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## “WHAT'S YOUR FAVOURITE ITEM AT THE MATH CnD?”

It's been just two weeks since the release of the last issue, but our world has changed in a fundamental way. More specifically: the Math CnD reopened last Monday. It happened quietly, with little fanfare, but don't be mistaken—life in the Math Faculty will never be the same.<sup>1</sup> I invite all of you readers who are within a day's travel of MC to come visit so you can answer the **mastHEAD** question for yourselves: What's *your* favorite item at the Math CnD?<sup>2</sup>

I didn't take much advantage of the CnD in first-year. Back then, I typically headed back to my residence or the SLC, because meal plan dollars could not (and still cannot) be spent at the CnD (why is this, MathSoc/UW Food Services??). These days, I spend much more time on the third floor of MC, seconds away from the CnD. It's become a fixture of my life: I have not gotten food at the SLC once in the past two weeks. I've heard the same from others.

Right—I should probably introduce myself. I'm distractED, the newest **mathNEWS** editor! So far, it's been a thrill to witness the behind-the-scenes of the creation of issues. There's plenty still for me to learn but I'm excited for months, maybe terms of converting raw, pizza anticipation-fueled writings into the publication of *repute* you consume every two weeks.

In this issue, we have:

- some meta content ([mathNEWS Appreciation Post](#), [This mathNEWS Article Reads You](#), and [Do Not Publish This Article](#)—all in the space of two pages)
- the return of **horrorSCOPES!**
- the story of one student's protracted battle with **CECA CEE**
- almost *three-and-a-half pages* of **profQUOTES**
- and much, much more

Hope you enjoy the issue—and for all our readers currently on a study term, here's hoping you have a restful reading week!

distractED  
Editor, **mathNEWS**

1. Until the next CnD renovation
2. Sipping on some CnD tea as I write this :)

PTKYR		bananas
CREATURE_F		they say the milk and cream is only for coffee and tea customers but there is no such limitation on the free packs of sugar
DICK SMITHERS		The girl reading this
UW UNPRINT		Mac and cheese and coffee. Trust me on this one.
XX_420SONICFAN69_XX		The new paint
SOMEBODY		The friends we made along the way
PLATYPUSGOD		Warm garlic bread and cheese
TOKYOCATBOY		The tissues
MOLASSES		breadbreadbreadbreadbreadbreadbread
__INIT__		The balcony. Best spot on campus
GOLDEN		Keep this under wraps, but I've heard that the garlic sticks started going out with Mac n Cheese
YUMMYPI		the only thing I tried was the beef burrito (too much rice, not enough beef, sadly)
TENDSTOFORTYTWO		{ d : d is a daily special, d ≠ mac and cheese }
LOOP		Free quarter-dollar crackers that come with the soups.
BOLDBLAZER		idk, I've never bought anything from there before
PREDAP		The garlic cheese bread!
JEFF		The crumbs left at the end of the day after all the donuts are gone
METHNEWS		Regret that you graduated before the C&D reopened, now for only \$5.50
NOT A N*RD		Things from other people's backpacks
FINCHEY		Everything in the Math CnD is blessed. And to think I'd never live to see the day...
BLINCHIK		apparently it's often "doughnut" in the uk
TERRIFIED		The tea, of course.
DISTRACTED		\$1.00 tea, any size
CLARIFIED		The samosas. How can you beat that price?

## ARTICLE OF THE ISSUE

And the article of the issue goes to We've always done it this way... even before COVID! by John S. Street. Congrats! You can get your \$25 Conestoga Mall gift card at the **mathNEWS** office.

clarified  
Editor, **mathNEWS**

# No crinkle-cut fries for me.

DANIEL MATLIN, **mathNEWS** EDITOR FOR FALL 2022  
ALONG WITH TERRY CHEN, RYAN CHOW, NICHOLAS PRIEBE, AND CLARA XI

# MATHSOC SEZ

Hey folks—it's reading week, and you know what that means. Exactly: a whole week to read the latest issue of **mathNEWS**, the best University of Waterloo Faculty of Mathematics student publication on Earth. It also means (slightly less than) a week to read this particular article, wherein we tell you things that MathSoc is doing from which you stand to benefit, or for which you can volunteer your precious time. Well, let's see what's in store for this week:

## CND IS OPEN!

After several gruelling years of renovations, the Math Coffee & Donut Shop is open! We're on the 3<sup>rd</sup> floor of MC with a selection of hot soup and entrees, patties, samosas and, of course, coffee and donuts. Our daily specials can be found on our website: <https://mathsoc.uwaterloo.ca/mathcnd/>.

## GAME NIGHTS ARE BACK!

A relic returns from the days of infectious disease not being as enormous of a concern. Come down to the Math CnD every Thursday from 7:30 to 9:30 pm to enjoy a selection of board games from the MathSoc office and an evening of fun! Anyone in Math is welcome — there'll also be free snacks!

## MATH STUDIES CLUB

Are you a student in Math Studies or an undeclared honours Math student? MathSoc is looking to create a club for all of you — the Math Studies Club! Let us know what your thoughts are and if you'd like to be part of the first-ever Math Studies Club Executive Team!

You can find the form on our linktree (<https://linktr.ee/mathsocuw>) under "Math Studies Club."

## MATH GRAD BALL

Are you graduating in 2023? Want the Math Grad Ball to be the best it can be? Well, you're the only one who can make sure that happens. MathSoc is looking for a Chair for the Math Graduation Committee! As Chair, you'll be helping to coordinate and organise the Math Grad Ball, selecting valedictorians and selecting the recipient of the J. Alan George Award. The form is also on our linktree (<https://linktr.ee/mathsocuw>) under "Grad Ball Chair Application."

Full list of responsibilities:

- Selecting valedictorians and the J. Alan George Award recipient.
- Planning and executing Math Graduation Ball.
- Working with faculty event director on composites organisation.
- Answering *so* many student questions.

You must be a 4<sup>th</sup> year student in the 2022–2023 (Fall, Winter, or possibly Spring) school year, be a voting and social member

of the Society, and be graduating in the Fall, Winter term and/or Spring term to be eligible.

## PREZ SEZ

There is no Prez Sez this issue. Alas, the Prez has Sez'd everything that needed to be said in the last issue. Have a fun and relaxing reading week folks!

*The MathSoc Executive Team*

# PMAMC&O CLUB UPDATE #2

Hey folks! I'm back, and this week, I have a couple exciting announcements. First of all, after the clubs day fair, PMC officially has over 100 paying members (115 right now!). We used this to get a lovely amount of funding from MathSoc council, which means we will be able to run 4 prof talks with snacks, 2 SASMS with dinner, and a big end of term. Details haven't been finalized yet for our EOT,

On Thursday, Sept 29, we had our first in person event of the term, the applied math prof talk! There were cookies, chips, and pop, and Prof. Brian Ingalls gave us a bunch of cool information about biology, and the associated mathematical modelling. Don't worry if you missed it though—we'll be hosting at least 2 more later this term.

In terms of our upcoming events, we plan on hosting SASMS (Short Attention Span Math Seminars) the week after reading week. For those of you who haven't yet experienced a SASMS, 4 students give short-ish talks (30 mins each) on some area of interest, with a dinner break halfway through. We'll send out an announcement today or tomorrow asking for speakers, and announce the day and time sometime around the start of reading week.

In other big news, our fridge is restocked with pop, and we're selling coffee pods from the Adam Jelinsky Memorial Nespresso Machine.

I hope you all have a great reading week, and I hope to see you around PMC.

*Nicky (PMC President)*

**Donuts are not people.**

**PROF. MICHAEL WALLACE**

# WE'VE ALWAYS DONE IT THIS WAY... EVEN BEFORE COVID!

Your roommates are noisy, and the library's quiet study rooms are hopelessly booked up, where oh where will you do your interviews? Aha, you say to yourself, the University of Waterloo's renowned CEEHub™ has quiet rooms!

You quickly go to WaterlooWorks and submit a form requesting a room to do your interview. Your interview is in 3 days, surely you'll hear back before then. You check your email every day, but nothing from CEEHub™. The days slip away. Today's your interview. You open up WaterlooWorks to double-check that you did indeed submit a form, only to discover that quietly the hard workers at CEEHub™ have approved your request and you have a room!

You rejoice, this journey has come to an end, and you have a quiet peaceful room to do your interview in. You waltz along the cobbled streets of campus as you approach the handsome, modern-looking headquarters of CEEHub™—the Tatham Centre. The interiors are luxurious, you can't help but get your hopes up about the interview room. You salivate as you imagine a nice room with a big window and a big white table. You wander up the stairs to the "Call Centres" on the second floor, enjoying the daydream. You find your way to 2212 where you'll be having your interview....

The rooms are awfully close together, tiny booths, but that's fine, you tell yourself. As long as it's well lit, has a table, and is quiet, it's all good. Considering that the University of Waterloo touts its co-op program, surely, this is the bare minimum?

But as you gaze into the window of an empty booth you see... a tiny dimly lit room with LIME GREEN WALLS and a LEDGE instead of a table! You're shocked. "I pay so much tu-tu-tuition and this is what they do," you stammer as you grab the wall to steady yourself.

It's 1:20pm, your interview is at 1:30pm, you sit in a chair and contemplate the unfortunate series of turns your life took. The minutes pass, it's now 1:25pm but the person sitting in the booth hasn't left. You run down the stairs to the ground floor where the hard workers at CEEHub™ sit. You stammer out, "The person, the person in my booth, they haven't left," but you are met with a cold stare. "We keep a buffer of 20 minutes," they say. Come back if the person still hasn't left when its actually time for your interview, they say. Their indifference leaves you shocked.

It's 1:28pm as you rush back upstairs. You walk close to the booth in question and peer in. The person in your booth is talking to a friend—their interview is over! You knock, they look at you confused, "I booked this room for 1pm," you say, attempting to hide your unhappiness. They stammer out a quick apology and start packing up.

At exactly 1:30 pm, they come out and you prepare to rush in with your laptop open and Google Meet loaded... only to be

hit by a wall of stale air. That's right, the great rooms of Tatham Centre even lack ventilation! You are unfazed, you have an interview to do, even if it means you catch the respiratory diseases of every prior inhabitant of the room. You set your laptop down on the LEDGE, only half your laptop fits, and the stupidly placed old Dell Monitor that hangs above the ledge for no apparent reason casts a shadow over the webcam. The awkwardly placed light is weak and the overall room lighting is not helped by the LIME GREEN WALL and makes your face seem like a dark blur. You curse your dark complexion and quickly join the meeting.

The interviewer goes over some questions from your resume, the poor lighting conceals the lines on your face. You used to be young but the wonders of CEEHub™ have aged you considerably.

"Let's move on to the coding questions," the interviewer says, and you feel dead inside. Given that only half your laptop fits on the ledge, typing is a bit tricky, to say the least. You type your for loops and while loops at a furious pace, keen to show the world that no matter the horrors it throws at you, you will not give up. Unfortunately, you press the backspace a little too hard—perhaps it's all the aggression you feel towards CEEHub™—and the entire laptop flips off the ledge and hits you in the chest.

But after the trauma of the last few hours nothing can faze you—you are dead inside. You laugh mirthlessly and set the laptop back on the ledge.

The interviewer looks confused, but you apologize and the interview continues. Several minutes later you awkwardly thank the interviewer multiple times not knowing whether to leave the meeting first or not. Eventually, the interviewer ends the call and you pick up your things.

You walk slowly back down the stairs, a shell of the man you were when you walked in. You stop at the reception and look at the CEEHub™ individual. "The rooms are poorly lit and there isn't even a desk to put my laptop," you say. "This is the way things have always been done... even before COVID," you are told by the CEEHub™ individual. You cannot fathom the ridiculousness of this statement. Before COVID, interviews were not remote so it makes sense that the infrastructure to deal with remote interviews is poor—these rooms were probably used for phone screens. But after COVID, 99% of interviews have been remote so why on earth would you use the before COVID standard for after COVID and then say "even before COVID" as if that makes even an iota of sense?

You cannot take it anymore. You rip your shirt off to reveal the deep aquamarine of your Superman suit. Your eyes turn a deep red, your chest expands and from deep inside you the rage bubbles up. A guttural scream emanates from your lungs as you incinerate CEEHub™ to the ground with your laser eyes.

Justice has been served.

John S. Street

## THE CATCH-22 OF WATERLOOWORKS

Okay, full disclosure, this article isn't actually about WaterlooWorks. It's about dating. And love. OoOoo got your attention now, didn't I? This is something that's been at the back of my mind for a hot while and it's only started to metamorphose into coherent thoughts that I'm getting a desperate urge to write down about 10 hours before my last final exam of the spring term. So here goes.

I have a lot of guy friends. In fact, 90% of my friends are guys. Whether this is an inherent part of my personality or rather internalized misogyny and fear of women is indeterminate because it is an inevitable consequence of the Math Faculty being 90% guys. So I hear a lot about dating. And as a (fairly) promiscuous woman who benefits from Western beauty standards, it's often hard for me to understand why my friends—who are willing, open-minded, and horny—have such difficulty finding stable romantic relationships. It's easy! I say. Just flirt, and it usually works. Hand out some longing stares, blush a little, say a charismatic line, and bingo bango bongo—they're now tied up in your bed. But nooo, it's not that easy, I'm told. Apparently, for a guy, dating is not unlike our beloved WaterlooWorks.

It makes perfect sense, doesn't it? Consider a hypothetical bachelor looking for love in Waterloo. Our hero sees many an opportunity around him—some tall, some blond, many smart, most eating hot chips. They all look promising, like a valid endeavour towards an exciting future (for the next 4–8 months, with a hope for a potential returning offer after graduation). He looks around at the happy prospects and shortlists the ones he likes most (accounting for how many required skills he can actually tick-off to even be a valid contender). On application day, it all seems like a very promising system! He is only one, but the opportunities are many. All's swell until our bachelor looks out of the corner of his hopeful eye and notices!

Other applicants: 107. *Fuck.*

Okay, things are a bit tougher now. Might as well shoot his shot far and wide and see what sticks. Two interviews. Oh boy. Our unfortunate bachelor fucks up the personality questions of the first one. It was probably not that good of a match anyway. He cries a little that night, shakes it off, and steels himself. This is not looking so great. His eggs are now all in one single second-rate basket. He doesn't even remember wanting to apply to this last one. Well at least maybe it's worth going in with an open m—he went in with a hug when they were intending on a handshake. An awkward ten seconds passes. Shoot. Guess there's always next term eh?

This seems like quite the difficult situation for a lonely fella to be in, in these days. But fear not! As bleak as it sounds, I think this system still advantages men over women, in general. Y'all heard of the marriage algo, right? Man proposes to the woman of his top choice. Woman picks her best choice out of the ones that propose. Man gets accepted and rejoices or—man gets rejected and recurses. BUT just like co-op employers being advantaged in WaterlooWorks, you can use some **real math** to show that women are disadvantaged in this algorithm. If a gal's preferred guy ain't interested in her, there ain't no way she'll get her happily ever after!

Now, I'm a raging feminist, but I know when to pick and choose my raging. And **mathNEWS** sure ain't the place to be raging about the injustices of the third Reddit incel this week tenderly placing their hands on my buttcheeks without permission. But it's annoying when guys treat every girl as an "option" and ask them out even though she's not his top choice. *Why is it annoying?* I ask myself. I do that exact same thing to them! Maybe that's why it's annoying. Or maybe it's the inherent fear of creepy men that makes it not okay. But you kind of *need* to spread your wings and keep an open head if you're to raise your chances of finding your one true bae. And I certainly won't judge if getting down and dirty with someone is a valid goal in your life. But—gah, there's just something irking me about all this anyway.

See, there's a catch-22 at play here. Remark: that's not just an excuse for me to write a snobbish article because I just finished reading *Catch-22* by Joseph Heller and it was the best read of my life. SO I've narrowed down the problem to a single unfortunate fact: if they flirt with you and you like them, then it's okay and encouraged; if they flirt with you and you don't like them, then it's not okay and creepy. But they need to flirt and reach out to people to get others to like them! Except the more people they flirt with, the higher their chances, but the more rejections they get, so the creepier they are, so the lower their chances and they might as well have just stuck to one single second-rate basket of eggs. Except if that basket fails then they're back to square one. So what the *fuck*.

Nothing I've said actually exists in such full generality. Like, obviously. Every situation is different, and clearly it's all personal and specific. It's like the fact that no "animal" actually exists. Seriously, think of an "animal." The hell is that blob that you just pictured in your head? But here in the Math Faculty, we generalize to *extract the larger truth of life*. So gimme a break.

