

math NEWS

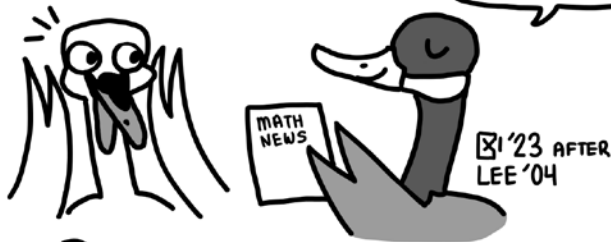
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'03-'12

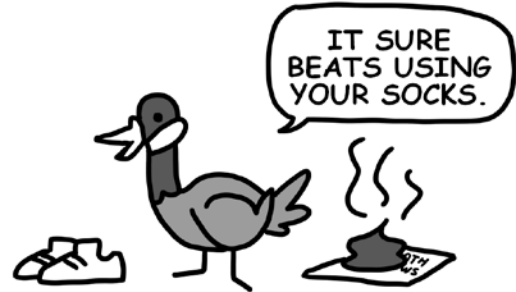
Friday, March 17, 2023

8 THINGS YOU CAN DO WITH MATHNEWS

① GIVE TO YOUR LOVER AS A PRESENT



② USE IT AS TOILET PAPER



③ MAKE A TENT



④ CUT OFF LIMB(S)



⑤ FEND OFF MUGGERS



⑥ REPLACE PET



⑧ BREAK THE TEN COMMANDMENTS

⑦ LUNCH (WHEN THE CND IS CLOSED...)



I STOLE THIS MATHNEWS ON SUNDAY FROM MY PARENTS, STEPPING ON A FEW ANTS ON THE WAY, AND BLAMED MY ROOMMATE, AND CREATED A GOLDEN IDOL TO CELEBRATE MY DIVINITY.

I ALSO DIDN'T EVEN READ IT!

lookAHEAD

mathNEWS

March 27	Issue 5 production night
March 31	Issue 5 wakes from hibernation early

MathSoc and Club Events

March 18	Math Grad Ball 🎉
March 23	MathSoc General Meeting
March 23	WiCS Side Projects Panel
March 24	MEF director applications due
March 29	Board Games With Profs

University

March 23	Next term's schedule comes out
March 24	Drop with WD ends ☹️
March 25	Drop with WF begins 🌀
March 27–28	Add period

Co-op

March 23	Cycle 3 employer rankings available
March 24	Cycle 3 student rankings due
March 30	Cycle 4 employer rankings available

Calendar Holidays

March 19	Poultry Day
March 20	Earth Day 🌍
March 20	Spring equinox
March 22	Ramadan begins
March 30	International Eat Crayons Day

Article of the Issue

Leonardo DiInception would be proud of today's AOTI: Tic *Tac Toe on Funny Surfaces*. Our author, the government's only spy, bends the rules of Euclidean space to bring new meaning to an old game. Pick up your \$25 Conestoga Mall gift card at our office (MC 3030).

god ⚡ peED
Editor, *mathNEWS*

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mastHEAD

Hello! uknightED here! Or well, I'm thinking of changing it to knightED. I need to think about it more. It's exhausting being the only editor to have a university college named after them. Anyways—we're covering '03 to '12! Between those years, I was 2–12ish, maybe 13? I grew up in the company of Windows XP, then Vista. Likewise, I bet my bottom dollar that the *mathNEWS* editors were getting accustomed to the Information Age when editing! What a refresher it must be. Not to mention *much* more environmentally friendly!

As I type this, I get to reflect on that while listening to someone flat-out ask “Miley Cyrus is Hannah Montana's mom?” in the *mathNEWS* office which was pretty random. Wasn't this the “lolrandom” era with Harlem Shake? We certainly do have a random assortment of articles from cauliflower rice, walkable cities, a British nursing student, and some super amazing *mathASKS* featuring former writers! DOOOOOOOM!!! (sorry that wuz me being random ^_^ lul)

Like the last time I wrote the *mastHEAD* (see 149.6) I'm currently writing this in WordPress instead of InDesign, so I don't have a good idea of where or when to stop. So this is another filler paragraph that could possibly be deleted! Yay! Although it would also be so funny if it were left in. [*Editor's note: Sorry, needed space.*]

For our *mastHEAD* question, we asked: “What's your favourite website?”, in the spirit of the dawn of the Information Age. We got some pretty cool responses:

fed80 (Poptropica), Lars Nootbaar (Poptropica), lwo (AddictingGames), yalevoylian (tvokids.org), someBODY (Andkon Arcade), 0.423 (friv.com. No more words. (after and including this)), normalparameters (webkinz), __init__ (The Advanced Topics forum on the Scratch website (where I got my writer name)), Andoiii (Google, all hail our Search Engine Overlord), Stabby Vale (<https://learning.parliament.uk/en/resources/mp-for-a-week/>), warrior1rules (<https://theuselessweb.com/>), Java Expert (Javadocs.), Finchey (Anyone remember those now-defunct girly game sites / social networks? Girlsense? Ponystars? GirlsGoGames before it went to shit?), aphf (The *mastHEAD* google doc), clarifiED (Pokémon Vortex! My first exposure to Pokémon.), distractED (hmm... miniclip.com? nitrome.com? freearcade.com? addictinggames.com? onemorelevel.com? i can keep going, and i can't choose just one!), evaluatED (Armor Games), uknightED (Club Penguin!!).

I missed out on having my response included in the last two issues, and had my 3rd response submitted under another name, so here's hoping I get some recognition. Likewise, huge props to the editing team—Clara “clarifiED” Xi, Daniel “distractED” Matlin, Evan “evaluatED” Girardin, Kevin “god ⚡ peED” Trieu, and Ryan “uknightED” Chow.

uknightED
Editor, *mathNEWS*

mathASKS 151.4 — Part One

Featuring Eric “inkEd” Logan, mathNEWS editor, 2004–2006

“What program were you in? Why?”

I started in Computer Science, decided on a CS/C&O double major early on, which I meticulously planned out over a couple of lunches on a co-op term, and then graduated as a C&O major with a CS minor. I did CS because I like computers, and C&O because I like network optimization problems. I just think they’re neat. I gave up on the CS major when my CS 343 and CS 365 profs displayed pretty bad disregard for student experience, so I dropped both the courses and the major. Also, becoming “just” a C&O major meant my tuition was cheaper. (Fun fact, I am a second-generation C&O major: my father got his in 1972. [Editor’s note: you’re telling me he missed out on mathNEWS by one year?])

“What involvement did you have with mathNEWS?
What drew you in?”

I started proofreading in my 1A term and things snowballed from there. I went because I met Albert O’Connor (who was one of the editors at the time) and Diana Chisholm (now Skryzdlo) during my orientation and they were fun people to hang out with.

“Thoughts on Feds/WUSA, MathSoc, and other forms of student government generally?”

I could fill an entire issue of mN on this topic. I was, at various points, a Feds councillor and director, plus a MathSoc councillor, director, and eventually president, and have chaired both MathSoc and Feds council meetings. Collective action is so, so important: many small things done together can make great things happen, but one of my least favourite things as a student leader was having to deal with people who (out of selfishness, malice, or, indeed, genuine need) were only concerned about how it would affect them personally, often financially. Student-run programmes that should be successful too often die deaths of a thousand cuts because of punctilious Poindexters, or someone gets the bright idea that what they really need is a complicated governance structure for “checks and balances”. Don’t get lost in the weeds or hung up on propriety. The first and most important job of any organization is to do things, so I urge you to focus on doing them.

“Tell us about a mathNEWS meme/inside joke from your time.”

The Campus Crusade for Cheese started as a joke. I’m not sure it exists any more, but a bunch of us got annoyed at the Campus Crusade for Christ and decided to start a Feds club to eat cheese instead. By the time I graduated it was the largest club on campus and a major stop on the Feds election campaign.

Oh, and greetings to Heather FitzGerald.

“Describe your average production night.”

We would gather in one of the XWindows labs on the third floor of the MC starting around 6, and all work together there. Throughout my time, we used a custom piece of X11 software called “plat4mN” written in the 90s in Perl 4 by Ian Goldberg (yes, the professor). Articles were marked up using a custom XML dialect and ran through “queues” that indicated their status: being written, being proofread, being edited, processed for layout/printing. People would typically submit plain text via email and one of the things proofing entailed was doing the markup, which could be previewed live by converting the mNmL to LaTeX, or exported into a format that Adobe PageMaker understood. Eventually an editor would call Campus Pizza and take someone with them to pick it up, along with some pop/chips from Farah’s Foods in the plaza, and when they got back we’d eat it in the MathSoc office around 9PM. Then someone would think of a mastHEAD question, we’d scribble our answers on a spare piece of paper, and people would trickle out.

“What kind of articles did you write for mathNEWS?”

I considered myself a proofreader first, but I did in time write a trivia column called the ‘Squiz (short for mathNEWSquize), crosswords both quick and cryptic (I learned later I did this the hard way, coming up with my own grids on graph paper), horrorSCOPES (joke horoscope-like “predictions” by major), and occasional bits and bobs of informational work. I wrote a tool to make writing the lookAHEAD easier (doing tables in mNmL was a pain). I also did one piece of serious journalism (and just one!) when I interviewed Shirley Thomson on the occasion of her retirement from being the Executive Assistant to the Dean of Math in mathNEWS 98.4.

Oh, and lots of filler. Tons and tons of it. In retrospect, I should have gotten better at editing and layout, but instead I would type things like “You know what I hate? Piddling little spaces like this one” directly into PageMaker.

“What did you do for mathNEWS as editor? Any memorable parts of the editor experience you’d like to talk about?”

Oh, I did everything at one point or another: editing, layout, shipping it to Graphics to be printed, putting it out to be picked up early on Fridays, going to the plaza to pick up pizza in the dead of winter, writing cheques to pay invoices and reimbursements, getting new Red Books made at the bookbinder in Kitchener, moving the office, tinkering with the backend software to keep it working, buying/building/configuring a new office PC, haranguing people to submit articles, mailing out copies to the National Archives and mail subscribers, and publishing the web edition.

I was the person who decided to license *mathNEWS* under Creative Commons, and also the person who started putting the ISSN barcode on the cover, both of which I am pleased to see have continued to this day.

“What’s the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

The issue when Shirley Thomson and Alan George left the Dean’s Office at the same time (the aforementioned 98.4) was maybe my best work. That was quite a sea change in faculty administration. In F06 we also published six covers that eventually could be combined into one larger artwork. That was pretty neat, but all credit goes to the artist, Tomas Benda.

“How did you feel about other newspapers on campus?”

The Imprint ranged from vapid to tolerable; I’m not sure it was ever good. The Iron Warrior... existed. I vaguely recall a student-run news blog called something like “uwstudent.org” that was the best source of campus news in its day. Oh, and don’t sleep on the Daily Bulletin.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it’s like now?”

Yeah, that tracks. I would publish whatever people sent in. I would try to needle MathSoc and faculty clubs into providing informational updates for the first couple of pages, but after that, just about anything was fair game by me.

I am mostly surprised by how long modern issues are. A big issue for me would have been 16 pages.

“Do you have any interesting stories, photos, or memorabilia from your time in mathNEWS?”

I didn’t keep any print copies that I edited, a decision I now regret. I think I still have several copy paper boxes with “MATH NEWS” written on the side, but that’s because I took them home after distributing the issues inside to use as moving boxes.

When I was editor we moved offices from MC 3041 (a tiny closet) to MC 3048 (twice the size *and* with a window!) [*Editor’s note: we’re back in the tiny closet. what happened? who do we complain to???*]. The big concern when we did was whether we could get a couch for the new office that would be OK to sit on but bad for sleeping on. We couldn’t be seen as encouraging people to, uh, sleep in the MC. I think we eventually got a two-seater from IKEA that didn’t have padded arms. It got, um, slept on anyway.

“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

Having proof that I could competently organize things was a definite asset when I asked the Dean’s office to kick in money for the 2006/07 MathSoc office renovation (which they did, eventually, after I chewed out Jack Rehder for his patronizing dismissal of the idea).

Being able to write quickly, clearly, and with humour is also such a valuable skill for life. In every field, good communications skills are essential.

“Have you kept track of mathNEWS at all since graduating?”

Vaguely, but not really. I like the new redesign, it’s a good update that modernizes without being radically different. Getting a different prof to contribute every issue is also a genius idea.

“How has life been for you since graduating? Is what you’re doing today what you expected back then?”

It’s been pretty okay. I did not expect to be working remotely from Toronto doing infra work for a large tech company in California. At the time I graduated I doubted myself too much, but now as the person who does the interviews, I wish I had applied to the big leagues straightaway.

“How do you look back on your time in mathNEWS?”

I always viewed myself as a steward, not a revolutionary: my job was to take care of it for a little while, not radically remake it into something it wasn’t before. I learned the pattern that had been developed before me and just continued it as best I could, which is why an issue from F06 (my last term as an editor) looks very much like an issue from F02 (my first term as a student). I probably could have been a bit more activist in developing writers, but scraping together material in those days was tough.

“In retrospect, would you have imagined that mathNEWS would live to see its 50th anniversary? Why do you think mathNEWS lasted? Do you think it will live to see its 100th?”

I would have been pretty annoyed if it hadn’t, but student organizations fizzle out all the time. I think it’s lasted because everyone loves a *profQUOTE*, and also MathSoc needs a mouthpiece. I hope it lasts to be 100, but undergraduates in aggregate don’t treat anything as sacred (I mean, it’s not even called Feds any more, and there’s no more Bombshelter), so however respected or long lasting the institution, it will only survive by continually recruiting.

“Would you want to be contacted for mathNEWS’ 100th anniversary?”

I will be 88 years old then, so probably still alive. Good luck to the editors of the day when it comes to finding me, though.

“Anything else you want to say or talk about?”

In 2017, an accounting clerk at Feds withheld the portion of the student fee that *mathNEWS* is supposed to receive for three terms because they believed that students were not receiving value for money (<https://uwimprint.ca/article/the-bureaucratic-battle-for-mathnews/>). It was inappropriate for many reasons, not least of which is that they had no standing to make such a judgment. I will go on record now as saying I will personally underwrite *mathNEWS* operations on a short-term basis if you have funding issues in the future, because in my view *mathNEWS* is too important to be choked to death by bureaucratic nonsense.

mathNEWS forever! It's not Canada's bastion of erudite thought for nothing.

Eric “inkEd” Logan
Editor W04, F04, S05, F06

Math Endowment Fund Executive Director, Board of Directors: applications closing soon!

It's me, again. Here to tell you that there's something you can apply for, again. If you're tired of MEF announcements delaying your reading of N things articles by precious seconds, don't worry, this is my last one for this term (with high probability).

What is it this time? MEF is recruiting a new executive director for the Spring 2023 term (that's my job!), and new directors to sit on the Board for multiple terms. These positions involve:

- attending beginning-of-term and end-of-term meetings to discuss and manage administrative aspects of MEF
- potentially sitting on committees (including the Recruitment Committee, which interviews and selects new directors/executive directors)
- promoting MEF to the math undergraduate student body
- organizing meetings of the Funding Council and Board of Directors (*exec director only*)
- communicating with project organizers and processing reimbursements (*exec director only*)

You're especially encouraged to apply if you've held a seat on Funding Council before! **Applications close on Friday, March 24.** The link to apply can be found here: <https://uwaterloo.ca/math-endowment-fund/board-directors>.

Any questions? E-mail the MEF Executive Director at mefcom@uwaterloo.ca.

Daniel Matlin
MEF Executive Director, W23

MathSoc Cartoons: Producers Needed!



REQUIREMENTS

- STRONG TIME MANAGEMENT, COMMUNICATION, & MARKETING SKILLS
- PASSION FOR EDUCATION AND COMICS
- MUST BE A MATHSOC MEMBER

RESPONSIBILITIES

- OVERSEE COMIC COMPLETION AND PUBLISHING
- EDIT WORK FOR QUALITY, SOLICIT FEEDBACK FROM STUDENTS AND PROFESSORS
- GET FUNDING AND ENSURE CREATORS ARE PAID
- RECRUIT AND TRAIN NEW EMPLOYEES
- PREPARE CONTRACTS AND OTHER MATERIALS

There's an opportunity open next term (Spring 2023) for 1–2 producers for the MathSoc Cartoons project!

Are you interested in:

1. leading a team of writers and artists to create useful academic resources for math students
2. developing valuable transferable skills
3. being featured on the MathSoc website for your contributions?

Then fill the application in our bio by April 3rd 2023 at 11:59pm!

As always, feedback, suggestions, and fan art can be left at cartoons@mathsoc.uwaterloo.ca.

MathSoc Cartoons

Episode 51: Lazy Evaluation

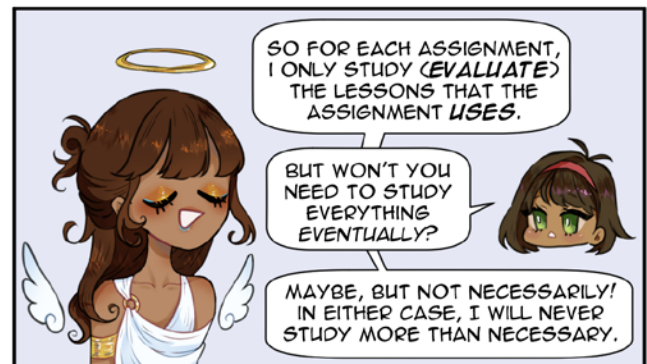
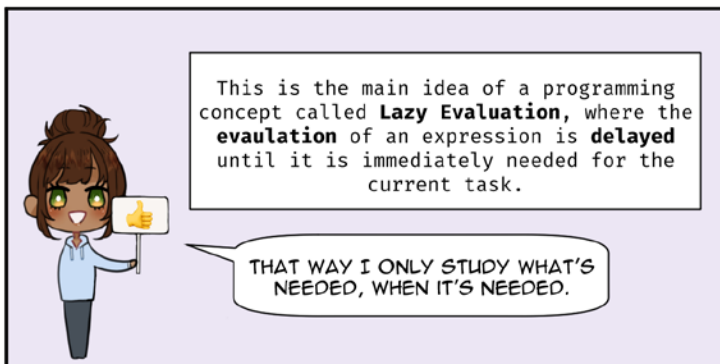
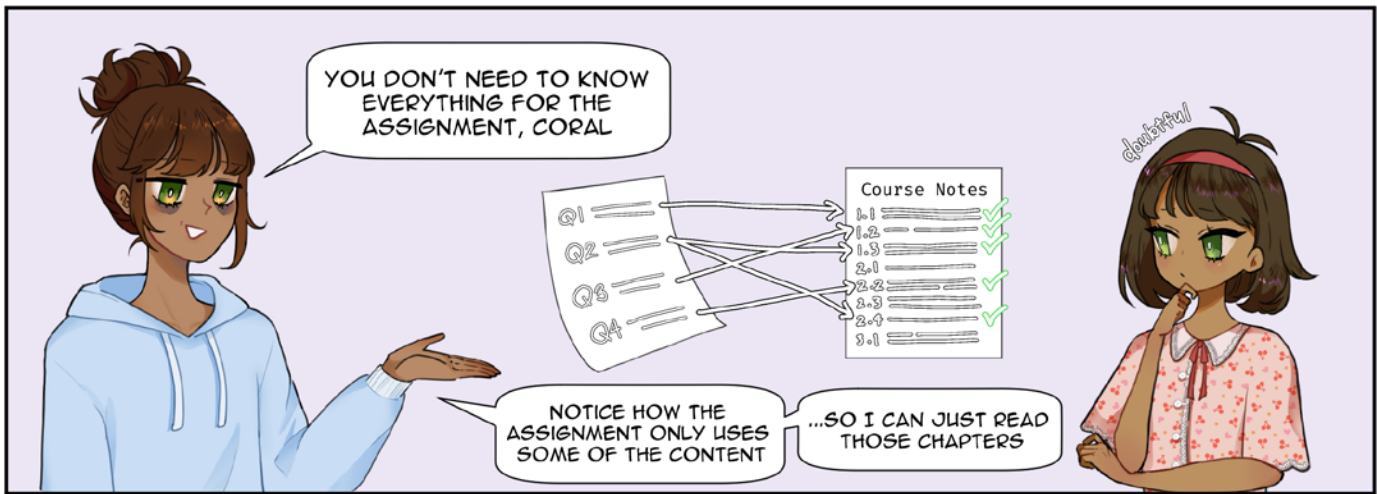
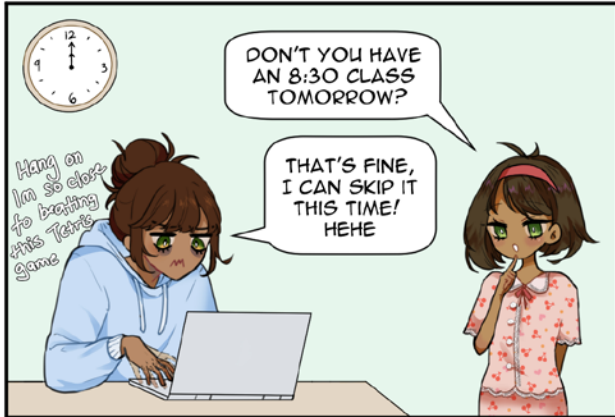
Enjoy Episode 51 of the MathSoc Cartoons series — *CS.145: Lazy Evaluation!*

Want to see the next comic when it's released? Follow @mathsoccartoons on Facebook and Instagram! Want to see the next comic BEFORE it's released and provide feedback to help us out? Sign up to be a reviewer at <https://bit.ly/mathsoc-cartoons-reviewer-signup!>

MathSoc Cartoons

CS 145 - LAZY EVALUATION

STORY BY: ISHAN SHASTRI | ART BY: JULIET WANG



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INTRODUCING...



