats and milk. I usually have one cup of warm water, a hard boiled egg and several pieces of bread for my breakfast.

### GODSPEED: IF YOU COULD GET ONE STATISTICAL FACT INTO THE PUBLIC'S HEADS, WHAT WOULD IT BE?

Association is different from causation. We always find statements like "A causes B" or "B occurs due to A" in public media. But causation can hardly be justified in observational studies.

### CC: HOW HAS THE MOVE TO ONLINE TEACHING GONE FOR YOU?

A remarkable difference is that less time is needed to complete one section. I cannot get feedback from students when I record videos, and that is why I kind of easily move on quicker than in-class meetings. Due to lack of timely communications between an instructor and students, students have more posts on online discussion forums even though many times I think I've explained these concepts and techniques very clearly in my notes.

### ROYAL NO.69 MILK TEA: THIS IS NOT A QUESTION, BUT I'M IN YOUR STAT 330 CLASS THIS TERM AND IT'S ONE OF THE MORE CHALLENGING BUT INTERESTING COURSES I'VE TAKEN SO FAR, THANKS FOR BEING A GREAT PROF AND I THINK YOU'RE REALLY COOL :)

Thanks for your compliment. I would say I do not want to challenge students, even though students are always complaining about the difficulty level of my tests. Here I want to clarify my motivation of not making an easy test. I was very surprised when I first heard from undergraduate students at UW that STAT 330 is an easy course. When I was an undergraduate student, many of my classmates struggled with this course because we were asked to master lots of statistical theories in one course. Even though STAT 330 is not that theoretical at UW, I still expect students to build a solid foundation in basic statistical theories. You will find this will be very helpful to your future studies, especially if you want to become a statistician, an actuary or a data scientist in the future. If every test is straightforward, you're less likely to put more efforts on this course, as you believe you can achieve an easy success.

### TERRIFIED: WHAT IS YOUR FAVOURITE DISTRIBUTION AND WHY IS IT YOUR FAVOURITE?

My favourite distribution is Student t distribution. It has many interesting properties.

As we know, t distribution of one degree of freedom is Cauchy distribution. The sample mean of i.i.d Cauchy random variables still follows the Cauchy distribution. This is very interesting. In my class, if time permits, I would like to ask students to write a R program to draw the sequence of sample mean of i.i.d Cauchy random variables. You'll find that this sequence would fluctuate rather than converge, and this will help you to better understand the Weak Law of Large Numbers.

### BOLDBLAZER: SO, I'M STILL UNDECIDED FOR MY MAJOR. CAN YOU DO YOUR BEST SALES PITCH TO TRY AND WIN ME OVER?

I think a personal meeting might be a more effective way to convince you. Here I just want to point out that you can easily fulfill your interest in stats no matter whether you are a math guy or someone interested in data science or modeling.

### CIX: DO YOU CONSIDER YOURSELF A MUSICAL PERSON? WHAT IS YOUR FAVOURITE SONG?

Never. "Chess" by Faye Wong is my favourite song. I like the atmosphere created by the fantastic lyrics and the melody of the song.

# SOME UNSOLICITED ADVICE FOR UNDERGRADUATE STUDENTS

profTHOUGHTS 144.6

I've been an assistant professor at UW since September of 2018. I've taught one 300 level and several 400 level stats courses in this time period. I always find that there exists a gap between my expectations and students' expectations. Based on my teaching experiences, I make the following list of advice to undergraduate students. I would be very happy if you think some of them are helpful and motivate you to make changes. Feel free to contact me if more clarifications are needed.

Knowing reasoning is way more important than knowing facts. Based on my limited teaching experience at UW, I find that students are really in favor of notes with lots of examples when a formula is given. In contrast, interpretations and comments on concepts or theories are of little interest to them. In terms of exams, they prefer closed-ended questions in comparison with questions that require personal interpretations. I still remember that when I asked students in my class to explain the Central Limit theorem to audiences with little knowledge in stats or probability, some students wondered whether they should show how to prove the CLT. With these examples I just want to highlight the importance of open-ended questions. To better understand statistics, building connections between different parts in stat and a thorough understanding of important concepts is critical. You might be confused with what I mean by building connections and a thorough understanding. I'll give you a concrete example. There was a question asking you to find the probability density of a uniform distribution over a triangle in my past exams. Many students in my class employed the double integral to find the area of the triangle but got a negative result due to carelessness. They even complained about that they had to spend a long time on this question. This just indicated that these students did not fully understand double integral or a density function. You should definitely use the formula to find the area of a triangle rather than resorting to double integral. When you took a relevant calculus course, your instructor must have told you the interpretation when you integrate a constant function over a region. Additionally, can you forgive yourself when you get a negative probability? If no, you should not write a negative density function.

Reading a good reference book really matters. UW students seem to take it for granted that excellent lecture notes should be provided. I acknowledge that instructors should definitely spend great efforts for high-quality notes, especially during online. But I find that very few students are devoted to reading reference books. Actually, reading excellent reference books can not only enhance your understanding of lecture notes, but more importantly help you to bridge the gap between different topics and materials. Most often lecture notes for a typical math or stats course consist of several examples and important results. In contrast, motivations of important concepts and connections between different topics are described in detail in classical textbooks. I find it quite common that students forget

what they had learned in the last term. That is why many stats profs have to spend substantial time on reviewing materials in the pre-required courses. A plausible reason is that students cannot sketch an outline of materials by just studying lecture notes. Students may express their concern of finding enough time for reading due to multiple courses in one term and preparations for co-op. Frankly speaking, I do not have a good answer to this concern. But I want to remind you what your primary goal is after graduation. If pursuing a Master's or even a Ph.D. program is your first plan after undergrad, you should definitely take this suggestion into consideration.

Talking to know your prof. This is particularly important to those students who need reference letters for applying for graduate programs. This term I've received many requests about reference letters. But I have to reject most of them. On one hand I am quite busy with research and teaching in this term. On the other hand, more importantly, I have no impressions of those students. Then how can I write a reference letter? Only through communications can your professor know your strengths and potential. Even if you do not need a reference letter, you are likely to get useful advice and feedback from your professor through communications.

They will turn out to be quite helpful to improve your performance in a course. I am quite surprised that this term students stick to using Piazza, even though I hold both Q&A sessions and office hours. In my point of view, explaining a math related concept through an online discussion forum is really challenging. What's worse is that I cannot know my students and cannot know their reactions to my teaching. Effective communications can benefit both students and instructors.

Peijun Sang

Thanks to Sherry Xu for proofreading my draft.

## Enjoying mathASKS and profTHOUGHTS?

### Thank Professor Steve Furino. It was his idea.

A mathNEWS EDITOR WHO BELIEVES  
IN CREDIT WHERE CREDIT IS DUE

# THE ROBOT UPRISING IS HERE

OR AT LEAST THE RISE OF ROBOT CONSUMERISM ANYWAY...

You're standing in line at the Math CnD, impatiently waiting at the head of a line that stretches all the way across three sides of MC and into the DC bridge. *Finally*, the MathSoc volunteer arrives to open the place. They open the place up, get everything ready, and finally motion for the first person to come on in.

*Flash.* Before you even know it, someone has moved past you, moving faster than your eyes can follow, smoother than the newest iPhone, and before you know it, they're gone. There is a neat pile of money in front of the volunteer, corresponding exactly to the amount of money it would take to buy every single samosa in stock for the day.

The samosa tray is empty.

The crowd is furious. They've been waiting for *so long* - the most eager, like you, arrived at 4 A.M., just in time to see the CSC people closing up shop for the night. And all the waiting, all the anticipation, all the *hunger*... was it all wasted?

*Sorry*, the MathSoc volunteer says apologetically. *They did pay, and now that they're gone, there's nothing I can really do.* You don't like to hear it, but they're right. Slumping your shoulders and with a rumbling stomach, you head for class.

Fast forward three hours. Classes are over, at least till the late afternoon, and if you were hungry in the morning, you're positively ravenous now. Sighing, you head to DC, to maybe grab Tim's for now. You'll get that samosa tomorrow. Walking to the DC bridge entrance, you're still thinking about the samosa. Hell, even now, you can almost smell it.

*Almost...?*

No. Not almost. You *can* smell the samosa. Intrigued, you look around for the source of the delicious aroma, and you find it easily—a guy stands at the entrance of the DC tunnel with *an entire cardboard box full of samosas*.

The guy has a lazy grin on his face. *Want one? They're ten bucks a pop.*

10 dollars? Is he insane? They're sold in the CnD! One dollar sixty, all day, everyday! Everyday... but not today.

I ask him where he got those. *Same place as everyone else, bud. The CnD! Got in a bit early, grabbed a bit more than I wanted to eat.*

A bit? That looks like... like all the stock. Was this the guy who broke the queue in front of you?

He seems to anticipate your question. *Oh, I didn't want to stand in line myself, so I used a bot... beautiful machine, it went right ahead and bought me all the samosas I wanted!*

A bot... that explains the lightning speed, the exact change, the utter disregard for any humans... you glare at this person, angry and disgusted at him for hoarding all the samosas, holding them hostage in that box of his...

*Those delicious samosas...*

You want one. You want one so bad. But do you want to pay six times the price for one? Your mind says no, but then your stomach rumbles...