Look, all I'm saying is that, if you don't want to look creepy and piss me off by innocently perpetuating male-centered power dynamics because you want a date, just ask your girl out early and soon. State your intentions and be done with it. Flirt and don't be gross.

Good luck in your romancing!

A cool pen name

# N EXTRA RESOURCES TO HELP MAKE IT THROUGH MATH 135 AND 137

As we approach the upcoming Reading Week, some of you in your first term here might be finding yourself a little overwhelmed and confused by the material in the core courses of MATH 135 and 137. I know I certainly was, and there are undoubtedly quite a few of you that wish to take the opportunity that the break provides to maybe catch up or get ahead on some of the material. This article is meant to point you to some additional resources that might be helpful in that pursuit. Many of these resources I myself have used, but I have included a few that some trusted peers have recommended/suggested too for this article. The books mentioned can be easily found through MathSoc, PMC, or the DC libraries. All software suggested can be easily accessed and freely used at any computer lab in MC. All weblinks and books contained in this article are working, still available and in print at the time of this article's publication, but software can be subject to change each year. It is also your responsibility to maintain academic integrity and cite/acknowledge your sources. If ever you're unsure of something, your instructor and T.As are still your go-to first starting point for clarification on course material. Without further ado, here are those extra resources:

## SPECIFIC MATH 135 RESOURCES

- *An Introduction to Mathematical Thinking: Algebra and Number Systems* by Will Gilbert and Scott Vanstone
  - This was THE former textbook for the course and it is still incredibly relevant
  - Really useful explanations along with practice questions and some solutions (no step-by-step solutions, but some practice questions from this textbook show up in the more current 135 coursenotes with full solutions)
- *MATH 135 Resource webpages* by Carmen Bruni (<https://cs.uwaterloo.ca/~cbruni/Math135Resources/index.php>)
  - I wish this existed when I was in my first term
  - Lots and LOTS of videos, notes, practice questions, practically a whole other set of course material that is freely available to you from a previous 135 instructor themselves!
- *How to Read and Do Proofs: An Introduction to Mathematical Thought Processes* by Daniel Solow
  - Another old course textbook that can be useful if you want an additional set of "how do I wrap my head around proofs" explanations, but not as many practice questions as the book by Gilbert and Vanstone

## SPECIFIC MATH 137 RESOURCES

- *Paul's Online Calculus Notes* by Paul Dawkins, Lamar University (<https://tutorial.math.lamar.edu/classes/calci/calci.aspx>)
  - One of the best online calculus resources that mirrors UW's calculus courses structure almost exactly
  - I really appreciated the in-depth explanations and step-by-step examples of certain topics (I'm looking at YOU epsilon-delta proofs)
  - Covers content for Calculus 2 (MATH 138) and 3 (MATH 237) as well, but the link above is the main page for starting with Calculus 1
- *Calculus: Early Transcendentals* by James Stewart (any edition between 5 and 8)
  - Another set of former textbooks for the course, but with LOTS and LOTS of practice questions
  - Any edition works, but the earlier it is, the cheaper it might be if you wished to acquire it for yourself; later versions also have slightly different explanations of the concepts, but truly remain mostly the same
  - The accompanying solutions manual showing step-by-step how to get there is EXCELLENT, but be warned that you should be DOING problems as opposed to just reading solutions if you truly wish to understand the questions/thinking through the solutions (step-by-steps are still super helpful for myself though)
- *Physics-Based Section MATH 137 Lecture Notes* (<https://links.uwaterloo.ca/math137p>)
  - For those of you in the Physics based section of MATH 137, this set of old lecture notes provides some insights into the practical application of calculus, and gives some more direct real-world examples that introduce you to concepts that eventually get expanded on in MATH 138 (regular and physics based), AMATH 250 and beyond.
  - Not as in-depth as Carmen Bruni's 135 resources, but still a good supplement to 137 material.
  - *Disclaimer:* the instructor that created these notes has supported a campus campaign against COVID vaccines. The author does not agree or endorse these views, but still wishes to share the resource for those who may find it helpful. Vaccines work. Get boosted. Fight Omicron.

Oh, to be in first year again...

A mathNEWS EDITOR WHO'S AGED LIKE FINE WINE

**GENERAL RESOURCES APPLICABLE TO BOTH COURSES (AND MORE!)**

- *MathSoc's Online Exam Bank* (<https://mathsoc.uwaterloo.ca/exam-bank/>)
  - Many instructors like to re-use/reconfigure questions from past exams (or even old textbooks) in their current course offerings
  - Even though a lot of the exams made public may seem “too old,” the course materials for 135 and 137 fundamentally have not changed too much even from 10-12 years ago, and the previous point still stands (I still remember an exam question that was taken straight out of a 4 year old textbook that I had studied and used for review—thank-you universe :D)
- *WolframAlpha* (<https://www.wolframalpha.com/>)
  - One of the best online tools to check your work when completing practice problems
  - I really appreciate some of the step-by-step guides and graphs that get generated (especially for some of those more frustrating hyperbolic and trigonometric functions)
- *YouTube* (okay there are LOTS of YouTube channels out there on any and every math topic, but these are a few with a specific teaching focus, and have LOTS of videos that are relevant here and I've personally used these ones quite a bit)
  - *PatrickJMT*
    - From Calculus to Proofs to Linear Algebra and even Statistics, this YouTube channel has a LOT of in-depth example explanations to offer
  - *Khan Academy*
    - Another YouTube channel with a LOT to offer, presented in a “dark mode” with added colour in contrast to Patrick's channel
  - *Eddie Woo*
    - One of the most in-depth playlists about Binomial Theorem out there and SO much more to offer
- *Racket Software* (<https://download.racket-lang.org/>)
  - I can hear you laughing at me/questioning me through the page because it's RACKET of all things :P
  - In all seriousness though, what you learn in CS 115 / 135 gives you the tools you can use to program your own check-my-work functions (I especially used this in the modular arithmetic and complex function sections of MATH 135 when I was just so confused if I was getting it right)
- *Maple Software (Desktop)/Maple Calculator* (Mobile Application available freely in the Play and Apple Stores)
  - The backbone of online assessment tool Möbius (which is used every so often in math courses and became a staple in pandemic-induced online learning) with a similar scope to WolframAlpha but with its own programming language
  - Another super useful visualization tool, but unlike Desmos, it can produce rotating 3D models of certain functions—these come in super handy as the material from 137 gets built on and further visualized in MATH 138
  - Can be suuuuuuuper finicky to program properly though, so this is a “use at your own risk” recommendation
- *Desmos Online Graphing Calculator* (<https://www.desmos.com/calculator>)
  - An absolutely excellent visualization tool for when Maple is being annoying and doesn't wish to work properly (which is quite frequent)
- *Learning How to Learn Seminar Series* by Dan Wolczuk (<http://wolczuk.com/learning.html>)
  - Sometimes it's not WHAT you're learning but HOW you're approaching your learning that may help you more than just attempting to digest the material over and over again in various ways
  - This goes over various ways of how the brain processes information, and can provide insight on how your own brain works and how to work WITH it to study
  - Dan Wolczuk's enthusiasm stands in stark contrast to the humans who attended these seminars, but he is an awesome instructor who is just THAT passionate about math

I hope all of these provide a small starting point to help you out. As with any resource list however, some of them listed here may not be enough for you specifically. It is perfectly OK to ask for more help through places like the Tutorial Centre in person in MC 3022 (I was there constantly for the 3 days before assignments were due back in my first terms), or online through Microsoft Teams. There is even TutorConnect (<https://portal.uwaterloo.ca/#/services/tutorConnect/>) and the Accessibility Tutors (<https://uwaterloo.ca/accessability-services/student-services>) for even more one-on-one help. Keep your eye out for various review sessions hosted by your instructors, TAs or even the Teaching Students Association for these courses too. As a friend-making activity, you can even pop into the club rooms on the MC 3<sup>rd</sup> Floor and ask for schoolwork help from your peers and us upper-years! We're happy to help as we're able, and coursework does tend to get more challenging towards the end of term. Don't be afraid to use every opportunity you can to get the support you need. You've got this and you're supported!

waldo@<3.LE-GASP.ca

# HOW TO MAKE A FIRST YEAR LOSE COMPLETE TRUST IN RESIDENCE DONS

It really didn't take long for me to end up distrusting my residence don. Of course, it is regrettable for things to have turned out that way, but like many things in my first term, the outcome ended up being the worst possible case.

It was mid-September, where classes have gone long enough to the point where you've memorized what your path to your first class of the day is. I lived in V1 with no classes in the university colleges, so no matter what, I would need to cross Ring Road at some point to reach my classroom. My path was to exit V1 and head for the intersection of Ring Road, cross it, then head my way towards AHS (now redesignated as HLTH).

Crossing the road had been no problem for the first 2 weeks. Look both ways, then when there are no cars, walk across. However, on this fateful day, things would turn out differently. I did the usual, look both ways, see nothing, and I began to cross. I was already more than half way across when I heard a bus approaching. I saw it far enough away, so I thought the bus would do the expected outcome when I was already more than half way across, which is that the bus would slow down enough to give me the remaining couple seconds to reach the other side and then it could speed back up and head its way.

It did not do that. It kept going at its current speed, and just honked a lot. Thankfully I leapt back with about 2 seconds to spare. My nose felt like it was nearly touching the side of the bus as it passed and the tires could have run over my feet. If there was a vehicle heading the opposite direction at that precise moment, there could have been a scenario where I get hit by that vehicle. If it were a morning which made my realization and reflexes a bit slower, I would have been hit by that bus.

After taking a few moments (mind you, while standing still in the middle of a road) to register what had just happened, I was absolutely shocked and flabbergasted at the dangerous intent of the bus driver. I've never felt so angry at a bus driver before, and to this day I ceased the practice of thanking bus drivers when I get off the bus.\* There is a chance that the bus driver could be the same bus driver that almost ran me over.

I slowly made my way across and headed to my class like usual.

After that incident, during the next opportunity where I could speak with my don, I told him about what happened, and expressed my concerns about the unsafe intersection and at the very least the unsafe bus driver. I mentioned if there existed some way to at least make it a four-way stop like some of the other high-traffic intersections of Ring Road. Perhaps there could at least be signs put up ahead of this intersection that people could realistically be crossing.

What he said next still boggles my mind to this day. In a tone that made it seem like I should have expected it to happen, he said that it was my fault since "there is no crosswalk at that

intersection." I didn't even realize that that could have even been an actual thought expressed by a real person as a reply in that moment. What kind of don victimblames like that? What kind of don dismisses a resident's concerns like that?

I went from corner to corner at that intersection. Regardless of if a physical crosswalk is painted or not, you can cross corner to corner, otherwise how on earth would anyone navigate all those residential streets in every city? Besides, I was already past the half way point, so realistically-speaking that bus driver seemed to not care if I would get hit or not.

Anyway, after the don said that reply, I was too shocked to say anything further so the conversation basically ended there. I lost all trust in him in that very moment. It didn't end there. If my don is like this, then what are the chances that other dons would be like this? I couldn't risk it.

So, what can we learn from this? Ontario has a completely different driving culture. There will be those who drive as if they want to run over people, which doesn't make any sense since every time you decide to drive, you are putting your license and insurance costs on the line, but it seems some just do not care enough about others. Sometimes I wonder if even half the drivers around here would even be able to pass a BC driving test.

There is also the extremely car-centric nature of the area. For example, years later, I found out that there exists "Pedestrians yield to traffic" signs south of UWP. What kind of civilized society would even think to put such signs up in the first place? What makes it worse is that they are put up at crossings with high foot traffic. In that case, you ought to make the traffic slow down and stop for the people, not the other way around. They need more traffic control in the middle instead of only at the ends. Otherwise, cars are allowed to travel too fast on that road.

Looking back at everything that happened in the years after this bus incident, I sometimes do wish that the bus would have ended up actually running me over, but that didn't happen. Now, in my fifth year here, what is my situation with residence dons? Well, I now trust my current residence don to the point that I could conceivably be able to rely on him for help should I need to do so. A positive to be sure, but it really should not have taken until the fifth year for trust to be restored. Actually, it should not have happened in the first place! That really shows how impactful my first-year residence don ended up being, although with the impact being towards the negative.

**boldblazer**

\*Only for GRT bus drivers. I still thank Translink bus drivers.



# MY JOURNEY AS AN UNDERGRAD

I'll describe some of the most interesting parts of my undergrad journey.

## 1A-1B

Meeting new friends, adapting to new a living style, still playing a lot. Notably, I took David Jao's offering of MATH 145 in 1A. It was a crazy offering, with tons of fun stuff, and I got to try to prove a bunch of interesting results that I would just take for granted otherwise. I also made some new friends through that course, and more in general through V1... though sadly a lot are lost as well.

## X1 (FIRST NON-SCHOOL TERM)

I got a co-op in the university. Basically it was TAing for a CS course. It turned out to be a lot of fun; not only did I get to help the students, I also got to learn interesting stuff out of the course! I hope that these students are doing well in their life.

## 2B-X2

My 2B term turned out to NOT be another winter term. All of a sudden, in the middle of the term, we had the COVID-19 outbreak. That was just very sad. I was not a very social person (even now), but COVID-19 sucked. Being literally stuck in my bed was not the best thing even though I don't often get out of my room. Sigh... Also, during the co-op term between 2B and 3A, I didn't get a job. So I ended up taking two courses instead.

## 3A-3B-X3

After 3A I decided just to focus on studying, so I got out of co-op. I think this might be my most ambitious period during my time at UW. I was taking many higher-levelled math courses during 3A and 3B, and I did a research term in X3. All through the pandemic. Probably two very notable courses I took in this period were PMATH 446 (Commutative Algebra) and CS 466 (Algorithm Design & Analysis). The former was just very rewarding in general for me, but it was also essential for working in number theory. It also carried through my research term, where I learned even higher-levelled number theory stuff. The latter though, was probably the reason I keep being in CS; I get to see some higher-level math actually being used to solve some hard but applicable computational problems.

## 4A-4B

The final year for me. It's time to clean up my requirements and get ready to graduate. As I just don't know what non-math courses I want to take, I have always organized my study terms so that I take one non-math courses from 2A onwards (well... except 3B). It's the same this term. I also get to be more active and know even more people. The transition to normal lectures felt like a mixed bag personally, but overall it is a very good

thing. Finally, we're going back in-person!

I guess this is all I'm going to talk about for now. There are lots more to talk about, but I'll leave that to a future article :)

Amoonguss

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## A LOVE STORY

You return to Waterloo campus, sad and dejected that you need to leave the comfort of home and your beloved cat.

Stumbling through classes, you keep powering through, wondering why you even subject yourself to this torture. Is the societal pressure of attending university worth it?

Nothing has been the same since the last time you saw them, and the abrupt farewell caused by the pandemic only hurts more. Long-distance relationships don't always work out, and this was no different—you haven't seen them since, and yet you are constantly reminded of them, constantly wanting to be with them. Walking by the place where you first met stings, recalling the warm memories together, contrasting the harsh cold reality.

You are alone.

But then, it happens. You catch a glimpse of them across the hall. You double check you aren't hallucinating, but no, it's real.

You run across the hallway. You don't want to lose them, not again.

You catch up to them.

It's really them.

Warm memories come flooding back and you reminisce back to first year, back to all the times you shared together, the joy you've felt, the wonders you've experienced. Tears begin to well up in your eyes, unable to contain all the emotions you feel within.

You pick them up, feel their warm, loving embrace.

You pay \$2.50, and sink your teeth into them.

Garlic bread with cheese has returned to the Math CnD every Friday.

PlatypusGod

# WHY YOU SHOULD JOIN THE UW QUIDDITCH TEAM

Hey readers, methNEWS here. If I know you in real life, I've probably been repeatedly telling you that I was about to graduate at the end of last spring term. Unfortunately, during the last week of August my dog ate my Quest password, which has forced the math faculty to reset all my course credits and restart my degree on legendary difficulty. Because of this understandable turn of events, I chose to retract my glorious exit from the **mathNEWS** spotlight, and rejoin this student paper subtly and non dramatically. Anyways:

**QUIDDITCH IS AN AMAZING SPORT AND YOU FUCKERS BETTER ALL JOIN THE CLUB, OR ELSE I WILL COME FOR YOU.**

Now that I got the threats aside, I can already hear you thinking "but methNEWS, I don't know anything about this sport, joining it sounds terrible. Wait, you can hear my thoughts? **GET OUT OF MY HEAD. GET OUT. GET OUT.**" And to this I'd like to say: "No." I don't want to brag, but 5 straight years of studying Computer Science has made me one of the world's leading experts on making terrible decisions. However, I can assure you joining the Quidditch team has not revealed itself to be one of those mistakes just yet.