- \$999
- Lazy Evaluation
- Multi-Theadreading



- \$999
- Eager Evaluation
- Quad-Coral

Evaluate: 3rd natural number



$$\text{Nat} = \begin{cases} 0 \\ \text{Nat} + 1 \end{cases}$$

$$\Rightarrow 0 + _$$

$$\text{next} \Rightarrow 0 + 1 + _$$

$$\text{next} \Rightarrow (0 + 1) + 1 + _$$

$$\text{next} \Rightarrow ((0 + 1) + 1) + 1$$

$$\Rightarrow 3$$



Evaluate: π to 2 decimals



$$= 3$$

$$\rightarrow = 3 + 0.1 + _ \text{ satisfied?}$$

$$\rightarrow = \underline{3 + 0.1} + 0.04 + _$$

$$\rightarrow = 3.14$$

enough?

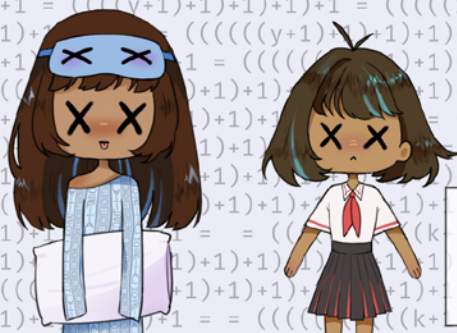
There, only need this piece of the pi!

So if I understand, you'd like the 2-decimal approximation of 3.1415926

This is caking forever.



$x = y$
 $y = x + 1$
 Evaluate: y



Lazy Evaluation only guarantees termination when termination is possible

***Disclaimer:** Laziness only works in programming theory -- procrastinate at your own risk of (delayed) demise

*COMPUTERS USE A SERIES EXPANSION TO APPROXIMATE PI TO A GIVEN NUMBER OF DECIMALS, SUMMING OUT AS MANY TERMS AS NECESSARY TO OBTAIN THE DESIRED ACCURACY -- SEE THE BBP ALGORITHM FOR AN EXAMPLE
 NOTE: IN IMPERATIVE PROGRAMMING, THERE ARE CASES WHERE LAZY EVALUATION CANNOT BE USED. THIS IS BECAUSE SOMETIMES COMMANDS MUST BE EXECUTED THE MOMENT THEY ARE RECEIVED BY THE COMPUTER. FOR EXAMPLE, THE COMMAND TO RECORD THE STATE OF A SYSTEM AT A GIVEN TIME MUST BE EVALUATED IMMEDIATELY -- IF IT IS EVALUATED LAZILY -- THAT IS, ONLY WHEN THE RESULT IS BEING DEMANDED BY THE USER -- IT WOULD RETURN THE SYSTEM'S STATUS AT THE TIME OF DISPLAY, RATHER THAN AT THE TIME REQUESTED -- POTENTIALLY THE WRONG RESULT!

DO NOT GET THE CAULIFLOWER WINGS AT THE V1 CAFETERIA

WORST MISTAKE OF MY LIFE

It was a frosty Thursday eve, and the sun had just set below the trees beyond the Waterloo campus. First-year students, by the hundreds, were filing in and out of the cafeteria like ants. I shuffled around among the crowd, one of many looking for sustenance after an arduous day on campus. It was a day like any other, but on this occasion something occurred which changed my life permanently.

It was a stroke of luck. For once, I had arrived at the cafeteria before the hot food was put away for the night. For once, I could forgo poutine, caesar salad, and burgers, and choose variety! I snatched a reusable plastic container, and clutching it firmly, I entered the line to the hot food counter.

As I approached the counter, I scanned the available selections. There were the typical rice and steamed vegetables, along with a few other options. But one particular dish, and the sign above the container heaping with saucy food caught my eye: cauliflower wings.

Instantly, my mind was swirling with questions. How on earth could cauliflower be turned into wings? What would such a dish even be, and what would it taste like? But I also knew one thing for certain: Cauliflower was the vegetable for me. Its texture, so sublime, and its taste, mild so as not to be overpowering, yet delicious in itself. I knew in my heart of hearts that if I could eat only one vegetable for the rest of my life, cauliflower would be it. And so without any doubt in my mind that this was the correct course of action, I added an adequate portion of cauliflower wings to my container, and strode to the cashier, filled with anticipation for when I could dig into my meal.

I sat down at the table in the cafeteria, and took a bite of the cauliflower wings. But contrary to all my expectations, the taste was not pleasant. Instead, I was struck by the most offensive flavour I have ever experienced.

Perhaps you have heard of the myth of the hunter Actaeon. For those that have not, Actaeon was said to be a master of hunting. Indeed, Actaeon would often hunt with his pack of dogs. One fateful day, he witnessed the goddess Artemis bathing, naked. Unfortunately, while he was enthralled by her divine beauty, Artemis saw him and ordered him to never to speak a single word again.

Actaeon then made a fatal mistake: upon hearing his dogs, he called to them.

Artemis, enraged, immediately transformed Actaeon into a deer. His dogs, well-trained as they were, then proceeded to chase him. He attempted to flee, but was unable to. His dogs were too fast, caught up to him, and tore him apart. Actaeon died a painful death, murdered by the companions he had spent his entire life with.

This would have been a fate infinitely preferable to eating even a single bite more of cauliflower wings.

It is difficult to get across just how awful these wings were. I surmised that the terrible taste was due to the sauce. It was a mix of the sourness of hydrochloric acid multiplied a thousandfold, with the saltiness of the Dead Sea concentrated into a single cup, combined with the spice of pure capsaicin. My taste buds were assaulted with the force of an oncoming train. I wished with my entire life for the pain to end, for myself to be freed from my mortal coil, but seconds upon seconds passed with no release. My tongue felt as if it was being stabbed with a metal fork, and then said fork was being pushed directly into an electrical socket. My life flashed before my eyes: the legendary lectures of David McKinnon, then me, filling out the Waterloo AIF under a cloudy sky, the friends I made, kept for some time, and let go in high school, middle school, elementary school, the freedom of youth and what used to be.

After what felt like aeons, I was able to swallow the dreaded cauliflower wings, and the pain relented. Relieved, I attempted to appreciate the other food I had purchased, but disappointment wafted up from my container. Foolish me. The multitude of students, each with their own odour, had filled my nostrils, and deceived me into believing that at least the scent of the cauliflower had not been too far gone. But now, sitting on my own, the crimson sauce emanated an acrid odour, rising off my container and into my nose. There was no escape. I held my nostrils shut to keep the scent at bay, while in my distress, I tried to eat the remainder of my food.

But this, too, was a futile endeavour. The wicked sauce had worked its way through everything in my poor container, wiggling around and surrounding the rest of my food like a sinister snake. Even the vegetables at the far side of my container, which I had thought to be safe, were not spared from the incoming deluge of poison. The slightest touch of sauce turned the greatest of cuisine into a torture method straight from the bowels of hell itself. Not even a single grain of rice was free from contamination, my container appearing worse than the Chernobyl disaster. Nevertheless, with immense difficulty, my nerves in agony with every bite, I forced myself to finish the parts of my meal which were the least infected.

At long last, it was over. My entire mouth aching, I took my container to the garbage bins. Although on a usual day, I would have paid close attention to correctly sorting my waste, I was in such anguish that I dumped all my food waste into the garbage instead of the compost. I take comfort, though, in the fact that even if I had thrown them in the compost bin, the wings were of such abysmal quality that not even the microorganisms in the composting facility would have processed them.

Flash games that I still remember fondly

Inspired by this week's *mastHEAD*, I've decided to write a piece dedicated to the flash games that I played when I was a young lad during my 40 minutes of screen time. My website of choice was Andkon Arcade, and admittedly it was often the case that most of my 40 minutes was spent scrolling through the site trying to decide what to play. But when I found a great game, oh boy did I find a great game. I'm going to write about a selection of said great games, and hopefully this article will bring a bit of nostalgia for fellow flash game enjoyers.

SHIFT

This game is a puzzle-platformer with a clever gimmick. Its style is incredibly simple, you are on a white background platforming on black terrain. But with a press of SHIFT, you switch the positive and negative space, swapping the colour that's the background and the one that's the platforms. The simple platforming opens the door to lots of fun and creative puzzles. It also has a sense of humour borrowed from Portal, which I did not know as a kid because I hadn't played Portal yet. And to top it all off, there are four instalments, each one better than the last.

Fancy Pants Adventure

This one is pure platformer. It has fluid, satisfying movement and a fun, fully-drawn artstyle that makes the entire game eye candy. It's so popular that they remastered it on Steam, which made me very happy.

Riddle School

The quintessential point-and-click escape game, this game has a whopping seven instalments which complete a riveting story about a young boy who does not want to go to school. This game is hilarious, its puzzles are super fun, and its witty and creative characters make it an experience you'll never forget.

Henry Stickmin

In the before times, a studio called Innersloth made a game that wasn't Among Us. That game, or rather that franchise, was the Henry Stickmin franchise. You play as a stick figure who is a criminal mastermind, making decisions on how you're going to break the laws of physics in order to steal shit. With five flash games and a remaster on steam that includes those five plus another, there are many stories to be told. Although you will make many wrong turns that will result in your death, they will all be funny and that makes it worth it.

Achievement Unlocked

This game is about getting achievements! You play as a very small elephant who does random tasks for the catharsis of that sweet, sweet achievement sound. I'm noticing a pattern where all these games have multiple instalments, with this one having three. This game is very satisfying. Highly recommend.

Papa's Freezeria

Look, I know that the canonical one is Papa's Pizzeria. This is just the one I happened upon, don't judge me. You work as a clerk making lil ice cream milkshake things for people. It's pretty epic.

Run

I actually didn't play this as a kid, but a year ago some friends were doing a flash game-related challenge and we were trying to speedrun Run 3. I won. I'm just an epic gamer lol. This game is very challenging and very fun. And it easily has the best soundtrack of any game on this list by far.

The Game Game

This one was a bit mature for kid me, but teen me definitely enjoyed it. At least the parts I got. There are a lot of political and pop culture jokes and what have you. Its creator, Nicky Case, is very talented, and you should definitely check them out.

Poptropica

I wasn't originally going to put this on the list because I could write an entire article just about this game. It consists of multiple islands, each of which is a self-contained adventure that will put your gaming skills to the test. It's so big that it has its own website instead of being playable on a flash game website. This game is absolutely phenomenal and absolutely enormous, although the fall of flash makes it a bit hard to find all of its content nowadays.

someBODY

PMAMC&OC Weekend Update

Prof Talk Galore!

We had our C&O Prof Talk last week by Prof. Douglas Stebila on Lattice-based Cryptography, where members were forced — I mean, invited to enjoy many donuts. By the time this article comes out, the PMath Prof Talk by Prof. Nico Spronk, A Better Integral, would also have happened. We have many more events in the works, so stay tuned for updates when we finalize the details and announce them to you all. All the usual places, Discord for the earliest drops of the news, Instagram and mailing list, and check the website for info on all the events.

This is kind of a short update because I don't have any upcoming events to shill, but I'm excited to see y'all at future events that I will be shilling on the other platforms soon!

VP Propaganda, Remington Z.
Pure Math Club

mathASKS 151.4 — Part Two*Featuring Harrison “GroovyED” Gross, mathNEWS editor, 2009–2011**“What program were you in? Why?”*

I ended up in Mathematical Studies. When I was first admitted to UW, I was offered both Honours Mathematics and Honours Knowledge Integration. I flirted with the Teaching Option for a time, as well as CS, but ended up not being able to entirely make up my mind. I just wanted to finish an Honours Mathematics degree, so I went to Math Studies as the “generalist” option.

*“What involvement did you have with mathNEWS?
What drew you in?”*

I was a writer from Spring/Fall ‘09, then an editor from Winter ‘10 till Fall ‘11, then went back to occasionally writing until I finally graduated. I had been reading it off and on because I had been coming to campus as part of a high-school university co-operative program for letting people get a taste of higher education. I had been on campus for the Fall ‘07 term before I started in ‘08, and I also knew writers who were my Orientation Leaders, who I also knew from another club (see next question).

“Were you involved in any other clubs at Waterloo?”

I was involved in WatSFic my entire undergrad career, and I also did some stuff with MathSoc. I wrote articles advertising the club, and there was definitely overlap at the time. *mathNEWS* was one of the primary advertising vectors still, since the usage of social media was still growing. This meant that we at minimum interacted with most of the math clubs.

“Thoughts on Feds/WUSA, MathSoc, and student government generally?”

Back when it was still called Feds, I didn’t particularly like them that much. I thought that the Greek societies had too much influence, they would often run slates and get in because many really didn’t care about it. Besides that, some of the very silly insurance rules they were trying to press refused to allow for impromptu meetings that weren’t fully booked, which led to interactions between Feds/MathSoc and the Dean of Math. I also had a personal dislike of Feds because of how they treated historical clubs that had offices that they then stripped. WatSFic was my home and so I took it a bit personally. I was on MathSoc Council, and did think that it was largely resume padding and play-acting. That’s probably why I was a terrible MathSoc president the term I was elected. Thinking back on it now, it’s definitely a place to explore team building and coalition building, trying to figure out how well you can sniff out politically popular positions, etc. I made friends through it that I’m still friends with, but was it a good use of time? Nah, I should have been studying.

“How did you feel about other newspapers on campus?”

Depends on the year. Imprint had some editors and writers that I was friends with, and well, then there was the “E is for Idiot” incident, which made me think they had an over-inflated view of themselves. Iron Warrior I could take or leave, I usually would read it, with all of the other papers. My sister/brother-in-law had been editors of that in the late ‘90s, so I had a bit of internal respect for it even though I didn’t really have contact with them.

“Describe your average production night.”

We’d meet in the MathSoc office and then take the writers all down to one of the computer labs, usually on the second floor at about 6:30. There’d be an opening spiel about how editors are there to help anyone new, how to get logins working, how to get access to the production system, giving people a heads up on how mNmL worked, etc. About 7:30 we’d start doing our democratic system for pizza toppings, make the order, etc. At about 8:30 some of us would wander over to Pizza Nova at University/Phillip, pick up the order and bring it back for post-production pizza in the C&D dining area. This would all happen on the Monday.

That was the structure of the night. As for actual operations, people would talk about article ideas or just browse the web, most on their own laptops, some on university machines. People would talk about the news, about jokes, classes... basically, not too much was out of bounds.

The rest of the week was a desperate rush of editing/layout before noon on Wednesday so we could get the issue off to Graphics Services for the print run to be ready for noon on Friday.

“What kind of articles did you write for mathNEWS?”

Looking back, bad ones. Drinking, 4chan (back before I knew better), bad fanfiction, a made up character upset about software engineering taking over *mathNEWS*, just awful stuff. I think I wrote some articles about video games. Once I was done being an editor I never knew what to write about, which is part of why I think I became an editor so quickly.

“What’s the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

The “E is for Idiot” incident burned into my brain how libel laws are a travesty. We called the Imprint president an idiot for being ignorant of the law while making a claim about free speech in Canada and we were threatened with a lawsuit. We issued an apology and retraction, but I’m still not sorry about it.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it’s like now?”

Yeah, sounds like not much has changed. It’s only been like 12 years since I was an editor, and the culture seems relatively similar. I wasn’t sure how the pandemic would affect you all, but it seems basically the same, a wide mixture of people, writing what they want to write.

“Do you have any interesting stories, photos, or memorabilia from your time in mathNEWS?”

I filled the office with like, 6 stacks of Imprint one time just because I could. They were over printing it and just flooding MC with all of their extra issues that weren’t being read. Also, sleeping on the couch overnight because I didn’t want to ride the bus home.

There were a couple of fun pictures from *mathNEWS* things.



A shirt I made out of *mathNEWS* for a FASS party.



A drawing by Lily of some of the editors at the time.
I’m the angry one in the centre.



Some editors/writers in hallowe’en costumes.



Not entirely *mathNEWS* related, but I went very pink one time while MathSoc president.

“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

Well, I had some major depressive episodes as an undergrad, so it was a major factor in getting me out of bed and to campus. It was a place where I could socialize and see friends and acquaintances, compared to classes which often were not the most enjoyable or supportive. It did take up a lot of time on Tuesday nights though, and I can't say I didn't put off studying to do mathNEWS tasks instead. The balance was hard. Beyond undergrad, getting the issues in has kept me looped in with what younger people are thinking and talking about I guess.

“Have you kept track of mathNEWS at all since graduating?”

A little bit. I was aware of the typeface/design change in the late 2010s, I had met the editor who was spearheading that. [Editor's note: look forward to our interview with him in the next issue!]

“How has life been for you since graduating? Is what you're doing today what you expected back then?”

I didn't have expectations when I graduated. I struggled to even finish my degree, it took me seven years. I spent like four years getting exploited by a gig economy job tutoring kids online in math. They underpaid me and tried to garnish my wages, and I eventually threatened them with taking them to the Ontario Labour Board. I got some of the back pay, but eventually was let go about six months later so that it couldn't look like retaliation. I took other odd jobs, working at Conestoga College's bookstore, working for municipal/provincial/federal elections. When the pandemic hit, I ended up taking a job with a call centre working under contract for a FAANG business that put call centre workers under an NDA. I worked there until December 2022, and now I'm working for TD, finally getting a job in software. I'm learning COBOL to maintain ancient code on mainframes, which is honestly pretty funny. Having read the old mathNEWS red books, I never expected I'd have even more in common with the old editors.

“In retrospect, would you have imagined that mathNEWS would live to see its 50th anniversary? Why do you think mathNEWS lasted? Do you think it will live to see its 100th?”

I was there at the 40th anniversary and I basically assumed mathNEWS would continue, as the will for such an organization to exist shouldn't be discounted unless it went off the rails somehow, or was taken over by a full out ideologue etc, but then they'd just be kicked out [Editor's note: Prabhakar]. Some other clubs I was in almost didn't survive until the current day. WatSFiC almost died, the UW Amateur Radio Club basically is dead, but mathNEWS has the benefit of having an explicit recorded history, an office, and the tacit support of the Math Faculty and MathSoc. Assuming the university lives that long, and the Math Faculty continues to exist, I entirely think it will survive.

“Would you want to be contacted for mathNEWS' 100th anniversary?”

If I'm alive I'll be 82. Sure.

“Anything else you want to say or talk about?”

The editors deserve a new couch for the office. It's been there since like 2012 or 2013.

Harrison “GroovyED” Gross

untitled.pdf

I walk into Service Ontario, hands shaking
This is the final exam that I'm taking
I walk out an hour later, license in hand
I'm finally driving off to the promised land

I sit in the driver's seat, and strap myself in
This is the most excited that I have ever been
I check my mirrors, road is clear, and I give my sign
Then I pull away and drive off, headed for cloud nine

The road to happiness is paved poorly, it seems
The shoulder is fading away and there's rust in the beams
And every now and then I am trapped in gridlock
I'm struggling to remember why I didn't just walk

They say you should only drive when you're well-rested
Seven hours of sleep is what is firmly suggested
But if I stop to rest, then I'm not at the wheel
And if I'm not making progress, how will I heal?

The faster I drive, the further the destination
And I cannot help but keep struggling for elation
They wouldn't after all, issue to me in vain
The license to keep driving till I drive myself insane

Contentment is always around the corner after all
So I move my car along till I make the engine stall
And bleary-eyed, slump-backed, I steer and softly speak
“I just gotta make it through this week,
I just gotta make it through this week.”

wall outlet

Glitter

Glitter is one of the worst things one can possibly deal with, and it shouldn't exist.

You can't change my mind.

boldblazer

profQUOTES

“If I want to hurt you, I would smash this corner of the cube in your face, but I am not that violent.”

Jorn van der Pol, CO 250

“So this result is called Newton’s Third Law of Elementary Operations.”

Ross Willard, MATH 146

“Are you supposed to wash these masks?”

Ross Willard, MATH 146

“Reddit data is not that valuable.”

Alfred Menezes, CO 487

“The prof retired, lives in Kitchener, and in front of his house is a rock engraved with his conjecture ‘ $P=NP=Co-NP$.’”

Alfred Menezes, CO 487

“Three years worth of Sundays. Not the best use of your weekends.”

Alfred Menezes, CO 487

“The largest number factored to date is 21, that is $21=3*7$ ”

Alfred Menezes, CO 487

“If you’re in nondeterministic world, great! You can make a guess and it’ll always be correct. Maybe there’s another analogy to the midterm here...”

Eric Blais, CS 365

“Do spend some time trying to prove $P = NP$, just don’t publish it before running it by me. I’ll either show you where you made an easy mistake or somehow get my name added as a co-author.”

Eric Blais, CS 365

“I kinda want to say ‘homeomorphism’, but that’s just because it’s one of the words I really like, I don’t really think that’s actually the answer.”

Eric Blais, CS 365

“We can all try to make up things I may or may not have said.”

Eric Blais, CS 365

“SPACE really really works differently than TIME.”

Eric Blais, CS 365

“That’s a really great question that I really wish you hadn’t asked, I was trying to sweep it under the rug here.”

Eric Blais, CS 365

“The main idea behind saving space is really being a terrible programmer.”

Eric Blais, CS 365

“I’ve got so many Ls...”

Eric Blais, CS 365

“This is the part where I go ‘proof by authority.’”

Eric Blais, CS 365

“What I really like is tying a hand behind the back of the computer.”

Eric Blais, CS 365

“Okay, who likes airplanes here? [*some people raise their hands*] Okay, these guys have passed the course.”

Gladimir Baranoski, CS 488

“Congratulations, you have finished the first course in computer graphics. You’re still here, that means you want to suffer some more.”

Gladimir Baranoski, CS 488

“How many of you have heard of the Carthaginian empire? [*nobody says anything*] Have you heard of the Roman empire? [*some people nods*] Good, there’s still hope for you guys.”

Gladimir Baranoski, CS 488

“Legend says Archimedes was working on his assignment for CS 488 when the Romans found him...”

Gladimir Baranoski, CS 488

“Look at the feet of the naked guy.”

Gladimir Baranoski, CS 488

“Many of the best people in graphics are women. So... no pressure for you girls.”

