

PIZZA QUEST!



“HOW WOULD YOU REMOVE CAESAR FROM POWER?”

I'll be damned; they've done it again. Those wily writers and dastardly editors have slapped together another issue of **mathNEWS**, ripe for the picking, straight off the shelves of your preferred Waterloo Math building.

Speaking of Math buildings, how's M4 coming along? The most recent update they've given is that the budget approval is supposed to be done by this month, with design work complete in April, groundbreaking to begin in June, and an opening sometime in 2025.

Frankly, not a single person I know believes them. I would be legitimately shocked if it opened in 2026. How long have they been digging that big hole outside SLC for, again?

I just hope my grandkids' grandkids will be able to visit the building. I hope I'm on my deathbed, surrounded by loved ones, about to pass into whatever comes next, when my youngest leans over, and whispers in my ear:

“It's okay. You can rest now. M4 is pretty nice, by the way.”

In the meantime, we've got another all-timer lined up for you. Between the **mastHEAD** and **gridWORD**, you'll find our writers checking in on the existence of Montréal, reviewing bathroom wifi, proving conclusively that math is useful, determining if buildings can be woke, and complaining about Windows.

Just think: one day, future generations will be reading **mathNEWS** in M4, on a holographic display, living in a world of peace and unity for all. They've never made InDesign any better, though. Some things are simply impossible.

befuddled
Editor, mathNEWS

ARTICLE OF THE ISSUE

AH! Sorry, that was the sound of me being scared after reading *Horrors in RCH* by LEGENDS of LACTOSE—this issue's AOTI. Come pick up your prize in MC 3030! 🎁

evaluatED
Editor, mathNEWS

	別 In
	ANDOOIII Take him to the n th root, duh
SEXY_SOFTWARE_BABE	free(Caesar);
DOLLAR_STORE_PERSON	Send him to St. Helena with a Caesar salad recipe, CO 487 notes and a laptop (he's gotta do his assignments somehow!)
SUNRISE_PARABELLUM	I would paint a tunnel onto a wall and then run through the tunnel but when caesar tries it's a wall again and he dies
SIMPLEX_RATED	by eating his salad
WINK_WONK	by microdosing him with lsd
SKIT	vote against every pizza he submits
0.423	make a better salad dressing so that he has no legacy
UW_UNPRINT	Botched coup that ends with execution by the hands of my disgruntled lieutenants
BUBERT	set the colony on fire, shoot him, blame it all on the human, and imprison anyone who still follows him
FLOATINGTIGER	You eat it.
LARS_NOOTBAAR	Introduce Hidden Valley Ranch and let natural selection do its work
FIRSTIE	potatoes
MOLASSES	a mass marketing campaign singing the virtues of tabbouleh
YUMMYPI	Put him in a bowl with egg yolk, olive oil, lime juice, cheese and Worcestershire sauce and toss gently
WARRIOR1RULES	Give him a failing grade on a midterm
PLATYPUSGOD	Misspell their name on all official documents as Ceaser
BOLDBLAZER	While Caesar is busy doing some tasks at a senate meeting, get some imposter friends to stab him a bunch.
NIKE	by starving a pit full of lions to the brink of death, covering Caesar in balsamic glaze, and throwing him in
WHOLE_NUMBER_HAVER	Let P be power, C be Caesar. Take $P \setminus C$. QED.
APHF	Stab him 23 times. Don't reinvent the wheel.
__INIT__	{ let _ = Caesar; }
B'EF_UNWELLINGTON	“dressing on the side please”
MOBPSYCHOFAN	Blow him up with explosives probably
TENDSTOFORTYTWO	on a technicality
BEFUDDLED	Defeated in the marketplace of ideas

It's illegal to read mathNEWS on the moon, you know.

OWEN GALLAGHER, mathNEWS EDITOR FOR WINTER 2024
ALONG WITH EVAN GIRARDIN, DANIEL MATLIN, AWAB QURESHI,
NAMAN SOOD, AND ISABELA SOUZA

mathASKS 154.5

FEATURING WUSA PRESIDENT-ELECT NICK PFEIFLE

WINK WONK: gridWORD?

Yes. 🤔

In fact, I've even written two **gridWORDS** in the past, one of which was of acceptable quality. It was themed around animals of South America. Maybe my best clue answer combo was Pond (8,3) for "Tadpole's Tub".

I'm a longtime fan of former and all-time champion **gridMASTER** Frasier Simpson, who writes the Globe and Mail Christmas Cryptic, and have a good number of his books. He's living proof that if you can pump out a half-decent crossword fortnightly, you can fill a 14x14 grid with letters anywhere.

FIRSTIE: SINGLE BIGGEST PRIORITY? SMALLEST PRIORITY?

My biggest priority is consistently preserving the environment. My focus on ecology through high school got me out of some dark times in my life, and seeing the world as the interconnected mess of flesh and fang—I don't know, it really gets me misty-eyed. There are many approaches to living less harmfully, but my personal love is the sustainability of geomorphic design, as the grimy mud-loving engineer that I am. The process of working with nature to better our designs and longevity, nothing less than fucking obvious. Far too often humans forget that we're part of the system, not running it.

My smallest priority, scale and honestly time wise, is some specific photonics projects that we published in a niche nanotechnology conference proceeding. The long and short of the story is that while the structure is electronically viable, and the process to assemble doable, the bleaming thing explodes when exposed to light. This is a very unhelpful trait to have for a device that is supposed to use light as a tool in gas-sensing and other forms of analysis.

TENDSTOFORTYTWO: WHAT IS YOUR OPINION ON THE NEW (2022 ONWARDS) WUSA GOVERNANCE MODEL? WHAT DO YOU LIKE? WHAT DO YOU WANT TO CHANGE?

This is the first of a half dozen questions tends asked me. Someone is very engaged with student politics...

WUSA's current governance model is wack dude. It's pretty similar to the operation of most non-for-profits, which would be great if that meant it worked well for a student org. Unlike most other schools, we don't run a Board and Council model. There are some minor benefits like making sure elected students are engaged, but otherwise it adds a bunch of bullshit to the process. This is only emphasized by the weak-willed constitution kneecapping the explicit ability for student directors to advocate and work for students. The requirement for the Board to adhere to a strict focus on shit students don't care about makes the continued existence of WUSA moot. The primary operation of the student society should be less

focused on specific services, which benefit all parties, are in the best interests of the community to maintain—

Think the GRT Bus Pass and the Bike Centre, which, while WUSA run out of a sense of practicality, are also necessary for the efficient operation of the City of Waterloo

—but rather on implementing change and seeing that the student will is represented and used in the best interests of the public. I don't know, I see almost no upsides to the change, WUSA no longer works with students, or for students, it ASSUMES the student will and then chickens out last minute. Senators and faculty VPs should not be the only way we have a shot at getting things done. Disenfranchisement and abandoning groups on north campus who are still by all means undergraduates come part and parcel with these changes, and I've expressed these worries for years. The lack of care in the preparation of these documents, and now the militaristic adherence to their text is a disservice to the student body. WUSA operating Flock Stop and mismanaging clubs can act independently from student government if it needs to, but suffocating one for the benefit of the other is a fool's errand. If we can't make WUSA work for students, there is no reason for it to continue to exist.

TENDSTOFORTYTWO: WHAT DO YOU EXPECT THE DAILY LIFE OF A WUSA PRESIDENT TO BE LIKE?

It's not that weird, if I knew that I was allowed to ask as many questions as I wanted to a prof, maybe I would in the future, especially when their research is interesting enough to warrant it...

From my past interactions with WUSA presidents, it's emotional labour sun up to sun down. Meetings after meetings after recommendation letter writing after meetings. I'd prefer to bring a research-background aspect to the role, but I expect ~~✦~~ bad times ~~✦~~ 🤔 is the vibe. The aspects that most excite me are student facing, interacting with the societies and trying to wrangle coalitions together. Every once and a while you at least get to celebrate the end of extra bad times. Work hard, party hard. Hey, maybe our League team'll make it to finals again.

TENDSTOFORTYTWO: RENEW HAD SOME POSTERS ABOUT ADDING THIRD SPACES IN UW. WHAT DO YOU THINK THAT COULD LOOK LIKE?

What's particularly cute is the switch in pseudonyms (no elaboration) to match the question topic...

To be particularly banal, we're targeting spots that could be best described as third places. I'm going to paraphrase my team mate and fellow director Theresa: there's a lot on this one chief.



Coziness and ease of access is key. Book nooks for you and a few friends, spaces that are accessible and nudge you to linger. Benches with soft seats, good enough lighting and don't make you feel out of place or exposed. Campus could always do with more silent study given our campus population, but studying is only part of what makes university valuable to students. Multiuse spaces distributed across campus, not just in the SLC, help to ground us and connect us with peers, seniors, juniors and staff. Openness grows ideas and innovation; this is a good thing. Community building through good design and being open to campus being a place to linger. Low book cases, ping pong tables, group study spaces, variety and flow, variable intensity and place. We're hoping that we can make a campus with enough options and locations that you can gravitate towards what fits you best, and avoid the stilted designs that only socially encourage silent grinding. I'll let Theresa take it from here:

"In terms of some places we've got earmarked: STC upper floors, QNC basement, everywhere that there are weird stools in DC (it could be SO MUCH BETTER), lots of parts of HH, etc. Outside of that, there are a ton of empty spaces or poorly-utilized spaces that we can pinpoint for improvements, following some kind of exhaustive investigation. Ideally, we'd like to start with existing places with some infrastructure in place that just needs some updating: new and MOVABLE furniture (students should be able to rearrange their places as needed for different interactions), more activities, longer hours (9–5 hours is silly when that's when students have classes/work), and improved access (pushing for unlocked access to as many lounges as possible). Then we'd like to put together a comprehensive, costed plan for the addition of more third places. For placemaking in general, we definitely want to consider things like foot traffic, noise levels in proximity (you want a variety of high-intensity and low-intensity places), and accessibility (ensuring that their locations are easy to find and require little physical exertion to access and stay). We are VERY open to feedback and we definitely need student input before putting these ideas into action!"

TERESA NGUYEN, FEBRUARY 2024

JEFF: WHAT'S YOUR FAVOURITE BATHROOM ON CAMPUS?

Where a man makes his throne is information I would be a fool to disclose.

I'll highlight the goofy double layered C2 second floor men's room as maybe the grossest way of setting up urinals, requiring you to open doors where dozens of others have as well, before you can wash your hands. Gross.

BOLDBLAZER: WHAT WILL YOUR FIRST 100 DAYS AS WUSA PRESIDENT LOOK LIKE?

Given it's summer my best guess is forest fires. When I had part of my coop term in Australia I had the weird honour of spending a while around Canadian firefighters en route to bushfires in the outback. Not saying anything of the sort is likely to happen in the region, but in an El Niño year fires are not only likely, but the season has already begun in midwinter. Yay climate change! We need to build **MORE LANES** so we can get to the fires faster! The more we **MULCH** the less woods there are to burn! **DRILL BABY DRILL!**

More seriously, I'm hoping we manage to get an ombudsperson hired and making waves as soon as possible. Fully on my knees weeping and pissing and crying here.

TENDSTOFORTYTWO: WHAT DO YOU THINK IS GOING TO HAPPEN WITH THE VACANT VICE-PRESIDENT POSITION?

Valid, code switching even, something that I also have done at least once in this issue...

[Question response valid as of time of writing, not necessarily as of time of publication]

We played around with a couple of ideas, but particularly given the proportionally larger turnout this election, and the public interest, we're avoiding including WUSA's existing board, except when the two overlap, like Mr. Jeff Zhu.

At the WUSA AGM in March, next year's directorship is bringing forward a recommendation for filling the slot with one of the runners up from the presidential campaign. It's up to the assembly to concur with us, or if not try and unify the general population around another candidate. In the spirit of not total opacity we're planning on explaining the benefits of the two gentlemen, and letting you know the summary of our internal deliberation. Decisions aren't unanimous, and the voters should know how contested our discussions have been. In fact the anonymous poll we've conducted is only has one of them ahead by a single vote.

Given how often a hole in the executive team seems to happen to WUSA maybe someone (like myself) should make this more—streamlined. I'd personally prefer a presidential campaign occurring before the general election (common enough practice across campus), but WUSA governance is prickly to say the least.

CAFFEINATED: WHAT'S YOUR FAVORITE PLACE TO GET COFFEE ON CAMPUS?

One of my personal fixations is executing a detailed inventory of every location I can find and or purchase coffee on campus. During the pandemic I got very into making coffee, and so my standards got weird and prudishly high. At current the list is topped by Grad House, but my most frequent purchase is from CEIT in EIT, for some reason, and despite the place being a UW Food Services joint, their equipment seems much better,

and the staff more skillful. As a snob, they play all the right notes to create my optimal brew and a convenient location (a lot of my classes are in PHYS at this point in my degree). Oddly enough, and despite the taste being terrible, FemPhys is a wonderful place to grab a cup. Sometimes you can recover an objectively undrinkable liquid with the power of kindness.

My list includes about 50 locations thus far, but I continue to find new nooks and crannies with coffee available. I'm not so proud as to make a cup myself, and I've been known to carry my moka pot and grinder to make use of the odd kitchenette.

If you've found coffee someplace odd on campus, let me know: nspfeifl@uwaterloo.ca

MOLASSES: DO YOU PLAN TO ADVOCATE WITHIN UW IF THEY DRAG THEIR FEET ON THE M&M VENDING MACHINE REMOVAL? HOW WOULD YOU GO ABOUT IT?

You know what, I doubt I'll need to do shit, this is the biggest story, somehow, since the Hagey Hall attack. The students in general, and **mathNEWS** in specific can carry as much as they feel like, it's been going great so far. I'd prefer to decentralize WUSA's power anyways, so supporting our valiant reporters in their crusade of not getting perv'd on by the green M&M aligns with those goals. If things come to it we keep pestering the Privacy Commissioner, or take the drastic move of gently unplugging the devices at the end of the day to follow Policy 34 and 53.

Plus, they're already gone. If anything, the question should be how we get rid of all of the hidden cameras we don't know about yet... There are more advertisements on campus than we care to realise.

NOT_A_UW_STUDENT_(YET): HOW DO YOU DO IT ALL?

I don't, dude I started in 2018 and plan on getting out of here in 2025. That's not a great timeline for managing to keep on top of everything. The best I can say is that most of the few successful acts in my life have been as part of a team working together to get shit done. I'm terrible on my own.

SQRT(CAUSE): FOR YOUR FYDP HOW CONFIDENT ARE YOU IN THE SELECTIVITY TESTING?

I appreciate in the midst of all the meta and WUSA content something specific to my field of study, but the hyper pointedness is worrying. As brief context for those who haven't attended the symposium poster session I worked as part of a team building a fluorometer and using it to measure the luminosity of custom Carbon Quantum Dots we manufactured to be sensitive to Cu^{2+} ions in a specific concentration range. The main validation issue with such sensors is often the interference from other chemical species, especially in our case SO_4^{2-} , due to the primary ion source we used to establish our baselines. Our QDots were designed and produced based off copper sulfate pentahydrate, so we see the biggest quenching drop when this hyper-specific compound is measured. The problem should be obvious, particularly when

it comes to metal salt costs. Most of our selectivity testing relied on other sulfates to confirm our results, with interesting Fe^{3+} partial responses, but lacking the hard evidence that we were measuring the metal and not the sulfate. At about the last possible second, my labmate Paul Park managed to get a hold of some copper chloride, which he used to affirm that our measurements were at the very least not sulfate dependent.

My personal worries are focused on the (-)ve ion, which haunts me. Cl^- and SO_4^{2-} are electronically distinct due to their effective size and charge, but still, is this measurable in the Stern-Volmer? What about the odd Fe^{3+} readings? Without the funding to purchase Palladium salts I have no idea exactly how our device works, only that it does as long as its wet.

__INIT__: AS A FELLOW mathNEWS WRITER FROM THE ENGINEERING FACULTY, HOW DID YOU START WRITING FOR mathNEWS?

Shamefully, both of my parents are mathies.

☹️ dead 🦋

So I've been aware and reading **mathNEWS** since about the age of twelve, heck my Dad still contributes during anniversary editions.

In another pandemic brainrot move, (see comprehensive coffee ranking above) I made an attempt to vent via the medium of "the campus journal **mathNEWS**" [CBC], it did not help my mental health, but it did make me appreciate how annoying it is to have deadlines.

My oldest articles are pretty slapdash, largely expressing rage at the Ontario government for cutting funding to the education sector over and over again. Obviously they were a desperate attempt to get anyone else to care about the stupid funding crap I did. **mathNEWS** abuse, one could say. 2/10.

I also attempted to do some crackpot journalism, inspired by a lack of good information during some international protests in 2022. These were marginally better, but I don't think you could outright say they proved anything. 4/10.

A much better piece from the time is my alphabet of the best dinosaur for each letter. This may be the best shitpost I've made. If you bother reading any of my old pieces *Dinosaur Tier List* in 148.1 is the only one worth your time. 6/10.

TENDSTOFORTYTWO: WHEN WILL WE TAKE BACK FED HALL?

A kinship across the pseudo-digital void... 🌱

The University of Waterloo is the driest campus in Canada. This is *no bueno*. It has been addressed as a real issue, particularly when it comes to alumni donations. Students who drink off campus donate off campus.

The loss of Fed Hall is tied to a brash string of hyper-individualistic decisions from the WUSA electorate of the '80s

and '90s, which predictably screwed over their kids who are now in school. Alienation and its dire repercussions are only now STARTING to become an obvious problem to UW in the wake of Hagey, and the lackluster and misguided effort to undo the crumbling culture is about as likely to make things worse as to rescue campus. I don't expect we'll see Fed Hall returned anytime soon, both due to the hyper-litigation-adverse UWaterloo admin trying to avoid "incidents". All this while those same issues are migrated down University Ave. and foisted on Laurier. Losing Bomber and Fed Hall, followed quickly by the pandemic, has fundamentally eroded people's emotional connection to the university. You might have made friends here, but those positive feelings are disconnected from the '60s vintage buildings, something that previous generations of students would never have felt.

Taking back Fed Hall relies on two things:

1. We become the Federation of Students once again; renaming it to WUSA Hall is icky :S
2. The University acknowledges the role it has to play in designing a space for community building, taking on short-term risks for long term benefits in growing a resilient campus community and all taking on the double edged benefit of the mischief that that entails.

I'm hopeful but I expect things to get much worse before they get better.

What a downer to end it on. :]

THE ORIGINAL FLAVOR PIZZA

I look in the box, at the pizza with no toppings or sauce.

Fully crust, littered with burnt lumps—scars—on the loaf,

I wonder:

does it wake up every day, also feeling like something is wrong,

but unable to pinpoint exactly what the wrongness is?

feeling like something is missing?

watching as other pizza slices get chosen, as it is left alone, treated like a joke? feeling like *nothing*.

I stand over the pizza box and contemplate.

I know exactly what it's missing. Double anchovies.

Rats for Cheese

As a neurodivergent rat, I found myself having a sudden emotional connection with the "Nothing" pizza being served at the mathNEWS production night. This is a poem about that.

TICKETS FOR IMMOLATION ON SALE



The UW Theatre and Performance Program presents *IMMOLATION*, its mainstage Winter 2024 production, which will be shown March 20–23 at 7:30 PM.

IMMOLATION is an artistic and powerful devised piece on rebellion and freedom split into four movements. Inspired by the stories of real freedom fighters, the ensemble aspires to delve into the nuances of their own interpretations of freedom. Loosely inspired by themes of decolonization, director Pam Patel aims to delve into how these characters are shaped by their stories and how they interact together.

During this experience the characters find themselves exploring a myriad of intricate and nuanced subjects, such as class distinctions, status quo, rebellion, safe spaces, the struggles faced by the trans community, and patriarchy, all set against the broader backdrop of the pursuit of freedom. At its core, *IMMOLATION* is about finding out what freedom is. There are costs to freedom and scars we gain, and how sometimes we lose ourselves for it. Come explore what freedom means to you and join the fight.