You ask him if he takes cash.

tendstofortytwo

## mathNEWS MEMES

Writers: terrifiED please come some say hi

terrifiED: No

Writers:



WHEN THE EDITORS PUT DISCLAIMERS  
ON ALL OF YOUR ARTICLES AND  
THREATEN TO BAN YOU FROM THE DISCORD



I have a right to freeze peach

# STAT 231 REVOLUTIONARY SONG

Please sing this to the tune of “Do You Hear the People Sing” from *Les Misérables*:

Do you hear the students sing  
Singing the song of angry men  
It is the music of a people  
Who will not touch R again  
When the beating of your heart  
Ends at the start of this exam  
There's a life about to start  
When this nightmare ends

Will you join in our crusade  
Demand a course re-write en-masse  
Besides stat two three one  
Are there exams you want to pass  
Then join in the fight  
That will set us all free from this class

Do you hear the students plea  
Plea for a better course online  
They were once a happy people  
But then stats destroyed their mind  
When the numbers 2, 3, 1  
Make your heart pound like a drum  
A better life's about to start  
When the term is done

Will you pass or will you fail  
So that the great curve will advance  
Will you beg TAs for marks  
Or will you bravely take your chance  
This second year stats course  
Has somehow become our last stance

Do you hear the students sing  
Singing 'bout stats with pure disdain  
It is the music of a people  
Who have gone through so much pain  
But instead of spreading hate  
Make sure that you evaluate  
And seal the course's fate  
To make them make it great

Eitan

# FAN SERVICE

<https://soundcloud.com/chyswen/ya-tha-name-sarah>

FRIDAY, NOVEMBER 22, 2019 — SCIENCE TEACHING COMPLEX 1012.

Ya, tha name Sarah, come give it a shot  
I heard ya wanna more 'a me an' I got a lot  
Lez go, lemme show ya all tha beat tha I brought  
But take careful, now, it gon' be hot hot hot

Ya, tha name Sarah, come give it a taste  
Buh don' take it in vain, not a drop ta waste  
'Cause I'm a god-*dess*—top style top caste  
All tha' guys afta me, 'cause they say I frickin' based

Did tha tell ya? I stream *Carna' Jo' Glory*  
Every time I get a kill twitch chat go roary  
I steal all hope of victory  
So surrenda, or it gon' get gory

Ya, ain't neva gon find a girl with more know  
When it come ta sound music beat aud-ee-oh  
All tha pizzaz mine, I a one woman show  
Stage tech stage flair we gon' goin' pro

Tha say I don' got ack-eh-dem-ick grades  
I say ya got na business throwin' any shade  
I got charm, ya got none, so guess who gon' gettin' paid  
Need na' book smart—I got street smart: ya I got it made

Ya, tha name Sarah, come give it a spin  
It na spell' with na L, 'cause I only take win  
Take me off tha bench, writa, go put me in  
Mah part o' this story is about ta begin!

Ya.

*Ta be continue...*

Writer's Note: I heard from some people wanted more Sarah, so, uh, begrudgingly, here's more Sarah... All right, I had a lot of fun too. Who knew I sound kinda like a girl when I'm pitched up 350 cents? The backing track is OC—probably inspired by *Hamilton* plus K/DA albums.

CC

For the record, although I did once say “there is beauty in mathematics”, I did not then add “and it is me”.

STEPHEN NEW

# N WORDS THAT HAVE ENTERED MY DAILY VOCABULARY AFTER TAKING SEVERAL MATH CLASSES AT UW

The following list is ranked from highest to lowest frequency.

- So
- Then
- “So then”
- Let
- Since
- Clearly
- Obviously
- Notice
- Consider
- “Such that”
- Suppose
- Assume
- Have
- “Must have”
- “But then”
- $\Rightarrow$
- Trivially
- Corollary

My use of these words has increased at least threefold. You may notice that “thus” and “therefore” are omitted. I was already trained to not overuse these two, so I don't have a problem with them.

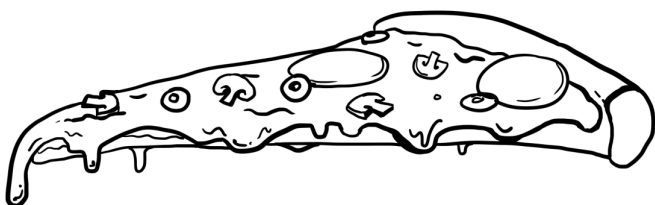
I'm trying to shake a very bad habit of constantly writing “so” at the beginning of sentences. I used to hate this usage of “so” so very much. Now I find that I can't stop myself from using it.

There is some other math phrasing that I've left out, simply because I don't regularly use them in normal conversation or writing. Like “fix” or “iff” (the latter because situations requiring it are extremely rare).

“If...then” is so normal and common that it barely counts.

I still hate “recurse” and will never use it.

cy



# NOSTALGIA WATCHING

I have always been a fan of revisiting prior works, for while the work itself will not have changed, I as a person will have. It's always fascinating to see what details will stick out to me upon re-experiencing a particular piece of media. Recently, I have been going on a major anime binge rewatching all the stuff from the late aughts and early teens. In my case, this rewatch was very much fueled by a desire for comfort. It was just easier to watch things that I was already invested in than try and discover something new. In some ways, rewatching was an attempt to enact some measure of control on my life in a time when I feel things are spinning out of control, by choosing stories that I know exactly how they end. Of note, the works I picked for rewatch weren't chosen for quality, but rather for familiarity. So far, I have rewatched some absolute gems like *Gurren Lagann*, *Pulle Magicka Madoka*, *Code Geass*, and also stuff like *Naruto*, *Bleach*, and *Death Note*.

Knowing how things end helped me have some emotional distance from the sad scenes in a show, and really let me appreciate how well these tragic moments were executed, as I could appreciate the buildup to major plot points and reaction.

Another thing that struck out to me while rewatching things is that current me seems to have much stronger opinions about ships than past me. I think this is in part due to having more relationship experience compared to when I first watched these shows. I generally disapprove of relationships that have unhealthy dynamics. Sakura and Sasuke make absolutely no sense as a pairing. You can't just have a guy hate a girl for the entirety of the series, and then have them get married; that's dumber than most Disney movie romances where you marry someone right after having met them.

Beyond Meta

## EPISODE 13: MUTUAL RECURSION

Enjoy episode 13 of the MathSoc Edu-Action! series: [CS.135 Mutual Recursion!](#) If you have any feedback you can contact the project manager Gavin Orok at [mathsoccartoons@gmail.com](mailto:mathsoccartoons@gmail.com) or fill out this survey: [https://bit.ly/cartoon\\_feedback](https://bit.ly/cartoon_feedback).

MathSoc is looking for more staff to run this project next term! If you are interested in directing the project, writing sketches, or drawing the finished digital art, contact Gavin at [mathsoccartoons@gmail.com](mailto:mathsoccartoons@gmail.com) and Harleen at [vpa@mathsoc.uwaterloo.ca](mailto:vpa@mathsoc.uwaterloo.ca) to apply and/or learn more about the job openings.

Gavin Orok

# CS 135: MUTUAL RECURSION

Story by: Clara Xi | Art by: Alyssa B. (@alyssnya)

You know about direct recursion...

## RECURSIVE DATA DEFINITION

A (listof X) is one of:  
empty  
(cons X (listof X))

## RECURSIVE FUNCTION DEFINITION

```
(define (f lst)
  ... (f (rest lst)) ...)
```

LET'S SPICE THINGS UP WITH MUTUAL RECURSION!

MUTUAL RECURSION OCCURS WHEN TWO OR MORE THINGS ARE DEFINED IN TERMS OF EACH OTHER.

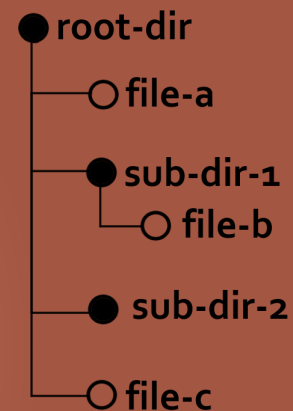
We can think of our computer's file system as a mutually recursive structure.

```
(define-struct directory (name file-1st))
```

A Directory is a  
(make-directory  
Str(listof File))  
A File is either:  
a Str or  
a Directory

A DIRECTORY CONTAINS A LIST OF FILES!

AND A FILE CAN ALSO BE A DIRECTORY!



\*Unix systems do treat directories as a type of file!

Let's write a function **count** that produces the total number of non-Directory Files in a given Directory.

WE'LL WANT TO INCLUDE FILES FROM SUBDIRECTORIES.

SO FOR THE DIRECTORY "ROOT-DIR" IN THE PREVIOUS PANEL, COUNT WOULD PRODUCE 3.