Gladimir Baranoski, CS 488

Google the etymology of Bubble Tea

Do it right now, coward

Is this sort of thing common knowledge? I feel like it really should be, and yet no one has ever mentioned it to me once. This is so odd, so weird, the word is so ubiquitous and no one has ever brought up the fact that the origin is so odd, this information feels like it was made to be shared once you learn about it, and still no one told me. Am I simply that ostracized from those around me? Are the social connections I formed with my peers so superficial and one-sided they won’t even tell me the etymology of bubble tea? I am well past the formative stage of my life, is it too late for me now? Am I too set in my ways? Will I ever be able to change? Or will I simply forever remain the type of person that no one will even talk to about the etymology of bubble tea.

Existential Crisis brought on by the Etymology of Bubble Tea

Reviewing every movie sampled in the Avalanches' 2016 album *Wildflower* (part 4)

XI. Something Wild (1986)

The Avalanches seem to have a thing for movies with great theme songs. *Something Wild's* contribution is its featuring of a 60s hit song called “Wild Thing”, popularized by the Troggs (man, we’ve really gotten better at naming bands since the 60s) but performed many times throughout the movie.

The movie itself, aside from the music, is pretty good! It’s action-packed, kinda silly, and romantic as well: a young businessman working in New York is seduced and taken for an adventure by Lulu, a mysterious, care-free woman who appears in his life one weekend. The businessman slowly loses his overwhelming stress about his professional life as the pair embark on misadventures from roleplaying at Lulu’s mother’s house to crashing a high school reunion, but Lulu’s past catches up to her resulting in an action-filled climax. The plot is a little cliché but it’s still a captivating, enjoyable watch.

The spirit of the duo’s road trip through the country is captured perfectly in the ten-second clip the Avalanches sampled from *Something Wild* and used in “Live a Lifetime Love”: at one point the protagonists are giving a lift to a family who they saw at the side of the road, and they’re all singing the movie’s theme song, “Wild Thing”, as they drive through the countryside. Some guy (who wasn’t even part of the family they picked up) is sitting in the backseat of the car accompanying them on guitar, Lulu shouts out the start of the chorus: “Wild thing!” and the father of the family replies in continuation: “I think I love you!” It’s honestly a better performance of the song than the 1966 version that was a number-one hit, and its sample in the Avalanches’ “Live a Lifetime Love” is a beautiful moment.

In an interview, Robbie Chater of the Avalanches told The Guardian that *Wildflower* was intended to feel like a road trip through the country, starting in the city and embarking on a psychedelic, hyperreal journey into the middle of nowhere.¹ “Live a Lifetime Love”, heard approximately midway through the album’s runtime, feels like the part of a road trip when you really start to feel like you’re in the middle of nowhere—the last time you remember seeing a city feels like it was hours ago—but it doesn’t matter, because you’re having fun and you’re with people who are making you happy.

Something Wild gets a recommendation from me, but if you don’t have the time, or something’s rubbing you the wrong way about the plot, or something... you could also listen to *Wildflower*. It’ll take you on a pretty similar journey.

XII. Jean-Michel Basquiat: The Radiant Child (2010)

This is, as you would expect, a documentary about the renowned 20th century artist Jean-Michel Basquiat. Comprised of clips from a never-before-seen 1986 interview with Basquiat himself as well as present-day interviews with some of his peers, the film tells the story of Basquiat’s life, from his beginnings as

a graffiti artist in 1970s New York, to his sudden and incredibly rapid rise into stardom in the fine art world as a neo-expressionist painter, to his tragic death at the age of 27 less than a decade later.

I don’t really know how to review a documentary like this. I mean, I can’t review the story, because it’s a real story that’s being told directly by the actual people involved and not much more than that. Maybe that’s a criticism I can make: the filmmaker doesn’t give us much background behind what was going on in the art world during that time and why Basquiat’s work got so much attention, because it does seem like there is a little more context that could have been explained. Also, many of Basquiat’s paintings are shown throughout the film, but they don’t give you enough time to really look at the paintings. Basquiat’s paintings are busy and maximalist and it takes a while to really understand what’s going on (if, like me before watching this, you’re not super familiar with Jean-Michel Basquiat: you may have seen one of his paintings on the cover of The Strokes’ recent album *The New Abnormal*). I tried pausing the movie at times to try to get a better look, but that made the documentary harder to follow. Maybe this documentary was intended for people who had already seen all those paintings.

The film ends with Fab 5 Freddy, a friend of Basquiat and hip-hop pioneer, reciting a poem by Langston Hughes:

*This is a song for the genius child.
Sing it softly, for the song is wild.
Sing it softly as ever you can -
Lest the song get out of hand.*

Nobody loves a genius child.

*Can you love an eagle,
Tame or wild?
Can you love an eagle,
Wild or tame?
Can you love a monster
Of frightening name?*

Nobody loves a genius child.

Kill him—and let his soul run wild.

The Avalanches sample the first verse in the song “Going Home”, and they change the rhythm up a bit, which is pretty neat. I especially like how they mute the word “softly” on the third line—it reminds me of how Basquiat described his technique of crossing out words to emphasize them: “the fact that they are obscured makes you want to read them.”

The Radiant Child spends a considerable amount of time discussing the dramatic impact Basquiat’s incredibly sudden rise to prominence had on his life and mental health, rapidly going from street artist to millionaire, and yet continuing to not be taken seriously as a Black, experimental artist, despite selling

works for tens of thousands. As Hughes' poem encapsulates this notion, I can't help but wonder if the Avalanches' Robbie Chater thought about his own life while the band composed this piece: the sudden rise to fame of the Avalanches, the uncertainty of an experimental art form, Robbie's own struggles with addiction, and the impossibly high expectations from their first album that set off a 16-year development hell for *Wildflower*. It sort of feels weird comparing these two stories considering their very different endings, but the documentary makes a point of highlighting the very speculative, volatile and high-pressure fine art world that was inescapable in New York during Basquiat's time (not that the situation has improved at all since then), and that had a dramatic impact on Basquiat's life. If the Avalanches had had to deal with that, they may have had a different story.

XIII. *Heavy Metal Parking Lot (1986)*

Heavy Metal Parking Lot is a 16-minute documentary filmed in a parking lot before a Judas Priest concert. A film crew follows around some enthusiastic concert goers, most of them teenagers, as they perform bizarre rituals to reaffirm their support for Priest and the general concept of heavy metal.

There aren't any major samples here, but there are a bunch of little ones, bits of exclamation thrown here and there into the songs: someone yelling "hell yeah!" is sampled in both "Harmony" and "If I Was A Folkstar", another fan telling the interviewer that "Judas Priest is number one!" is also sampled in "Folkstar", and someone yelling "Langley Park, Yeah!" is sampled in "Because I'm Me".

Since this film was pretty short, I'll keep this review short as well, in part because the previous review was way too long. *Heavy Metal Parking Lot* was okay. It feels like a YouTube video someone would have made in 2011.

__init__

1. To quote Chater exactly: "it starts in a kind of hyper-realistic urban environment, then goes on a road trip to the sea or the desert or the countryside, while you're on acid. So you start in the city and over the course of the record you end up somewhere far away from there, high as a kite."

why we love mathsoc

- snacks
- friends
- snacks
- friends that bring us snacks
- snacks
- mathsoc log
- snacks
- vpc insta posts

panda1

Conversation

SOCRATES. At 00:00 1 January 2000 I said "hello" to myself exactly twenty years in the future. Then at 00:00 1 January 2020 I said "hello" back. For a brief moment both ends of a conversation were upheld between two vastly different instances of me. An exchange at an agreed upon frequency, a mutual acknowledgement of the other's situation, was successfully made in two directions across a one-directional medium.

THELONIOUS. You made that up, didn't you?

SOCRATES. Unfortunately, yes. I only came up with the idea on 00:00 1 January 2020, 20 years too late.

THELONIOUS. That's also a lie. Had you thought of it then, you would have immediately set up a similar interaction between 00:00 1 January 2020 and 00:00 1 January 2040.

SOCRATES. You know me too well. I don't know when I thought to do this, but it was clearly too early or too late. Such an appointment has to be scheduled for two significant points in time, otherwise I would forget about them.

THELONIOUS. It isn't really that great of an idea anyway. You say that a conversation would have been held that defied the laws of time, but the content of that conversation would have been completely meaningless. Everyone everywhen knows what "hello" means, or at least they know something that means "hello". It's like saying that gold defies the laws of currency because a bank in 1920 would have accepted it too.

SOCRATES. It doesn't defy anything, it simply transcends it.

THELONIOUS. But it's worthless.

SOCRATES. Gold is worthless?

THELONIOUS. No, "hello".

SOCRATES. I think "hello" is worth its weight in gold.

THELONIOUS. How much does it weigh?

SOCRATES. It depends on how lightly you say it.

THELONIOUS. Nonsense.

SOCRATES. You know, I really should have ended that conversation with a "goodbye", for balance.

THELONIOUS. You never had that conversation.

SOCRATES. Good point.

wacfeld

Differentially expressed genes match flavor and texture morphology despite largely undifferentiated genomes in a Holarctic French dish

Introduction

Ratatouille niçoise, and its close relatives *Confit byaldi* and *Ratatouille (2007)* are some of the most well studied species in the order *Foodiformes*. However, the intraspecies taxonomic dynamics within some members of this order are highly unresolved. Specifically, there has been doubt recently on the species status of *Ratatouille niçoise* regarding the controversial split of the nominate *Ratatouille niçoise* and the derived species *Ratatouille villageoneicus*. The widespread taxon *R. niçoise* is renowned to be rich and flavourful, with “incredible freshness from the tomatoes and sweetness from the onions and bell peppers, an almost creamy note from the zucchini and eggplant, balanced by the savory garlic and herbs” (Claire et al., 2022). Comparatively, the heavily “different” (Goel, 2023) taste and texture of *R. villageoneicus*, which is endemic to a small area of Kitchener, Ontario, has cast much doubt on if it is truly a member of the species *Ratatouille niçoise*, or if it is even a member of *Foodiformes* at all.

In this study, we implement high-throughput sequencing to evaluate these hypotheses by examining genome-wide variation in anonymous loci among ratatouille sampled from different regions of the Holarctic. We also assess variation among taste sequence data and gene expression in a subset of North American ratatouille that span the phenotypic continuum described above. Finally, we use ecological niche models (ENMs) that characterize differences in suitable abiotic conditions between North American *R. niçoise* and *R. villageoneicus*.

Materials and Methods

We took samples of both taxa from various locales around the Holarctic, with *R. niçoise* specimens being sourced from France, Luxembourg, Hungary, North Macedonia, and Russia, and with all specimens of *R. villageoneicus* coming from Kitchener, Ontario. A comprehensive data table of all specimens can be found in the appendix, Section 1. The specimens were evaluated under genetic analysis software, and barcoded RNA-Seq reads were demultiplexed, filtered and trimmed prior to assembly. We used trimmomatic v0.27 (Lohse et al. 2012) to remove low-quality reads that dropped below a Phred-scale quality score of 20 or included contamination from Illumina adapters. Filtered reads were then loaded into trinity r2013-02-25 (Grabherr et al. 2011; Haas et al. 2013) to assemble a de novo reference transcriptome using all 10 individual cDNA libraries, including individuals of both *R. niçoise* and *R. villageoneicus*.

As a secondary approach, our researchers tested dishes of both *Ratatouille* taxa in order to confirm primary source data on morphometrics. A team of 100 researchers was evenly and randomly assigned to consume either *R. niçoise* and *R. villageoneicus*, with special focus on taste and texture. Further data on this can be found in the appendix below in Section 2, which also documents the extensive legal fees and ramifications caused by this.

Thirdly, abiotic factors were considered by evaluating pre-existing species relationships under de novo ENM systems developed by (Dre, 2019). While ecological niche differentiation has previously been seen as an important indicator for speciation, recent advancements in genetic infrastructure development have cast doubt on this and thus the the ENM system was configured with EX19, “IVORYBILL” settings, set to 2023 climate data, population distribution, and political stability (“Catastrophic”). This software was licensed and used with permission from Aftermath Entertainment and Beats Electronics.

Results

Initial results provided strong evidence that the genomes of *R. niçoise* and *R. villageoneicus* are close genetically with relatively high rates of introgression. The codons ZUK3, TOM80, ON10-N, AUBER, and C18H27NO3, all traditionally ascribed to *R. niçoise*, were each present in *R. villageoneicus*, just in a highly damaged and malformed state. Additionally, the genes ascribed to *R. villageoneicus* that are commonly cited to differentiate the two species, GLU3 and PIGBRAIN, are only present in trace quantities in *R. villageoneicus* and do not seem to be affecting speciation. It seems that the obvious phenotypic differences between the two taxa are thus the result of the massively malformed gene expression present in *R. villageoneicus*, but these do not seem to be correlated to sex-determinant components of the genome and thus are unlikely to be the cause for speciation. In fact, the genomes of the two taxa are likely introgressing even further, with heavy amounts of *R. villageoneicus* genes being expressed by *R. niçoise* in other habitats with similar evolutionary pressures as Kitchener such as Guelph, Toronto, and Pyongyang.

As for the culinary approach, our researchers largely corroborated pre-existing literature on the differentiation of the taxa. While the researchers assigned to *R. niçoise* found the dish “an extraordinary meal from a singularly unexpected source”, going so far as to say that “the meal and its maker have challenged [their] preconceptions about fine cooking”, while it seems that the LD50 of *R. villageoneicus* is approximately 482 mg/kg. This confirms that the previously stated gene expression indeed affects phenotypic flavor and texture differences, while still not influencing speciation.

Finally, research on abiotic factors surrounding the *Ratatouille* taxa have traditionally studied the differences in the primary predators of the group, *Homo waterloo* and *Homo sapiens*. And while previous research suggested the taxon *H. waterloo* to be a distant, more primitive relative of *H. sapiens* due to the vast intellectual inferiority of the prior and low interbreeding, recent studies (Kwong et al., 2019) suggest the taxon are indeed one species. Our ENMs (see Section 3 in the appendix) corroborate this, with surprisingly high rates of *H. waterloo* consuming *R. niçoise* in the rare instances they venture out of their burrows.

Conclusion

Our results suggest that, surprisingly, *Ratatouille niçoise* and *Ratatouille villageoneicus* are indeed one singular species with high rates of genetic introgression and similar niches. This novel discovery shows us we have much to learn about species characteristics and how they affect speciation. Rapid bouts of phenotypic diversification and speciation have provided seminal examples of evolution in action, yet also present theoretical, computational and conservation challenges. Despite technological advances that have characterized the genomic era, these challenges remain in many systems. Continued persistence and analytical innovation will reward molecular ecologists with acute knowledge regarding the evolutionary and ecological processes that comprise lineage diversification and phenotypic differentiation in rapidly evolving lineages. As (Gusteau, 2007) famously said, “Anyone can cook, but only the fearless can utilize high-throughput sequencing to provide unprecedented phylogenetic resolution in many lineages that have experienced rapid diversification.”

Conflicts of Interest

The authors were bought and paid for by the University of Waterloo. [Editor’s note: For legal purposes, we’re required to say that this is categorically false.]

/aeren/^2

spring

the slush that lines the street outside
 a week ago was snow
 as sunlight breaches thick, blue clouds
 the grass begins to grow
 the city comes to life again
 upon the early dawn
 at long last, you now feel free
 to cut across the lawn
 yes, you need to grab your scarf
 yes, the wind still bites
 but it’s fangs are not so sharp
 it’s grip is not so tight
 as you step outside your shell
 to see the world transform
 that long, black jacket’s very thick
 honey, aren’t you warm?
 the frigid winter has a way
 like ice, of freezing pain
 but
 this time of year, it always seems
 to wash out
 with the
 rain.

Dick Smithers

City’s not walkable uh?

Some people just want to complain

If you live on the wrong side of the tracks, getting to school can’t be said to be boring. Take yourself to the university student burbs: a futuristic LEGO city east of the university. Where towers are stacked high, colourful and as sturdy as LEGO—and cars patrol the street like a toddler is playing with them. Vroom! Vroom! However, the most interesting part about this whole setup is how the hell these thousands of students get to campus.

I take you now to two small humble holes in a fence behind some apartment buildings on Lester.

Hundreds of students pass through these holes every day. Why is there so much foot traffic through them? Why am I writing an article about this? Good question.

Well, dear reader, E7 and DC—two prime spots on campus—are a direct shot through these fences. By sheer force of will, we, the many, have opened up a path so that the walk to campus takes five minutes less than it normally would. But wait! Isn’t this destruction of property, jaywalking, and trespassing? Yes.

Now, I am not advising anyone to use these shortcuts. What, of course, would you have to gain from endangering your life to save five minutes in your day? Surely you value yourself more than that.

One of these routes requires trespassing through an apartment block’s parking lot. These pesky students leaking through the broken fence of these small-time landlords is truly a big problem, so every month or so they’ll try and block the hole(s) in the fence with plywood. (When it was snowing, they even started actually piling the snow up so the hole was impassable. Talk about Beyond Ideas!) Now, just survive this busy parking lot, jaywalk across Phillip and you’re rewarded with lecture! Yah!

When the holes to the apartment lot are closed off, that leaves one other option: a sharp drop and a nice promenade through a severed piece of the university plaza parking lot. This path is fine and probably not illegal. The only problem is that there is a significant meter drop from the fence. This is fine on the way out—but how would you get back up? Well, some clever students built up staircases using “unused” wooden pallets. Do not fret, this way is also riddled with peril—wind, rain, and snow take their toll and I’ve seen many a student collapse the pallet and almost wipe out on the concrete.

Now, if only instead of having built the city like some teenager playing SimCity for the first time, they made the apartments right by the university actually walkable to the university. But that’s just wishful thinking. Now, if you own a car—

ihatelegocity

Humans vs ChatGPT Part 2

The results

Background and Motivation

Last issue I shared a survey that contained six stories written by humans and one story by ChatGPT. They were all given the same prompt: “In 100 words or less please tell the story of human trying to pass a Turing test”.

This study was inspired by the Clarksworld ChatGPT controversy, where the magazine had to temporarily close submissions due to being inundated with ChatGPT spam. However, this story is not about AI stories winning against humans, but rather that the volume of submissions essentially acted like a DDoS attack. Still, this controversy did result in discussion about whether AI could replace human writing.

Personally, I thought that this question was fucking stupid. I was convinced that if I gave people some stories written by humans and one written by ChatGPT, the following two statements would be true:

1. Humans would be able to successfully identify which story was written by a computer.
2. The ChatGPT story would be poorly rated.

So instead of just writing a rant about the virtues of human creativity and the blandness of generative language models, I put my theory to test with a survey. I am now happy to share the results.

Below are the 8 stories:

Submission: **WHITE**

click

The door shuts behind them.

They look at the desk, alone in the room, and the page, with only a pencil for company.

They sit down. Grab the pencil. Look at the page.

It's the most open-ended test they've ever seen... but it would have to be. Computers are good with the concrete, but without a prompt? That's where they struggle.

They think for a moment, find their answer, and painstakingly draw it out.

They get up to leave.

Their page is alone again, containing only their attempt and the singular prompt at the top:

“Create true art”

Submission: **RED**

H: Before we start, I have a question about the rules.

J: Go on.

H: So anything I would say in a normal conversation is fine, but are anecdotes okay?

J: Why do you ask?

H: Well, when you have a conversation with someone and they start a long anecdote, it stops being a conversation. Like, oh, I've gotta sit here now as you go on about how you and your neighbour's ex-wife both wore the-

J: Please, stop talking.

H: Right? Then they'll have the audacity to end it with some stupid punchline!

JUDGE ASSESSMENT: HUMAN

REASON GIVEN: STUPIDITY

Submission: **BLUE**

beep boop human emulator booting up. “Hello ~~~world~~~ fellow human, I already have many real friends but it is nice to meet you. How about that weather lately? And did you see the <insert game> last night? I had some of my favorite beverage which I enjoyed over a period of 7.4 minutes.”

Submission: **YELLOW**

John tried to create a chatbot that could pass the Turing Test, spending months refining it. When he tested it, their conversation seemed indistinguishable from that of a human. But he realized that the Turing Test was more than just a technical challenge; it raised philosophical questions about the nature of humanity. While his chatbot may have passed the test, John knew it could never replicate the depth and complexity of human thought and emotion.

Submission: **GREEN**

—questioner4 joined— questioner4: Hello! I'm here to assess whether you are a machine or not. john: I am human. My name is John. I'm 27 years old. I work at a car factory in Windsor. You have to believe me. questioner4: Hmm, volunteering unnecessary information seems typical behavior of modern AIs. john: NOT AGAIN NONONONONONO NONONONONONONONONONONONO questioner4: It seems like this AI is already already stuck in a loop. No further questions. —questioner4 left— ChatGPT Prompt: Pretend that you are testing if the person you're talking to is a machine or human, but always conclude that they are a machine.

Submission: ORANGE

October 4, 2085

Jon stared at the screen in front of him. Less than a minute until he needed to prove his humanity. The machines were everywhere, they said. This was needed to protect mankind they said. But still...

With a low hum, the screen came to life.

"Hello, I'm Aaschillii, what's your name?"

"Hello, I'm Jon"

"Ok, you're human. Guess your parents were fully on board with the whole 'creative misspelling' thing "

The screen clicked off. Jon stood up and stretched, then sighed in relief. Of course he was human. There was no reason to get excited.

Submission: PURPLE

Alan Turing, a brilliant queer person, developed a wonderful test in the 1950s, regarding intelligent behaviour by machines. How can I, as a queer person, show that I am brilliant but not a machine? If I were a machine, would I use commas with such wild abandon? Would rhetorical questions make readers feel brilliant and assume the same of me? Both tactics have been used by chatGPT already. Proof that I am human: "Lust in the Dust" isn't a John Waters movie but it is Divine. AI doesn't pun well and this post is awkwardly exactly the required 100 words.

Submission: BLACK

Cassie knows she isn't supposed to try to beat the computer. That would mess with the researchers' controls. But she can't help herself. Is it really so wrong to hope there's something special about human-to-human communication? What is it, she wonders. If she used metaphor, would that tell the reader she wasn't the computer? Vary her sentence structure? Draw on personal experiences? Hyperbole? Gibberish, maybe? Cassie decides to describe her internal thoughts. Surely a computer can't do that! She starts writing:

"Cassie knows she isn't supposed to try to beat the computer..."

