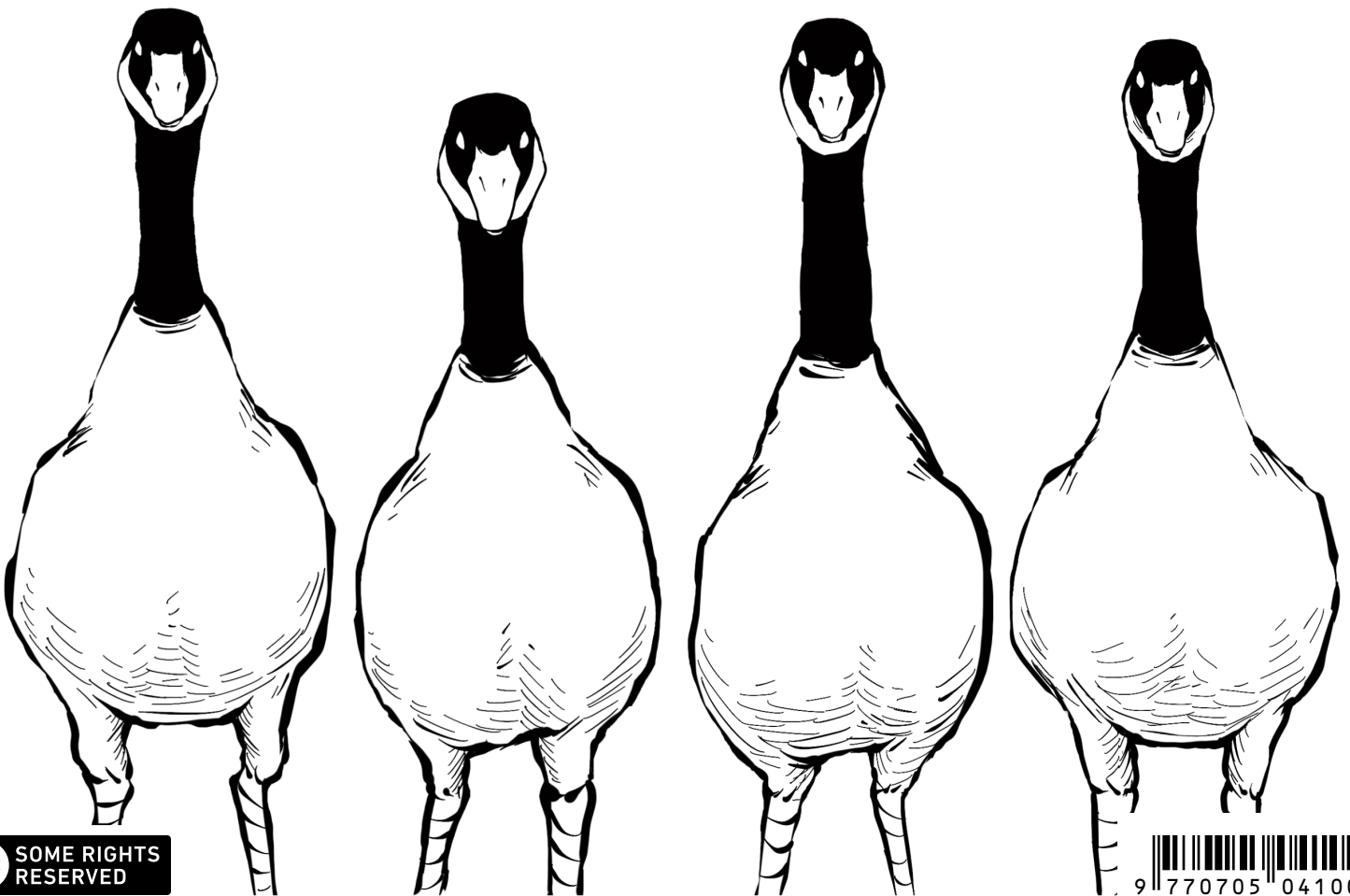


geeser
aurelio



“WHAT WILL GET YOU THROUGH EXAMS?”

Howdy-wowdy, **mathNEWS** enjoyers!

As we wrap up yet another term, I'd like to wish everyone good luck on your finals! I know we're all hitting burnout, especially with the weather deteriorating, but hang in there. Remember that life isn't over after one bad exam. Yes, I am saying this as a cope over being cooked for CS 341, but we must never consider ourselves an exception to our morals. A wise man once said this (I'm the wise man).

As you can see, the thing getting me through my exams is god-tier levels of delusion, along with the marathon of Instagram reels my roommate sends me every day.

Seriously though, I don't think I could've asked for a better issue to end the term on. We've got 48 pages of bangers for you guys this time!!! The last installment of molasses' series on Jumbo the elephant is in—a wonderfully researched piece that brings me to tears every time. Many writers also took the opportunity to vent their feelings of frustration, exhaustion, and sleepyness, which definitely made all of us Editors feel less alone in our struggles. Finally, we've got two big whoppers concerning on-campus affairs—I swear we can be serious too guys! I promise! Just ignore the plethora of 67 jokes in the four-or-so pages of **profQUOTES**. Honestly, when the profs are picking it up, that might be a sign that the joke is on its way out.

I also love how many puzzles we've been getting in recently! They're great to do on study breaks and I admire the creativity it took to put them all together. For those of you going, “What's a study break?”, that is a definite sign that you should be taking them more often. Seriously, please take care of yourselves. Hang out with friends, go outside, enjoy a nice hot chocolate—whatever it takes to keep the blues at bay. The break is coming soon, and just think about all the sleeping you'll be able to do! Unless you're me. I will be getting gud at *Devil May Cry 5*. I WILL get that loser Nero to do an S-rank combo, whether he likes it or not.

Happy rest of the term everyone, and see you in January!

barkED
Editor, **mathNEWS**

APHF	your mother
IGNIS	jolly ranchers
FINGERSIN SOCKETS	delulu is ALWAYS, ALWAYS the solulu
JO CHEMIST	my friends, spite, and holiday cheer
BIG WEENER	Ween (the band)
NOT AN ANSWER	aphf was successful!
A LOST AND LOST AND LOST	a crying and crying and crying
0.423	chalk snorting
AURELIO	birdwatching from the exam rooms
MRBLUEANDREDSKY	Friendship and love, and lots and lots of coping
WHOLE NUMBER HAVER	the geese
CRIMSON	the light at the end of the tunnel (it's probably just more tunnel tho)
ABELIAN K W Y J I B O	Vyvanse
SEASONED SLACKER	Not having exams
MOLASSES	three hundred open tabs
1000011	the chinese.
DOLLAR STORE PERSON	don't know if anything will (I'm on coop)
JUBBLE	Triple cheese pizza from mathNEWS
PAPAYABIRD	A bottle of dreams
SNOWDOZER	Katamari Damacy Soundtrack - You Are Smart
BEES KNEES	Stubbornness
SMALLMOUTHBASSHATER	spite
MOON DEBT	pure spite
USMAN!	Time.
ARROW	the passage of time
LARS NOOTBAAR	All shall pass

ARTICLE OF THE ISSUE

Congratulations to the government's only spy, You're Gonna Have To Zoom In For This One might be the first article to win AOTI in less than twenty words! Your prize awaits you.

abstractED
Editor, **mathNEWS**

I think we just need to schedule some banter for tomorrow afternoon.

NOAH NAZARETH, **mathNEWS** EDITOR FOR FALL 2025
ALONG WITH SARA NAYAR, SASHA NOVIKOV, AWAB QURESHI, AND TOM SI

mathASKS 159.6

FEATURING PROLIFIC STREAMER, SPEEDRUNNER, AND #1 SLAY THE SPIRE PLAYER, XECNAR

GOLDEN: HOW MANY OF YOUR IRL FRIENDS KNOW YOU STREAM? DOES IT FEEL WEIRD TO TELL PEOPLE?

People I've personally told, then three. It doesn't feel weird at all, we all played a lot of games together in high school/university and they're familiar with Twitch. One of them even has ~2000 hours in STS and has talked in my chat a couple of times.

HOUSEPLANTADDICT: YOU'VE PLAYED OVER 10K HOURS OF STS. WHAT DO YOU FEEL LIKE YOU'RE STILL LEARNING/IMPROVING ON?

Complicated question, I would say right now improving for me in STS is mostly fine-tuning small details of the macro game, especially in Act 1 (which can still really change how I play, even if the change is minor because many things in the game are connected to each other). For example, in the past year, I started valuing having the enemies permanently debuffed with vuln/weak a lot more on Ironclad even in the runs without Shockwaves, which leads to my pickrate of Uppercut skyrocketing. And because Uppercut kind of needs an upgrade to function, that slightly changes my pathing, and also makes early Dropkick a lot more pickable to open more small loops/infinite outs for lategame. Not every change is good of course, which is why all the theorycrafting still needs to come with a lot of actual practice runs, then I can see whether an idea is performing as well as expected or not.

GILDED: WHAT PARTS OF SPECIFICALLY STREAMING DO YOU ENJOY MOST?

Talking through my thoughts and sharing the game knowledge to the "hardcore" STS fans, for sure. Whenever I'm trying to get good at a specific game, I really love it when the level of the community as a whole improves. It's healthy competition and good motivation. Streaming STS helps with exactly that. It's also why I very rarely stream other games, unless I feel like I already have a decent understanding of them to talk about my strategies.

USMAN!: WHERE DOES YOUR NAME COME FROM?

Google it in reverse (I do not recommend this game to unknowing people, but it is one of the best things ever made). Also where my profile picture is from.

AVERAGETWITCHCHATTER: WHY DO YOU THINK YOU CHOSE TO GET SO GOOD AT SO MANY GAMES?

Lots of free time, and I like self improvement. And games are fun.



GOLDEN: HAVE YOU EVER THOUGHT ABOUT MAKING A STRATEGY GAME?

Thought? Yes. Will I do it? Most likely not. I have ideas for a strategy game I would like to play, but I have also experienced the gamedev life for several years, and I do not really want to do it again. Also, I won't really be able to enjoy playing what I make anyway because I will have to playtest several versions of it to death during development.

FINGERSINSOCKETS: ANY OTHER GAMES YOU PLAN TO SPEEDRUN?

Speedrunning to me is a spontaneous thing, I just randomly do it when I feel like doing it, so no real plans for now. If I have to name something then maybe eventually I will try to speedrun some of my childhood JRPGs like FF6.

SPIDERLUVR23: WOULD YOU RATHER FIGHT 1 SPIDER OR 1000 HORSES?

1000 horses, just because you love the spider.

SMALLMOUTHBASSHATER: FAVOURITE FISH?

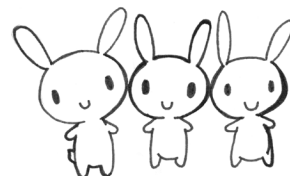
I don't like any of them, but if I have to pick one then smallmouth bass. And I guess salmon's ok too.

MAJ1CKED: WHAT ARE SOME OF THE MECHANICS BEHIND SPEEDRUNNING HADES?

I'm not a top level runner, so take my answer with a grain of salt. Most of Hades speedrunning comes down to 2 things: Getting a super high damage build then optimizing movements. When your damage is high enough (And the games absolutely give you several ways to have obscene damage) you can mostly ignore what the enemies are doing because they die instantly, so there's no need to dodge or be tanky. Then the better runners are faster because they save time in every room with better movements. A very common small optimization for example is starting the room far away from the exit first, then move closer to it as you kill the enemies. Once the room is done, you're right next to the exit and save 1 or 2 seconds of walking time.

BEEKNEES: IF YOU HAD TO REBRAND TWITCH, WHAT NEW COLOUR WOULD YOU MAKE IT?

Purple is already the best color, I would just change the logo design instead.



CRIMSON / BSGCG: WHO'S YOUR FAVORITE SLAY THE SPIRE CHARACTER AND WHY? / WHAT'S YOUR FAVOURITE SLAY THE SPIRE CHARACTER TO PLAY AND WHY?

I like and dislike all of them. When I first started optimizing the game back in 2021, then my favorite was Silent, because I thought she had the most interesting early game with the bad starter deck. This is no longer really true, because Silent actually gets strong pretty quickly and easily. Early game and all of its hidden snowballing implications has absolutely always been my favorite part of STS, so nowadays, the character I like the most is whichever I'm currently playing, because their early games are all beautiful in different ways (Watcher is a bit simpler than the other 3, but she still has her moments).

LEAH: WHAT IS ONE PIECE OF MEDIA THAT CHANGED YOUR LIFE?

Absolutely Dota 2. I was unknowingly in a pretty bad depression during my teenage years because of the lasting effect of my father's death when I was 12. Fully immersing myself in the game eventually pulled me out of it around when I was 22, and I finally became myself instead of just a surviving person. It also taught me a lot of lessons about self improvement that are not exactly taught in school or anywhere else.

JOCHEMIST: FAVOURITE HADES 1&2 WEAPONS, ASPECTS, GODS/GODDESSES, AND KEEPSAKES?

For Hades 1, probably Zag shield for weapon and Hermes keepsake. For Hades 2, Circe staff and Jeweled Pom. Artemis for both as favorite Goddess.

NAZZ: IF YOU WERE TO MAKE ONE REBALANCING CHANGE TO EACH SLAY THE SPIRE CHARACTER, WHAT WOULD THEY BE?

Buff Black Blood, rework Wraith Form, nerf Self Repair, nerf Mental Fortress. I haven't ever really thought deeply about rebalancing the game, so no details on what the specific changes would be.

CONTENTED: WHICH DEFECT CARD DO YOU FIND THE MOST FUN TO PLAY WITH AND WHY?

Thunder strike, lightning goes brrrr.

SLAY ASPIRER: WHAT IS SOMETHING PEOPLE DON'T KNOW ABOUT YOU?

My fingers are extremely sensitive to heat, a consequence of burning my hands while playing with matches as a kid. My brain since then has prevented me from touching anything remotely hot, which makes cooking really hard sometimes.

A SURVEY ON THE PEOPLE'S FAVORITE NYT GAMES

WITH EXPLANATIONS OF 3 DIFFERENT VOTING SYSTEMS

I wanted to see what people think the best NYT game is. I did this by asking 13 people to rank the NYT games below. Coolio!

Here's the dataset, uncolored and colored:

crossword	1	2	3	6	4	1	1	6	4	6	4	1	4
mini	4	1	2	2	5	2	4	2	1	5	1	2	3
wordle	5	4	4	1	2	4	3	1	3	3	3	5	2
spelling	2	6	6	5	6	5	6	3	2	4	6	6	5
connections	3	5	1	3	3	6	2	4	5	1	2	3	1
strands	6	3	5	4	1	3	5	5	6	2	5	4	6

crossword	1	2	3	6	4	1	1	6	4	6	4	1	4
mini	4	1	2	2	5	2	4	2	1	5	1	2	3
wordle	5	4	4	1	2	4	3	1	3	3	3	5	2
spelling	2	6	6	5	6	5	6	3	2	4	6	6	5
connections	3	5	1	3	3	6	2	4	5	1	2	3	1
strands	6	3	5	4	1	3	5	5	6	2	5	4	6

A logical approach would be to see which game has the most first place votes. Crossword got the most votes, so it wins!

...wait a minute. The Mini got a lot of second place votes. Shouldn't that be taken into consideration? Maybe the Mini should've won. How do we choose the best option?

This method of voting is called **First Past The Post**. It's easy, it's simple, and it's incredibly flawed. Let's try something else: if the majority thinks that something is the best, then that's it! If not, eliminate the last place game, and repeat. Sounds good, let's try it!

...ok I'm back and the Mini won! That worked way better. Let's try some more ideas! This voting system is called **Instant Runoff Voting (IRV)**. Let's try some more ideas! We will add up all the numbers and the lowest score wins. The Mini won this one too, with 34 points. This system is called **Borda Count**.

N Notes:

- why does everyone hate spelling bee, it's cool
- why does some people love strands, it's shit
- connections is cool, but istg ts is literally ragebait
- wordle is so boring but so iconic (just a thought)
- this was "inspired" (stolen) from <https://ncase.me/ballot/>

This was pretty cool.

MY FAVOURITE ALBUMS THIS TERM

F25 EDITION

And just like that, another year is coming to an end. I would say that 2025 was another stellar year for new releases, though I do acknowledge my bias since a bunch of my favourite artists dropped albums. Unsurprisingly, these albums make up most of this term's list, though there are some wild cards as always. Onward!

THE CLEARING BY WOLF ALICE (2025)

This album is definitely the one I was most excited about, especially considering the band's transition from dreamy alt-rock to 70s-inspired soft rock. They went on tour for this album, and I finally got to see them, fulfilling first year me's dream. I also got the album early since an anonymous Montréal record store let me buy the physical version since it was on the shelf. Some fans called them sellouts; that's fair, but I vehemently disagree.

HYPERYOUTH BY JOEY VALENCE & BRAE (2025)

These guys just never stop and I don't want them to. It's a typical JVB project, packed to the brim with energy, swagger and humour. What elevates *Hyperyouth* however is its exploration of dance music and its willingness to get personal, both of which only add to the narrative of getting out and having fun. Maybe I was an embarrassed fan earlier this year, but not anymore.

EGO DEATH AT A BACHELORETTE PARTY BY HAYLEY WILLIAMS (2025)

I never did the "make your own album" thing when she put out all the singles so I experienced this in its "standard form." The standard form is excellent though! Each song truly stands on its own and could be placed anywhere in the tracklist without sounding off. The lyrics are also some of her best, these songs really have a bite behind them. Remind me never to cross her.

BEING THERE BY WILCO (1996)

I know this band is constantly praised for *Yankee Hotel Foxtrot* and their other indie rock stuff, but their earlier work is just as good. An alt-country double album equal parts busy and depressing? Sign me up. I love how old-school the guitars and drums sound, it feels like I'm sitting alone in a saloon watching the band play. Long live Wilco!

LUX BY ROSALÍA (2025)

Yeah, I'm not sure how I can express the sheer awe that coursed through me the first time I heard this. *Lux* is one of those records that can't be captured in words. Go listen to it and have your mind blown.

THE BEATLES BY THE BEATLES (1968)

If you're looking for a fun way to get into the Beatles, take HIST 207: The Beatles and the Sixties. Hearing a true Beatles fan talk about their music at length twice a week... you have no choice but to check it out. Their self-titled one was the first album I ever heard of theirs and while some others have come close, I don't see it being dethroned as my favourite. It's long, it's random, and it's surprisingly comforting.

SAYA BY SAYA GRAY (2025)

And here is our Canadian representation. I had thought about including this in earlier articles, but I think I logged the most time with *Saya* this term. It definitely works as a fall album; the acoustic aspects pull you into the environment, and the electronics remind you that winter is on its way. Altogether, a delightfully weird experience, as long as you're not paying attention to how sad it is.

VANISHER, HORIZON SCRAPER BY QUADeca (2025)

I can't say that I'm as entranced by this as everyone else online is, but *Vanisher* is certainly an impressive effort by the one and only Quadeca. The central narrative is just beautiful, and the journey you're taken on while listening really feels nautical, like you're out on the ocean, coming face to face with the elements, and yourself. Very much looking forward to see what he does next.

I SEE YOU BY THE XX (2017)

This album is very addicting to me and for a while I couldn't figure out why. Upon further research, Jamie xx had more of an influence on the music than on their previous two records. Checks out. The way that the group combines the ambience of their early work with the club sounds of Jamie's solo work is stunning. Romy and Oliver also sound effortlessly gorgeous. They might be making a comeback too? Let's hope so...

GETTING KILLED BY GEESE (2025)

Saving the best for last! That's right, the geese of UW have banded together to make quirky rock music and the lead singer Cameron Winter has the voice of an angel. Well, maybe an angel that's going through something. Anyway, this record is so much fun and catchy as all hell. I was happy to learn that *Getting Killed* has created more Geese fans, and I was even happier when I heard "Cobra" at PAC. Geese at the gym! Geese at the gym!

And that's a wrap. See you next year!

THE ETYMOLOGICAL ROOT OF “JUMBO”

MEMORY, AFTER THE GREATEST SHOW ON EARTH

I can then, I hope, finish my bachelor life in company with my two “little” pets. If this cannot be done, I shall insist upon the only other alternative, that is, to bring Alice over to the American Continent, and so reunite them on American soil.

Jumbo and Alice must and shall be reunited; it is a wrong and a sin to keep them apart.

MATTHEW SCOTT, WHILE TRAVELING WITH JUMBO

Alice, beloved of Jumbo, had come home.

She had waited long. According to London zookeepers, she had not been the same ever since Jumbo left. A wife whose husband had been shipped across the sea, Alice had bade her time until she would see her love again.

Spring thrice came and passed, but no Atlantic steamship brought Jumbo home. On the fourth, the London Zoo received a letter, signed, P.T. Barnum.

Some time later, Alice boarded *The Egyptian Monarch*, destination: Manhattan.

She arrived in the morning of April 17, 1886. By evening, she was at The Greatest Show On Earth. Circus workers led her to the elephant enclosure, chained her to a wall, and left.

Horse hooves clopped in rhythm on muddy roads. Rats raced between flickering lantern lights.

In the shadows, she saw a silhouette, not unlike her own.

But larger.

Her heart froze.

Slowly, Alice reached out her trunk to the silhouette. To her husband. To her world.

He was cold.