**count** will be a wrapper around a helper function **count-file-1st**.

```
;; count: Directory -> Nat
(define (count dir)
  (count-file-1st (directory-file-1st dir)))
```

Here's the base case for **count-file-1st**:

```
;; count-file-1st: (listof File) -> Nat
(define (count-file-1st file-1st)
  (cond [(empty? file-1st) 0]
```



# CS 135: MUTUAL RECURSION

Story by: Clara Xi | Art by: Alyssa B. (@alyssnya)

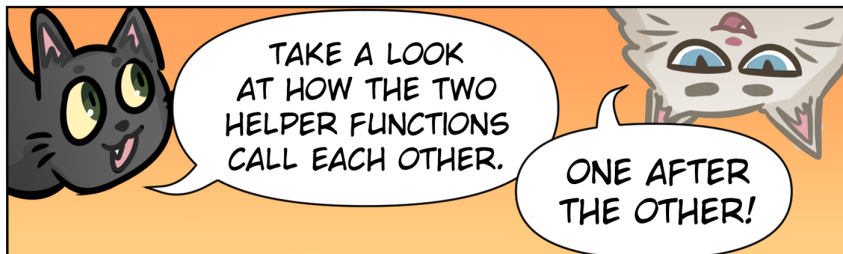


Here's a helper function that will call *count-file-1st* if the given File is a Directory:

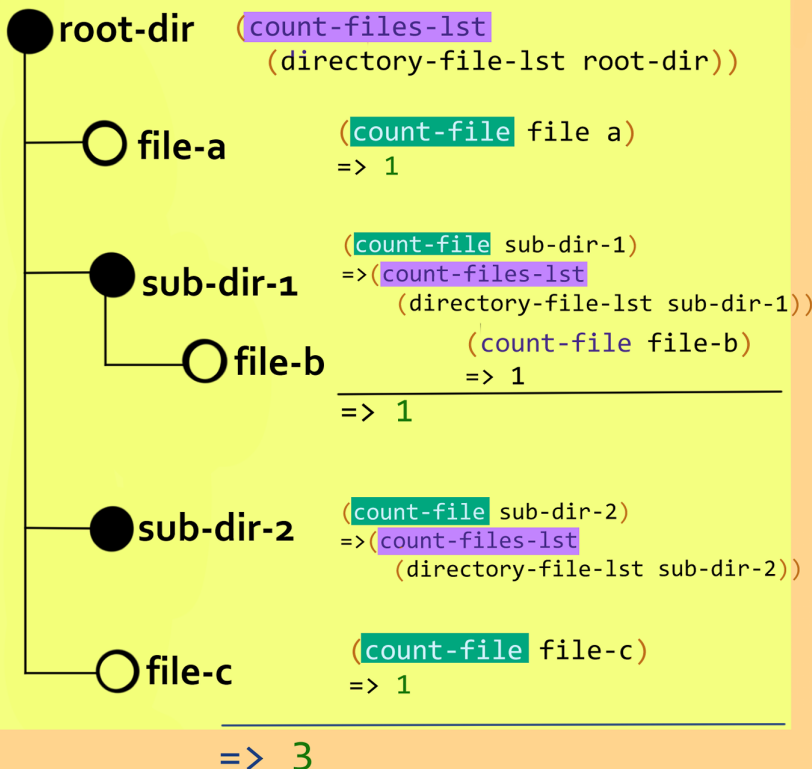
```
;; count-file: File -> Nat
(define (count-file fil)
  (cond [(string? fil) 1]
        [else
         (count-file-1st (directory-file-1st fil))]))
```

Now we can finish writing *count-file-1st*:

```
(define (count-file-1st file-1st)
  (cond [(empty? file-1st) 0]
        [else (+ (count-file (first file-1st))
                  (count-file-1st (rest file-1st)))]))
```



`(count root-dir)`



It is possible to write *count* using direct recursion -- maybe you've even already figured out a way!

But when we're dealing with more complex, mutually recursive data, it often feels more intuitive to write mutually recursive functions.

With some practice, mutual recursion just feels natural! It goes without saying that we hope the feeling becomes...



# THE 42<sup>ND</sup> BRITISH COLUMBIA GENERAL ELECTION

A snap election was called in BC for October 24, and after the final results, the official composition of 87 MLAs of the legislature is as follows: 57 NDP, 28 Liberal, and 2 Green. By law, even though the general election day was October 24, there was a two week period where all the absentee and mail-in ballots were certified to ensure no one also voted in-person. After that wait is when the remaining votes were all counted, and during that wait, there were still some constituencies that remained undecided. Even after all that waiting, it turned out that in one riding, a judicial recount became mandated<sup>1</sup>.

One thing I must mention is that the BC Liberal Party's name shouldn't fool you. Despite having the word "liberal" in their party name, they act more centre-right than centre. That doesn't mean that there is no conservative party in BC outright. In the very northeast of BC, in the two most conservative ridings of BC, the BC Conservative Party candidates did quite well, only managing to place in second place for both.

In other generally centre-right leaning ridings, the BC Conservatives acted mostly as a spoiler, although, they were not the complete reason that helped the NDP in winning seats. In a couple of ridings that were typically safe BC Liberal seats, there were 4 parties that were pretty much in contention: NDP, Liberal, Green, and Conservative<sup>2</sup>. This 4-way split just so happened to barely give the wins to the NDP and contributed about 4 seats.

Another thing to point out is that I think this election showed that the BC Green Party doesn't 'steal' votes from only the BC NDP. Looking at some of the ridings, the big boost of BC Green candidates' votes could not have all come from left-leaning generally BC NDP voters, but also from right-leaning generally BC Liberal voters too. In fact, in a couple of traditionally BC Liberal ridings, this election saw the BC Green candidates come in second place rather than third after the BC NDP candidates.



Honestly, I'm thankful that this election campaign was short. I don't think I would have been able to endure even one more day of that one annoying BC Liberal Party ad they kept putting on Youtube. But, I am not here to talk about party policies or any of that. I am instead going to talk about my experience within the election. For the fourth election in a row, I decided to scrutineer the ballot count. It was at my local polling station, which was my elementary school's gym.

Honestly speaking, those people who seem to worry about the potential risk of ballot fraud are putting their worries in the wrong place. Those absentee and main-in ballots are probably more secure than ballots on election day in terms of procedure.

For me at least, having been on both sides of the ballot counting process a total of 4 times now, I'm quite familiar with the entire process, but the people that were hired as the poll workers on election day were probably all first time workers for an election. Granted, it was a snap election during a pandemic so they had to get whatever people were willing, but these people still had to go through training and I'm not sure a lot of people learned properly or remembered everything from the training.

Because of the pandemic, the parties pretty much only sent a single scrutineer per polling location, so where I went, I had to scrutineer 6 polls at the same time. For the most part, each polling station was all on their own separate paces, so each count thankfully started one after another. Thus began the usual process, and the 2 hours passed like a flash.

One weird and surprising thing that happened was that a few poll workers asked me for advice. Bruh, I'm here representing my candidate and party in the ballot counting process and you're asking to me what the next step is rather than to the EO? Maybe I'm a bit too overqualified. Then again, a lot of them did see me correct poll workers when they weren't following procedure correctly. One of them even re-read the instructions given to them, to then realize that I was right in correcting their errors.



Regardless of what happened during the election campaign, there was no doubt that the NDP would form a majority government. The only speculation was what the margin of victory would be. So the main focus is on who will be in the new cabinet.

It's safe to say that most, if not all, of the members of the cabinet before the election will keep their posts. However, as 7 cabinet members retired this election, Premier Horgan will have a lot of decision-making to do. There's no shortage of ministerial candidates though.

There are 3 former NDP MPs who were newly elected MLAs. Nathan Cullen, the former MP for Skeena-Bulkley Valley was elected as MLA for Stikine; Fin Donnelly, the former MP for Port Moody-Coquitlam, was elected as MLA for Coquitlam-Burke Mountain; and Murray Rankin, the former MP for Victoria, was elected as MLA for Oak Bay-Gordon Head.

Unlike the last election, when the BC NDP was basically shut out from up the Fraser Valley to the Interior save for 2 seats, this time Premier Horgan has a lot more MLAs from which to choose in those regions. That'll surely help in regional representation.

I watched the swearing-in ceremony for the MLAs live, as well as the swearing-in ceremony for the Executive Council where Premier Horgan announced the new cabinet. There was the typical cabinet reshuffle, but for the major Minister positions,

the previous Ministers kept their posts. Some of the former MPs unsurprisingly also got some cabinet positions. Seeing which MLAs ended up with which cabinet positions went as expected, but there was that one surprising moment (for me at least) where the Minister of Finance position went to Selina Robinson. It was also interesting to see that some MLAs were elevated from their previous Parliamentary Secretary or Minister of State positions to full Minister positions.

This time around, there's also no contention or disputes over which party's MLA will become Speaker. After the last general election in May 2017, the balance of power of the minority government literally relied on 1 or 2 seats, which is why both parties were in reluctance to sacrifice a voting MLA for that MLA to become a non-voting Speaker<sup>3</sup>. This is also why it was a surprise that BC Liberal MLA Darryl Plecas became Speaker<sup>4</sup>, as it helped the BC NDP form and keep their minority government.



This was an overall overview and recount of my experience of the 2020 BC general election. Compared to previous elections, I must say it was a bit on the tamer side. It certainly was no 2017 election; that one was much more wild and entertaining with plenty of political shenanigans all around.

boldblazer

1. A recount had to take place in West Vancouver-Sea to Sky, as the first-place BC Liberal candidate and second-place BC Green candidate were within  $\frac{1}{500}$  of the total votes cast.
2. In one riding, instead of the conservatives, there was an independent candidate instead.
3. Except for tie votes, the Speaker does not cast a vote.
4. He eventually was kicked out of the BC Liberal Party and declined to run again this election.

P.S. The cool part about this election for me is that someone I know now has a Wikipedia page about them made, because they became a newly elected MLA.