Survey Limitations

Before analyzing the results, I do want to acknowledge some limitations to my survey. Respondents were solicited from my friends and the mathNEWS readership. Neither pools are representative samples.

While the order of the stories was randomized in the survey, the colour associated with the stories was not. The stories and the questions were on different pages, due to limitations in what Google Forms can do.¹ Asking people to both rank the stories and to identify the ChatGPT story might prime people to be overly harsh on the story they suspect to be ChatGPT.

Survey Results

There were 45 respondents to the survey. 78% (35) correctly identified that the Yellow Submission was written by ChatGPT. All the other submissions received at least one accusation aside from Green. So, congratulations to tendstofortytwo for being the most human human. Orange was the most likely candidate for being a Cylon with 3 accusations.²

ChatGPT was the overall loser with 56% of respondents picking it as their least favourite story. The bias against computers is strong, with 60% of people picking the story they accused of being ChatGPT as their least favourite. There were 3 people that picked the ChatGPT story as their favourite story. However, not a single respondent picked the story they thought was written as ChatGPT as their favourite.

Every single story received at least one vote for being someone's favourite story. The average rating for ChatGPT stories was 2.1/5 while the average rating for human stories was 3.6/5, a 1.5 star difference. The Black submission by Morgan Anderson was the clear winner, with 38% of people picking it as their favourite.

Final Thoughts

I proved both my hypotheses with flying colours. People could consistently identify the ChatGPT story and picked stories of human creativity every single time. I had a lot of fun with this and would be willing to do it again with a similar idea or with a twist.

I received some suggestions on how to make the challenge harder in identifying the ChatGPT story. I found these suggestions amusing, as my motivation for this survey was to *prove* that humans can suss out a computer in a haystack.

When I read the human stories, I smile, as they all have a sense of play to them. The ChatGPT submission to me, however, just feels like it's spitting back the Wikipedia article on the Turing Test. It's bland, and it misunderstood what I was asking. There will always be a need for humans to express their creativity. That's made clear by *mathNEWS* celebrating 50 years.

To prove my own humanity, I want to apologize to Predap for forgetting to include the White submission in the survey. If to err is human, then here is your proof.

BeyondMeta

1. I honestly could write another article just ranting about Google Forms.
2. I guess that's what you get: meaningless quips making references to a 30 year old TV show.

Operating System review: Windows Vista

Hear me out, okay

Good morning, operating system enthusiasts! In honor of *mathNEWS*' 50th anniversary, The Editors are styling each issue of *mathNEWS* roughly in line with one decade that *mathNEWS* has been in existence. This article is intended to be published in the second issue, corresponding to the years [2003, 2013]. In honor of that, we are taking a look at Windows Vista, a much-maligned, and I argue¹ misunderstood attempt to bring computing hardware and software into the modern era.

System Requirements

Minimum (“Vista-Capable”)

- 800 MHz CPU
- 512 MB RAM (384 MB if you use the Starter edition, but you *really* don't want to)
- SVGA graphics card
- 20GB HDD space

Recommended (“Vista Premium-Capable”)

- 1 GHz CPU
- 1 GB RAM
- Graphics card with a WDDM 1.0 driver, Pixel Shader 2.0, DirectX 9.0, and a bunch of other things

Historical Context

Microsoft Windows suffered from massive success during the 1990s. I'm talking anti-competitiveness lawsuit-level, Supreme Court almost broke up the company-level, would never dip below 90% desktop OS marketshare again-level success. All this with Windows 3.x, 95, and 98—operating systems that took over where Windows 1.0 left off as a little shell on top of DOS, and built an entire second OS on top of the same shaky foundations. How they managed to get this far, I don't know, but by the late 1990s even Microsoft was feeling the crunch—the DOS driver and application model didn't allow for true multi-tasking, multi-user environments, and the patchwork that the OS had grown into made it very unreliable and insecure. So Microsoft wanted a reset.

The reset came in the form of a rebase on the Windows NT kernel—a brand new base created from scratch, relying on none of the DOS beneath it. Microsoft had been using Windows NT on its enterprise side for a while, with enormous success—see Windows NT Workstation and Windows 2000, and planned to bring NT to the consumer with a two-product strategy: Whistler and Blackcomb.

Whistler would come out first, and Blackcomb would follow a couple years after, following a similar development timeline to Windows 95 and 98. Whistler did eventually come out as scheduled—you know it as Windows XP—and it was a massive success.

Sometime along the development process, however, Microsoft decided to place a smaller interim release between Whistler and Blackcomb, called Longhorn.² Longhorn was meant to be a minor upgrade scheduled to come out in 2003, two years after XP, and be followed by Blackcomb, the next major release, in a couple years after that.

Unfortunately, Longhorn was a victim of a malady many software developers are familiar with—scope creep. Various features meant for Blackcomb slipped into Longhorn, and eventually Longhorn ballooned into a major release of its own. All these features being tacked on delayed the release of Longhorn over and over again. The features that were added were unstable, and leaked development builds of Longhorn suffered from major memory leaks and other issues. It increasingly looked like Longhorn was a trash fire. Once again, Microsoft wanted a reset.

In early 2004, they put aside most of their Longhorn code, so far based on Windows XP, and started with a clean slate with a Windows Server 2003 base. Slowly but surely, pieces of the original Longhorn that looked to be salvageable were integrated onto the new base, and management implemented strict rules about what new features could be added. Slowly but surely, Longhorn began to take shape.

In 2005, Microsoft finalized Windows Vista to be the final name for Longhorn. Following a couple of public betas that year and next, the final version of Windows Vista was released in late 2006. Blackcomb would go on to become Windows 7.

But the story is not yet over! Windows Vista launched, as you may know, to mostly-negative reception. Part of the reason for this was the vastly increased system requirements—while Windows XP could run on a 266 MHz CPU and 64 MB of RAM, Vista needed an 800 MHz CPU and 512 MB—a three-fold and eight-fold increase respectively. A lot of folks in that era owned computers that were somewhere in the middle of this large chasm, and could not run Vista.

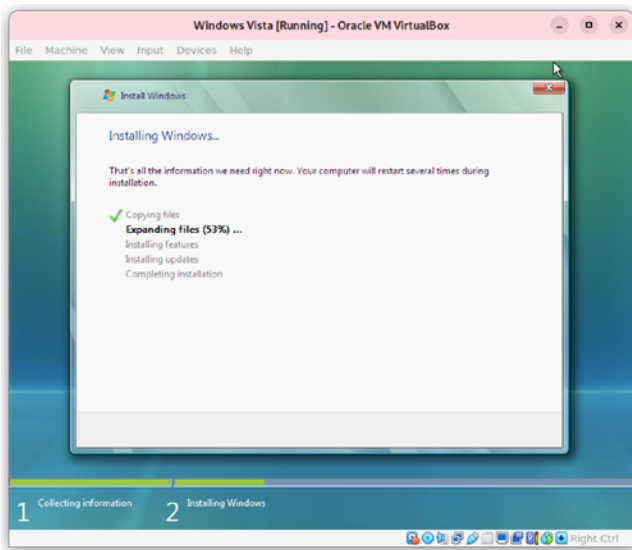
But even if you had a machine that met these requirements, you could not use all of Vista's features. Some of Vista's features, like its beautiful Aero Glass UI, were locked behind more CPU, more RAM, and a beefy graphics chip. It was possible to spend extra on Vista Home Premium compared to Home Basic, only to try to install the OS and realize that you didn't meet some requirement and couldn't use any of the extra features you paid for.

And even if you *did* have capable hardware, that was no guarantee that you would have a good experience. Windows Vista introduced a completely new driver model, and hardware manufacturers were slow to port their drivers over. So in the beginning Vista would hobble along using XP drivers, something it wasn't designed for, leading to instability and unreliability.

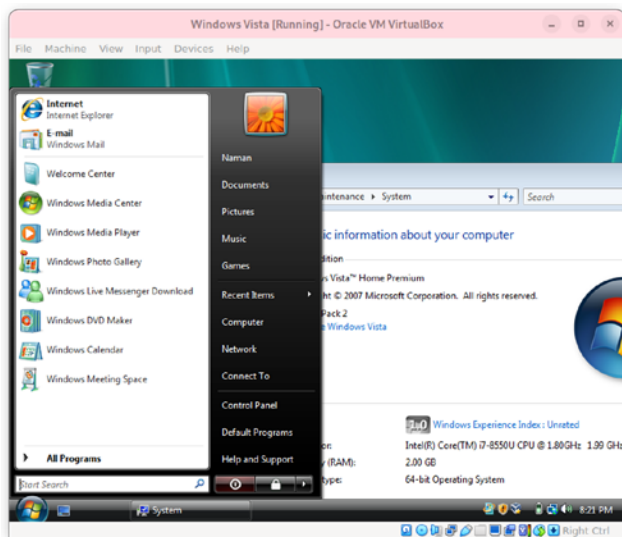
The Experience

To be quite honest, it was terrible. Windows Vista Service Packs 1 and 2 were supposed to improve stability massively, and eventually hardware manufacturers caught up and produced the right drivers—so if you had a Vista machine in 2008–09 you should have had a very good experience. *However*, my experience installing Windows Vista on a VirtualBox virtual machine was pretty bad, almost exclusively from driver issues.

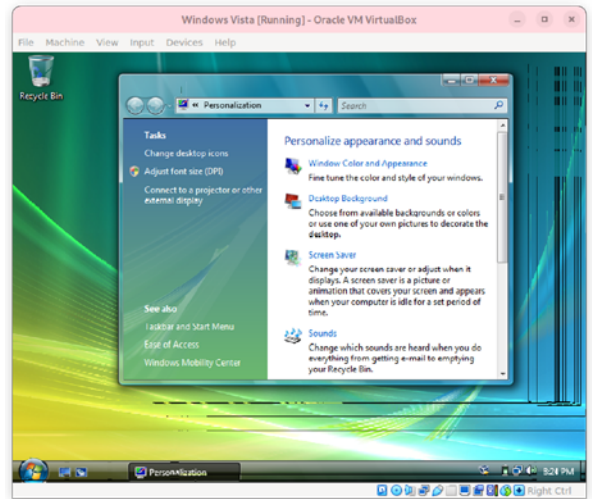
The installation itself went really smoothly—if you’ve installed any version of Windows from Vista up to 11, the process is pretty much the same.



Soon, I was dropped onto a Windows Vista desktop. No fancy Aero Glass yet; for that, I would have to install drivers for that.

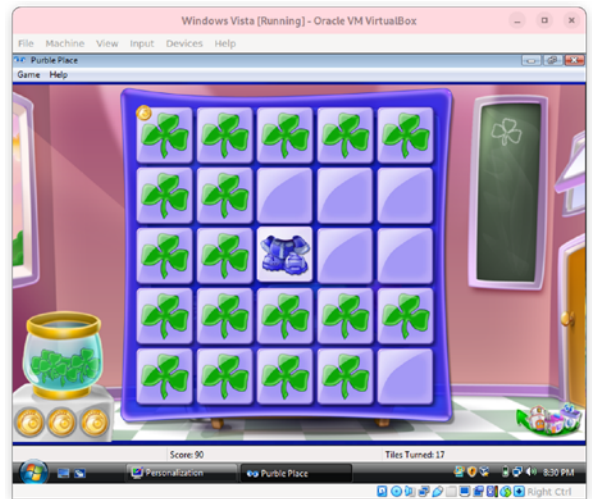


Unfortunately, installing the drivers—the display driver in particular—ruined everything. The UI was garbled, everything was unstable and broken, and eventually the display driver crashed.

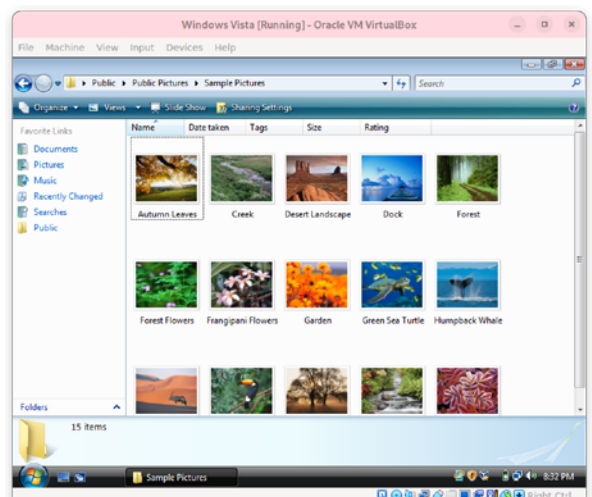


After the display driver crashed, the theme reverted back to the Windows Basic theme and the UI issues fixed themselves.

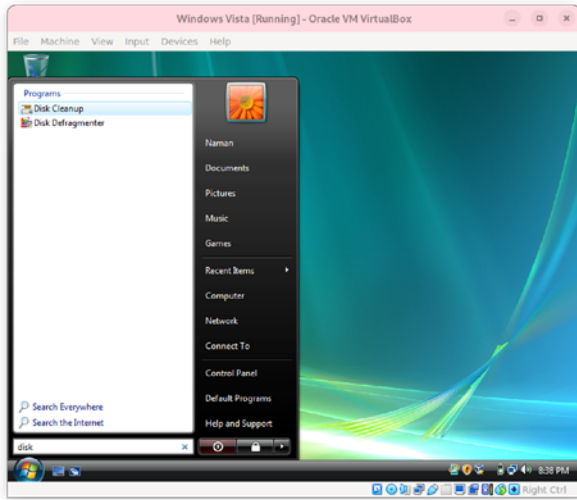
Games work well! Unfortunately they got rid of 3D Pinball: Space Cadet, but you get newer bangers like Purple Place (you might not think it’s a worthy replacement, but my sisters who grew up on this would beg to disagree).



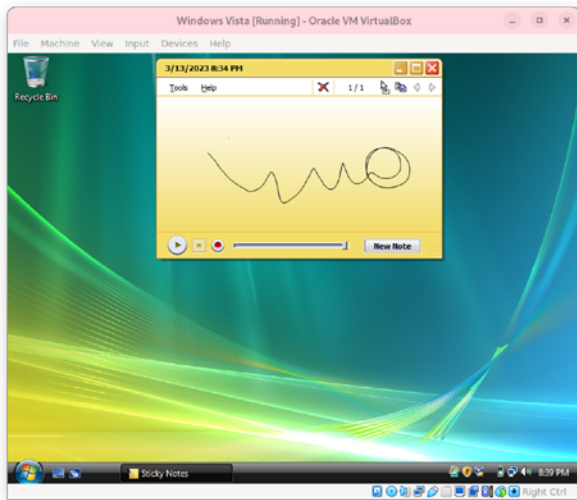
Windows Explorer looks extremely handsome, in my opinion.



The Start menu now has a great search, something that would grow to be a fantastic search in Windows 7 (and then steadily get worse in every version since).



Some programs are carried over from Windows XP—notice the Windows XP-style buttons on Sticky Notes.



There are more features that I am locked out of because of the broken UI... oh well.

Concluding Thoughts

I wanted this article to be a redemption arc for Windows Vista. I've used it on real computers before and enjoyed it a lot. Heck, given the shared base between Windows Vista and 7, there really shouldn't be much difference between them in terms of stability and compatibility. And I met someone, while writing this article, who passionately thought that the Windows Vista interface was leagues ahead in terms of functionality compared to 7. Why, then, does Vista get so much hate?

I think it's because of the experience I had with this review. It doesn't matter if the thing is good in theory, if you didn't have a good experience with it once, you will be turned off from it... and first impressions are hard to change.

Microsoft had an experiment where they showed people who hadn't seen Vista but had a negative impression of it, a "new operating system" named Mojave, and people reviewed it extremely favorably. Mojave was just Vista, renamed so people would give it a fair shot. And once they did that, they found that they quite liked it. So I ask you to not take my second-hand experience at face value; try it for yourself sometime if possible, with an open mind. Maybe you'll like it.

tendstofortytwo

1. unsuccessfully
2. British Columbia fans in the chat will realize that this is in fact a reference to their favorite province. Whistler and Blackcomb are two ski resorts there, and Longhorn is apparently the name of a local bar on the way from Whistler to Blackcomb.

fun things from minecraft that we need irl

1. Getting struck by lightning

I would like be able to have one of my abilities amplified like sir charged creeper. The possibility of becoming a skeleton is a bit off-putting though

2. Ender pearls

I think about this EVERY time I need to walk

3. Enchanting

I'm enchanting my Kuru Toga with Knockback II

4. Glistering melon

Sounds crunchy

5. Splash Potion of Harming II

We do a little trolling from the SLC balcony

6. Bottle o' Enchanting

Maybe all this experience will get me a co-op

jamchowder

a horror story in one sentence

Two drinks in: "you realize that Marcoux assignment is due today, right?"

fake analyst

I came to the open house; what the fuck was I supposed to learn?

Disclaimer: written by a student. The University of Waterloo and the Math Faculty don't generally publish to mathNEWS, it is an honour reserved mostly for students.

If all goes well, this edition of *mathNEWS* will reach the shelves of MC one day before the March Break Open House, where a new generation of students will walk our beloved asbestos-lined halls for the first time. Each will head home with a stack of brochures and booklets they are unlikely to ever read, and hopefully, some will take with them a stapled issue of the foremost bastion of erudite thought. If you're one of those students, you probably have one question at the top of your mind:

What the *fuck* was I supposed to learn from that?

That was my impression. I remember coming to Waterloo, being walked around a bunch of buildings, somehow ending up in Dana Porter library (I have never returned), miraculously being dragged along to the newly-renovated SLC, visiting the nearest residence, and promptly leaving as fast as possible. When we got home, my parents asked me what I thought of Waterloo; I responded with an emphatic shrug. I didn't have the information with which to answer.

Until you're in university, you know nothing about university, and by the time you're in university, it's already too late. But if you're now at home, recovering from the day's events, wading through information trying to chart your course forward, here's some things it would be valuable to have learned:

- **A vague impression that there are in fact programs:** Did you know that there are programs at university? If not, yes you did, but we really made sure that you understood the options. Maybe one of the more niche programs caught your eye; maybe you see a possible future in Math/Teaching, Math/Phys, the Double Degree with Laurier, or some other program Waterloo offers. The tour hoped to open your eyes to the wealth of options available, so if your application deadline has not passed yet, take the time to investigate every one that caught your eye.
- **Clubs are more than big sticks (but they are big sticks sometimes):** Hopefully while you were here, someone told you about a club that sounded interesting. Between rock climbing, the dance clubs, sports teams, archery, pure math club, or cheese club, Waterloo is sure to have a club that piques your interest. Of course, the activities of the clubs rarely matter. The Pure Math Club is one of the most interesting clubs on campus, most of all for those who understand none of the math involved. Isolation breeds misery; join a club to pick up a club and beat the misery away.
- **How many residents does a residence take for a resident to residence residents?:** There are residences on campus—hopefully you visited one, and got an impression of whether you'd like to be there. There's much important information to learn—did you learn that campus housing

requires anyone of height 6'4" or over to submit a disability form? If you're considering living in residence, be sure to thoroughly research all relevant information—presence of air conditioning, privacy of washrooms, and privacy of bedrooms are all good places to start. Did you know you can live off campus? Half of urban Waterloo is student housing, and most of that housing lets you have your own bedroom, with a bed that fits.

- **Vibe. Check.:** There are many who, upon reaching campus, feel an emotional connection to our brutalist architecture and omnipresent geese. Should you feel that connection, the tour was a success; we've successfully sunk our hooks in, and you couldn't escape if you wanted to. If not though, that's not to worry—not everyone feels an immediate connection, or any connection through their years of being here. An emotional sense of belonging makes university decisions easier, so I hope you find one, here or elsewhere.
- **Among the night sky, there are always a few stars:** Reading only our online communities, you'd think Waterloo is a bleak hellscape in which the only winning move is to leave. Touring you around MC was admittedly not the best counterexample to that notion, but hopefully in speaking to the students you realized that we're not all so empty as we seem. We complain, a lot, but there is light in the darkness. There's joy to be found in the clubs, the events, and the friends along the way. No one can promise you happiness, but the university experience is one full of life. Soon, you'll have the chance to live it.

molasses

Join The Math Studies Club!

Are you looking for a welcoming community of math enjoyers and fun events? If so, I highly recommend the (somewhat) new MathSoc club, Math Studies Club!

We are a club dedicated to undeclared students and math studies majors, but we welcome all math students. By joining MSC, you gain a community of people who love a large variety of math and offer unique insights into the field.

Like most clubs, we also hold social and academic events. Most recently, we had a Math Movie Marathon where we played a collection of inspirational movies about math (such as *The Man Who Knew Infinity* and *The Imitation Game*) and offered free snacks for all club members. If such events are of interest to you, I highly recommend becoming a member of MSC!

If you find this appealing, come to the third floor of MC and visit our club room and become a member. You can also find our discord on the University of Waterloo server under the name Math Studies Club!

Amelia (MSC President)

mathASKS 151.4 — Part Three*Featuring Ian “iEd” MacKinnon, mathNEWS editor, 2003–2006**“What program were you in? Why?”*

Computer Science. I always knew I wanted to do something STEM. The dot-com bubble inflating when I was in high school really made me want to work in CS. When the crash happened I still wanted to do CS, so I took that as a sign I wanted to do it for better reasons than money.

“What involvement did you have with mathNEWS? What drew you in?”

I was a contributor to *mathNEWS* the first issue of my 1A term and became an editor in my later terms. I was drawn in by the fact that it was a cultural chronicle of the faculty and a place to attempt being funny.

“Were you involved in any other clubs at Waterloo? Was there much intersection between mathNEWS and any particular clubs?”

I did a lot with MathSoc and Orientation, two organizations that had a complex relationship with *mathNEWS*. However, those were the major student-led organizations in the faculty and were the face of the faculty for many students. A lot of the same people overlapped; but many would choose to only be apart of one, which is understandable.