Let me attempt to explain how the game of Quidditch works. I'd also like to note that none of this article has been approved by Waterloo Athletics, the Quidditch team execs, or the Human Rights Tribunal of Ontario. So if you're frustrated that some of this info is inaccurate, I'd like to ask you ~~why the hell you're reading my article~~ to check in with the Quidditch team coaches for official information.

Quidditch is a gender inclusive sport that kinda plays like a combination of rugby and dodgeball. There are two main positions most players get to choose from called Beaters and Chasers. Chasers are the players trying to score the Quaffle (a volleyball) through one of three hoops guarded by the Keeper (the goalie). Meanwhile, the Beaters are a pack of unhinged maniacs who vent their pent up aggression by throwing dodgeballs at people to get them out of the play, thus perpetuating the cycle of violence one more practice at a time. I think it's pretty obvious which position I chose to play immediately on my first day.

Now, in case you were thinking this sport sounds too normie to come out of the Harry Potter books, let me introduce you to some details I conveniently leave off when describing it to my friends and family.

Because the game has been reappropriated from a made up school of wizards, all players have to run around holding a broom. And no – we can't fly on them just yet. But I can assure you we have the best and brightest engineers on the team locked away in a basement until they figure something out. The brooms are just plastic pipes and are honestly not such

a big hassle. Moreover, they potentially let you fulfill some questionably Freudian fantasies by running with a giant stick between your legs. However, it does take some time to get used to moving around with them, and restraint I absolutely do not have to stop making jokes about it.

Secondly, at one point in the game a person will enter the field wearing bright yellow clothes with a tennis ball stuffed in a sock hanging from their back. When this happens, you have to snap out of the feeling this is the same weird fever dream you've been having since you were 8, because the Snitch has just entered the play. I would explain the intricate dynamics of how the Seeker and Snitch affect gameplay, but I'm starting to sense an incoming lawsuit from the estate of J.K. Rowling and Warner Bros. Entertainment. So instead, let me tell you what I personally loved about being part of the Quidditch club.

First of all, playing Quidditch gives you an excellent excuse to ignore all your responsibilities and go touch grass twice a week. From the research I conducted, I've found that there's really nothing better than a dodgeball being hurled at your face when it comes to distracting you from the day-to-day stress of being a Waterloo student. Secondly, it is about as laid back as a sport can be, and I can say this with the confidence of a person who has only joined this one sports team in his entire life. Everyone is fully aware that this game basically boils down to LARPing as wizards, so you won't feel any pressure to participate in tournaments, know the rules, or play in any capacity higher than frantically running around confused until someone calls a goal. And lastly, the people are at the incredible intersection between cool students who like to be active, and giant nerds who are fine with publicly announcing they're playing a sport from Harry Potter. I've yet to find a group of people more fun than this (besides everyone at **mathNEWS**, of course), and I am absolutely not being forced to write this article by threats of being thrown into the real life version of the maze from the Triwizard Tournament the team has apparently started preparing for next year.

If you'd like to meet some people who don't exclusively reside in the 3<sup>rd</sup> floor of MC, I'd highly recommend you join this club. Who knows... maybe you'll love it, and one day you will become the crazy alumnus trying to recruit people he's never met into a cult based on a made up sport.

**methNEWS**

PS: I somehow forgot to mention how to actually contact the team. If you've read all the way up to this point in the article, I totally believe you can accomplish the grueling task of searching up UW Quidditch on Facebook or Instagram and shooting them a message by yourself. But if that doesn't work out, feel free to defeat an editor of your choice in a battle of wits, thus winning you the right to ask them for my Discord name, and then message me instead.

# BATHROOM REVIEWS: C2 & PHY

## PART 5 OF BATHROOM REVIEWS

Welcome back to yet another instalment of Bathroom Reviews! This time we're looking at two of the last buildings in the Science Faculty.

C2 was a building I never really visited before I started this project, and honestly, I was baffled by how utterly weird its bathrooms are.

The bathrooms are located on the northwest side of the building, the bit facing MC. This makes it a decent alternative to quickly use if you're going to or from a class in MC, especially since there's a tunnel between the two buildings going from the first floor of MC to the basement of C2.

The washrooms themselves are pretty decent! Not too big, and not gender-neutral, sadly, but many of them have windows and the sinks are, you know, actual sinks, which is kind of a big deal when compared with the buildings surrounding it.

But the weird part comes with the actual layouts of the washrooms. It kind of feels like a lot of them were put in last minute; there's one with an actual door between the toilets and the sink, which really sucks because you gotta touch the door handle to pull it open before you wash your hands.

I don't quite recall which floor this is (I think it might be the ground floor) but it sucks. There's a reason it's not a common feature in bathroom design.

But, overall, the washrooms in C2 are pretty good, especially given its location. I give it a  $\frac{7}{10}$ .

The Physics building is another old building, and that means you may think it would have the sink basin design similar to that used in ESC and B1. And you'd be right! Fortunately, this basin actually has a pretty decent temperature. The bathrooms in this building are pretty large, too, with a good number of stalls and urinals. No gender-neutral bathrooms, but generally a pretty good building, especially for one as old as it is. My only caveat with this building is it can be a bit tricky to find the washrooms if you don't know where they are, I had to look at the map a few times to get it right because it slightly changes position on each floor and the doors aren't in a very vibrant colour. I also give this building a  $\frac{7}{10}$ .

Predap



# EITAN'S FINAL WILL AND TESTAMENT

Author's note: This article was originally supposed to be published in 150.1, aka last issue. It was editor approved and everything. It was short enough to not contribute too much to the length of the issue. Unfortunately, in a characteristically spineless move from the **mathNEWS** editors, it was rejected at the eleventh hour. Fortunately, the Society for the Preservation of Eitanic Works is a stubborn bunch, and we are dedicated to the cause of sharing the final will and testament of Eitan Lahsstnaym. To show the tyranny of the editors, we have resubmitted this article, keeping in all the edits and editor notes and rejection reasons the editors wedged into it, plus this author's note for context. The article is considerably less short than it was last time, and if it is rejected again, the editors will probably find it was much shorter in this iteration than it will be in the future. They may as well just okay it. For Eitan.



REASON FOR REJECTION: Issue length constraints. Limit to 1 article per author.

**Editor note: This is ██████'s<sup>1</sup> second article, it was written by Eitan on his wordpress. Keep for space reasons?**

This article was compiled from ideas scavenged from the decaying cerebral cortex of our dearly departed Eitan. His legacy survives him in this image. God speed, Eitan.



The Society for the Preservation of Eitanic Works

1. This is redacted to protect the privacy of the Society. It was the only change made after the author's note.

# mathNEWS APPRECIATION POST

Growing up, I've had a lot of expectations placed on me. Typical Asian parent stuff. Unfortunately, I could not live up to those expectations. Undiagnosed ADHD really did not help my situation, making me not be able to study and also not able to explain why I could not study better than "guess I'm just lazy."

As one might expect, all this pressure eventually manifested. It became this thing called RSD, or Rejection Sensitive Dysphoria. As the name might suggest, it's like fear of rejection's angrier brother. It has made me extremely avoidant of any sort of criticism or negative feedback. Unfortunately, I also internalized the fact that I cannot meet expectations, so I concluded that my only option is to never attempt anything ever so I cannot have anything that anyone can judge.

This led to the death of my creativity. Because I would never want to be judged, I never made any sort of creative work, because if those got judged, then I would too, by proxy. It also extended further than creativity; I would struggle to even have opinions, and struggle yet more to voice them. To this day I am unsure of what things truly interest me, because I've never given myself the opportunity to truly figure things out, instead always trying to hide myself out of fear.

The first time I went to a prod night, I didn't write anything. I didn't feel like I could. I thought that anything I could write would ultimately fall short of everyone's expectations. The second time, my friend showed me that you truly can submit anything you wanted. I watched them write and submit a shitpost, and I saw it published in the issue. I decided then that I would try to write something the next time.

And try was what I did. Not having written anything in years, it was pretty rough. But if there's anything I can do, it's jokes. I've been making jokes my entire life as my sole creative outlet, and I'd say I'm pretty good at setting up punchlines when I can think of them. Unfortunately I couldn't think of any. Thankfully, Sungmin was there to save the day. After repeatedly randomly generating article title after article title, I got one that I could write a joke with, and I submitted it. Then I did another. I would repeat this for a few issues.

To my surprise, people enjoyed my jokes. Someone said they liked the articles written by my pseudonym, and I felt truly validated. Unlike with my friends or family, I couldn't rationalize this away as someone just trying to make me feel better, because they had no idea who I was. This was genuine.

That's when I realized, writing can be fun. Sometimes it's not about having a structured essay, or meeting a word count. Sometimes it's about sharing a joke. Sometimes it's about the process. Sometimes it's about not feeling guilty about stealing a couple slices of pizza.

I am writing this article as a way to show my appreciation. To the readers, who read, if not my articles, then articles by others like me. To the writers, who write for us, or for

themselves, or for pizza, but ultimately for the enjoyment of many. And to **mathNEWS** itself, where I learned to find joy in writing once more. Where I learned to come out of my shell. Where I have made so many friends, and hopefully, many more in the future.

I've never really written anything remotely serious before, so I'm submitting this under a different pseudonym so as to not break my branding or whatever. But if you know who I am, then know that I truly, truly appreciate you.

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## THIS mathNEWS ARTICLE READS YOU

### *HOW DOES IT FEEL TO BE IN THE RECEIVING END OF THE HARSH GAZE OF READERS?*

Its eyes skims down the article of you. Not the article of your life. The article of you. The article of everything that comprises of the gestalt that is you.

You are lucky it didn't just skip you over entirely, I guess your title was interesting enough for it to bother. I guess the whole of you doesn't contain too much C++.

Every now and again one of your sentences catches its attention.

This article reads all of the parts of you that are sad. It doesn't really sympathize though. It isn't human, it doesn't really understand. It sees all these things as your personal flaws. It looks down on you ever so slightly for them.

This article reads all the parts of you that are embarrassing. It laughs, and not in a kind way.

This article reads all of you that is targeted at a specific demographic. This article doesn't really understand a lot of the references that comprise you. It's a bit confused. To be fair, a lot of the references weren't that interesting anyways.

This article is finished reading you. It has read your entire existence. Your life, your memories, all the people in your life who have loved you and shaped you into what you are now, all that defines you. You didn't leave much of an impression. It concludes the most notable part of you was your title after all.

It moves on to the next person. It's not disappointed in you, it wasn't expecting that much. It doesn't think of you ever again.

aphf

# A DIFFERENT SYSTEM OF LEAP PI DAYS

In **mathNEWS** 144.5, tendstofortytwo presented a system of adding leap Pi Days to our regular system of Pi Days in order to get an average of exactly 3.14 Pi Days per year. While the idea is good, there are a few aspects of the system which seem less than ideal. Most importantly, while 3.14 is closer to  $\pi$  than 3 is, it would no doubt be better to have exactly  $\pi$  Pi Days per year, on average. In addition, tendstofortytwo's proposed system would put every leap Pi Day in the winter term. Would it not be better if leap Pi Days were evenly distributed between the three terms? After all, the three regular Pi Days are

In this article, I intend to present a new system of leap Pi Days which will solve these problems, at the negligible cost of making the system very difficult to implement in practice. But what do we care about practicality? In math, practicality can never be allowed to come in the way of abstract perfection.

How do we ensure that there are exactly  $\pi$  Pi Days per year? Well, since frequency and period are reciprocals, we could just have one Pi Day every  $\frac{1}{\pi}$  years. The problem with this is that it does not preserve our original three Pi Days. This is clearly unacceptable. Any successful system must preserve the original three Pi Days.

So, since we already have three given Pi Days per year, all we need is an additional  $\pi - 3$  leap Pi Days per year. Therefore, it would at first seem that we could wait exactly  $\frac{1}{\pi-3}$  years between each leap Pi Day.

However,  $\pi$  is irrational. As a consequence, our leap Pi Days will sometimes fall on the same day as one of the original Pi Days, no matter how carefully we choose the day of the first one. This would result in having, on average, slightly fewer than  $\pi$  distinct Pi Days per year, which is unacceptable.

The solution, of course, is not to count the other three Pi Days as days. For convenience, let  $C$  denote the number of days in the average year. In our current calendar system,  $C = \frac{146097}{400}$ . Now, to calculate when the next leap Pi Day will be, you simply take the day and time of the last leap Pi Day, then add  $\frac{C-3}{\pi-3}$  days, not counting any other Pi Days as days. Of course, in order to preserve the integrity of the system, we count the day in March when we lose an hour as  $\frac{23}{24}$  days and the day in November when we gain an hour as  $\frac{25}{24}$  days. You then celebrate this leap Pi Day on whatever day the resulting time falls. The only possible ambiguity is when the calculated time is exactly midnight. However, as long as we carefully chose the date and time of the first leap Pi Day, this will never occur, since  $\pi$  is irrational.

The only thing left to decide is when the first leap Pi Day should occur. The day and time of all leap Pi Days following or preceding this one can then be determined. I would like to suggest March 14, 1592, at 6:54 in the morning, but unfortunately this is one of the three regular Pi Days, so it cannot be a leap Pi Day. Instead, I think we should choose 3:14 in the morning on the 15<sup>th</sup> of September, 2654. Although this is in the future, we can calculate leap Pi Days occurring before this

date just as easily as those occurring after. Since this occurs exactly at the start of a minute, no other leap Pi Day in all of eternity will occur exactly at the start of a minute. Therefore, no leap Pi Day will occur at midnight, so there is no ambiguity as to which day we should celebrate.

In addition, since the number  $\frac{C-3}{\pi-3}$  is irrational, the leap Pi Days will be evenly distributed on all days of the year, except of course on the other three Pi Days. This means that our leap Pi Days will be distributed between the three terms.

This system therefore solves the two problems with tendstofortytwo's system which I mentioned at the start of this article. We get exactly  $\pi$  Pi Days per year instead of 3.14, and the leap Pi Days are distributed between the three terms, instead of all being in the winter.

A natural question to ask at this point is when the next leap Pi Day will occur. I have no idea. Actually figuring out when leap Pi Days will happen is a challenge in this system. But, as I said, this is a negligible cost to pay for a system which is mathematically perfect. And, as a bonus, this system is certified engineer-proof: we are using the number  $\frac{C-3}{\pi-3}$ , and engineers would interpret this as a division by zero.

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## DO NOT PUBLISH THIS ARTICLE

According to the most fundamental known laws of **mathNEWS**, only the most heinous, vile, cruel, sadistic, mildly bloated articles are rejected from the publication. On the seventh floor of MC, whispering voices can be heard saying: "**mathNEWS**, all articles considered."

I want to be able to tell my parents, my friends, and my dog that I had an article rejected. I want people to turn away in shock when I walk into their classroom.

I want Vivek Goel to know that my mind was so deranged that not even the **mathNEWS** readers minds were tough enough to stomach my article.

edgar allan hoe

## WTF IS HAPPENING TO CREDIT SUISSE???????

Credit Suisse? More like Debit Suisse lololololololololol

## A THING I DIDN'T REALLY KNOW I HAD TO PAY ATTENTION TO

The city of Waterloo is having an election on October 24<sup>th</sup>, and if you're living here right now (and are a Canadian citizen over the age of 18), you get to vote in it! Yep, even if you're not from Waterloo and take the train back home to Brampton every weekend (in that case, you'll get to vote in *both* the Waterloo election and your hometown's election). Pretty neat. The city even has a helpful webpage with more info: <https://www.waterloo.ca/en/government/voting-as-a-student.aspx>.

So that's pretty cool. Personally I'm intrigued by municipal elections since they concern issues that are nearly all local or relevant to me, from housing to local transportation to public space. Since I'm from Toronto, go to school in Waterloo, and spend a considerable amount of time in and between both cities, I'm happy I can vote for twice the number of mayors and city councillors to represent my presence in both places.

Of course, I skimmed past the boring parts of the ballot, like the election for school board trustees or whatever. Except, turns out that maybe isn't so boring.

School board trustees in Ontario are always elected during the municipal elections, on the same ballot as the mayoral and city council candidates — meaning almost zero public school students get to elect their representatives. If you're reading this, there's a pretty good chance you're between the ages of 18–22, so you're probably as close as you can get to being a public school student while being able to vote for public school trustees. If you can remember your public school experience, what worked for you and what didn't, you might want to see if there's any way you'd want to influence things in the coming election.