Before the show, attendees are encouraged to participate in the interactive engagement area. Doors will be open 30 minutes prior to the performance, allowing the audience to interact with installations that mirror the thematic focal points of *IMMOLATION* and delve into the creative inspiration behind this innovative work. Within the theatre gallery, spectators are invited to fully immerse themselves in a thematic exhibition designed to extend the world of the play to the world right in front of us. Attendees are also invited to stay after the production to participate in a talkback with the cast and creators.

The show will run **March 20–23, 7:30 PM** in the Modern Languages building (ML). Tickets can be purchased from uwimmolation.ca at the following prices:

- General: \$15
- Students: \$10
- High school students: \$5

We hope to see you there!

UW Theatre and Performance

OBJECTS FROM THE mathNEWS OFFICE

VIII: RASPBERRY CITRUS ORBITZ

Well, here we are. End of the line. This is the last object I have to talk about. Well, that's a lie—there are a few other things I could talk about—but I'm working against time here. The editors discovered how I kept getting into the office, i.e., they'll be changing the door code any day now.

I almost hate to write about this one: it's such a bedrock artifact of **mathNEWS**, and it feels like everybody already knows about it. But, lest I fall victim to <https://xkcd.com/2501/>, here goes.

Orbitz was a strange fad drink that sold in Canada in the late '90s but died out within a year or so because, evidently, no one was into it. It had some semblance to a lava lamp, but I prefer to think of it as “proto-boba”. A real shame. Anyway, in '97 or so, **mathNEWS** Ex-Editor Chadwick “CasEd” Severn came across a bottle of the stuff at a convenience store and thought it was ridiculous, so he bought it and brought it to the **mathNEWS** office. They even took a photo:



Well, there it sat. Some years later, he graduated, and there it continued to sit on our shelf. A quarter-century later, and here it continues to sit. Take a look:



If you're reading the print copy of this article, you're missing some information since it's in greyscale. In particular, the first image of the Orbitz depicts bright orange bubbles suspended in a clear liquid; the second image, on the other hand, depicts brown bubbles suspended in a yellow/orange-ish liquid. Frankly, if you drank this, you would probably die.

So, I wouldn't write about an expired old fad drink for no reason. This *particular* bottle of Orbitz has grown its roots (and colonies of superbacteria, probably) deep into the foundations of **mathNEWS**. In fact, some may argue that this expired old fad drink is one of the *key* reasons **mathNEWS** persists today.

From the **mathNEWS** Constitution, section 3.3(K):

*Should **mathNEWS** dissolve either voluntarily or involuntarily, the **mathNEWS** Editors at the time of dissolution shall open and drink the bottle of Raspberry Citrus Orbitz on the shelf, as a final reward for succeeding where previous **mathNEWS** Editors have failed. If the bottle of Orbitz is nowhere to be found, a replacement bottle must be procured at the **mathNEWS** Editor's own expense. Any external parties involved in the dissolution process are also invited to partake in the ritual.*

You can see how it would be in the editors' best interests to keep the ship afloat. Fear is an *excellent* motivator, and anyone who tells you otherwise is lying to you. If all goes well, that nasty stuff will stay on the shelf forever, turning even more twisted shades of brown over time. Repulsive, but effective.

That wraps up this series. As I said earlier, there are a few things I haven't written about—those are left for you to discover on your own! There are a few things that not even I know the story behind. Go visit the **mathNEWS** office in MC 3030 whenever it's open and see some of them for yourself.

jeff

MC BATHROOM WI-FI GUIDE

Results from Wi-Fi testing the urinal containing bathrooms of MC:

BATHROOM	UPLOAD/DOWNLOAD IN MBPS
MC 1026	No connection
MC 1083	5.51/4.34 (Poor)
MC 2064	3.33/0.62 (Extremely poor)
MC 2033	No connection
MC 3071	No connection
MC 3075	12.6/15.5 (Good)
MC 4119	No connection
MC 4107	No connection
MC 5904	5.69/8.33 (Poor)
MC 5917	13.7/26.8 (Good)
MC 6917	12.5/15.9 (Good)
MC 6904	No connection

Bubert

REVIEWING THE VARIOUS CLASSES I WANDERED INTO THIS TERM

SOCIAL WELFARE

EC 370: INTERMEDIATE MACROECONOMICS 2

HIDEKI ARIIZUMI

WILFRID LAURIER UNIVERSITY

I hated my first year engineering economics class, but macroeconomics, I'm told, is a completely different subject that can actually be interesting sometimes. On a sunny February afternoon, I followed a randomly selected individual from University Ave into an macroeconomics lecture on social welfare, which from my understanding post-lecture is some sort of quantitative measure of society being happy. Actually, now I'm looking up the course code and the course title is actually "Intermediate Microeconomics 2", which is confusing me because this all seemed pretty macro to me. I thought microeconomics was the stuff I already knew where you draw cash flow diagrams and calculate $(P/A, i, N)$. Maybe I'll never get it.

What struck me about this class was nothing about the class itself, but the building it was in. Folks, Lazaridis Hall is so much nicer than any building we have here. I walked out of that class feeling like I'd gotten scammed. It's built around this vast open space, like DC, but with areas sectioned off on the ground floor for study space or navigation or a café—and on the upper floors, the classrooms are placed adjacent to the outer walls so that they can, get this, *have windows*. Imagine getting bored in your economics lecture and turning around to soak in the natural light and watch people stroll down University Ave. That's exactly what I did, several times, because I just couldn't get enough of it. I haven't seen windows in a classroom since high school.

That wasn't the only way this class reminded me of high school. There were about 45 people sitting in this classroom, and I counted nine—that's 20%—wearing baseball caps. (One spent the entirety of the lecture chewing gum.) Not to mention the instructor paused mid-lecture to take *attendance*. Incredible stuff. I'll definitely come back here if I'm ever nostalgic for simpler times. Also, can we get some windows in M4 please?

WINDOWS

ARCH 364: BUILDING SCIENCE

JOHN STRAUBE

UNIVERSITY OF WATERLOO

A naive campus building knower might think DWE is the oldest UWaterloo building, but the architecture building predates it by over 40 years, having opened in 1918 as a silk mill in what is now the heart of downtown Cambridge. I've wanted to go to a class in here for a while, but it took me a couple tries to figure out that nearly every lecture starts at 2PM and goes on for 3 hours. An interesting way to schedule things in a building with only two lecture halls, but maybe it works for them.

Anyway, once I'd figured this out, I made my way down to Cambridge a little before 2 PM. I found myself in a Building Science lecture all about windows — coincidentally relevant after my takeaway from the last class I wandered into. Nearly every student had some sort of gaming laptop, probably to run their intense architecture software or whatever.

The discussion on windows began with listing the ways they suck: they have an r-value of 3 or 4 whereas you want 20 for walls (translation: they don't insulate good), their fire ratings are so low that we just treat them as air, they break sometimes, and on top of all that they're the most expensive part of any wall. Of course, we want windows anyway because natural light looks good. The class continued on with the types of window, the anatomy of a window, the construction of a window frame, how to install a window, and everything else you could possibly want to know about windows.

We apparently had a class mascot: a polar bear (a well-insulated creature), and the instructor would occasionally pass little pieces of building around the room for us to poke around at. The three hours went by quickly.

I'd recommend this class to anyone, but especially the architects of M4 (please give us classroom windows ☺).

INTUITIONISM

PHL255H1: PHILOSOPHY OF SCIENCE

IMOGEN DICKIE

UNIVERSITY OF TORONTO

I've been in classrooms from two different centuries, so naturally, it was time to try a third. From the outside, U of T's Emmanuel College looks like the perfect candidate, its dark stone facade punctuated with moss and rounded windows. The interior gives off the same impression to such an extreme degree that it feels like a parody. The barely-lit hallways have windows strategically placed to light the area like a horror movie and are lined with paintings of old white guys and empty benches with huge red plush cushions.

Descending into the basement, the lecture hall where PHL255H1 was held looked surprisingly normal, like a half-size MC 2066. Huh.

I've liked all these classes so far, but this one might have been my favourite yet. The topic was the intuitionist philosophy of mathematics, and the half-full lecture hall listened intently as the professor discussed various ideas of what exactly mathematical truth *is*. It was the most pointless theoretical exercise I'd ever experienced and I loved it. It felt like the exact thing the Victorians were probably doing in this room two hundred years ago, probably wearing long dark robes and carrying candlesticks.

Wait, but this room specifically doesn't feel 200 years old, it feels like MC. How old is this building exactly? Turns out, it was built in 1932, and the architect just decided to make it look like a movie set for an ancient school of wizardry for some reason. Looking deeper into it, it seems like the style may have been influenced by administrators having an identity crisis: the building was built by a school which got amalgamated into U of T 130 years ago but to this day still insists on calling themselves "Victoria University at the University of Toronto".

I've brought up M4 in every other review, so why not do it again? Turns out modern architecture is cool, actually. I'm glad we're not getting a miserable, gloomy building because someone wanted to feel important and build something that looks old.

So what have we learned? A lot about architecture, unexpectedly.

__init__

THE BATTLE ROYALE FOR BATTLE ROYALES 3

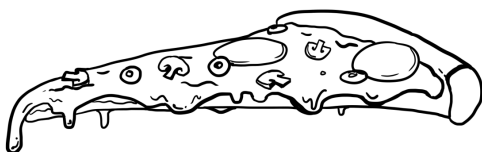
STUMBLE GUYS

You love it, you hate it, but surely you've seen it. Stumble Guys is the mobile knockoff of Fall Guys, and boy does it really look like a mobile game. Perhaps the most egregious part of it are the emotes you can buy in the shop—emotes which actually give you a competitive advantage like a speed boost or knocking people away (and off the edge). Literally P2W, and it's not a joke.

Despite that, the level design is actually pretty nice. It's a series of minigames with varying objectives (reach the end, be the last one standing, get the most coins, etc.). Some levels are carbon copies of Fall Guys, but there's a few interesting levels they've done, and a lot of them are collaboration levels. Surprisingly, this game has a *ton* of collabs. You have an FPS arena with Nerf, Barbie's level where you grab things from her beach party for her, and even Mr. Beast's obstacle course. The knockoff has become the true winner in the end. If you don't run into any P2W players, and ignore the eye-harming mobile UI, the gameplay itself is actually pretty nice. If you ignore the same song being played on loop 24/7.

Verdict: You get on the Battle Bus, drop and have a lot of fun surprisingly, manage to make it pretty far, but in the final zone you get killed by some guy because he spent \$5 more than you.

PlatypusGod



HOW ABOUT INSTEAD OF JOURNALING I JUST WRITE ANOTHER mathNEWS ARTICLE

Recently (since last prod night, which is apparently how I'm measuring time now) I started on a new medication. Without disclosing actual medical information, what's important to know is that it's not impossible (and not unlikely) that I will be on this medication for the rest of my life, in one way or another.

Historically, I have thought about my health what I feel is a normal-ish amount. I would go to the doctor for a check-up, they would tell me I'm probably not dying, I would go home unchanged. I feel lucky and privileged to be able to say that about my experience thus far. But in the past month or so, I have had 4 medical appointments (and 2 more in the next few weeks) which is maybe not *that* many, but it certainly feels like a lot to me. I'm very grateful to have an accommodating boss, especially considering they're all in the middle of the workday.

I'm also very grateful to be working with doctors, nurses, and pharmacists who have been (so far) helpful, knowledgeable, and kind. The "so far" is doing a lot in that sentence though. I am continually reminded that I am reliant on them and the medical system as a whole in a way that I'm not used to, and not yet fully comfortable with. In general, I trust that they are smart and qualified people, but I haven't had to put my trust in specific people in this way before. That's an interesting phrase, to put your trust *in* someone. I hope they take it with grace and keep it (and me) safe.

What's really getting to me, though, is the unending-ness of it all. I know that nothing can really last forever, but I also know that I'm at the center of the story I tell to myself about myself, and the idea of something lasting for *my* forever (especially as someone who's only 20) is daunting, to say the least.

It's not that I don't want to be on this medication. Like it's not against my will or anything. In fact, it's mostly my choice, which is definitely shaping how I interact with this situation. I guess it's just another thing for me to overthink when I'm trying to fall asleep at night.

normalparameters

A blackBOX a day keeps whitespace away.

A HEALTHY mathNEWS EDITOR

A QUESTIONABLE REVIEW OF ALL THE CAMPUS FOOD I CAN MOBILE ORDER

AND YES, THERE'S AN APP FOR THAT.

Do you have too much money left on your meal plan? Are you trying to cash in on your meal plan discount? Perhaps you want a good meal but hate chatting? Or are you strapped for time to cook or wait in line?

Well, I've tried all possible franchises on the UW Order app (excluding The UC because spending \$20 on one meal frightens me) and I'm here to give my unadulterated opinion on what you should and shouldn't get.

Notes:

- I haven't tried every single franchise location, but I'm assuming that the taste is consistent, and I will mention other important details, so don't worry. I *might* release a full review and that *might* include different locations, so you *might* want to stay tuned for that.
- I don't mean to insult anyone here! This is just opinion and I'm grateful that I have these options and can buy these new foods. I'm only writing this as a piece to inform hesitant buyers, to provide a laugh and to be my inner Gordon Ramsay, not to shit on campus food.

BRUBAKERS IN SLC

SUBWAY

Pretty standard. I haven't tried the deli meat (I'm vegetarian on Fridays), but I'm not missing the meat here. However, it's very customizable so it's more of what you make of it.

QUESADA

Again, quite customizable but the ratio of crunch to heat to creaminess satisfies me every time. I have no complaints here. Actually, I do have one: why is there two sour creams on the app? I don't know which one to pick and it scares me.

SHAWARMA HUB

One of my go-to options. The fries are plainly greasy and the salad is a bit unwieldy, so I stick to the pitas and markook wraps. The wraps are very balanced in acidity, umami and carbs, especially the Falafel Wrap; delicious and filling veg option.

PIZZA PIZZA

Like Subway, it's standard and a good choice when on-the-go. Only bother of mine is that you need a minimum order of \$5 pre-tax and 1 slice is \$4.99, so now there's a lonely bag of Lays sitting in my place.

MASALA

As a South Asian person, I feel weird ordering Indian food but this is a good option. I got a fully dressed Samosa Chaat and TBH, the Boneless Pickle took over the whole dish. Taking that out, everything else blended wonderfully, with Aloo Bhujia's crunch and the spiced tomatoey Chana Masala. I ate the samosa separately and it was crispy on the outside, fluffy and spiced on the inside. Good value pick.

CHEF & THE FARMER

Usually, this place is not busy during the lunch rush, but I think it's quite decent. I got the Pulled Pork on a Bun Combo with Sweet Potato fries. The pork was tender and smoky, and my chosen veggies cut through the richness well. The only that felt out of place was the mustard, as it acridly overpowered the whole sandwich. As for the sweet potato fries, they were a bit soggy and greasy but sweet potato lovers like me won't mind.

TERIYAKI EXPERIENCE

This might be controversial, but I find it mediocre. The first time I had it, I got the Hot & Spicy Chicken with Yakisoba Noodles and that was, in polite terms, embarrassing on their behalf. It tasted like how I imagine Charles II of Spain would; not hot, salty with a hint of decaying onion, and it makes you wonder why they're the monarch.

As much as I hated that dish, I tried what should be their specialty: Beef Teriyaki with Rice. After a 40 minute wait, I was greeted with adequacy; the sauce was good, rice was tender, but the vegetables were bland. It was better when it was all mixed up but I still faced unsalted broccoli.

DC BYTES

HAKKA WOK

The Pad Thai is lovely. The sauce is a good balance between sweet and spicy, and the tofu reminds me of the tofu I had at UGuelph, so you know that means something. Very filling and a good vegetarian option.

I also got their Shrimp Wonton Soup, with shrimp wontons, vermicelli (?) noodles and bok choy. The shrimp wontons were savoury, juicy and fresh (overall refreshing soup) but the noodles felt a bit out of place and the bok choy was bland. Also note that to the chagrin of the engineers next door, the soup comes in a paper container.

ROLLTATION

The lines for this place are insane, even at 6pm. But I mean, it's worth the hype. I got the Spicy Habanero Chicken Karaage Burrito and it was very balanced between the rich, crunchy karaage and the refreshing vegetables, all enveloped in satisfying sticky sushi rice. No nitpicking here.

AHS BUILDING

ROLLTATION

I got a Classic Salmon Burrito, just to test out the raw fish and the preset combinations. It was pretty good; the salmon was fresh and the Tempura Bits added contrast, however I have a few qualms with it. I feel like the kale and edamame didn't fit in with the burrito and the wasabi tobiko didn't bring much to the table either (only a tiny stool), but alas, that's what customization is for. Finally, this does trigger my cheapskate-iness as ~\$20 is a lot, but again, that's up to your consideration.

SOUTH SIDE MARKETPLACE

THE WHET NOODLE

Much better than the *Hakka Wok* soup with its customizable vegetables, noodles and garnishes. Slightly disappointed that I didn't get to try the tofu (they ran out) but the meal was relatively hearty and earthy. Only issue is that the soba noodles were a tad too soft, but it's very safe to say that this was good soup.

TL;DR:

Good Value: Subway, Pizza Pizza, Masala's Samosa Chaat

Good Taste: Rolltation, The Whet Noodle, Shawarma Hub, Quesada, Hakka Wok

Take it with the grain of salt that some of these places don't use. And feel free to roast me; I'm no Hot and Spicy Chicken.

Dollar Store Person

GET A BUZZ CUT

DO IT

- your hair doesn't ever go in your eyes
- it's so easy to wash your hair
- you look like you're in the military (badass)

Seriously, I got a buzz cut for the first time, after having overgrown messy hair for a bit, and it's sooo convenient.

Try it. You might find that you like it.

AvanRocks

N PLACES TO EXPLORE IN WATERLOO AS THE WEATHER WARMS UP

As the weather gets warmer two things are inevitable: The Waterloo geese will become insanely aggressive, and you will begin to feel the urge to photosynthesize.

When the latter happens, pull out your Google Maps and get ready cause here are N places where you can touch grass in Waterloo! (okay maybe some of them are technically in Kitchener but to anyone who's not from here they are the same thing.)

1. Laurel Creek Conservation Area: This is one of my go-to spots. There are enough trails to explore that you can return again and again without becoming bored of it. Highlights of here are the natural biodiversity. Hopefully, you can derive some happiness from the many kinds of animals to be found here — most notably snapping turtles! 🐢
2. Victoria Park: Okay, this one isn't exactly niche but it's a staple for a reason. This park boasts several iconic swans 🦢, koi fish, and a few Willow trees. This park is best explored during the warmer months but is beautiful all seasons!
3. Columbia Lake: Your goal is to explore the trails north of Columbia Lake so aim for the start of your adventure to be near Brubacher House — if you see people throwing frisbees you're in the right place. This adventure offers several geese companions and a wooden goose shrine (where if it's exam season you may want to go to thank Mr. Goose)
4. Carisbrook Drive Natural Area: All of the areas along the river are almost certain to be a good time to explore but the most recent one I went to was here. There is a lot of mixed signage here so be warned the main trail has a Private Property sign next to it referring to something else. This walk has a veryyyy grassy biome and lots of spots to explore the river or fish.
5. Waterloo Park (once the animals come back): This one is nice and close to campus — just don't get too close to the animals or you may get spat on as I have unfortunately witnessed :(

Make sure to bring your sunscreen and bugspray and get outside my fellow math nerds — you need your vitamin D(derivatives? e Morgan's? too many pun options here to choose!)

simpleX rated



THE SECRET TO LETTING GO IS CUTTING YOUR HAIR AND WHITE ZONGZI

WHITE ZONGZI (白粽子) — SUPER FRAGRANT AND DELICIOUS

INGREDIENTS/MATERIALS

- Bamboo leaves, dried
- Glutinous rice
- Sweetener of some sort (I prefer white sugar, but some people like honey or brown sugar)
- Food-safe string, like butcher's twine
- Sharp scissors

STEPS

1. Soak the bamboo leaves, submerging them fully under cold water in a bowl overnight (you might need something heavy to push them below the surface)
2. Soak the glutinous rice overnight (in a bowl, cover with enough cold water so that there is an inch of water above the rice)
3. The next day, drain the water from the rice using a large sieve.
4. Drain the water from the bowl containing the bamboo leaves.
5. Using paper towel, wipe any dirt from the leaves and using scissors, trim the end of the bamboo leaves that have the hard, woody stem.
6. Carefully wrap the glutinous rice in the bamboo leaves (try searching up “zongzi recipe” on YouTube or asking a Chinese friend if they can show you. I can't really describe it in writing and every family has their own way of wrapping zongzi it seems). Secure with string.
7. Place your finished zongzi into a large pot filled with cold water. Water should cover the zongzi. Turn the heat to high, and allow it to come to a boil.
8. Once a rolling boil has been reached, turn the heat down to a simmer and let it cook for about 1.5 to 2 hours, depending on how large your zongzi are.
9. Shut off the heat and take the zongzi out. After letting it cool down a bit you can unwrap your fragrant parcel and dip it into your favourite sweetener.
10. Store leftovers for up to a week in the fridge (leave the bamboo leaves on) or a couple months in the freezer.