## THANK YOU TO mathNEWS

Hello,

I would like to use this opportunity to thank the editors for making **mathNEWS**. **mathNEWS** is the best thing ever, I love it so much. **mathNEWS** is the reason I have kept my sanity and happiness in these unprecedented times. **mathNEWS** editors and **mathNEWS** writers are the best people. <3 \*uwu happy **mathNEWS** writer sound nyah\*

*[Editor's Note: That last sentence isn't helping your case for why you shouldn't be banned from the **mathNEWS** Discord, you know.]*

Abald Man

## N THINGS I LOVE ABOUT mathNEWS

- The editors *[Editor's Note: Aww thanks man!]*
- The writers
- Finchey *[Finchey's Note: Thanks?]*
- The articles
- The art
- The cover art
- The poems
- The listicles
- The concept of a **gridWORD**, even though I never do it, because I tried once and it was too hard *[Editor's Note: You should still try it! Even incomplete submissions have a chance of winning a prize!]* (Author's note: bold of you to assume I can even manage an incomplete submission.) *[Editor's Note: Just do it, there's no harm!]*
- The pizza (I miss the pizza)
- The editors
- The pizza

Abald Man

## ON WHY REDDIT POST TITLES ARE NOT EDITABLE

What are titles after all, but tweets with a bunch of text under them? Since tweets aren't editable, so too aren't titles.

tendstofortytwo

### ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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# ON ADVICE

## PART 1: THE THESIS?

THESIS OF THE ARTICLE: I HAVE NEVER RECEIVED GOOD ADVICE FROM ANYONE AT ANY TIME.

Not quite true. Once in grade 11 I was complaining to my Japanese teacher about having to type in long filenames in the Linux command line, and then he was like, "Why don't you just press tab?" So, uh... Problem solved.

THESIS OF THE ARTICLE: I HAVE NEVER RECEIVED GOOD NON-TECHNICAL ADVICE FROM ANYONE AT ANY TIME.

So I've both given and received a *lot* of good technical advice. From "My code won't compile, help me" to "I can't boot my computer anymore" to "How do I solve this math problem" to even mechanical questions like "Every time I stir-fry broccoli it comes out limp and hard at the same time" (guess who was on the receiving end of that one). But are these really situations in which advice is given? What is advice, really?

LEMMA FOR THE ARTICLE: TECHNICAL ADVICE IS NOT REALLY ADVICE, ANYWAY.

They're advice in name, but more like tips 'n' tricks. They're instructions for solving a problem that can be solved with a skill. Even if I didn't give you any advice, I could make your code compile for you. I could fix your computer, and solve your math problem. You could just cook my broccoli. These aren't problems that would require you to possess my body and navigate my life for me to fix.

THESIS OF THE ARTICLE: I HAVE NEVER RECEIVED ADVICE THAT HELPED ME TO SOLVE A LONG-STANDING OR CHRONIC OR EMOTIONAL PROBLEM THAT WAS NOT FIXABLE WITH A MECHANICAL OR INTELLECTUAL SKILL, OR A TOOL DESIGNED TO FIX THAT EXACT PROBLEM.

My examples are numerous. In high school I had a big problem with sleep. I would wake up feeling like I wanted to die. I started receiving a barrage of advice to help me "sleep more" or "sleep better". I was instructed to: Use the bed(room) only for sleep and sex, put away all devices [0.5, 2] hours before bedtime, go to bed at the same time every day, wake up at the same time every day, take melatonin, not take melatonin, exercise more, exercise less?!, lie there doing nothing if I can't sleep, get up and do something if I can't sleep.

The main reason I wasn't sleeping? I didn't fucking want to. At roughly 10PM every night I would start feeling like I was staring into an endless void. Then I'd browse the internet or watch videos or something to feel better.

COROLLARY TO THE THESIS OF THE ARTICLE: I HAVE NEVER GIVEN ADVICE THAT HELPED SOMEONE ELSE TO SOLVE A LONG-STANDING OR CHRONIC OR EMOTIONAL PROBLEM (THAT...).

A friend came to me once with an issue. She was talking to this guy on Tinder, but after receiving a photo of him, she decided he was too ugly for her. She came to me, scared. She didn't want to talk to him anymore, but she was afraid to tell him. Since she was almost underage at the time, I told her to lie and tell him that her parents made her delete Tinder, then block him<sup>1</sup> (and implicitly, actually delete Tinder). Problem solved.

I based this off a real experience I had, where my parents actually did encourage me to stop talking to someone I met on the street, who was about eight years older than me and kept bothering me on Facebook. There were two differences though. One: I wrote an example message for her, in my writing style, and she sent it to him *verbatim*. Two: After my incident, I completely stopped talking to people older than me; therefore, I thought that after her scary incident, she would stop using Tinder. I was wrong. Not only did she keep talking to people on Tinder, but *she kept sending the message that I wrote for her to everyone that she didn't want to talk to*. Then after she told a coworker what she was doing, she came to me like, "My coworker said your message was rude and I'm being unfair to them, so your advice sucked."

COROLLARY TO THE THESIS OF THE ARTICLE: NO ONE HAS EVER GIVEN ADVICE TO SOMEONE ELSE TO HELP THEM SOLVE A (LONG-STANDING...).

Proof: Just use induction on the number of people or something.

## PART 2: SUBSETS

WHAT'S GOING ON HERE? WHAT'S FUNDAMENTALLY BROKEN ABOUT ADVICE-GIVING?

Let A and B be two people. WLOG, assume A has a (long-standing...) problem (that...) and assume A requests advice from B. Let's explore all the things that could go wrong.

PROBLEM: MOST ADVICE IS GIVEN IN MINUTES.

In the typical case, A has a minute to explain the problem to B. Not only that, B has about a minute to understand the problem and come up with a solution for it.

A: I'm so tired, I haven't been sleeping much lately.

B: Have you tried taking melatonin?

If B can come up with a solution in a minute, it's likely A has thought of it, too, and tried it before, or at least evaluated it in their current situation.

**PROBLEM: OUR ISSUES STEM FROM DIFFERENT, DEEP, PERSONAL EXPERIENCES AND INSECURITIES. BUT THE CONSEQUENCES THAT EMERGE OFTEN LOOK THE SAME.**

A: I'm so tired, I haven't been sleeping much lately.

B: Perhaps you should stop drinking so much bubble tea. It worked for me.

C: You should unfollow everyone on Instagram. Actually, delete the app. My life was so much better after I got rid of social media.

D: You just need to start doing your homework earlier. Then you can go to bed earlier.

In high school we were having a sleep pandemic. The primary culprit was screens. Social media. Video games. Truly, everyone was staying up too late on phones and computers. But also, why? Everyone already thought they knew why. FOMO, addiction, caffeine, procrastination; these are the reasons for some people. For some of these "some people", they easily solved the problem and started sleeping again. It was remarkable! They figured out a solution to a problem that was affecting lots and lots of people, and could share it with everyone else. But a real solution should attack the root of the issue, which isn't the part that everyone shares.

A: I need to fill the void in my bedroom that consumes me every night.

B: ...

C: ...

D: ...

In fact, when A asks for advice on how to solve a problem P that is implied by a root issue Q, what A really wants to know is how to solve Q. But P is the part that everyone can see, and the part that actually seems to affect A, so it seems like the part that needs to be solved. A might not even know about the existence of Q.

When my friend came to me about the Tinder guy she didn't like, I immediately connected it back to the experience I had with the guy I met on the street. Therefore, I just assumed that the problem was that she was a bit socially awkward like me and didn't know how to end a conversation, and that she'd soon realize that randomly chatting up strangers was not really a pleasant experience. But she went right back to it right afterwards. Why? Because she was horribly, horribly insecure and lonely.

**PROBLEM: "WHAT WOULD JESUS DO?"**

What would *you* do in my situation? The asker often asks. And even when the asker doesn't ask this, the answerer often perceives the question this way. It's a common way of phrasing a request for advice. However, I have come to realize it is an inherently meaningless question. The answer you get, however detailed, is completely irrelevant.

Do you have any goals? You might say you don't have any grand aspirations. You may not want to write a novel, or make a video game, or learn a new language. But assuredly, you do

have countless implicit goals (another word may be priorities) that govern your life, the things you do, and the choices you make, on both a day-to-day and long-term basis. It is easy to overlook these goals, or simply assume that everyone shares them.

My friend (the Tinder one) used to ask me for advice about interpersonal relationships. She would ask me things like "Is it weird to reply instantly to someone?" and "Is it rude to say this sort of thing to someone?" and "Why do people think I'm annoying?" and "How can I make people like me?". I used to answer these questions the way I would want them answered: "No, it doesn't matter"; "No, it doesn't matter"; "Stop caring about whether people think you're annoying"; "Stop caring about whether people like you". It's so simple! I mean, she phrased it like she wanted my opinion, and I gave her exactly that.

But, of course, it's not that simple. It took me years to understand this: My friendships with people were primarily formed as distractions, and I was absolutely indifferent as to whether my friends truly liked me or not. I had this goal about friendships all along. But she wanted to bond with people and form relationships she could trust and seek comfort in. She wanted to be proud of her social status. How can she just *not* care about whether or not she appears annoying? While I tried my best to avoid it at all costs, she wanted—*needed*—to obsess over questions like whether a friend of hers was 'manipulative' or 'toxic'.

When A asks what B would do, B can only respond with a solution optimized for B's particular goals. The solution may not be a fit for A's situation and goals. In fact, the solution may even be counterproductive to A's goals! Why, then, do people still ask questions phrased like, "What would *you* do?". And why do I still ask this? Our implicit goals and priorities, the values we assign to particular aspects of our lives, seem so natural. It feels as if all the world must operate this way. If I don't really think about it, I don't even see them.

**IT ALL HAS TO DO WITH NOT GETTING THE WHOLE PICTURE.**

Most of the time, when A asks for advice from B, there isn't enough time for B to get an understanding of what the problem is: B can't know the whole list of solutions that A has already tried or evaluated, the reason why A actually struggles with the problem, the implicit goals and priorities that A uses to navigate their life. In fact, in many cases, A doesn't even know these things either.