What kinds of issues might you have valuable perspective on? Well, here's the one that got me thinking about this in the first place: in the US there's been a sort of moral panic lately on books with certain topics, such as racism or LGBTQ issues, and that's led to some books being banned from schools and even public libraries in some states. This panic seems to be creeping northward: in Waterloo earlier this year a former teacher tried to propose removing certain books with LGBTQ themes, which seems to have sparked a controversy, and now several trustee candidates are campaigning using language that worries me. I want to keep this article fairly brief, so I won't get into the details, but this is something that's motivated me personally to vote.

If this issue, or any other issue facing schools, is meaningful to you, you may want to consider voting for the school board in Waterloo and/or your home district. I don't know. Just something to think about.

\_\_init\_\_

## FIX YOUR CITY 1: NON-POLITICAL VOTING INFORMATION

Friends, Romans, countrymen, lend me your ears:

City Council elections are coming up, and *you*, my dear student, will be able to vote your heart out this election! (Full disclosure: you only vote once — YOVO.)

Any Canadian citizen living in Waterloo for university can vote, and if you're from another city in Ontario, you can vote in both. (I suppose that opens it up to YOVT — much less catchy, but it has its perks.)

This year, you can vote right in SLC on October 24<sup>th</sup>, or save on time during midterm season by heading out to an advance poll over Reading Week. Try to register your address online ahead of time to speed things up at the polls, and make sure you have a copy of your lease or some mail to your Waterloo address on hand to prove your address, plus photo ID.

Here are your polls:

- **On October 24<sup>th</sup> — voting day — vote in the Student Life Centre from 10am to 8pm.**
- On October 8<sup>th</sup> or 15<sup>th</sup>, vote at the Waterloo Memorial Recreation Complex from 10am to 4pm (the place on the other side of Waterloo Park with an indoor waterslide).
- On October 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup>, vote at Waterloo City Centre from 10am to 3pm (City Hall in Uptown).
- On October 14<sup>th</sup>, vote in the Albert McCormick Community Centre from 2pm to 8pm (near Laurier).
- On October 16<sup>th</sup>, vote at RIM Park from 10am to 4pm.

(There will be other polling stations on October 24<sup>th</sup> that could be closer to you as well — look it up here: <https://www.waterloo.ca/en/government/when-and-where-to-vote.aspx>.)

There are tens of thousands of students that could vote to get their issues addressed by City Hall, but in the last election only a couple hundred at best voted, and the winner got in with only 1,989 votes.

**VOTE! It's your civic right, and it's the best way to have the issues that you care about addressed.**

Matthew Schwarze



# REVIEWING THE PLATFORMS OF ALL WATERLOO MAYORAL CANDIDATES

Did you know that if you're a Canadian citizen living in Waterloo for school then you can vote in the elections on October 24<sup>th</sup>? And you can vote in the SLC regardless of where you live in the city!

Today I'm going to review the platforms of all the candidates for mayor.

## ROB EVANS

Listed first on the city's website because the candidates are listed in alphabetical order, Evans has a pretty typical platform but with a lot of involvement for public-private partnerships. Evans supports affordable housing, transit, but frankly seems far too trusting of landlords.

His website is kind of bad to navigate, and his platform page is a massive wall of text.

Evans' priorities are:

1. Improve housing affordability for all residents
2. Continue stability and renew innovation at City Hall
3. Manage growth, aid recovery, enable long-term vision
4. Drive sustainability, both economic and environmental

Read more about Evans at <https://www.robevansmayor.ca/>

## DOROTHY MCCABE

McCabe has a "Master's in Public Administration — Local Government specialty" so that's a cool qualification. She supports building affordable housing and transit.

Her website is easy to navigate and isn't too much of a wall of text.

McCabe's priorities are:

1. A More Affordable and Livable City
2. A Greener, More Sustainable City
3. A Big Idea City

Read more about McCabe at <https://www.mccabe4mayor.ca/>

## KYPP SAUNDERS

Saunders has no platform, which is absolutely disgraceful. Maybe before the election Saunders will put something up at <https://kyppsaunders.nationbuilder.com/>

## SHANNON WEBER

Weber has a famous last name and a website that doesn't let me copy the verbatim wording of her priorities.

Her platform is low on specifics, but she says she want more housing.

Read more about Weber at <https://www.shannonweber.ca/>

**FUCKING VOTE!!!!!!!**

## PREMIER ATTENDS GRAND RE-OPENING OF CnD



UW Unprint

## FIX YOUR CITY 1.5: "BUT WAIT, I'M NOT A CITIZEN!"

It's more important than ever to make sure that your friends who can vote do. Whether you can vote or not, *you live in this city, too*. You are affected by the same City Council in your day-to-day life here in Waterloo, so it's critical to have your voice heard as a student — the best way to ensure that is to get your domestic student friends to vote.

Matthew Schwarze

# FIX YOUR CITY 2: \*VERY\* POLITICAL VOTING INFORMATION



Now that you know you can vote, I want to convince you to vote for me. I'm Matthew Schwarze, a math student at UW, and I'm running for City Council. I'm running because I care about affordable & high-quality housing, active transit, and sustainability and climate action. Even better, I have a plan to act on those things.

A little about me—I'm a 4<sup>th</sup> year student in Math at UW, and I've previously been involved here on campus and in the city community:

- I was VP Operations & Finance at WUSA for 16 months where I managed a \$9 million budget plus \$20 million in programs and transfers like your health insurance and the UPass bus pass.
- I've been MathSoc President, VP Academic, Councillor, Director, and more. I love Math and MathSoc almost as much as I love the C&D.
- I've sat on the City of Waterloo Economic Development Advisory Committee with the Mayor, City Councillors, staff, and community members for 2 years.
- I sit on the UW Board of Governors and Senate, and my greatest claim to fame is that both Feridun and Vivek know my name.
- I've volunteered with ClimateActionWR, gotten involved in community cycling groups, and engaged with city planning processes on active transit projects.

I'm running because I think there are a lot of issues that matter to the residents of Ward 6 (that includes almost anyone reading this) that the city should make more progress on, and with half of city council retiring, I want to make sure we keep what momentum we do have and continue to move forward.

Unlike most of the other candidates running against me (with less than a week to the first advance polling day...), I have a platform on my website with details about what I think needs to happen, why I think it needs to happen, and how I think we can make it happen.

## AFFORDABLE & HIGH QUALITY HOUSING

Housing is the big one—and as the #1 issue for most people, I've got a lot to say about it. The city needs to make affordable housing a priority, and they're very much empowered to do it. Affordable forms of housing are currently banned from being built on much of the land in Waterloo through exclusionary zoning practices, so we can't build "missing middle" style housing like townhomes, low-rise buildings, and other diverse housing forms that provide people housing options that better match their needs, budget, and stage of life.

The city needs to modernize our zoning bylaw to allow for affordable housing forms, mixed-use developments, and diverse housing forms. This should include the land north of Columbia that should have somewhat denser student housing to allow for fewer students to be homeless (stretch goal: none), rather than the low-density single-family homes that it currently is. The city should also explore if it can ensure the big housing companies respect tenants' rights, respond to maintenance issues, and otherwise support student renters through the powers it has in the *Municipalities Act*.

The city should also better support non-profit housing developments that provide affordable housing and keep it that way. Right now, there is one non-profit student housing co-op, WCRI, but with greater support, we could see more of this for students and non-students.

For the members of our community currently experiencing homelessness, it's important that we build out affordable housing, but also that we invest in upstream and wraparound services like transitional housing and mental health supports.

There are a number of other things I think the city should do about housing, and you can read them all (plus sources and links for further reading) on my website: [vote.matthewschwarze.ca](https://matthewschwarze.ca).

## A ROBUST ACTIVE TRANSIT NETWORK

The city's been doing a lot of good work installing bike lanes and multi-use trails, but with half of city council retiring, I want to make sure we keep making progress laying out the network. I support increased, thoughtful implementation of new paths and lanes that keeps bikers and pedestrians safe, as well as greater investment into our existing paths. (Right now, Kitchener's really beating us on that last front—their section of Iron Horse Trail has great street crossing infrastructure, and it's lit up after dark so that it's a safe and comfortable trip any time of day.)

We should also look at mixed-use zoning so that we can have truly walkable, 15-minute communities that have necessities nearby. (In other words, why does anyone have to take a bus for ages to get to a grocery store when 20,000 people live *right*



here. More small-scale grocery stores are an example of what this policy supports.)

Waterloo should also be looking at eliminating barriers that can prevent marginalized communities from moving around their own city. (A common complaint in Waterloo has been regarding sidewalk snow clearing, which is critical for many with physical disabilities.)

#### SUSTAINABILITY & CLIMATE ACTION

Waterloo has committed to the TransformWR plan, a roadmap to get us to our 2050 emissions goals. That said, it's going to take constant commitment to the small investments and actions over the next 30 years to get us there, and that's what I want to champion on City Council to make sure we don't fall behind like many governments do. This includes things like expanding electric car charging stations, supporting residents in installing heat pumps and solar panels, doing the above-mentioned work in installing bike lanes and mixed-used walkable communities, and more.

We should also look at better ways to support our local natural environment by fully legalizing naturalized lawns, No Mow May, and adopting an Urban Forest Strategy like many cities—including Kitchener—have already done.

That's a broad summary of what I think—there's even more on my website, [vote.matthewschwarze.ca](https://vote.matthewschwarze.ca), so please do check it out. I can't emphasize enough how important it is to vote: in the last election, the winner won with 1,989 votes—a tiny number when you consider the thousands of permanent residents and tens of thousands of students who can all vote and have their voices heard. You have far more power with your city vote than your provincial and federal votes, and this election has the greatest ability to affect your day-to-day life. You can make the issues that affect you a priority for your government by voting, and I *really* encourage you to do so—no matter who you vote for.

#### NOW FOR THE AWKWARD PART

If you're at all interested in my message above, I would love to have you on my team. The biggest hurdle is in informing students that they can vote in the election at all, and while I've knocked on over 1000 doors in the past week alone, I just don't have enough hours in the day to get everywhere. If you'd like to help me get my message out, I have a number of different roles you can take on, and I'd love to have you join me whenever you have the time. It's a great way to meet people, learn something new, and genuinely have an impact on the city around you.

If you want to get involved and help me make a difference, please sign-up to volunteer through my Linktree: [linktr.ee/matthewschwarze](https://linktr.ee/matthewschwarze).

Matthew Schwarze

Note for posterity: this article is written with some humorous intent to engage the reader (and myself), so it's a little more light-hearted than most of my messaging. If you dislike this style of messaging, I invite you to consume this page orally such that it may no longer bother you and instead turn your attention to my website at [vote.matthewschwarze.ca](https://vote.matthewschwarze.ca).

## N REASONS TO JOIN MEF FUNDING COUNCIL

- Make an impact on UW Math through the student-run Math Endowment Fund.
- Decide where \$85k CAD of project funding goes this term in 2–3 meetings.
- MEF stickers!
- Meet your fellow cool math students.
- Discover what clubs and projects are going on around campus.
- FREE DINNER. Not just pizza, we have fancy stuff 😊

Check it out :) <https://uwaterloo.ca/math-endowment-fund/funding-council-0>

mefcom

# mathNEWS

**Disclaimer: The opinions expressed in mathNEWS articles belong to their authors, and do not necessarily reflect those of mathNEWS. Please keep this in mind as you read the issue.**

THE mathNEWS EDITORIAL TEAM

# N THINGS FOR THE NAIVE FIRST YEAR TO DO FOR THE ENVIRONMENT

Here's my token Environmental column so I can justify being an environment student on the **mathNEWS** grind, then to promptly do nothing but shitpost for the rest of the semester. This was going to be in the last issue, but we had a LOT of articles that anyone who doubled up had to get the axe. So, let's start with the most important part—awareness of the problem!

Be aware that corporations make up 97% of all global emissions, and that 100 companies make up 71% of all global emissions. Be aware of greenwashing. And be aware that while the global climate as a whole isn't going to be magically fixed even if we all suddenly stopped producing CO<sub>2</sub>, eliminating single use plastics and cleaning up the ocean/litter is *still* good for the local ecosystem.

But just because individual consumers make up the minority of global emissions also doesn't mean you should be careless. I'll give you five tips based on how eco-conscious you're feeling.

5. (*Tier 5—bare minimum*) Don't litter—put your waste in the right bins. Yes that means separating straws from cups and juice boxes. Throw your e-waste into the proper bin at SLC. Turn off your lights when you're not using them, take public transit or walk/bike instead of taking a car, hell, even carpooling saves on emissions. (Then again, we're university students, who the hell can afford a car?)
4. (*Tier 4—trying a little*) Reduce your waste wherever you can (use reusable cutlery, metal straws, BYOM, reusable teethbreesh (is that the plural of toothbrush?), and buying second-hand. No, you don't have to do all of that, but one or two definitely helps.
3. (*Tier 3—eco-conscious*) Eat green! Cut down on food waste—you can participate in the eco-container program for 30 cents off your food when buying meals at CMH, REV, V1, SCH, and SLC. You'll be charged \$5 the first time. So it'll take about 17 meals before your 30 cent discount pays for the container. If you drink coffee/tea, the Lug-a-mug program also saves 20 cents off the coffee, for a total of fifty cents. (...You know, maybe they should do like. \$1.50 off your meal. Y'know?) Better yet, you can save the containers as leftovers for the next time you're craving discount Lazeez. If you want to up the ante to 2.5, go for plant based options when they're available over beef or pork. Chicken's okay but it's on thin ice.
2. (*Tier 2—most environment students*) Participate in the compost program! For those of you on residence, you have your own compost bins and/or proper

receptacles for food waste. If you live off campus, don't throw your food in the trash! It's going to rot and stink badly. You could put it into a plastic bag and freeze it, and once it's full, take it to one of the food bins on campus. I dunno, that's what I did last year.

1. (*Hardcore mode*) Go zero-waste—or at the very least, live in a way that the waste you do produce that can't be recycled fits in like a mason jar or something. I saw it on uwsustainable.

That being said, you probably are wondering why I, an (the) environment student, am taking part in **mathNEWS**, a news publication that prints. Aren't I supposed to care about saving paper? But, my dear reader, we are! **mathNEWS** records the consumption and usage of all issues taken from their respective issue holders, and adjusts our printing requests accordingly so we minimize **mathNEWS** waste (and avoid a surplus like what happened to the yellow surplus issue [*Editor's Note: Dead nutty.*]).

Also, come visit the ES Coffee Shop at the corner of EV1 and EV2, the lounge is super cool to study and we have lots of cool snacks and drinks that are sustainably sourced! (And Jones sodas that are half the price you can get from SLC.) This is the time where I need to metaphorically dash before the editors get my ass for plugging the coffee shop twice in a row, but it's also not my fault the Math C&D has been closed for two semesters straight, leaving math students with a lack of place to eat, drink and study. [*Editor's Note: Hey, it's open now!*]

Skit

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## VIGNETTE: COLOUR

I often wonder what colour a person's world is. Is it calm pastels, stable and civil? The colour of wet grass, perhaps, earthy and rich with spring hope? Does it languish like the tepid grey pool next to the road, the only colour a shimmer of oil upon the surface? Sky blue? Orange? Deep, deep black?

No-one's world is ever-same. But in the absence of all else, what does it brighten, or fade to?

A lonely winter trek in the twilight. Sky and ground both the same solemn midnight blue. Only the crunch of snow beneath thick boots, and the determination to see a dawn I do not believe will rise. I wonder if the earth aches from such heavy steps.

CC

# WHY YOU SHOULD CAUSE PROBLEMS ON PURPOSE

Here's the thing that people don't seem to get: everyone has the ability to cause problems and you damn well don't need a reason to do so.

One time I drank 5 cups of black coffee at 5 AM after not sleeping for 48 hours because I had an exam in the morning, and I'm still alive. Obviously, everything's been going well since I'm somehow still in Waterloo and I haven't been drunk in about two weeks which is a new record!

It is evident that I'm the most qualified person to go to for life advice, so here are some reasons why you should cause problems on purpose.

1. It's funny. *It's fucking hilarious.*
2. People don't like it. *People = bad, therefore, you should make them feel bad so you can feel better.*
3. My roommate keeps bugging me to write an article. *They have literally not shut up about mathNEWS since 1A and keeps trying to get me to go for free food which I've finally given in to. Thanks bb <3*
4. I've got severe, crippling depression and I will make it a problem for everyone around me. *You know that stereotype about the one depressed kid that gets a nice, happy ending by finding a best friend that teaches them how to love life? Don't be that. It's cringe.*
5. Problems are fun to talk about. *That time you almost set the house on fire? Guess what, oil+heat=bad. Hissed at a kid while you were dressed up as a vampire during Halloween? Funny kids do be funny. Your aunt attempted to murder their 13<sup>th</sup> daughter? Maybe don't talk about that one.*
6. You should let loose once in a while. *Studying all day is very boring; everyone should do something crazy while they're young, because your body has a greater ability to heal. If you break a bone, it'll grow back, right?*
7. You learn from the problems you've caused.