Alice tried to breathe in his scent — a musk of wet earth, warm sunlight, honey on trees — but her nostrils filled with stale formaldehyde. She felt more closely; her husband’s head was not strong, it gave way, where was his skull? He was soft, too soft. She looked into his eye, it was glassy, unmoving, he looked at her but did not see. They had to get out, she had to get him out, but he reacted to her not at all, what spell, what hex was he under?

She looked just beyond Jumbo, and saw his bones, arranged to full height, frozen alongside him.

Alice was too late.

[Alice] was gently led to the Madison-avenue end of the Garden, where his skeleton stands, and was chained to a bolt close to it. Then she wept as only a widow who loved her husband can weep, and the trough thoughtfully arranged for her tears was soon filled to overflowing.

To-morrow she will be on exhibition in the Garden.

THE NEW YORK TIMES, APRIL 18, 1885



On Wednesday, September 17th, 1885, around 9:30 PM, a train struck and killed the elephant Jumbo in St. Thomas, Ontario. Thirty minutes later, over two hundred men pulled the bloodied corpse from the tracks.

On Thursday, circus workers and local residents took a group photo with the corpse. Butchers then skinned the jovial pachyderm. They carved apart his flesh, casting it on a funeral pyre. Reports say six thousand people visited the dissection, each one salivating at the sizzling elephant meat.

By Saturday, the dissection was done. A shipment left St. Thomas for Rochester, New York.

It contained one elephant skeleton, select elephant organs, and twenty-nine square metres of elephant skin.



Jumbo was dead, but the show yet lived.

Barnum immediately commissioned a taxidermist. When Alice came to New York City, Barnum would display her alongside the skeleton and stuffed corpse of her beloved husband.



A CIRCUS ADVERTISEMENT PUBLISHED AFTER JUMBO'S DEATH

In 1887, a fire engulfed the Barnum and Bailey circus. The circus workers rescued Jumbo's bones and hide from the fire.

They did not rescue Alice.

In 1889, Jumbo's skeleton and skin performed their final show in London, England. Barnum then parted with both.

Barnum died of a stroke in 1891.

Matthew Scott, Jumbo's loyal keeper, died in poverty in 1914. He is said to have never fully recovered from the loss of his closest friend.



While Jumbo's skeleton was donated to the American Museum of Natural History, where it remains to this day, his hide was not. Following the 1889 London show, Tufts University's Barnum Hall became the hide's final home.



THE TAXIDERMIED HIDE OF JUMBO, TUFTS UNIVERSITY

Decades passed. The hide became a symbol. Tufts athletes became known as "Jumbos"; they commonly threw coins into Jumbo's stuffed trunk to attract good luck.

In 1964, Tufts was experiencing money problems. Building maintenance suffered. Between 1965 and 1975, Tufts experienced at least thirteen on-campus fires.

In the early morning hours of April 14th, 1975, they experienced another. At 3:28 AM, a police cruiser spotted smoke emerging from Tufts University.

By 4:30 AM, Barnum Hall was entirely ablaze.



BARNUM HALL, APRIL 14TH, 1975

Spectators saw within, staring out from the fire, Jumbo, wreathed in flame.

Only ashes remained come morning.



Visit St. Thomas today, and you'll find a very different town than the one Jumbo saw. Despite holding onto the "Railway City" name, it has no connection to today's national passenger rail.

It does, however, have an elephant.

The western edge of St. Thomas is defined by a steep hill overlooking the Kettle Creek Valley. A narrow road runs along the top of the cliff; on its northern edge is a tiny gravel parking lot, fitting no more than ten cars total, squeezed between the road and the creek below.

mathNEWS is the best thing that's ever happened to me.

A 100% SINCERE mathNEWS EDITOR

Jumbo stands at its end.



“JUMBO,” BY WINSTON BRONNUM

Combing through historical records—New York Times archives, ancient autobiographies, oral histories, and more—you can see a different world. Different lives. Some, defined entirely by Jumbo. Some, only coinhabiting with him the same ancient Earth.

They could have been forgotten. Their steamships, their circuses, their travels and aspirations could have faded irretrievably beyond the veil of the distant past.

But St. Thomas remembers.

Deep in the Ontario auto manufacturing heartland, the statue to Jumbo keeps alive the people of his time. It reminds us the etymology of this word “jumbo”—a word not coincidental, but the final product of the world-spanning journey of one legendary African elephant.

Children still visit the Jumbo monument. One hundred fifty years after his death, Jumbo, through the statue that remembers him, greets each one with a smile.

molasses

Images of from Tufts Journal, TuftsNow, public domain, and my camera roll.

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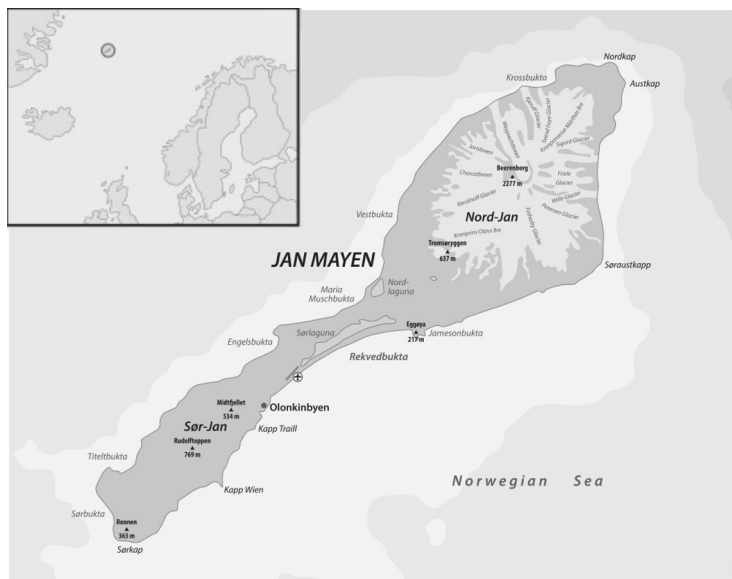
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N ISLAND FACTS — JAN MAYEN

This issue's island is Jan Mayen.



- A small, Norwegian island located roughly in between Iceland, Greenland, and Scandinavia.
- Very isolated, the closest land is Greenland, at 500 km away, and Norway is over 900 km away.
- Only officially discovered in 1614, although there are unconfirmed reports of land being sighted in the area as early as the 9th century.
- Jan Mayen is volcanic, with the active Beerenberg volcano making up its Northern half, and the extinct Rudolphstøppen volcano making up its Southern half (fittingly named Nord-Jan and Sør-Jan respectively).
- Beerbergen is the only active volcano in Norway, and the Northernmost active volcano in the world which isn't underwater.
- These volcanoes are part of the Jan Mayen volcanic hotspot, meaning Jan Mayen is formed independently from any of the surrounding landmasses, and is classified as a microcontinent.
- Historically Jan Mayen was used as a whaling station, and at one point had a population of over 200, until it was abandoned due to the near extinction of the whales.
- During World War II, continental Norway was under Axis occupation, but a group of Norwegian troops stationed on Jan Mayen rebelled and started sending their weather data and intercepted communications to the British.
- There are two plane crash sites on the island, both from German bombers attempting air raids.
- Currently the island has no permanent population, but has a manned research base named Olonkinbyen that fluctuates between 18 people in the winter and 35 in the summer.
- Svalbard (another Norwegian island) and Jan Mayen together, despite not being countries, have

the unique country code designation SJ. This also means they have the unique web domain .sj.

That's all on this island, let me know if you have an island you want me to cover (fatcullen2@gmail.com).

FATCullen

INCEST??!!

Yeah, I know. Clickbaity title. Whatever. But, sometime ago, I got dragged (as one does) to the **mathNEWS** office, and someone made an offhanded comment that got me thinking: are **mathNEWS** and PMAMCO/PMC/whatever the name is at the current moment in some form of incestuous relationship???

Well, ok, the comment was (and I quote, or maybe I don't, this was a while ago, I don't remember) "PMC and **mathNEWS** are committing some form of incest," and you know what? That's not wrong. Probably more than half the PMC execs have been **mathNEWS** editors and vice versa.¹ Anyway, they're practically the same club at this point. Seriously, as I'm writing this at **prodNIGHT** right now, I recognize nearly everyone from the times I was forcibly dragged to conduct social interaction in the PMC office.² The way I see it, there are two options: 1) they are literally just the same club, or 2) INCEST.

Of course, dear reader, one of those options is clearly, most objectively, the superior and more correct option. For crying out loud, PMC and **mathNEWS** have different names, different offices, the list goes on — they are OBVIOUSLY not the same club. No duh.³ So clearly, it should be equally obvious, (given that the ONLY other option is incest) that there is something spicy going on in that club hallway...

Thus concludes my (clearly correct) point. If y'all want me to write a fanfic, or a conspiracy theory, or both, or have something else for me to write on this topic, just let me know. I'd be down to do any (inclusive) or all of that.

burgerqueen

1. Note: That stat is definitely very reliable. Trust.
2. Eugh. It's cramped in there. Definitely not the place to be for a people-averse CS major.
3. If you believe otherwise, your opinion is invalid. Period.

mathNEWS 159.6?

mathNEWS 159.6 🤖7 hahahahaha

Whole Number Haver

AND IT GOES ON AND ON AND

I HAVE TO BE MORE THAN THIS.

[Content warning: depictions of poor mental health.]

THE COMPUTER LAB

At some point the janitor comes in. Pulls back chairs, wipes keyboards — he comes close to me, and I ask if he needs me to move; a small shake of his head is his response. He shuffles around with his little cart. Maybe I'll see him again, but I've already forgotten his face and for him, mine.

Am I okay with that? There could be more. A small conversation, an exchanging of names — maybe this becomes a routine. Late night talks. There's potential in every human being you meet. A little sun in all of us, just waiting to be seen —

No. I'm creating a feel-good story out of nothing, carved out of an unwilling participant. I don't meet him again. I do. What does it change? In the end, he's on the clock, and I must work.

I must work. When I was a kid, did I imagine this for myself? Childhood aspirations are rarely fulfilled and hey, you know, I used to make igloos with my dad in the winter and we would be the envy of the neighbourhood. A single good memory in a sea of hatred and regret. I wonder: who are we after high school? Will I still write well into adulthood? And, most pressing of all — who will *care*?



I dream of becoming more than a nameless student in a crowd of future graduates. But if I did, that means my failures are my own, no longer a part of a whole. 25% of students in my cohort have landed a co-op. You're on Cycle 3. Previous years' co-op reports show a rough, jagged summit to ninety-nine-point-something-percent — that'll include you, right? Of course, you don't really have a choice. My head hurts, staring at a white screen so long, but my lab report. I need to finish it. I'll fail, otherwise.

The screen flashes, warning me of an impending log out due to inactivity.

Hey, when did I enter this place again?



The computer lab is crowded with chairs and monitors, six per row, halved by a narrow aisle. The screens blink. Entropy, 48 changeable energy states. Halving them again, each row would possess less entropy, but overall it would increase. Each monitor containing thousands of pixels, each of them being their own energy state. It goes on.

I wonder if I should lob my head off — a new life as a brain in a jar. Would certainly reduce my number of energy states, maybe then I'd feel more in control. In the end, all this

university fucking wants from me is nameless work; nothing more. In an open system, where the walls are not rigid; permeable; non-adiabatic, an equilibrium can form.¹ But the environment keeps changing and demands more energy out of the system, more — I'm going to burn out and it won't be nearly as pretty as a star. The law of conservation. I imagine my consciousness as a firework — a hundred thousand dying embers sailing through the sky like ashes. Salient, loud. Something worth looking at, worth recording. Because my suffering must mean something to someone. Must be visible, must lead to something that I just *can't see yet*. At this hour, most would assume the lab would be empty by now. No, I'm here — all of this must cumulate to something that will justify, validate, and lionize me. A perfect example of what it means to be in Engineering. I want to be something *more*.

I mean, don't we all? To be immortalized in building names, to have a Wikipedia page named after you. The next Pearl Sullivan. A physical manifestation of the future I've been miserably trying to eke out for years. Self-determination. All the tools in my hands. Am I more? Do you see the sun in me? Is it sublime? Unheimlich?² A few days ago, I woke up earlier than I should've, and was met by rose and pyrite right outside my apartment window. I stared and I fell in love all over again. Let me go. Let me leave this place. I want to watch another thousand sunrises, can't I be more than a set of eyes labouring over a 24-inch monitor? An unchanging feeling that will not break. / It's the end of summer, and to you, my most loathed / I give you this sunset as a present.³ It's not a crime for me to wish. Actually, I hate the taste of the water here and I miss my high school friends but here I am regardless — because that's life. I can't do anything about it.



I bounce my leg ferociously and Google how to use a kinetics graph to determine $K_{[eq]}$. The lab manual says to discard outliers if appropriate, but no amount of searching gives me the scientific rhetoric behind doing so. Later, I will email the TA and she'll say I can remove it simply because it's visually incongruent with the data. How unscientific — my high school chemistry teacher would have a fucking riot. But right now, I don't know this, and leave my outliers in. Damned if you do, damned if you don't. It doesn't matter because my report is already three days late. Shame suffocates me, traps me. Orange light filters in from underneath the window blinds; cars drive by; I'm choking on my own deficiencies. I should leave, but then what? I must be more / Surely my life doesn't peak in high school / And then what?

And then what? Will I feel satisfied with myself then? The ever present pressure to be more — will I ever reach an equilibrium? And then what? Oh, god. Let me be more than this, I beg. In the end I will return to the Earth and become dust. Will I dream?

My phone lights up with a Discord notification.

nya (now)

replied to your status

安心した、世界は、今日も廻ってる⁴

does this mean ‘having become safe, the world spins today too?’

Oh. It’s 8AM. Gotta get home.

planet b612

1. mass, heat, volume can be exchanged between the environment and the system
2. sublime: beauty in natural phenomena, invoking awe and possible fear; unheimlich: experiences/sights which invoke challenge to sense self, whether due to beauty or fear

3. 変らない気持ち壊せない / 夏の終わり大嫌いな君に / その日暮しプレゼントするぜ from *Missile Killer* by si-o. the first line is technically “Your unchanging feelings will not break.” according to the Vocaloid Lyrics Wiki but a good friend who is relatively good at japanese offered that alternative translation and i like it here
4. from *A Certain Family’s Tea Party* by Kururingo. i have a habit of putting vocaloid lyrics (japanese) as my discord status and said good friend frequently translates them

fighting the math students one chemistry metaphor at a time, surely this counts as studying
most of this was written at 6am after i accidentally laced my chocolate milk with vyvanse, of which i imbibed at 11pm. semi-autobiographical, semi-the-ghosts-of-those-before-me-moving-my-hand

ARE THEY EVEN MORMON?

In light of the recently released *The Secret Lives of Mormon Wives* season 3, I have compiled my own ranking of the 9 women who are/have been/may be a part of MomTok. There will be (minor?) spoilers for those of you who haven’t watched season 3.

1. MAYCI

She keeps this show entertaining. M&M incorporated, best thing to happen this season. I would 100% hire her to be my private investigator. Her saying she’s an ally because her husband’s cousin is gay was a bit performative, but I think she has the right intentions.

2. MIRANDA

Always unproblematic and genuinely the only one who knows to keep her mouth closed sometimes. Keep at it Miranda.

3. JEN

I’m happy that she’s climbing back up to the top again. Her chat with Ezra was adorable and heartwarming (why were they not paired together??). She has the most contagious smile and deserved way better from her “friends.” Jen, I’m sorry you were so slighted on DWTS.

4. TAYLOR

Taylor is just enjoyable to watch. Go her for going on that retreat thing, but then why are we doing these things with Dakota... please keep away. The scene where Dakota is telling her all the gossip though is too funny, top moment of the season.

5. MIKAYLA

Proud of her for sharing more of her story this season. Her face really annoys me though, sometimes that’s something that needs to be controlled in social situations.

6. JESSI

She’s so messy, what were you thinking inviting Marciano to dinner... even I could’ve told her that was a bad idea. At the same time, her conflict resolution skills are impeccable, having to deal with these women.

7. LAYLA

Why is she trying to stir the pot?? Calling Jessi and catching her off guard with Demi on the phone is nasty, and not something a friend would do.

8. WHITNEY

Dancing with the Stars was really making me start to like her again after Season 2. Season 3 ruined that again. Why are you being so cocky, Whitney? Did you forget that DWTS is a fan voted show?? We also all know you are not starting your own MomTok.

9. DEMI

What was coming out of her mouth every time they showed her on screen? Please do not compare yourself to Mayci, it is plain disrespectful.

justrollingwithit

I disagree strongly with whatever work this quote is attached to.

RANDALL MUNROE

ON TRYING TO BE A HOCKEY FAN

I was watching Ottawa Senators highlights on YouTube the other day (my hometown team that I vaguely keep up with, even though they were never very good when I lived there). YouTube always gives you a preview of the first comment, and it was something about the Ottawa announcer being annoying/less interesting/just bad compared to the other team's announcer. Mind you, I barely keep up with this team, and only really through highlights, which is often a mix of announcers. So I have no idea who is who. I kept waiting for the "bad announcer" to come on, but nobody sounded bad to me. Later, I pieced it together that they were referring to who I had been hearing the whole time. Who, what do you know, happened to be a woman. I spent the whole time watching this video intentionally listening for who they were talking about, and it didn't once cross my mind that this announcer was bad at her job. Because she wasn't!

I really should have been able to figure it out based on the replies, the stupidest of which reads:

Tonight I came home from work and my wife was on me from the minute I got into the house. I convinced her to give me 2 and a half hours to myself in peace. I turn on my sens game and hear another wife on TV. Shrill voices on both ends. Now I only await the sweet embrace of death.

You're trying to be funny but it's not working. Like wtf. Just say you hate your wife! And all women!!

"Just watch the PWHL," you might say to me. I do! But I should be able to be a fan of men's sport, too, without dealing with this.

"Just don't read the comments," you might suggest. Putting aside the fact that I'm a chronic comment reader (I say chronic because it is a problem), I didn't even open up the comments this time. I didn't have to, because YouTube automatically shows you a top comment, and top comments are always the ones that get engagement, which means often they're stupid. Also, ignoring this doesn't fix anything. (Neither does ignoring it and then ranting in **mathNEWS**, I'm well aware.)

Also, I know this isn't a hockey culture problem so much as it's an overall culture problem, but putting all of that aside for a moment—this is a this-guy problem now. Dude. I'll fund your divorce myself if you really hate her that much.

On a serious note, the more I occupy these fan spaces, the more I am reminded again and again that the concentration of sexism (and racism, and homophobia) in the NHL and sports fan communities generally is fucked up. I continue to struggle to reconcile my enjoyment of the sport with the knowledge that a lot of fans will never welcome me.

People will say again and again that these spaces aren't for us. But they're wrong. I hope we can all find joy in these meaningless activities that we make meaningful together.

normalparameters

I'm mostly thinking here about sports fan communities, but this problem is structural and is equally perpetrated by players and ownership—there's truly not enough space in the word limit to get into it.

MOTHER GEESE (NOT) IN YOUR AREA

PLEASEPLEASEPLEASEPLEASEPLEASE



THE GOOSE MOTHER

Please help me find this card :((((
Contact at goosetotallynota@gmail.com

TotallyNotAGoose

SOME THOUGHTS ON THE COMMON STARLING

The air feels fresher and less dense after the summer's damp heat. You can walk comfortably in layered garments through mosaics of red, gold, and rust-coloured leaves while squirrels move anxiously across lawns, burying food for the winter. In the early mornings, dew paints the grass, frost etches the windows, and fog settles low over the landscape. Even an ordinary urban commute can feel like drifting through a Monet painting.

Nearly every year this decade, I have felt detached from this changing of the seasons. There has always been something larger, louder, and more distracting. Whether it is moving cities and starting a new job or some more pressing global issue, like a pandemic—it makes going outside much less appealing. This autumn, for me, is no different. There are whispers and murmurs of recession and budget cuts, of distant wars, of corruption, and even the mere thought of winter is enough to keep me inside. Some days I feel the same instinct as the migratory birds: to go somewhere quieter, somewhere warm, where the sun still shines past 5pm.

Yet among these heavy murmurs is a lighter one. An older, more persistent, more indifferent to human trouble: the murmuration of a medium-sized flock of common starlings twisting and dancing over the treeline at dusk. I'm lucky enough to have seen this phenomenon a number of times in Waterloo, and once again this past October while travelling to Toronto.

Starlings are a species introduced to North America by European settlers, and are often considered pests—noisy, competitive, and honestly a lot more mundane than their name suggests. They aren't as striking as a cardinal or a blue jay, nor is their call as compelling as a loon's. Yet, their unremarkable nature is precisely what makes their autumn dance so captivating. Like many other migratory birds, they fly south during Canadian winters, although often only as far as southern Ontario. Something about that stubbornness resonates with me, to have the ability to fly anywhere but opting to stay put during brutal icy weather... maybe they do it to spite us.

Their murmuration is well known, but it rarely as romanticized as the falling leaves, the cider, and the pumpkin carving. Perhaps this is because their gatherings come in late, when leaves start to decay and trees look bare, when heavy clouds full of snow loom overhead. Their roost peaks at the tail end of October and bleeds into November. They're one of the last signs of fall, a sort of follow-up email telling you that the sun is setting on the warmer days of the year.

I'm sure by now that a handful of people reading this will have sighed or objected to the idea of dwelling on a flock of birds and the change of seasons, when at best we're entering primetime for seasonal depression and at worst the world may feel like it's teetering on disaster. But I think that's exactly why they're worth noticing. The world is full of horrible atrocities, but fall, and all its accoutrements, is not one of them.