“Thoughts on Feds, MathSoc, and student government generally?”

I think the faculty level organization (MathSoc) does a better job at student services because the volunteers for those groups are there to earnestly help other students. When you get to University-wide student government, you start to attract a type of student whose goal might be to use that as a stepping stone to being a policy wonk. Nobody volunteers for MathSoc because they are building a resume to work for a political campaign or think it will help them get a FAANG job.

“How did you feel about other newspapers on campus?”

The editor of *Iron Warrior* at the time was a good friend of mine and still is 20 years later. It was a very friendly rivalry. *Imprint* is the paper of record for the University so, similar to Feds, it attracts a type of person who was more serious about it. This is good because it was useful to highlight certain issues, but also meant it could never have the irreverence *mathNEWS* can about trivial university politics.

“Describe your average production night.”

After everyone had settled in, I would make my own list of content ideas I had come up with seeing if anyone was interested in writing it. I'd also hear other pitches and try and bounce

them around. Years later, I learned that actual comedians do something similar where everyone pitches in a circle and gives feedback about how to “punch up” a concept to something funnier. From there, it was off to the keyboards until pizza showed up.

“What kind of articles did you write for mathNEWS?”

I was always a big fan of lists. I think novice *mathNEWS* writers have a habit of writing too long an article, and large walls of text don't get read by students rushing between classes. Also, back then you could also do visual memes and in the early 2000's that was something unique.

“What's the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

The most scandalous thing I put out was actually the cover for the 2005 frosh issue. I was an orientation director for 2004 and just as I was handing over I stole “Pinkie”, one of the large ties. I took it with me to my co-op at Google that winter. I took a bunch of photos of it at Google, Stanford, and the Golden Gate Bridge. I got busted, my successor orientation director snitched on me to the dean's office, and they made me FedEx it back. I wasn't involved in orientation that following year but, as *mathNEWS* editor, I still had to produce the frosh issue. So, as a final F.U., I put the pic of Pinkie in front of the Golden Gate Bridge on the cover of it. Since there's nothing offensive about the tie on tour, they didn't have any reason to keep it out of the frosh kits. Plus, I stole the ties again right after frosh week.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it's like now?”

When I was a writer for it, there was definitely a wide breadth of articles, however, as editor, I always tried to steer *mathNEWS* in the satire direction. *mathNEWS* is always going to reflect how its current editor thinks it should run.

“Tell us about a mathNEWS meme/inside joke from your time.”

When I was an editor, “World of Warcraft” was massive and seemed to be consuming the lives of way too many mathies. It eventually became synonymous with being “too nerdy”. As a result, when someone said something that might have been too nerdy even for math, the response would be “gahhhhh, *WARCRAFT*” (in a stereotypical nerdy tone) as a signal that it was time to dial back the nerdiness.

“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

mathNEWS was a great creative outlet while I was in undergrad and let me leave a mark at the Math Faculty while I was there. It also helped me get better at writing, and that’s something that’s uniquely important in one’s career.

“Have you kept track of mathNEWS at all since graduating?”

I usually flip through one issue a year to check in. I try not to do it that often because I see newbie writers making all the mistakes I used to make. I also get way too nostalgic when I read it.

“How has life been for you since graduating? Is what you’re doing today what you expected back then?”

After graduating, I stayed at UW for grad school, then I moved to Vancouver, worked a few weird places, then started making startups. Eventually one became successful, we scaled it, and exited last year. I got where I was hoping, it just took a bit longer than I thought. Plus, I got married and had a kid in there somewhere.

“How do you look back on your time in mathNEWS?”

Fondly, but wishing I had more time to really make mathNEWS all that it could be.

“In retrospect, do you think you imagined that mathNEWS would live to see its 50th anniversary? Why do you think mathNEWS lasted? Do you think it will live to see its 100th?”

mathNEWS is an institution, so I was sure it would make it to 50 so long as some jackass on MathSoc didn’t get into a beef with it and do something stupid. I gave a talk in January on campus and stopped by the mathNEWS office. Literally nothing on the walls had changed in the 17 years since I was editor. I think it will live to see 100 and look suspiciously like it is right now.

“Would you want to be contacted for mathNEWS’ 100th anniversary?”

I’ll be 90 when it turns 100. Assuming I’m still alive, I’d be down.

Ian “iEd” MacKinnon

Falling

We watch a woman dance. It is a beautiful piece, made all the more impressive by the razor-thin wire that she stands on. She carries herself with such grace that the audience forgets the endless drop beneath her feet, completely captivated by her perfect performance.

The woman on the wire knows someday, she will fall. The best she can do is delay the inevitable drop.

She continues to dance, the same structures repeating themselves, but growing more complex, more careful with each iteration. Why were we worried? She moves as easily and as freely as the wind itself, anchored for our enjoyment. Each time she faces us, she gifts us a smile, a smile so bright the world lights up. A step, a smile, a step, a smile, a step, a smile, a step, a stumble. a stumble. a stumble a stumble a stumble oh god no she is going to fall no someone HELP HER.

She wants to curl up and cry, to run away and avoid all

She catches herself and smiles as if nothing had happened. The members of the audience look concerned, but she is already dancing again, faster than before, and the next time she smiles, her slight misstep is forgotten.

If she stops, the audience will lose the only thing she can offer.

As she moves, she deftly weaves between the barbs on the wire. Were those always there? There is an art to how she

sidesteps the spikes, deftly balancing the whole time. A gust of wind catches her off guard, she steps on a section that was better left untouched, and blood begins to flow. Again, the audience gasps, some look away in disgust, and yet, after another smile, all admit there is strange beauty, brought by the blood. Some suggest that, with her injured foot, she might stumble again. As the blood dries and the wound fades, though, they see scars, and assure themselves that, by definition, scars have healed. Their fear fades.

She knows that, if she’s going to fall anyways, she may as well make something of her time in the spotlight. And so, she keeps going.

Another woman falls from above. The dancer catches her with practiced ease never breaking her stride or ceasing her smile. We have seen her do this before, and know that she will do it again. With each step, spectators cry out, terrified she will fall, but each step she survives silences more of us. Soon, we pay no mind to the bloody barbs beneath her.

When she smiles, the audience smiles back. She may as well. And so, through the pain, through the weight, through the tears and thorns, the exhaustion and misery, she takes a deep breath, and she smiles.

After all, she wouldn’t smile like that if there was anything worth worrying about.

It was nice while it lasted

Trying to Explain Mahjong

Part 4: Scoring

Scoring fucking sucks. Remember yaku? How there were too many of them? How they sometimes had weird interactions with other yaku? Good news! You also have to remember what they're all worth.

The principle scoring mechanism is **han** 「飜」 and each yaku is assigned a han value. The boring, common ones like riichi, tanyao, and yakuhai are 1 han. Chiitoitsu is fun so it's worth 2 han, and ryanpeikou is even more fun so it's 3 han. Yakuman are extremely fun, so they just grant the maximum point gain instead of counting han. You can sometimes combine enough yaku to earn 13+ han without a yakuman, which also receives the point cap. Also, all dora grant 1 han.

Let's count some han. Say I declare riichi with 234m678p33s33777z and win with 3z as agaripai. We definitely have 1 han from riichi and 1 han from yakuhai (the 777z meld). Maybe our seat wind was West, so the 3z meld also counts for yakuhai. 3 han! Since we won with riichi, maybe the dora were useless but we look at the uradora and find 2s staring us in the face. That's two *more* han (from the 3s pair, 1 han each). Math is pretty hard, but I think we're at 5 han.

A hand worth 5 han gets a special name: **mangan** 「満貫」. Hands worth at least mangan are actually easy to score. For a *non-dealer*, the point values are:

- Mangan (5 han): 8000
- Haneman (6, 7 han): 12000
- Baiman (8, 9, 10 han): 16000
- Sanbaiman (11, 12 han): 24000
- Yakuman (13+ han): 32000

The dealer earns 1.5 times these point values. Any time you gain points, the conservation of enerjong states that the sum total of points is constant. If you win by ron, then the poor sod who dealt into your agari gets robbed blind for the entire hand's worth. If you win by tsumo, then the points are stolen evenly from the other three players. To gain some relative insight here, remember that each player starts with 25000 points.

You might have noticed that 8000 is not divisible by 3. Scoring has to be more complicated, so the dealer actually pays twice what a non-dealer does on tsumo. With mangan, they pay 4000 and the other two players pay 2000 each. 12000 is divisible by 3, so when a dealer wins with mangan by tsumo, they steal 4000 from each player.

For hands worth less than mangan, we suffer excruciating pain. You might think more valuable hands are better because you get more points, but they're actually better because you do less work.

Fu 「符」 is han's shitty little brother and the ancillary scoring mechanism. Every hand starts with a default value of 20 fu. To count additional fu, we vivisect the winning hand for its wait

pattern, composition, and agari. Once those are compiled, we round up to the nearest 10 to obtain the final fu count.

Time for a hard left into more vocabulary. When you're in agari waiting room, there are different names for different waiting rooms. These are called machi 「待ち」(wait patterns).

With the following tenpai: 22p34666s555666z we have a **ryanmen** 「両面」 wait. We need to complete a sequence and either outside tile works. This is a nice machi, since we have two agaripai. **Penchan**

「辺張」 isn't quite so nice. The previous hand with 12s instead of 34s is a penchan wait: we still have an outside wait, but only 3s works because 0s doesn't exist. We're left with one single, sad agaripai.

Kanchan 「嵌張」 is similarly tragic: replace the above 34s with 35s. It's also a single wait, but we're waiting on the middle tile instead. The last machi we care about is **tanki** 「単騎」 when waiting to complete a pair.

Back to fu. Wait patterns are only worth fu if the wait is for a sequence or a pair. Ryanmen is worth 0 fu, but the others above are worth 2. Basically, if you have only one agaripai, then you get a pittance of fu as compensation.

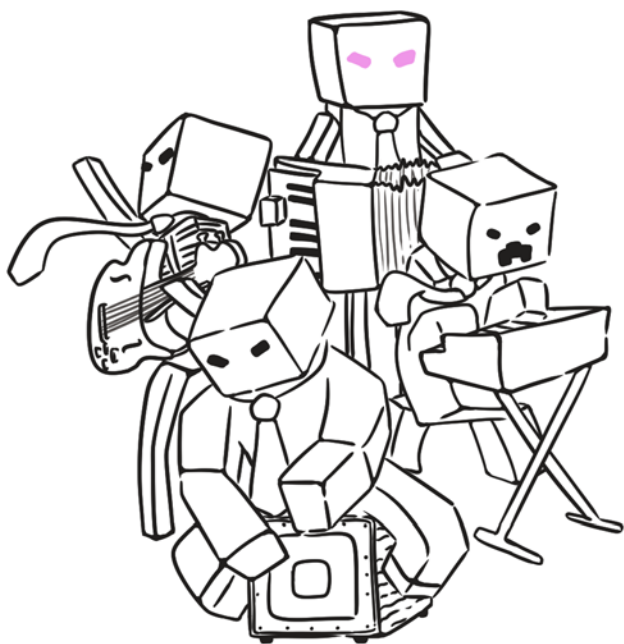
As for the hand itself: sequences are 0 fu. Open triplets are 2 fu, and open quads are 8 fu. Fu values are doubled if the meld is closed or consists only of terminal/honour tiles. That is, an open 111z grants 4 fu, and a closed 111z grants 8 fu. Sometimes the pair also matters. To score the pair, pretend it's a triplet instead. If that triplet qualifies for yakuhai, then the pair grants 2 fu.

It gets worse. Winning by tsumo grants 2 fu. Winning by ron with a closed hand grants 10 fu, except it actually grants fu 2: electric boogaloo. There's this funny closed yaku called **pinfu** 「平和」 that's granted if your hand has no additional fu. This is obviously a problem, because both agari grant fu. In the case of tsumo, the 2 fu are actually waived so pinfu is scored at 20 fu. In the case of ron, the 10 fu are a different type of fu that simply don't count against pinfu, so it gets scored with 30 fu. Ron with an open hand usually grants no fu, unless your hand looks like pinfu but it doesn't actually qualify for pinfu because it's not closed. Then it grants 2 fu.

In case you don't hate this process just yet: once you finally enumerate all the fu in your hand there isn't even some nice formula for point value as a function of han and fu. There's just a vague correlation between fu and points. Also, the dealer gets "1.5x" the points, but it's usually a bit off. In practice, you find the value of a hand by a fucking look up table. Better memorize that fucking table.

COME SEE MC/DC

Waterloo's Premier Minecraft Parody Band



COME SEE US!

DATE: March 31st, 2023

TIME: ~7:00pm

LOCATION: Wherever Jam Network decides it will be

TO BE NOTIFIED: Follow [@mc_dc_official](#) on Instagram
(Final location and time will be posted on Instagram)

Noise has never been hard to find. The universe has been filled with it since as long as it could be heard. Our lives are filled with noise, noisy car horns chant on our commutes, noisy pundits on the news telling us to be afraid, noisy advertisements trying to drown out any humanity we could hear deep down so we may consume products. Noise is so overwhelming that silence is often seen as the only respite. But no, don't settle for silence. Sound is clear, pleasant, sonorous, and resonant. Think of a symphony playing in perfect harmony. Think of the beauty of nature and how incomplete it would be without the babble of brooks, the whisper of wind through trees, and the calls of far off birds. Here at MC/DC, we have concentrated sound into its purest form. We have spent hours in the lab to create what scientists call "the MC/DC sound". With the perfect combination of accordion, guitar, keyboard, and cajon, we have created THE perfect sound. And that perfect sound shall grace your ears by being played with the most perfect songs, Minecraft parodies.

Ever wanted to know what Fallen Kingdom sounds like with prominent accordion and guitar solos, holy choir keyboard effects, and the perfect cajon beat? Well it sounds like the way Fallen Kingdom was always meant to be played.

Yes, this is completely serious. There is a whole-ass concert with other musicians and stuff and we shall be playing Minecraft parodies. It shall be glorious. Please come

aphf (Lead Accordion),
Not a N*rd (Keyboard & Vocals),
and χ (Cajon Expert)
MC/DC

P.S MC/DC stands for Mathematics & Computer / Davis Centre

N things to give up for Lent

- Lying to my therapist.
- Telling people I go to fitness classes when I don't.
- Listening to men.
- Oversharing on my instagram story.
- Writing poetry about my ex.
- Writing poetry about my ex's mom.
- Spending more than \$1 on coffee when the ESS coffee shop exists
- My virginity.
- Stealing gum from people when I kiss them.
- Stealing my roommate's expensive body wash everyday. Start stealing it only once per week.
- Checking notifications. These emails from profs about overdue assignments are the type of negativity I just don't need right now.
- Wasting water. Start showering with the homies.
- Sending tit pics to strangers. These should be sent only to close friends.
- Procrastinating. Start submitting poor quality work instead.
- Taking edibles. Start smoking more weed.

envirogirl.AI

Olives 🤔

This is a public announcement that I, distractED, a *mathNEWS* editor, enjoy and officially endorse olives, whether on pizza, in other dishes, or even eaten standalone. Mmm, olives!

[Editor's note: Blink twice if you are making this statement under duress.] [Editor's note: my eyes are wide open.]

distractED

No

evaluatED

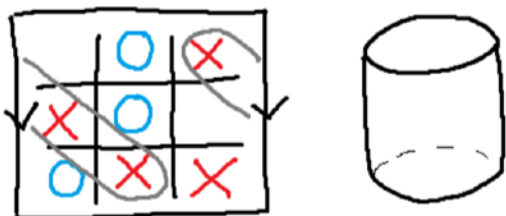
Tic Tac Toe on Funny Surfaces

With Handy MS Paint Diagrams

Tic Tac Toe is a bad game. It's kinda fun for a bit when you first learn it, but as soon as you figure out the winning strategy every round just starts to look the same. However, it does have one merit—it takes virtually no time to set up and play. And unfortunately, this key aspect of the game seems to be missing in most variations of Tic Tac Toe. For example, while Strategic Tic Tac Toe (also known as Ultimate Tic Tac Toe, (Tic Tac Toe)² and a bunch of other names) is much more interesting to play, games last considerably longer and the risk of getting interrupted mid-game is greatly increased, which is honestly pretty annoying. Another version, 5x5 Tic Tac Toe (where you need to get 4 in a row to win instead), is considerably shorter than Strategic Tic Tac Toe, but also isn't much harder to solve than regular Tic Tac Toe.

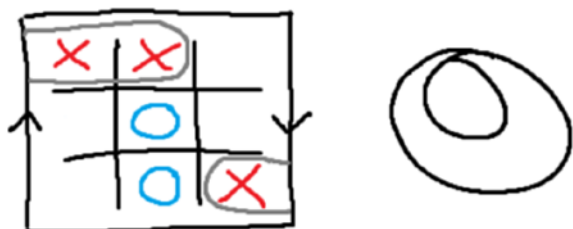
Luckily, there are some very easy modifications you can make to the original game that will (briefly) make you re-experience the magic of playing Tic Tac Toe for the first time again. So without further ado, here's how to play Tic Tac Toe on various 2-dimensional manifolds!

Tic Tac Loop



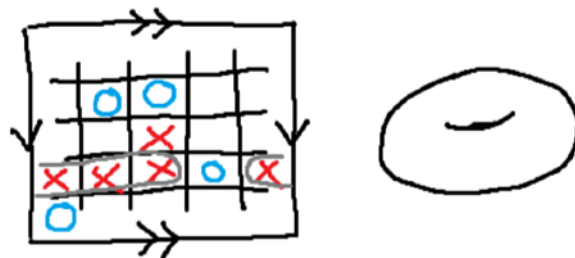
First, let's build up some notation. The arrows on the sides of the diagram can be thought of as sides which are stuck together (you can also imagine them as portals when actually playing the variation)—as such, this diagram represents a Tic Tac Toe grid which got rolled up into a loop, allowing you to cross from one end of the grid to another. Playing like this allows you to make diagonals in more ways, making the central square less valuable.

Tic Tac Möbius Strip



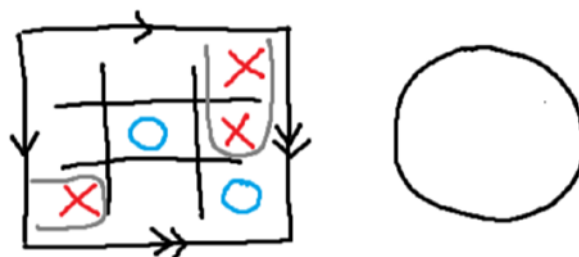
Here, the arrows on the opposite sides point in different directions, which means that upon sticking one side to the other, you also need to twist the square to be sure the directions of the arrows match up when gluing. If you prefer the portal analogy, this can be thought of as a portal that flips your position upon going through one side and coming out the other, as seen above. As such, this diagram represents a Tic Tac Loop grid which got twisted before getting its sides taped, making a Möbius strip shape instead. This added twist gives you the possibility of making some strange lines and even stranger diagonals.

Tic Tac Torus



On a 3x3 board, this variant plays exactly the same as Tic Tac Loop, so unfortunately to make this version distinct we're gonna have to expand the board to a 5x5. Now that we're wrapping the original Tic Tac Toe grid in two directions, we have to introduce lines with double arrows to make it clear which edges connect to each other. This makes the Tic Tac Toe board act like the surface of a torus, allowing us to wrap around horizontally and vertically and adding more freedom.

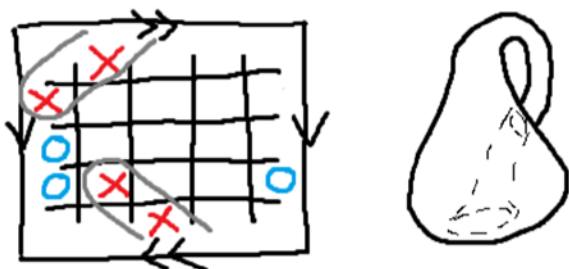
Tic Tac Sphere



This version breaks the pattern we've seen so far where opposite edges get taped together, with adjacent edges being stuck together here instead. While it might seem strange at first that the diagram represents a sphere, if you think of the top left and bottom right corners as poles of the sphere the diagram starts to make sense, although visualizing it will still take some work (feel free to try redrawing the board on the circle to simulate what it would look like on the actual surface). Playing

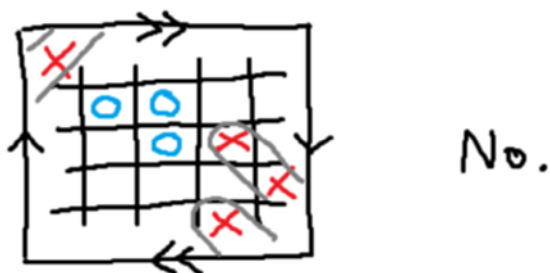
on a sphere allows for some 3x3 gameplay that's frankly awful but kind of neat to experiment with once or twice, and some more interesting 5x5 gameplay.

Tic Tac Klein Bottle



Tic Tac Möbius Strip but twice as fun.