RANT

When all is seemingly lost, fret not—there is one card left you can play. And that is cutting your hair (If you don't have hair, I guess the equivalent is shaving your eyebrows. If you don't have eyebrows... I'm not sure to be perfectly honest).

As a woman who has had hair cropped short just above my jaw, and hair that is currently all the way down to my waist,

hair is something that's always been with me. A companion of sorts, a witness to the highest points of my life as well as my lowest. I play with it when I'm bored, anxious, or giddy with excitement. It's there every morning when I wake up, whether it's after 4 hours of terrible sleep or 10 hours of sweet, blissful weekend rest.

No matter how out of control my life feels, I always have control over one aspect of it. All I have to do is pick up the pair of haircutting shears I bought off of Amazon, kitchen shears, garden shears or craft scissors. Within seconds, I can look like—and feel like—a completely different person. It's always an option.

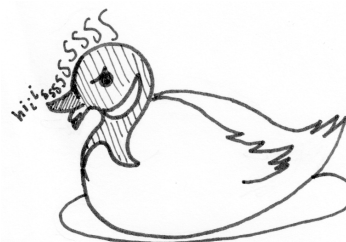
I gently hold onto a lock of my hair, looking closely at each strand between my fingers. My hair is black, straight, and coarse. Almost every strand has split ends right now because of its length and my carelessness. I twist it around, watching the pieces coil around each other tightly, admiring their strength.

I remember the first time I got a Big Chop and I was old enough to be vain and self-conscious of my appearance. My mother cut it in the bathroom of our family's one-bedroom apartment. I cried for hours, and my sister and father yelled at me to shut up, and that it was just hair. It would grow back.

In a way, that's kind of like life. Your life might suddenly change one day, and whether it was within your control or not, you can't turn back time and undo what happened. You can cry as long as you want—it won't uncut your hair. The pieces of you that are swept up and dumped into the trash can are never going to sew themselves back onto your scalp. You just have to dry your tears, and hopefully the next day things will look better. And you just do that again and again until one day you look in the mirror and you suddenly realize that you did it—you got through it. You're different now—you look a little different, feel a little different. Stronger, maybe even a little more mature.

It's a little reminder of how resilient you are. It's pretty easy to forget, because things can truly go to shit in a minute and all you can focus on is how shit things are and how awful your new haircut looks. But give it some time. It gets better. It grows back, and so do you.

yummyPi



GO FUCK YOURSELF

N REASONS YOU SHOULD GO FUCK YOURSELF

I'm being held hostage and forced to write Go. I've documented my descent into insanity.

1. `gofmt` will auto-format the modulo operator to not have space around it. I.e. this: `if x % 2 == 0 {}` gets formatted into `if x%2 == 0 {}`.
2. `go`'s standard library doesn't have 32-bit floating point math. Only 64-bit floating point math is builtin (which is slower than 32-bit math), and the `math32` library just... converts 32 bit floats into 64 bit floats, and returns the result, casting back to a 32 bit float.
3. Iteration is by index by default: `for idx := range vals {}`, despite arguably being less common than iteration over values. Iteration over values however, now has this wart: `for _, val: range vals {}`.
4. `go`'s standard library doesn't have assertions because "They are undeniably convenient, but our experience has been that programmers use them as a crutch to avoid thinking about proper error handling and reporting." ...despite it being common to panic or halt program execution upon encountering an error.
5. To compile C bindings, the official method using `cgo` is to **include a C header in a comment above an import which auto-generates the bindings based on the header.**
6. You can't take a reference to a value in a map. (Despite being able to take a reference to anything else in the language). This also means you can't update fields of structs stored as the value of a map. (`x["foo"].bar = 12` is illegal).
7. Internal structs are poorly named (like `S` or `T` or `pp`, and no these aren't generic parameters.)
8. If you name the receiver (i.e. the `x` in `x.foo`) by a traditional name such as `this` or `self` by declaring `func (self *Type) foo (param string) ReturnType {}`, then `go` gets mad at you and tells you to use a more expressive name. However, most receiver names in the standard library are one letter long.
9. Arrays are formatted without commas by default: `[]int{1, 2, 3}` gets formatted as `[1 2 3]` for some reason. The common suggestion is to either write your own function or **serialize into json and call it a day.**
10. To double up on the last one, strings don't get quotes around them, so `[]string{"a b c", "def"}` gets formatted as `[a b c def]`.
11. The other *official* implementation of the `go` compiler, `gccgo`, built on top of `gcc`, doesn't support generics, **despite generics being introduced in 2018.**
12. Map iteration order is randomized each iteration. That's to say that despite the map in question not changing, the iteration order will be randomized. Mind you, this is assuming no mutation happened

to the map, and it's the same execution of the program.

13. You can't have generic type parameters on methods... only on freestanding functions. Why? 'Cause they couldn't figure out how it'd interact with the rest of the type system.
14. The `xor` operator (`a ^ b`) is not defined between `bools` (it's permitted between integers though).
15. Unused imports are hard errors, not warnings or lints.
16. Unused variables are hard errors, not warnings or lints.
17. Visibility modifiers in `Go` are controlled by the capitalization of the first letter in the name, so `foo` is private but `Foo` is public.
18. The best way to do SIMD in `Go` is to... write `C` which gets compiled into `GoASM` and then written into the binary by the `go` assembler.
19. All types are copyable by default; the only struct which isn't copyable is... `Mutex`. So, if you want your type to be non-copyable, just chuck a `Mutex` in it, even if you're not planning on doing multithreading.
20. The article the title of this article is referencing is now paywalled. So... `go fuckyourself`.

optimisticpeach

HOW I SPENT INTERNATIONAL WOMEN'S DAY 2024

1. I kissed a woman
2. I gave a bunch of single lonely men the finger after they jeered at us
- 2.5. I beauty slept
3. I put on a cool outfit
4. I had three servings of breakfast
5. I got paid from my job the same amount that a man gets
7. I did a word search (proving my literacy)
- 8.-2. I browsed the political agendas of each party because I have the right to vote which is pretty cool
- 8.-1. I went on a walk outside with my friend
8. I pet a cat
- 8.1. I played some dodgeball
10. I walked alone down a dark alley
11. I learned stuff from a postsecondary institution
12. I called my mom
13. I am reminding you that women in a lot of places still can't do anything on this list

profQUOTES

ARCH 364: JOHN STRAUBE

- “ This piece stops the glass from coming out. You know what they call it? A glass stop! And if you’re really in the know you can point it out to your non-architecture friends and go “that’s the stop”—you don’t even need to say glass.
- “ A leak is not a leak if your client never sees it, so if you can catch it and drain it back to the outside, whew! Not a problemo.
- “ There were companies that would hire summer students—not architecture students who would get meaningful co-op jobs! Maybe U of T students—to paint windows.
- “ How many people have been to the Davis Centre? [*like 2 people raise their hands*]
- “ Windows, like people, leak more as they get older.

PHIL 216: GREG ANDRES

- “ The rational thing to do, in about 10 minutes, is to die in a fiery crash.

CS 136: CAMERON MORLAND

- “ Baddies will steal all your data and make you poor and dead.

MATH 146: JASON BELL

- “ It’s like you’re on a road, and it’s raining, and you step on the gas and speed off the cliff, and your car explodes into flames, because you weren’t mathematically careful. You weren’t careful.

MATH 249: SOPHIE SPIRKL

- “ These pipes cannot cross, or else there will be water in your internet.
- “ We’re going to use the Jordan Curve Theorem, but not prove it. We’ll say that a proof exists and move on.
- “ This is not a celebratory balloon; this is a new low for proofs.
- “ I think you just proved that flat earthers don’t get Christmas gifts.
- “ Planar graphs are important because we need to get around North Carolina.
- “ Who here has been to North Carolina? Does it actually exist? My spouse was born there, but he could be lying.

- “ We have reached an important point in the term, which is the death of the first marker. Reading week seems like a good halfway point, but really, this is how we tell that time has passed.
- “ [*Trips on a misplaced chair*] I think in Canada you cannot sue them over this. So I need to be careful.
- “ I think I’ve freaked you all out sufficiently.
- “ This is not midterm-relevant. I’m just explaining where all of these horrors come from.
- “ We put the “fun” in fundamental cycle.
- “ This is bad advice for assignments, but on an exam, if you don’t know what to do: “we may assume”.

PMATH 365: RUXANDRA MORARU

- “ I’m not very good at vertical jumping.
- “ I’m wasting minutes—I’m wasting seconds here.

PMATH 352: NICO SPRONK

- “ We’ll use this weird trick... this one weird trick will clear your drains! Hah.
- “ Not a lot is going to survive this level of Armageddon here.
- “ I have some kind of personality flaw. I can’t write down a series if I don’t know it converges. I go “aaaaahhhh!”
- “ Any intelligent person would’ve found a sentence break by now, but yet again I fail.

- “ Here, I’ll just do a subroutine. Go to Morera’s theorem.
- “ Wait wait wait wait wait wait wait this is where I fucked up.

PMATH 370: BLAKE MADILL

- “ Steel construction manual? Don’t mind if I do.
- “ We didn’t take anything. It was a wholesome trespassing moment.
- “ I did some modest trespassing this weekend that I’m quite pleased about.

MATH 119: FLORIAN GIRELLI

- “ I’m glad you’re here today, showing your love for calculus.
- “ [*Student: “are we getting a curve?”*] Yes. [*Crowd goes wild*]

ECE 459: JEFF ZARNETT

- “ GPU is designed for “make video game picture”.
- “ float4s. Say that ten times fast.
- “ I don't think you should mine Bitcoin.
- “ I was writing—I regret to say that it was in the language Ruby.
- “ This is the logo for Hugging Face, which gets weirder the longer you stare at it.
- “ This is what is called “foreshadowing”.
- “ Because of course, floating point numbers are horrifying.

CS 489: MENG XU

- “ I just want to make sure that I am in the right classroom...
- “ If you're running late for the tax filing deadline, one way is to attack the CRA's servers. But don't tell them I told you to do that.
- “ [Points to student getting arrested by the RCMP] This is what happens when you don't watch the ethics lecture.
- “ “From now on, you live on your own, we don't care about you.” That's what the C standard says.
- “ There is a risk that, in the future, you won't need to take any lectures about memory safety.
- “ In theory, you shouldn't write code like this.
- “ This code is going to lead to—again, sorry—undefined behavior.

CO 353: KANSTANTSIN PASHKOVICH

- “ Before doing this, we need to remind ourselves of our love for CO 250.
- “ So then, let us increase the level of pain.

CS 479: JEFF ORCHARD

- “ So far I've done brain-dead algebra.
- “ I'm using subscripts because that's what the bozo who write this blog post did.

CS 492: MAURA GROSSMAN

- “ Disclaimer law is really interesting. I'm taking you skydiving, and I say, even if I'm negligent and a wing of my plane falls off and I push you out accidentally, I'm not responsible. That will hold up in court.

- “ If you ever get in trouble, spend money on a good lawyer.

STAT 341: JACK DAVIS

- “ This looks like a t-test, but doesn't quack like one. If you caught one and dissected it, it wouldn't be a t-test.

CS 341: ARMIN JAMSHIDPEY

- “ You guys wrote my words in mathNEWS.

UNPLAYED AND UNPERFORMED

FT. YALEVOYLIAN

A list of pieces cut short by COVID :(

- *Incantation and Dance* by John Barnes Chance
- *Brother Mister* by Christian McBride arr. Mike Kamuf
- *Second Suite* in F by Gustav Holst
- *Cubano Chant* by Ray Bryant arr. Victor Lopez
- *Chorale and Shaker Dance* by John Zdechlik
- *Ballet égyptien* by Alexandre Luigini
- *Ruckus* by Randall D. Standridge

terminal

CONCORDE



cutlet

A π TY

Another year, another π Day! March 14th marks my annual check-in with my favourite leaderboard on the Internet: y-cruncher.¹

y-cruncher is *the* software that everyone uses to compute interesting constants to ludicrous precision. In 2022, Emma Haruka Iwao's team at Google used it to compute π to 100 trillion digits.² The point of the stunt was not that Google needs 100 trillion digits of π (nobody does), but rather to show that Google Cloud's computers are *seriously fast*.

If you must know, the last ten digits of π up to the 100 trillion mark are 3095295560.

Checking in on the leaderboard, it seems that the record... still stands! No new digits of π have been announced since last π Day. However, a certain Jordan Ranous has been busy breaking other records. He and his team at StorageReview now hold the title to many of our favourite MC Stairwell constants:

- 35 trillion digits of e
- 20 trillion digits of $\sqrt{2}$
- 20 trillion digits of the golden ratio

as well as many other constants like $\ln 2$ that aren't on the stairway (yet).

So why not break the record for π ? Was it simply too many digits to beat? After all, Google's *seriously fast* computers still had to churn for over 157 days to get 100 trillion. But Jordan Ranous didn't think so, so his team put together a beast of a computer with

- 96 cores
- 1.5 TB of RAM
- 530.1 TB of SSD storage (the digits themselves will take 100 TB)

On February 9, 2023, they set it to compute 100 trillion digits of π using y-cruncher,³ just like Iwao did a year before. This computation was well underway by π Day 2023, when I reported Iwao's record in **mathNEWS**. And then, on April 10, the 59th day, it finished, beating Google by almost 100 days!

So why not break the record for π ? The frustrating answer is that they just didn't try to go any further. StorageReview would argue that the point was not to break the record, but to simply beat Google at their own benchmark—which, to be fair, they absolutely did. They achieved such a feat because the components they used were all connected locally instead of on the cloud. Then, they took an 80 TB AWS Snowball Edge and copied the digits onto it (compressed).⁴ It turns out, the fastest way to get that much data onto the Internet is via UPS shipping.

But, from a research perspective, it's a pity. You could say that Jordan Ranous has completed one of the most redundant computations in the history of computing, by going all the

way up to the world record, and not a single digit more. We still don't know what comes after 3095295560. It's not even true that they have validated Google's digits, because each record is already validated as it's computed.

Fortunately, there is some hope. In their video about the whole endeavour, StorageReview hints that they might try to go beyond 100 trillion in the future.⁵ However, 10 months later, we haven't heard anything. So if they are churning away at the next π record, it better be something huge.

Personally, I'd love to see 314,159,265,358,979.

water

1. <http://www.numberworld.org/y-cruncher/records.html>
2. <https://cloud.google.com/blog/products/compute/calculating-100-trillion-digits-of-pi-on-google-cloud/>
3. <https://www.storagereview.com/review/storage-review-calculated-100-trillion-digits-of-pi-in-54-days-besting-google-cloud>
4. <https://youtu.be/B1x9bbe58K8>
5. <https://youtu.be/dn1yrzEs400>

TOP N GEN ALPHA MEMES

#3 — SIGMA

Comparable to the gen alpha version of the millennial's gighachad; a timeless classic that never gets old.

#2 — FANUM TAX

Seemingly weird yet very practical and even relatable, as we all know that one person in the group who wants to eat other people's food (totally not me).

#1 — SKIBIDI

The best gen alpha meme, and it's not even close. A very versatile meme, especially in audio, which goes well in the background of YouTube Shorts, Instagram Reels, and TikTok. For example, the "hey hey hey skibidi no digas toilet" voiceline is not only deep and meaningful, but also works well in insane clips, especially on Fortnite. There are also many banger songs such as the Party Party remix, Skibidi Toilet by Lil Big Stack, and the background music of that one YouTube Shorts ad featuring Skibidi Toilet. Last but not least, it's a very fun word to say. As for the characters themselves, heads of "Skibidis" sticking out of toilets is a very intelligent, well-thought out, unique, and original character design. An overall top-tier meme that can be enjoyed even without watching the Skibidi Toilet series.

ohio from rizzler

7

MINGYU

“What do you think my name means?” Xue-Yan asks me as we walk through the MC-M3 bridge. Through the floor-to-ceiling windows, the snow falls gently outside. Everything feels quieter and slower right now.

“I’m not good with Chinese names, you know. And I don’t even know which tones your name uses.”

“I think it means, like, blood-salt,” she says. “*Xue*. Blood. *Yan*. Salt.”

“I’m sure that’s *not* what it means.”

“But wouldn’t it be cool? Blood-salt. Anyway, I think it’s fitting.”

“As in, blood-sweat-and-tears?”

“No,” says Xue-Yan, “like rubbing-salt-into-a-wound. Oh! Maybe that can be my writer name.”

I follow Xue-Yan as she descends down the M3 staircase. She grips the railing tight, looking especially delicate. We are heading to a **mathNEWS** production night, the first one happening this winter term.

“Do you think you’ll write an article?” she asks me.

“Don’t we have to? To get pizza.”

“Can’t we make, like, a game instead?” Xue-Yan says as we join the line at the doors of M3 1006. There are two students blocking the doorway, holding clipboards.

“Why’d we come to **mathNEWS** if you didn’t want to write an article?”

As the two students take down our names and emails, one of them says, “You can submit anything for **mathNEWS!**”

Xue-Yan turns to me. “You see? She said we can make a game!”

“Let’s not get ahead of ourselves.”

We walk down the wide stairs of the lecture hall. It’s immensely bright and drafty, no different than when I came here last term for MATH 137 quizzes. I gravitate to the far-left corner.

Xue-Yan places her ThinkPad X220 next to me and walks toward the front of the room, where a few people are typing up what seems to be an in-joke onto the projector. They must be the organizers. People are hollering near the middle of the room. Instantly I can tell that I don’t want to be here, but Xue-Yan seems to have started talking to someone, so I can’t leave.

Whatever. I’ll just sit here and chew on the ends of my hair, which is a habit I picked up once my hair got long enough, and which Xue-Yan always tells me not to do in public, but she’s not here now, is she? Someone jumps over two rows of desks, which is impressive, but results in so much shouting I feel like my ears will fall off.

“Mingyu.” Amidst all the voices, Xue-Yan’s voice emerges. I turn to see her standing next to a Chinese guy with glasses.

“Oh, hey!” he says. “You’re in my CS 146 class. I recognize that sticker with the green bell pepper on it,” He points to my laptop. “Is that one of those old sleeper ThinkPads that are kitted out with a new CPU and stuff?”

“Lots of people have green pepper stickers,” is the only thing that I manage to say.

Xue-Yan brushes the hair out of my mouth with a gentle flick. “Mingyu, nobody knows about the green pepper meme anymore. Anyway, the editors showed me how to submit things. You have to go over there and make a WordPress account.”

“I don’t want to do that,” I say.

“Wait, I need to ask for my password,” Xue-Yan says, and looks at me with a question on her face that I can’t read. Then she walks to the front of the room again, and I realize she was asking permission to leave me alone with this guy. I didn’t give it, but...

“By the way,” he says, and I know the question is coming. Oh, God, Xue-Yan, get back here. “Uh, what are your pronouns?”

My gaze is fixed on the green pepper sticker on my Thinkpad. I’m ripping that off as soon as I get home. “They/them.”

“Cool.”

It’s silent now. When did everyone stop yelling?