When by the lake, shivering with fog in my breath, I think of the people who would rather I wait in a line for a product or service, staring up at some twenty-foot LCD monolith convincing me to buy something I know no one needs (or god forbid like Chaska in the SLC, with Minecraft parkour hypnotizing me). I'm going to keep making time for the starlings over my head in extra delight, knowing that I'm free from those horrors.

Even now, wealth is being extracted from working people, missiles are being sold and stockpiled, soldiers are marching through cities, grotesque imagery and lies can pollute your feed at any moment. And despite the best wishes of the men in charge, the Earth will still spin around the sun, leaves will fall and seasons will change.

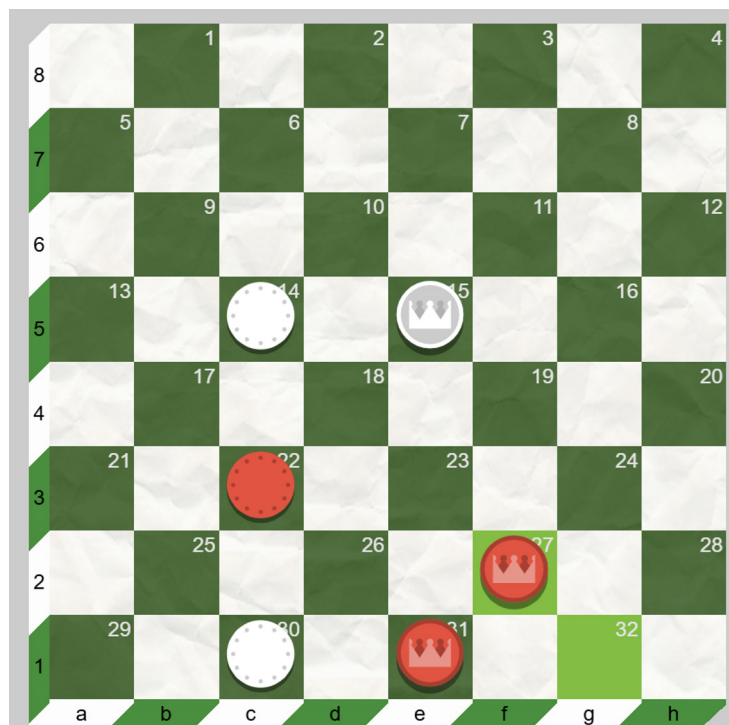
Don't let a bird be more aware of that fact than you are.

FinallyToby

"CHESS" PUZZLE 3

CHECKERS IS MY FAVORITE CHESS VARIANT

White to play and win.



Solution: 15–18 guarantees the red piece at 22 gets taken next turn.

crimson

YOU'RE GONNA HAVE TO ZOOM IN FOR THIS ONE

AN ARTICLE ABOUT MAKING THE MOST OF YOUR mathNEWS ARTICLE

According to the Writer's Guide, the word limit for a primary **mathNEWS** article is 1000 words.¹²³⁴⁵⁶⁷⁸⁹¹⁰

the government's only spy

1. As of the time of writing. Perhaps a bleak future will come where the word count will drop even lower.
2. However, in practice this limit only applies to the article's body text, and the other parts of the article don't have strict limits imposed on them. For example, in **mathNEWS** Volume 157 Issue 2, I wrote an article whose body text was exactly 1000 words long according to WordPress, but there were 64 extra words' worth of footnotes, a 7-word long title, and an 11 word long subtitle, bringing the article's total length to 1082 words.
3. Even then, other people have written articles after the imposition of the 1000 word limit whose *body text* is longer than 1000 words. For example, Usman's *The Deftones Album That Changed My Life* from Volume 155 Issue 4 has a word count of 1082 words according to WordPress, and it was accepted for publication. As such, this is by no means a hard limit.
4. The reason why some leeway in terms of word count is acceptable is because the editorial team's biggest concern isn't word count, it's page count. **mathNEWS** is ultimately a print publication, and printing costs for issues add up. Thus, to keep the organization afloat, editors need to keep each issue's page count in check. We can see some of this concern over page space in the Writer's Guide, where it's emphasized that "[l]ong, multi-page articles are discouraged. The longer an article is, the more likely it will be delayed to a later issue or rejected entirely." But since the amount of space an article will take up is hard to predict before going into the layout phase, article word count is used as a substitute metric. Since an article's word count and the amount of page space it takes up are pretty strongly correlated this system works out pretty well, and its imperfections allow articles that have a slightly higher word count but that don't take up too much page space to slip through.
5. (I'd like to emphasize that much of the previous footnote is my own speculation, but if this article got published it's probably accurate enough. Also side note but I kinda wish that I could put footnote markers within footnotes because this aside would have been a perfect footnote to the previous footnote.)
6. Now that we know that page count is a more significant factor than word count when it comes to articles and that there's some flexibility to the rules, a natural question appears—if we keep the page space low, how many words can we get away with writing?
7. The easy (albeit boring) answer is "as many words as you can afford to host." This is because you could just submit an article which contains a link and/or a QR code leading to a much longer article that's hosted elsewhere, taking you outside of the editorial team's jurisdiction: <https://pastebin.com/atXHWxz8>
8. If we're looking to write long articles fully contained within a **mathNEWS** issue, we're going to have to increase the content density. You might be seeing where this is going already. One way of fitting more text into your article is by writing in a smaller font, which naturally leads us to footnotes! As a plus, footnotes offer almost the same level of formatting flexibility as normal text does, and there isn't a formal word limit for footnotes so you can use that as an excuse for skirting the word count.

9. We've now given ourselves some more room to work with, at the expense of some readability. But we can still do better. Let's put our article's text in an image.

10. Now that we're in an image, we have much more control over our content and technically don't add anything to the word count! We can do a lot of fun stuff with our newfound freedom, such as positioning our text on the page as we please, *writing* like we're in a *Geronimo Stilton* book, or adding our own custom footnote system.^[a] But since we're trying to cram in as much writing as possible, the most important change that we're going to make will be shrinking the text down to the smallest legible font size.^[b]

In this font's case, that size would be 16 pixels. This size is small enough that we could reprint Ray Bradbury's *There Will Come Soft Rains* in it twice over and only take up one page of a **mathNEWS** issue.^[c] This size is small enough that if you're reading a physical copy, you're probably straining your eyes at this point. It's small enough that if you're reading the PDF version of this issue, you can probably make out the individual pixels making up the letters. But we're not done yet.

Aside from shrinking the line spacing to be comically small and writing longer lines of text, we can also encode our text. For example, think about how we're reading this. It's a single column of text, but it's also a single column of text. This makes the code more legible for print readers since they wouldn't be able to make out the individual pixels or their colours, but

[a] Footnotes within footnotes! I'd go even further but this article is annoying enough to read as is.

[b] In print. After test printing at 300 DPI (**mathNEWS** print resolution), this was one of the smaller font sizes that was still legible (I didn't pick the smallest one just in case).

[c] The short story is 11843 characters long, and when using an old **mathNEWS** page as a guide, I was able to fill a full column of text with 11869 lowercase 'w's (single spaced). If we copied it normally, we would have to publish it across 2 issues.

YOU CAN ZOOM OUT NOW

According to the Writer's Guide, the word limit for a secondary **mathNEWS** article is 450 words, and that's all I'll need to make my point.

While writing the previous article, I checked with an editor to make sure it was possible to include images in footnotes. The response I received confirmed that it was, but also advised me to think of other ways to format my article, noting that "[editors] also wanna think about readability."

The emphasis on readability stuck with me. Sure, we can cram lots of text into an article if we play our cards right, as we just saw. But when doing so, will the end product be pleasant to read, or will it push readers away with its awkward formatting? On a separate but related note, without a word limit there's less motivation to be careful about the composition of your article. Will the end result remain impactful despite this, or will it be overlong and in need of more editing? This is a different kind of readability, but an equally important one to consider.

We can beat the word limit, but having no limitations tends to come with a cost. Ultimately, constraints stimulate creativity, and creativity bears fruitful results. When you can't do as you please in pursuit of a goal, you tend to put more thought into your actions and try things you wouldn't have otherwise, stimulating personal growth. In this case, a modest article word limit can motivate you to write more concisely, helping to overwrite bad habits brought on by years of padding out your writing and pushing you to broaden your vocabulary to get your ideas across.

Or maybe that limit will just motivate you to come up with convoluted ways of dodging it. Creativity comes in many different forms.

the government's only spy

WHITE HOUSE (PART 1: ARRIVAL)

DONALD TRUMP X JOE BIDEN INSPIRED BY WUTHERING HEIGHTS

From the moment Zohran descended the steps of the plane, he was escorted through a labyrinthine path to the White House. He was surrounded by a coterie of secret service agents at all times and his teams left no trace on their journey. No one was to know he was on the move until he reached the White House. The president was known to have grown guarded in the last few months, and seldom took visitors. Today would be the day that Zohran, the new and optimistic reformist, would cross paths with the monolithic President Trump. At the White House gate, Zohran couldn't help but notice the unique air to the White House. It sharply differed from the stiffness of the Trump Tower that crept through New York City. There was a sense of turmoil and regret to the White House that had been passed down from generations of presidents' unspeakable actions.

President Trump greeted Zohran with a welcoming meal. They sat alone, across from each other separated by a lavish banquet.

"It's an honour to meet you, Donald," Zohran's voice echoed across the barren room. "I hope I can convince you of a few things tonight. The fate of the country depends on it, and I won't stand idly by."

"That would be President Trump to you, Mr. Mamdani," he responded, icily.

"Forgive me, President Trump."

"Just eat your food."

Debate dragged for hours. Zohran was relentless in his rhetoric, but President Trump was immovable. Zohran used to think his fiery spirit mirrored Trump's, but that version of the president seemed gone. His outlandish one-liners were few and far between, and when they came, the president could barely muster his signature passion.

The night was getting late, so Zohran would be staying over. Surprisingly, he found a few notable politicians roaming the floors late at night, though not the president, who'd quickly retreated to his quarters. He was surprised to spot Nancy Pelosi, given her approaching retirement and old age. Zohran was given a small unlabelled room with only a bed and drawer. Curious, he rummaged through the drawer and found a dusty diary titled "Joe Biden." Flipping to a random page, it read:

Dear Diary,
It was a glum day today. I was permitted onto the grounds to see Donald dearest again. We chit-chatted the evening away. Since Melania was away, he let me share the bed. He held me close and I could feel his warmth...

He'd read enough for tonight. He was off to bed.

Zohran was startled awake by a loud tapping sound on the window. It was a dark and rainy, so he crept closer to investigate. An old, wrinkled face suddenly came into view on the other side. One frail hand was rapping against the glass and the other was clutching an ice cream cone. He recoiled and ran out of the room in a panic. In his frantic state, he ran into Nancy Pelosi.

"What's the matter, dear?" She asked.

"There's a ghost haunting the grounds!" Zohran replied. "I could've sworn I saw Joe Biden, which should be impossible..."

"There's something I should explain to you."

It happened that Nancy Pelosi had a private room in the White House. Having spent decades in the house, she saw political dynasties and scandalous affairs come and go. For her political service, she was given a room in the White House and gained the trust of many officials, especially Donald.

"Donald has not been the same since Joe died. The two had a tumultuous history, and now Joe's jilted ghost roams the grounds," Nancy Pelosi began, commencing her recounting of the long and fated romance between United States presidents Donald Trump and Joe Biden.

TO BE CONTINUED

AbelianKwyjibo

COMPUTATIONAL PLANNING FOR FUTURE CITIES

IF YOU'RE STILL LOOKING FOR AN INTERESTING ELECTIVE FOR WINTER 2026, CONSIDER THIS ONE!

In the winter, we are co-teaching PLAN 405 — MTHEL 398 — ENVS 474 Computational Planning for Future Cities, which can be taken by Math/CS students as either MTHEL 398 or ENVS 474, depending on what works best for your plan. The course brings together Planning and Math and Computer Science students to tackle real city challenges. Students work closely with municipal and industry partners on projects grounded in real-world urban issues, from housing systems and infrastructure planning to mobility networks and urban data design. <https://uwaterloo.ca/future-cities-institute/plan405-mthel398>

Leia Minaker (Planning), Matthew Brehmer (CS), Charlie Clarke (CS)

DSC DATASET 5

ENJOY THIS MOODY SEASONAL FANFIC DSC BADDIES



It was a late night of studying for your first final, and your eyes were ready to close. You couldn't help but yawn as you packed your bags, but above the quiet chatter of DC library, you could hear your stomach rumble. Guess it was time for a Harvey's run.

The late November breeze struck your skin like bullets, which woke your body enough to skitter across Ring Road and across the ION tracks. By the time you reached the back of Pho Anh Vu, you could already imagine the taste of the salty, greasy poutine and sweet, bubbly soda, when someone behind the dumpsters caught a glimpse of you.

"What is a pretty thing like you doing out so late?" He remarked, both his black coat tails and dark brown comb-over blowing in the blustery wind. "It's not safe to be out at this hour, you know."

You were taken aback, stunned into standing still. How dare a twenty-something stranger dressed like a shady agent tell you

how to live your own life? Besides, the plaza was usually pretty safe, even at such an hour.

"I'm sorry, I didn't know I had a curfew. Next time, I'll be home before sunset, sir," you declared, frustrated by the hurdle in front of your gravy-soaked paradise.

"I'm sorry, I didn't mean to be rude. I was just concerned given the shady stuff that happens around here. There was a shooting outside the Walmart last week, stores keep getting robbed at Conestoga, and the plaza is no stranger to crimes. I just want you to be safe."

Your posture softened as your body radiated warmth despite the frigid air. Your attitude finally hit you and you quickly apologized with "I'm sorry, I was just surprised by the comment. I'm just on my way to get some food, that's all, no worries."

"That's okay, I completely understand. I would have said the same thing, actually. What's your name?" he said, his baritone voice floating through the air and his black leather shoes hitting the concrete closer and closer to you.

You stuttered a bit but eventually told him your name. Instinctually, you raised your hand and asked for his; your networking sessions had taught you well to make connections. Perhaps this interaction would leave you scot-free.

"You want to shake a stranger's hand at 4am? Interesting," he questioned before accepting your embrace. His heat matched yours, unlike his cold gold ring sitting on his pinky. His vigorous, firm shake was like no other you've felt at a convention; there was no sweat on his hands and instead some determination lived behind his dark eyes and his open shoulders. You forgot to let go of his hand as the grasp slowed and dipped down to hip level, but he didn't let go either, but rather took a step into your bubble.

Matching his energy, the adrenaline spiked in you as you asked "What are you doing out here so late?"

"Oh, just some work. I was about to leave, but I'm glad I didn't."

You slipped your hand away from his and backed away slightly towards the brown brick wall. "What work needs you out at late night in the plaza?"

"Ah, I was just talking to one of my associates and some connections. I'm actually a part of UW's Data Science Club, where we bridge the gap between academics and the data science industry to inspire our leaders of the future, and I was just talking to one of my men at Jane Street. You've heard of Jane Street, right?" He declared, taking a step towards you.

You shivered at the sound of that name; it's any math student's wet dream.

"Oh, yes I have," you sighed heavily. "I've always been interested in data science, I've been to a couple of your guys' workshops actually. They're always so interesting."

"Oh really? You like data science?"

His legs shifted towards yours, as you could feel his torso puff up and see the soft clouds of air exit his lips.

"Mhm. I think it's a very important subject in our day and age."

Suddenly, he grabbed your bicep and pushed you up to the rough building, holding his other hand close to your tender ear. His gaze locked in with yours, as a tendril of hair fell to his forehead. You could feel the warmth of his open mouth as he started to speak.

"You know, we could use somebody like you," he pitched, eyeing your upper body up and down like a piece of meat. "We could use some help in our technical department, our sweet talking social team, or on our internal management. What do you say, pretty eyes?"

"I don't know," you hesitated, words slipping from your mind as he stared deeper into your supposedly pretty eyes. "I don't have much experience in data science."

He tipped his head towards your ear as he softly whispered, "You don't need to have experience, baby. Just show the passion that you have when you're up studying late."

You soon quipped, "Where do I even apply?"

"You can apply on our website, it's at uwdatascience.ca. There you can create an account and apply to join any of our teams. Deadline is December 3rd."

"Ah, I see. I'll consider it."

"I hope you more than consider it."

His head shifted closer to your face as his soft lips grazed your cheek and nipped you, leaving just a warm damp stain on your rosy skin. He backed his body away from yours, letting go of your arm as he raised his voice.

"I have to go, but I hope you apply, cutie pie. I will see you around," he uttered, turning his back away and disappearing towards the front of the restaurant.

You stared at his back turning the corner until he was out of sight. All you could do in your shocked, breathless state was lean on the wall and look up @uwaterloodsc on Instagram.

UW Data Science Club

MAX FITZSIMMON'S MANY MISSPELLINGS

Maxwell Fitzsimmons is this year's MATH 137 professor for the physics section, and he also has horrible spelling.

Here are just few of the many misspellings he has made throughout the term:

- Contioious
- Inversable
- Exetreme
- Larg
- Dimentonal
- Chapte
- Defention
- Charictorization
- Defiend
- Cotiutty
- Evaulute
- Evaulate
- Intermebate
- Favourtite
- Contuine
- Methoed
- Differce
- Kenitic
- Cornors
- Cornrs
- Ideenty
- Appoxmaition
- Approxmtion
- Neton
- Approxate
- Fundmtal
- Inertable
- Tagant
- Carfule
- Concovaty
- Cancave
- Dervative
- Derative
- Dervitves
- Dirivatives
- Clasffy
- Potontea
- Exema

and finally, my personal favourite:

- The fundemtal theorm of calculus

1000011

*math*NEWS

profQUOTES 159.6

AMATH 271: FRANCIS POULIN

- “ I don't know how to draw in 4D. If you do, please let me know after class.
- “ *[explaining notation]* *[Student: Who is responsible for this?]* For the sake of protecting their family, I won't say.

BIOL 273: MICHAEL BORDING-JORGENSEN

- “ There's something wrong with you. I think you should die.

CHE 230: DANIEL RANGEL MARTINEZ

- “ You guys aren't asking questions. That makes me nervous. *[beat]* That wasn't a joke. I'm really scared.

CO 439: MIKE CUMMINGS

- “ The g in grevlex stands for good.
- “ You look at this and realize that the website looks bad because Macaulay predates CSS. And then you look up when CSS was invented and realize that Macaulay2 also predates CSS.
- “ Sometimes, it says 'Error: There are 6 errors' and then you have to figure out what they are.

CO 439: OLIVER PECHENIK

- “ It is unclear what is 6 about this ideal.
- “ *[Upon being questioned first where a definition is, then why the definition is in a lemma, and then why the lemma that contains the definition has no proof and is a lemma instead of a definition]* Definition-lemmas are fair game.
- “ Let me go collect my death ray.
- “ Dodgson is Lewis Carroll. Immediately after writing Alice in Wonderland, he wrote the sequel: a treatise on determinants.
- “ This theorem was proved by two groups. The first one is called Zeilberger. It was really Zeilberger and an army of assistants called every mathematician in combinatorics. Every lemma in the proof is outsourced to other mathematicians, including possibly his children.
- “ Next time, we will prove... what are we going to prove next time? I guess everything. We will prove everything next time.
- “ There's no paper. That's why we're in trouble.
- “ Nonzerodivisor is a confusing word because people don't agree on where the hyphen goes and where the space goes.

- “ Whenever there's a thing in room five-XX, I just come down to the fifth floor and wander around aimlessly until I find it.

- “ Where is my death ray?

- “ Prof: I had a [lattice] I could only compute one of the bounds for. *[Student: Sounds like a skill issue.]* (Enthusiastic) Yeah, maybe!

- “ This is today's poset-fact-of-the-day.

CO 450: CHAITANYA SWAMY

- “ This is my favourite algorithm, period. Like not in this course or in combinatorial optimization or else, but in general.
- “ Let me teach you some party tricks for you to do at your next party.

CO 456: DAVID JAO

- “ You want the answer? I don't know the answer. If any of you can solve this mystery, let me know.
- “ You know who taught me all the game theory I know? Jochen Koenemann. I'd ask [Jochen Koenemann], but he's the Dean of Math and kind of hard to get a hold of.
- “ Now that we know that the theorem is bogus, we will prove the theorem.
- “ Justin Toth, he's the poor grad student who actually did all the work *[in a paper with 2 UW profs listed before him]*.
- “ Well clearly Euler figured it out, so you should be able to figure it out too.

CO 485: SAM JACQUES

- “ ... which unfortunately is the ISIS problem.
- “ This is not from 'the book.' This is Satan's cryptography.
- “ You don't become a refugee because a dog eats your passport.
- “ “NP-ness.”

CO 487: DOUGLAS STEBILA

- “ Whatever you think about cryptocurrency, and the billions of dollars they've put into scams, at least they've invested into zero-knowledge proofs.

COMMST 223: MATT WHITE

- “ Josh, you bring to this debate what Donald Trump brings to the presidency. You just make shit up, but you say it with such confidence.