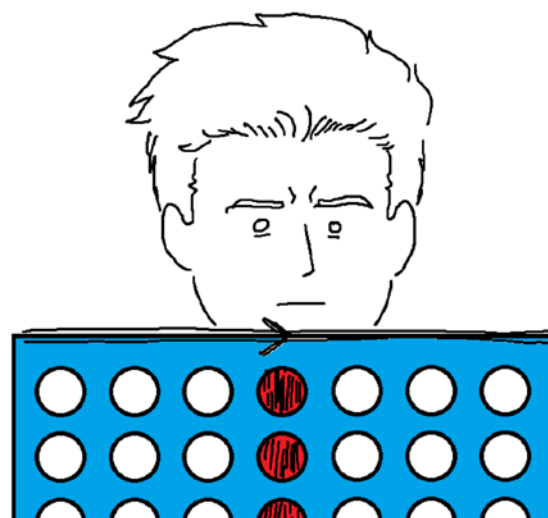
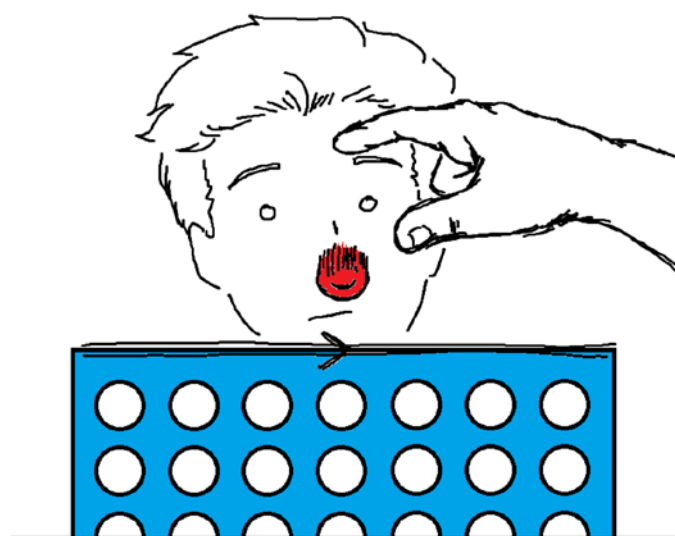
Tic Tac Real Projective Plane



This is awful. Why would anyone play this?

Now, the real point of this article isn't to seriously suggest some ways of revolutionizing Tic Tac Toe, the game was only really brought up because it gave me a good excuse to give a simple introduction to characteristic polygons of surfaces (as a bonus feature of this article, if you want to practice thinking about the way the board diagrams would look on the actual surfaces they're being played on, I've provided images of the surfaces themselves next to each diagram. Fair warning, the sphere and the Klein bottle are by far the most annoying to draw boards on, and are the reason why I decided against drawing the boards on the surfaces myself in each image), and to make you think about extending other, more interesting games in this way. I haven't tried it myself yet, but I'm sure that you can do something fun with Loop Chess, Möbius Strip Dots and Boxes, and so on.

Although if you're going to try modifying Connect 4, be careful with where you put your arrows.



the government's only spy

A Music Recommendation

I only get interested in a song if it gets stuck in my head, and I enjoy the tune of it. It's even rarer for a band's library to get stuck in my head, which is why *Of Monsters and Men* is probably my favourite band right now, with songs like "Little Talks", "Mountain Sound", "Róróró", amongst many great songs. That's not the main recommendation, but I recommend them nevertheless.

The real recommendation is the recent work of Nanna, the band's founder. She's releasing a solo album "How To Start A Garden" in May, and has released two singles already: "Godzilla" and "Crybaby". Those are the recommendations. I've had those songs on loop, and if you like *Of Monsters and Men*, or love gritty, indie music, you'll love those songs. I can't wait for the album.

The Best Vegan Place on Campus

I'm not vegan, but I looked toward vegan food options on campus after I noticed how unhealthy most of everything else was. My personal favourite was introduced to me by friend and fellow writer *License2Derive* back in my first year of undergrad. FRSH, the vegetarian/vegan establishment with 115,814,400 salad bowls¹ (and many more hot bowls, and many more flatbreads), blessed me with more options than I could ever try in my lifetime.



Rather, FRSH blessed me for 3.5 school terms before COVID attacked. When I returned to campus a subjective decade later, I waited excitedly for the reopening of FRSH. But as other establishments across campus slowly came back, FRSH never returned.

If you visit the EXP building today, you'll see a metal security grill in the corner next to Starbucks, closing off the window to FRSH. On the pillar nearby, two frames hold yellowing menus. \$8.99 for a salad bowl, \$9.99 for a hot bowl. The prices are unheard of in our inflated world today. Heck, even back then, FRSH had some of the best value on campus!



Above the security grill is a sign in the colours of the Faculty of Health. In stylized lowercase letters, it reads FRSH. Smaller letters underneath say the names of the conjoined twin buildings that the establishment is located in: AHS and BMH.

Those who have been around for a while will remember AHS as the old name of the EXP building, which the university renamed sometime last year. Alarming, the sign never got the update. So I think it is safe to say that FRSH will not be coming back anytime soon, if at all. Since it opened in September 2018², FRSH has spent more than half that time closed. Even when it was open, I could kind of see the end coming. Part of my love for FRSH was that there was never a line longer than 2 people. And the incredible value they served to the trickle of customers obviously wasn't making the university much money.

But that doesn't mean FRSH was bad! Its ingredients tasted fresher than the mass-produced vegetable shreds they serve in the SLC. Far removed from the pressure-cooker stress of the SLC lunch rush, the staff were friendlier and more patient, too. FRSH's dressings and roasted ingredients gave its salads actual personality, unlike the cold, dry knockoffs served at Ev3rgreen Café. The lines at Rolltation are ridiculously long, and their sushi burritos shatter into a hundred pieces at the first bite. Calling those impostors vegan is like calling McDonalds vegan. They might make things vegan if you ask, but that is not the default. Only FRSH had that, and FRSH did it excellently.

Speaking of Rolltation, I am also old enough to remember what used to be there before. In that very spot, the previous DC Bytes had a location serving hot Chinese food. You could mix and match a platter full to the brim with rice or noodles, bok choy or stir fry veggies, and various proteins, including vegetarian/vegan options. Again, the value was amazing, and you barely had to wait for your food. By my standards, that might've been the second best vegan place on campus.

In summer 2019, the university renovated DC Bytes. The old restaurants were torn out, to be replaced with the ones we recognize today, like Rolltation. The lines bleeding out into the hallway give the new gentrified DC Bytes an illusion of quality, but I suspect it's just because the food takes longer to make now.

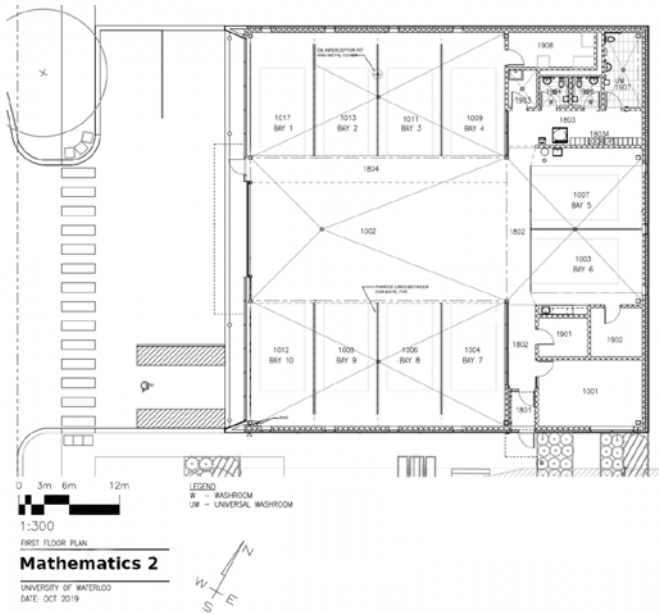
If the university chooses to renovate the shell of FRSH, I hope they do better than that. Or they can make their lives easier and just bring FRSH back. After all, it's hard to fill the shoes of the best vegan place on campus.

water

1. Shameless self-plug: *How many FRSH salad bowls are there?* by water in mathNEWS 141.2
2. <https://uwaterloo.ca/sustainability/news/waterloo-launches-fully-veganvegetarian-food-outlet>

M^2 does not exist

and never has



Once upon a time, Vivek Goel gifted three math buildings to the Mathies, MC, DC, and M3, all situated in the great MIT of the North. But the mathies were all deceived, for there was another. Lurking in the shadows of the prestigious institution—another math building lay asleep, that only a select few knew about. This, my friends... is the legend of M^2 .

M^2 was an old, gothic structure that stood alone at the edge of campus. Its walls were thick and grey, with ivy creeping up the sides, like an ominous warning to stay away. Most of the students and faculty members were completely unaware of its existence, and those who did know of it whispered in hushed tones about the strange happenings that went on inside.

Rumour had it that M^2 was haunted by the ghost of a brilliant mathematician who had died under mysterious circumstances. Some said that he had delved too deeply and too greedily into the secrets of the universe, and had paid the ultimate price for his curiosity. Others whispered that he had been murdered by jealous colleagues who coveted his genius.

Regardless of the truth, there was no denying that strange things happened in that building. Students who dared to venture close reported hearing eerie whispers and seeing shadows move across the walls. Some even claimed that they had been chased by an invisible presence that seemed to be following them.

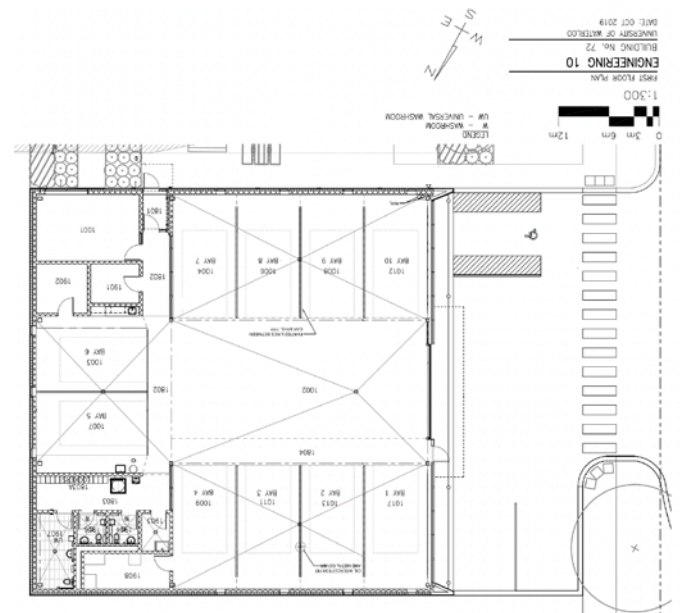
Despite the rumours and the warnings, there were always a few brave souls who were drawn to the mystery of the second math building. They would sneak inside in the dead of night, armed with flashlights and trembling with fear. They would explore the dimly lit halls and the dusty classrooms, searching for clues to the building's dark past.

But one night, something went terribly wrong. A group of intrepid students that had ventured into the second math

building, determined to unravel its secrets once and for all, had been exploring for hours when they heard a strange noise coming from down the hall. It sounded like a low, guttural growl and was getting louder by the second...

The next morning, when the campus police arrived at M^2 , they found no trace of the students who had gone inside the night before. The building itself was strangely silent as if nothing had ever happened there. But those who knew the truth about the building knew better. They knew that the building had claimed its latest victims.

Eventually, M^2 was consumed by the Eng faculty and became E10.

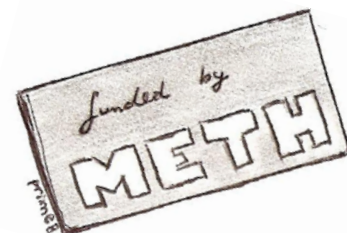


aaqsr

Greeting

Hello to anyone reading this at 13:31:15 UTC 5 Mar 2043.

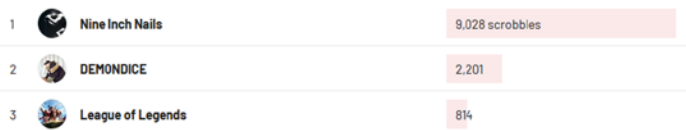
wacfeld



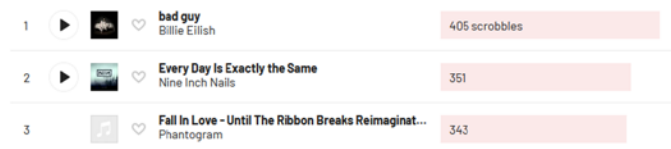
to the guy who asked me to explain my music tastes at the CSC karaoke last week

no, i like more than Nine Inch Nails

The answer may seem quite clear if you look at my top artists:



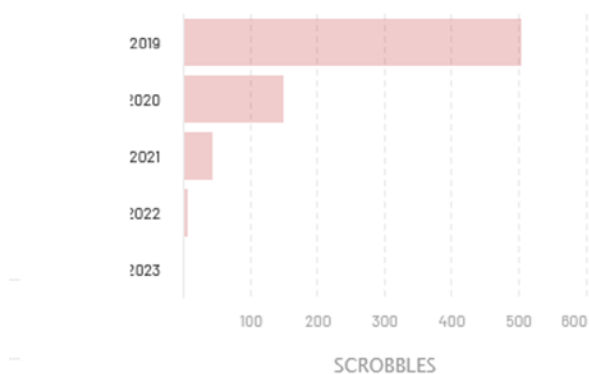
There's no contest! i mostly like Nine Inch Nails, sometimes DEMONDICE, and every other artist is in the dust. But this really doesn't really reveal much. If we look at my top tracks you will see that my top track is by...



...Billie Eilish? This is even worse, because I don't remember who that is:

Date Range

All time ▼



Memory Lane

I began listening to music in grade 9 (2016). I thought that was quite late but I now have friends who didn't start until university so it's not the worst.

Until I started using Spotify in 2018, I used free trials of about four different streaming services and also downloaded MP3s at the same time because none of them had *all* the music I wanted to listen to. There are 1243 tracks in my Spotify library. The first song that I added (which is always the one at the bottom of my liked songs list) is aptly named *End of Time* by Laura Brehm. I began using last.fm in 2019, and all the data that I have is from after then.

So here's a proper timeline for the Before times.

2016: Hello world

The first six songs in my Archive were added on September 26, 2016. Sorted by date modified:

1. Shawn Mendes—Stiches
2. Tove Lo—Talking Body
3. Rihanna—Work
4. Mike Posner—I Took A Pill In Ibiza
5. Nick Jonas—Close ft. Tove Lo
6. Major Lazer & DJ Snake—Leon On

A few weeks later on October 21, 2016 I copied a folder of MP3s from a classmate's flash drive and that's how i was introduced to:

2016, 2017: Alan Walker

The man's Wikipedia page says:

Alan Olav Walker (born 24 August 1997) is a British-Norwegian music producer and DJ primarily known for the critically acclaimed single “Faded” (2015), which was certified platinum in 14 countries.

and that sounds pretty accurate. I liked the music he made for NCS, and singles like *Faded*, *Sing Me to Sleep*, and *Alone*.

I didn't really like any of the singles he released including and after *All Falls Down*, and haven't bothered to listen to any of his recent albums. It seems like Wikipedia page agrees with me regarding him peaking back then. There's also evidence that his music is ghost produced, which eliminates almost all my interest in it today.

Even then, the tracks I mentioned still bring back such powerful associative memories and emotions that I feel like I'm a 14-year-old again.

2017: Laura Brehm & TheFatRat

Monody and *The Calling* were standout tracks for me, and what hooked me. Although they had some other great songs, none of them quite captured my attention and admiration to the same degree as those two. *MAYDAY* is nice but I don't like it as much. This is about when I started exploring other artists but I was obsessed with these two for bit so I thought they should get their own section.

2017, 2018: Electropop and anything close enough

Artist Dump: Halsey, Kygo, The Chainsmokers, Avicii, OneRepublic, Coldplay, Kiiara, League of Legends, Imagine Dragons, David Guetta, Bastille, Ariana Grande, Ed Sheeran, Zara Larsson.

A playlist from late 2018: <https://spotify.link/ClQUTjuH7xb>

2019: Widening horizons

If you asked me what kinda music I liked in 2019, my answer would have been “I like everything! There’s no music I particularly dislike.” But it was mostly the second.

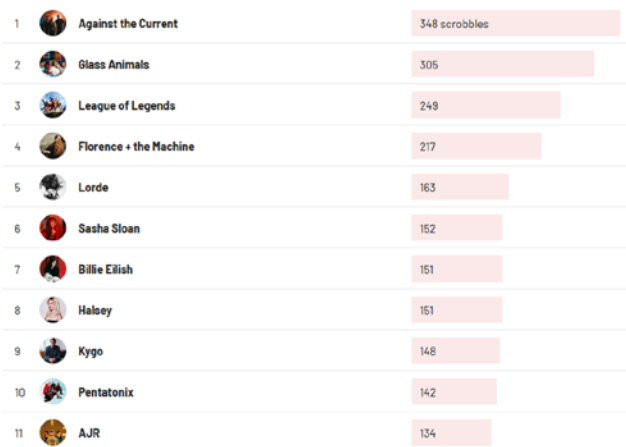
There’s a lot of artists that can’t be classified under the Electropop label: Phantogram, Eminem, Pentatonix, Twenty One Pilots, The Weeknd, Franz Ferdinand, Nirvana, Des Rocs, Cage the Elephant, Guns N’ Roses, Florence + The Machine, Sasha Sloan.

I still liked Electropop: Zedd & Au/Ra were my top artists. There’s two reasons for my broadening tastes this year:

1. I was engaging with a lot of other media (games, movies, series) and the music featured in them was unlike what I usually listened to.
2. I was talking to a lot of people around the world on Discord, and that exposed me to a wide variety of music.

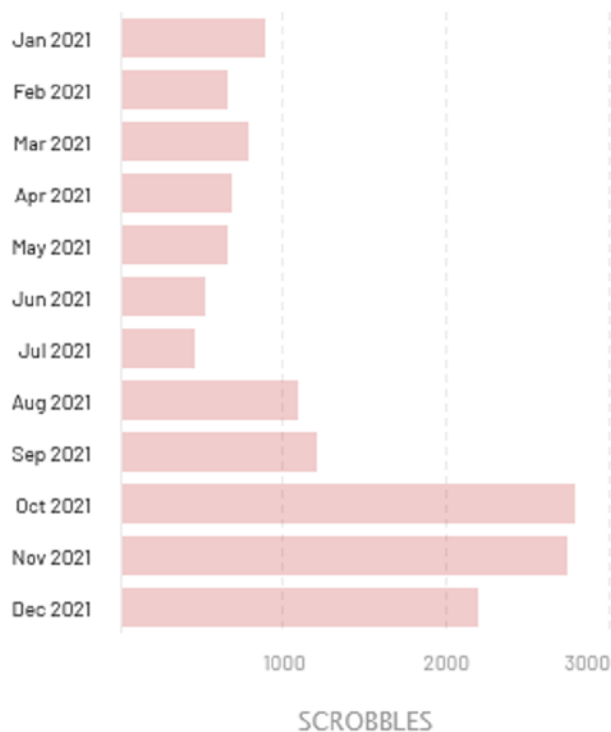
I started using last.fm this year so that makes the rest easy and actually accurate :)

++2019: really more of the same



2021: i hurt myself today to see if i still feel

my graph for the entire year looks like this:

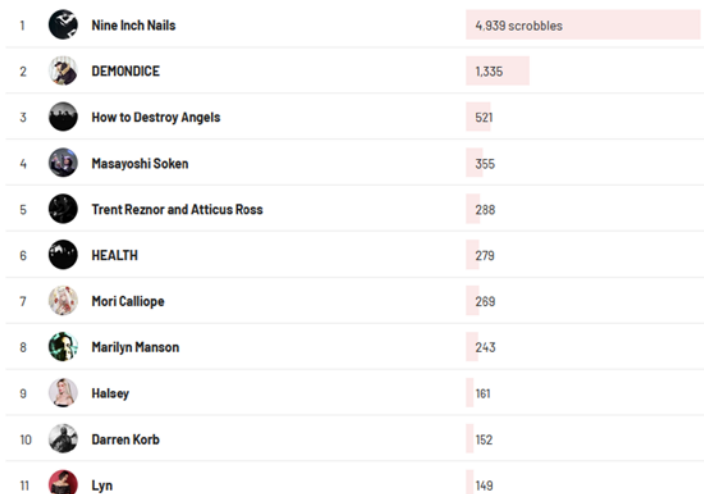


What happened in October? It was probably the most eventful month of my entire university experience by far and that led to



2022: i focus on the pain

And so I’ve only been obsessed with Nine Inch Nails for a little over a year.



2023: So what music do I like now?

- anything that makes me feel something
- hopefully it's more than romance/heartbreak
- anything that's a great beatmap in a rhythm game

i don't think it's a high bar. perhaps it would have been easier to describe my problems by

Classifying the music at the CSC karaoke

1. slow pop music about romance
2. new wave rap
3. a few tracks by The Weeknd and those were nice. Hey did you know that The Weeknd totally ripped off Nine Inch Nails in his live shows? you should watch the live perform —
4. yeah, that's it. The first is exceedingly repetitive after a few songs, and I love these lyrics from *Wannabe* by DEMONDICE for the second:

*But I'm dying to know why all these new wave
cowards rap the same
Listen I know that you ain't tryna be boring
But is this ASMR, or what? I'm sorry for snoring*

Why is music the exception?

The MCU isn't praised for being high quality cinema. Skinner box live service video games aren't praised for being high art. Fun books that may be enjoyable reads aren't considered high quality literature. I think the same applies to music.

Karaoke is a social experience

So perhaps I should have stayed at home?

gt

poem time

Untitled

*I feel / as if I'm on the moon listening to the air hiss
out of my spacesuit, and I can't find the rip. I'm / the
vice president of panic and the president is / missing.*

Paige Lewis

Not sure if this one has a title 'cause I've only really seen this quote, but I hope you'll agree I had to include it even though I haven't read the whole poem because look at that quote. So good!

Mountain Dew Commercial Disguised as a Love Poem

I still think I might only like this poem for it's title but can you blame me? Its a really nice title.

*So here's what I've got, the reasons why our marriage
might work: ... Because you underline everything you
read, and circle
the things you think are important, and put stars next
to the things you think I should think are important,
and write notes in the margins about all the people
you're mad at and my name almost never appears
there.*

Matthew Olzmann

Maybe not the best quote of the whole thing but it's hard to quote one bit that really demonstrates the vibe of this one. would recommend you read the whole thing—you can just google it. (I'd recommend reading the whole thing for all of these honestly, they're mostly pretty short.)

*When people say, "we have made it through worse
before"*

*When people say, 'we have made it through worse
before' / all I hear is the wind slapping against the
gravestones / of those who did not make it*

Clint Smith

A poetic reminder that there is no one idea of who is "we".