The only thing that B can do is imagine that B is the one with the problem, and come up with the most optimal solution... for B. Even if B has solved the problem before, *that is still a solution for B*. Coming up with a solution for A's problem requires that we understand A. Hard to do for anyone, even A themselves.

**PART 3: CONCLUSION**

I'm *not* going to give you advice on how to give and take advice. I recognize how ironic that would be. This is, however, the conclusion to my train of thought, and then some of my personal experiences with giving and taking advice.

**SHOULD WE STOP GIVING ADVICE?**

It sounds a lot like I think that all advice is useless and inherently flawed. Therefore we shouldn't give advice anymore? Not so. Take my sleep problem. By and large, it has been fixed. How, you ask? After hearing someone's advice... I started taking melatonin regularly. It makes me sleepy, so I don't feel as bad at night. I have to be grateful to the people who suggested that. Without their advice, I probably never would've heard of it<sup>2</sup>.

**THEN WHERE'S THE VALUE IN ADVICE?**

There are a lot of things in the world. A lot of problems, a lot of potential solutions, and a lot of thoughts to think about problems and solutions. I take the axiom that all problems have a solution, as it's a bit too depressing otherwise. Then, it all just comes down to both finding the solution and actually realizing that it is the solution. Much like a math question, advice *can* provide us with new information or get us to view our problems differently, inspiring or leading us down the right path to the solution.

**WHAT'S THE PROBLEM, THEN? WHY DID YOU EVEN WRITE THIS ARTICLE?**

Well, there's a bunch of caveats...

**PEOPLE ARE GOING TO TRY TO MAKE YOU FEEL BAD IF THEIR ADVICE DOESN'T WORK ON YOU.**

I am “incapable” of exercising. I'm not sure why this is so hard for people to understand, given that many people will claim they are “incapable” of doing mathematics. Of course I know it's not that they don't have the ability to understand calculations and abstractions; it's that they can't even attempt a math question without experiencing mental anguish. And yet, when I say that I do not, and currently cannot, exercise due to many mental blocks and deficiencies, I receive a barrage of information, always containing these facts: I will suffer a painful death by age 40; I will become better at math if I exercise; I will sleep better if I exercise; I need to start going on daily runs; I need to go to a gym; I need to try doing yoga; *if I cannot bring myself to exercise I am lazy, unfocused, undisciplined, lacking in willpower.*

I know I'm not any of that, but it does hurt. It hurts despite everything I know, despite knowing that all of this advice is useless and not at all tailored to someone like me and that I have no reason to follow it and that there is no reason to expect it would work on me.

**YOU MIGHT GET FRUSTRATED IF YOUR ADVICE DOESN'T WORK ON SOMEONE.**

Perhaps you have more patience than me, so this will never happen to you. But I'm a bit impatient, and it's hard for me to see someone struggling with a problem I'd long since solved. Of course, it is not actually true. I didn't solve that problem, only my problem, which appears on the outside to look the same but is in fact completely different. Looks are frustratingly deceiving.

**IT IS ALSO EXTREMELY FRUSTRATING TO REQUEST ADVICE AND CONTINUALLY RECEIVE IRRELEVANT OR USELESS ADVICE.**

You might even be frustrated to tears. But as we've discussed, this is just a fundamental part of how advice works. You might get so sick of receiving advice that you stop requesting it altogether. To be completely honest with you, I'm currently at this point in my life, although I don't expect I will be like this forever.

But it *is* hard, it *is* difficult, it *is* frustrating, and it is why you will see struggling people stop reaching out for help after a while.

**WHAT TO DO?**

Again, I am not going to tell you to *do* anything, because that would be hilariously ironic. This is what I'm doing.

When someone asks me for advice:

- I constantly remind myself that other people's problems are not nearly what they seem on the surface, no matter how trivial or simple it sounds. The problem is not the problem; it is why the problem is a problem.
- I try not to make someone feel belittled for my advice not working or not applying to their situation.

When I receive advice from someone:

- I try to recognize that the value of advice is for someone to throw information at me to consider, not for someone else to find a solution for me.
- I try to dig deeper into the root of my problem, so that we can have a better chance of attacking the right place.
- I try not to take advice like a personal insult (which is hard because sometimes it is meant as an insult).
- Sometimes I just reject advice if I don't feel like receiving any.

When I was younger, I often used to be told I was good at giving advice because I was so logical and rational. It took me a long, long time to realize why this was completely false.

1. So, I know this was a bad, awful thing to do to him. In my defense, I was in high school. And I thought it was only going to happen once. And I think if she did tell her parents, they actually would have made her delete Tinder. They also probably would have beat her, though.
2. I am not endorsing melatonin as a miracle hormone that will fix all sleep issues; hell, I think I've discussed plenty in this piece about why that obviously *isn't* the case; it only fixes *my* sleep issues. If you

are considering taking it based on this article, please first look up how a body can become dependent on it.

3. Some people are professional advice-givers, like doctors, therapists, and consultants. Due to the way that the advice-giving is set up in these situations, they do not suffer from the problems outlined in this article. Listen to your doctor or therapist or infosec consultant...

## DIALECTICS IV — SECOND-HAND ABSOLUTION

CONTINUED FROM LAST ISSUE'S DIALECTICS III.

SATURDAY, MARCH 27, 2021 — A RAINY EVENING IN WORDRESS AND SARAH'S HOME.

*The apartment door opens, and Sarah steps in, rain-soaked and downtrodden. At the sound, Wordress, curled up on the couch with knees drawn close, lifts her head. Sarah is about to begin lambasting the weather gods, but spots Wordress' expression and the steam dissipates. Wordress wears not her usual owlish visage — she wears that of a lamb. She looks terribly lost, and her wet eyes plead to Sarah for some sort of guidance.*

*She doesn't have to utter a word. Sarah throws off her soaked jacket and umbrella and rushes to the couch and wraps her arms around Wordress' huddled form and gently whispers, over and over, in her lilting accent, that ya, it will all be all right, and Wordress begins to sob and hugs Sarah back and the two stay just like that, for a long while.*

*They stay until Wordress' sobs turn to sniffles, her tears to streaks, and only then, does Sarah speak.*

**Sarah:** Wha' happen, Wordy? Wha' happen?

**Wordress:** *[Sniffing]* it's Camien...

**Sarah:** *[After a long pause]* Ya?

**Wordress:** He-he's not the person I thought he was. *[The tears begin again]*. He th-thought his past girlfriend was cheating on him even when she wasn't, and... and then... *[wiping away a tear]* cheated on her for-for revenge and... he told me all of it. It's terrible, Sarah. Camien's just terrible.

**Sarah:** *[After another pause]* Ya, Wordy... tha sounds awful a' Camien. He always sound so good when ya talk 'bout him earlier. Ya ask him ta a date, ya? Wha' he say to tha'?

**Wordress:** He-he said he'd be delighted to. But... then he told me, ugh, all of that. Why! I still can't think-no, *believe*, he's the same person I've been talking to this entire time. What... what do I do now, Sarah?

**Sarah:** Still like 'im, ya?

**Wordress:** I, *[sniff]* I think I still do. He's so cute — those green eyes, Sarah — and earnest, uh, except for that thing...

I'm scared, Sarah. I-I'm so scared he's going to hurt me just like he hurt those other girls... but he just makes me so happy...

**Sarah:** I na' like it Wordy, ya kno' how say: he once cheats, always cheats. Really smitten with 'im, ya? I na' see ya like someone so much before. 'Him like drug ta ya, I see ya always high afta' talkin' ta 'im. Bounce off walls, ya.

**Wordress:** I-I guess. What would you do, Sarah?

**Sarah:** Probably be ver', ver' careful. But ya think he betta person now?

**Wordress:** Maybe. Maybe he is. Maybe.. he isn't. I don't know, Sarah, I don't know! *[She claps her hands together]*

**Sarah:** I don' know eitha, Wordy. Why *did* he tell ya?

**Wordress:** Maybe, uh, he's a-a good person with a conscience and, um, he couldn't bare the thought of me not knowing?

**Sarah:** Good person an' do all tha thing he just told ya? Take careful, Wordy. Realllll careful. But I suppose it still betta than not tellin' ya.

**Wordress:** He-he's a person who reflects a lot... people can change.

**Sarah:** Maybe he want forgiveness. Maybe tha why he tell ya.

**Wordress:** For what, Sarah? He hasn't done anything to me.

**Sarah:** Imagine him view: done somethin' terrible, hurt his girl, bes' friend backstabbed him, all tha closes' people in tha world — all gone. He alone, na sure if he even deserve love from tha world. If ya choose him, Wordy, it tell him tha someone still can afta wha he don', tha the world forgivin' him, since Ellesmere probably sure ain't.

**Wordress:** Second-hand absolution?

**Sarah:** It up ta ya, Wordy.

# OF SUNSHINE AND HOPE AT THE ROCK GARDEN

SATURDAY, MAY 1, 2021 — THE ROCK GARDEN AT MC.

as i wait there, dragonflies flutter in  
my gut — they mirror the butterflies which  
dance through the canopy leaves untouched  
by students so bereaved of their sweet grounds.

i walk towards not a garden of rocks —  
a cold indulgence — a garden *for* rocks  
where birds and trees and people celebrate  
the cold life stone lives so they don't have to.

except for when they do: the pandemic,  
where we lived like rocks, unmoving people  
not free to move where we will — wait: corner  
of my eye, i see movement; it's Wordress.