I climb up the stairs of the lecture hall, two steps at once. When I end up back at the first floor of M3, I notice it’s oddly dim, the snow outside reflecting a soft light through the glass walls. In the middle of this atrium stands the omnitruncated dodecaplex. Well, it’s a 3-D projection of the 4-D solid, made of plastic sticks. Big and messy, tangled and complex.

cy

I put this here just so I
could fill this column.

A TIRED mathNEWS EDITOR

8

XUE-YAN

As I'm walking up the stairs of the lecture hall and out of M3 1006, I get a clear view of everyone at this **mathNEWS** prod night, and it isn't too different from an average math lecture, and nobody is dressed particularly flashy, so I'm standing out in the Japanese sailor-style school uniform that Mingyu got me for Christmas, all navy blue wool-polyester with two white stripes on the sailor collar, and a red scarf tied into a bow.

When I make it back to the entrance hall of M3, Mingyu is sitting there, looking up at the omnitruncated dodecaplex hanging from the ceiling, and looking especially forlorn.

I sit down too, and Mingyu is like, "What about the pizza?" and I'm like, "It doesn't get here until, like, 9 PM anyway. We can go to Pizza Nova ourselves." And Mingyu says, "I'm sorry. I'll make a WordPress account next time so we can both stay for pizza."

I'm staring up at the omnitruncated dodecaplex now, deep into this web of plastic, and I'm overheating in my school uniform, and I'm thinking about how we can only ever look at this thing by the shape of its shadow, never really seeing its entirety, and Mingyu is like, "It's made of 14,160 sticks and 7,200 balls. And it's 35 kilograms." And I'm like, "But it looks so light," and Mingyu says, "Well, it's taller than me."

And I'm like, "You don't have to come to the next prod night if you don't want to," and Mingyu is like, "I want to. I know you think it's good for me."

And I wonder about how many students it took to build that omnitruncated dodecaplex, all working together, and I wonder if it was fun or mostly just annoying, and I can't imagine it. And I say, "Mingyu, if we finish our game by the end of this term, why don't we show it to **mathNEWS**?"

And Mingyu is like, "Hmm. Maybe."

cy

BEST STUDY PLACES ON AND AROUND CAMPUS

1. mc 5th floor colloquium room
2. now tea on lester street
3. tsjuri by icon
4. dp 9th floor
5. those random tables in dc (but they're always taken)
6. mc 6th floor tables

cherry ♡

N WAYS TO SURVIVE YOUR IMPENDING BOEING FLIGHT

You may have heard recently that Boeing is having some problems. Whether it's the door¹, wheels², flight path³, software⁴, or mysterious circumstances⁵, the recorded kills of Boeing's civilian division are fast approaching the defence division's.

What if you're scheduled to fly on one of Boeing's most dangerous creations since the F-18 Super Hornet? Here are some tips and tricks:

- **Wear a bunch of clothes:** Doesn't it suck to have to cram a bunch of sweaters into your luggage? Just wear all five of them instead! It saves space and will cushion the blow in the rare case that the door retaining bolts fail and you are sucked out of the plane at 25,000 feet.
- **Always be alert:** Modern plane travel is designed to be comfortable, but you should always be ready for anything, both in the sky and on the ground. You should occasionally be looking up in case an airplane wheel comes off and heads straight for your brain.
- **Complete your residency and become a Licentiate of the Medical Council of Canada:** This isn't related, but wouldn't it be cool to be the one to stand up when they say "is there a doctor on board?"
- **Sign up for Aeroplan:** Thanks to Air Canada, Aeroplan members can text their family for free before their plane is plunged into the ocean by faulty control software.
- **Enroll in TSA Precheck:** This can save you a bunch of time before boarding your flight.
- **Do not testify against Boeing in court:** I'm warning you.

UW Unprint

1. <https://www.nbcnews.com/news/us-news/justice-department-investigating-door-plug-blowout-alaska-airlines-flt-rcna142629>
2. <https://www.nbcbayarea.com/news/local/san-francisco/federal-probe-wheel-united-sfo/3476021/>
3. <https://globalnews.ca/news/10351147/boeing-dreamliner-strong-movement/>
4. <https://www.seattletimes.com/seattle-news/times-watchdog/the-inside-story-of-mcas-how-boeings-737-max-system-gained-power-and-lost-safeguards/>
5. <https://www.bbc.com/news/business-68534703>

RANKING THE FIRST-YEAR ADVANCED MATH COURSES

I'M NEVER "CHALLENGING MYSELF" AGAIN

We're now a month and a little bit away from finals. Two grueling semesters have passed in which I have learned much and been very academically disciplined I promise haha (help). Anyway, I now feel qualified enough to rank the MATH 14X courses in terms of how much I enjoyed them and how cool I thought they were. I took MATH 145 and 146 with Professor Jason Bell, and 147 and 148 with Professor Henry Shum.

Starting at the bottom, we have MATH 148 in 4th place. Nothing against my professor, but I can't learn to like this course. The proofs are unsatisfying and unintuitive to me. It's more of the same style from 147 where you chain inequalities for pages, and I'm having trouble having fun with the epsilon and bounding. Integration techniques also are not interesting to me at all. Though, we've started series recently and this is something I'm a bit more interested in. This is the class I skip the most, and I find it difficult to motivate myself to get out of bed or work on this course at all and it just generally makes me feel quite bad. Hopefully, 247 changes my mind about analysis as people keep telling me it gets much cooler and more interesting, so I'm excited to take that. But, for now, 148 takes the bottom rank.

I had similar issues with MATH 147 in that I didn't enjoy the feel of the proofs, but some of the concepts were cooler in my opinion. I liked continuity, limits, convergence, and sequence stuff in general. Derivatives and approximations were less interesting but not awful. Overall, I'd say I probably enjoyed this course, though it was weaker than the algebra courses. I hope to see some cooler characterizations of some of the things in this course in 247/351.

Quick aside: again, nothing against Professor Shum; he's very nice and super helpful. I have friends who preferred the calculus courses. I just think I prefer algebra.

In second place, I'd put MATH 145. In this course, we covered rings, groups, elementary number theory, complex numbers, and finite fields. I loved this course, and it was the highlight of my 1A. This course changed the way I think about math. The abstractions were so amazing and the ways of thinking and structures people came up with were so impressive and beautiful. I had so much fun working on this course and it was so different from any math I'd done before. After taking 145, my decision to pursue pure math instead of physics was solidified. Working with rings was so cool to me because I had suddenly cast aside "facts of math" that were true to me before, just because they were. This opened up the possibility of such powerful and unfamiliar results. I had a similar experience with the units on groups and finite fields, but rings remain my favorite. The elementary number theory portion was probably my least favorite, though some results were still neat. A very well-taught course and one that changed my way of thinking entirely.

In first place, we have MATH 146. Rings, groups, and fields make a reappearance. We begin talking about and viewing

structures through morphisms. Vector spaces behave so nicely and things are just intuitive and cool. This is my favorite course hands down. Linear transformations and their analogs in matrices are so interesting, and I'm just having a blast with this course. Being able to prove things about a matrix by proving things about its corresponding transformation or vice-versa is so cool. Working in the ring of $n \times n$ matrices and seeing the identical results in the endomorphism ring on \mathbb{F}^n . It's just so nice, I feel like I always know what to try. Definitely my favorite course.

I know some high schoolers read this (go outside), so I wanna say I absolutely recommend trying the advanced courses. To put it in context, I'd rank MATH 148 above all my other non-math courses, barring CS 135. I've had a blast and I feel that I've gained considerable mathematical maturity. As grueling as this semester has been, and as much as I keep having days where I don't leave bed, I'm happy I'm studying math, and I'm excited for what's to come. STUDY MATH !!!! <3

sunrise parabellum

SHOULD MISSISSAUGA BE NUKED?

Should Mississauga be nuked? Lets take a moment to look at the pros and cons.

PROS

- The 30 GO bus wouldn't have to stop at Syntex Crt. @ Financial Dr. or Mississauga Rd. @ Royal Bank Dr. anymore, since both of those stops would be an irradiated crater [Editor's Note: 30A does this!]

CONS

- Eight hundred thousand innocent lives lost
- Millions more afflicted by the cancerous fallout over generations to come
- Radioactive debris contaminating the ground water
- Invisible poisonous clouds riding on the winds across the continent
- Entire populations of flora, fauna, and animalia wiped out
- So many families destroyed, so many fathers with no sons, mothers with no daughters

VERDICT

It would not be worth it to nuke Mississauga.

BRAIN CYLINDER

THREE CURIOUS SOCKETS ARE SET IN AN ISOSCELES TRIANGLE OVER THE FRONT CONVEX SURFACE. AMONG THE BOTTOM SOCKETS, ONE DENOTES "STANDBY", THE OTHER DENOTES "SALES"

[22:11:52] My friend has vanished without a trace, and I'm determined to uncover the truth behind his disappearance. His last known whereabouts were in MC. I remember him mentioning a secret underground location in passing, where he went touching grass sometimes.

[23:04:33] Navigating through the complex service tunnel system beneath MC was no easy feat. Along the way, I encountered swarms of rats scurrying in the darkness. They could be descendants of the Tim Hortons family.

[00:47:19] After what felt like hours of wandering through the labyrinthine tunnels, I finally stumbled upon the doorway my friend had described. Stepping through, I found myself in a brightly lit room (with grass!), with a single tunnel leading somewhere deeper.

[00:52:24] As I ventured further into the depths, the light was abruptly extinguished behind me, and the walls seemed to shift and fold, reshaping the space around me. Ahead, a room materialized, its centerpiece a terminal displaying a gridWORD challenge. I am being watched and tested.

[01:06:23] With a sense of familiarity, I swiftly solved the gridWORD. It was from issue **■**, and the answers came to me almost instinctively. But my triumph was short-lived as the room began to move, shifting like a container being transported. A tunnel appeared, leading to an even larger space beyond.

[SYSTEM_ERROR] Entering Great White Space, The ...

[SYSTEM_ERROR] Leaving through the tunnel, I found myself on the surface—but it was like no place I'd ever seen. The sky above was a dark, swirling purple, with countless eyes staring down at me. Before me stood a pyramid-shaped structure made of an unfamiliar material, adorned with monitors and screens pulsating with an otherworldly energy.

[SYSTEM_ERROR] Fear gripped me as I realized the gravity of my situation. Whatever this place was, it was beyond my comprehension, beyond anything I had ever encountered. I felt a primal urge to flee, to escape the gaze of those malevolent eyes watching from above.

[SYSTEM_ERROR] But before I could make a move, a grotesque creature emerged from the screens, its form shifting and undulating in ways that defied logic. Countless eyes fixated on me, and before I could react, I was ensnared by a multitude of tentacles, dragging me inexorably towards the pulsating screens.

[SYSTEM_ERROR] A surge of energy engulfed me, and I was pulled into the monitor, consumed by the darkness that lay beyond. As I write these final words, I can feel the whispers of madness closing in around me, threatening to swallow me whole. I must find a way out, before it's too late...

[SEGMENTATION_FAULT] The exception unknown software exception (0xe0434352) occurred in the application at location 0x00007FFAAC4F4C48. (core dumped)

eralogos

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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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HOW TO LOBOTOMIZE CYPRESS.JS

BECAUSE YOU WANT IT TO SHUT UP

In the spirit of the other article *Go Fuck Yourself* this issue, I would like to share a story of how I've had to hacksaw Cypress, my company's testing framework of choice for testing web applications.

If you aren't aware, Cypress.js is a framework to "easily create tests" (I'll give them that—its easy), "visually debug tests" (and notice that Cypress is performing actions before your website finishes loading in), and "eliminate flaky tests" (only if you use their trademark Cloud services though (SAAS amirite)).

Anyways, I would like to talk about Cypress's UI interface, which displays a log of all the assertions, actions, page loads, background requests and so on. However, I've been finding that it spams up really *really* **really** fast.

You see, Cypress currently does not support disabling logging for passing assertions (only actions, look it up). This is an important feature because I need to use them to make sure that my page finished loading. Cypress is supposed to wait for the page to load, BUT we have async requests that finish up later, so Cypress ends up being trigger-happy. However, I don't want my logs to fill up with messages about how Cypress is ready to go.

So, given the following:

1. Someone on the internet solved a similar problem, hiding logging for XHR requests. The way they did that is to **INJECT STYLING JAVASCRIPT** into Cypress's config file that tells it to `{display: none}` any log that has a certain class name that matches a XHR request's class.
2. Now, Cypress has exposed an API to directly log items `Cypress.log`: this takes in a JSON object with a `name` parameter, which seems to generate the corresponding class. For example, giving `{name: hideNext}` gives the class `.command-name-hideNext`.
3. I would like to introduce you to the CSS `+` selector, which when written like `x + y`, selects an element matching `y` that is the NEXT sibling to `x`.
4. Cypress assertions also have the class name `.command-name-assert`. If it passes, it contains an element with `.command-state-passing`.

We can do:

1. Create a function that wraps around a singular assertion. Essentially, before we run the assertion, we call `Cypress.log({name: hideNextAssertionIfPassing})`; to inject an extra message to the log.
2. Inject these two CSS stylings as JavaScript code:

```
.command-name-hideNextAssertionIfPassing +_
↳ .command-name-assert:has(.command-state-
↳passing) {display: none}
command-name-hideNextAssertionIfPassin_
↳{display: none}
```

3. This messes up the numbering of Cypress' logs, but it hides logs as expected.

This is a valid solution.

Injecting style overrides and lobotomizing Cypress so that it is physically unable to display logs that follow a specific flag is the best way I can think of to get Cypress.js to shut up.

And believe me, I've tried alternatives. There is no inherent built-in way to disable logging for these assertions. I've tried using two flags to block out a range, but CSS selectors alone aren't powerful enough, and engineering a solution would probably degrade performance even more.

why have I done this

why does it work. WHY DOES IT WORK.

Anyways, my suffering seems to be dwarfed by fellow author OptimisticPeach, who as a #rustacean, detailed the pain and suffering of getting rug-pulled and forced to write *Go*. You should *Go* watch him suffer, weep, and then go rewrite everything in Rust or something idk I'm just a silly JS developer

andoiii

BRIBERY

Last term, I was a tutor, so I had access to the solutions for all the assignments for many math courses. I can't say I never thought to myself: "what if I just posted these online?" Obviously, I never did this, but I did think it. How much money would someone have to pay for me to share these? How much would someone have to offer for the professors of the course to tell me I'm dumb if I didn't accept the offer? Surely, \$100 wouldn't be enough, since that is, like, not a lot of money, and surely, uh... Let's say \$1,000,000,000 would be enough. That is probably enough for me to not have to do anything for the rest of my life, and I could pay any professors involved for the troubles I caused. I'm sure that I could make that number smaller but I don't really want to right now. If there are any professors reading this, let me know how much you would expect me to pay you for leaking your assignment solutions, assuming I got paid one billion dollars for doing it.

easty

AN “EMPTY” COMPLAINT

I am appalled by the way my math classes have mishandled the empty set. Course after course, my professors have treated it as a strange edge case to be shunned, rather than a legitimate but simple example. PMATH 351 considers only nonempty metric spaces; PMATH 365 only nonempty k -manifolds; PMATH 247 (Winter 2023) only nonempty function domains. And almost never do these assumptions do *anything* to simplify the relevant theorems or their proofs.

How are students supposed to learn to work with the empty set if their teachers avoid the subject?

There’s a widespread myth that the empty set makes things messier, requiring an extra case in every proof. This is wrong. The standard rules for proving or using a $\forall x \in X$ or $\exists x \in X$ statement *do not care* whether X is empty. You want to show something for all $x \in X$, so you work with an arbitrary x ? Perfectly fine, *even if X is empty*.

On the contrary, banning the empty set can cause a lot of subtle problems. Want every subset of a metric space to be a metric space, or every level set of a function with nonzero gradient to be a manifold? Better allow the empty set!

The *only* time you need nonemptiness is when you, out of nowhere, invent an arbitrary element of your space. Such as in Banach’s fixed point theorem, where you show a function $f : X \rightarrow X$ has a fixed point by picking an arbitrary x and considering the limit of $x, f(x), f(f(x)), f(f(f(x))), \dots$. But this is a fairly rare move; most proofs don’t need to do this.

Please don’t take from my article that every structure should allow the empty set. It isn’t a group, ring, or vector space. But ironically, this is *because* of emptiness! We want to be able to sum any finite number of vectors, so in particular, we should be able to sum the *empty* collection of vectors, thereby producing the zero vector from nothing.

And to be fair, sometimes weird things do happen. The empty set is unique in that it’s a manifold of every dimension, though I’m not convinced this is the problem my professor thinks it is. And whether the empty space should be connected is the same sort of question as whether 1 should be prime.

But I entreat you to pay attention; to *notice* when requiring nonemptiness is doing more harm than good.

Thank you.



If the empty set is still too weird for you, here are a few exercises to get used to it.

- For an arbitrary proposition P , prove $\forall x \in \emptyset, P(x)$, and disprove $\exists x \in \emptyset, P(x)$.
- Why is $X \neq \emptyset$ equivalent to $\exists x \in X, \mathbf{True}$?

- How many functions are there from $\{1, 2, 3\}$ to \emptyset ? From \emptyset to $\{1, 2, 3\}$? From \emptyset to itself?
- Find a place where one of your teachers has assumed a set is nonempty, when it doesn’t need to be.

finegeometer

DC BYTES



THU NOV 09 2023, 3:28:00 PM | APPLE IPHONE 13
ULTRA WIDE 13MM F/2.4 | 13MM | F/2.4 | 1/60 S | ISO 1250

floatingtiger



N MATHSOC COUNCIL THOUGHTS

IN REVERSE ALPHABETICAL ORDER FOR YOUR READING PLEASURE

- wow why are people pulling out entire speeches on their ipads? font size is super small too
- wow it sounds like the vpa's meeting with cee really went off the tracks, ceca moment ig
- wow confidential session cool! time to leave the room for 5 minutes during the session!
- why is this 2 hours? why don't they just play the meeting at 2x speed? are they stupid?
- why is the session *in camera*? i thought the session was in in the mathematics and computer
- why does everyone have a conflict of interest? ah this is about club funding and elections
- TWO pending disqualifications? ONE disqualification already done? THREE EC members sick?
- this would be a better decision-making process if disputes were settled by rock/paper/scissors
- they're asking if someone is present? why are they trying to give someone a present?
- these mathsoc budget proposals and motions are far more contentious than i thought, i see
- the scheduled time ends at 8, but someone is moving adjournment time to 9:30? epic
- the council makeup looks like what i see in a typical math lecture. i guess that's good?
- someone just knocked on the door real loud and everyone turned to look at him, interesting
- several people look outside, incredibly puzzled (they have never heard of wind before)
- pizzas ranked 1. pepperoni 2. hawaiian 3. six cheese 4. cheese 5. four meat 6. none pizza
- oh look, mathsoc uses modified robert's rules. does anyone ever use the rules unmodified?
- ntsb: boeing is withholding key details about door plug on alaskan airlines 737 max 9 jet
- me when i have to hear about proposal 4.2.0 with that function there to update policy 6.9
- maybe this entire poster debacle was funded by big paper so candidates will use more paper
- mathsoc has a chair? what's next? a table? a sofa? a dishwasher? can i be mathsoc door?
- mathsoc credit card??? what if engineers steal that instead of the tie or log next time
- many motions? everyone here should look into taking a good physics course (not phys 121)
- man, i've heard more fancy words today than in the entire year of twenty twenty-three
- it starts with a land acknowledgement— sounds less dead than official ones at uw events
- it seems to me that it would be more efficient to have confidential sessions only at the end
- it seems like voting members of council receive coloured (pink) papers that say VOTE, hmm
- i've been told there's pizza at the very end, but i'm not sure if i was getting trolled
- i would say to avoid speaking. avoid speaking. avoid speaking. avoid speaking. (echo sfx)
- i did not expect this much poster/printer discourse. what happened to the trusty photostat?
- huh, this seems more serious when they pull out the timer to start timing speaking lengths
- huh, apparently mathsoc receives student fees in two tranches. not the most interesting
- huh, apparently direct messages on discord doesn't count as an official report. makes sense
- damn have these fine people heard of "ignorantia juris non excusat" (ignorance excuses not)
- canned food? more like canned jokes ahahahahahahahahahaha
- besides mathsoc, the university of waterloo board of governors agenda/minutes are also fun
- apparently there's an entire courtyard on mc fifth floor. it's locked but has glass walls
- apparently there are two types of secret sessions (policy shoutout), *in camera* and confidential
- apparently half of the vpa's job is holding midterm reviews. that's cool you should go
- according to all known laws of aviation, there is no way a bee should be able to fly
- a "confidential" session sounds cool, but is it confidential if people know about it?
- "we will be changing policy because of this election because of the absolute disrespect"
- "to be honest i never read the message i liked" imagine not reading messages before liking
- "that was all posted on reddit. bobby reddit bobby reddit. you can check that right now"
- "lying to, or intentionally misleading the ec or its agents" does the ec really have agents?
- "i'm fine" "are you" "this computer just doesn't scroll" student politics ages your brain
- "i hope nobody else has to deal with a mathsoc election like this ever, ever, ever again"
- "i assume you all still know who i am." someone said this but idk who they are at all
- "for the website, i don't know what's happening" oh great it's not like people check it
- "as you may or may not be aware, this was certainly one of the many elections of all time"

firstie

VIBE CHECK

On a scale of League of Legends to 10, how has your day been going so far? :)

bit.ly/3C32Y09

warrior1rules

PLANT OPERATIONS BUILDING NUMBERS

I did an oopsie ☹️

In my previous article (see **mathNEWS** 154.4, p. 21) I incorrectly claimed that Plant Operations' numbering scheme for the buildings started at 7, with Biology 1. This is, in fact, incorrect. To make up for my mistake, I have decided to list out every building identified, lest anyone repeat this fatal error. Think of it like a really long and boring N Things article... though you can make it less boring if you take a shot for every building you haven't been to!