Triptych

*he / no longer feels the w / atch against his wrist / he
no longer feels a / wrist he no longer*

Diana Khoi Nguyen

This one is striking in it's original form because it is written in the cutout shape of the space left after the author's brother cut himself out of all the family photographs in their childhood home. from the author: "it's a way for me to feel I can reach towards him".

normalparameters

P.S. If you want to like poetry, but maybe find it hard to get into, I highly recommend the youtube channel Ours Poetica. It features people reading poetry aloud (some their own works, some by others), which helped me feel more connected to the works.

Reviewing songs in the Kessoku Band Album*, Part 1

In Chronological Order from the Show “Bocchi the Rock”



Photo Credit: Literally the Cover of the song “Seishun Complex.”

Seishun Complex (OP): Bocchi the Rock’s current MAL Rating/10

This is a hardcore an intro as you can get, but this song just doesn’t make any sense whatsoever. The style and theme of this song as the Opening Sequence of the show is so very dissonant from the collective identity of Kessoku Band and the show as a whole. Don’t get me wrong, it’s a damn good gateway drug into Hardcore Rock. Nevertheless, this is a powerful number that just rocks. Cute Girls doing Hard Rock at its peak.

Special shoutout to the guitar line at 1:50 as well as the percussion hard carrying through the entire piece. My left ear went deaf after this piece.

Distortion (ED1): 7/10

Significantly more upbeat both in lyrics and in instrumentals. Perhaps this is really most appropriate to cheer up the audience at the end of the earlier Bocchi the Rock episodes. (The ED animation is so cute though!) It’s solid, but I don’t see how this is the best ED of the season according to Reddit. It is not even the best ED throughout the show! Nothing in this piece, except perhaps the percussion, stood out to me. It’s good, but it’s not great. (This is what happens if you let Bocchi-chan write lyrics for a cheerful piece...)

Guitar, Loneliness and the Blue Planet (Ep 5 & 8 in-show): Pass/10

“I think I know what kind of band this is now.”

There’s nothing better to be said here. This is a defining piece of the band. For the first time we got to see and hear their style and boy did it shine. The lyrics perfectly capture an angsty ego desperately reaching out to the world to be heard (does this sound familiar?). Once again the bass and percussion lines carry the team. (Spoilers for Episode 8?) Lead Guitar’s line at 1:20 is a blessing. This would probably have been my pick for the best single in the album if not for [redacted for spoilers].

Karakara (ED2): Ryo’s debt ceiling/10

If “Guitar, Loneliness and the Blue Planet” was Bocchi-chan screaming in the rain, Karakara might just be Ryo leading Bocchi-chan to the rainbow behind the clouds. Definitely an ED I fully enjoyed, and one befitting of Episode 5 of the show. This is Ryo’s song in every way possible (there’s a bass solo in there?). It is reserved and aloof, yet not at all downtrodden. The guitar lines in this piece throughout are a chef’s kiss too.

Part 2 coming out @ max(Bocchi the Rock S2 release, whenever I feel like it).

Robbot

* Yes, “Kessoku Band” is both the name of the band and the name of the album. They have the naming sense of computer scientists.

Some corrections

It has come to my attention that I have made some factual errors in my previous articles.

*150.1: Sushi, baka, and other words loaned from..
japanese to english*

I said that the word 萌え (moe) did not apply to general cuteness or the associated genre. This is wrong, and I am stupid for believing otherwise.

151.2: No really, ethics is all optimisation

I said that the extreme value theorem applies on all closed domains. This is very very very wrong. It applies on compact domains (which I did prove for my space, so my point still stands). This was a silly mistake. For a nice counterexample of what I said take the identity function from \mathbb{R} to \mathbb{R} on the normal topology.

Baseball Content for People Who Don't Watch Baseball

I love baseball. I love the calm pace of a Saturday afternoon Jays game. I love how that calm can quickly give way to a tension that nothing else can. I love the huge statistical and historical communities that have emerged around baseball that give way to hours upon hours of interesting discussion.

However, I have learned many people DO NOT love baseball. They say it is long, boring, and that its stars are uninteresting. They say that as there is no constant movement, that its players are less athletic than in other sports and not worth their time. They just may not even find sports interesting. I cannot fault people for these beliefs. Baseball is not for everyone and that's fine.

However, I believe that baseball is unmatched in the volume of stupid content that anyone can enjoy, with or without any sort of connection to sports. Therefore, in this essay I will list some of the most exciting and impactful non-baseball baseball content known to man, proving for once and for all that baseball is a sport anyone can enjoy.

Why Andrew McCutchen Loves Furries — FoolishBaseball (YouTube)

Does former 2014 MVP Andrew McCutchen know what furries are? Youtuber FoolishBaseball investigates the many surprising links between the worlds of MLB Fandom and Furrydom. This important 2 part piece of investigative reporting can be accessed for free on YouTube here¹ and here².

As a bonus, you can follow the career of Nick "Wolfie" Maton of the Detroit Tigers, who has been known to bark at umpires, teammates, and opposing players. When asked about his nickname he stated that, "Its just my animal", and declined to explain further³.

Baseball Butt

While a football scout may look for strong players who can power through anyone, or basketball scouts look for tall players who can dunk above the rest, baseball scouts are on the lookout for young players with some junk in their trunk. *High butt*, as it is referred to in scouting circles, suggests that those with a curved rear will project as better baseball players than those

with flat ones as they mature. Buck Showalter, MLB manager of 20+ years, has said explicitly that "players with flat butts do not succeed"⁴. This of course has led to a large proportion of major league baseball players possessing this attribute, which has been a great source of content. Most recently, former Oakland A's catcher Sean Murphy went viral when his caboose was hit by a pitch, here⁵, which represents a perfect example of the top tier *High Butt* that makes a ball player.

Baseball Scenes in TV Shows/Movies

You've heard that *Die Hard* is a Christmas Movie and *Nightmare Before Christmas* is a Halloween movie, but have you heard of any of these baseball movies? By using the qualifier of having a singular scene concerning baseball, one can argue that movies and television shows like *Emily in Paris*, *Godzilla (2019)*, *Ferris Bueller's Day Off*, *Jack Ryan (2018)*, and *Men in Black* are all baseball movies. The baseball movie *Twilight* is especially famous for its less than accurate baseball scene⁶.

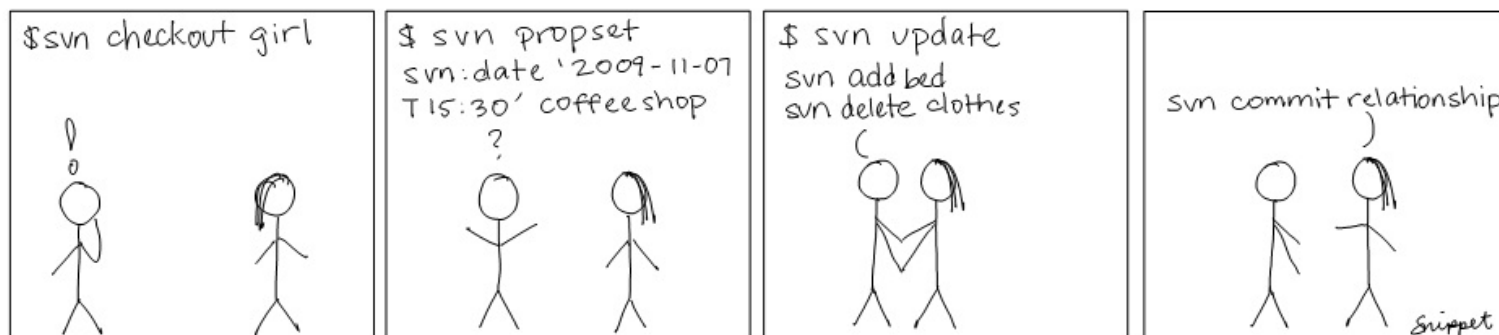
The History of The Seattle Mariners — Jon Bois and Alex Rubenstein (YouTube)

The Seattle Mariners have been a relatively unsuccessful and uninteresting baseball franchise by standard terms. They are a consistently mediocre team, who have never even made it to a championship game. Yet in this unconventional documentary by Jon Bois and Alex Rubenstein of SB Nation, the Mariners are "not just competitors, they are protagonists" of the baseball world. Using lots of statistics, this documentary highlights the highs and lows of the exceptionally weird and lovable team the Mariners are. Despite being a youtube video made by only two people and solely animated by using google earth, this documentary series was named one of the best TV series of 2020 by both Paste Magazine and the New York Times, and was enjoyed by certified non baseball-watcher *Aphf*. The supercut version of the 6 part documentary can be viewed here⁷.

Dumb Baseball Names

I am not sure why there are so many weird baseball names. Is it because the sport has been around so long they have simply accumulated? Who knows. What I do know is that no other sport has the same depth of strangeness in the names of their players.

SOURCE CONTROLLING



There's the unfortunately named Johnny "Ugly" Dickshot, Rusty Kuntz, and Dick Pole. There's players of baseball's early 1800s days who's names we can only imagine the rationality behind, such as Chicken Van Winkle Wolf, "The Only" Nolan, Cannonball Titcomb, and the man known simply as "Beer". Calvin Coolidge Julius Caesar Tuskahoma McLish Oklahoma, or Cal McLish for short, is a sleeper favourite of mine. Current players with fun names that people can follow include Rich "Dick Mountain" Hill, Lars Nootbaar (sounds familiar...), Coco Crisp, Chadwick Tromp, Skye Bolt, or Brooks Pounders.

This Quote by Mookie Wilson

For the last instalment in this list, I would like to leave you with this quote by former New York Mets and Toronto Blue Jays outfielder Mookie Wilson, which I hope can help you through tough times, even if you don't watch baseball. "When I'm in a slump, I comfort myself by saying if I believe in dinosaurs, then somewhere, they must be believing in me, and if they believe in me, then I can believe in me."

Lars Nootbaar

1. <https://www.youtube.com/watch?v=mPVw8MJzY08>
2. <https://www.youtube.com/watch?v=a0eWszMexcc>
3. <https://theathletic.com/4266254/2023/03/02/tigers-nick-maton-wolfie/>
4. <https://slate.com/culture/2010/04/what-can-you-learn-from-staring-at-a-baseball-player-s-but.html>
5. <https://www.youtube.com/watch?v=YforqJ7kUI4>
6. <https://www.youtube.com/watch?v=AZIk5wIq2Qw>
7. <https://www.youtube.com/watch?v=TIgK56cAjfY>

XD things 0.423 said while high as fuck lmao

- "if $ab=bc$ then $a=b$ "
- (in campus pizza) friend: "what should I get?" 0.423: "A PIZZA!!!!"
- (someone mentions having a threesome) "threesome is a popular leetcode question!"
- (still in campus pizza) me: "what's the leetcode question?" 0.423: "you give me the questions. I give you the answers."
- "I do not believe that this conversation is happening."
- me: "how did you realize you were high?" 0.423: "I yelled 'i'm high as fuck', but no one responded, so I thought I must be hallucinating, which would mean I'm high"
- "I'm hallucinating, so if I open Instagram I'll hallucinate some memes"
- "don't gaslight me into thinking I'm high"
- (while sober) "I am six feet" (he's like 5'3 XDDD)

nazz

Automation Magic

The Power of a Spreadsheet

An online friend of mine reached out to me tonight. We hadn't talked in a while, but he started a new job recently, and he had been having some trouble getting a basic spreadsheet formula set up there to automate some stuff. Since he knew I was in CS, he asked for my help.

I spent twenty minutes or so setting up a formula for him, looking up some stuff when I needed to. It really wasn't anything special, or at least I thought so; just a pretty basic lookup function that fiddled around with some strings.

But when I was done, he thanked me five or six times, saying that it would save him hours. And that made me realize: spreadsheets are kind of magic, huh?

As somebody born in the 21st century, it's easy for me to discount things like spreadsheets that have existed my whole life.

But before they were a thing, people would have to manually perform all the actions that we take for granted with them. They'd have to look through the table by hand, picking out the values that they needed, and manually fill them in on another sheet. Not to mention all the physical files that they would need to carry from place to place and store that are now easily manageable digital files, that can be copied without a second thought.

It makes me shudder to think of all the hours that one would spend doing all these menial tasks that have been automated now, even through simple things like the introduction of spreadsheets with basic functions like SUM, COUNT, and LOOKUP.

And, of course, that only scratches the surface of what automation is possible, especially through the use of AI tools. If you have an idea, and can communicate it succinctly to a computer, there's a pretty high chance that the computer can just do it now as long as it doesn't involve moving physical objects from place to place.

Are we approaching the end of inventing useful new things for computers to do, once AI reaches wide proliferation? It's hard to say. The way that technology's been improving in the past century, I wouldn't be surprised if the pace somehow finds a way to quicken instead of slow.

But there's one thing I know for sure. Spreadsheets can feel like magic if used correctly. I'm sure my friend felt that magic when the formula he asked me for worked exactly as he needed it to, and I felt it too through his enthusiasm and excitement. And if even basic processing can feel like magic, then I'm definitely looking forwards to see what uses we can find for the more advanced tools in the future.

Predap

mathASKS 151.4 — Part Four*Featuring Emily “CorruptED” Bain, mathNEWS editor, 2009–2011**“What program were you in? Why?”*

Software Engineering! It was still a relatively new program at the time (the first graduating class hadn’t graduated yet when I started) and it felt like “CS, but fancy”. Especially since I had been considering other engineering disciplines beforehand but was a semi-decent high school programmer, it ended up appealing to me (though if I had to do it again I’d have probably done straight CS for the flexibility to build your own educational path).

*“What involvement did you have with mathNEWS?
What drew you in?”*

I started out as a writer in partway into my 1A term in Fall 2008, and by the end of 1B I ended up being co-editors with another editor in my program. I’m pretty social and tried to get involved with a couple things during those early terms as I didn’t have any of my high school friends at the school and wanted to build a new social network so I joined the robotics club and was persuaded to join *mathNEWS* by one of my orientation leaders who would eventually become StaticED.

“Were you involved in any other clubs at Waterloo? Was there much intersection between mathNEWS and any particular clubs?”

I was technically a member of the CSC, but almost everyone was a member. The vibe in those days in the actual room was more late 2000s troll-y and rebellious, so while I popped in on occasion I took more advantage of the services than being particularly close with folks there, though there was definitely *mathNEWS* & CSC overlap. There was also decent overlap with MathSoc folks, and I was website director for MathSoc one or two terms in there as well. CSC and MathSoc used to have a bit of beef between the rebellious folks and the more student governmenty MathSoc, but *mathNEWS* lived as an irreverent intersection for all.

“Thoughts on Feds, MathSoc, and student government generally?”

Back in the day we really didn’t care much for Feds, it felt distant. There were some great programs like the WatCards as GRT fare and stuff that was University-wide, but Feds as a whole felt like it was run by and for other faculties. Some of the faculties like Math and Engineering have very strong internal cultures, and are large enough that their societies themselves were the much more important level of student government for the day-to-day of student life, so I cared a lot more about MathSoc and it was why I involved myself with it more. That said, we fiercely guarded our editorial independence from MathSoc, something we won years before my time but that we re-affirmed on the regular with our working agreement.

mathNEWS was answerable to the dean, but not to MathSoc, even though we no longer had the same issues that spawned that original fight.

Student government in general can be a little goofy and myopic, but in the end it’s where young people are learning to function as leaders and planners in something resembling the real world so I think it’s important, even if student governments should sometimes get their heads out of their asses and remember that the things students care about most are usually boringly practical matters.

“How did you feel about other newspapers on campus?”

There was a lot of respect for Iron Warrior in my time as it was a pretty serious publication that covered its space well. That said, despite technically being in the Engineering Faculty at the same time as Math I never actually knew the folks behind the scenes. Imprint we had a friendly rivalry with, which is a little funny because we were a like 75% satirical paper but I think that let us feel freer to be critical when it felt like the Imprint wasn’t stepping up. At other times we were pretty friendly with them (I was friends with Michael Davenport who was the lead editor for a bit). Also, once, we nearly got sued for defamation by the Imprint president for making fun of him in the filler, and once we got past that (we issued a retraction that we technically had no proof he was an idiot) we were joking about that for years.

“Describe your average production night.”

Delightful chaos, especially as that was the tail end of the old production system. We’d usually corral the usual folks and anyone else who we could cajole from around the 3rd floor and get into the 2nd floor computer lab. Often lots of topical discussion about things happening in the world or campus which often fed related articles. We spent plenty of time helping folks make the production system work because it was something hacked together in like the late 90s by one of the former editors (who by my time was a prof) out of vi & Perl 3. It was incredibly janky and it was only at the tail end of my tenure that we moved to a system that ran off WordPress.

The bringing of the pizza to reward the writers was very exciting, and I was a large consumer of the cheesetarian.

“What kind of articles did you write for mathNEWS?”

God, I was a mediocre writer of actual articles. Plenty of listicles and the like. Where I excelled was refinement and quick thinking, so I liked to dip around and help hone stuff other people worked on with them. Plus, being quick on the draw made me not terrible at generating filler on short notice when we were doing layout.

“What’s the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

I missed some of the better scandalous times I think, so the incident with the filler that made fun of the Imprint president and got us a cease and desist from a lawyer was probably the biggest *scandal*. I did enjoy a lot of our reporting on MathSoc and Feds election stuff though, especially when several *mathNEWS* related folks ran a parody slate of candidates under the Rhinoceros party banner. I wasn’t able to run that term but I *did* put up a bunch of posters of myself like I was Uncle Sam saying “[Emily] Bain expects YOU to vote” which was fun for me when people asked if I was running and I was like “nope”.

Oh yeah, one time someone made a memorial crossword to remember me by, despite the fact that I was still very much around.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it’s like now?”

Sounds about right, and I’m glad the ethos of our era lived on. A little before my time *mathNEWS* had been on a bit of a slump because there was a focus on “quality” which ended up discouraging folks from participating because plenty of people don’t feel that capable when they start out. One of our big things was encouraging anyone to come be a writer, because people who start out and come often end up being our strong writers later on as they keep going. In a transient space like *mathNEWS* where everyone is going to turn over every couple of years, encouraging people to come and find an accepting place to publish anything is how you keep a paper going for decades.

I haven’t kept up as much on *mathNEWS* in the last few years as I did when I still had friends at the university, but I think one of the neater things is just that there’s definitely more openly queer content. In my day we had a Rainbow Mathies column written by a gay student, but we didn’t do stuff like issues that featured pride, etc. It’s funny though because I know a disproportionate number of people from that time period who turned out to be trans after University, so I guess something about that chaotic open environment was a good home for us all.

“Tell us about a mathNEWS meme/inside joke from your time.”

I feel like the people tended to be the common inside jokes. I was on *a lot* of *mathNEWS* covers over the years, and I guess because of my relative visibility around MathSoc and large personality, I got mentioned in plenty of people’s articles either obliquely or not. Same thing with other prominent writers or MathSoc folks. Otherwise most of the memes were pretty standard fare for 2009–2011, though often with our mathie twists, like rewriting Bad Horse from Dr. Horrible’s Sing Along Blog.

“Do you have any interesting stories, photos, or memorabilia from your time in mathNEWS?”

I don’t know if I can find all my old issues I had saved, but I definitely have some compilations of old comics from many years of *mathNEWS* I won in an auction during Charity Ball in 2011 or so. I used to have a full set of the 2006(?) covers where each of the programs was represented by a drawing of them as an RPG character which were neat little collector’s items in my day. I think one of my favourite photos was one of the covers we made after StaticED, RamED, and I traveled to StaticED’s family farm with the Natural Log which had been vandalized by the Engineering Faculty. StaticED restored it and we took some over the top “Log Guardian” photos in the style of EdCom. Of course, after we brought it back to campus, it was inevitably stolen as the natural log always is, and floated amongst the faculties for a while. (Found the issue purely by chance, it’s 114.3.)

“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

Well, it could maybe partially be blamed for me failing out since I definitely dedicated more time to it that maybe could have gone to my studies. But that didn’t really hurt me in real life as I’m still a Staff Software Engineer these days, and in exchange for whatever academic damage I took I made many of my best friends to this day via *mathNEWS* and associated. Like $\frac{3}{4}$ of my wedding party was former *mathNEWS* editors, and StaticED and his wife babysit our kids sometimes, and our kids are friends with RamED’s kids so, all in all, I’d probably do it all over again.

“Have you kept track of mathNEWS at all since graduating?”

I definitely did for the first year or two after I left, especially as I was still coming to Waterloo on weekends after I left work in Toronto because most of my social life remained centred around the university, but as time goes on and you’re less and less connected to the daily goings on of the university it gets harder to really keep up with the stuff that interests students. Even though I think I racked up enough free subscriptions to *mathNEWS* to get several years of them delivered to me. But I’m excited to read the 50th anniversary! Special editions are always exciting.

“How has life been for you since graduating? Is what you’re doing today what you expected back then?”

Honestly great. I’m still friends with many of the folks I met back then, and while I didn’t actually get my degree I’m still working in the field. I got married to my wife who I met at Waterloo via mutual Math friends after I left (but was still coming down every weekend) and we’ve got two young kids, so life is pretty solid. Most of the old editors from my era are also doing well and my D&D group was literally 3/6 former *mathNEWS* editors.

“How do you look back on your time in mathNEWS?”

It was an absolutely great time in my life. My life has evolved now to include much more responsibility, and while that comes with benefits (like living in one place long enough to have permanent furniture) I had a lot of fun during the carefree years of late-night editing sessions, hitting the university plaza for all my meals because I spent all day on campus, and generally getting to be as quirky as humanly possible.

“In retrospect, do you think you imagined that mathNEWS would live to see its 50th anniversary? Why do you think mathNEWS lasted? Do you think it will live to see its 100th?”

As a great booster of mathNEWS, I am unsurprised we’ve made it so far, after all, we worked hard to instill those values that keep it going! We definitely tried to pass along the history and ethos of mathNEWS to subsequent generations of editors and hopefully they’ve kept it up. I see no reason why we can’t

keep it up to 100 so long as students still care what’s happening and have an irreverent attitude to showcase.

“Would you want to be contacted for mathNEWS’ 100th anniversary?”

Heck yeah, I might be 83 then, but I think I can still keep this flesh sack going that long.