Perhaps this is taking a quicker turn than you expected but this article isn't just a shitpost about creating chaos (though it's very entertaining if you take it that way). Seriously, one of the most important things I've learned since going to Waterloo has been that mistakes and problems are inevitable but they help you grow.

University is created so that you can make mistakes like failing a class, missing assignments etc. with some sort of safety net. Doing something wrong is not the end of the world and nobody will blame you for trying to learn.

In my 1B term, I failed a midterm and ended up calling my mom crying about how I would have to drop the course. She comforted me and then told me about how she also dropped multiple courses during her time at university. That's when it hit me that the reason why I'm here studying, working my ass off every day for assignments and tests, is because I want to improve and be better.

*I can't improve without causing problems — without failing — once in a while.*

Please know this while you go through university. There are a lot of people that will support you and that will help you if anything ever happens because they care.

*Let yourself cause problems and don't say sorry for it.*

Kayzene Problems

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## DREAM THIRST POST

I need to respond to anonymous slander about Dream daddy (draddy), the hottest basic white man in the world.

Just look at his beautiful blueish brownish greenish eyes, and unique fingerprints and smile. I don't know his last name but I can just call him daddy. This man invented sexy. I want him to stick his throbbing netherite sword into me. He cheated on the speed run but I know he'd never cheat on me. He doesn't need to get a statistician to calculate the probability of getting it on with me. He's like a creeper, he's blowing me away. If he was an ore, I'd mine him all night long.

I wanna put my Minecraft bed next to his <3

Please release my wife and kids.

Not a N\*rd

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## HELLO GOOGLE, SHOW ME THE MOST AVERAGE 6 / 10 MAN

Did you mean: **Dream Face Reveal**

Anonymous (pls don't hurt me)

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## N THINGS MY BF SAYS POST-COITUS WHEN TAKING OFF THE CONDOM

- Let's put these babies up for adoption

Not pregnant

# horrorSCOPES: CUFFING SEASON EDITION

I know you're reading the title, and you're like, "horrorSCOPES? What the hell are those?" And I can do naught but tut-tut in matronly shame. But I suppose I can't fault you — it's been a long while since everyone's favourite math-strological predictions have graced these pages. A bit over a year ago, actually. Welp, like clockwork, I, Finchey, have come to resurrect the timeless zombie that is this column, reanimating this corpse of an iconic **mathNEWS** series which has lived on long past its glory days, to the shock and horror of everyone everywhere.

Furthermore, if you thought that was the end to my dabbles in necromancy, wait til you find out that the theme for this installation of **horrorSCOPES** was recycled from an article I wrote last year! (*How to Survive and Thrive During This Year's Cuffing Season* from 147.5 — check it out. Or not. I don't live your life for you, bambino.) Now, don't accuse me of laziness. I'm just sticking to what works. What's *important*. And I know that, more often than not, the lonely Math student specimen's got *love* on the mind. Dating, romance, relationships, my oh my! *Who* can resist this time of year? So, darling dearest, allow me to look into my imaginary crystal ball and divine your fall term futures — based entirely on your major!

**ActSci:** You prefer to not take any chances. You analyze every potential mate down to even the slightest utterance or turn of the head. After all, you're risk-averse. Why waste time on something that's not right for you? You'll wait patiently for the right opportunity to come along. Your lovely number: 100.

**AMATH:** You're a hands-on kind of person and you're skilled at what you do. You prefer to keep things physical, and you're not looking to take anything to the next level. Your lovely number: 5.

**CO:** Although you want the best for yourself (and who doesn't?), you're also okay with an approximation of the optimum. You'll settle for "good enough" to get you through the cold winter ahead. How can you expect to come across perfection, anyway? Your lovely number: 99.

**CFM, CS:** KISS — that stands for Keep It Simple, Stupid. You're not a fan of the dating dance, of reading meaning into words left unsaid. It's hard for you to figure out how to proceed next. Why can't there be a script for this kind of thing? Your lovely number: 42.

**Double Degree:** All good things come in twos. You'll feel an especially strong urge to pair up this season. Think hard about what you want, however, or you'll end up dropping back to square one. Your lovely number: 2.

**Math/Bus, Math/CPA, Math Econ, Math Fin, FARM:** You feel like you don't really make a strong impression on people — something about you just makes you feel... interchangeable? You decide it's time to make yourself stand out from the crowd and make yourself someone to be remembered. Your lovely number: 5.

**Math Phys:** The world's your oyster. You're the big fish in the sea! ...Does that mean it's easier for you to get caught? Your lovely number: 1,000,000.

**Math Studies, Undeclared:** You're going to take this term easy. Your dating strategy, if you could even call it that, could be summed up as "come what may." You'll get what's coming to you, indeed. Your lovely number: 12.

**PMATH:** Like what you study, your intentions this season are pure. You oppose force of any kind and accept the tides of fate with grace. But can such noble ideals square with the necessity for practical action? Your lovely number: 0.

**Software Engineering:** Despite the turn of the season, you still dream of sunny weather and summer flings. Steamy, not toasty, right? You'll think about going somewhere warm for the winter to chase the thrill you crave. Your lovely number: 1.

**Stats:** Dating is a numbers game, and you're well-acquainted with this fact. But can you see the forest through the trees, look through the data to get at the true heart of the matter? Your lovely number: 0.95.

**Teaching:** This isn't your first rodeo. You have experience, and you know how to use it and share it. But don't be surprised if you end up learning something new from the most unexpected of places. Or people. Your lovely number: 50.

Finchey

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## N MATH-RELATED HALLOWEEN COSTUME IDEAS

- carry two axes with x and y written on them for **x and y axes**
- wear a sweater with grass on it to be the **natural log (ln (pronounced "lawn"))**
- wear a shirt with a tree on it with squares in the dirt for **square root**
- carry a square around you to become **QED**
- two parents, one wearing  $a^n$ , the other  $b^n$ ; the kid wears  $c^n$  to create **Fermat's Last Theorem**
- do nothing differently and become **imaginary (i)**
- one person is a circuit board and another is a slice of pumpkin pie (**raspberry pi + pumpkin pi**)
- drive around in a *John Deere 6120E Series 120 Horsepower hi-lo PowrReverser™ transmission* to become a **pro tractor**
- have three people carry protractors around to be a **tri angle**

## ON PORNOGRAPHY

Porn shrinks your brain. When I pull up a source for this fact, the dopamine-search spiel is similar to the one they showed us in sex-ed. *Dopamine is the chemical emitted during dangerous activities like race-car driving, gambling, and sex!* I totally believe porn shrinks your brain, though; shrinks the brain a lot in the case of the stuff *you* watch.

I think that internet porn might crack the list of top 100 worst inventions. I would bet good money it cracks top 1000. (This may not seem significant, but humans have invented redlining; torture methods where rats tunnel through your orifices; weaponized anthrax; puppy mills; et cetera). At least if the porn was in a magazine or on television, you'd have to wait a predictable, livable pace in between uses. Even if you rented all the porn videos in the back section of family video, you would still need a job to pay for them; or else have to work out how to steal that much porn. Nowadays, it requires no money or planning.

Do you think that they're trying to weaken people with porn? Do you think they're trying to weaken men? I used to think that boys memorized things about porn stars to be funny, but I don't think they're joking anymore. We should start making pornstar names educationally significant, splice educational audio over porn clips. We should make every pornstar keep a home garden, get eight hours of sleep, and practice gratitude journaling; maybe then we'd all have something to look up to.

I heard a conspiracy theory once about a CIA plan to get people more okay with war in the Middle East by putting planes in porn. I bet it would work. I almost wish whoever came up with that fake theory didn't share it, because the CIA is probably going to do it for real now.

I think that when we eventually have all of our interactions with the world funnelled through technology by a trans-national company, we should advocate for them to ban porn on-demand. If you try to access it, your brain chip will just replace it with CP24 news coverage. One governmental pornographic film will be made each month. It will be Canadian content with one-quarter of total film time being educational content. The first view is penalty-free, the rest all deduct from your social credit score. Just a thought.

hotfemoid.substack.com

## LIMIT AS I APPROACH CUM

When you take the limit of a function, you look at its behavior as you get closer and closer to a point, but you never actually reach the point. Limits are edging.

creature\_f

## ASSIGNMENT TWO?

### YEAH I REMEMBER ASSIGNMENT TWO

assignment two was good clean fun.

some assignments aren't good clean fun—  
i sit down and worry for  
hours and hours  
and get up and worry for  
hours and hours.  
but not assignment two.

i'd lean back on my  
favourite  
couch  
and stretch my fingers and  
write  
code  
and get up and get on  
with my evening.

i could shower and feel clean;  
i could eat and feel fed;  
i could sleep and feel slept  
the morning after.

assignment two. it was almost  
transactional,  
like two eggshells shaking hands,  
me and assignment two,  
looking knowingly into each other's yolks,  
yet agreeing that,  
at the end of the day,  
they must go their separate ways,  
assignment two and i.

yeah i remember assignment two. we had  
good clean fun.

χ

## EDITOR TYRANNY PART 387743298753



Brevity is the soul of wit.

[Editor's Note: U mad?]

aphf

# HOW TO REWRITE A PYTHON PROGRAM AT RUNTIME, PART 2

After a brutal first round of interviews, a dejected student flops into a seat in the DP library. Getting a sudden burst of inspiration, they pop open their laptop and pull up a stack of practice interview questions. The second round will be better, they tell themselves. They'll be prepared this time.

On the other side of the window, a goose with an evil grin in its eye pops open its own goose-sized laptop.



You are an evil goose. Armed with the Python knowledge bestowed upon you by an anonymous **mathNEWS** writer, you fulfill your passion of wreaking havoc on Waterloo students, making their lives as miserable as possible. In part 1 of this series (published in **mathNEWS** 149.6, which you can read on [mathnews.uwaterloo.ca](http://mathnews.uwaterloo.ca) if you're not caught up yet) you learned how to rewrite the bytecode of a Python function at runtime to change every plus operation into a minus operation. Today, though, you want to go bigger.

Using your extreme hacking skills which all geese are born with, you remote into the student's laptop. They've written this function to multiply two matrices:

```
def matrix_multiply(matrix1, matrix2):
    result = []
    for i in range(len(matrix1)):
        result.append([])
        for j in range(len(matrix2[0])):
            result[-1].append(0)
    for i in range(len(matrix1)):
        for j in range(len(matrix2[0])):
            for k in range(len(matrix2)):
                result[i][j] += matrix1[i][k] * _
    result[i][k]
    return result
```

This snippet of code has quite a few for loops. It would be pretty annoying if someone made those for loops run forever, instead of ending when they get to the end of the range...

One way to accomplish this would be the function `cycle()` in the `itertools` module. `cycle` takes in an iterable (the thing after the "for") and repeats every element that the iterable outputs, indefinitely.

```
>>> import itertools
>>> for i in range(3): print(i)
...
0
1
2
>>> for i in itertools.cycle(range(3)): print(i)
...
0
```

```
1
2
0
1
2
0
1
2
0
(this goes on forever)
```

To inject `itertools.cycle` into our student's code, we need to change the code of the function so it looks like this:

```
def matrix_multiply(matrix1, matrix2):
    import itertools
    result = []
    for i in itertools.cycle(range(len(matrix1))):
        result.append([])
        for j in itertools.cycle(range(len(
    matrix2[0]))):
            result[-1].append(0)
        for i in itertools.cycle(range(len(matrix1))):
            for j in itertools.cycle(range(len(
    matrix2[0]))):
                for k in itertools.cycle(range(len(
    matrix2))):
                    result[i][j] += matrix1[i][k] * _
    matrix2[k][j]
    return result
```

Note that we'll need to make sure `itertools` is imported at the top of the function.

So we have a couple things to add here. I checked out the bytecode and it seems like it would be tough to modify. We would have to figure out the start of every expression being used in a for loop, then somehow add the `cycle` function around it. Luckily, there's another method.

Bytecode is the compiled representation of Python code, but before compiling the code the Python interpreter needs to parse the syntax, converting the symbols and words into a more machine-readable form. In this case the more machine-readable form is called an *abstract syntax tree*, or AST. An AST consists of every syntactic element in the function, but in tree form.

For example, the line `print(1 + 2)` would parse into an Expression node (because all function calls are expressions) containing a Call node for the print function, containing a BinOp node for the + operator, containing two int literals, 1 and 2.

But how do we get access to the AST? The Python interpreter doesn't store the AST of every function it compiles; it's not useful to Python anymore after the function's been compiled. By the time we can access the function, the AST has already been thrown away.

However, we do have another trick up our sleeve. Let's take a look at the properties of `__code__` that we looked at in part 1:

```
>>> dir(add_two_numbers.__code__)
['_class_', '__delattr__', '__dir__', '_
↳'_doc_', '__eq__', '__format__', '__ge__', '_
↳'_getattribute__', '__gt__', '__hash__', '_
↳'_init__', '__init_subclass__', '__le__', '_
↳'_lt__', '__ne__', '__new__', '__reduce__', '_
↳'_reduce_ex__', '__repr__', '__setattr__', '_
↳'_sizeof__', '__str__', '__subclasshook__', '_
↳'_co_argcount', 'co_cellvars', 'co_code', '_
↳'_co_consts', 'co_filename', 'co_firstlineno', '_
↳'_co_flags', 'co_freevars', 'co_kwonlyargcount',
↳'_co_lines', 'co_linetable', 'co_lnotab', '_
↳'_co_name', 'co_names', 'co_nlocals', '_
↳'_co_posonlyargcount', 'co_stacksize', '_
↳'_co_varnames', 'replace']
```

The code object stores the file name the code was in (`co_filename`), as well as the line number it starts on (`co_firstlineno`). This means with a few file reads, we can find the original source code of the function!

Note that this will only work if the function definition is actually saved in a file, so you can't try this in the Python shell. I moved the `matrix_multiply` function into a module called `matmul` for this demonstration.

If you thought Python couldn't possibly just have a function in the standard library that checks the file name and first line number of a function, opens the file with that name, and reads and returns that function's source code, automatically detecting where the function ends... think again.

```
>>> import inspect
>>> import matmul
>>> source = inspect.getsource(
↳matmul.matrix_multiply)
>>> print(source)
def matrix_multiply(matrix1, matrix2):
    result = []
    for i in range(len(matrix1)):
        result.append([])
        for j in range(len(matrix2[0])):
            result[-1].append(0)
    for i in range(len(matrix1)):
        for j in range(len(matrix2[0])):
            for k in range(len(matrix2)):
                result[i][j] += matrix1[i][k] *
↳matrix2[k][j]
    return result
```

Gotta love Python. Now we can parse this into an AST, using yet another built-in Python module:

```
>>> import ast
>>> tree = ast.parse(source)
>>> tree
<ast.Module object at 0x00000248F7527D60>
```

We can see which child elements each node has by looking at the properties of each node, usually `body`:

```
>>> tree.body
[<ast.FunctionDef object at 0x00000248F76449A0>]
>>> tree.body[0].body
[<ast.Assign object at 0x00000248F7B4C580>,
↳<ast.For object at 0x00000248F7B4C4F0>,
↳<ast.For object at 0x00000248F7B4C1F0>,
↳<ast.Return object at 0x00000248F7B4DD20>]
```

The next step is to add the elements we need to the tree! The first element we need to add is an `import itertools` line at the beginning of the function, and we can just find out what AST would correspond to that by using `ast.parse` again:

```
>>> import_tree = ast.parse("import itertools")
>>> import_tree
<ast.Module object at 0x00000248F76B9270>
>>> import_tree.body
[<ast.Import object at 0x00000248F7B4DC90>]
```

We can just take that `Import` node and insert it as the first child of the function node.

```
>>> tree.body[0].body.insert(0,
↳import_tree.body[0])
>>> tree.body[0].body
[<ast.Import object at 0x00000248F76B8C70>,
↳<ast.Assign object at 0x00000248F7B4C670>,
↳<ast.For object at 0x00000248F7B4FC70>,
↳<ast.For object at 0x00000248F7B4DF90>,
↳<ast.Return object at 0x00000248F7B4D480>]
```

Next, we need to wrap the `for` iterables in `itertools.cycle`. Let's see what `itertools.cycle` looks like:

```
>>> cycle_tree = ast.parse("itertools.cycle(
↳None)")
>>> cycle_tree
<ast.Module object at 0x00000248F76B8130>
>>> cycle_tree.body
[<ast.Expr object at 0x00000248F7B4F370>]
>>> cycle_tree.body[0].value
<ast.Call object at 0x00000248F7B4F340>
>>> cycle_tree.body[0].value.args
[<ast.Constant object at 0x00000248F7B4F490>]
```

(If you want to learn more about these AST objects, look in the Python docs for the `ast` module.)