CS 135: ROBERT GARBARY

- “ Racket says: I don't give a shit.
- “ When I was young, the node F came and ripped off my family, and we've never liked F since then.
- “ Not saying I have a thing for ponies...
- “ Chat, j'ai pétié ("I farted" in French), I don't know what that means.
- “ Oh, shit my hand slipped and I'm highlighting something!! *[highlights answer to question]*
- “ A friend is like someone who likes to spend time with you... It's hard to explain, you might see it in the arts faculty.
- “ There's an element of psychological terror to this IClicker question.
- “ Hey guys, I found a really cool function, I wanna evaluate it at 10, I REALLY love the number 10.
- “ I don't understand the question. Anyway —
- “ Class on Thursday is gonna be terrible. I have no idea what's on lecture 20. I haven't prepared for it.
- “ You all did great. Some of you did more great than others.
- “ Let's peacefully disassemble.
- “ You guys can all play on your phones while I do this.
- “ I hope he steps on a Lego block with bare feet. I want him to have minor pain and suffering, not major.
- “ Comments suck. And you should never use them.

CS 145: TROY VASIGA

- “ You say, Troy, go f yourself.
- “ *[writes $a+b = (a-1)+(b+1)$]* Woah.
- “ And of course, if I were to build software that's industrial strength, I would use Racket.
- “ You don't need a lot of funny characters to speak American.

- “ Engineers take sand with their tiny, tiny hands and rub it really hard to produce an AND gate. They also take different-coloured sand to make an OR gate.

- “ Physics, engineers, and then the good guys over here.

CS 246E: BRAD LUSHMAN

- “ This is where you might say CS 246E becomes CS 246D, where the D stands for difficult.
- “ Your new favourite word: SFINAE.
- “ Vector would be thinking... well vector probably won't be thinking. But if it was thinking, it'd be thinking well, I don't have much more to give.

CS 341: TREVOR BROWN

- “ Someone comes up to your door and asks, do you want to buy some knives?
- “ In the future, when humanity has ascended, or destroyed themselves...
- “ There's probably some joke in here about Harvey Weinstein and Hollywood.

CS 343: PETER BUHR

- “ It was true for the first five programs they wrote, and thus by engineering induction it must be true for all programs.
- “ There will be a parent and the parent's job will be to keep giving you money.
- “ If you want to be the coolest person on social media, don't call anyone. Let them call you.

CS 454: SAMER AL-KISWANY

- “ If the failure happens in 6 or 7... *[students laugh]* I should change these numbers... what if I say 7 or 6?
- “ The king is dead, time to elect a new king. I also want to become your new dictator.
- “ We in CS love drama. So we will follow an epidemic protocol (before COVID). It will spread like a disease.

CS 466: SEPEHR ASSADI

- “ Anyone remember Ohm's Law?
- “ Induction is not a nice way of proving things. It's like, if someone was high and came up with a way of proving something, and then just wrote down an induction to verify that it's correct.

ECON 101: MIKAL SKUTERUD

- “ F the polar bears! F the future generations!
- “ Your yard is an eyesore, it makes me depressed.
- “ You’re doing worse than randomly guessing! How is that even possible?

MATH 137: CYNTHIA DAI

- “ Worsenotes, it’s not even badnotes, it’s evolving, degenerating.
- “ I am eepy.
- “ I made these slides at 3 am.
- “ That’s the thing we need to prove... and it’s gonna be boring.
- “ What the fuck am I doing.
- “ Today we’re gonna talk about cisgenders. Mom says we have cis at home... cis at home: *[complex numbers stuff]*.

MATH 137: LAINDON BURNETT

- “ Instead of trust me bro, we are going to do trust the second derivative bro.
- “ By a legal technicality that a legal firm would salivate over, this is not concave up.
- “ Alright, fuck ups aside, what do we think?
- “ I am smarter than the textbook. And you can quote me on that ☹️
- “ We’re going on a trip to the hospital!
- “ And no, it’s not because you will be sent to the hospital if you use it.
- “ *[explaining how l’Hopital paid Bernoulli to create l’Hopital’s rule]*
It’s probably the first example of pay to win.
- “ In fact, this is not even circular, so we are just OP now.
- “ Like I said before, if you don’t succeed, go to the hospital again! Surely they can’t screw up again.
- “ If you don’t use LHR, I will send an assassin to your house.
- “ Well at first if you don’t succeed, derive, derive again.
- “ PLEASE, for the love of math, do these.
- “ Alright, lets apply DIHVCISEPC.

- “ This is a great example. I love this example because this example is about overcoming adversity.
- “ If you don’t do this I will be sad, Sachin will be sad, your parents will be said, your employers will be said, your friends will be sad, any twitch streamers you follow will be sad, even your pets will be sad.
- “ Leave it for the 147 kids to prove after they’re done proving $0 < 1$.
- “ We were capping a bit when we said there’s 7 indeterminate forms. In this horse... there are 7 indeterminate forms...
- “ A lot of you are going to be doing taxes for the first time soon.
- “ They didn’t tell you shit about that!
- “ You guys know Bob Ross? We’re gonna get out our Prussian Blue and start working on these 10 steps of curve sketching.

MATH 137: SACHIN KOTECHA

- “ Today’s lecture will either end when I’m done teaching or when my tablet dies.
- “ I am excited not to see you for a week.

MATH 145: DAVID JAO

- “ We have to declare it by fiat.
- “ As the d gets bigger in different directions, things get worse.
- “ Fuck RSA.
- “ How do you rate this proof in terms of difficulty? It better not be 6 out of 7.
- “ Since assignment 5 is due today, let’s get you caught up on A3.
- “ Do you know how to add rationals?
- “ So we define 2 as $1+1$.
- “ There could be a banana in your number system.
- “ Is the banana more than 2 or less than 2?
- “ The banana has to be between n and $n+1$.
- “ Banana fails. Oh no, now what?
- “ Is banana real?

- “ Beyond all the integers, there is a banana.
- “ When Gauss gives 6 or 8 proofs of a result... at least it's not 6 or 7.
- “ Math is hard.
- “ It's an incredibly enlightening answer. We get the fifth roots of unity, dumbass.

MATH 145: JERRY WANG

- “ I know your Discord names, I shouldn't be able to know your real names.
- “ Maybe I shouldn't use Nigerian prince *[as an example]*. What if it's someone from Cambodia?
- “ So, everything that I am going to say could be total bullshit.
- “ So I printed out your pictures. I'm going to make an effort to learn your names and your Discord names.
- “ This is larger than infinity.

MATH 147: BLAKE MADILL

- “ Showing the triangle inequality is always a pain in the you-know-what.
- “ The open balls actually look like balls.
- “ Closed, compact, convergent, Cauchy, complete, cornucopia NO!, continuous, all the c-words!
- “ That's a very bad approximation. It's like a physicist-style approximation, taking $\pi = 3$.
- “ ...topologically fat.
- “ There will be a curve on this quiz... the only thing is, you'll have to sketch it!
- “ Math comes from the heart, not the keyboard.
- “ I don't know what [a maid café] is. Do I want to know?
- “ Don't quote me on that.
- “ A smiley face is compact.
- “ Let's do some Koch.
- “ Do I ever do public speaking? Well, a few times a week.
- “ Fractals. My second-favourite f word.

MATH 217: FLORIAN GIRELLI

- “ It's either 0 or 1. *[long silence]* It could also be... 6 7!!!! *[juggles hands aggressively]*
- “ That ringing a bell? Ding dong!!!

MATH 237: JOE WEST

- “ They probably spend about 4 and a half months proving that in the advanced course, leaving negative one and a half months to do everything else.
- “ Not that there's anything wrong with integrals being single. It's their choice. They're young, and, uh, yeah.
- “ So I won the unicycle. But then I found out that they're apparently not very good if you want to have children, so I donated it back.
- “ I had a dream that there was something on the computer where you could just type in a question and get the answer. Then I woke up. It was terrible.
- “ You have to keep decreasing the resolution. It's almost like a 'Minecraft' thing. Oh, sorry, I should have said 'The Mine craft.'
- “ I'm famous in my house for doing Jenga on the drying rack.
- “ Now, *cd* is—not to make you hungry or anything by making you think about the Math C&D...
- “ This is where I wish I could say, 'please put on your university-mandated Apple Vision, they're under your desk.' But they denied my request. Apparently, it was too expensive!

MATH 249: STEPHEN MELCZER

- “ Don't write 'trivial'. Instead, write 'by definition'.

MUSIC 246: SIMON WOOD

- “ 1977 was the best year of my life. I watched Star Wars fourteen times at the Newmarket Cineplex, my friend introduced me to Rush by giving me a copy of *All the World's a Stage*, and to make it even better, I read Lord of the Rings for the first time.

PHYS 121: RICHARD EPP

- “ So we have these two old cans of soup. They probably date back to the physics building being created. You don't want to open and eat these. Now, if you're a grad student, maybe...

PMATH 333: MICHAEL BRANNAN

“ F U as before.

“ Unfortunately this material isn't readily available for piratable download...

PMATH 432, ANDY ZUCKER

“ On Wednesday, we will halt. Or not halt.

“ The book uses something that I can't write, so I'll use hash instead.

PMATH 440: MICHAEL RUBINSTEIN

“ Who wants a candy? *[starts throwing candy at the class]* You can trade with your neighbour.

“ All of life revolves around proving that some L function is not zero.

“ You're all probably wondering what's going to be on the final exam. So am I.

“ For babies, we use three line congruence. For big kids, we use two lines.

PMATH 465: RUXANDRA MORARU

“ You need to [compute the pushforward] because then you'll take a course with Spiro and he'll go “They can't take the push forward! They did 465!”

STAT 240: PEIJUN SANG

“ ARE YOU SURE? I THINK THIS IS NOT ERASABLE!

“ I won't say which way is easiest or farthest.

STAT 332: SAMUEL WONG

“ In our experiment, let's have 6 treatments and 7 blocks. Why did I chose 6-7? Idk.

FAT BEANS

PLAY PHIGHTING ON ROBLOX PLEASE

There is an entire subculture in the Phighting fandom where they draw the characters into these bean-shaped creatures. Marvel fans might recognize their shape to be similar to tsum-tsums, but the “beans” have a head, body, and stubby legs. The love of the beans has even expanded to other Roblox fanbases. They're so cute I hope they all explode.

CHAT, ARE WE BURNED OUT?

ZERO EXAMS AND YET

I'm so tired. I don't want to write. I don't want to create. I don't want to talk to anyone. I just want to sleep. I'm so angry all the time, at people with no concern for the people around them, at my messy roommate, at a TA that lingers too closely, at classmates who give hateful vibes (what did I even do??), and my only sources of joy are busy living their lives and aren't obsessed with me even though they should be because I'm awesome and —

I'm so tired. Being a student, and a good one at that, takes its toll. There's also chores and ballet and the gym and eating 3 meals a day and drinking water and having time for family and hanging with friends and going to church and reading my Bible and trusting God's got me and —

I'm so tired. This society is notoriously good at squeezing the value out of everyone ever, with wage stagnation and rising rent prices and rising food prices and oh god I'm not saving enough, I'm not working enough, I'm not enough I'm —

I'm so tired. And all I want is to curl up with a movie or two with you. But you're not my resting place, probs won't be ever. Home is far away in 3 distinct towns and not this one. The plantain's not yellow, the streets are cold and unforgiving, and the music's all the same and I'm trying so hard to be good for everyone but —

I'm so tired.

Not depressed tho so we ball.

Jochemist

CRASHING OUT OVER COMMUTATIVE ALGEBRA

A GLIMPSE INTO THE MIND OF SOMEONE WHO IS ONCE AGAIN LOSING IT

Commutative algebra is really hard. For me, at least.

You know, back in the day I really liked algebra. Exactly 3 years ago I was taking MATH 145 with Blake Madill, and I loved it. That's a big part of why I'm in PMATH 446. And I still like algebra, it's just way harder now. It feels like the hardest parts of (P)MATH 145, 146, 245, 347, and 348 put together.

I'm kind of surprised that I'm even surviving it, but I am. For now.

EPSILON-DELTA DEFINITION OF LIMIT FANFIC

APOLOGIZING TO MY MATH 137 PROF AND ALL CALC 1 STUDENTS RN

There was a knock at my door. It was you, a .

The rain was pouring and your hair was soaking wet. Of course I invited you in.

You ran up to me and gave me a hug. My arms wrapped around you, concerned by the tears falling down my shoulder. I closed the door and invited you to my living room.

I brought over the ice cream as you fell onto my couch and vented about your life. You sobbed about work, your recent ex (not me, x) and family issues as your damp hair laid on my thighs, but I didn't mind. I just wanted to be there for you, and I could grab spoons of the pint from here.

I comforted you, wiping away the tears off your face and neck with my fingers. I told you it'll be alright, that things will soon improve as I softly petted your arm. I confessed my pains too, but you were the one with constant problems anyway. You didn't deserve any of this.

At times, you would hold onto the top of my moving hand and let it travel across your gentle limb.

I asked you if you were feeling better, and you responded with a quiet yes. You told me you were glad you came over, because you didn't know where else to go to.

I offered to let you stay the night. I couldn't let you go home like this in this sort of weather, and you hesitated at my generosity at first but eventually you conceded.

I suggested to go to sleep now, as I had a busy morning ahead of me. You obliged, and we went upstairs.

I gave you some of my oversized clothes as pyjamas and a toothbrush to get you set up for the night. I soon joined you in the washroom to wash my face, occasionally bumping my arm into yours, but you didn't mind. You seemed to be smiling, cheeks raised and radiating joy in the small room.

We got back to my bedroom and you jumped in, lying back first and staring at the ceiling. Your mood changed, that grin gone and replaced with a long face. I couldn't let you feel bad, your pure soul deserved everything, so I entered the bed and held you to me. Your arms naturally followed and wrapped around my torso, your head curling into my body again, just like how you entered my home.

You sighed loudly, exhausted by the world. I rubbed your back on top of the shirt, reminding you that it'll be okay. As long as we stood like this, all would be fine.

I whispered warm comforts into your ear, and I could feel the cheek laying on my neck raise. Even then, I continued to assure you, my face resting close to your ear, and we continued in our embrace.

Eventually, my lips grazed your ear, then to your cheek and then below. You murmured and hummed in soft breaths, even when I dipped back to stare into your eyes and lean in. I could feel our melody, the function of us as we kissed, and as we went farther.

We let this function continue further, my kisses going lower and lower, the shirts disappearing soon enough. I didn't think this would happen, but I didn't want it to stop either. I wanted to see how far we could go.

You were certainly in agreement, receptive to my tender love and ready to give yours. You knew how to bring me to my edge, and I was open.

As we got closer and closer, the function of us got closer to our truth, our limit, where we were approaching. We were going to where we were always going to approach at some point. I think for all the differences between the function of us and our true limit, there would exist a threshold of distance between us. And the smaller that threshold is, the closer we are to our true limit.

Of course, the distance between me and you could never be 0, since we are two. Similarly, we could never reach that true theoretical value of us, but I'd always strive to reach that value regardless. I'll always try my hardest to approach our true limit, a . As long as you let me get close to you, we will approach our true heights together.

Dollar Store Person

Everyday I think about the dignity I've lost from writing math fanfic, but this has certainly topped it

Also I was listening to Laufey while writing this, just wanted you to know that.

Have a good finals season and winter break, reader <3

N THINGS I ATE IN OTTAWA

WHILE MEETING WITH MPS TO ADVOCATE FOR STUDENT INTERESTS

- A really good vegetarian sandwich
- A really good vegetarian arepa from the same place
- A really good vegetarian sandwich from a different place
- A pretty solid vegetarian pita from another place
- A pretty solid vegetarian burrito bowl from the first place again
- The first sandwich again
- Really good shawarma

RapidEyeMovement

MONTREAL IS BUILDING CHEAP PUBLIC TRANSIT WITH THIS ONE WEIRD TRICK

Imagine living in a city that can't build public transit. Could not be me.

The REM¹ is Montreal's new rapid light transit system, and it's very cool. But more importantly, it *exists*. Despite some delays and teething issues, it's hard to say the REM hasn't been a success. On the occasion of the recent opening of the Deux-Montagnes branch of the REM (14 new stations! Dozens of kilometers of track!) I wanted to do one of my favorite activities: talk about trains.

But many people can describe what the REM is. I want to figure out *how* it got built. Some people just say it's too hard to build transit in Canada. I want to figure out *why* — and how the REM bucked this trend. And, hopefully, we can discover the One Weird Trick we can copy in Ontario to see competent public transit sometime this century.



From a purely cost perspective, the REM in its totality is currently projected to cost about C\$8 billion, or ~\$140 million per kilometre for 67 kilometres of rail. This sounds like a lot of money — and it is — but it's also orders of magnitude cheaper than similar projects across North America.

For example, Silicon Valley's Berryessa BART extension cost \$3.23 billion CAD for 16km (C\$201M/km). New York's Second Avenue Subway Extension is expected to cost C\$8.41 billion for 2.4km (C\$3.5B/km). And not to kick a dead horse, but the long-suffering Eglinton Line has cost \$12 billion for 19km of rail — \$631 million per kilometre for a plain-old above-ground light rail!

Some of this has to do with the specific type of project the REM is: much of it is in suburban Montreal where they don't need to dig underground, and they got to use an existing tunnel under Mont Royal for the metro-adjacent parts. It was built along freeways and land the city already owned and didn't need to spend money for. These cost-cutting measures aren't always an option.

But some of it also has to do with the unique funding structure. It was developed as a Private-Public Partnership (P3), where a corporation helps fund a public infrastructure project in exchange for partial ownership. P3s are attractive to governments not only because they require less taxpayer money to be spent, but also because of a neoliberal belief that private entities are inherently more efficient than government, and that public services would be therefore inherently better when outsourced to corporations under competitive pressure from the free market. This belief has a... let's say, *mixed* track record when it encounters reality.

The most notorious example (for Ontarians) is the 407 toll highway, built by the provincial government and then sold

to a private consortium under the belief that they could use the sale to pay down Ontario's debts, and that market forces would keep tolls low. It did not, and toll prices have risen almost every year since, with all that money going to private investors.

Given how badly that went, it's justified to be a little suspicious of the fact that the REM is fully owned by the CDPQ,² Quebec's biggest pension plan. But the devil is always in the details, and while we need to wait and see how it turns out, there's reason to be optimistic this could go better than the 407.

The biggest difference is that the CDPQ is getting paid a flat, pre-defined rate per customer per kilometre by the ARTM³ who actually collects the fares. This means that if the CDPQ wants to get more money from their asset, the best way to do it is to increase ridership, not start gouging existing customers who have no other options.

Getting mad at a company for trying to seek profit above all else is a bit like getting mad at the polar bear for eating the adorable baby seals. It's horrible, and companies should be held responsible for intentional enshittification, but it's not in a corporation's nature to do anything other than eat the baby seal. The trick is to direct that natural instinct in a direction which also happens to benefit the community, if at all possible.

Another reason is that, while the governments of Quebec and Canada did put in some money, all overrun costs are paid by the CDPQ. Public funders like Ontario's Metrolinx are often motivated more by fear of embarrassment rather than fear of waste, so they tend to allocate huge amounts of time and money upfront to avoid the PR hit of needing to ask for more of either.

But what seems to happen (at least in Ontario) is that the work simply fills the budget allocated for it, and they need to extend *anyways*, so they end up paying more than necessary *twice*. It's better to have a project budgeted for \$6 billion that doubles to \$12 billion, than a \$10 billion project that only increases by 50% to \$15 billion.

It's not all sacrifices from the CDPQ, though. The government played a major role in clearing the way for the REM, passing all sorts of special exceptions to allow the REM premier access, but not taking any participation in the design phase, giving the CDPQ maximum options and full autonomy to get into the weeds.

A counterexample to this style is, sadly, GO Expansion, the ambitious plan to give GO trains REM-like service and frequency which collapsed recently because of disagreements between Metrolinx and Deutsche Bahn, the private operator

that Metrolinx hired and then seemingly micromanaged into oblivion and subsequently fired.

The REM certainly isn't flawless, and the cancellation of REM de l'Est is a discouraging sign for this model being replicated in the future. But we have a lot of public infrastructure we need to build in Canada, and right now the REM is our biggest success story in at least a decade. For the sake of future generations — and more importantly, the Toronto-Montreal high speed rail project that God help me WILL get finished and I WILL live to ride — we need to take every lesson we can from what went so right here.

Dick Smithers

1. Réseau express métropolitain. Yeah, the M doesn't stand for Montreal. Who knew?
2. Caisse de dépôt et placement du Québec.
3. Autorité régionale de transport métropolitain. This M doesn't stand for Montreal either! Wack!

N PROS AND CONS OF THE WEATHER NETWORK APP

PROS

- Has cool news stories alerting me about the northern lights sometimes.
- Will appear in my iPhone's search bar when typing "The Weather Network." Unlike the stupid New York Times, which will only appear when I type in NYTimes like some sort of sheep.
- Has very specific neighbourhood weather stations like Bridgeport and Westmount Golf & Country Club, ON.
- Has many radar options beyond rain; wildfire, cloud cover, etc.
- Has air quality information for said wildfires.

CONS

- Recently Launched Weather Network Plus, where you have to pay to go ad free.
- Has a cap of 20 locations to save weather for. What if I want more????
- Will not appear in my iPhone's search bar when typing "TWN."
- The precipitation radar forecast just moves west. It never updates for the wind. AND WHY DOES IT ALWAYS DISAGREE WITH THE ACTUAL FORECAST???
- Doesn't have YouTube live-streams with their founder hyper about tornadoes (unlike instant weather).