1. DWE—Douglas Wright Engineering Building
2. E2—Engineering 2
3. E3—Engineering 3
4. PHY—Physics
5. ML—Modern Languages
6. ESC—Earth Sciences & Chemistry 1
7. B1—Biology 1
8. LIB—Dana Porter Arts Library
9. AL—Arts Lecture Hall
10. EV1—Environment 1
11. RCH—J.R. Couatts Engineering Lecture Hall
12. CSB—Central Services Building
13. B2—Biology 2
14. GSC—General Services Complex
15. COM—Commissary
16. SCH—South Campus Hall
17. MC—Mathematics & Computer Building
18. PAC—Physical Activities Complex
19. SLC—Student Life Centre
20. VI—Student Village 1
21. TH—Tutors' Houses
22. HS—Health Services
23. MHR—Minota Hagey Residence
24. HH—J.G. Hagey Hall of the Humanities
25. REV—Ron Eydtt Village
26. UWP—University of Waterloo Place
27. UC—University Club
28. C2—Chemistry 2
29. CPH—Carl A. Pollock Hall
30. PAS—Psychology, Anthropology, & Sociology
31. NH—Ira G. Needles Hall
32. BMH—Burton C. Matthews Hall
33. OPT—Optometry
34. EV2—Environment 2
35. FED—Federation Hall
36. ECH—East Campus Hall
37. DC—William G. Davis Computer Research Centre
38. *[none] Perhaps reserved for the Davis Centre's southern section* CIM—Centre for Integrated Manufacturing
39. EIT—Centre for Environmental and Information Technology
40. BAU—Bauer Warehouse
41. COG—Columbia Greenhouses
42. CIF—Columbia Icefield
43. CLV—Columbia Lake Village
44. MKV—William Lyon Mackenzie King Village

45. TC—William M. Tatham Centre for Co-operative and Experiential Education
46. *[none]*
47. ARC—School of Architecture
48. ERC—Energy Research Centre
49. PHR—Pharmacy
50. QNC—Mike & Ophelia Lazaridis Quantum-Nano Centre
51. RAC—Research Advancement Centre
52. IHB—Integrated Health Building
53. E5—Engineering 5
54. STC—Science Teaching Complex
55. DMS—Digital Media Stratford
56. M3—Mathematics 3
57. EV3—Environment 3
58. RA2—Research Advancement Centre 2
59. *[none] Perhaps reserved for RA3—Research Advancement Centre 3*
60. E6—Engineering 6
61. TJB—Toby Jenkins Applied Health Research Building
62. EC1—East Campus 1
63. EC2—East Campus 2
64. EC3—East Campus 3
65. EC4—East Campus 4
66. EC5—East Campus 5
67. E7—Engineering 7
68. CMH—Claudette Millar Hall
69. *[none] As per my last article, hopefully reserved for M4—Mathematics 4*
70. *[none] Perhaps reserved for E8—Engineering 8*
71. *[none] Perhaps reserved for E9—Engineering 9*
72. AVR—Autonomous Vehicle Research and Intelligence Lab (AVRIL) *[Also known as E10—Engineering 10]*

There are also some nonspecific “buildings” with numbers:

85. TUN—Service Tunnels
87. GST—Ground Storage Building V2
90. MV—Mechanical Vault
93. POV—Pedestrian Overpass
94. PD/PT—Pedestrian Tunnels

Now things begin to get funky...

104. GH—Graduate House
112. BRH—Brubacher House
132. GA—335 Gage Avenue
139. ???—Victoria Street Warehouse
140. AAR—Architecture Annex Rome
144. ACW—Accelerator Centre Waterloo
145. WF—Warrior Field
150. HSC—Huntsville Summit Centre
151. UAE—United Arab Emirates Dubai
152. WSS—6 Wellington Street, Stratford
153. BSC—Bright Starts Co-operative Early Learning Centre

- 159. GSK—44 Gaukel Street, Kitchener
- 161. MWS—Manulife Water Street
- 166. STM—Shelburne Terrace, Gaithersburg, Maryland
- 167. LHI—Lyle S. Hallman Institute for Health Promotion
- 300. STJ—St. Jerome’s University
- 320. REN—Renison University College
- 330. UTD—United College
- 340. CGR—Conrad Grebel University College

Some buildings without numbers:

- AB—Aberfoyle Building
- CIG—Centre for International Governance & Innovation
- DB—Dearborn Pumphouse
- EV—Electrical Vault—*probably nonspecific like*
- MV—Mechanical Vault
- EXP—Health Expansion
- FRF—Fire Research Facility
- KGC—Kitchener Waterloo Garden Club
- TEN—Tennis Courts
- UWD—University of Waterloo Daycare
- VG—Velocity Garage
- VSS—Victoria Street South

[Note to editors: I wrote this article in a Google Doc as usual but then had to completely reformat it when copy-pasting; hopefully, it doesn't cause any further pain] [Editor's note: It did 🤖]

Whole Number Haver

Some thanks to anthony and sqrt(cause)!

FINALLY

i've finished the show,
 the plot's unfurled,
 and what do you know,
 i was the girl,
 and i don't mean *was* was,
 but my mind just chose
 to see through her eyes
 and smell through her nose
 no fear, no doubt,
 her smile, her pout,
 no worry, no shame,
 all but her name,
 because i'm not her,
 and she's not me,
 but i don't need to try
 in order to see,
 after years not believing,
 a girl is me.

yet another waterloo goose

N COMPLAINTS ABOUT WINDOWS, IN THE FORM OF TEXT MESSAGES TO WATER

WE MAY NOT MIX BUT AT LEAST WE CAN AGREE MICROSOFT SUCKS

did you know that if you accidentally three finger swipe down on windows, causing you to minimize all windows, then three finger up swipe to restore all your windows, you will crash visual studio?



turns out vs has two concurrency settings: one for max # of concurrent msvc instances, and one for max # of parallel project builds

for some reason the default for the former is infinity and the default for the latter is 20

Is it just me or should both of those limits be 1



hey, did you know opening visual studio can crash not just explorer, but outlook too?

Lmao did you know that outlook relies on the same search index as explorer and breaks if you disable search indexing

that's horrible



did you know that a windows process can just flat out refuse to die

oil

Bonus Mac slander:

Naman and I were talking, we were kind of perplexed since they mentioned you're a mac user

lol

I need to work with CUDA and that kind of doesn't work with macs

← water replied to you

I need to work with CUDA and that kind of doesn't work with macs

omg this is the main thing that bothers me

HORRORS IN RCH

There is a ghost in Cheese Club.

I feel a cold breeze in the air. An echo travels down the hallway, bouncing off the concrete walls of RCH's basement and it sounds faintly like the sobbing of CS students after a brutal midterm.

Through the dark, a deep voice bellows and it makes me jump. "WHO DID THAT?"

"It was Daniel!" Someone accuses.

"It was *not*," someone else, presumably Daniel, responds.

I can't pinpoint where each voice comes from. The darkness is thick, and the lingering stench of a hundred students who haven't showered only increases the feeling of claustrophobia. I swallow my fear since, after all, the lights turning off is always because someone is messing around. Right?

I clutch my paper plate of cheese tightly. This Cranberry White Stilton is *mine*, and I'm not letting anyone sneak cheese off my plate in the dark.

Thankfully, one of the execs, Anna, turns the light back on.

"That's so weird. There's no one near any of the light switches," a voice says from behind me, and I startle again. I swivel my chair around. "Who do you think did it?"

I recognize this girl, but I don't remember her name. She smiles at me, looking like she expects a genuine response.

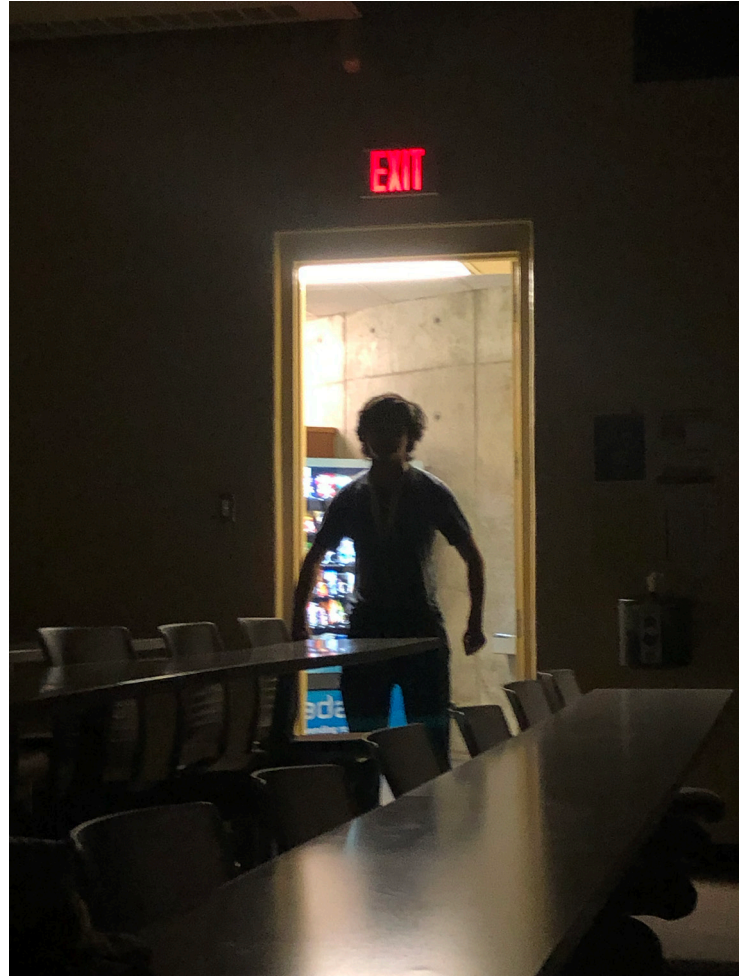
"Uhm, I don't know." I turn around to take a look at everyone else in the room. "Maybe it was Daniel? He's usually the one doing it anyways, but —"

When I turn back to face her, she's gone.

Then the lights cut off again. This time, it's sharp and sudden with a flicker of warning. A chorus of groans echo throughout the room, and within it, someone yells, "It's a ghost!"

I feel my panic rising up again. I *hate* the dark.

Loud steps echo from outside the hallway. Someone is coming. No one besides me is paying attention to the doorway just as a silhouette steps up. His figure is imposing, and I swallow a scream when he raises his arm.



Their fingers slowly fumble and claw around the edges of the doorway, bending backwards in an unnatural position like a demon trying to come through a portal. They press a switch, and the lights flick back on again. Oh. It's just Andrew, the guy who always takes an unfair amount when seconds are served. That explains why those fingers seemed a little familiar, and very, very evil.

"Nah, I don't think it's him." She's back again, and she's clearly trying to give me a heart attack. "He's clearly stuck in the middle of a row. Besides, look."

I watch as she gets out of her seat and walks casually as if to leave for the bathroom, except she turns around. She looks me directly in the eyes and presses the light switch. The room fades to darkness, and even though she has disappeared, I swear I can see her grin through the shadows.

LEGENDS of LACTOSE

This blackBOX was here all along, I swear.

A mathNEWS EDITOR WITH NOTHING TO HIDE

N PHRASES TO PUT IN YOUR PROOFS WHEN THEY AREN'T RIGOROUS ENOUGH

GUARANTEED TO BE 420% EFFECTIVE 69% OF THE TIME

- Obviously...
- Clearly...
- Certainly...
- Trivially...
- Easily...
- Notice that...
- By inspection...
- It is plain to see that...
- It is manifest that...
- It is known that...
- Intuitively...
- By a well-known result published in 1724 by Pierre Louis Moreau de Maupertuis...
- By checking cases for every positive integer...
- By a Math Stack Exchange result, I found...
- By a remark that Stephen New made during a lecture once...
- After a moment's consideration, one finds it to be self-evident that...
- By staring at the problem for a sufficiently long time, one is bound to realize that...
- While asleep, I had an unusual experience. There was a red screen formed by flowing blood, as it were. I was observing it. Suddenly a hand began to write on the screen. I became all attention. That hand wrote a number of mathematical proofs, which by sheer coincidence are the very same we are being asked to compute. They stuck to my mind. As soon as I woke up, I committed them to writing. Therefore, a proof exists.

yalevoylian

IT'S SO JOEVER

it's time bois. we've reached that point in the term again. the point where it all starts turning to shit. i thought this phenomenon was only restricted to study terms but i guess not. i am in my work term and i am feeling the big joever. maybe it's the nature of my job (ISA, midterms, students in pain). maybe it's my friends on study term (midterms, sickness, increased depression) affecting me wirelessly. idk what it is but it just feels very joever. not as much as last term, but definitely comparable to other study terms. i don't know what can be done here. is this actually how it's always gonna be? :(

N REASONS I HATE BEING INVOLUNTARILY COMMITTED

THIS IS A CRY FOR HELP

1. the screaming oh man the screaming why are the people who need them the least the only ones blessed with superhuman vocal cords
2. i am so close to the bed next to me i could literally just flop onto it with enough momentum
3. it took me 24 hours to acquire a pillow
4. aaaaaaaaaaaaaaaaa
5. there are scheduled break privileges
6. im just not allowed to have possessions?? or do anything??? literally 1984
7. there are scheduled water drinking times and i'm thirsty
8. aaaaaAaaaaAAAH
9. bored
10. somehow the bathroom is worse than vl's also someone needs to invest in working lights
11. did i mention im bored
12. gonna have to hand in my homework written in crayon or something
13. still bored
14. the staff can be really violent for seemingly no reason also they should let me out please please please
15. i've read a magazine about dogs 4 times now ask for dog fun facts
16. i'd rather eat airplane food

relatively sane

N REASONS YOU SHOULDN'T WRITE AN ARTICLE ON A BUS

- it's bumpy
- looking down on your phone can make you nauseous
- you're missing the view
- you're wasting precious daydreaming time
- it can get very loud
- you're not catching up on the readings for your class
- you can't pay attention to a perfectly crafted playlist you made specifically for riding the bus

leah

THIS FORTNIGHT'S THEOREM

THEOREM

Mathematics is useful.

PROOF

Hypothesis 1. Every joke contains an element of truth. In fact, as Figure 1 shows, there is a strong, positive correlation between the amount of humour (in millichuckles) in a joke and the amount of truth (in number of pants *not* on fire) in it.

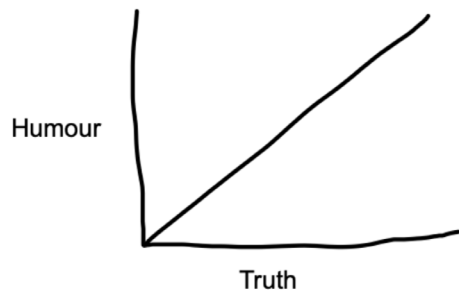


FIG 1. Humour vs Truth

The margin of this paper is too small to contain my proof of this hypothesis; however, no one would reasonably gainsay George Bernard Shaw, who said, “My way of joking is to tell the truth. It’s the funniest joke in the world.”

Hypothesis 2. Humour is a good way to tell someone the truth—and here’s the important part—*without them killing you.*

The proof of this hypothesis rests on two solid planks:

1. Counterexample: Julius Caesar¹ told Brutus that he (Caesar) was going to hang onto his (Caesar’s) dictatorship and, by the way, his (Brutus’s) mother dressed him (Brutus) funny. Caesar did not say this humourously, resulting in one of the very few occasions when the expression “Great play, Shakespeare” could be used both seriously and sarcastically at the same time.
2. Anecdotal evidence from great minds:

Comedy is simply a funny way of being serious.

PETER USTINOV

If you want to tell people the truth, make them laugh, otherwise they’ll kill you.

GEORGE BERNARD SHAW, OR POSSIBLY OSCAR WILDE, OR MAYBE
MUHAMMAD ALI...? LOOK, SOMEONE SAID IT.

Hypothesis 3. Mathematics may be a little elastic with reality sometimes,² but it is always completely truthful, and I defy anyone to prove otherwise (Pistols for Two, Breakfast for One). Since the funniest jokes are completely truthful and math is

completely truthful, then math and humour are isomorphic. That is to say, math is funny. (For a supporting example, note that **mathNEWS** is both mathematical and funny.)

Hypothesis 4. Since math is funny, it is a good way to tell the truth *without getting killed*, which, as Yeatman and Sellar (look ‘em up; funny) would say, is a *good thing*, or at least useful.

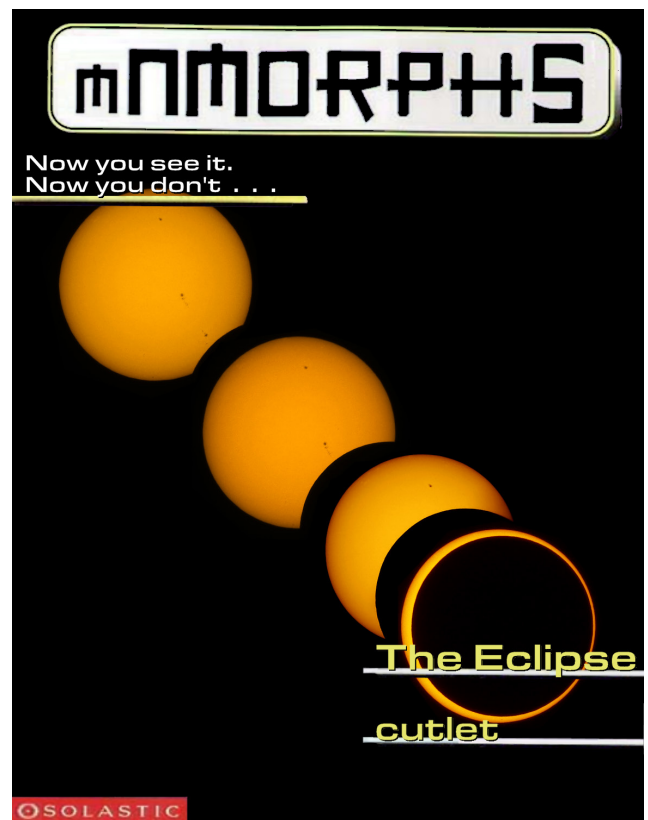
Therefore, mathematics is useful. Q.E.D. ■

It is left as an exercise to the reader to:

1. Prove that mathematics is useful. *Hint: refer to John Keat’s Ode of a Grecian Urn (about $\$5/h^3$).*
2. Use the result from part (1) to determine the amount of humour and, consequently, the amount of truth, required to launch one ship. *Hint: first convert milliHelens (mHn) to millichuckles.*

Senex

1. It was amusing that Julius Caesar was follicly challenged because, in Latin, “Caesar” means *possessing a good head of hair*.
2. See the Banach-Tarski paradox.
3. As a corollary, note that, when a pun is not true, it is not funny, *no matter how clever it may be*. For instance, it is not true that, after coming to an agreement with his opponents in a steam bath, Caesar said “I came; I sauna-ed; I concurred.” Therefore, by definition, this pun is not funny; however, the reader will be excused for snickering.