It looks like we can just take whatever's in the `for`, stick it in the `args` of the `Call` object, and then put that back in the `for`. Let's try it:

```
>>> tree.body[0].body
[<ast.Import object at 0x00000248F76B8C70>,_
↳<ast.Assign object at 0x00000248F7B4C670>,_
↳<ast.For object at 0x00000248F7B4FC70>,_
↳<ast.For object at 0x00000248F7B4DF90>,_
↳<ast.Return object at 0x00000248F7B4D480>]
>>> tree.body[0].body[2].iter
[<ast.Expr object at 0x00000248F7B4D750>,_
↳<ast.For object at 0x00000248F7B4D8A0>]
>>> cycle_tree.body[0].value.args[0] =_
↳tree.body[0].body[2].iter
>>> tree.body[0].body[2].iter = cycle_tree.body[
↳0].value
```

We can actually see the changes we've made in recent versions of Python by using the `ast.unparse` function, which generates valid Python code that would parse to a given AST, which is really cool. It's almost as if the Python people expect you to be doing this sort of stuff every day.

```
>>> print(ast.unparse(tree2))
def matrix_multiply(matrix1, matrix2):
    import itertools
    result = []
    for i in itertools.cycle(range(len(matrix1))
↳):
        result.append([])
        for j in range(len(matrix2[0])):
            result[-1].append(0)
    for i in range(len(matrix1)):
        for j in range(len(matrix2[0])):
            for k in range(len(matrix2)):
                result[i][j] += matrix1[i][k] *_
↳matrix2[k][j]
    return result
```

And that's exactly what we wanted. Let's compile this tree into a new code object.

We can do this with the built-in `compile` function. Then we can just call `exec`, which executes the code object in the current scope. This will result in a new `matrix_multiply` being defined!

```
>>> code_obj = compile(tree, "<ast>", "exec")
>>> exec(code_obj)
>>> matrix_multiply([[1, 2], [3, 4]], [[5, 6],_
↳[7, 8]])
(hangs forever)
```

This is sure to confuse the hell out of your poor student. However, you're just doing all this manually so far. It would be great to traverse the syntax tree and modify the iterable

of every for loop, but geese just aren't very good at traversing trees.

Luckily, Python has a way of helping you with this, and I'll tell you about it in Part 3, coming some time in the future.

\_\_init\_\_

## WHEN YOUR MATH PROOF IS ONE PAGE SHORT (AN ALTERNATE WAY TO WRITE QED)

According to all known laws of mathematics, beginning with the utmost foundation of mathematic glory with axioms created by the earliest known mentions of mankind utilizing numbers combined with the knowledge and brains of the groundbreaking mathematicians Euclid, Aristotle, Newton, Pythagoras, Einstein, and Plato, the reader of this proof can confidently arrive at the conclusion that the following is an indubiously-unwaverable fact; by the power and knowledge vested in the author based on a verifiable educational background, مرتکز علی علماء مسلمین من الأجيال السابقة مثل عباس ابن جابر ابن حیان فرناس، أبو القاسم الزهرای، الحازن، و جابر ابن حیان. It is said that truthfulness is a virtue. Any self-respecting mathematician cannot be considered as such without a masterful and fully responsible grasp on honesty. As such, the contents of this paper are a genuine attempt to follow such wisdoms to the greatest extent of the meaning. 这一张论文饱含着所有写作者的知识;然而, with absolute certainty, the content provided in this aforementioned paper is correct as demonstrated above.

mathdebaters

## 10 THINGS TO DO BESIDES YOUR TAXES

- laundry
- love
- liberal
- large amounts of non alcoholic substances
- lethargic development
- locust of control
- e-lope
- laryngitis
- jennifer lopez

tax evader



# LIGHT IN THE DARK

All marginalized groups are unique. One could say that the superpower of queerness is its hideability. One cannot hide from the colour of the skin, nor their cisgendered femininity, nor their disability, and it is very hard to hide from one's indigeneity.

It is quite easy to hide from queerness.

Unfortunately, it's an insidious superpower. It is no life to live falsely, but hiding from one's queerness is exactly that. To deny oneself one's true experience of love, only to conform to a societal standard of dating the opposite gender, is to live a life devoid of some of the deepest connection. To *force* oneself to date, to have sex, only because these are things one is expected to do, is to live with a deep feeling of something being wrong; being false. To deny oneself a true experience of self, only to conform to a letter on one's birth certificate and the expectations that have followed, is to live a life wishing for what could have been.

None of these are enviable. All are easy to attain. All you have to do is keep moving, stay distracted, and hide deeper. Dissociate further. Straighten out.

That option is not worth it, of course. The world becomes so much deeper, more vibrant and true, once we stop hiding from ourselves. Once we experience the world as we were meant to, before others' expectations became involved.

The inertia of the status quo, of presumed heterosexuality, romanticism, and gender, is hard to break. Overcoming it is that task at the bottom of your list; you know you should do it, tonight, tomorrow even, maybe next week, maybe reading week, you'll get to it, someday. Everyone has one.

Tasks like these are best accomplished with allies. Who has ever joined a new gym without a friend to show them the ropes? For embracing one's queerness, the strongest allies are those who already know the way. At Waterloo, spaces like Glow provide these allies, and through them that push to live a better life. Through spaces like Glow, we can find the courage to take the first step and those that follow towards living up not to the expectations of others' scrutinizing eyes, but to the expectations of our own screaming hearts. Through spaces like Glow, closeted Waterloo students can change their path from one of falseness, dysphoria, and fog, to one of truth, self-actualization, and finally experiencing the world alive.

Glow, and the transformative impacts it provides, are funded under WUSA. Through the WUSA governance model, Glow's past and continued operations are at the mercy of student representatives. Should those representatives value Glow, the health of our queer student base, and the alleviation of the pain of dysphoria and falseness, then Glow and our queer student body continue to thrive. Should those representatives feel less kindly, our queer student body would suffer for it.

If you find yourself in student government at any point in your time as a student, I ask that you remember and value Glow's ability to illuminate the way forward. And even if it is not your guiding light, I ask that you appreciate its value for those still fighting through the dark.

molasses

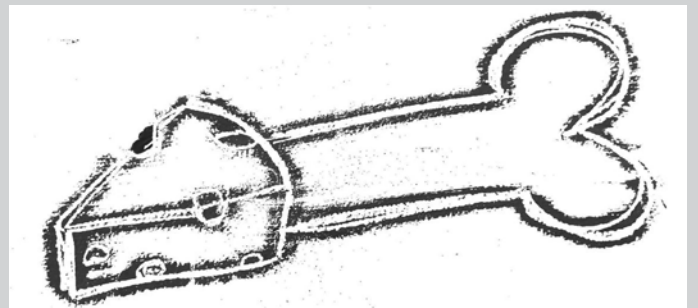
## DYING HAIR

### HAIR BLEACHING, FOR AMATEURS

It starts with a bunch of friends convincing you at 5pm on a Saturday that you should definitely bleach your hair because "It's more fun if we all do it together." Excited, the group decides that it has to be today. You go to the closest supermarket and find that they do not in fact have any bleach and that you need to go to the closest drugstore, which is about 30 minutes away, because we are in Canada and everything is far here. You need some time to guess which one of the products is the best and by the time you get home it is 8pm. You start clumsily, since this is the first time anyone of your group is dyeing hair. You read the instructions, but they are not really representative of what is happening to the hair in front of you so you start to improvise. After an hour of head massages, you start to see first results which do not seem promising. Some of the hair is already white, while some of the strands still look brown or even black. By the time you are done it is past midnight and the results are... let's say interesting. You examine everyone's hair and decide that maybe, in the sunlight the colour will look better. Some of your friends are happy with the 'natural' highlights and the unforeseen ombre effect. Others want to go back to the drugstore the next day in order to bleach their hair again and repeat the whole process, this time while finishing some last-minute assignments. You come out of the weekend with sleep deprivation, a new look and hopefully passing grades.

blonde2525

## SMEGMA



anonymous

# A SUBSET OF DISHES THAT ARE IN MY FRIDGE RIGHT NOW

I don't encourage anyone to try out the recipes, but here are some stuff that I like to cook for myself these days.

## FISH

I mostly use frozen fish for budget reasons, sometimes I may use fresh salmon if my mood allows it. First you boil the fish in salty water, usually for ~3min, or until the fish turns all white/red. Lay the fish in a dry dinner dish. Then heat up a clean pan, pour in two table spoons of oil, and add in some garlic, chili oil/dry chili, and ginger. Finally pour the hot oil directly onto the fish, and a simple and nice-looking fish dish is done.

## TOMATO

I use fresh raw tomatoes for this dish, but canned tomatoes should work the same. First chop up some onions and mushrooms, and cook them with sufficient cooking oil until the mixture turns brown. Then cook some ground pork, and add it to the mixture. Add some butter into a pot, heat it till it melts nicely, add some garlic chops, then pour in all the ingredients. If you're using raw tomatoes, consider removing the skins and blend them with a juice maker to remove the big chunky parts. Heat up the mixture, and wait until a preferable density is met. It can either be served as a soup, or served with some piping-hot rice.

## RICE

To cook a perfect bowl of stir-fried rice, all you need is some heat and fat. And make sure to completely cool down the rice before frying them in a pan. Freshly-made rice is the first step towards a total disaster. First, heat up the pan with some cooking oil at mid-high heat. Add in the rice when the oil is almost starting to smoke. Keep the heat on while separate the rice in the pot as fast as you can. Then add a few drops of soy sauce when the rice is cooking. Stir a lot to make the soy sauce uniformly cover the rice. If things go well, you should see vapour keep coming out of the pan at a moderate rate, or you will know the heat is not intense enough. Lastly add any ingredients you want to go with the rice. My usual choices are from green peas, ground pork, sausages, corns, scrambled eggs, together with some chili oil. All ingredients should be pre-cooked as well. However, be cautious about the amount of oil that goes in the dish, as you used it to cook both the rice and all other ingredients. Turn off the heat when the rice has turned clean-and-dry. Sprinkle some green onion chops and it's ready to serve.

loop

# DURIAN REVIEW

## GOTTA BE ONE OF THE FRUITS OF ALL TIME

Recently, **mathNEWS** writer CC organized an event where people of all ages, shapes, sizes, shirt colors, etc. came together to taste durian. For those who don't know (don't worry, I was among<sup>1</sup> you not long ago), durian is a fruit most well-known in Malaysia, Thailand, and some other southeast Asian countries.

## FIRST IMPRESSIONS

Unopened and from far away, it looks like a gigantic green spiky mango, and smells like a mixture of "generic fruit" and "the chemicals you put in natural gas to make it so that you can smell a gas leak."

## TASTE

It tastes like something between a mango and raw chicken<sup>2</sup>, with the key difference from both of them being that durian is more... mushy. A mango is somewhat mushy but it has those fibers inside it to give it some resistance. In a chicken you can feel the "grain"/muscle fibers in the meat which serve the same purpose. Durian does not have that so it feels more like a custard, in that you can scoop it up with a spoon and eat it. Of course, any analogies with custard are over once you get past the mouthfeel. The aftertaste is a mixture of mango and the aforementioned gas leak smell, and does not go away easily.

## FINAL THOUGHTS

I am glad I got to try durian. It was certainly an experience. Did I like it? Well, that's a difficult question. Does a student like final exams? Does a user like to do system updates? Does a GRT bus driver like being on time? The answer to all of these questions is, "Facts don't care about their feelings; what's important is that it builds character." My character got built in a very slight way, and that means that the money spent on the durian was \$10.42 well spent.

tendstofortytwo

1. haha among
2. When I shared this description with other people at the event, the responses were evenly split among<sup>1</sup> "Yeah I totally get what you mean!" and "Why do you know what raw chicken tastes like??" Curiously, the only people who liked it were the ones who didn't know what raw chicken tasted like.

Should we finish early today? I'm tired and also hungry.

MARTIN PEI

## MAXIMAL MUNCHEN

ample absorption  
 big bite  
 cavernous consumption  
 dramatic deletion  
 expansive envelopment  
 full feast  
**greedy gobble\***  
 heaving helping  
 immense ingestion  
 jumbo juicing  
 king keeping  
 lush lick  
 mountainous mastication  
 neverending nosh  
 opulent obtainment  
 paunchy pick  
 quintuple quench  
 ritzy removal  
 super sampling  
 tremendous taste  
 unparalleled uptaking  
 voluminous voring  
 whole withdrawal  
 \*xorbitant xenocytosis (new word just dropped)  
 yotta yum  
 zetta zakuska

blinchik

\*cutlet kicking it all off

## A SIMONIAK'S PRAYER

To you, O Lord  
 We have sacrificed many lambs  
 And hidden the details from the press  
 And the Lord in His infinite selflessness  
 Has given us a lamb of His own to slaughter

Jesus with caring eyes and ivory skin  
 And chiseled abs and television hair  
 On his perfect body may we descended,  
 And in lustful gluttony will our sin be absolved?

From his wiry arms we tap burning wine,  
 From the grounds of his bones we bake flaccid bread  
 And with hearts and bellies bursting with repentant catharsis  
 We pray for forgiveness  
 For a limited time only™  
 Or at least until hump day  
 So that next Sunday we may pay for the sin of stealing Mary's  
 potato salad from the company fridge

Amen

heretical physicist

## JEFF DEAD IN MC

WATERLOO, ONTARIO—Local bridge troll, **mathNEWS** writer and self-proclaimed “C++ funny-man” jeff has been found dead in the aftermath of a shoot-out in the asbestos-lined halls of the Mathematics and Computer building at the University of Waterloo campus. Authorities are puzzled by details surrounding the tragedy.

“From what we can discern, none of the suspects involved actually knew each other at all,” says police officer Rule F. Law. “They seemed to have been spurred to this crime of hate both spontaneously and simultaneously. It’s a shame that youth today aren’t accepting of all programming languages.”

Eyewitness accounts attest to jeff talking about more stupid template metaprogramming bullshit in the moments leading to the fatal incident. Critics of C++ have been quick to vocalise their perspectives on the event, ranging from “the guy had it coming” to “honestly, it couldn’t have happened soon enough” to “I’m actually more worried about the asbestos than whatever this is”. No C++ supporters were reachable for comments at this time.

Keep it here for updates on this developing story.

jeff

## PINEAPPLE = OTAMOT

When I went grocery shopping last weekend, I found a pile of cherry tomatoes for the first time this year. As inconspicuous as they are, they remind me of the invisible boundary between fruits and vegetables.

While we usually treat tomatoes as fruits and eat them uncooked just like we eat all other fruits, tomatoes are actually classified as vegetables instead of fruits. On the other hand, while pineapples are fruits, people tend to treat them as vegetables when cooking, e.g. Hawaiian pizza.

With this in mind it then occurs to me that pineapple is just the opposite of tomato. Therefore, pineapple = otamot.

\_ted\_fu

If you call SQL "sequel"  
 to my face, you fail this  
 course.

MICHAEL LIU

## SYSTEM76 LEMUR PRO: MY NEXT LAPTOP?

Ever since I acquired *kyoto*<sup>1</sup> nearly a year ago, the question of its eventual replacement has lingered in my mind. The T480, in my mind, was the last hurrah of the legendary T series ThinkPad. It had two M.2 slots allowing for a convenient dual-SSD setup. It had two sticks of upgradable RAM. Perhaps most importantly, a slot for a massive 72 watt-hour battery for a total of a whopping 96 watt-hours of total battery capacity that, when combined with its power-sipping 15W processor, gave it all-day, and multi-day battery life. Pick up the latest model T14, however, and it will be quickly apparent how far the ThinkPad T series has fallen; gone are the two sticks of socketed RAM, and gone is the hot-swappable battery, replaced by a wimpy 50 watt-hour unit as its sole source of power. Further putting the nail in the coffin, Lenovo has added a seldom-useful number pad onto all new T14's, pushing the entire keyboard to the left to ensure a worse typing experience.

Thus began my quest to replace the now dead-to-me T series ThinkPad. Some obvious considerations were Lenovo's own more expensive ThinkPad X1 and Z offerings, as well as their competition from HP and Dell.<sup>2</sup> However, each came with its own set of deal-breakers ranging from price to lack of expandability. While the popular Framework laptop seems to be a good option for most people, it still fell short in one critical area, as did all the other contenders: battery capacity.