Lars Nootbaar

OMICRON

According to **mathNEWS** v147i6, Matthew Kennedy said in 2021:

"I have been a mathematician for about 10 years, I am going to be honest here, I had no idea omicron is a Greek letter."

I would like to say that I have known that omicron is a Greek letter since 2017 ish, so even tho Matt is probably like 1000000 times smarter than me, I can say that I have known that omicron is a Greek letter for longer than he has. (I kind of want to put this in my CV for grad school applications but maybe that isn't a good idea...)

easty

IN MATH 235

straight up unitarily diagonalizing it

and by it

i mean my normal matrix.

smallmouthbasshater

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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A RESPONSE TO IMPRINT'S COVERAGE OF BARDISH CHAGGER'S CAMPUS EVENT

On Thursday, November 13, Waterloo MP Bardish Chagger visited UW campus for a WUSA event: Politics without the Podium. Held in the Bombshelter Pub, the occasion offered students an opportunity to directly connect with their MP and MPP to share the issues that matter most to them and find out more about the work of the politicians that represent them. Unfortunately, MPP Catherine Fife was unable to attend due to sickness, leaving MP Chagger the only politician fielding questions from students.

Imprint, Waterloo's student newspaper, was at the event to report on it. The article, *Politics Without the Podium brings students and MP Bardish Chagger together for conversation*,¹ was published on November 18. Regrettably, not only did *Imprint* continue its trend of being inept at holding elected representatives accountable to the student population, but the article was factually inaccurate in its representation of the events of the night.

Imprint claims that "one of the strongest moments of the night came when students raised concerns about rhetoric surrounding international students," but it was in fact Chagger's attempt at dodging a student's question that directed the conversation there. After a lengthy introduction by Chagger, the second question was about Palestinian students whose visa applications were stalled,² despite offers and scholarships from Canadian universities. The student referenced Sally and Dalia Ghazi, twin sisters accepted into University of Waterloo's Systems Design Engineering PhD program who were killed by an Israeli airstrike in Gaza before they could come to Canada.³ Instead of addressing the government's role in unequally applying visa processes to Palestinian students compared to applicants from other warzones in the past, Chagger lashed out at the student who asked the question. *Imprint's* quote, "the next time you read a headline trying to demonize international students, step up. Say something," was part of Chagger's outburst, blaming students for not coming to her defense when she received criticism over the international student controversy.

Chagger's response was deeply inappropriate for an elected representative engaging with constituents, many of whom are directly affected by the very issues being discussed. Instead of acknowledging the deep loss experienced by Palestinians and the concerns of Waterloo students, she shifted the conversation towards her own political grievances, and directed her frustrations with her colleagues in political office towards the vulnerable constituents she is supposed to represent. At an event meant to show students that their elected representatives can be approachable, Chagger managed to do the exact opposite — she made herself the perfect example of a person in power who students are used to fearing.

Yet *Imprint* not only failed to hold Chagger accountable for her conduct, but actively misrepresented the exchange and acted as little more than a mouthpiece for her preferred political

framing. The article omits the context of the visa question entirely, leaving readers with the impression that Chagger was taking a stance on a student issue rather than avoiding a pointed inquiry about federal responsibility in a tragedy that impacted the community.

This is not the first case of uncritical flattery that has become a pattern in *Imprint's* coverage. In its March coverage of the WUSA Board of Directors election results,⁴ *Imprint* interviewed then President- and VP-elect Damian Mikhail and Remington Zhi, limiting questions to their platform points and echoing their campaign messages. No inquiries were made to other candidates' criticisms of their campaign, or the challenges awaiting them in office. Opening with, "determined to address pressing issues affecting UW's undergraduate population and prepared to advocate for much-needed reforms, Mikhail and Zhi display clear passion for their new roles," and finishing with "without a doubt, the Horizon party is determined to bring student needs and voices to the forefront of their presidency," *Imprint* perfectly framed an article that read more like a Horizon campaign blog than independent journalism.

The deferential tone may be understandable, as student contributors are developing their skills, but *Imprint* is also plagued with persistent grammar and spelling mistakes despite the oversight of a Publications Manager and an Executive Editor, both full-time paid employees. Not only was Chagger's response to student questions far from straightforward, *Imprint* uses the incorrect phrase "straight forward." Coverage of the establishment of UW's Ombuds Office,⁵ a service deeply important to student rights, included awkward phrasing, an extra space after a quotation mark, and the word "institution" replaced with "insulation." The September issue of *Imprint's* magazine displays the same issues despite being a physical publication.⁶ On the first page, a stray apostrophe is featured in the title of the first article. The garbled sentence "Art students, on the other hand, are generally more comfortable with essays, discussion boards, and projects are chill about deadlines, or participation bumps your mark up" also misnames a Faculty (Arts). Elsewhere, "Environment, health, and recreation" are listed as Faculties when Recreation and Leisure is a department in the Faculty of Health. Even in an exclusive interview with Ontario's opposition leader Marit Stiles, although the article spells her name correctly, the title, caption for a photo, and a highlighted quote misspell her name as "Styles" three times.

All this reveals a serious lack of direction at *Imprint*. An official student publication, funded by student fees and staffed with professionals, should deliver both accurate reporting to the student body and meaningful mentorship to its contributors. We deserve a publication that reflects the real concerns of Waterloo students, holds power to account, and equips emerging journalists with the skills to uphold these standards.

Marginally Critical

1. <https://uwimprint.ca/politics-without-the-podium-brings-students-and-mp-bardish-chagger-together-for-conversation/>
2. <https://www.cbc.ca/news/politics/university-students-gaza-visa-applications-1.7576935>
3. <https://www.cbc.ca/news/canada/kitchener-waterloo/university-waterloo-gaza-twins-killed-war-1.7412330>
4. <https://uwimprint.ca/wusa-election-results-a-glimpse-into-the-horizon-presidency/>
5. <https://uwimprint.ca/uwaterloo-welcomes-new-ombudsperson-whitney-barrett/>
6. <https://uwimprint.ca/wp-content/uploads/2025/09/September-magazine.pdf>

WHY I HATE SMALLMOUTH BASS

THE TRUTH REVEALED

It all began at my camp, when I was three-ish years old. My grandpa loved fishing, and he wanted to share that love with his grandchild so hopefully they would love fishing as well. So he loaded me, his tackle box, and a kid-sized rod into our little aluminum boat, and set out from our rickety wooden dock into the lake. My grandpa was an amazing fisherman, because somehow he managed to get a fish on my rod. A little baby smallmouth bass for little baby me.



SMALLMOUTH BASS FOR REFERENCE

I remember reeling the fish out of the water, the crazy amount of splashing, my grandpa's proud face as he took it off the line. Then it all goes blank. I think the story goes that the bass ended up in the bottom of our tiny boat. At most a foot away from a 3-year old child. My grandma says I started screaming so loud the whole lake could hear.

That should have been my first warning of the horror know as the smallmouth bass. However, that did not deter me from fishing and swimming in the lake. In fact, I used to "play" with the smallmouth bass, chasing them in the water and trying to "pet" them. I was young. I was naive. I became complacent.

It's the summer of maybe 2016, probably in early June, idk. I was going for a swim in the cold lake, inching deeper and deeper into the water. While trying not to trip on the rocky bottom, I looked down and spotted a smallmouth bass, maybe a foot long, two meters away from me. I remember thinking, "Wow, what a big bass."

Not even a second later, it swims up and attacks me. Literally attacks me. Headbutts my leg and everything. I run, sprint out of the lake, traumatized. Fearing for my life, my leg, and my sanity. I'm too terrified to go back in the lake. For the rest of

the summer, I sprint as fast as can to the deepest area I can go, where I think the fish can't get me.

Years later, like almost a decade, I finally get over my fear of smallmouth bass. I joke with my family about the whole debacle, and the fish earns the name "attack bass." Soon enough, I'm able to swim freely in my lake, without the looming worry of being viciously attacked. Things are as they should be. But little did I know.

It's the beginning of summer 2025. I'm home for the summer to spend time with family and chill out. Back again is one of my yearly chores: putting in the dock with my dad and brother. We have a new high-tech dock now, now made of metal, 40ft longer and like 100 pounds heavier. Harder to put in the water, but worth it. Not tryna flex or anything.

We're 2ish hours in, so close to done, attaching the final platform on the end. All these rocks, boulders even, are in the way of the wheels, which makes it ten times more of a pain in the ass. I'm waiting for my dad to move a big rock, when all of a sudden I feel it. Something slimy against my leg. I know it's a smallmouth bass. My trauma response kicks in, and I scream as loud as I can as I try to jump out of the water onto the platform to escape my terrible doom.

Unfortunately, when you jump up onto a raised platform, your legs tend to naturally close as you use your arms to pull yourself up. Aerodynamics or something. And so unfortunately, as my legs came together, the smallmouth bass made the worst decision it could possibly make. It swam directly in between my calves. I can't even bring myself to explain how horrible the feeling of a fish sandwiched between your legs is. Do NOT recommend.

I finally make it to the top of the platform, fearing once again for my life, and worried that I will be too terrified to swim in the lake ever again. But my fear slowly turns to rage. I will not let something I love be taken away from me by some silly fish. I will not be attacked and victimized to the point of absolute fear. I sit there, seething with hatred for the smallmouth bass (I actually think it was the same fish) that almost took everything from me.

And so that's why I hate smallmouth bass. The more you know.

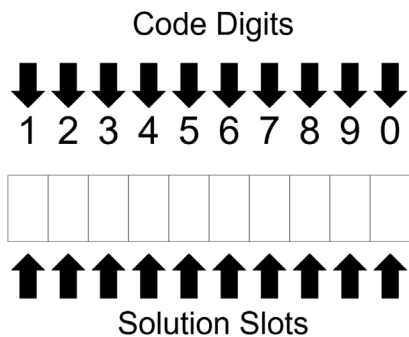
smallmouthbasshater

A NUMBERS GAME I MADE

IT'S KINDA FUN

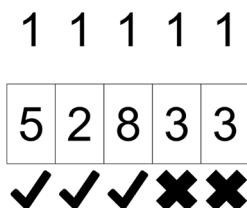
I was inspired by **mathNEWS** puzzle articles, and I wanted to make my own puzzles but I don't think I'm smart enough (or don't have enough patience) to make good ones so I made a little game instead.

So the game involves taking a set of numbers and then writing down another set of numbers based on a set of rules. It gets kind of confusing which numbers you're talking about though, so I'm going to refer to the set of numbers you start with as the "code," and the set of numbers you write down as the "solution." The code consists of several single-digit numbers, each of which corresponds to a "slot" in the solution. You write an appropriate single-digit number in each slot, so you end up with a solution that is a sequence of as many single-digit numbers as the code. Make sense? I sure hope so.

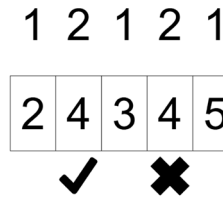


Each digit from 0 to 9 that could be in the code has a rule about which numbers can be placed in the slots of the solution. All rules are determined by the numbers in the code and apply to numbers in the solution, never the other way around. Most rules regard the slot directly below the digit of the code, though some will apply to multiple slots. Below are the rules I came up with, along with some visual representations of following or not following them.

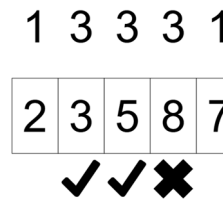
1: The number in the slot below can't be in any other slot.



2: The number in the slot below must be twice as much as either of its adjacent slots.

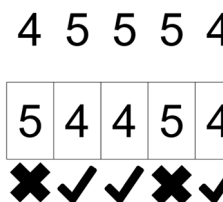


3: The number in the slot below must be higher than in the slot to its left, and lower than in the slot to its right.

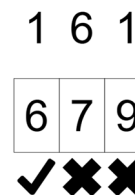


4: The number in the slot below must be a perfect square (1, 4, 9).

5: The number in the slot below must be whichever number appears most frequently in the solution (including itself).



6: The number in the slot below and its adjacent slots can not be 7 or 9.



7: The number in the slot below must be prime (2, 3, 5, 7).

8: The number in the slot below must be a reflection of either of its adjacent slots (6–9, 8–8, 0–0, 5–2) (if you have different ideas of what numbers are reflections, feel free to use those).

This blackBOX was here all along, I swear.

A mathNEWS EDITOR WITH NOTHING TO HIDE

7 8 8 8 7

8	8	0	5	2
---	---	---	---	---

✗ ✓ ✗ ✓ ✓

9: The numbers in the adjacent slots below must add up to 9.

1 9 1 9 1

2	1	7	5	3
---	---	---	---	---

✓ ✗

Above, the first 9 is met because $2 + 7 = 9$, but the second is not because $7 + 3 = 10$. The slot directly below the 9 itself is not affected by the 9's rule.

0: The number in the slot below must be the same as the number in either the first or final slot of the solution.

7 0 0 0 8

3	6	3	9	6
---	---	---	---	---

✓ ✓ ✗

These rules aren't perfect, but I kind of like them. They allow for the majority of codes to have possible solutions, with the caveat that most codes will have multiple solutions. You've got to think a little to solve them, but not enough that you'll often end up stumped. I think they work well for a little game that you can play whenever you have a pencil and paper on hand. Feel free to come up with your own rules if you like.

A few clarifications: when a digit at the beginning or end of a code has a rule referring to "adjacent slots," the final slot counts as adjacent to the first slot and vice-versa. For rule 5, the number in the slot can be tied for most frequent. There are also a couple impossible code setups I've noticed, but instead of improving the rules I've decided to just add bandaid patches. When there's a 0 in the middle of the code and 1s on both ends, the slot below the 0 can match either of the slots below the 1s. When there's too many 3s in the code and the solution is forced to count higher past 9, 0 can count as higher than 9 and then wrap around to have all other numbers higher than 0, but the 0 must come directly after the 9. If you find any other of these impossible edge-cases feel free to add your own patches, but it should be pretty rare.

Alright, now that you (hopefully) know how to play, you just need your code! Codes can be any length, but I find 10 digits is the most fun. I've included some below, but it's really easy to come up with your own. What I typically do is pick a random number of any size, and then form a code out of the digits

of its multiples. For instance, the first multiples of 27 are 27, 54, 81, 108, and 135, so a 10-digit code could be 2754811081 for instance. I've included a picture of what that could look like solved. It makes it really easy to come up with them, and then just start playing. Hope you enjoy!

2 7 5 4 8 1 1 0 8 1

4	3	1	1	6	9	7	4	5	2
---	---	---	---	---	---	---	---	---	---

3 6 9 1 2 1 5 1 8 2

--	--	--	--	--	--	--	--	--	--

1 1 2 2 3 3 4 4 5 5

--	--	--	--	--	--	--	--	--	--

9 1 8 2 7 3 6 4 5 5

--	--	--	--	--	--	--	--	--	--

1 0 3 2 0 6 3 0 9 4 1 2

--	--	--	--	--	--	--	--	--	--

I don't really know if there's a point to all this, but I've enjoyed doing them. I call them "codes" but since there's more than one solution to most of them, you can't actually decipher messages super easily. And since the result is also numbers, you'd need to then be able to translate those into letters somehow, and if certain numbers represented certain letters, you'd need another way to indicate where the gaps were, otherwise the whole thing would be practically unsolvable. So I don't think there's really a practical way to do all that. I still find solving these fun though. Thanks for playing!

Doublewhip

X|XX|XX|XX|X|XX|XX|XX

WHAT EACH MATH MAJOR WOULD BE IN LEAGUE OF LEGENDS II

SIDENOTE: NEW TFT SET ACTUALLY OK???

Picking up where we left off, we have:

MATHEMATICAL ECONOMICS: TWISTED FATE

Look, the arts side of Mathematical Economics is better, because you get to specialize in econometrics, finance, or public policy. Doing a BMath in Math Econ is like building AD TF; you can, but why would you when lots of better AP options exist? Also, TF gets money from passive, and money is economics I guess.

MATHEMATICAL FINANCE: NASUS

It seems like they just suffer for four years with difficult courses and then earn ridiculous amounts of money at various fancy companies or cry when they don't. All my Nasus teammates farm for thirty minutes and then manage to carry or go AFK.

MATH/FINANCIAL ANALYSIS AND RISK MANAGEMENT: AMUMU

My one friend in Math/FARM says he's switching out of it as soon as he can, so I guess he was autofilled or something. Amumu is my autofilled jungle champ, because I lack the skill to play literally anything else.

MATHEMATICAL OPTIMIZATION: KOG'MAW

You guys remind me of C&O majors, but you just have to take an AFM, ECON, and MTE course. Also, you have to choose a specialization for your degree. Kog'Maw is very similar to Jinx (who was chosen as C&O), but instead of the ultimate being a cool rocket, it's just a globule of acid that drops from the sky. You also have to choose whether to go AP or AD.

MATHEMATICAL PHYSICS: HEIMERDINGER

Every Mathematical Physics major I've seen is a bit quirky (in a good way) and has taken the weirdest courses, but I have no doubt they will all create great things. Heimerdinger has a strange kit and interesting personality, but ultimately is just a little guy with nice inventions.

MATHEMATICAL STUDIES: KARMA

Not gonna lie, I don't know much about this major. It seems like a great major if you want to do a bit of everything, and it has some chill people. Karma players also do a bit of everything, and they seem nice and untiltable.

MATH/TEACHING: SORAKA

Teachers are great. It's an important job, but generally it doesn't pay well. However, seeing your students mature is very rewarding, according to many math teachers I've asked.

Similarly, Sorakas are important, but get horribly low amounts of gold. The one time I played Soraka, it was very rewarding to see the Ashe I "raised" in laning phase get a pentakill.

PURE MATHEMATICS: BARD

Pure Math seems like a major where you just think of ideas and commit all of your life to them, and think of the applications and consequences later. When I play Bard, I do the same. Sometimes it works, sometimes it doesn't. And that's fine. I love Bard and Pure Math both, but one just a little more than the other.

STATISTICS: LUX

Most people will have, at one point, taken two statistics courses in the math faculty. Some people love it and major in it, others dread the moment and push STAT 231 to their 4B term. Many people, at one point, have played Lux because they were filled mid or support. Some people love it, and other people will never play her ever again. Also, I find that most people who are majoring in stats are quite cheerful, just like Lux.

SOFTWARE ENGINEERING: DRAVEN

I feel bad for them and jealous at the same time. On the one hand, it's ridiculously hard to get in, the course loads are overloaded, and everyone is chronically stressed. On the other hand, they earn so much money, and do so much cool stuff. For Draven players, they have to make sure nobody dodges once they lock in Draven, and they have to not misplay all the time (lest they lose their Adoration stacks). And I would feel bad for them, but then the one on the enemy team gets a pentakill and calls me a slur, and then I stop feeling bad.



And we've reached the end. If anybody wants to play TFT or LoL with me, or wants to convince me to stop playing those games, my discord is my pseudonym and my Riot Games account is PapayaBird#0001. Good luck in ranked, and in finals!

papayabird

NONE PIZZA

none pizza my love
not even the dough in there
just a box, great choice

fingersinsockets

I WALKED THE ENTIRETY OF THE ION. HERE'S WHAT IT WAS LIKE

On November 15th, at noon, I decided to make an interesting use of my free will. Over the following five-hour, 19-kilometer walk, I stayed almost entirely alongside the ION track, from Fairway to Conestoga, visiting all 19 stations. Here are some notes about my (kinda painful) walk that I think is of note.

THE FEELING OF DISTANCE TRAVELED

Before I came here for uni, I decided to walk the entirety of the Vancouver Seawall as a way to experience my city before I left. One of the biggest issues mentally and physically wasn't the distance of the walk, even though it was longer, but instead the lack of feeling any distance moved. On the seawall, you spend half of your time walking around False Creek. This means that you're spending your time around the same part of Vancouver for about half the walk. What this causes is that on your left, all of the buildings look exactly the same, while on your right, you just have a look at the other side of the inlet where you are going to be in two hours or where you were two hours ago. This makes the walk feel two or three times longer because the environment stays looking the same. The ION doesn't have that issue. Going from the industrial feel of South Kitchener, to downtown Kitchener, to uptown, to campus, you feel the change of scenery and the distance traveled. However, despite all that, it is cool that it still feels like each section connects with the others like puzzle pieces. Every section of KW, while varied and distinct from other sections, still feels like a connected whole.

THE ION BOTH HELPS THE REGION FEEL WALKABLE WHILE ALSO SHOWING THE CURRENT STATUS OF UNWALKABILITY

The ION, as with transit in general, helps areas become all the more walkable. However, there's one thing that it doesn't address, and that's how it doesn't really feel like it has a ton of residential neighborhoods that it goes through. The ION does come across a lot of stations at good and important destinations that individually have a lot of walkability, like the hospital, downtown, or campus (especially downtown Kitchener and uptown given how dense the number of stations are in those areas). However, it doesn't really feel like the connections between the destination and the beginning have been fully made. While that might be me being urban-pilled from being in Vancouver and being used to seeing higher density housing, the ION sometimes doesn't feel like it addresses the people living in the region adequately in a way where it's convenient for it to be taken as opposed to cars. Additionally, it does also show just how unwalkable this region sometimes is. Given the lack of high density housing in this region, you end up seeing a lot of just... nothing. Like sometimes there's detached homes which are incredibly low density, but at other times it's really only nothing around, close to some major road or maybe a highway. I'm hopeful that the ION might encourage building of more high-density housing given the value of living near transit, but for now we

are just stuck with a region which for most people is easier driven than walked (or biked or transited or any of the such).