Camien — i see him standing as i  
walk beneath the veranda — is waiting,  
a small bouquet of white roses nestled  
within the warm gentle folds of his hands.

she looks resplendent in the sunlit breeze,  
she wears a knitted azure sweater which  
i have never once seen her wear before —  
it sings with the blue flower in her hair.

he looks with a plaintive joy at the day;  
he wears a maroon silk shirt, his favourite —  
fine finery for fine springtime weather,  
we dance of fashion unseen for so long.

there are things i have told her i've done,  
things that would rightly make foes of lovers,  
things i spent a thousand minutes wishing  
i hadn't for each minute i did it.

things that he has done weigh on my mind as  
i walk forth and he passes the flowers  
i breathe deep, sweet succulence, forgetting  
all of my doubts; here now is Camien.

she suddenly steps forth and pulls me close.

i hug him hard, and then his lips are on mine.

it is sensual, raw, passionate —

it is everything i haven't felt  
in the months i haven't seen him —

it is everything i doubted  
the future could hold —

and as one  
we stand there  
in the sunshine, filled with  
bright, beautiful,  
Hope.

CC

## AN ARTICLE FOR mathNEWS WRITERS TO USE IF AN INTERVIEWER ASKS FOR MORE INFORMATION ABOUT THE mathNEWS BULLET POINT ON THEIR RESUME

So, you're in a tough situation: you put **mathNEWS** in the bottom corner of your copy-pasted AltaCV template resume 6 months ago, completely forgot about it, and then just as the interview is ending and you were hoping to walk out leaving a smooth and collected impression, your interviewer brings it up, delighted at the possibility of a well-rounded applicant. And for the first time, you cringe at the name of your beloved bastion of erudite thought.

Obviously, you can't show a potential employer the garbage dump that we pretend is a well respected student publication for the purposes of putting more impressive extracurriculars on our CV, since it is just obscure enough to serve its purpose without any further questions asked if the description is short enough. That's where this article comes in. Instead of blanking and anxiously diverting the conversation away with a series of weak excuses, don't sweat! You merely need pull up this issue and quickly scroll through to find this article. You can then

show the interviewer that you are, in fact, a talented individual capable of writing about complex, abstract ideas. It'd be ironic if that happened to me, and I were showing my interviewer this article as a genuine demonstration of my abilities, only for them to not believe me.

I do promise that I'm being genuine, though. I wrote this! Please give me the benefit of the doubt, dear interviewer. But now, here's the thing...any writer can now take credit for this article. Which makes the credit even less believable. But I did write it — someone had to! Why won't you believe me? Are you calling me a liar?! How dare you. I demand proper credit for the authorship of this article. And yet there's still a seed of doubt in your mind, is there not? I could be lying. But I'm not!

What a horrible article idea.

A cool pen name



## SHORT STORIES

Over the last term, I've written a series of short stories set in UWaterloo. It's nostalgia, it's lighthearted, it's my first foray into writing fiction:

- 143.6 — [Bastion of Erudite Affection: mathNEWS as a Dating Site](#)
- 144.0 — [Arriving at Waterloo, in a Gentler Time](#)
- 144.1 — [The Brilliant Name](#)
- 144.2 — [SE's Secret Laboratory I](#)
- 144.3 — [SE's Secret Laboratory II](#)
- 144.3 — [Dialectics](#)
- 144.4 — [Dialectics II — Something to Tell You](#)
- 144.4 — [Mellifluous Halls](#)
- 144.5 — [Dialectics III — On That Tragic Day](#)
- 144.6 — [Fan Service](#)
- 144.6 — [Dialectics IV — Second-Hand Absolution](#)
- 144.6 — [Of Sunshine and Hope at the Rock Garden](#)

I think I've come to a realization of why I wrote these stories. When I wrote the first of Wordress and Camien, I thought I liked writing it because fiction was just more interesting to write. Looking back, I don't think that was all of it.

I think the stories aren't so much creative expression or writing practice as a night light. A comfort blanket. A lullaby. I realized I've not been handling isolation in this pandemic as well as I thought.

I deceived myself: whenever a friend asked me how I was, I usually said I was doing well. And it was true, when I talked with them — talking with friends is a highlight.

Between the highlights were long valleys of grey. It was hard to accept things weren't going too well, and I feel terribly vulnerable when I write it out like so:

One: I'm exhausted by the monotony. The days feel like they're missing some spark that left with the start of lockdown.

A two: I feel guilty for feeling bad. By objective, material measures, I'm doing stellar. By writing this, am I attention-seeking? Making others sad?

And three: I'm a little lonely for romantic love. I learned that, try as you might, you can't write love into existence. Whatever that's supposed to mean. Don't you worry — I'll find someone.

When I thought up the stories, it was like dreaming a good dream. And if I could capture them in material words, on corporeal paper? Maybe it would let me hold that bit of hope a little closer.

Sometimes, though not too often, I wonder if these stories are just the by-product of an unusual method of self-medication. I hope they're more than that; I hope that you've found something in them to take with you too.

In the end, I'm glad I wrote them, and I'm glad **mathNEWS** has given me a platform to write them. I'm grateful for everyone who makes it happen every issue.

I'll end by thanking those who gave me encouragement to keep writing — every word helped more than you could have imagined.

And lastly, thanking you, my dear reader, for lending me a spot of your time.

CC

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## TRYING TO TYPE THE ALPHABET WITH THE HOME ROW METHOD BUT EVERY TIME I GET A CHARACTER WRONG I HIT ENTER AND START OVER

abcdefghijklmnopqrstuvwxy

OF COURSE I [redacted] GET IT THE FIRST TIME I TRY TO SHITPOST ON **mathNEWS** you guys gotta believe me I have been trying this for *ages* on the URL bar and I messed up every single time.

tendstofortytwo

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## profQUOTES 144.6

CS 245E: PRABHAKAR RAGDE

“ If we'd had in-person lectures, you would know by now that I am incapable of doing simple arithmetic without making a mistake.

CS 246E: BRAD LUSHMAN

“ A square is a multiple of 7, and 10000 is a rectangle.

STAT 331: SAMUEL WONG

“ I guess RStudio doesn't really like me.

MATHSOC GAMES NIGHT: DAVE TOMPKINS

“ I am answering piazza questions right now, that's fucking homework.

# FALLING ASLEEP AFTER LANDING ON A RAINY AUTUMN ONTARIO

It's a 60-dollar ride from the airport, and you've pre-paid the tip this time, and the driver is adjusting the knobs and looking kind of tentative about the volume but given that you remember none of what played afterwards he must have quite some skill in the procedure. The window is the kind with the dots that show a logo on the outside and you look through them.

Both of you are trying to fit your heads into any sort of crevice or supportive cushion you can reach. You feel just about to topple over, and you sort of do, but all the fogginess in your head has vanished in the meantime. What you manage to comprehend feels somehow incredibly clear. The bumps and rolls of the highway, the waving clumps of trees. An indeterminate car-hum. No sign of movement from the other passenger.

Sometimes the window reflection lets you see her; it disturbs you to look. It's a human being, right there up next to you, and you can see, like, her collarbones and neck tendons and fingernails and stuff. You wonder to yourself how many times before have I just stared (via reflection) at a stranger for this long. Maybe one day I'll ask her the same question, years from now us mutually reminiscing about this stupid plane-shuttle ride that was the beginning of pretty much everything, and you throw that thought into the locker where you hope it'll get garbage-collected sooner rather than later.



To you, a small hope sits in an empty airplane seat. The possibility of a person. It's very quiet; you feel its subtle weight. The person who comes and sits in that space will probably crush your hope, but it's used to it. Still it is there, for that little time.

This time, she was there, wearing a faculty hoodie and everything. What sort of person buys a hoodie before setting foot in the university you also never imagined finding out.

(And don't even think about why she's STILL here, after the carousel, down that artery of that godforsaken airport<sup>1</sup>, on the opposite seat right now, okay? There's an equivalent 'small hope' for these little van rides that you're sure you don't have to elaborate on, and, well, uh...)



You study at the University of Waterloo. You study Computer Science under the Faculty of Mathematics. The person next to you is entering her first year, just Mathematics for now, but is interested in Pure Math, or maybe Combinatorics and Optimization. She was one of those highschoolers who took a huge head start on immersing into Waterloo culture. She's a fan of that really long multi-part first-year experience

recountation story by George Kennebunkport (as everyone is); you both don't get **profQUOTES**.

"They should keep the good ones, but these people have some interesting standards. I'd rather read those **BLACK BOXES** if they need to fill space."

"I think the, um, appeal is in the context. If you were in that class when the professor said that line you'd find it funny reading it again, it's like re-experiencing the funny thing that happened, and it's also

a sort of \*shared experience\* that makes you feel good, 'cause you share the enjoyment of the funny thing with your peers by all of you reading it"

"Yeah, I get that for the good ones, but for a lot of these"

she points at one

"why was the original experience even funny in the first place?"

To this you had no answer, at least not then. The trolley came by and you got an orange juice and she got a ginger ale. She only drinks ginger ale on airplanes, and trying to drink it on the ground nauseates her. You will remember this.



Tired, now. Your adrenaline has worn off, since then. You're looking straight through the dots, out at the foggy Ontario flatness. You're leaning on your seatbelt and letting the past roll through you over and over. Somehow, you manage again to be sad.

It had always felt inevitable to you that you would end up how you are now. You had a girlfriend once, a level person, the sort of person who you'd like to imagine as "normal", but really no normal person would hold on to your hand out of their volition and then let go as gracefully as they had, once they realize how feeble your own grip was. The whole thing didn't even sting that bad. It was more like it un-buried something that you already knew was there.