SOME MUSICS I HAVE THOUGHTS ON

THAT I AM CURRENTLY IN THE PROCESS OF WRINGING ALL THE DOPAMINE OUT OF

So this was just supposed to be a quick article to fill space but now there's a somewhat continuous story (of my life). Enjoy!

LITTLE MISS PERFECT (FEAT. JORIAH KWAMÉ & TAYLOR LOUDMAN) BY WRITE OUT LOUD

Okay so this one is technically cheating, since I wrung all the dopamine out of it about a year and a half or so ago, but it's important context, TRUST. Very good song, very much relatable, made me feel seen in the very surface-level must appear to be perfect back then, and also the song that changed my thinking from, "I'm cishet and just really extra about my allyship," to "I'm cishet but it's normal to think girls are really pretty too." Despite misunderstanding why this "perfectionism" song was especially relatable at the time, I still enjoyed it very much as a song back then. I can also confidently say after re-listening to it that it still holds up and is still a very good song.

SEROTONIN BY GIRL IN RED

Pure, straight-up vibes. Good song for when you want some depression catharsis... Or I guess if you're just like overly excited and happy and need to calm down a little bit. I do really like this song, and it would definitely fit well in some slower more (for lack of a better term) *deep thoughts* playlists. Captures the feeling of having no energy and no motivation very well. It doesn't exactly help to change that feeling, but... sometimes you just need a song that feels like it understands, if you don't feel like you can share with a real person. I don't think I'm explaining this very well... but it's my article and it's not reporting on **realNEWS** so I guess it doesn't actually matter if this is comprehensible.

GIRLS BY GIRL IN RED

The second song I was given by The Algorithm™ from this artist, and the one that finally pushed me over the edge from telling myself, "I'm cishet but it's normal to think girls are really pretty too," to, "Okay fine, I admit it, you caught me, I might be bi after all." This has led to some interesting revelations about myself in hindsight, such as the realization that I wasn't *sad* that my "crush" (in HEAVY quotes, I literally just decided one day that he was the most bearable out of all my classmates) in grade 8 got together with another girl; rather, I was *jealous* because the girl was pretty. It's so funny to look back on things with a different perspective; you *really* thought you knew what was going on there didn't you? Haha. Hahaha. HAHAHAHAHAHAAAAHA *i'm losing my mind*

DEVIL TOWN BY CAVETOWN

I was actually already aware of this song, and I 100% listened to it at least a few times in the weird mishmash of years that was 2020–2022. For some reason, it never really "clicked" with me back then and then the person who introduced me to the band and I had a falling out and I couldn't listen to their songs

for a long while ANYWAYS this is not a therapy session and I only really started to listen to this one repeatedly relatively recently. Pretty good song, also in the more slow depression vein of songs, but no complaints from me.

BAD IDEA RIGHT? BY OLIVIA RODRIGO

In stark contrast to the previous four songs in this list, this song is rather upbeat and headboppy, but it's not too annoying about it. I would also like to say that more than likely the actions taken by the characters in this song will not end well, but it's still fun as a standalone if you don't think about it more than at the top-most surface level. If you need something to blast to drown out your roommates (or your sorrows), I highly recommend this song. Actually, I recommend most of Olivia Rodrigo's music for this; just make sure you don't play her music exclusively because it will get overly repetitive very quickly.

THAT FUNNY FEELING BY BO BURNHAM (PHOEBE BRIDGERS' COVER)

Back to the slower sad songs, but I think this one has more or less become a folk song at this point. The number of covers it has, the how the feeling it conveys being very common in pop culture, and the fact that you can create new verses from new dystopian events occurring daily just adds to it. It does not give me happy feelings, it gives me nihilistic feelings, and that is sometimes good. If you haven't listened to this song yet, you should take the 5 minutes out of your day to do so, even if it's just while you're walking between classes.

SLEEPWALKING BY ALL TIME LOW

Certainly the most upbeat song in this list, at least in terms of melody if not in terms of lyrics. Good background music for energizing while you're studying/going gym/etc. Little bit sad if you pay attention to the lyrics, but seeing as this is not a requirement to enjoy this song, it can still be a great headbop-and-tune-out-the-world song too. Sometimes, that's all you need to feel better or get motivated, so I wouldn't dismiss this one right away.

DAY JOB BY EMERSON BROPHY

This one is for all the people on co-op and the alumni who still read **mathNEWS**. It is definitely the least well-known out of any of the songs on this list, I literally found this guy through his quippy music YouTube shorts. A year or so later he published this single, and although it can get to be a little bit repetitive, if you do end up enjoying this song then I highly highly HIGHLY recommend checking out his YouTube channel (or TikTok if you use that) and scrolling through some of his stuff. I promise you won't regret it.

HOW TO CAUSE A CAR ACCIDENT

AND NOT BE AT FAULT

Do not read this article and get the idea that I am a bicycle-pilled, car-hating transit enjoyer. I am much cooler than those people. Don't get me wrong, I don't have a car here, and the transit system in Waterloo is good, but I love driving and if it was a little less convenient to get places or a little bit cheaper to have one here, I would, and I would drive everywhere. [Editor's Note: I love youtuber JUST CARS!]

Pedestrians are given too many rights in this city. As a pedestrian, I feel very bad when I am planning to walk across a road in the middle of the block and a car stops to let me go. I've been planning my walk to fit between traffic and you just ruined it and now I feel like I'm inconveniencing everyone. Just continue to drive, and let me execute my plan. My father shows no respect to pedestrians. If he is not going to hit them, he does not slow down, even if they are in the adjacent lane. This is how everyone should drive, with limited exceptions for children and the elderly. Regular adults do not deserve the right to trust that they will not be converted into a fine red mist if they are crossing the road where they shouldn't be.

Now we must discuss roundabouts. Again, don't confuse me for the kind of person who preaches roundabouts and shudders at four way stops, although in this case I get why roundabouts are good. Europe has a lot of them because they're smart or whatever, and they are making a comeback or perhaps a rise to popularity around here. I have driven around only a handful of roundabouts in Canada, but I did learn to drive on the other side of the road in Australia, a place where there are a lot of roundabouts, and they work flawlessly when implemented correctly. Some were terrifying 3 or 4 lane behemoths but they make sense after a moment of thought and panic when you're pulling up to them.

Somehow, the region of Waterloo saw roundabouts and said "let's do that, but stupid."

There is a pedestrian problem at roundabouts. Australia's solution to this is similar to my philosophy on crossing roads at the start of this article. I don't know what the official policy is but it basically boils down to "don't get hit." There are no crosswalks around roundabouts, and from what I understand, although I didn't fact-check this, there is no such thing as jaywalking in Australia. Just cross the road whenever you want, but you can't expect the cars to stop for you unless it is at a crosswalk.

Waterloo saw this problem and thought "crosswalk make car stop and person no get hit" and combined that with "roundabout good" and put no more thought into it at all. Before we move on, I want to make it clear that the whole point of roundabouts and the benefit of them is that they are cheap, and that they *ensure continuous flow* of traffic, with minimal waiting for everyone. Traffic lights force people to sit and wait for a long time before they can go, and they require more infrastructure.

This is the part where I explain how to cause a car accident and be legally in the right. The only step is to use a crosswalk at a roundabout while there is a car going around. It may not be immediately obvious how this works, but just watch, as the car trying to exit the roundabout on the road you are crossing, now has to stop so they don't hit you. They stop blocking the roundabout because the crosswalk is so close to the circle, and then get hit by another car going around that is expecting continuous flow in a traffic control device designed to ensure continuous flow. Just by crossing the street at a crosswalk, you have caused a car accident because these roundabouts were designed by a toddler.

All of the benefit of a roundabout is lost with this implementation. You might as well install a four way stop, if cars are going to have to stop for pedestrians. It's not like this is a difficult problem to solve either. Waterloo chose to put the crosswalk right next to the roundabout on all sides, but if they just put it further down the road, so that it's a few car lengths out of the circle, it would almost never cause a problem, except in cases of extreme volume. Alternatively, you could install a bridge over the road for pedestrians. This is admittedly more expensive, so I'm partial to the first solution.

The roundabouts here drive me up the fucking wall. Every time I see them I am filled with rage. I want to see statistics on how many accidents there have been in these roundabouts versus ones with a good crosswalk layout. I bet there are a ton of cases of pedestrians getting smoked as they're crossing too because the cars don't see them ahead until they come around the circle and can't avoid it anymore.

In conclusion, don't drive around the roundabout, drive across the middle.

Yamnuska

N MEMORIES

ARRANGED IN ROUGHLY CHRONOLOGICAL ORDER FROM AUGUST 2019 TO MARCH 2024

- Arriving in Canada for the very first time, acquiring a SIM card, and using my newfound mobile data capabilities to listen to *We're Finally Landing by HOME*
- Walking in the snow from V1 to St Jerome's in the morning while listening to *Strange Love by Simple Creatures*
- Sleeping alone in the UWP dorms they opened up specifically for international students who couldn't go home for the winter break, and hearing *Famous Last Words by My Chemical Romance* for the first time
- Hearing about *Take On Me* by *a-ha* from a friend, and then going to a CSC code party and it's the next song that plays

- My VI roommate introducing me to *POP/STARS* by *KD/A*, a song he found while playing League of Legends
- Taking a walk to the nearby gas station Tim Hortons, the only place we can safely visit in the beginning of the pandemic, listening to *Beginning of the End* by *Robert DeLong*
- Cooking lunch for my roommates (it was their turn to do dinner and dishes respectively), listening to *Fool For You* by *Ace of Hearts*
- Writing the CS 241E garbage collector while listening to *Monsters* by *All Time Low (feat. blackbear)*
- Learning to cook something my mom used to make by watching a Facebook video she sent me, repeating parts of it over and over, and getting hooked on the background song, *Say It To My Face* by *Gloria Tells*
- Meeting four people from r/uwaterloo and listening to *September* by *Earth, Wind & Fire* as I try to make sense of the people I just saw
- Jamming to *California* by *girlfriends* and, despite the song's lyrics, secretly wishing that I got my next co-op there
- Making a friend in Actuarial Science in my year on Instagram by exchanging songs with her, and listening to *comethru* by *Jeremy Zucker*, giggling when the lyric about drinking coffee came up right when I was pressing my French press
- Relaxing from all the stress and anxiety that the CS 246E final project gave me by listening to *Best I Can Do* by *MisterWives*
- Stepping on crinkled fall leaves while walking home to my new place in the suburbs, listening to *Where We Started* by *PRXZM*
- Trying to get started running on the CIF gym treadmills, somehow lasting for the entire duration of *Caution* by *The Killers*
- Listening to *Good Times* by *All Time Low* as I walked back from a meetup with my friends, knowing that I was not going to see them for the next four months
- Lying down on my bed in Texas, feeling alone and miserable and missing my friends in Waterloo, listening to *Look At The Sky* by *Porter Robinson*, and starting to cry so hard at the beat drop that my roommate came in to ask if I was okay
- Listening to *Ohio (Come Back To Texas)* by *Bowling For Soup* at my Texas co-op and excitedly pointing at all the references to Texas that the song made as I saw them in real life
- Joining the Glow Centre's Discord server as I started to crack my egg, listening to *Close Your Eyes* by *The Midnight Club* at a person's recommendation, and always thinking of that person whenever the song comes up—even though I barely see her these days
- Listening to *Rose* by *Odyssey Eurobeat* and telling a **mathNEWS** person I barely knew that it reminded me of him
- Trying on femme clothes for the first time that I bought at the thrift store, and automatically starting to swish my dress to the beat as *Caramell* by *Caramell* started to play
- Coming out of the PAC swimming pool, dripping wet, running to my phone before *adios* by *JAWNY* finished playing on the radio so I could Shazam it
- Dancing in the shower to *The Man* by *The Killers*, deciding that if I ever did drag this would have to be my first performance
- Discovering *Could Have Been Me* by *The Struts* immediately after deciding to give up on a whole bunch of extracurriculars for mental health, and finding how much I enjoyed the song extremely funny
- Finishing up my terrible CS 488 final project just to get it done with, listening to *Weightless* by *All Time Low* and telling myself that starting next term, I would never let another day go by
- Listening to *Cool Kids* by *Echosmith* after a close friend shared it with me and told me that he wished he was like the cool kids, and wondering if I should tell him that wished every day that I was more like him
- Excitedly infodumping about the six hour Deltarune theory video series with a friend of mine, after they told me that they enjoyed *A CYBER'S WORLD* by *Toby Fox* while playing Deltarune chapter 2
- Listening to *YYZ* by *Rush* as I started running 5Ks every day without my friends to support me, and timing my steps to the beats of the song
- Coming back from that run and feeling like one of the cool kids as I pretended to be the main character of *Moving In The Dark* by *Neon Trees*
- Starting to run indoors as the weather turned colder and listening to *Planet Of The Bass* by *Kyle Gordon* and finding it hilarious that I enjoyed a parody of my favorite genre as much as I enjoyed the genre itself
- Reading a cool new first year's username in the CSC Discord and realizing that it was a reference to *Counting Stars* by *OneRepublic*
- Enjoying *We Didn't Start The Fire* by *Fall Out Boy*, posting about it in the Glow Centre Discord server, and immediately being told that it sucked actually
- Trying a cool new mint for the first time while listening to *No Rules* by *Windows95Man*, and posting a blue/pink/white/pink/blue flag on my Mastodon account
- Listening to the **mathNEWS With You** by *Various Artists* YouTube video years after it was recorded, and knowing that I would cherish these memories forever

THOMASSONS OF WATERLOO

BASEBALL CONTENT FOR PEOPLE THAT DON'T WATCH BASEBALL 1.5¹

In 1980, Gary Thomasson, a middling 9 year veteran of the MLB, was purchased from the Los Angeles Dodgers by Tokyo's Yomiuri Giants of a Japanese league, Nippon Professional Baseball (NPB). During this time, Japanese baseball teams had begun to start luring peripheral players in their prime, as well as many famous American stars in the waning phase of their careers, in an effort to boost their fortunes. In 1979, Charlie Manuel, a middling MLB player signed by the Yakult Swallows, had won the NPB's MVP award and was dubbed affectionately the "Aka-Oni", or the "Red Devil", by fans. The Yomiuri Giants, known as the "Yankees of Japan" (and who at that time employed the Babe Ruth of Japan, Sadaharu Oh) decided to hop on to this trend, signing Thomasson to a 1.2 million dollar deal over three years. This made him the highest paid player in the league by over \$130,000. However, rather than pay dividends for the team, this contract proved disastrous.

While Thomasson hit 20 home runs his first year — which was a substantial total — he struck out 132 times, just four away from the all time record for strikeouts in a season. This was despite the fact that he missed the last week's worth of games as he was benched for his poor play; the large volume of strikeouts led to Japanese media calling him "The Giant Human Fan". The second highest paid player in the league, Koji Yamamoto, had double the amount of home runs that year. In 1981, his production declined even more precipitously, as he injured both his shoulder and knee, which forced him to spend the year on the bench, after which he left the team and retired from baseball all-together. The Thomasson-free Giants went on to win the championship Japan Series later that year.

In 1973, Japanese artist Genpei Akasegawa started noticing urban objects that served no purpose, yet continued to be maintained. One of the first things he noticed was a staircase that had no entrance at the top, yet had a railing that had recently been repaired. He and his friends then began to collect images of these objects whenever they encountered them. They referred to them as hyper-art, being "an object which, just like a piece of art, has no purpose in society, but also, just like a piece of art, is preserved with care, to the point where it appears to be on display. However, these objects do not appear to have a creator, making them even more art-like than regular art". They categorized these objects into groups such as The Useless Doorway, The Useless Staircase, The Live Burial (roadside object partially buried in concrete), and The Devouring Tree (a tree swallowing up an unused man-made feature).

In 1982, Akasegawa began to publish articles and create galleries where he exposed these findings to the public, calling them Thomassons, in honour of the recently dreadful Gary Thomasson. As Slate put it, "for Akasegawa, Thomasson was 'useless' and also 'maintained'". Thomasson "had a fully formed body and yet served no purpose to the world" as he sat on the bench, much like many of these urban objects. This idea gained substantial popularity in 1980s Japan, where there were even Thomasson-spotting bus tours arranged. In

2009, Akasegawa's book on the subject was translated into English, leading to a revival in interest in Thomassons. Many online communities were formed in order to track findings of these objects.² Many English news organizations requested to interview Gary Thomasson for his thoughts on the phenomena, however, he perhaps understandably declined to comment for any article.



THE USELESS DOORWAY, AS SPOTTED BY mathNEWS WRITER APHF

I wonder about what it must feel like to have one's life popularly distilled down to only know them for their own failings, rather than their successes. I am also fascinated by these objects, which somehow slip through the cracks and persist as an artistic inefficiency, in an increasingly optimized world.

Interested in seeing if these objects exist here, but too tired to walk around campus, I interviewed the many observant writers of **mathNEWS** (the ones nearest to my proximity), to try to crowdsource any Thomassons that exist on campus:

The indoor no smoking sign in B2

NIKE

The window in between the staircase in EV1 and the bottom floor of EV2

MYSELF

The wheelchair accessible ramp to EIT that doesn't provide access to the building, nor anywhere else

NO PUN INDENTED

The maintained sign for "North Campus" in the desolate farmland north of the University

MYSELF

The Arts Student Union coffee shop

NIKE

The walls at GSC that only serve to obscure the entry doors

NO PUN INDENTED

The stack of chairs underneath every stairwell on campus that are never used

ROCKFACTS

The help button near E7 that has been out of order since I got here

YAMNUSKA IN mathNEWS 154.2, pg. 8

The roundabouts in North Campus that occur on straight roads but intersect with nothing

MYSELF

If you have any examples of Thomassons on campus, email pictures or descriptions 284shakespherewifi@gmail.com (my burner email) to potentially be featured in a follow up article.

Lars Nootbaar

1. This was originally a draft idea for Baseball Content for People That Don't Watch Baseball (mathNEWS 151.4), but this formed enough of a tangent to warrant its own article.
2. The Thomasson Observation Centre has a defunct Facebook page (<https://www.facebook.com/thomasson.center>), as well as a Flickr page, which appears to continue to accept new sightings (<https://www.flickr.com/groups/thomason/pool/>).
3. Sources:
 - https://www.slate.com/blogs/the_eye/2014/08/27/roman_mars_99_percent_invisible_on_thomassons_architectural_relics_that.html.
 - <https://www.amusingplanet.com/2017/04/thomasson-architectural-relics-that.html>.
 - https://www.baseball-reference.com/bullpen/Gary_Thomasson.
 - <https://blogs.fangraphs.com/effectively-wild-episode-2014-clocks-and-bonds/>.
 - <https://99percentinvisible.org/episode/thomassons/>.
 - https://en.wikipedia.org/wiki/Hyperart_Thomasson

CONSCIENCE

I felt really bad and left him cookies on his doorstep, but I heard he fell trying to pick them up. Lived with that shit my entire life.

b28chen

SKETCH 1

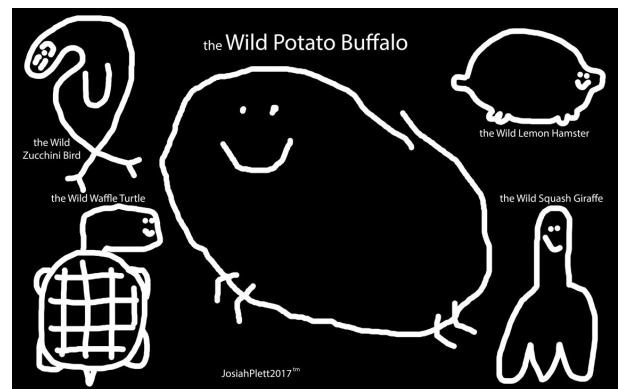


snowdozer

THE WILD POTATO BUFFALO

A BLAST FROM THE PAST

Stick around for the next two weeks and you'll be able to read the legendary poem my 14-year-old self wrote about the Wild Potato Buffalo.