(Additionally, extra note. Looking at the GRT map is actually kinda sad because the bus lines look so few and far between because of just how much overlap there is. I feel like there could be so much better transit if busses in a neighborhood could be spread out just a bit more across more streets to make it more accessible and more appealing to use)

SOME PARTS OF THE AREA ARE GENUINELY TERRIFYING AT TIMES

Crossing the highway under Northfield Dr on the final bit between Northfield and Conestoga when it's dark out and you're lowk kinda lightheaded and you're without music is actually incredibly terrifying. The sound of the trucks passing underneath while others drive right past you made me genuinely fearful of falling even when it wouldn't happen, sounding so close to me that I thought it was headed my way. I had to try to keep my head staying looking forward the entire way just fearing the idea of drifting one way or the other, being hit by traffic from behind, or falling over the railing onto the highway below.

WE NEED A MORE FREQUENT ION

This isn't even a something I just noticed on the walk this is just a rant but WE NEED THE ION TO BE MORE FREQUENT!!! The SkyTrain back home takes anywhere between 3 to 10 minutes between trains usually, and even 10 minutes is LONGGGGG!!!! 15 MINUTES IS OUTRAGEOUS!!!! I don't even care about the fact that most of the time both trains arrive at the same time and how cool and convenient that is when you miss your stop. THE ION SHOULD BE MORE FREQUENT THAN A BUS. IT MAKES NO SENSE THAT THE REGION MADE THE ION TO ACCOUNT FOR THE GROWING POPULATION AND THEN DIDN'T USE IT TO ITS FULL ABILITY. THIS IS THE ONE THING THAT PISSES ME OFF ABOUT THE TRANSIT HERE!!! GET MORE CARS ON THE RAILS PLEASE GRT!!!

fingersinsockets

WHERE ARE YOU...

it's me against the world. come back.
who even are you? would i know you when i've found you?
can i get to know you? i miss you.
i can't tell where you end and the
world begins where the world ends and i begin.
where i end and you begin.

missing_g*rl

THE STAIRS KEPT GOING DOWN

When I descended the stairs of MC after the final class of my undergraduate career, they didn't stop where they usually did. They kept going down.

Since it was my last time ever in this building, I decided to investigate. I had never noticed the basement before, and I wondered what they kept in there. The lights grew darker the deeper I descended, and there stopped being cute math constants on the wall. To my disbelief the stairs went further than just the basement, not stopping until the placard on the wall read "-4."

The landing at floor -4 had a wooden double door with no windows. With the same curiosity that spurred me to descend the stairs, I pushed the doors open.

The lights were brighter on the other side. It took me a second to realize what I was looking at:

The fourth floor of MC.

Except it was perfectly mirrored. All of the classrooms I expected to be on my right were now on my left. It was also dead silent.

This freaked me out, but not enough to deter me from exploring. I picked a hallway and wandered down it, only stopping once I reached MC4021. I had many classes here throughout undergrad. For nostalgia's sake I cracked open the door and took a peek.

The class was full of students, with smatterings of chatter happening across the rows. Projected onto the pull-down screens was "Introduction to Induction." A small smile crossed my face when I realized I'd stumbled into a MATH 135 lecture. It held a special place in my heart for being the most memorable class of my first year, mainly because it was the one my friends and I agonized over most.

After listening to the professor for a minute, I was about to duck back out of the classroom when a girl in the third row raised her hand. The professor had asked the students about an example that was on the screen, and she'd raised her hand to state the inductive hypothesis. As soon as she started speaking I gasped.

I knew it was loud, because every face in the room suddenly turned to stare straight at me. I quickly backed out of the classroom and shut the door, reeling from what I had seen.

That girl was *me*.

I shook my head, refusing the idea, but it had undoubtedly been my voice, my stupid haircut, and my crooked glasses on her face. All hallmarks of my eighteen year old self.

I started quickly back towards the staircase. Whatever I had just seen, whether it was some portal to the past or

insomnia-induced hallucination, unsettled me. But as I was rounding the corner to the staircase, I bumped shoulders with someone hard. I turned back to say sorry, because in my hurry I hadn't seen them coming at all. The other person just kept walking. Again, immediately, *I knew her*.

She wore my backpack, my favourite beanie, and the sweater I bought during the summer after first year, when I was on my first ever solo trip to Banff. She had earbuds in and didn't spare me a second glance. I knew she wouldn't, because when I was nineteen, I wouldn't have looked back either. I'd have been too embarrassed.

I turned around and kept walking towards the staircase. I just needed to make it back, climb to the first floor, then walk outside and forget this ever happened. I needed to be done with this school.

Finally I was back to the double doors, but right as I was about to open them, I heard a noise. It wasn't a loud noise, but in the silence of the hallway it was distinct.

Someone was crying.

It came from down the hall, the corner where the women's bathroom was. I knew because it was my favourite bathroom on campus to cry in. On the walk over I was no longer scared. I just felt nervous, because I was never very good at comforting people when they cried.

The noise got louder when I entered. Only one stall was closed, and I could clearly hear the sharp hic-ups coming from behind the door. I knocked gently.

"S-sorry," a wavering voice said from the other side. "I'll be done in a second."

"Can I come in?" I replied.

"W-w-what?" the voice said.

"Please?" I asked.

There was a pause, then the distinct sound of the sliding lock opening. Slowly the stall opened until I was eye-to-eye with the red face of my twenty year old self. She was clutching toilet paper in her hand, wiping her tears.

Once her vision was cleared, I watched her wet eyes widen.

"You... how... what..." she asked.

I knew what she needed more than any explanation. I stepped forward, wrapping my arms around her shoulders, pulling her towards me.

"It's okay," I said softly. "I know it feels like nothing will ever be okay again, but I promise, it will be." I knew it would be, I'd *lived* it.

I heard her start to cry again, and she wrapped her own arms around me, holding on tight. We stood there together until she started to calm down. When she shed her last few tears I gave her one last squeeze then let go, leaving the stall. I knew she'd rather be alone at that point.

I didn't hesitate opening the doors to the stairs this time. But on my way up, as I made it back to the basement, I glanced

back and saw three girls walking back down the stairs. One with a stupid haircut, one with a Banff sweater, and one who turned to meet my gaze. Her eyes were still wet, but she gave me her best smile. Then the three continued down, until they faded away along with the stairs.

I stood there, staring at the solid basement floor, before leaving MC for the final time.

closeted atheist

ALMOST INFINITE

WHAT IS TETRATION, YOU ASK?

I found this browser game from matrix67 (six — seven $\aleph(\geq \forall \leq) \aleph$)'s website:¹ <https://matrix67.itch.io/almost-infinite>. I finished the game after doing some research. It was such a fun puzzle! I encourage you to challenge yourself to it, but if you want a hint, here is one: (0, 1, 14, 0, 0).

For those who are reading this article on paper, this game is based on the 2010 International Mathematical Olympiad's Problem 5:²

Each of the six boxes $B_1, B_2, B_3, B_4, B_5, B_6$ initially contains one coin. The following operations are allowed:

Type 1) Choose a non-empty box B_j , $1 \leq j \leq 5$, remove one coin from B_j and add two coins to B_{j+1} ;

Type 2) Choose a non-empty box B_k , $1 \leq k \leq 4$, remove one coin from B_k and swap the contents (maybe empty) of the boxes B_{k+1} and B_{k+2} .

Determine if there exists a finite sequence of operations of the allowed types, such that the five boxes B_1, B_2, B_3, B_4, B_5 become empty, while box B_6 contains exactly 2010^{2010} coins.

The IMO problem's solution is similar to the browser game's but just a bit(?) harder — you have one more number to begin with! Try and solve it yourself, the hint is to formulate a few compound moves based on type 1 and type 2 moves. You can read this article if you want to learn how to solve it.³

I have been following matrix67 since middle school. You can always find some hidden gems when browsing his past articles. On a side note, the 67 from matrix67 did not come from the meme (???), but he made another interesting game called Exactly 7.⁴ ~~Following the same idea, you can make a game called Exactly 6 so you have 6-7 idkwwwm ifdshvifhvduho-~~

eralogos

1. <https://matrix67.com/>
2. https://artofproblemsolving.com/wiki/index.php/2010_IMO_Problems/Problem_5
3. https://artofproblemsolving.com/wiki/index.php/2010_IMO_Problems/Problem_5
4. <https://matrix67.itch.io/exactly-seven>

RAGE UPON CS 135 ASSIGNMENT 8

LOWK COMPARABLE TO THE SUDOKU ONE

WHOEVER MADE ASSIGNMENT 8 FOR CS 135 THIS TERM RAINED HELL ON US. wtf was that assignment, wtf was question 2. The moment that was released it just screamed red flags. One of the TAs said they pulled out the hardest question from the question bank to force more people to go to office hours.

ew imagine going to office hours.

Fellow first years, let's start a riot. We're calling all weeb, nerds, furries, and fellow cs haters, let's take back the marks we lost.

Here's some closing remarks by the words of my dear friend, another victim of assignment 8:

whoever wrote question 2, I need them to burn at the stake. The scent of their flesh must fill the air for me to be satisfied. Their screams must be heard for miles around for this world to know true peace. I cannot sleep soundly while this person roams around the world without suffering. I need them to walk into a restaurant, order something without tomatoes, and then the restaurant adds tomatoes anyway.

crazysheep

YOU'RE TELLING ME A MAST GAVE THIS HEAD

For this article, I would appreciate it if you would please walk with me through the past for just a couple minutes. The trek won't be too long or arduous, but it is best to have a guide who knows the landscape. Wandering too far can be dangerous.

ANCIENT TIMES

I know it is impossible to convince someone to be nostalgic for something they never experienced, but much like everyone else who knows that, it won't stop me from trying a little, so please indulge me for just a paragraph or so.

In the Ancient Times (2020), even with no word limit, a **mathNEWS** issue was long if it exceeded 25 pages, we had to manually write writers' names at the bottom of each article, and hitting the blue submit button, instead of forwarding the article to the editors, would send an article into a void from which it could not be recovered. We also had old **mastHEAD**.

Back then, the first thing everyone did at **prodNIGHT** was open the **mastHEAD** document, a Google Doc with universal editing privileges where editors wrote **mastHEAD** questions and trusted writers to fill in their responses. The document got the wheels spinning, it was what got you into the **mathNEWS** mood. You'll just have to trust me when I say that opening that document was like settling into a warm **mathNEWS** tub after a long day's work (which was actually two long weeks of online classes).

After each issue went up, the document was wiped to make room for the next issue's **mastHEAD** question. However, because Google Docs tracks editing history, this single document contained years' worth of **mastHEADs** tracked in exquisite detail. With the document, you would be able to see people live-editing their answers over a **prodNIGHT**, going back and retooling them, deleting them and restarting. You would be able to track the story of every answer to every **mastHEAD** question.

Of course there were some bad questions back then. I think 144.5's "WHAT WOULD YOU ASK FOR A **mastHEAD** QUESTION?" is the all-time worst **mastHEAD** question, and there should be legal repercussions for the editors who asked it. Although writing a question by sourcing it one letter at a time from writers is funny, 147.3's "WHEN IS MATTHEW?" makes zero sense to any outside reader.

The old **mastHEAD** document's last rodeo was between 148.6 and 149.6. At prod night 150.1, the editors passed around a piece of paper for physically written responses. For 150.2, a radical new **mastHEAD** was unleashed, Google Form **mastHEAD**. The form had only the question, space for author name, and character-limited space for an answer. In contrast to the homely old **mastHEAD** document, this was like sitting in a hospital waiting room for five hours after a hard day's work.

Old **mastHEAD** was dead. It never got a funeral.

INTERMISSION

Sorry, I said I would keep you out of harm's way, but here I am exposing you to Matthew. Diving that deep for too long is how you drown. Let's pause for a minute to examine whether old **mastHEAD** was really better. I can easily explain why, in theory, it is the right way to do things, but were the results any better?

Yes. Going back, reading old **mastHEADs**, it is much more common for answers to reference and build off each other.

From 146.1, "HOW DO YOU FEEL ABOUT THE UNIVERSITY'S IN-PERSON PLANS FOR FALL '21?"

ABALD MAN | Gimme real classes.

CC | Abald man: knows what's up
cares: long since run out
pizza: in my face

From 147.4, "WHAT WILL YOU DO WITH THE EXTRA HOUR FROM TURNING BACK YOUR CLOCK THIS WEEKEND?"

SECRETSQUIRREL | STAT 231. HELP ME.

SKIT | Sleep. You guys can suffer with your grind and your STAT231 courses. I'm big brain, I'm in the environment faculty.

BEEFBROWN | Transfer into the env faculty.

And from 147.6, "WHAT WAS THE BEST THING THAT HAPPENED TO YOU THIS TERM?"

APHF | Avenged my father

X | Was avenged by some dumbass that thought he was my son

I do not think any of these are pre-planned collaborations.¹ They arose naturally from the document. They build on each other in a way that doesn't exist with form **mastHEAD**.

Since switching to the form, there have been many many instances of parallel answers. I must be clear, I think blaming writers for duplicate answers is a lazy way to pass off blame. When there is a funniest answer, of course **mathNEWS** writers will find it. However, because form **mastHEAD** is, by default, an individual activity, it has a much lower floor. Document **mastHEAD**, by default, was a group activity.



COLD WAR

From our stroll so far, I would hope that you can appreciate old **mastHEAD**. I don't think you'd be alone in that appreciation, I believe everyone who has responded to both form and old **mastHEAD** knows old **mastHEAD** was simply more fun.

Despite this, we now enter a period of cold war. A period of slow tense moves stopping just shy of open conflict. For years, despite the pleas of the people,² editorship was firm. For whatever reason, form **mastHEAD** had to stay.

How could so many terms worth of editors, even those raised on old **mastHEAD**, propagate form **mastHEAD**? I ask you this, when was the last time you were in a position to change a rule that would affect people for years to come? How would you weigh the fact that the people your decisions affect would have no input on your decision? Although I can not agree with the Cold War era editors, I understand their motives.

POLITICAL VIOLENCE

What happens when peace talks fail? When negotiations stall? When all diplomatic options break down?

In early November this year, I kidnapped the **mathNEWS** press pass. For weeks, hostage negotiations dragged on. Finally, on the 24th of November 2025, a day that will no doubt be remembered alongside November 11th and the signing of the Armistice, an agreement was finally reached. Safe return of the press pass was secured in exchange for submitted **mastHEAD** responses being made visible in the form.

Bells rang out, people sang, shouts in the streets as celebrations began, families finally reunited after weeks of strife, tomorrow seeming brighter, the future now something to look forward to.³

I click on the link to see responses. Nothing.

You have to scroll down over a hundred rows to see anything.⁴

aphf

1. In fact I know for a fact the last one wasn't
2. Me
3. Citation needed
4. Pro tip to anybody who deals with this issue, instead of deleting the cells, delete the entire rows. I am not complaining though, scrolling is a price I will happily pay.

MUSICINGS

It's kinda funny how people are so proud of their music taste. Like, they weren't the ones to write those songs! I guess it's like how sports fans say "we won" after a game, because who is we 0_0??

Anyways, I suppose it does make sense in the way that what words and sounds make you happy say something about if you're energetic, depressed, deep in a sophisticated way, deep in an Instagram repost sort of way,,, it's a way to outline your personality in a form that does not come up in day-to-day interactions. For example, if someone tells you they listen to Hollywood Undead, you may learn they are a bit more aggressive than expected (no shade, I like a couple songs).

What else I think is fun is how people you become friends with impart their music taste on you, and then their micro-expression of personality becomes your microexpression of personality. And then your playlist is like a big brown play-doh ball, you know 'cause it all mixes together and then colour theory or something. My brother introduced me to *Lone Digger* by Caravan Palace, I remember who got me listening to Childish Gambino, and I think about when my other friend put me on to some Grauzone songs. Even listening habits, I started listening to whole albums because I saw my friend do it and I realized I can do something other than just shuffle.

And then, when I'm listening to these songs that other people impressed onto my Spotify, and maybe I'm in a more introspective mood, I think about them and where we were and what we were talking about that led to such discoveries. And

then I feel a little bit sad because now I am in uni, and they're all in other places which are not here. And I feel sad because we talk less and I'm not sure what they're up to, and I hope that when we talk again it will be like nothing ever changed, and I want them to know that I care and I miss them even if I don't show it, and do they know we're looking at the same moon tonight? Or whatever that's a reference from...

Oh well, 2 BADDIES 2 BADDIES 1 PORSCHE !!!!!

arrow

Here at **mathNEWS**,
we're not afraid to ask
your toughest questions.

Of course, that doesn't
stop us from posing
your idiotic ones too.

THE **mathASKS** AMBASSADOR

DISPATCH FROM THE FACULTY OF ARTS: CONCERNING THE ROTTEN STATE OF STUDENT GOVERNANCE

The University of Waterloo's restructuring of the faculty of Arts has been marketed with a familiar phrase—"things won't change for students." But students already know that's not true. In classrooms and department offices, the cracks are already showing: course offerings are quietly being sniped, sessionals are not being replaced, and the tension between department and faculty is palpable, not least because the professors and support staff are openly vocal about their displeasure with these changes. There are also rumours about shrinking programming, folding together once-distinct programs and allowing for professors from different faculties to teach courses in disciplines other than their own if they are "similar enough." All of this, they say, in committees and emails, is under the guise of "efficiency," "synergy," and "student agency." All that is of course horseshit.

Beneath the polished language of modernization and synonyms is something much more unbearable. Something they refuse to admit to students because, I suppose, they think we won't be able to handle it, or we may complain a little too loudly. The message to students is clear: it doesn't matter what you think. The principle that students deserve a say in the education they pay for has, for all intents and purposes, been thrown out the window. But Arts students are well aware of this; the administration not caring all that much what it is we think is nothing new.

But it's become clear to me recently why exactly it is that they don't care. As amid all this unchecked uncertainty, change, and bullying from the faculty of Arts, the loudest and most troubling silence has come from the Arts Student Union. You'd think the university had thrown them out the window as well.

At a time when the university community most needs advocacy and a voice, when the arts administration most needs to be pressed and pushed... the ASU has gone missing. It has chosen not to lead, not to question, not even to inform. When the administration imposed a moratorium on curriculum changes, the ASU said nothing. When the ARTS departments were merged into arbitrary schools, the ASU said nothing. When committees were being formed to discuss how students ought to be informed, if they even should be, the ASU was nowhere to be found.

To be very clear, this silence is not neutrality. It is complicity. Or worse, complacency. Because at least complicity would mean the ASU stood for anything.

Rather than defending students at a moment of profound institutional change, the Union has busied itself with ordering sub-societies to produce "budgets" and organizing a winter semi-formal dance. Bickering (I hear this on good authority) over a new mascot, why no one showed up to run the Clubs Day booth, the running of the Tuck Shop, and how best to reabsorb the money from language-based sub-societies that are going extinct in the reorganization. While programs are being

reconfigured with little student input, the ASU bickers about how to get their money back. At best, all this is tone-deaf. At worst, it is a betrayal of purpose. And I'm partial to believe the latter.

The ASU's dysfunction runs deeper than mere silence and internal disarray. Sub-society council meetings have become exercises in performative form over real substance, where Robert's Rules of Order are invoked (almost always incorrectly) to give the illusion of serious governance. Motions are seconded for empty agendas, not to resolve fundamental issues or build coalitions, but to ritualistically "meet" for the sake of meeting. Organizing advocacy is an afterthought, if it's ever even considered, drowned out by the mechanics of procedure that serve no purpose.

I won't even go into the issue of the consistent struggle to get cheque request approvals from the ASU finance wing and access funding that societies are owed. The very backbone of Arts community life, the ARTS sub-societies, have struggled to access their own funding for months now. Budgets, the ASU now says, must be created and submitted every month if a sub-society wishes to receive any funding held by the ASU. But simple cheque requests for funding already spent are delayed without explanation, partly because the inefficiencies of the system, the ASU refuses to fix, and partly because they don't much care. So, make a budget, the message is, but don't expect to be able to spend the money! And so, student leaders, who volunteer their time to organize events for their communities, are left stranded, unable to host events, invite speakers, or sustain programming because they cannot access the funding that is rightfully theirs.

If this is the state of our union, a union that cannot manage itself, how can it possibly manage the interests of thousands of students? The answer, of course, is that it cannot. The system is slow, not by design, nor malicious intent, I believe. But by neglect. Students playing "bureaucratic gridlock" instead of looking out for the communities they serve. This is what has replaced student governance in the Arts at UW. An organization filled with people who have never worked within sub-societies, with no understanding of what student leadership looks like at the ground level, many unconnected to the arts community and all of them painfully unable to grasp the organizing power they hold. A union in name only. And that is the true tragedy of Waterloo's Arts Student Union: not that it has failed in this moment, but that it no longer seems to recognize its own failure or understand its intended purpose.

There is one notable exception that is worth mentioning: the ASU's VP Academic. Alone among the executives, they have consistently shown an understanding of what student representation should look like—attending meetings, communicating with the subsocieties, volunteering and shoving their way into faculty committees to ensure student representation, answering emails and raising concerns. They

alone seem to grasp the power, if only informal and symbolic, that the ASU could wield on behalf of arts students. For this, they are commendable. If for nothing else, then for at least trying. Which is much more than can be said of the rest of the ASU executive, which, in all honesty, seems to only serve the function of warming the seat for the VP of Academic to come in and do the real work later.