You turn your head and look at her, "for real", as in no reflections or anything. You watch the creases of her coat crinkle and shift up and down. Definitely asleep. You stop looking, embarrassed and somehow ashamed. You hear the dampened pattering of rain; underneath, a quiet rhythmic breathing.

It feels like someone put in an awful lot of effort for you today. You think of some God or other watchful creature, someone marking things down and pulling switches. You imagine passing them standing among the sparse tall trees, listening

to you and the rain. Today they're here, and probably after you get off you — all three of you — will part ways forever. You apologize to them, quietly. Sorry, whoever you are. This probably isn't what you had in mind when

“hey.”

you have to nudge her a bit

“Hey. We've stopped. Are you awake? We've stopped.”



“Thank you, I'd appreciate that. I have a map of the school as well, if you want it...”

“Haha, of course, you already know the way.”



You pass the remaining luggage handle. You manage a strained wave. She makes a face — a smile, probably. You look at the puddles until her back disappears into the building.



“Yeah, I remember you. Why do you ask?”

“Okay, whatever. Hmm...”

“Ah, a ginger ale. I'm pretty sure you had a ginger ale.”



I eventually turned around on **profQUOTES**. Turns out, they do get better if you hear them in real life first.

*girafarig*

1. In the end, Pearson somehow became more familiar and comforting than YVR after enough trips. There is hope in those tunnels, in that maze of highways, on that giant overhead travelers'-credit-card advertisement display; it welcomes you, in some sense.

# N FUNNY SOUNDING MATH TERMINOLOGIES YOU MIGHT COME ACROSS IN YOUR WATERLOO MATH CAREER

- Slutsky's Theorem (STAT 330)
- Lipschitz Continuity (CO 367)
- Wiener Process (STAT 433)
- Ear Decomposition (CO 442)

All I'm saying is, why choose courses that you need to take to graduate when you can choose courses with funny names that will make your inner 8 year old laugh?

*royal no.69 milk tea*

## POCKETS

Pockets: men's clothing has them, women's clothing doesn't. This symptom of the patriarchy forces women to spend money on purses to hold their valuables instead of putting them in pockets.

True story: I once fit an entire umbrella in my pocket.

*Abald Man*

## STUDENT CAN'T WAIT UNTIL SCHOOL OVER SO HE CAN MISS SCHOOL AGAIN



UW Unprint

# MY PROPOSAL FOR THE OLYMPICS THAT WILL NEVER BE CONSIDERED BY THE IOC

We all know that due to the [CURRENTLY ONGOING WORLDWIDE EVENT], the Olympic and Paralympic Games that were due to be played in the Summer of 2020 in Tokyo were postponed by a year<sup>1</sup>, notwithstanding anymore potential postponements. Obviously, this rescheduling was the least the International Olympic Committee (IOC) could do, as there had already been talks of countries not sending their athletes over if it were to be held in Summer 2020, as well as the fact that Olympic qualifying events themselves for many sports were postponed or cancelled, and for other obvious reasons. As things stand now, the IOC is not looking to change their decision that the Olympic Games will continue on as scheduled for 2021. I see a problem with that. I think that these Olympic and Paralympic Games should just be pushed back by one olympiad<sup>2</sup> to 2024 instead.

Firstly, a problem would need to be addressed in that Paris and LA were awarded the 2024 and 2028 Olympic Games, respectively. They would obviously also need to be pushed back by 4 years as well, and I don't see it being a big hassle for the IOC and these cities to negotiate this change. It may even become a bit of a silver lining for these cities as it gives them 4 more years to build whatever is planned. Far too often do we see cities rush and struggle to complete sporting infrastructure before the start of the Olympics, making truly bad decisions just to get things finished on time. Also, considering how often the French go on strike, Paris might need that time.

Next is that the push to 2024 gives ample time for the sporting world (as well as the non-sporting world) to return to normalcy. The entire sporting world runs mostly on a yearly cycle, with another 4 year cycle on top of that for sports that are in the Olympics. Alongside the Olympics itself, pretty much every single sport was impacted and had just about every scheduled competition postponed or cancelled, including qualifying events to the Olympics. Sure, you could just nominate individual athletes or country teams to the Olympics directly, but that process feels more arbitrary than


teams or athletes competing at qualifying events and earning their place at the Olympics based on skill. Another couple years to 2024 gives time to restore the sporting calendar, and also gives plenty of time within the annual sporting calendar to schedule Olympic qualifying events. The extra years are especially needed for bigger and busier sports such as soccer/football.

Soccer/football is already well-established worldwide with international, continental, and national competitions, including plenty of qualifying competitions for those. There are also already plenty of postponed events just like the Olympics, such as the 2020 Euros, the 2020 Copa America, the 2020 and 2021 FIFA Club World Cups, and multiple qualifying matches for the 2022 FIFA World Cup. As well as needing to fit all those international competitions, keeping in mind the local national sporting calendars, there's the Olympic qualifying events that need to also fit in. This isn't limited to soccer/football; many other sports have the same issue of compounding postponed events that need rescheduling.

The compounding rescheduling issue is not just limited to summer Olympics sports. The next Winter Olympics are scheduled for February 2022, barely a year away, and only 6 months after the currently scheduled end of the Tokyo Olympic Games. I don't see that as enough time for the winter sports to return to normalcy as well. For example, curling is a winter Olympics sport, but because the sporting world keeps in mind the 4 year cycle around the Olympics, this sport has Olympic qualifying events in the years before each winter Olympics, including in 2020. However, those competitions scheduled for 2020, a third of the total qualifying competitions, were cancelled. Also, pushing back the winter Olympic Games would help alleviate the backlog in the winter Olympics sports' sporting calendars too. This would also push back the 2026 Olympics in Milan-Cortina as well.

I can't predict what 2021 will be like. Maybe those vaccines and the subsequent roll out will be done well and this entire thing becomes history, but with what the past year has presented to me, I doubt that what the optimist predicts will be what becomes true. I don't see there being enough time between now and the scheduled start of the Olympics for everything to be sorted out. This is why I don't see the rescheduling of the Olympic and Paralympic Games being rescheduled for the summer of 2021 being a good idea. The final decision is not up to me, however, and everything remains up to the IOC.

**boldblazer**

**mathNEWS is love,  
mathNEWS is life,  
I would like to have,  
mathNEWS as my wife,  
And in our bond,  
There'd be no strife** 

A LOVESICK mathNEWS EDITOR

1. Technically, it was 364 days to keep the days of the week remaining consistent.
2. The olympiad is a period of 4 years that starts at the beginning of each summer Olympic Games. This is why each summer Olympics are referred as the Games of the Nth Olympiad.

# HOW TO CRY IN PUBLIC

## PREFACE

The title for this article came from the Markov-chain “idea-bot” on the **mathNEWS** Discord, so here's me giving credit where it's due. Although, I will note that the “to Cry in Public” part of the title came from one of my old articles, either [A List of the Best and Worst Places in Waterloo to Cry in Public](#) from 139.5 or [A List of the Best and Worst Places in Toronto to Cry in Public](#) from 140.4. I guess you could say that I am uniquely equipped to author the body for this article. Think of this piece as a spin-off, a companion, to the original dyad. Without further ado...

## HOW TO CRY IN PUBLIC, IN 4 SIMPLE STEPS

### 1. TRY NOT TO CRY.

Okay, this point sounds kind of like abstinence-only education, but I gotta be honest with you, crying in the privacy of your own home is way more preferable than crying in public. Like, obviously, right? So if you feel the sadness and despair encroaching on you on the public transit ride home, make some effort for your dignity and try the following methods to rein the tears back til you arrive at your destination:

- Press your tongue to the roof of your mouth.
- Pinch yourself to provide a physical distraction.
- Mentally distract yourself by trying to name every single Robot Master in the Classic Mega Man series. If you are able to accomplish this feat, for a bonus, try naming them in order by game, and then in order by serial number.

### 2. KEEP COOL.

So Step 1 didn't work. Your eyes have gotten wet and maybe even a single, solitary tear has run down your cheek. You're on the apex of the log ride of Salty Seas, and you know it's all going downhill from here. You're going to cry. However, it doesn't mean you have to make a spectacle. Make an effort to keep up regular breathing—when we cry, we can forget to breathe, which leads to gasping, A.K.A. sobbing. At this point, don't try to stop your tears from coming out. Hopefully you have a pack of tissues on your person to wipe your tears and snot with. If you don't? Well, tough luck. I really hope you have those tissues on you. Lastly, don't forget the classic trick that is sunglasses! They're fantastic for hiding bloodshot eyes, whether if it's because you're crying, hungover, high, or just very tired.

### 3. LET IT ALL OUT.

This point may sound like it contradicts the last two, but let me give a chance to explain myself. In general, suppressing your feelings and trying to cry quietly and discreetly doesn't *feel* very good. But sometimes, it's what the situation calls for. For one — not to be cynical or anything—you never want

to cry in front of your coworkers or your boss. Even in the best case scenario, you'll probably will have to apologize to everyone afterwards, and awkwardly explain yourself. My God, I'm getting secondhand sheepishness just thinking about it. No shame if you've cried at work before, but if you have, you probably know what a terrible ordeal it was.

But, say, if you're in some area like a park or an alleyway or a train station where everyone around you is a stranger and can quickly/easily avoid you, and there's no way for you to hold back your tears, then feel free to really lean into a nice, cathartic, ugly cry. Howl, weep, blubber, I don't care. Make it messy. Make it dramatic. Transform yourself into an exhibitionist. Become art. The goal here is to have an onlooker be so existentially distraught by your banshee wailing that it haunts them for the next week and leads them to write a Reddit post about the experience and what it says about the state of our Society™. You can only hope they're a decent enough writer to net an award or two.