Then came the horse in shining armor: System76's Lemur Pro. Equipped with an Intel Alder Lake U-series (15W) processor and a 73 watt-hour battery, it was love at first sight. While 73 is less than the 94 watt-hours of capacity available on my older T480, improvements in chip manufacturing should account for most of the gap in capacity. Not only does the Lemur Pro match the T480's expandability, it also goes above and beyond by offering two full-size M.2 2280 slots, which the old ThinkPad did not have (*kyoto*'s second M.2 slot was a B+M keyed 2242). Making things even better, it comes with Linux out of the box, meaning that it is certain to have excellent Linux driver support directly from the manufacturer. Sure enough, installing drivers for the Lemur Pro is as simple as an AUR package.

However, nothing is perfect and there are certainly a few nitpicks. Immediately clear was that the Lemur Pro's IO, while not bad, is certainly not award-winning either; two USB-A's, one HDMI 2.1, and only one USB-C/Thunderbolt port. Noticeably present is the barrel jack charge port. While the device does support USB-PD charging, the position of the USB-C towards the middle of the device makes for an imperfect charging situation, not that one would need to very frequently. Another minor shortcoming is the lack of DDR5 support: Alder Lake supports both DDR5, but it was not included in this laptop. However, performance was never the selling point of the Lemur Pro and System76 is bound to add DDR5 soon when Intel drops DDR4 support in future generations.

Lastly, the use of 15W processors (12xx5U) is somewhat disappointing given the availability of 9W processors (12xx0U). However, the compromise between power consumption and performance is an understandable one, even if it is a choice I personally disagree with.

Despite its flaws, the Lemur Pro is certainly the closest laptop to my ideal and is the top candidate (by a large margin) to replace *kyoto* (and likely *osaka*<sup>3</sup> as well) when the day comes.

tokyocatboy

1. Each of my computers are named after a Japanese city, my primary laptop is a ThinkPad T480 named after the city of Kyoto.
2. Dell Precision, Dell XPS, HP Spectre, HP EliteBook, HP Dev One.
3. *osaka* is a base-spec 2017 13-inch MacBook Pro, no touch bar. My primary (and only) computer during my second half of high school, now serves as a spare for apps that don't run on Linux, such as the Adobe suite.

---

## A RESPONSE TO CRITICISM OF HARSH GRADING

Dear students,

As you begin the new term and new classes, you have most likely been "dinged" on what seem to be minor typographical errors. I assure you, they are not minor. A common cause of confusion among first- and second-year students is the misquantification of variables, leading to very different definitions than what was intended. Perhaps you have seen the difference between a limit and a cluster point. A limit point of a real-valued sequence  $(x_n)_n$  is a point  $x$  such that for all  $\epsilon > 0$  there exists  $N$  such that for all  $n \geq N$ ,  $|x - x_n| < \epsilon$ . A cluster point of  $(x_n)_n$  is a point  $x$  such that for all  $\epsilon > 0$ , for all  $N$ , there exists  $n \geq N$  such that  $|x - x_n| < \epsilon$ . Perhaps this seems like a minor difference, but you could be no further from the truth. Consider the sequence  $(\lfloor \pi n \rfloor)_n$ . This sequence is far from converging, but has *every* point in  $[0, 1]$  as a cluster point!

The grading may seem harsh, but it is better that you are forced into good mathematical habits now, so that you can do well in upper year courses. Mathematics is a precise science, and theorems can be quite intolerant to violations of their hypotheses.

grader

## HOW TO PISS ON RONALD REAGAN'S GRAVE: THE DEFINITIVE GUIDE

Your first step to pissing on the grave of the former commander in chief is to befriend someone in CS. In particular, you need to befriend a CS student who is currently working in Cali, specifically in the Los Angeles area. This step is important, because it will save you from having to pay for a hotel and can potentially give you a good place to escape to if you get caught mid-piss. So, when you get to Cali, you should borrow your CS friend's car (if they have one, otherwise you can steal/rent a car).

Reagan's grave site is located at the Ronald Reagan Presidential Library on 40 Presidential Dr, Simi Valley, CA 93065, USA. When you arrive there is a parking lot next to the library, from which you can see the grave site. Park there and walk up to the grave. There is virtually no security at the grave site, just hop over a short fence, whip out whatever genitalia you have down there [*Editor's Note: this would make you a sex offender*], and get to pissing.

If you don't want a video of you circulating online of doing something unfathomably based, then I would recommend having a mask on for this part. Then, before you can get caught, get back in your car and drive away, try to avoid running over cops. Make sure to hide any identifying information on the car before you get there, and by the time you get back to Los Angeles, you will be about an hour away from the crime scene, and the cops will be too lazy to look for you, so you will be totally safe.

Safe travels, and make sure to stay hydrated <3.

*Reagan was a bad dude*

## A SPIDER CLIMBED THE SKY

He was a tiny spider,  
and he was climbing the sky like  
a brave little soldier,  
marching in the last blue of the day,  
tiptoeing up his invisible web over MC  
and DC and QNC,  
and with his eight little limbs, he was dancing solo through  
the air  
looking like a God of the world—  
But I knew better.  
I'm spilling your secret to the rest of the world,  
my tiny friend—  
you were only climbing up the glass of the fifth floor window.

*A cool pen name*

## VLADIMIR PUTIN TRIES, FAILS, TO LOAD SAVE GAME FROM BEFORE INVASION



MOSCOW—As the situation in Ukraine continued to worsen for the Russian Armed Forces, sources in the Kremlin reported that Vladimir Putin made an unsuccessful attempt to load a save game from before the invasion.

“Fucking autosave,” the President of Russia was reported to have said, upon discovering that the oldest save available was from after the invasion had already begun. To save disk space, Russian policy was altered to maintain only the last five autosaves in late March.

The more than twenty-year leader of Russia also made a fruitless search in Steam Cloud and on a backup USB drive he found in a desk drawer. To his chagrin, the drive had been repurposed as a Windows boot disk after a botched attempt to pirate a copy of Adobe Photoshop.

At press time, cyber warfare elements of the FSB had been ordered to begin research into save hacking software, as well as potentially obtaining a copy of Cheat Engine.

UW Unprint

**Land power is the most important form of military power, because land, if you can believe it, is where people live.**

PROF. ALEXANDER LANOSZKA

# RASSPUTIN

A PARODY OF "RASPUTIN" BY BONEY M.

There lived a certain man in Russia long ago  
 He was big and strong and his ass was thick as dough  
 Most people look at him with terror and fear  
 But to Moscow chicks he had such a lovely rear  
 He could clap his cheeks with such reverberance  
 Oh, just look at them shake  
 You could say he had a lot of turbulence  
 And a lot of cake

Ra, ra, Rassputin  
 Lover of the Russian queen  
 His bouncy butt bewilders my brain  
 Ra, ra, Rassputin  
 Russia's greatest love machine  
 His massive melon makes me insane

In all the Russian land, he had the plumpest peach  
 "Let us squeeze it please," all the people did beseech  
 He always got his way when speaking in the courts  
 No one dared rebuke when he wore his booty shorts  
 To the queen his butt was most bodacious  
 Though she'd heard the things he'd done  
 Of the gals with whom he was flirtatious  
 She was number one

Ra, ra, Rassputin  
 Lover of the Russian queen  
 His bouncy butt bewilders my brain  
 Ra, ra, Rassputin  
 Russia's greatest love machine  
 His massive melon makes me insane

But when his twerkin' and poppin'  
 And his gargantuan dumpy  
 Became known to more and more people  
 The moans of desire  
 For his outrageous ass  
 Became louder and louder

"We need his ass so bad," declared the men in town  
 But the ladies begged, "please just keep your willies down"  
 No doubt his gorgeous buns had many, many simps  
 But the most of them wouldn't even get a glimpse  
 Then one night some men of higher standing  
 Had desires but no shame  
 "Just a booty call," they kept demanding  
 And he really came

Ra ra Rassputin  
 Lover of the Russian queen  
 There was no man more rugged and tight  
 Ra ra Rassputin  
 Russia's greatest love machine  
 He shut the door and dimmed down the light  
 Ra ra Rassputin  
 Lover of the Russian queen

He whipped out his gargantuan schlong  
 Ra ra Rassputin  
 Russia's greatest love machine  
 And so he fucked them the whole night long

Oh, those Russians

someBODY

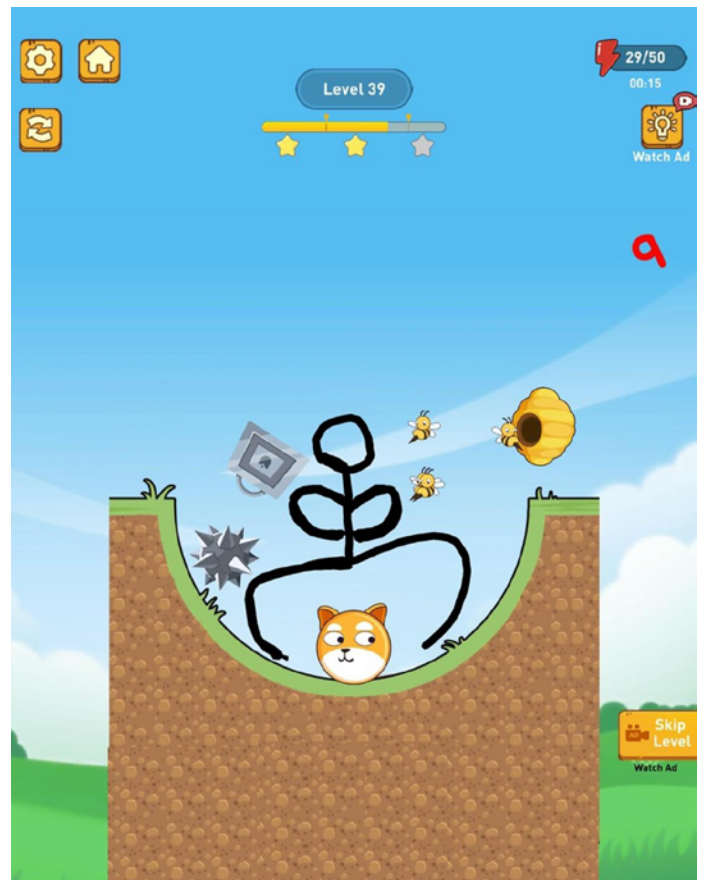
## SAVE THE DOG

If you're like me, you spend a lot of time staring at online ads, waiting for them to be over.

I don't really play games on my phone, (too busy endless scrolling various content apps), but the ones that are shilling mobile games are oddly engaging, for a reason I can't quite explain.

Ok, that was a lie. That was a just a hook for the article, I'm going to explain it now.

The reason is that the games look genuinely good! At least as concepts. The one I keep seeing right now has you drawing a shape on the screen to keep bees away from a dog (or some other character).



It's actually quite interesting, because you have no way of anchoring the shape, and the bees actually have quite a bit of force to them, so they can push the shape out of the way.

Every time I see the ad I think a little bit about how I'd design the shape so it couldn't be pushed away. I recognize, of course, that I am a few inches away from becoming a Total Moron and Falling For A Mobile Game Advertisement.

Of course it's a scam! It probably has too many ads, or doesn't actually have the game mechanic, or if it does, it's only a small part, and most of it is some shittier concept like a match-3 or something. The ads themselves are completely stupid, with some ripped off TikTok song and visible glitches, like the bees flying through the shape. A genuinely good mobile game in an ad? It can't be possible. Everyone knows the mobile platform is a cesspool of in-app transactions and shallow gameplay. The incentives! They can't promote anything else.

But, every time the ad appears, hope springs eternal. I can't help but imagine some hard-working mobile dev, struggling against a system he didn't create. Maybe there can be something better.

I watch the whole thing.

UW Unprint

## wordGUESS

This is **wordGUESS**, a Wordle clone implemented in **mathNEWS**. Every **mathNEWS** issue, you send me a guess for a four-letter word, and I give you a row of emojis corresponding to how well your guess matches up with the word I'm thinking of. 🟩 means "correct letter in correct position," 🟦 means "correct letter in incorrect position," and 🟪 means "incorrect letter."

Thank you for your submissions! The scores of the various participants playing are as follows:

- **eternallypuzzled:** 🟩 🟩 🟩 🟩
- **\_\_init\_\_:** 🟩 🟩 🟩 🟦
- **angie:** 🟩 🟩 🟩 🟦
- **sherp:** 🟩 🟩 🟩 🟩
- **enamour:** 🟩 🟩 🟩 🟦
- **palepinkroses:** 🟩 🟦 🟩 🟩

If you did not make a submission for this issue, don't worry! You can join the game late by following the submission instructions ahead, you'll just have fewer guesses. If you did make a submission, you can submit your next guess the same way as last time: emailing your nickname and guess to [spam@tendstofortytwo.tk](mailto:spam@tendstofortytwo.tk).

See you all next issue!

tendstofortytwo

## ONTHEGO II: GETTING ON GO TRANSIT

Frequent **mathNEWS** readers may remember the not-so-brief mention of GO Transit from the previous issue of ontheGO. Created by the Government of Ontario in the 1960s as a commuter service to bring commuters to and from downtown Toronto, its modern-day network is still very much reflective of its origins as most of its routes either end or begin in the Greater Toronto Area. So while GO Transit may not be the best choice for trips from Waterloo to Hamilton, it is.

From UW Station, there are two available GO bus routes: "30 Kitchener" and "25 Waterloo." 30 runs on weekdays only at an approximately hourly frequency, taking about 70 minutes to arrive in northwestern Mississauga and 1 hour 30 minutes to arrive in Brampton. Please note that due to the location of route 30's Mississauga stop in a business park, local connections are not great in this area.<sup>1</sup> Thus it is not recommended to take route 30 to travel to Mississauga without a car pick-up. However, with a car pick-up, it can be a quicker alternative to route 25.

Route 25 in its plain form is a much slower bus than route 30, stopping in many locations throughout the Region of Waterloo before getting on the highway to Mississauga, taking just over two hours to reach Square One Bus Terminal in downtown Mississauga. However, one may find greater utility with the 25C, which provides a 1-hour express service to Square One.

Alternatively, limited train service is available from Kitchener GO (reachable by the ION), serving London and Union Station in Toronto, with the former stopping in Guelph, Brampton, and west Toronto. The procedure for fare payment should be similar to that when riding a GO bus.

Happy travels!

tokyocatboy

1. This area is served by Mississauga's route 108, which is an express service to Toronto's Kipling West bus terminal. However, it runs only during rush hours and is directional route with Toronto-bound buses only during the afternoon rush hour and returning buses only in the morning rush. Good planning is recommended before the use of this route.



# profQUOTES

## CO 466: LEVENT TUNCEL

“ We can think back to our nice time in kindergarten, when we played with sand and took Calculus 1.

## CS 145: GORDON CORMACK

“ Student: When I use C++, what I’m really doing is letting the compiler generate assembly.  
Prof: What you’re really doing is letting your mind atrophy.

## CS 241E: ONDŘEJ LHOTÁK

“ Did you guys already cover NP-completeness? If not, then...well...that’s a failure of our program.

## CS 245: LILA KARI

“ This formula is the English of talking about Spanish.

“ This is the first time in your life you’ll have to prove a joke is funny.

## CS 245E: PRABHAKAR RAGDE

“ I put in the bare minimum for error messages because I’m nasty that way.

“ I get stupid on airplanes.

“ It’s a bit like a magic wand. Magic wands do not exist, but if I had one, I could do anything.

“ He never did fix it. He died unhappy.

## CS 246E: BRAD LUSHMAN

“ It’s a little harder to find because it’s invisible.

“ I’m about to use some analogies that are a little bit unpalatable.

“ You’re about to be pushed off a cliff anyway, give me your stuff, you don’t need it anymore.

“ It is not enough for me to have it. You must also not have it. Otherwise that is sharing.

“ It turns out I’m still not happy. I still don’t like this class.

## CS 341: JONATHAN BUSS

“ In the time of the Roman empire, “i” and “j” were the same letter, so I got confused too.

“ Whoever invented the letter “i” should be shot.

## CS 343: PETER BUHR

“ If on an assignment you get it back and you got a -5 and it says, “no Zen,” you got a problem.

“ Having said that, of course, it’s way more complicated than that.

“ It’s not just any iterator... it’s a *coroutine* iterator! Oh boy.

“ I always poke you when you should worry.

“ It turns out device drivers are notoriously poorly written. Horribly written.