In case you're wondering, the Wild Potato Buffalo is both a Potato and a Buffalo. He was French when conceived but lost his mother tongue in a series of unfortunate events.

no pun indented

FAIR REDISTRICTING PRACTICES PART 4

Here we now continue with the final part of this series.

LOW OR ZERO POPULATION AREAS

With it being easier to make fair districts in more urban areas, it may be tempting to draw boundaries in rural areas in whatever convenient way, splitting those areas without much thought. Even then, it's not the best idea to just split rural areas like that. There are ways to spot what features to use in your boundaries in rural districts. If there are no obvious hard boundaries you can use, such as mountains or bodies of water from part 1, you can use population density to your advantage.

National/state/provincial parks and similarly designated protected areas tend to have no population or a very low population density. They make for perfect "borderlands" and if you spot an option to use them when drawing up rural districts, then more often than not, it is a good idea to use them as where district boundaries go, when no other clear option exists.

I found that in states like Louisiana or Florida, many parts of the state have zero population (it's just marshy swampland that you can't really build on), forcing corridors of population to be sandwiched between unpopulated strips of land. It gives you an easy, hard boundary to help you when redistricting.

RURAL DISTRICTS NEED A CITY

Suppose you have a sparsely populated rural district in a province. This district will have an MP who needs to have a physical office within the district. This MP will obviously want to put their office in the most principal city possible.

This city (or town) is usually more populated than all other municipalities in the district, and would be well connected to much of the other places in the district. If such a city did not exist within this district, the ease of access by constituents to the office itself would be more impeded. Thus it is worth considering that such a city be included in rural districts. It may even be worth splitting a city into two to make it worth should there be just one such city but two rural districts available. For example, even though Prince George, BC warrants an urban district of its own, it has long been split in half so that the sparse and rural areas to the north and south have a city which can well serve as its city of access.

PRE-PLANNING

Sometimes it helps to pre-plan how you would redistrict a map, like a bit of divide-and-conquer.

For example, with my Missouri state house map, I noticed that the population north of the Missouri River was worth 42 districts, and likewise 121 districts in the south. This made the river a perfect natural boundary to use. Now you can plan each half separately.

ISLANDS

Islands are annoying. At best, it should be clear which district an island should belong to. It gets finicky when islands grow farther from the coast. Sometimes you may want to consider purely the closest district by distance. Sometimes you may want to consider administrative regions one level above in determining which district to place it in. Consider keeping a county's island in the same district. Sometimes you may need to research what ferry connections exist for an island and ensure each end of the ferry route is in the same district. On that note, I will say that Hawaii can be a nightmare to redistrict sometimes.

THE SACRIFICIAL DISTRICT

There is a kind of district I like to call the *sacrificial district* because I have found that over making many maps, there really does end up being at least one district I have to sacrifice to make as many of the remaining districts fairer. Rarely, have I ended up with a map that has no sacrifice in it. It's enough that I would make it a conjecture: one district somewhere in the map will have aspects of fairness that will need to be purposefully sacrificed in order to keep the map's remaining districts as fair as is reasonably possible.

The map's sacrificial district tends to appear in a sweet spot based on the percentage of population per district. If your map has very few districts then the chance of a sacrificial district being needed is lower. Likewise, if there are lots of districts in your map, you get the benefit of increased granularity with your district sizes, making it more likely you can work to avoid needing to make a sacrificial district in the first place. However, all that doesn't mean the chance ever becomes 0% except if your map has only 1 district. Trivially, if your map has 1 district then there is a 0% chance of there being a sacrificial district. There is nothing to sacrifice.

Sometimes the geography can force more than one sacrificial district to form. This should be avoided obviously, but it is again based on your good judgment and justification if more than one sacrificial district must remain in your map.



At this point, you should have more than just a foundational layer of knowledge to make good redistricting maps. With enough practice making maps of your own, eventually you might find yourself realizing that your map is better than official maps made by a state or one of the province's commissions. It definitely would give bragging rights.

If I had the ability back in W23 to prepare this series into one coherent lecture, I would have definitely been a part of Pure Math Club's 24-hour long Short Attention Span Math Seminars (or SASMS for short). Well, it's better late than never. I realize that another option would have been for me to instead do it on gerrymandering instead.

Hmmm, now that I think about it, perhaps I actually do write a series of articles on how to gerrymander. Haha, just kidding... unless? [Editor's note: ☹️]

boldblazer

TERRIBLE REVIEWS OF THE BEST (AND WORST) BOOKS I READ IN 2023

Happy January! Enjoy :) [Editor's Note: We're well into March? But thanks!]

MATHEMATICAL MINDSETS BY JO BOALER

Jo Boaler gets 10% of my atrium.¹

LA FARCE DE MAITRE PATELIN BY UNKNOWN

Chèquespère ✨.

ANIMAL FARM BY GEORGE ORWELL

My comfort book is an animal exploitation communist allegory :)

FUN HOME BY ALLISON BECHDEL

If I was Allison Bechdel, this would be my memoir too.

BRAIDING SWEETGRASS BY ROBIN WALL KIMMERER

This one's not even a joke review. This book hugely restructured how I view environmentalism, the earth and our collective relationship to it.

ANNE OF GREEN GABLES BY LM MONTGOMERY

So wonderful it tricked me into reading its not as wonderful follow ups.

OF MICE AND MEN BY JOHN STEINBECK

Experiencing the great depression!

SLEEP YOUR WAY TO SUCCESS BY DINESH GHODKE

Do you ever wish you could have even more mind-numbing conversations with your grandfather? The book he gives you will do the preaching for him (and then he'll preach to you about the book).

be'f unwellington

1. See: Bruce White Atrium!!!

ASSIGNING UW MAJORS TO MONSTER HIGH CHARACTERS

DRACULAURA — MATH

She saw pink and that's all she needed. Not sure how she would feel about the pink tie—perhaps she would fashion it into a bow. The lack of sunlight math majors tend to see would be in her favour. Maybe Count Fabulous can write some math proofs.

FRANKIE STEIN — BIOLOGY

Although they are an inventor, I can see Frankie being super interested in the science of living things. Their ability to remove their limbs would be useful for studying.

CLAWDEEN WOLF — KINESIOLOGY

Her Wikipedia page says she has “enhanced speed, enhanced strength, and enhanced smelling”. The first two would be useful for athleticism... but with the enhanced smelling, I would hope she avoids class in MC.

CLEO DE NILE — PHYSICS AND ASTRONOMY

Cleo wouldn't be too fond of studying, but the Ancient Egyptians had many advancements in science and astronomy, so she would be well-prepared.

VENUS MCFLYTRAP — ENVIRONMENTAL SCIENCES

Obviously. She's a plant. Her Wikipedia says she uses her pollen to hypnotize people to save the planet... I think that's needed in this world.

ABBEY BOMINABLE — ENGINEERING

She's extremely strong-willed and I can picture her slaying the engineer grind with ease. She also has ice powers and can build anything out of ice.

buck-tick enjoyer

Sometimes you walk by
the Comfy Lounge and
see things you don't
wanna see.

PROF. ROSINA KHARAL

BREAKING THE SUMMATION

Do you ever feel like you are not yours?

Ever since your birth, humans have tried to mold you. From the sports you could play in to the clothes you could wear, your parents have pushed you to be their best child. In every classroom, your teachers have outlined and graded notions of right against wrong. In every sport, coaches have pulled you to their ideals of the person you must become. From the day of your birth, hands have planted the strings of your soul, each one adding their piece, each one saying: “This one is mine. This one is me.”

Philosophers discuss the adjacent idea of determinism. That all our actions are pre-decided, solely the result of external forces, and that from the spark of the beginning of time, all actions have been necessitated by the actions before them; that the individual is nothing but the conduit of fate. Free will is void; you are but a pie chart of your surroundings.

Many actions support this argument. Seek praise from your mentors and authority figures, and you happily graze the fields they’ve marked for you. Rebel against authority, rage against expectation, and regardless you self-define along lines set by your controllers. In all things you are planned for; your actions fit into the enum predefined at your compile time. I propose then this axiom: that to match or malign the plans of another is a result deterministic; that neither asserts you as your own. Individuality is distant, a fleeting dream not found between the guardrails written into plans. To move within the guardrails is to be a summation; the simple addition of others’ factors poured into your equation; one hundred plans into the mosaic called “you.”

But that mosaic is nothing but its parts. Follow this path, and you shall find neither individuality nor identity at its end; solely the path of one who consumed a life having never lived it. Attempting to flee, to live, to escape the extension of your forefathers becomes hopeless; a unique hell wherein each misty reflection of self is of another—no unique copyright applies; your summation was not transformative.

Transform it. Move horizontal to the plan.

Surprise.

If your summation points you only along the x-axis, move along the y. You have been given a direction, look around at the other ones. Surprise with misapplied genius, unexpected wisdom, or peerless mediocrity. Walk where you should bus, bus where you should walk. Fly to BC, or fall somewhere short. Learn to sew, learn to sweet talk, learn to extend your veins and connect, or reclaim them and hold them in. Heal your damage, or pursuing a dream yours alone, take some more. Do that which was not laid out for you, do that which is surprise.

Surprise is the root of who we are. When the confetti has all fallen, and the balloons have all lost their air, if we are alike, the tendrils of ownership will creep in. The hands that say,

aloud or only in your head, “this was me,” or “this was against me,” or in any way, “my influence is felt here. I decided this.” You are not you. You are an extension.

Know that an extension cannot surprise, no more than a brain can be surprised by its leg. And in the moment of revelation, know that you *got* them. That despite all the guardrails, you have clutched hold of the trumpet to play the world your own note. This sinful, left-handed thing: the song of your own voice. Know that in surprise, no plan had seen you coming, and that even if your surprise had been anticipated, it is only because you *got* them in a moment of revelation far earlier. You *got* them, and in doing so, you got you. You claimed you.

It is in doing this that we shall turn the pie chart into a single outward-expanding circle; that all components become ourselves. In doing this, we banish the tendrils of others’ ownership with the sacred light of lived identity. The summation becomes single-element; you are only you. You are you, and I am me, for had we been constructed according to plan, we would have grown no offshoot, there would have been no surprises. You are that which happened in the shadows. You are the unpredictable alchemy, the unclaimable entropy.

You are the surprise.

molasses

mathNEWS CONNECTIONS

GROUP WORDS THAT SHARE A COMMON THREAD.

TURNER	JACOB	NOISE	FARM
HAMILTON	STATISTICS	D FLAT	SNAKE
PURE	HERMIT	WOLCZUK	WEST
ARE	APPLIED	FORREST	HESS

closeted atheist

Answers:

1. math majors: farm, statistics, pure, applied
2. professor surnames: turner, wolczuk, west, forrest
3. names of matrices + tan: jacob, hermit, hamilton, hess
4. synonyms of programming languages: are, d flat, snake, noise

TO ANYONE WHO PLAYED DISHONORED AND LIKED IT AND GOT THE SECOND ONE IMMEDIATELY BUT FOUND IT A LITTLE BORING BECAUSE YOU PLAYED SO MUCH DISHONORED

Play the second one now!! [Editor's Note: SO TRUE!]

In 2020 I played *Dishonored I* and absolutely loved it. It was a perfect combination of stealth mechanics and fun combat—I played through the game at least ten times over the course of two weeks. When I finally decided to spend the money on the sequel, though, I was disillusioned. I had been playing the original for so much time every day that the slight differences in mechanics and UI threw me off, so I got burnt out and went back to playing Minecraft for six hours a day.

Recently though, a friend of mine told me I should give it another chance, so I did, and it is fucking *awesome*. It has a lot of the charm of the original game; blinking (the game mechanic not the life mechanic) still feels very good, the combat is decent, and the open-endedness of the levels is still great. There are some new mechanics (play it!) so it's not just more of the first game. I haven't even come close to finishing the game, as I unfortunately don't have as much time as I did in 2020, so there are probably still surprises in store for me.

Shall we gather for whiskey and cigars tonight?

nazz

BIRTHDAY MONTHS!

- January: 4
- February: 0
- March: 2
- April: 1
- May: 5
- June: 1
- July: 5
- August: 1
- September: 3
- October: 9
- November: 1
- December: 1

mathgeek

YOU CAN STREAM ARCGIS

SUPPORTED BY NVIDIA GEFORCE EXPERIENCE!

What's up, gamers, it's your boi, Azimuth. Comin' at you live with another round of ArcGIS! Let's get this bread! What map we dropping? What's the coordinate system? Oh, sweet, I'm a big fan of the WGS 1984 17N meta. Okay good start, good start. Fill that buffer in? *Niiiiice*, clip that! Thanks for the subs, magellan69! Remember, gang, 100 gifted subs and I'll write this entire thing in Python.

[muffled sounds of keyboard clacking]

Alright, m3cator, lemme see... "single symbology sweep"? Chat, is this real? No way. I'm not going to be doing the Triple-S challenge today, I'm not insane. Uploading attribute tables? Heck yeah, you already know I'm on that. Okay, let's see if I can do the exploit where I go straight to geocoding locations from tables. I got it from this other guy, guess I'm behind on the trend. It's been crazy ever since I got cancelled on Twitter—sorry, *X*—ever since I got cancelled for saying I liked the Mercator projection over the Transverse Gauss-Kruger. Like, it's not my fault that mathematically, you can't plot a sphere on a rectangle, so that's just the best we have!

[more keyboard clacking]

Alright, think that should finish up our rounds here, once I spatial join and generate a tessellation...there we go. Symbology, raster, equal intervals, BOOM! Done and dusted. Rookies could never. I'll leave it on a high note. If you like what you see, make sure to SMASH that like and subscribe button, check my linktree out for show dates and donation bins. Link in the description below, we've also got merch! Azimuth sweatshirts, stickers and this *super* cool atlas. Cool, right? Find that in the description, too. Alright, signing off. Catch ya later!

Skit

17776

17776 is a 2017 work of hypertext fiction, writted by Jon Bois and hosted online at SB Nation, a sports website he works for. It's my favorite work of fiction of all time—and that's a problem, because I have absolutely no idea how to recommend it without spoiling what makes it so great.

So, I'll keep this brief. It's deeply inventive and subversive in its narrative and format. It's genuinely hilarious and uplifting with a deep undercurrent of sadness that I find intensely fascinating. You will mourn a lightbulb.

You'll need to just trust me on this one. I wouldn't be so cruel as to spoil it for you. Google it. You'll see an article titled "What football will look like in the future". That's the one.

Dick Smithers

A NOTE ON TAKING NOTES

How little can a student pay attention during lectures while fully retaining the information?

We model the problem as follows: fix a constant $0 < p < 1$. The professor wishes to communicate a message a , containing n bits of information. They will give a presentation containing $f(n)$ bits. During each bit, the student is either following with probability p (and records that bit) or confused with probability $1 - p$ (and does not record that bit) independently. The student knows which bits they recorded. Assuming the professor and student agree on a strategy beforehand, we would like for the student to be able to recover a . What is the minimum f that succeeds with high probability (probability $1 - 1/\text{poly}(n)$)?

Let's try a very simple strategy first. Suppose the professor repeats each bit $\mathcal{O}(\log n)$ times. For a fixed bit, the probability the student is always confused is $(1 - p)^{-\mathcal{O}(\log n)} = 1/\text{poly}(n)$. Taking union bound over n bits, the probability the student does not retain a bit is $1/\text{poly}(n)$.

This lines up with human intuition and real world experience: repeating the same sentence a bunch of times definitely improves understanding! Indeed, rather than practicality, the real flaw is inefficiency — $f(n) = \mathcal{O}(n \log n)$.

Let's try a tighter strategy and analysis using $\mathcal{O}(n)$ bits, which is asymptotically optimal since $f(n) < n$ is impossible. Let n be fixed. Pick $\mathcal{O}(n)$ vectors sampled uniformly and independently from \mathbb{F}_2^n . For each vector v , the professor says the dot product $v \cdot a = \sum_{k=1}^n v_k a_k \in \mathbb{F}_2$. Let's find the probability that given a message pair $a_1 \neq a_2$, a random v fails to distinguish them. Let k be a position that a_1 and a_2 differ. Choose all $v_j (j \neq k)$. Then $s = \sum_{j \neq k} v_j a_j \in \{0, 1\}$. Either way, there is exactly a $1/2$ probability the choice of v_k succeeds in distinguishing them (if $s = 0$, then $v_k = 1$ distinguishes them, otherwise $v_k = 0$).

Thus, if the student retrieves the results of m vectors, the probability that a pair a_1, a_2 is indistinguishable is 2^{-m} . In fact, by Chernoff bound, the probability that $m \geq E[m]/2 = pf(n)/2 = \mathcal{O}(n)$ is $\geq 1 - \exp(-\mathcal{O}(n))$, so the probability we cannot distinguish a_1, a_2 is $\exp(-\mathcal{O}(n))$. Taking union bound over all $\leq 2^{2n}$ pairs, we probability of failure is $\leq \exp(-\mathcal{O}(n))$.

The only disadvantage is that the information contained in the strategy is $\mathcal{O}(n^2)$ bits, significantly exceeding the information contained in the message itself. Also, the effort the student must expend to recover the message is likely far greater than the effort required to attend office hours.

We have to be very careful when talking about randomness, especially when both the strategy and the student's retention contain randomness. Specifically, the "order" is:

1. a is chosen

2. A strategy is chosen (in our case, the random vectors)
3. The bits retained are chosen

We say a message-strategy pair is *good* if the probability of success over the random retained bits is $\geq 1 - 1/\text{poly}(n)$. We say the strategy is *good* if for all messages, the message-strategy pair is good.

The "order" might seem a bit arbitrary, but it matters! Communication complexity is a model where two parties, A and B, compute a function $f : \{0, 1\}^n \times \{0, 1\}^n \rightarrow \{0, 1\}$. A and B each receive n bits of the input and send each other as few bits as possible to compute f . In the random setting, they must succeed with constant probability $1/2 < p < 1$. "Public randomness" or loosely the strategy being chosen after the input, is sometimes strictly stronger than "private randomness", where the input is chosen after the strategies (or strategy distributions) are chosen. The idea is that a particular input may be bad for a particular strategy, but for most strategies, most inputs work. A famous theorem [Newman '91] states the number of bits needed for private randomness exceeds the bits required for the public setting by no more than $\mathcal{O}(\log n)$.

Can we solve this deterministically? As in can we succeed regardless of the choice of retained bits? Trivially no, if the student retains 0 bits. Let's modify the model: say the student retains exactly $\lceil f(n)p \rceil$ bits (for fixed ε , the probability the student retains $< f(n)(p - \varepsilon)$ bits is $\exp(-\Theta(f(n)))$ anyways). We don't care if f is large as this has effectively turned into an information theory problem.

Is there a strategy now? It turns out the answer is yes if and only if $p \geq 1/2$! From the student's prospective, we can view any strategy this way: fix a bit to be retained. Check which messages a are such that that bit will be 0 and which messages are such that that bit will be 1. This way, each bit defines an ordered bipartition in the message space (ordered meaning the bipartition (S, T) is different from (T, S)). We can define the weight of a bipartition, a rational number representing the proportion of bits corresponding to that bipartition. We can view a strategy as a distribution of weights that sum to 1. Then, an assignment of retained bits corresponds to a set of retained bipartitions whose weights sum to $\geq p$.

Now, the following strategy will work for $p \geq 1/2$. Assign each bipartition of size $(f = \lfloor n/2 \rfloor, c = \lceil n/2 \rceil)$ equal weight and other bipartitions weight 0. Let's fix a pair of messages a_1, a_2 . The number of bipartitions that differentiate the two is $2 \binom{n-2}{c-1}$ and each of those have weight $1/\binom{n}{c}$. The sum of weights of bipartitions differentiating the two is then $2cf/n(n-1)$, which is $> 1/2$ regardless of the parity of n .