### 4. DEALING WITH PEOPLE WHO WANT TO HELP.

Sometimes, when you're crying in public, people will come up to you and try to help or comfort you. Whether this a welcome gesture or your worst nightmare highly depends on who you and the other person are. In general though:

- If the other person is a friend, allow them to help.
- If the other person is a drunk college-aged girl, allow them to help.
- If the other person is the coworker who spread gossip about you in the lunch room, do not allow them to help.
- If the other person is a 6-year-old child, allow them to help.
- If the other person is in a Barney the Dinosaur costume, and your star sign is either Cancer, Scorpio, or Pisces, under **no** circumstances should you allow them to help.

Finchey

**Solely to provoke an argument, I will say that I don't believe in infinite sets — they are merely convenient fictions.**

PROF. DAVID WAGNER

**DID YOU KNOW THAT YOU CAN HAVE REALLY LONG HEADLINES IN mathNEWS? I SAY 50/50 terrified CENSORS ME AND DOESN'T PUBLISH THIS ARTICLE. IF I KEEP GOING LONG ENOUGH, I WONDER IF IT WILL BE A FULL PAGE. WILL IT MESS UP INDESIGN IF MY HEADLINE IS SO LONG IT NEEDS A PAGE BREAK IN THE MIDDLE OF IT? IT'S SO FUN TO BUG TEST mathNEWS BY SUBMITTING WEIRD STUFF AND CAUSING THE EDITORS HEADACHES. IT'S OKAY THOUGH, WE'RE ALL FRIENDS. WE ARE ALL BEST FRIENDS! WE ARE ALL BEST FRIENDS! I MISS ORIENTATION 😞. I UNIRONICALLY ENJOYED LEARNING THE MATH DANCE. I ALSO LIKE MC, I THINK IT'S INTERESTING ARCHITECTURE AND ONCE YOU GET TO THE THIRD**

**FLOOR NOT SUFFOCATING AT ALL. THANKS FOR COMING TO MY TED TALK.**

Abald Man

[terrified: I might not censor you today, but now I really want to ban you from the Discord.]

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## THE ANCIENT GOD?

The editor George. He once appeared to me in a dream before I ever met him because of all the legends that had reached my subconscious. In my dream he was a god. Or Jesus. One of those.

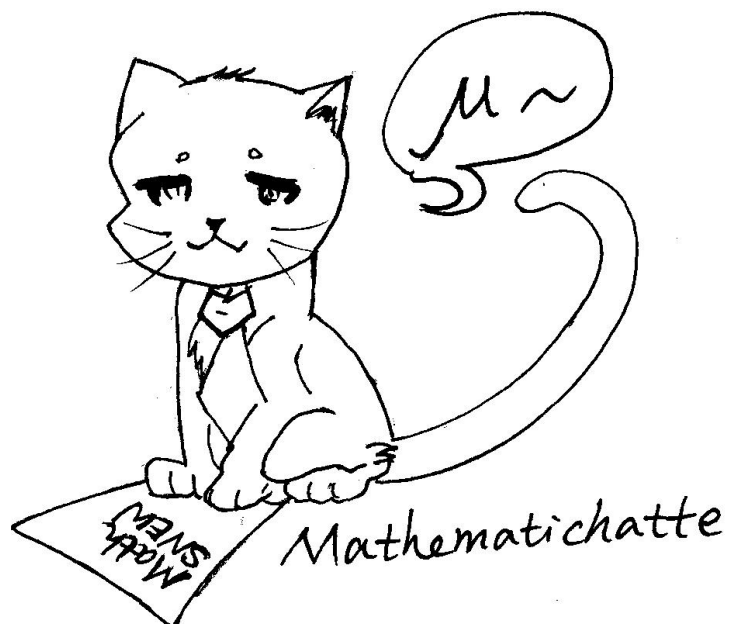
Abald Man

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**I HEARD PEOPLE WERE BUG-TESTING mathNEWS SO "; DROP TABLE EDITORS;--**

`<script>alert("Hello World!");</script>`

tendstofortytwo



# HAPPY HOLIDAYS AND GOOD LUCK

## gridCOMMENT 144.6

Happy Holidays! The semester is nearing an end; we just have to make it through exams. Although the holidays may be a little subdued this year, hopefully everyone can get a well-deserved break after this chaotic term. Here's hoping that the next year is a calm one.

Sadly, I received no submissions to last issue's crossword, and thus have no **gridQUESTION** responses to share. It is understandably a very busy time of year.

As a short study break while preparing for upcoming exams, here's Richard Bilson's crossword from volume 78 issue 7,

published on December 4, 1998. Hopefully it will provide you with a bit of holiday cheer. I've had a great time making crosswords this term; I hope some of you have enjoyed them. Although there's no need to submit solutions to this rerun, I'll leave you with the following **gridQUESTION** for the end of term:

Where should a snowman go on vacation?

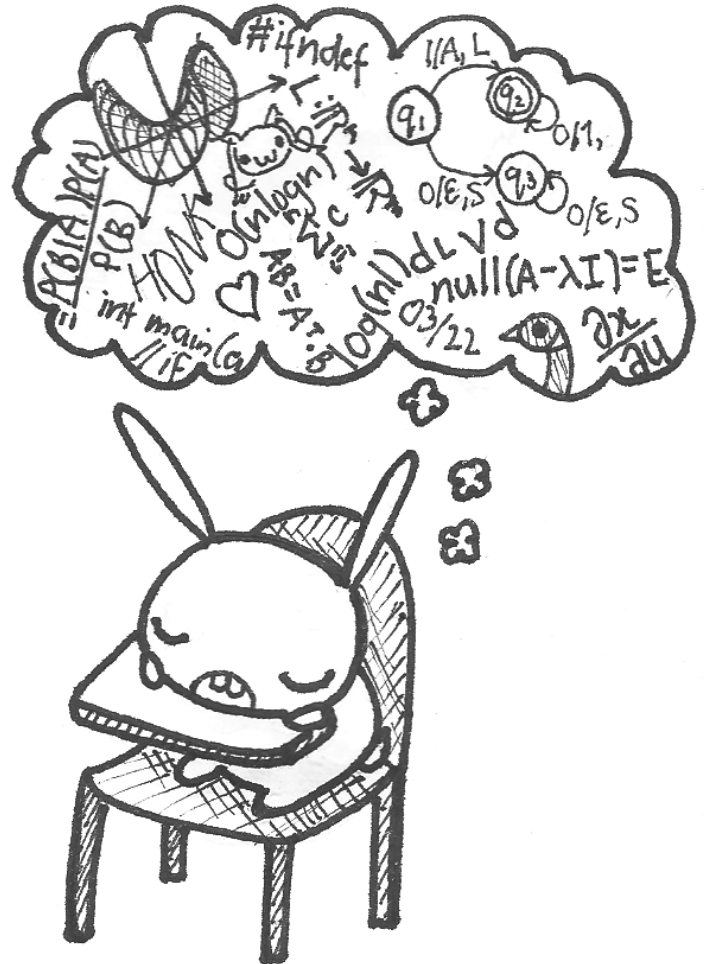
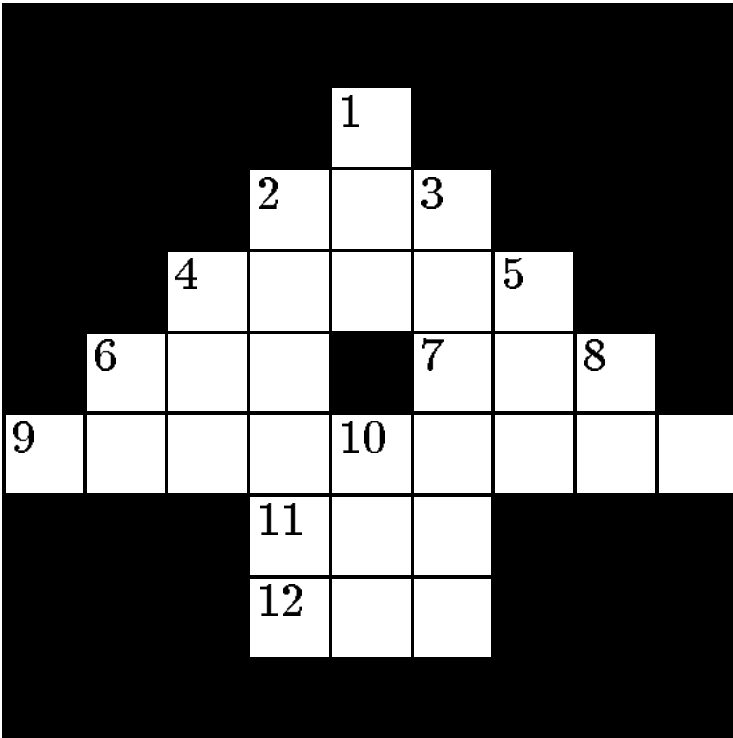
Cloak and Vorpal Dagger

**ACROSS**

- 2. Not me
- 4. St. Nick
- 6. Mafia kingpin
- 7. Eggs
- 9. Aid for correcting typing errors
- 11. Pharmaceutical multinational Lilly
- 12. Pitcher's statistic (abbr.)

**DOWN**

- 1. Attained victory
- 2. American
- 3. Location of perfection
- 4. Society (abbr.)
- 5. Actress Gardner
- 6. Russian assent
- 8. Kind of electricity
- 10. Type of camera



Can you hear the Mariah Carey? 'Cause I can hear the Mariah Carey.