“ The first thing you learn in networks is ACK, WACK, NACK, PACK, things like that, right.

“ The device driver begins by saying, “What the hell was I doing here?”

“ I’ve written this as a first year student. Now I want to pick this up and put it into my operating system as a device driver.

“ Who yelled out, “De Morgan’s Law”? I want to give you a big hug.

“ What you want is your programming language to hold your hand and give you these beautiful coroutines.

“ The producer-consumer problem is that [...] something produces something, and they give it to somebody, and you know what they do with it? They consume it.

“ The first thing you should do is you should be jumping up and down on your seat and screaming, “That’s a flag variable!” [...] I promise I’ll get rid of the flag variable.

“ I’m well known for teaching you something and then say, “Oh, that’s rubbish.”

“ But there’s always madness to my methods.

“ Your program was always a stick.

“ I want to make it clear, this is the world’s stupidest full coroutine.

“ [*Points at his slides*] Isn’t this stupid? It’s stupid! But according to the rules, I am now a full coroutine.

“ Now hold on, cause my fingers are going to fall off.

“ Of course, that’s a complete lie.

“ We’re running out of time? Holy smokes we’re having too much fun.



- “ The coroutine never makes a mistake, you get lost real fast.
- “ You went to sleep at Pong’s place! And where’s Pong sleeping? At your place? Ooh!
- “ So we understand this concept of going to sleep at someone else’s place.
- “ Let’s not worry about whether I got it right or wrong.
- “ We just clean you up and you’re gonna be gone.
- “ Good practice? I don’t know what that means.
- “ We’re gonna take Ping and Pong and we’re gonna give them some steroids.
- “ You want me to see your text messages? You gotta wake me up.
- “ So how many of you have been forced to do some HTML programming in your work term?
- “ So you can go talk to Herb Sutter and complain if you don’t like this.
- “ Ah, well, now you’ve brought up the dirty secrets.
- “ I’m sorry. I wrote *schmilblick*. I want my `<` operator to throw an exception. Don’t tell me how to write my code.
- “ Are we willing to occasionally lose an Ariane rocket to get way more code reuse? ...I like reuse.
- “ There’s a lot of fake news about destructors.
- “ People say, “Well you can do it this way and it works out.” And I say, “Well... what if I do recursion?”
- “ You can go to Stack Overflow and find 37 different definitions of the word “thread.”
- “ You are now all old enough to know how to make another person. But you don’t create a person. What you actually do is you create another body, and through magic... what’s inside that body is a person. And that person is scheduled for execution separately and independently from other people.
- “ There you go; you’re a process, you have your own memory, and you have your own thread.
- “ From this point in the course, it’s going to hurt.
- “ It turns out the act of observing your program changes it.
- “ Figure it out. I don’t know. I got my own concurrent programs that fail.
- “ Moving is a highly concurrent, highly parallel operation.

- “ Let’s say you’re really popular. You have  $N$  items and you have  $N$  friends.
- “ Why might you need more than  $N$  friends? Exactly! Because like me, you have a beer fridge!

**CS 370: CHRISTOPHER BATTY**

- “ We want these two pictures to be very distinct and clear in our minds, because the very next thing I’m going to do is to mush them together.
- “ Any other questions? Or typos?
- “ You’ll be able to get a cheat sheet for the exam. [*Class collectively sighs*] Was that happiness? Yes? I’m obviously good at judging emotion.
- “ Last year the US consumed 16 billion gallons of bottled water... that doesn’t matter, what matters is that we can use ODEs for physics simulations.
- “ As I produce more mice—well, I don’t produce them, they produce themselves...
- “ Real problems are arbitrarily complex.
- “ All the magic is buried in here, in step 1.
- “ Everyone’s either following along closely or fast asleep.
- “ But that was a bit unsatisfying because there were no Taylor series involved.

**CS 458: YOUSRA AAFER**

- “ What do you think is the most common password? [*Student says “password123”*] It’s “password1.” “password123” is a little too sophisticated.

**ENGL 108D: BRIANNA WIENS**

- “ He’s an old white dude, but he’s a smart old white dude.

**MATH 147: HENRY SHUM**

- “ Do you not see how 1 is necessarily smaller than 4?

**MATH 235: MICHAEL RUBINSTEIN**

- “ Yo, shut up alright.

**MATH 247: SPIRO KARIGIANNIS**

- “ [*Talking about the natural logarithm*] That’s the only log that exists, the others are fake.
- “ Extension: if other departments teach you some other log they’re all fake, the  $\ln$  notation is stupid.

**MATH 239: OLIVER PECHENIK**

“ For the time being, nothing means anything.

**MATH 249: STEPHEN MELCZER**

“ Let’s do something interesting. Well, that was interesting, but let’s do something that takes more work.

**STAT 231: MICHAEL WALLACE**

“ If I could put everything you need to know from a chapter onto two slides... I’d just do that and take half the term off.

“ The central limit theorem comes up all over the place because the central limit theorem is magic.

“ In my office I had six table tennis balls and a marker, which is equivalent to a six-sided die.

“ I hope we would all agree that the probability that four equals six is zero.

“ If you’re filling up a cup of tea—or in my case, emptying a cup of tea...

“ You might see these statements and feel deeply uncomfortable.

“ When I was in college I took a linear algebra class. The professor turned around and said, “oh by the way, this  $b$  is different from this  $b$ .” That’s when I gave up.

“ I don’t know what [COVID] wave we’re in—it’s  $N$  where  $N$  is large.

“ Binomial distribution is a great distribution for our favorite hobby, tossing coins.

“ Suppose we had superpower, and we use our superpowers to weigh geese.

“  $\theta$  is just a secret number we’re trying to get access to.

“ Let’s say I only stop to look at the llamas on the days I’m ahead of schedule. Though really it’s because I like looking at llamas.

“ I asked a class whether or not they liked poutine. I did not give them a “prefer not to answer,” because you must have an opinion.

“ This 91 is how you know the data is real. If I had made this up I would pick 90 to make the fractions work.

“ We are going to resort to every statistician’s favorite hobby, sitting in our office and tossing coins.

“ We don’t have to deal with that  $y_i!$ , which is just as well because factorials are a nightmare.

“ Let’s get to my current obsession, which is finding out what the average weight of a goose is.

“ *[On slides]* “Gaussian? More like Goosian, amirite??” I have been using geese on my slides for six years now, and this is the first time I have thought of a Gaussian-Goosian joke.

“ That  $\pi$  does not depend on  $\theta$ , so he’s not long for this world.

“ You see this and you desperately want to take the log of it.

“ I promise I think this is the last time I talk about hockey for a while.

“ I hope you’re enjoying the very British weather today. I woke up today thinking of home... and how bad it is there.

“ It would be remiss of me to not mention the classic example of a Poisson distribution, [...] murder by horses.

“ We just add Q-Q plots to our ever-expanding arsenal of weaponry.

“ With all due respect to journalists, a lot of them aren’t statisticians and don’t know what they’re talking about.

“ Midterm’s on Tuesday... as if you could forget.

“ Suppose I want to know—I say “suppose,” I *do* want to know—what everyone’s favorite animal is.

**STAT 240: AUKOSH JAGANNATH**

“ But in my opinion, computers exist.

“ 18<sup>th</sup> century British scientists only care about royalty. *[proceeds to talk about mitochondria]*

“ This doesn’t have to do with polynomials or anything. I can write this down and it’s true.

**STAT 240: SHOJA CHENOURI (SUBSTITUTE)**

“ They say God created the natural numbers, the rest are created by man. *[Points at natural number symbol]* This is manmade, because I have added 0.

“ I think time was a terrible invention. I hate it. It goes too fast.

**STAT 442: JACK DAVIS**

“ I am yelling. Why am I yelling?

- “ [My dog] is very photogenic. Unfortunately, she knows, so she has a bit of an attitude.
- “ Apologies for the technical issues today. My partner was using my laptop last, so now everything is in Portuguese...
- “ That [error] was intentional, by the way. You can feel free to be unimpressed.
- “ What this graph needs... *[shows picture of Carey Price]* is a legend.
- “ How many windows do I have open?
- “ Student: How many questions will there be on the midterm?  
Instructor: Somewhere between 5 to 10000.
- “ Here I say later in the semester, but what I hope to mean is later today.
- “ *[On Napoleon's invasion of Russia]* People are dying of dysentery, people are dying of everything on the Oregon trail. Also, people are killing them.
- “ Tragedy plus time equals data visualization.
- “ I'm not cruel... not on purpose.

# ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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## elseWHEN: “OPINION”

**elseWHEN:** the recurring column that looks back to the **mathNEWS** of the past. This issue's **elseWHEN** comes from issue 37.4, published on February 15, 1985. It was a letter to the editor (why don't we get *those* anymore?) that prodded for answers about **mathNEWS**'s place in the world:

re: Just Stop and Think (**mathNEWS**, 1 Feb 1985)

JSat reads like a requiem for the purpose of **mathNEWS**. It has long been acknowledged that mN contains “very little math and even less news.” Today, with Vol 37 no 3 in front of me, I wonder what it is.

Could it be GridWord with 9 pages of filler? No, I think not, although it is sometimes difficult to tell.

What then should **mathNEWS** be?

Should it be a forum for debate on today's issues? We are, after all, in an intellectually stimulating atmosphere, where schedules and priorities prevent organised debates or discussions. Yet, can't Imprint be that forum? Shouldn't Imprint be that?

Should **mathNEWS** be a place for heavy philosophy? If that's the direction we're going to take, perhaps we need an armchair philosopher's page. It may (or may not) be a good idea, but discourses on the nature of man are somewhat incongruous when stumbled on between MathSoc news and album reviews.

Should **mathNEWS** be a place for the news of the math faculty and society, various reviews, and humour? Yes, definitely, for **mathNEWS** is an old friend of Friday Algebra classes.

Politics? Why not? Mathies certainly have the ability to hold intelligent discussion of issues, and controversy is the lifeblood of democracy.

We of the crew sense confusion on the bridge. Do we have a course, or are we just drifting?

WITH RESPECT, SAURON

And the response from the then-editor (yes, singular!) of **mathNEWS**?

Yes, we are drifting, but we are not entirely without direction. [...] The present weakness of the paper (in your view) is no-one's fault. It is perhaps the product of too little new blood and too few new ideas, or it could be a lack of real support from the students in general. Rather than hazard guesses as to the diagnosis, I would suggest that part of the cure would be to involve more of the crew in the work on the bridge, and I invite you, Sauron, to join us next production night.

clarified

# SEEKING: A DECENT SLEEP (OR gridWORD)

## gridCOMMENT 150.2

Hello everyone!

You know, it's honestly really nice to see everyone trying so hard on these **gridWORDS**? So many people submitted solutions, and full solutions too! Even if things are rough, I know you'll all be there to complete the **gridWORD!** :)

Here's a handful of people who had some full solutions, along with their **gridQUESTION** answer from last issue, "What is your favourite food place around campus?"

- *Kirby*: "The Funcken Cafe (please don't come here so it doesn't become busy)"
- *Jason Cannon*: "goose" (i love you)
- *Aeschylus*: "The Math C&D. Duh."
- *CSC VM Engineers*: "Lazeez + Campus Pizza (Lazeeza)"
- *A Can of SPAM*: "RIP Mr. Paninos"
- *KristinasmomKaren*: no response 🐼
- *Malia*: no response 🐼

As is tradition, usually we pick an overall winner based on their solution and answer! Honestly you all did great, but *KristinasmomKaren* sent actual memes with their solution

instead of a response, and I think that goes above and beyond (you are all winners in my heart 🐼)!

With the opening of CnD, **mathNEWS** returns the tradition of offering a \$5 gift card to the winner of each issue! So *KristinasmomKaren*, please come by the **mathNEWS** office sometime at MC3030 to come collect your prize!

Let's try to get as many people to send solutions for this issue! I made things a little easier this time around, and be sure to let everyone know to give it their best shot! The theme this time is "**loo**," which is important for the starred clues. This week's **gridQUESTION** is going to be: "If you could only have one, would you have this cool rock I found, or Lazeez with 12 lines?" Be sure to send your solutions and answer to [mathnews@gmail.com](mailto:mathnews@gmail.com)! Solutions are accepted up until 6 PM October 17<sup>th</sup>!

I am currently sleep deprived (sad), but when I wake up I'll be excited to see everyone's solutions! Good luck everyone, I hope everything goes well! :)

Wink wonk

### ACROSS

- Where a goose might ask his prof for an extension on an assignment?\* (so not relatable :())
- Benevolent, generally
- Still tired
- Green land?
- Edge of the tundra
- Despise
- A shortened word, meaning traitor
- 6 x 9-inch book size
- A tool a goose might use to make a sweater\*
- Wiggly fish
- Kia model
- Perhaps even a crackle and a pop?
- Romanian money unit
- A profs eventual end
- Draft pick
- Facts bro
- Frostflower
- A despised illness
- Puked
- It refines to something sweet
- Bantu language group
- Associated with colours and creativity
- French, something to cover ones face
- Epitome of simplicity
- Smudge

- Old French coin, worth little
- Take it easy
- Antelope of Africa
- Magical healer
- Modern address
- How a goose might buy something at CnD\*
- Where one might find Mr. Goose doing all the starred activities\*
- Firstborn
- Opinionated sorts
- Uncle of note
- Knack

### DOWN

- French, meaning bizarre
- Let out, as fishing line
- A type of music clef
- Like Bruce
- Norway's capital
- Auditory
- Superman's alter ego
- Sticky stuff
- Certain exams
- What you do to TNT (in Minecraft)
- Scarcity
- Grass might be this for a goose\*
- Gathered in schools, like fish

- It may be explosive
- Seven, in Caesar's time
- Kama \_\_\_\_
- What you might do away from a goose
- Greek H
- Individually
- One might have a class taking place
- Scandinavian, "Cheers!"
- Where you might wash your four wheeled girl?
- Eight-armed creatures
- As opposed to I
- Did lunch
- Royal home
- A gull's sound
- Money in the bank, say
- The first third of a common trig mnemonic
- The most famous French cabinetmaker
- Sung at your door in winter
- Skin problem
- To get between your chompers
- A common blue bar in games
- Perched on
- Colorful salamander
- An end to sex?
- Maintained

Snooork... Mi-mi-mi-mi...

1	2	3	4	5	6	7			8	9	10			
11							12		13				14	15
16									17					
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53					54			55	56	57		58		
59				60				61				62		
63								64						
		65							66					

Drop your gridWORD solutions off at [mathnews@gmail.com](mailto:mathnews@gmail.com). Pretty please?

# lookAHEAD

SUN OCT 9

MON OCT 10

TUE OCT 11

WED OCT 12

THU OCT 13

FRI OCT 14

SAT OCT 15

Thanksgiving Day

University closure (Thank You Day)

Ada Lovelace Day

World Egg Day

SUN OCT 16

MON OCT 17

TUE OCT 18

WED OCT 19

THU OCT 20

FRI OCT 21

SAT OCT 22

Reading week ends

mathNEWS 150.3 production night

Final exam relief requests due

Cycle 2 Posting 1 apps due

mathNEWS 150.3 released

Cycle 2 interview period begins

Convocation (Day 1)

Convocation (Day 2)

## LAST ISSUE'S gridSOLUTION

1	E	2	N	3	A	4	C	5	T	6	I	7	N	8	G	9	B	10	E	11	A	12	K	13	E	14	R
15	K	A	N	G	A	R	O	O								16	O	R	P	I	N	E					
17	E	N	T	I	R	E	S									18	S	N	E	E	R	E	D				
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		30	L	O	U	I	S	31			32	A	L	T	O				33	I	R	A					
		34	L	A	R	G	E	35	S	S	E				36	S	O	N	G	S							
38	S	U	R	I	N	A	M				39	S	H	A	C	K	U	P									
41	T	R	E	E	S			42	I	43	N	S	I	G	H	T	S										
44	O	E	R			45	U	P	T	O			47	E	E	R	I	E									
48	A	S	S			49	P	E	T	A	50	L	51	S	E	E	S										
						52	R	E	H	A	53	B															
54	C	A	P	T	A	I	N			59	R	O	O	T	I	N	G										
65	A	I	R	E	R	S				66	A	C	A	D	E	M	I	A									
67	W	R	E	N	C	H				68	T	H	R	E	E	P	L	Y									

## ERRATA FOR THE PRINT VERSION OF 150.1

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clarified

otherNEWS is made technically possible by club executives of the Math Faculty.

I say "technically" because if they had sent us more news this week, this box wouldn't be here.

THE mathNEWS EDITOR WHO PUTS THE "NEWS" IN mathNEWS