The fact that the ASU's credibility now rests on a single student's shoulders only underscores how hollow it has become. But one person cannot hold up an entire institution, nor can they wipe away the sins of the institution as a whole. When the ASU as a whole fails, the effects ripple outward. The administration proceeds unchecked, unquestioned, hidden behind walls students can not climb over. Confident that no serious opposition or questions about their actions will emerge. Departments adapt in silence, fearful of retribution or indifference from above, partly because of the force of an institution bearing down on them, and perhaps because they think that students don't care—they never express in any meaningful way that they do. And students, the poor students, are then reduced to passive observers in decisions that will shape their education for years to come.

You would think that such a story would be covered by a student news outlet. But Imprint has long ago retreated from its journalistic integrity and responsibilities. What should be a watchdog has become a lapdog—a publication more interested in local event coverage and lifestyle features than in holding power to account. When it does report on the significant changes that are being felt and experienced by the majority of its readership, it's shallow and sporadic, offering no sustained critique, no follow-up questions, and no investigation into how decisions are being made or who benefits from them. When students give criticism, it's downplayed, left out, or balanced with someone who toes the party line. In failing to scrutinize either the administration or the ASU, Imprint has joined the chorus of silence and complaint. Reduced to recipes and crossword, Imprint has largely become useful only to fill the recycling bins across campus.

That this piece even appears in **mathNEWS**—a publication run by volunteers from an entirely different faculty—should tell you everything about how absurd this situation has become. When Arts students must turn to the Math Faculty's satirical newsletter to have their voices heard, it is proof not only of the ASU's and Imprint's failure, but of how deeply the culture of silence and complacency has set in at our dear faculty. Representation has become so hollow, so distant from its purpose, that dissent has to find refuge in **mathNEWS**.

Taken together, these failures paint a bleak picture of student life at Waterloo. The administration's opacity is expected; large, complex bureaucracies protect themselves, often in paternalistic ways that sideline and shrink their subordinates. But the ASU's collapse reveals something deeper: the erosion of student democracy itself. Once, student unions were loud, messy, and confrontational—imperfect, but alive. Filled with students who cared, not just about a line on their CV but about forging a campus that represented the wants and needs of

their student body and who, if nothing else, voiced loudly that the student body was not happy. They were spaces of debate, dissent, and most importantly, solidarity. Now, they are run like mini corporations, more concerned with branding than representation, more invested in optics than outcomes.

But this hasn't happened in a vacuum. The ASU hasn't fallen apart all on its own. Part of the blame lies with us, with the students. We have grown complacent. It's easy not to care, and in truth, it's understandable. We're tired. We're overworked. We're busy. Between classes, co-op, and trying to keep our lives from falling apart, who has the energy to fight a system that counts on our exhaustion? We tell ourselves we'll care later, after midterms, after finals, after we've secured one more line on our résumé. We say, "It doesn't really matter anyway because I'm graduating soon." But the death of student governance affects all of us—it weakens the courses we take, it makes it easier for the university to ignore us, and it reduces this institution to a degree mill more interested in producing compliant graduates than in nurturing professionals, thinkers, and scholars. We need to care, because if we don't, no one else will. And it is shameful that so few of us do.

Students deserve better than this. They deserve representatives who act with urgency, who challenge authority, who see their role not as symbolic but as essential. And they deserve peers and colleagues who give a shit. Representation and community are not always about maintaining calm; it's about defending fellow students when they are most vulnerable—when decisions are being made behind closed doors, when the stakes are high, when silence would be easier. The ASU's job is not to make peace with the administration and plan high school themed semi-formals. Its job is to make noise and bring about collective action. And the student's job is to use the ASU to make that noise and participate in that action. If the ASU refuses to do that, and students no longer see a place for action within the ASU because of it, then the ASU simply can not be the center of student representation and organizing.

Department clubs, faculty societies, and informal networks of peers will have to step into the space the ASU has vacated. And only when they do so can real advocacy begin: at the grassroots, in classrooms, in hallways, and in cross-department collaborations. This is the opportunity before us, then. The restructuring has exposed institutional decay, where the organizations meant to empower students have become tools of passivity, and students have allowed that to happen. But the cracks in the system are openings through which something new can grow: a student culture that values transparency over ceremony, solidarity over branding, and courage over compliance.

Therein also lies a choice that every arts student must make, whether to keep pretending that someone else will fix it, that it doesn't matter, that the ASU still functions; or to finally take ownership of the community we claim to belong to. The choice is not abstract; it will define what it means to study in, and have been a part of, the Faculty of Arts at the University of Waterloo for years to come. Will we continue to

sit through hollow ASU meetings and stomach unchallenged changes thrown at us from the university's ivory towers, content with the illusion of representation, or will we start building something real—something worthy of the ideals our community once stood for?

The moment demands more than passive attendance and performative engagement. It demands conviction. Because if we refuse to act, then the story of Arts at Waterloo will be one of quiet decline, where bureaucracy triumphed over passion, and where students mistook convenience for progress. The heart of the arts, forged in conviction, debate, rigorous study, critique and analysis of the world around us, is still beating. And if we rise to meet the opportunity, if we choose courage over comfort, then perhaps this crisis can become what it should have been all along: a turning point, not an ending.

The administration has chosen secrecy, the ASU has chosen complacency, and Imprint has chosen irrelevance. But

students do not have to accept this. They can choose to build something better, something that listens, speaks, and acts.

When an organization like the ASU forgets why it exists, it becomes performative. When students forget why that's a bad thing, the heart stops beating. The ASU still speaks in the language of advocacy—representation, engagement, inclusivity—and that's fine, let them. We all know that those words have been emptied of meaning a long time ago, gone around the same time Imprint, and WUSA, died. But don't let them drag you down with their failure. What new school are you in under the reorg? Who are the leaders within those student cohorts? What do they have to say? What do you have to say? What can you contribute? Learn the answers to those questions, arrange meetings, start student committees, write letters and create blocs of student voices. More than anything, start trying. God knows the ASU isn't. And who will if you don't?

Stefan Venceljovski

N HOLIDAY DRINK FLAVOURS THAT DON'T EXIST

The day that holiday Starbucks drinks start being served, something shifts in the universe. For a moment, my perspective on winter is bright, merry, a Hallmark movie where snow is made of magic and not a sign of eternally grey skies and exam season. Sipping on a winter-exclusive drink in a festive cup is the highlight of any winter day, and I think there should be more.

You already know the classics: peppermint, gingerbread, cranberry, and more recently sugar cookie and caramel brûlée. Here are some new holiday flavours I think we should introduce:

1. Cinnamon roll
2. Fruitcake and/or panettone
3. The bagged royal icing that comes with gingerbread houses

4. The weird gumdrops that come with gingerbread houses
5. Sufganiyot (duh, why is this not a thing)
6. Pine tree (I really do think this could work)
7. Fig and spice
8. Latkes (great customization options)
9. Decorations coming out of an attic (the vibe... the scent?)
10. The scent of Hannukah candles burning out
11. Butter tart (NO raisins)

Honourable mention: they finally brought back the eggnog drinks this year, and that was a need. Maybe with enough persuasion, we can get these made real too. Happy holiday drink season!

BeesKnees

EXTENSIONS.

Extensions are a dangerous way to prolong your suffering. As of right now, I have eight assignments and no will to do anything. Hence, why I'm currently procrastinating by writing this, I'm typically not one to go out of my way to ask for an extension, cause I can tank the late points... sometimes. The thing is, these extensions are truly just making my life worse 99% of the time. I spent my weekend grinding out my physics assignment, completing over 20 questions. To see when I finished, I got an 8-day extension to December 2nd. This assignment was supposedly due in 20 hours. I had a quiz and a presentation to practice for the next day (for which I did zero prep). After I had wasted all my time finishing something

I apparently had so much time for, I had no energy to do anything else, so I had to do everything the next day.

Meanwhile, I got a calc assignment extension, praise the lord, cause I didn't start. Now it's due in 2 days, and I still haven't started. I went home and petted my cat for the whole weekend. Anyway extensions are bad because I don't even use my time I want pizza byeeeeee.

Jubble

NEW HISTORY IN THE PWHL

hockeySTICKS FOR THE HOLIDAYS!

*Two teams, both alike in novelty,
In fair Vancouver, where we lay our scene.
Where sticks and skates fill television screens,
And goals, when scored, make screaming fans convene...*

Too Shakespearean for an article about hockey? Not when your hockey league actually does have star-crossed lovers fated to represent different countries in international competition! (Many such cases in the PWHL.)

This year marks the Professional Women's Hockey League's third season of existence. It also marks the inaugural season of two expansion teams for the first time in the league's history: the Seattle Torrent and the Vancouver Goldeneyes, the first teams located in Western North America. These two teams played the first game in their franchises' history last week, on November 21st, 2025, at the Pacific Coliseum in Vancouver.

Tickets for the game sold out the day before, and the crowd of 15,000 fans was electric from the first drop of the puck, reacting as one to every scoring chance the home team created. The Goldeneyes got scored on first, but the crowd erupted when Sarah Nurse, 2022 Olympic gold medalist, scored to tie the game 1–1 before the end of the first period. The game went back and forth, the Torrent scoring and the Goldeneyes tying the game two more times, until the score was 3–3 at the end of regulation. This game would need to be settled in overtime. To win their first game in a sold-out barn would be the perfect way to begin the season, and that's exactly what happened when Abby Boreen scored ninety-six seconds into overtime to win the game for the Goldeneyes, filling the stadium with a tidal wave of sound and emotion.

The Goldeneyes are currently the only PWHL team to not share their arena with another tenant; all the other teams share their facilities with at least one men's hockey team. This proximity, both in the sport and the space, seems to inspire urges of bad-faith comparison in some sports fans. In the social media comment sections involving any women's sports league, you will find people debating the threshold of men's junior teams necessary to win against a women's professional team. You will see comments about the inferior quality of the product and its innately lesser entertainment value, as if their experiencing of these sports necessitates establishing the speed and strength and skill of women as a tier below men.

What these people don't understand is that women's sports are not defined in terms of men's sports. The impact of sports, as a collective emotional experience, cannot be measured by the speed at which an athlete can throw a ball or shoot a puck. Women's professional sports leagues should be able to exist on their own merit, because every kid who engages with sport deserves to dream of a future where they belong in that sport, whether it's as a player or a fan. Everyone, of any gender, deserves to see themselves reflected in professions of every kind, without having to imagine people like them as

exceptions to the rule; the PWHL and its two new teams are creating opportunities for that to happen.

It's only fitting that Sarah Nurse became the first goal-scorer in Vancouver Goldeneyes history, because I think she said it best during their first training camp:

In women's hockey, we've always felt like visitors. Wherever we go, it doesn't matter who you're playing with—I play with the national team, and every rink we go into, we are the visitor. And so this actually feels like home. And I can't wait until all eight teams, and future expansion teams, also have that home feeling.¹



If you want to experience more women's hockey for yourself, you have a couple options. The PWHL is playing sixteen games this season in eleven neutral-site venues across North America as a part of their Takeover Tour, including a stop where the Seattle Torrent will face the Toronto Sceptres in Hamilton, Ontario on January 3rd, 2026. Seeing the Sceptres on home ice also sounds like a great way to spend an evening in Toronto. And, of course, you can get to the Warriors' women's hockey games and support their push for a playoff spot!

Thanks for reading this edition of **hockeySTICKS!** I hope your sports teams prosper and bring you joy over this holiday season, except if they're playing my teams, in which case I hope yours fail miserably and bring you nothing but despair. Happy holidays!

aurelio

1. Wagner, D. (Nov. 10, 2025). 'Make it miserable.' Goldeneyes want Pacific Coliseum to be hardest place to play in PWHL. Vancouver is Awesome. <https://www.vancouverisawesome.com/canucks-hockey/vancouver-goldeneyes-want-pacific-coliseum-to-be-hardest-place-to-play-in-pwhl-training-camp-11472317>

I WALKED THE ENTIRETY OF AN ION VEHICLE. HERE'S WHAT IT WAS LIKE.

Lowk it was kinda boring like the biggest issue i had was this dude that had his bike on the ion. The accordion bits are fun tho when the ion is in the middle of a turn.

fingersinsockets

THE CODE REVIEW ECONOMY BUILT ITS FOUNDATIONS ON SAND, AND NOW IT'S TOO BIG TO RELOCATE

Eric got up from his desk to check the thermostat. The sweat soaking his armpits had convinced him someone turned up the heat again, but this time, the screen showed a pleasant 65°F. It didn't make sense; he had taken his jacket off this morning, and it was the middle of the autumn chill.

Only one explanation remained. The stress of getting his code merged was becoming too great.

You see, Eric had been begging Jeongun to review his payment-processing refactor for nearly a week, and she was heading out tomorrow for a two-week trip to Korea. If he was going to get his code in, he would have to find a way to guarantee she would drop everything for him.

Luckily, the spark of creativity he needed arrived, and he was ready. Energized by his newfound vision, he tossed on his coat, and made his way to San Mateo Lock Works.

Not half an hour later he was back at the office. Looking down, he smiled, holding three shining brass keys. Each was etched with Mifflin Inc.'s logo on one side, and the words "EXPEDITED CODE REVIEW" on the other.

He walked up to Jeongun's desk and, as she looked up, placed a key between the two halves of her ergonomic split keyboard.

"One expedited code review, please."



It didn't take long for others at Mifflin to see the value in these new keys. Before Jeongun was even back from her vacation, one of the three keys was sold for fifty real, American dollars. People were willing to pay to prevent review-queue hell, and as a result, the company was looking more productive than ever.

Inevitably, knockoffs began to enter the market. Suddenly, there were stainless steel keys purportedly worth *three* expedited code reviews, and someone from Sales started making iron coins for their team, with the label "YOU'RE TAKING THIS CALL NOW."

Eric loved it. His idea was running its course, and running fast. People were assigning his creations value, and they were spreading beyond team borders. He envisioned a company future where no one was ever blocked by a code review again. Yet, he had apprehension in his heart.

An economy built on a currency like this felt a little bit precarious.



People kept printing new tokens, and they started stacking up on people's desks. "TEN EXPEDITED CODE REVIEWS," "FREE BOBA FOR A WEEK," "1 (ONE) FULL, PAID DAY OFF." Internally, they were trading for more and more. At one point, the Chief Marketing Officer dropped \$4,000 USD on the PTO coin.

Word of such profits spread quickly. The market was beginning to flood with innovation, without a sign of slowing down. As Eric wondered whether inflation would apply to this curious little bubble, Mifflin's first economic boom was in full swing.

Josh from Sales bought an industrial printer and began iterations on a serial-numbered paper form of Mifflin currency. Next, Jawad from the Infrastructure team started crafting and selling Mifflin Currency Organizers, a sort of Rolodex for the now properly circulating Mifflin dollar bills.

As the Mifflin market grew, the software team seized the opportunity and formed a "Hoodrobin Squad," meant to create an MFD to USD trading platform. It tracked the latest transactions, and they started to deploy agentic arbitrageurs to make thousands of trades and keep the market liquid, while squeezing out a profit for the Hoodrobin Squad themselves.

Eric was watching this all unfold with attentive eyes. The idea of Mifflin dollars was wandering farther from its original form with every new development. He tried to wrap his head around what was going on, how MFD was gaining so much value, but he couldn't. All he knew was that there was something important missing from everyone's minds...

They had forgotten what Mifflin Dollars were built on.



As Mifflin's internal economy grew, it began kicking at the boundaries of the company itself. Bonuses were being handed out in MFD, and when housing stipends were converted from USD to MFD too, the rest of the world was asked a simple question. "What is MFD worth?"

In the county that housed Mifflin's headquarters, San Mateo, Mifflin employees accounted for 2% of the residents, which set the MFD to USD conversion rate at a humble \$0.02. Mifflin's Hoodrobin Squad decided to release Hoodrobin publicly, and it was only a matter of time before their exclusive hold on MFD/USD conversion would pay massive dividends. Turbocharged by their expedited code reviews, Hoodrobin's services spread like wildfire.

Mifflin's executives didn't wait to leverage their position. Another exchange platform, Simplewealth, had no sooner received regulatory approval to trade MFD than it was snatched up by Mifflin and their internally-minted MFD.

Like a shark dropped into the world's largest aquarium, Mifflin was feasting. As Eric and the story of code review tokens faded into oblivion, Mifflin was gobbling up companies left and right. He started to wonder if this bubble could grow any larger, but the media was eating it up, too. Headlines across the country proclaimed the moonshot story that everyone at Mifflin believed.

Mifflin would bring so much value to the global economy that in just ten or twenty years, work would be optional, and money would be irrelevant.



Eric sat back down at his desk. Mifflin's meteoric rise was slowing, just like every other media darling before, but it hadn't stopped.

The world believed that Eric's idea was the key to infinite productivity, but sometimes he wondered if it was nothing more than a key to humanity's next Pandora's Box. Mifflin was still making acquisitions, and the New York Stock Exchange was still in talks to switch the entire exchange over to MFD.

It all just looked an awful lot like a bubble, he thought.

no pun indented

SCRIBBLE GAME

WITH SCRIBBLE KINDLY PROVIDED BY
NORMALPARAMETERS



aphf

N THINGS THAT HAVE MADE ME CRY SINCE STARTING T

WAAAAHHH :(

for context i'm on testosterone (T) and typically you cry less on it, i instead have the emotional tolerance of a pregnant person who has found out DQ is (unsurprisingly) closed at 3AM

1. JoongDok ship edit (gay)
2. BNHA fan art of deku flying between skyscrapers (i love deku)
3. BNHA x2 but this time it was Chapter 419 (deku💔)
4. *Lonely Satellite*—Yura Yura Teikou (the government's only spy can go choke i spent 6 minutes sobbing over the thought of a lonely satellite)
5. Commencement (idk anyone graduating personally just the thought and sight had me tearing up)
6. A low-poly animation of two shrimp jousting on snails (???)
7. Speaking too passionately about meeting with Mormons (not over the Mormons i just tend to tear up if i'm speaking particularly passionately)¹

planet b612

1. those who know (aka were present at **prodNIGHT**) (btw i'm not into mormonism at all i'm just genuinely fucking curious about them as someone who's never stepped foot into a place of worship)

THE IMPOSSIBLE DINNER (NOM NOM)

As you might have heard, Waterloo recently received TWO new branches of Chipotle. I, being the food connoisseur that I am, decided to go check it out the day after it opened and holy shit.

The lines were so long and barely moving. From what it seemed like, the wait time would have easily been upwards of an hour. Being a uni student in the third month of a term, I obviously could not afford that much time, so I gave up that one night.

I have been there three times since. Every time during different points in the day. And still, the lines are the same length. I don't think it's in my fate to get this meal. Not soon at least. Doesn't mean I'll stop trying.



0.423

THINGS I HAVE DUE #2

IDK WHAT TO WRITE ABOUT THIS WEEK SO LETS DO A SEQUEL

FIRST LET'S GO OVER WHAT I HAD DUE LAST WEEK AND HOW THAT WENT!

1. PMATH453 A3 [October 31]: I finished this, but bullshitted one part of one question (the proof does not work and there's a major flaw).
2. SASMS talk [November 11]: I did this in like ~3 hours and the talk went well! (Thank god I read some of my research paper beforehand and made notes in Typst so I could just copy paste).
3. STAT333 Quiz 4 [November 12]: Given that I only studied ~3 hours for this quiz and didn't attend like half the quiz-relevant lectures, it actually went pretty well!
4. Some FARMSA stuff to do that's due literally right after my STAT333 Quiz [November 12]: Uhhh, yeah I didn't do anything for this.
5. PMATH453 A4 [November 14]: Still not done 😞.
6. STAT330 A3 [November 16]: I did all but 1 part of 1 question for this assignment cuz I ran out of time (it's fine one assignment is dropped anyways).
7. STAT331 Test 3 [November 21]: I think it went okay. I haven't gotten my grades back but I have reasonable confidence in all but 1 question. I still hate this course and I wanna drop it. Not gonna lie, when I was studying for this test I realized I wanted to WD this course and drop MathFin. Sadly, I started studying the day after the WD deadline. Welp... at least I realized I want to drop MathFin after this quiz. Def not gonna do another statistics course again for the rest of undergrad.

The last 3 stuff: Literally never worked on it and moved it to the last 3 items on the next list.

NOW THAT THE REFLECTION IS OVER, LET'S GO OVER WHAT I HAVE DUE!

1. PMATH 453 A4 (This was due November 14. It is November 24, and I have done $\frac{4}{8}$ of the questions. I'm lowkey ass at this course because every question takes me a minimum of 1 entire day of doing nothing but working on the question and I have 4 questions left.)
2. STAT333 Quiz 5 on Wednesday (November 26) that I have not started studying for and I also skipped $\frac{1}{2}$ of the quiz-related lectures (My sleep schedule went to shit for a bit and my lecture is at 10am.)
3. PMATH 453 A5 due December 1 that I have not started (Apparently it's not as hard as the previous assignments... but this was also said by people more cracked than me, i.e. everyone else in the class.)
4. ACTSC372 A7–10 due December 2 that I have not started (It's 4 Mobius quizzes. I'll grind it all out on 1 day this weekend.)