If $p < 1/2$, let's fix a bipartition of size $(x, n-x)$ and $0 < \varepsilon$. As n becomes large, the bipartition differentiates $x(n-x)/\binom{n}{2} < 1/2 + \varepsilon$ proportion of pairs of messages,

meaning it does not differentiate $> 1/2 - \varepsilon$ proportion of pairs. Define A as the set of messages, B the set of bipartitions, w_b the weight of bipartition b , c_b the proportion of messages b does not differentiate and d_a the sum of weights of bipartitions not differentiating a . Since $c_b > 1/2 - \varepsilon$ we have $1/2 - \varepsilon > \sum_{b \in B} w_b c_b = \sum_{a \in A} |A|^{-1} d_a$. Thus, there exists a $d_a > 1/2 - \varepsilon$ for sufficiently large n . We may choose $\varepsilon = (1/2 - p)/2$.

What this means is that if the professor and the student cooperate, then the student always can skip half the lecture while retaining all the information! Of course, the lectures now have quadratic length.

wjk

DOES MONTREAL STILL EXIST?

I WILL NEVER LOVE ANYONE LIKE I LOVE THIS BIRD.

Recently, a team of **mathNEWS** journalists went to Montreal to investigate our readers' burning question: Does Montreal Still Exist? Some timestamped thoughts from the investigation:

- [Friday, 5:30 PM] Montreal appears to exist. Most of the signage in the city is French. This catches me off-guard, having not realized French speakers speak French.
- [Friday, 7:00 PM] Old Montreal is cute beyond belief. We are instantly transported to the 1800s. We go to a restaurant. It's full.
- [Friday, 7:10 PM] We go to a restaurant. It's full.
- [Friday, 7:40 PM] We go to a restaurant. It's full.
- [Friday, 8:00 PM] We go to a restaurant. It's not full??
- [Saturday, 10:00 AM] We get lovingly bullied by a cafe owner for not trying to speak French. This sets us up for an entire weekend of then being bullied for speaking French badly.
- [Saturday, 10:30 AM] The fellowship splits. I discover there's incredible value in being willing to diverge from your group to explore on your own. Try it next time you're on vacation, it's delightfully liberating to ~~not be stuck in fine art galleries when there's a city to explore~~ go your own way! [Editor's note: The art gallery was really cool.]
- [Saturday, 2:30 PM] The fellowship reunites to go to the Biodome to watch penguins get fed. Having seen a massive sphere in the distance last night, we take the metro in its direction. We get to its base. This is the Biosphere. The Biodome is not even on the same landmass. We miss the penguin feeding.
- [Saturday, 4:00 PM] In a Biodome containing penguins, tamarin monkeys, and a lynx, we get enraptured by a local bird that, upon reading the nearby sign, we determine to be a common plover.¹ Plover puts on an explosive artistic display, splashing around a pool, twirling, dancing, and executing pirouettes with such grace it would put Olympic figure skater Tessa Virtue to shame. We watch Plover for almost fifteen minutes. We discover Plover is actually a long-tailed duck. We name him Plover anyway.
- [Saturday, 9:00 PM] We go to a restaurant where our two middle-aged Portuguese male servers compete to serve our table. Each one goes above and beyond

to win our affection while subtly digging at the other. They get into a half-minute argument in front of us about the Jewish bakery on the corner. We hope they sort this out in couples' counselling.

- [Saturday, 11:00 PM] I discover, by contradiction, the merits of bringing boots to a weekend predicted to have heavy snowfall and heavier rainfall. Feet soaked.

At this point, we had determined that Montreal still exists. To celebrate, we 1) visited a rubber duck shop, 2) visited a massive cathedral, 3) did research for **mathNEWS** writer *rockfacts*, 4) flexed on McGill's math buildings (worse than MC??), 5) climbed Mont Royal, and 6) sang Karaoke in a bar underneath our AirBnB where a lone 50 yr old man named Pierre swooned consistently divorcecore songs. Big fans of Pierre.

Not only does Montreal exist, I was amazed that it's so... there. With only a 5.5 hour train ride from Union Station, going to Montreal is incredibly feasible. You can go. It's right there.

If you're into guys, I hear there's a karaoke singer looking for love.

And if you're not, do I have the long-tailed duck for you.

molasses

1. A plover is a type of bird

Montreal does not exist. On the other hand, Montréal, with an acute accent, does exist.

A FRENCH **mathNEWS** EDITOR 

LET'S REIMAGINE THE PLAYPEN THAT IS STUDENT GOVERNMENT THE WATERLOO WAY

[Editor's note: the writer who submitted this article is a graduate student — please keep this in mind as you read the article.]

So WUSA juiced turnout in the recent election by bribing students with serious Apple gear. The contempt is understandable. After all, students are busy with classes, exams, projects, finding co-ops, etc. They need incentives so that WUSA may be granted the veneer of legitimacy, as it does its business of manufacturing our consent for its decisions. (While the university administration is busy manufacturing campus-wide consent for complicity in far graver matters of world import, through acts of commission and omission.)

WUSA's operating budget is seven million dollars, leaving two additional million from revenues as surplus. WUSA claims it is "for students, by students". It has hundreds of staff, and a lot of the important roles are not actually held by students. Students leave after four or five years with their degrees. Furthermore those students elected to leadership roles experience an annual turnover, while WUSA's "professional" staff are permanent, with careers and family obligations. As supports for student governance, they are akin to a civil service. However in WUSA they do not play a supporting role, but effectively an executive one, making the decisions in an operational capacity, regardless of what the job titles may say. The new governance structure makes this explicit.

After all, why let students make important decisions? They could make the wrong one, get someone fired, tank the budget, etc. And they'd be gone in a few years anyway, while for the "professional" staff in WUSA they'd be stuck with the consequences of bad decisions. No wonder Stephanie detailed a culture of fear and loathing of the student body among WUSA staff. Let us reiterate: this student government is not a government in any meaningful sense; nor is it actually operated by students. This goes for most student governments across universities. They are playpens — sandboxes — where we play pretend. And from the university administration's perspective, why should it not be? They run a serious business with their careers on the line, while students are just passing through. Why should they be making serious decisions that could jeopardize the university's reputation or budget? So let's create a sandbox for them to play house. And they need professionals to manage their own affairs on campus. So why not have the professionals take care of the important matters for them, and leave the elected representatives operating in a further sandbox within this sandbox. (We'll take Federation Hall from them while we're at it... like candy from a baby!)

It doesn't have to be this way. They can only get away with this through student apathy. This is a technical school (let's be frank) and a lot of us are of the Cali or Bust mentality. Why should we care about who and how we're governed? What would we get out of it if we devoted time and energy to care about this stuff when we have our fledgling careers to build?

The thing is, it doesn't take that much to care about these things. This is not a whole course equivalent level of time and energy. We just need to organize. They will only respect you if you practice self-respect. The student body President and VP roles are full time and well paid for a reason. They should not be reduced to effectively advisory roles within the governance of WUSA, with the "professional" staff making the day to day decisions. What we have now is a Bizarro World where things are flipped from how they should be. Furthermore, the new governance structure's fiduciary duty requirement for student leadership roles effectively neutralizes advocacy for student issues. We will continue to be treated with contempt so long as we let this happen to us through apathy and ignorance. The choice is yours.

TCBY

WOKE BUILDING

This was in EV3 a little while ago. I have an English class there, and so typically I'll hang out in the cafeteria or first floor for an hour beforehand to do work. This was made difficult that day, thanks to two guys who seemed to think everyone wanted to hear them talk. Literally like they were our performance art podcast or something. But before I left, the last thing one of them said was about how EV3 has no gender neutral bathrooms (my words) despite being a "woke building" (his).

Doesn't EV3 *have* gender neutral bathrooms?

Also, what is a woke building?

I thought about this for so long. How does a building have a political opinion? And listen, I understand that architecture is an act of creation, and every act of creation is imbued with ideology, whether that be the society's or the creator's own, etc, etc. But the way he said it really sounded like EV3 personally (buildingally?) aligned itself with some left-leaning ideology and hence chose to house a gender neutral bathroom within itself (or didn't, but wanted to??). Or maybe it's because the building was built for the "woke" purpose of teaching environmental sciences? Maybe it's because it's among all the arts buildings on campus? I haven't really decided which is the best interpretation, but they're all quite funny. Shout out to my favourite woke building on campus!

mobpsychofan



SOURCES FOR “THE ECLIPSE”

According to the editors, I’m apparently a copyright-paranoid weirdo for wanting to provide sources when I use someone else’s work. It is true, though, that sticking links right beneath a meme looks awkward. So I’ve provided them here, far away from the image so that everyone can happily ignore them at their leisure.

SOURCES:

- eclipse photo by Brocken Inaglory (https://commons.wikimedia.org/wiki/File:Solar_Eclipse_May_20,2012.jpg), which I parsed with 100% confidence as an Animorphs cover in my peripheral vision the first time I saw it
- elements from cover art of The Encounter (Animorphs #3) by David Mattingly

cutlet

THE ACTUAL WORST GIFT YOU CAN GET FOR YOUR CHILD

is N-Nitrosodimethylamine, a compound used primarily to 1) make rocket fuel and 2) induce liver cancer in lab rats. It is so fatal that often in cases when it is used for poisoning, the perpetrator of the crime eventually succumbs to liver cancer. Even small amounts of exposure can drastically shorten life expectancy. This makes it considerably worse than any gift that doesn’t cause a slow unstoppable death due to incurable liver cancer.

aphf

mathNEWS



THE END OF AN ERA...

gridCOMMENT 154.5

hello gamers,

welcome to the final wink wonk created **gridWORD** to be submitted to **mathNEWS**. it has certainly been a wonderful ride of (essentially) 2 years back from when i first began in volume 148 :00000

last time, spaghettiinhalers and i asked you: “who let the dogs out? (bark bark bark woof woof bark)” and you all responded:

- Sexy_Software_Babe: *definitely not me* ☹️
- MJ: *our dog brethren have freed themselves, throwing off the shackles of capitalism to embrace the beauty of the one true ideology: Albanian Communism*
- Coda (with thanks to GG): *Me because I want all the dogs. Give them to me*
- denko: *guy who just got home after a long day walking*
- nike: *my feral roommate*
- djungelskog & djangolskog:
- *the dogs got a “get out of jail free card” from Milburn Pennybags*
- awmlet: *me (I am in bed and I don’t wear socks in bed)*
- aphf & Lars Nootbaar: *Who let the dog out, what’s on second, I don’t know is on third*
- FRED: *We are wearing shoes????*

Coda, i agree with your sentiment of wanting all the dogs, so please pick them up something nice from the cnd with your prize!! pick it up from the **mathNEWS** office, MC 3030.

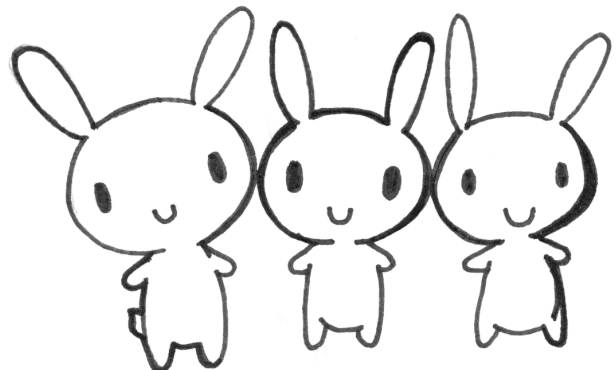
given this is my last **gridWORD** i am making, the theme is: **goodbye**, opposite to the previous theme of greetings. i have also made this **gridWORD** bigger than the typical 15x15 size to make things a little more interesting :o0000

this time i ask, “what would you do if you had an hour to live?” please send **gridQUESTION** answer, along with **gridWORD** solution and pseudonym to mathnews@gmail.com by monday, march 25th at 6pm !!!!! :o

still one last **gridCOMMENT** to go, and i’ll see you all there! ;(((

bye bye :u

Wink Wonk



ACROSS

- 1. Operatic villains, often
- 6. Heirloom location
- 11. Swagger
- 16. Swiftness
- 21. Geopolitical org. that includes Laos and Vietnam
- 22. Aquarium cleaner-fish
- 23. Job
- 24. Kind of space
- 25. "I thought ___ never leave!"
- 26. Where Seoul is
- 27. Batman's sidekick
- 28. Complain
- 29. Having qualities of a hero
- 31. Cloudiness
- 33. Table of ___
- 35. Tangle up
- 36. Aftershave relative
- 38. Least worldly
- 39. Germ fighter
- 41. Gymnast's goal
- 43. "The Matrix" hero
- 44. Reveals intoxication
- 47. Comes before ides
- 48. Fearful apprehensions
- 53. Bulgarian bucks
- 54. Marathon's 26.2
- 55. Servants
- 56. Overwhelm
- 57. Australian runner
- 58. Lollygags
- 59. Popular cooking spray
- 60. Long stories
- 62. It may be loaded
- 63. Throbbled
- 65. ___ boom
- 67. Most serpentine
- 69. Piece of land
- 70. Set of beliefs
- 73. Vision fixer?
- 74. Egg cells
- 76. RAF Planes
- 78. Greek H
- 79. Muslim rulers
- 83. Not made new
- 85. Overhangs
- 89. Salt or ester of tannic acid
- 91. Some are inert
- 92. Arm-twisting
- 94. Free from, with "of"
- 95. Sherpa's home
- 97. "___ true!"
- 98. Chances
- 99. Association for Grad students
- 100. Above
- 102. Italian side dish

- 104. Bill of fare
- 105. Film ___
- 106. Where people drink grape juice?
- 108. A horse dealer
- 109. Endured
- 110. Inflection point, acryo.
- 111. It's made in Japan
- 112. Where one makes smores
- 114. Hockey game's start
- 118. Does not accept
- 120. Tablet
- 124. Those given prizes
- 126. Excellence
- 127. Half turn by a horse
- 128. Shish ___
- 129. Midafternoon
- 131. Hiker's path
- 133. Pitcher's aid
- 134. Often-missed humor
- 135. Change, as the Constitution
- 136. Ear-related
- 137. With regard to
- 138. Adjust, as leas
- 139. Attics
- 140. A police constable in South Asia
- 141. Affirmatives

- 44. Caught some Z's
- 45. Madagascar critter
- 46. Throat dangler
- 48. Like girls
- 49. Jewelry, slangily
- 50. Bumps
- 51. False front
- 52. Leaves alone, in a way
- 54. Welcome ___
- 55. Mission statement
- 58. Native of Riga
- 59. Self-___
- 61. Some Winter Olympians
- 64. Disdain
- 65. Police operation
- 66. Daughter of Saturn
- 68. Newton or Stern
- 71. PC "brain"
- 72. Make a seam
- 75. Post death
- 77. Makes safe
- 79. Scarecrow stuffing
- 80. Port-au-Prince's land
- 81. ___ a high note
- 82. Old photo color
- 84. Related to 70 across
- 86. Drive
- 87. Histological dye
- 88. Animal catcher
- 90. Flippant
- 93. Barely get, with "out"
- 96. Doofus
- 98. Northern Scandinavians
- 101. Italian for bell peppers
- 103. Urban dwelling
- 104. Get real?
- 105. Rocket's forward section
- 107. Goodbye in English*
- 108. Small houses from the US Southwest
- 109. Geiger-counter unit
- 112. Mongrel
- 113. Onion browser
- 114. Bed-of-nails person
- 115. Cognizant
- 116. Canadian strait
- 117. Kind of position
- 119. Provides nourishment
- 121. Plays to the camera
- 122. Dress type
- 123. Bad impressions?
- 125. Jerk
- 127. Goodbye in Italy*
- 130. Ump
- 132. Sculptor Jean

DOWN

- 1. Clean
- 2. Bloodless
- 3. Clairvoyants
- 4. Goodbye in Japan*
- 5. Many cricket fans
- 6. Treated with alkali
- 7. Hammer or sickle
- 8. Black gunk
- 9. Fridge ancestors
- 10. Soft, lightweight fabric
- 11. Scrawny one
- 12. "Our Town" author Wilder
- 13. Burple
- 14. Acid related to gout
- 15. Join securely
- 16. Rendered immobile
- 17. Goodbye in France*
- 18. Rock
- 19. Milk dispensers
- 20. Pioneer in Surrealism
- 30. Computer monitor, for short
- 32. Long, long time
- 34. Relating to microscopic particles of matter
- 36. Ice-cream receptacles
- 37. Bone-chilling
- 40. A finely tempered sword of a kind made in Spain
- 42. Some tides

If you're wondering, yes, this is the best way we could lay out this issue's gridWORD. Otherwise the crossword squares would be too small to write inside of, or we'd need to move the clues to two different pages. No, we don't like it either.

1	2	3	4	5		6	7	8	9	10		11	12	13	14	15		16	17	18	19	20
21						22						23						24				
25						26						27						28				
29					30				31		32				33		34					
35								36						37		38						
			39				40						41		42		43					
44	45	46				47						48				49				50	51	52
53					54						55								56			
57				58						59				60				61		62		
63			64						65				66		67				68			
69						70		71						72		73						
			74		75		76								77		78					
79	80	81				82		83							84		85		86	87	88	
89						90		91							92		93					
94				95				96		97					98					99		
100			101		102				103				104						105			
106				107									108					109				
			110				111					112						113				
114	115	116				117		118		119						120				121	122	123
124							125		126						127							
128						129		130					131		132				133			
134						135							136					137				
138						139							140					141				

Drop your gridWORD solutions off at MC 3030. And yes, we do award points for creativity.

lookahead

SUN MAR 17

St. Patrick's Day 🍀

MON MAR 18

MathSoc General Meeting

TUE MAR 19

Earth Day
Spring equinox

WED MAR 20

THU MAR 21

FRI MAR 22

Drop with WD ends
distractED's dad's birthday
🍀🍀🍀🍀

SAT MAR 23

Math Grad Ball 🎓
Drop with WF begins
Purim begins

SUN MAR 24

Purim ends

MON MAR 25

mathNEWS 154.6
production night
Drop/add period begins
Holi

TUE MAR 26

WED MAR 27

Intergalactic Eat As Many
Markers As You Can Day

THU MAR 28

FRI MAR 29

Good Friday (university
closed)
mathNEWS 154.6 released
See you next term!

SAT MAR 30

UW AFSA TAX CLINIC 2024

Tax season is here and AFSA is back with its FREE Tax Clinic 2024! A group of trained volunteers will provide free tax return services for low-income individuals and families. To see if you qualify for our FREE services, please visit <https://www.uwafsa.ca/taxclinic> today! The link also includes information on how to receive our tax-filing service.

UW AFSA

Something about
this page feels
familiar...

AN OBSERVANT mathNEWS
EDITOR WHO REMEMBERS

Tax Clinic
Free Income Tax Returns

Date: _____ March 23, 24, 30, 31
Time: _____ 10AM - 8PM
Location: — See Website For Location

Some Conditions Apply
Visit [uwafsa.ca/taxclinic](https://www.uwafsa.ca/taxclinic) for details and changes

LAST ISSUE'S gridSOLUTION

H	O	O	P	S	M	E	T	H	A	N	E	W
U	N	M	E	T	E	C	H	O	N	I	G	H
S	T	E	N	O	C	L	A	W	T	H	E	E
K	O	N	N	I	C	H	I	W	A	E	A	S
P	L	U	M	C	H	A	P	R	O	B	O	T
L	O	T	I	L	I	E	N	E	L	V	I	S
A	P	A	C	H	E	S	E	N	E	R	L	I
N	E	H	R	U	M	O	U	E	U	V	E	A
G	A	S	B	A	O	L	A	U	R	L	M	A
A	N	T	I	N	E	W	T	O	N	S	L	A
N	E	R	O	A	C	A	I	M	O	O	C	H
G	L	U	T	T	O	R	C	A	L	O	H	A
S	E	T	A	E	N	D	S	N	O	N	E	T