5. PMATH453 Final on December 6 (why the fuck is my hardest final first and also so early. I feel like I know nothing in this course.)
6. STAT330 A4 due December 7 (I did 1/10 of the questions, so at least there's progress there. That one question took me over an hour though and I feel like it wasn't even that bad of a question.)
7. My other finals that I haven't started studying for yet (idk whats going on in all my courses... I got lost after the first week tbh.)
 - a. ACTSC372 (December 9): I think ACTSC372 should be ok-ish. Post midterm material is harder but I think it's manageable.
 - b. STAT331 (December 11): I do not understand shit in the course. I actually have to read the textbook from page 1 and study everything including STAT231 content from scratch cuz I still have no clue what hypothesis testing is or basically anything in STAT231 or 331.
 - c. STAT330 (December 13): The midterm went well but wtf is the post-midterm material?? I don't understand shit.
 - d. STAT333 (December 17): I like this course but the content is hard man... I already know the final is gonna be brutal. Welp at least I have a solid 4 days to solely prep for this final so long as I don't get burnt out beforehand.
8. Some research papers I have to read for my MURA next term (I'm supposed to read 2, but I am $\frac{7}{32}$ pages through one and I haven't read the other one, and I was assigned this on the second week of September.) I made zero progress since last **mathNEWS** and I wanna email my supervisor this week sometime so I actually have to read it agghghghghghg
9. A song I want to arrange for Animusic next term (I have only arranged 1 minutes and 10 seconds of the song out of the total 8 minutes and 31 seconds.) I have made zero progress since last time. I actually need to start doing this again. I also have no clue when this is due (sometime mid-December iirc) but I need to start if I actually want this done by the deadline.
10. Silksong: Honestly fuck Seth and the Minigames. At this point I'll just beat the final boss and call it a day.

FINAL THOUGHTS RANT

Sorry about the rant that I did for two **mathNEWS** issues in a row. Idk what to rly write abt and though this may be pessimistic, just know that if anyone out there is feeling swamped with work and overwhelmed and that things are hopeless, I am on the same boat as you.

I felt kind of fucked last **mathNEWS** cuz of the overwhelming amount of stuff I had due, but it worked out somehow (I

3/4

"You know, our degree's three quarters over."

"Huh?" I turned my gaze from the window, overlooking the campus atop the backdrop of a Waterloo sunset, towards my roommate, who kept his eyes fixed on his laptop. "I thought that was later."

"Nope, do the math. Just happened."

I ran the numbers in my head. He was right. What previously had to be counted in years was now a matter of months.

"Damn."

"And the time we've got left is gonna go a lot faster too. Since we've done most of the new stuff."

"So we're graduating, like, soon now."

"Yeah. Man, I'm so ready to get out of here. It's gonna be great."

"Me too," I said instinctively. Wait, did I mean it? The room went silent again. Before I knew it, the sunset had turned into a rich black expanse, and my roommate was gone; just myself and some papers, poorly illuminated by the worn-out overhead light. I hadn't done enough work, but I supposed it was time to go to bed. I brewed my usual chamomile and sipped it delicately while I scrolled through some reels. The tea cancelled out the blue light, I always thought. Now, it was time for the lights to go off, and the tossing around to commence. I never really knew why, but I always had to tell myself that I was sorry a bunch of times before I could call it for the night. I assumed it was for all the times I fucked up, missed opportunities, let myself down. Whatever. I had to do it more, tonight, though. I guess because of the three quarters. That meant three quarters of my youth I couldn't get back. Three quarters of being lazy, letting people down that I won't be able to see again — oh, yeah, half of them are dead, too — the image that I had built of myself when I started all of this was crumbling, crumbling. I wanted to be Rancho from *Three Idiots*, but I was turning out to be a Chatur, wasn't I? These thoughts mulled over in my weary head, churning like waves in a stormy sea, until the wind parts and the water decides to rest again; I, too, could not resist the allure of rosy sleep...

It was Day 1. Here I was again, in the Student Life Centre. My slate was totally blank. I could fix things. There were the friends, over there, that I hadn't yet made. Oh, but there was the girl I always regretted not talking to, maybe I could...

Day 30. I didn't get to know any of them, but that was okay. I had other friends now, and a beautiful partner. I submitted the form to switch to Biology, too. Now I could do what I really wanted.

Day 90. I always cared about marks too much, so I let them slip. I had fun partying instead. It would almost be time to go back home. Some of them aren't even dead yet. I could bring back stories that are so much better...

Day 130. I don't think they liked me failing those courses, but if they knew how much worse the other reality was, I don't think they'd bat an eye.

Day 250. Biology is interesting. It's not what I expected, though. All of this rote memorization. I guess I could become a doctor, or something. Maybe I'll just focus on drawing. I love drawing.

Day 400. It's been a year. Thank god I broke up with her. What a waste of time. I wish I could go back and tell myself to run away. Too late, I guess.

Day 600. I wish I started drawing earlier. Everyone around me is better. And why did I do all that partying in first year? I could have done it later and started by focusing on grades.

Day 900. I'm a better violinist than I am a visual artist. I should have spent all my time on the violin. Also, I hate my degree. No, I like it in principle, it's just... I'm going to start practicing violin.

Day 1200. I'm a better pianist than violinist. Of course. I should have realized this. Why do I never realize these things? I do realize something. In my cramped, one person apartment, I calculate out the remaining days. Three quarters.

Suddenly, I'm driving down a rural road. There's a Cineplex on my right. Torrential rains begin. The water is already a foot deep. With little choice, I pull into the theatre's lot. Water's already higher than the wheels. Can't drown. I exit my car and run inside the building. Nobody's there. Just a million empty theatres, all without signage. Seems to go on forever. I go into one. It's just me there. Suddenly, the screen glows to life. Literally: it's my life. Another slight variation. I watch it to the end, but it's not satisfying. It's wrong. I head to the adjacent theatre. Same thing. Next one. They all suck. But the right one is here, I know it. I'm on the 20th floor now. Watched a few hundred of them. I'm no closer to when I started. I'm cold. I'm hungry. I can see that the waters are thirty feet high now. I don't care about finding the right one anymore. But I know I have to for the flood to stop. Please, I mean it, I don't care...

I jolt awake. The smell of chai from the shared kitchen gracefully drifts into my nose. Opening the door, there's my roommate again, preparing his breakfast.

"Hey, when you said you were ready to get out of here —"

"Yeah?"

"It was because you hate it here, right?"

“Oh hell no. It’s because I love it here. And when we finally graduate, we’re gonna love the memories even more.”

Right. I think I get it.

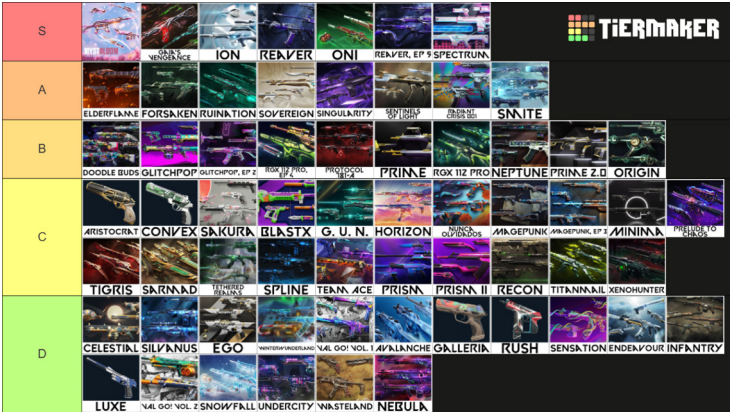
I went back to my room and sat down on the floor. “I’m sorry,” I muttered to myself,

“For regretting my life away. Not anymore.”

Happy New Year!

epic_waterman

VALORANT SKIN COLLECTION TIER LIST



shway jpeg

TO THE GUY WHO PLAYS MUSIC LOUDLY IN MY RESIDENCE

bro turn it down man i can hear it so clearly through the vents i feel like i’m outside a rave im just tryna take a shit man turn it down

fingersinsockets

I LOVE YOU

[Content warning: suicide]

I pull out another cigarette, lighting it with the smoldering remains of the last. The American ones you’ve brought leave a harsher burn down my throat; given enough time, I’d probably have gotten as used to it as you. The buzz makes me nauseous.

My feet are cold, the snow and slush is soaking into my sneakers, but I focus on any roots or protrusions it might obscure; dying soaking wet too would almost be funny. I’m shivering enough as it is. I wish I had worn warmer pants.

We find a clearing. The snow is stark white, dotted with pawprints. I guess hares, but without any real argument. The sunlight streams in, scattering through the branches and bouncing off the ground. It’s quiet, besides us. We lay out the blankets we’ve brought, stacking them one on top of the other. They still soak through a little bit, but I get comfortable. You go to pour the first shot.

I tap out for a while once I’m a bit out of it, you finish the bottle. I worry, and then laugh. You find it funny too. We keep talking, and open the other one.



It’s starting to get dark. I ask which one of us will make the call, and you point out there’s no service here. My phone has been dead for a while. I wonder when we’ll be found; spring? Authorities? Or some poor hiker? I feel guilty and try to stop thinking about it.

I pull the shotgun from my bag, bits of frost forming on the stock. It hurts to hold. We kiss, and I flip a coin.

localfarmer

67

sixsevensixsevensixseven



crazysheep

Now that you’ve seen Fermat’s Little Theorem, you may be wondering about Fermat’s Big Theorem.

PROF. PENNY HAXELL

WITH YOUR HEART AS MY MARK

♥<--LOCKET

There's an infamous scene from near the end of a certain route in *Undertale*. The boss is tired out from the long fight, dodging every single one of your strikes, so he pulls out his special attack: never ending his turn so your turn never comes. He eventually falls asleep, and you use your little heart-shaped SOUL to push the battle box all the way over to the FIGHT button, choosing it one last time.

Of course, the SOUL is integral to many other parts of the game. It's your hitbox when dodging bullets, it's what changes colors when an enemy mixes up the combat, it's what selects dialogue options, selects what you do on your turn, or even in the middle of enemy turns, it's your container of life force, your source of will, compassion and DETERMINATION. It's what shatters when your HP reaches 0, it's what re-fuses from death when you refuse to die, it's what you give up to truly return after reaching the absolute. It's even the icon of the executable file, that big, red heart made up of inconsistently sized pixels.

In *DELTARUNE* (the tale that steps closer to its end, chapter by chapter), the file icon is instead a more detailed, black heart with a white outline, with the DELTA RUNE engraved upon it. The SOUL doesn't seem to completely yours this time, or at least it's more obvious here. You occasionally come into conflict with the human you control, such as the times where they wrench their SOUL out and toss it into a battered bird cage, an unused gift box, or the closest drawer, leaving it stranded by itself. Yet, you remain in control of it. But, when separated from your vessel, your cage, regular interaction with the world becomes impossible, and all narration ceases. But, when it's hit, HP still goes down, the human still receiving damage.

Nevertheless, the SOUL is still used as your hitbox and for choosing dialogue options, but there are still differences. The SOUL visibly flies out from its body into the battle box and back in every turn, damage instead being distributed among anyone currently in the party, also being used for dodging bullets outside of battles. Dialogue options are sometimes interrupted, sometimes your player character maliciously complies to or reinterprets your choice, and sometimes things get a little weird when you proceed down a certain path. It brings into question how much of the SOUL is theirs and how much of it is  Me.

There's several moments where your player character can think of another character, shifting the perspective, as you follow their adventure. Sometimes, you can choose a dialogue option, but they strangely have no effect. In battles, characters are sometimes unable to be commanded, the turns progressing automatically, skipping the flavor text. Yet, when it's your party's turn, the SOUL still flies in, from off-screen, from a certain direction, to the battle box to dodge attacks for them as usual, and flies back off to wherever it was supposed was seconds ago.

Something along a similar vein is the times you play the backstage video game. Normally, these segments have you control a little HERO_SWORD on screen, but as the one backstage boots up the starting area, the SOUL is there, right in the middle, as the character loads over it, reminiscent of your own relation with the human. But, near the end of this game, there is a certain boss fight. In the video game, you have your own health bar, and when you die, you just get reset back to a checkpoint. However, this boss's attacks directly damage the human, regular damage numbers popping up next to them, the in-game HP reflecting it. Then, after beating it, you can have the little version of them walk out the edge of the screen and walk over to the one holding the controller, sword still equipped, and afterwards, make the human walk into the screen, to obtain an item.

There's a lot to dissect about this heart-shaped object symbolizing your will imposed upon the game. It's your perspective, their light, your mark, their fate, your connection, their controller, your sword, their hand, your human, their angel, your role, their player, your immersion, their dysphoria, your vessel, their ark, your guide, their weakness, your cage, their cage, your love, their hate. It's the purest light, basked upon the world, that which banishes the darkness and realizes the unwritten. It's

36 Your Power
Toby Fox

a lost and lost and lost

WATERLOO FLOW 1

I'm smokin that MC asbestos
This shit ain't nothin' to me, man
I did more white lines than your order at Lazeez
Got me feeling like I'm in PAS
Feridun retired because of me
Too many shorties in Math, they all want my number
Told 'em I got plenty of space on my number line
I ain't in co-op, snipe
I went ECE on that pussy, snipe
I skip exams and they still pass me
They be teaching fundamentals at this school
The geese don't shit on the paths I walk, they know better
That zaza got me sending remark requests
That zaza got me posting on the trains lab window
I fucked her so hard she failed her midterm
Couldn't fit in her epsilon, guess my delta's too big
Got my whole cohort looking like they're from Laurier
I be smokin' the exhaust fumes off the back of Rani Chettinad
Gauss ain't got nothing on me, man

snowdozer

MELE KALIKIMAKA

gridCOMMENT 159.6

howdy folks,

this is the last **mathNEWS** and thus the last **gridWORD** of this term, and so i must bid you adieu til next year. it's so crazy only 1 more shower until 2027 wow...

last time, i asked you all what your favourite holiday traditions were, and you all said:

- thirdoffive: *My family watches the 1987 film The Princess Bride every year on Christmas Eve*
- awmlet: *christmas spirit, holiday festivity, and joyful camaraderie*

thank you all for sharing your beautiful traditions—i hope that you are able to continue them this year and have a joyful

holiday season. i select the winner to be awmlet—please pick up your prize at **mathNEWS** office mc 3030 something like that. thirdoffive, i am sorry to hear you did not receive your prize from i4 :(i encourage you to go again and just inquire about a gift card from math cnd if that helps ring any bells for the editors.

i wish everyone a successful finals season filled with 4.0s and divine intervention if needed, and an amazing winter break filled with rest, quality time, and perhaps a snow fort or two, weather permitting. till next time, my beautiful **gridWORDers**!!

sincerely,

spaghetthinhalers

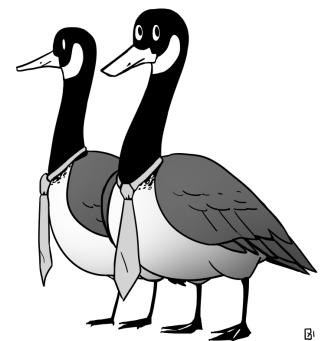
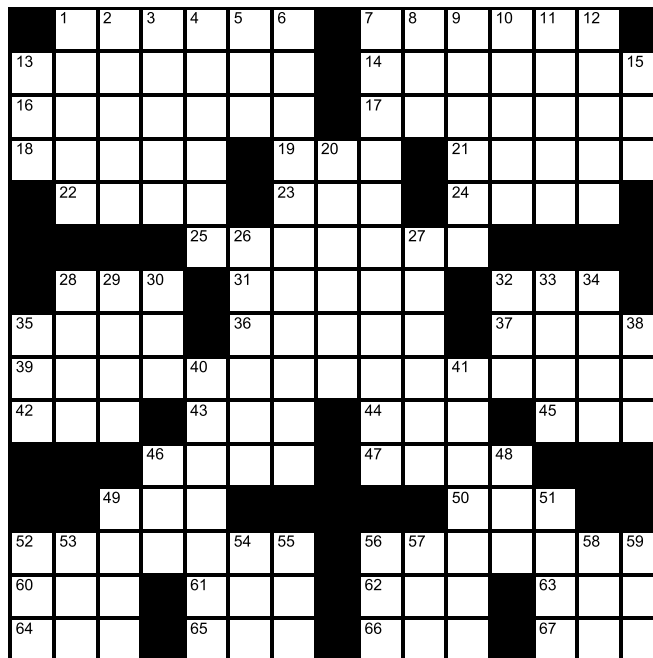
ACROSS

- Beach shop souvenirs
- Singer Licciardello
- Evil
- C₂H₅OH
- Customer
- Shuttle flight return
- Upholstery fabric
- Break bread
- Join
- Minus
- 1989, to Taylor Swift
- Airspeed ratio
- Skillfully
- Acid
- Public ado
- Wood sorrel
- Kind of wave
- He sees you when you're sleeping, he knows when you're awake. He knows if you've been bad or good so be good for goodness' sake!*
- See 12-Down*
- What I did while making this **gridWORD**, which is why I submitted it late and also why it's kinda bad lol
- Pilot's problem
- Strike
- "Yadda, yadda, yadda"
- ___ Zeppelin
- Salon supply
- Shoot up
- It's made in Japan
- Bear's home
- What 36-Across might have done to a lock in your home on December 24 if your chimney was blocked off
- One might go under a tree*
- Tolkien creature
- Cousin of calypso
- Sheldon Cooper's childhood best friend
- Knight's title
- Senate declaration
- "Yo!"
- "Act your ___!"
- Your of yore

DOWN

- Seasonal song*
- ___ but a goodie
- What I scrolled during 39-Across
- From the top
- Fib
- Screenshots but for videos
- Facts
- Slayed, slangily
- Moist
- Heavenly gift
- Shenanigan
- With 37-Across, home for 31-Across*
- Zinger
- Soap ingredient
- Eager
- Tear into
- Simple shelter
- Old Italian coin
- It's needed for a White Christmas*

- Upcoming holiday month*
- Elect
- Spring
- Soothing cream ingredient
- What 36-Across does on children, strangely*
- Conclude
- From a German valley
- Campus life
- Rarity might find one for Spike to eat
- Hi-___ graphics
- Gym site
- Owl's home
- Common holiday emotion*
- Anger
- Stretch, with "out"
- Calendar square
- Fund-raising grp.
- Scott Joplin's "Maple Leaf ___"
- Agcy. involved in the Human Genome Project
- Buzzfeed ___ Guys



lookAHEAD

SUN NOV 30	MON DEC 1	TUE DEC 2	WED DEC 3	THU DEC 4	FRI DEC 5	SAT DEC 6
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maj1ckED's Birthday		Classes end		Drop with WF ends	Final exams begin	
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SUN DEC 7	MON DEC 8	TUE DEC 9	WED DEC 10	THU DEC 11	FRI DEC 12	SAT DEC 13
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International Civil Aviation Day	Take it in the Ear Day		Tuition and fees due	Fees Arranged Extension fees begin		National Violin Day
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LAST ISSUE'S gridSOLUTION

1	N	2	P	3	O		4	H	5	A	6	P					7	G	8	A	9	B
10	J	E	F	11	F	O	R	D	12	S		13	S	14	C	15	U	L	L	Y		
		16	R	A	L	L	I	E	D			17	M	O	T	I	L	E				
18	S	A	I	N	T					19	S	O	O	T	E	D						
21	A	L	R				22	C	23	L	U	N	K	Y			24	E	25		26	M
27	C	T	O		28	H	I	E		29	E	E	L				30	R	Y	E		
31	S	A	N	T	I	A	G	O			34	R	E	F			36	E	W			
		37	E	A	T			38	O	R	E		40	D	I	S						
42	O	N		44	O	C	A			46	C	O	C	O	B	O	L	O		48		49
50	B	O	T			52	H	I	M		54	N	U	N			55	M	I	D		
56	I	R	E		57	C	R	E		58	A	S	E				59	E	N	D		
		60	C	L	O	W	N	S						62	D	A	R	E	S			
64	I	T	H	A	C	A				66	A	T	F	I	R	S	T					
69	T	R	I	C	K	Y				70	P	A	R	A	P	E	T	71	S			
72	D	Y	E							73	X	Y	Z				74	T	I	T		

THIS ISSUE'S gridSOLUTION

		1	C	2	O	R	A	L	S			7	C	8	A	R	N	A	N			
13	M	A	L	E	F	I	C					14	E	T	H	A	N	O	15	L		
16	O	R	D	E	R	E	R					17	R	E	E	N	T	R	Y			
18	T	O	I	L	E				19	E	A	T				21	U	N	I	T	E	
		22	L	E	S	S			23	E	R	A				24	M	A	C	H		
							25	H	A	N	D	I	L	Y								
		28	L	S	D				31	S	C	E	N	E			32	O	C	A		
35	S	I	N	E					36	S	A	N	T	A			37	P	O	L	E	
39	P	R	O	C	R	A	S					41	I	N	A	T	I	O	N			
42	Y	A	W			43	H	I	T			44	E	T	C		45	L	E	D		
					46	G	E	L	S			47	S	O	A		48					
				49	Y	E	N									50	D	E	N		51	
52	J	I	M	M	I	E	D					56	P	R	E	S	E	N	T			
60	O	R	C			61	S	K	A			62	T	A	M			63	S	I	R	
64	Y	E	A			65	H	E	Y			66	A	G	E			67	T	H	Y	

SAD IT'S OVER? SUBSCRIBE TODAY!

YOUR NAME

MAILING ADDRESS

W S F 20 YY W S F 20 YY W S F 20 YY
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