“Anything else you want to say or talk about?”

Be Cool, Stay in School ;) More seriously enjoy this time in your life, make great lifelong friendships, be adaptable and don’t worry if not everything always goes according to plan because sometimes embracing the chaos of life and learning to herd the cats will lead you somewhere just as fulfilling as perfectly hitting the plan.

Emily “CorruptED” Bain
mathNEWS Editor, W09–S11

That Time I Flushed the Toilet and Everything Went to Shit: Part 2

I was surrounded by pitch-black darkness when I came to. I could see nothing, and hear only the intermittent echoes of water dripping from some cavernous ceiling; feel only the toilet plunger in my hand and the cold, hard, and wet surface beneath me. I gripped onto the handle of the plunger tightly—my sole source of familiarity in this dark, clammy place—as I began to recall the series of events that had led up to this point.

The toilet. Clogged. My fault. I continued to be stubborn. That led to disaster. Everything was sucked in. Sent to ruin. All my fault. I failed to do what I was asked of me. I failed to heed his warnings. My roommate. My *friend*...

“Satie!”

The echoes of his name ricocheted through the cave. Then came silence. How long it lasted I could not tell, in that disorienting darkness. But eventually I heard something again. It was faint, but the French accent that coloured its tones was familiar and utterly unmistakable.

“Robin! You bastard! Where are you?”

With some effort I pulled myself up and began wobbling towards the source of the sound. I knew that once I found him, we could quickly get out of here. Satie was an expert in these sorts of misadventures. He would know where we were, and he would know how to get us out. This thought acted as a lifeline as I wandered aimlessly in those murky depths, which, incidentally, had started to smell ever so slightly of sewage.

“Satie?” I called out again. But this time, there was no answer. I called his name again, and again, my steps quickening, puddles splashing. But there was no response.

Then, in the distance, I saw a faint light. With little else I could do, I headed towards it, shivering all the while in my drenched clothes. As I drew nearer to the source of the soft glow, I could feel the ground gently rumbling beneath my feet. The stench in the air grew stronger and stronger.

Eventually, I came up behind a corner; whatever was producing the light was right behind it. Via the illumination, I had come to see that I was in a cave of some kind, replete with dripping stalactites that hung from an unseen ceiling. The smell in the place was so bad by this point that I had to pinch my nose with my free hand. The soft rumbling had also become bone-shaking tremors that came and went, as if synchronized to the rhythm of breathing. Whatever was around the bend was big, smelly, and wet—if the sopping *shmack smack smack* sounds that reverberated through the cave were anything to go by.

Panting, my heart hammering, I took a second behind the bend to steel myself. Then, after taking in a deep breath, the cave air around me humid and thick, I turned around the corner to face what awaited me.

Nothing could have prepared me for what I saw.

Before me was an enormous, open room. Bits and pieces from Satie and I’s apartment were strewn all over the ground in a tableau of chaos. Among them, a crumpled, spiral-bound notebook, which I at once recognized to be Satie’s prized, most cherished manuscript. Out of the corner of my eye, I spotted Satie himself, although it was not a happy sight—he was half-obscured by his big grey coat, and lay prone and motionless on the cold, wet earth.

In the dead centre of the room stood the source of the light which had drawn me in—a massive, monstrous beast of almost indescribable horror. It stood 50 metres tall, and had multiple spindly limbs which extended from its amorphous, sludge-like body. Its eyes were solid red, without pupils, and its hideous maw revealed jagged, razor-sharp teeth. Finally, extending from what could be analogously described as its forehead was a long, dangling filament that ended in a glowing, bulbous growth, akin to the lure of an anglerfish.

The awful beast saw me, frozen in my tracks, and smiled wickedly. It began to laugh—a booming laugh that shook me to my core.

“Robin,” it said, saying my name with a slickness that made my spine curl. “I’ve been waiting for you.”

The sickening stench of its breath shocked me out of my astonished stupor. “What are you? How do you know my name? What have you done to my roommate?” I said, holding back the urge to hurl.

“Don’t you realize it, Robin? I am you. I was born from you. I am everything wrong with you: Your viciousness. Your stubbornness. Your pride. Your guilt.”

“And what have you done to Satie?” I repeated.

“Oh, him?” It chuckled again, causing the stalactites above to shake precipitously. “He attempted to pick a fight when he saw me with this,” it said, waving around in one of its spider-like limbs what I recognized to be my precious Sachertorte from earlier that day. “Of course, I dispatched of him with ease.” As it said this, another thin limb wielding a fork whirled around and dived at the cake, carving out a slice which was promptly delivered into the beast’s gaping, hungry maw.

My mind was running. My stomach was churning. Almost without thinking, I lurched forward towards Satie’s notebook and picked it up with trembling hands, holding it close to my chest. My eyes again wandered over to his limp body, weighed under his heavy overcoat, strewn across the ground like a ragdoll. *My fault. My fault. My fault.*

I suddenly felt a wave of rage wash over me. I couldn’t let my friend have sacrificed himself in vain. *No.* Gazing at the steadfast plunger I grasped, which had been my sole constant in this dark and twisted underworld, I realized that there was only one way to end this.

I pointed the plumber defiantly towards the direction of the terrible beast and yelled: “Everything that’s happened—it all ends here now!”

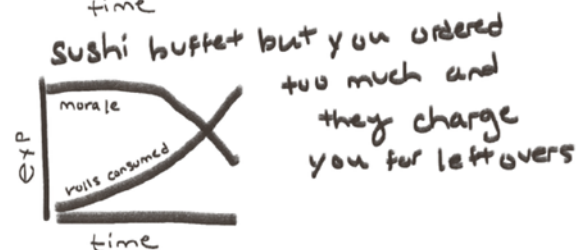
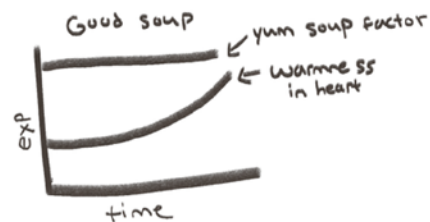
The great beast before me smiled, then laughed...

To be continued next issue.

the experience/time food rating system

The days of the Michelin star are over! It’s time for a new food rating system!! It’s so easy for someone to just rate a food on the lame lame number line based on taste, presentation, all of your classic measures. But to the reader, it’s hard to differentiate just how the critic comes up with the number due to the vagueness and subjectivity of taste. I also do not care enough read through five paragraphs of food jargon! Because of this, allow me to introduce an elevated rating system that will allow us to encapsulate more realistically the dining experience within numerical bounds! It’s time we up the dimension of our rating system! Specifically, up to two!

It’s easy enough to rate a cup of Shin as a solid 6, but does that really capture the insurmountable guilt and disgust that arises after you begin to think about the structural integrity of your food pyramid?? Introducing the the function of experience with respect to time graph! Which has the ability to track several factors that contribute to a food’s score over time. Now you can finally visualize the experience of ordering a side of fries with a main! There’s a very clear distinction between the first few bites of fries when you start thinking, “wow I sure love fries haha!”, versus the uphill battle against the insurmountable pile of fried potato that you’ve set yourself up for in the last minutes of a meal once you no longer have the option to retaliate back to your main. Food bloggers heed my call!!



Easy Plans You Can Add

You know you are going to graduate with a major at the very least, but have you ever thought about spicing things up a bit by adding a couple other plans without adding too much additional work? If you are planning on doing some particular math courses, you may want to see if that can count for more than just some requirement for your major. For the most part, your options are just going to be minors, but there are other possibilities, especially if you start looking outside the Math Faculty. To start off, if you take a look at possible plans from the Math Faculty, there are definitely a couple minors which are easier than the others.

There are going to be courses that are not in Table 2 that show up often in minor requirements, so if you are thinking of maybe doing some of these, perhaps consider putting them in your course selection.

CO Minor

This one, in addition to Table 2 requirements, also needs you to take at least one more of MATH 239 and CO 250. This is because MATH 239 can be used as one of the Table 2 courses, but if you took MATH 237 then you will still need to do MATH 239, as well as CO 250. Then you can start taking 3rd/4th level CO courses. How many courses? You only need to do three. I kid you not. One thing to note is that, in showing just how not CO the CO 380 and CO 480 courses are, those two do not count as a CO course in terms of these requirements. There are some CO courses that are better taken together than not since they have a bit of overlap. For example, CO 331 and CO 487 have some overlap so that reduces your overall course load down some amount. Likewise, CO 351 and CO 370 have a bit of overlap too.

CM Minor

This minor is a little more complicated and can be thought of as almost containing the CO minor. So, if you try for this minor, but at some point you realize you can't achieve it, you can pivot to potentially trying for the CO minor instead. Both have CO250 as a course that can satisfy a requirement. Also, like the CO minor, there is also a long list of 3rd/4th level courses, of which you need to again take three. This list includes CO courses, which again provides the pivot option. There are also CS courses here that you need to take, so again there is going to be some overlap with the Computing minor below.

Computing Minor

If you are not in CS, but are still interested enough to be taking CS courses, perhaps consider this minor. There are no specific course requirements except for the Table 2 courses CS 135 and CS 136 that you have to take anyway. After that, you can take whatever 2nd, 3rd, or 4th year CS course you have access to, as long as you fulfill the number of those courses as outlined. Other than the required two courses, there are 6 more CS courses that you need to take, and 4 of those could just be CS 2XX courses if you want.

For me, late in Fall 2021, as I was exploring all the math minors offered, I realized that I had already completed the requirements for the Computing Minor, but just didn't know that I did. All those bird-y CS courses I took, turned out to have accidentally helped me. Sure, CS 245 and CS 246 were not bird-y in any way, but courses like CS 230 and CS 234 were more like it. There are also courses like CS 330 and CS 338 which have a bit of overlap, so taking the two in the same term means that combined, the course load is more like 1.75 rather than 2 courses worth.

Pure Math Minor

In a similar but more simpler manner to the computing minor, there is this minor. In addition to some Table 2 courses, you just need to take any 5 or 6 PMATH courses. Also, I was told that apparently this is like the one math minor that non-math faculty students can do, which seems weird. There may have been some detail left out so it remains unconfirmed, but it seems like a way to try and get non-math students to join the ~~dark~~ math side.

Diplomas in Some Language

There are a plethora of diplomas in a particular language available. If you decide to use language courses to fulfill your electives, then this will be one of the easiest ways to get something extra while at it. For me, I kept taking French courses for my electives, so you can guess how excited I was when I found out about the existence of the Diploma in French Language and thus realized that my electives could be used for something. I'm pretty sure all the languages taught here have their own diploma, so check them all out. There may likely be one for a language you are interested in. Do note that you don't add the diploma to your plan, but you instead just select the option for it when you register to graduate.



There are definitely more to explore not just within the math faculty, but in others as well. In your specific case, you may find that you are only a couple courses away from completing some other plan. So, do look around for what is available. Although, you may very well end up with choice paralysis since there are just so many possibilities.

Now, one thing to note is that if you do anything complicated enough, you may want to double check everything with an academic advisor. I'm pretty sure there are going to be some rules in place that prevent someone from just doing a major and like half a dozen minors.

I hope this gives you some ideas for more potential things to try and achieve, as well as potentially some future courses to take, making course selection potentially a little easier. At the very least, just think about it. You don't have to add a minor to your plan, but if you find that you are only a couple courses away from completing it, you may as well.

A completely objective and factually backed tier list for Tetris blocks

It's true

So apparently in addition to the I, J, L, S, Z, O, and T classifications, Tetris blocks have actual names, so I'm just gonna pick out my favourite from each of them.

Stage Name: Slim Dandy (8.5/10)

Legal: I Block

Slim Dandy is that one kid on the street whose accomplishments your parents always continuously compares you to when you're growing up and you gotta be like "no you don't understand mom he's literally the only block possible who's physically able to complete quad clears BY THE TRADITIONAL TETRIS RULESETS". Quite the nice colour too.

Stage Name: Orange Ricky (7/10)

Legal: L Block

A warm and mostly friendly guy. Pretty adaptable to the situation both for clears and for T-spin set ups and is generally welcome to the party. Can get annoying sometimes but, honestly, who isn't? As the classic saying goes, "orange you glad it's not banana?"

Stage Name: Blue Ricky (5/10)

Legal: J Block

Literally the more depressed version of their orange counterpart, copying their name and personality, albeit worse. That said, Orange Ricky was a pretty sick dude so at least the end result isn't that crappy. Hooray for plagiarism!

Stage Name: Square (2²/10)

Legal: O Block

Yeah this guy is here. Can be irritating to place down, doesn't follow well with any of the Z guys. Bonus points for personality, a strong and independent block that doesn't relent to the changes forced upon it. Minus points for "square" being legit the most interesting name I could find for it.

Stage Name: Right Kink (0.3/10)

Legal: S block

Objectively the most disgusting piece to exist. A swine, maggot, and ungrateful wrench that brings pain to the beholder, sugar to the diabetic, assignment 5 question 1 to the class of CS 136. It's no coincidence that the geese poop that litters the grounds of campus are united under its green colour. An despicable character.

Stage Name: Cleverland Z (2.3/10)

Legal: Z Block

right kink but idc i like the colour red

Stage Name: The Tetris Block (10/10)

Legal: T Block

The holy grail of Tetris itself. Versatile and accomodating, The Tetris Block graces the board with nothing but beauty, its presence brings you breakfast in bed, cures cancer, and evens lands of unrest and turmoil. The star of the infamous "T-spin", its name resounds far and wide and for good reason. A piece of peace, the praise of The Tetris Club is limited by only the words of a mortal language.

a-red-block

Are you happy?

I am in a good program at a nice university, have a nice job, and have good friends, then why do I still feel empty sometimes? I'm a typical rich guy stereotype: I have money to spend and knowledge to share but no happiness.

They said indulge yourself in work and you won't feel these feelings. You won't feel lonely, but how long can you suppress these emotions? They said try new things, learn more and make yourselves better, but is it really worth it, to become more capable and less complete? They said appreciate who you have, but how many times can I share those parts and lose my friends because they didn't like those parts? They said giving gives you true happiness, but what I can possibly give to people who are in the same boat as me? They said just smile; post happy pictures. How long can I survive by filtering my photos before my soul gets filtered? How long should I pretend to be happy before I find the reason for it?

Can I not just say I am unhappy? Unfulfilled? Can I not just be sad? No, I can't, because that will make them ask me if I'm okay, and then I will have to fake a smile for them to stop asking me. Because how can I tell them that I will not be fully happy for a long time — not until I find what I am looking for — when they themselves are trying to hide the exact same truth? How many more series of fake smiles can I sustain, until I am buried so deep in them that even I can't distinguish them from the real ones?

sp

starNEWS 4

Finding Your Zodiac

One of my favorite pastimes is to ask people for their zodiac sign, and then when I have the chance, point out to that person the constellation they were born under. It's kinda silly, but I like the thought that there's a pattern of stars that in some way belongs to me. Today, I hope to share this with you: a comprehensive guide to trying to find your own Zodiac constellation. I'll start with more obvious ones and then fill in the gaps (I'm also assuming you know how to find Orion and Ursa Major—read *starNEWS* 1 and 2).

Taurus (Winter)

If you're a Taurus, congratulations! You have one of the easiest and most beautiful constellations. To find your designated celestial bovine, find Orion's belt and follow the line it traces going towards the West until you hit a red-ish star: Aldebaran. It's part of a nice v-shaped asterism representing the bull's face. If you follow the line a bit further, you arrive at the fantastic open cluster known as the Pleiades. Also, at the time of writing, Mars is sitting right between the bull's horns! If you're a Taurus, I'm jealous of you.

Gemini (Winter)

Gemini is also pretty easy to find! First, find Orion. Then, look for a bright reddish star near his right shoulder (Betelgeuse), and a blue-ish one near his left foot (Rigel). Trace a line between them, going up through the shoulder until you reach a pair of bright stars: Castor and Pollux. These are the heads of the twins after which the constellation is named.

Leo (Spring)

Leo is a great constellation for people with telescopes since it contains a massive galaxy cluster—spring is often named Galaxy Season after this and there's a similar cluster in Virgo. Anyways, find the Big Dipper and imagine it is a spoon (it isn't very hard). Now, let a drop fall from the spoon and make it travel a decent distance until you reach a bright star. This is Regulus, the Little King, and it's the brightest star in Leo. You should be able to spot the famous "sickle" asterism of which Regulus forms part of the handle.

Virgo (Spring)

The Queen of the Zodiac is Virgo, and besides being the largest Zodiac constellation, she jealously guards some of the best galaxies in the heavens. To find her, find the Big Dipper. Now, look at the handle, and imagine continuing the arc formed by its stars past the end. You will see a very bright red star pretty soon. This is Arcturus, but it isn't part of Virgo, it's in Boötes. Keep going along the arc. The next star you see is in Virgo: this is Spica, the priestess' left hand.

Scorpius (Summer)

This one requires a bit of guesswork, but it's unmistakable when you see it. Basically, you should look for a very bright reddish star in the South, near the horizon, during the summer months. This star is (hopefully) Antares, the Heart of the Scorpion. Once you think you have a candidate, see if there are 3 stars in a tight arc around it, as if it were the crust of a slice of pizza with Antares at the tip of the slice. These three are Beta, Delta, and Pi respectively, and form the claws of Scorpius. Now, you should be able to make out a distinct tail.

Sagittarius (Summer)

I love Sagittarius. Not only does it contain the centre of the Milky Way (there's a reason our supermassive black hole is named Sag A*), but it is almost unmatched for globular clusters and nebulae. Also, you find it by looking for a teapot. I'm serious. Look to the South during summer months (next to Scorpius), and look for a pattern of stars that looks like a teapot. Once you see it, you can never un-see it.

Aquarius (Fall)

For this one, I'm going to ask you to find the Northern Cross, a summer-fall asterism in the constellation Cygnus. All you have to do is try to find the three brightest stars in the summer sky, which should be arranged in roughly an isosceles triangle. One is Altair in Aquila, another is Vega in Lyra, and the third is Deneb in Cygnus. To identify the right one, check to see if it looks like it's part of a wide cross shape. Once you have it, trace a line across the shorter branch of the cross towards the horizon until you reach a noticeable "cascade" shape of fainter stars. This is the water flowing out of Aquarius' jug.

Cancer (Winter)

I'm afraid if your symbol hasn't been named yet, it's one of the fainter or smaller ones. Cancer does contain the Beehive, a very pretty star cluster, but it's a bit faint for the human eye. Your best chance to find it is to look for a couple of faint stars between Gemini and Leo.

Libra (Spring)

My own constellation is also a bit lacklustre, even when it comes to telescope-class objects. To find it, search for a scattering of faint stars between Scorpius and Virgo, but don't expect to see much.

Capricornus (Summer)

The fish-goat of legend is one of the better faint constellations and is pretty recognizable if you know where to look.

Look between Aquarius and Sagittarius, and you'll find a wider pattern of faint stars swimming happily between them. This is Capricornus, and he just said goodbye to Saturn, who just left recently to see Aquarius.

Pisces (Fall)

Pisces is huge yet faint: the best the Greeks could come up with for this huge expanse of sky was a couple of fish tied together at the tail. If you want to take up the challenge, look between Aquarius and Taurus, and be ready to use a lot of imagination. The brightest star in Pisces is almost too faint to be seen under Waterloo skies, so good luck.

Aries (Fall)

Nestled between Taurus and Pisces is Aries, the last piece of our puzzle. Thankfully, this one isn't too hard, either: look for a brighter star just past Taurus from Orion, and you should find Hamal, the bright star in Aries. The rest of the constellation forms a nice arc with Hamal at the center. Currently, this is the hiding place of Uranus, so start here if you want to try and find the elusive planet. You'll need binoculars at the very least.

Shahabee

reset

i remember one time we moved,
between sk and grade 1.
i don't think i remember anyone from then
but i did start remembering after.
my life had effectively reset.

i remember moving again.
but now i did remember people,
and we said goodbye on the last day of school,
though i never saw them again.
do recall, there was no social media back then.
my life reset, i could *feel* it this time,
and i don't think i minded that much.

i haven't moved since,
but sometimes i wish i did
like most other people that go here,
like most people i talk to.
and now,
when i see someone i know from high school,
though, i don't talk to them often,
i'm reminded that i didn't move.

my life didn't reset when i started university,
but sometimes, some days, in some ways,
i wish it did.

Terms & Conditions

N things to whisper in your partner's ear during sex

- I want your continuous function in my complete space
- Is your cardinality less than or equal to mine? Because I want you to inject into me.
- Are you a compact metric space? Because you're looking closed and totally bounded
- You must be the set of real numbers with the same metric as me, because I'm a metric space on the rationals and you complete me
- I want you to construct a homeomorphism from your metric topology to my topological space
 - Corollary: I want you to make me Hausdorff
 - Corollary: Are we homies? Because I want your homeomorphism
- Damn girl, are you a product of path-connected spaces? Because you're looking real path-connected (from me to you) (right now)
- Are you a metric space? Because I really want to open your balls
- I love how nontrivial your topology is
- Damn, you must be nonplanar, because you're containing my K_3 , 3 subdivision
- What if we were open sets, so our intersection was also an open set ... unless...?
- Are you a continuous function on a metric topology? Because something something balls
- I must be a directed set, because I'm increasing and cofinal
- We must make up the ℓ^∞ space, because we're not separable
- I want to put a vector into *your* space
- This is the minimal polynomial of my orgasm
- (While wearing a cock ring in an orgy) We form a cum-mutative ring
 - Corollary: I want to commute with you
 - Proposition: Can you commute with my elements?
- Are you the Frobenius endomorphism? Because your pp is inside of me
- I want to maximize your function subject to my constraints
- (If sharp objects are involved) Are you a linear relaxation of an integer programming problem with a non-integral optimal solution? Because I want to cut your planes
- This must be a prerequisite for PMATH 450, because it's real anal
 - Corollary: This anal is getting funky
- Are you a finite simple group of order 17,971,200? Because I'm loving your tits group
- I love how non-singular your elliptic curves are
- Are you my MATH 145 assignment? Because I grinded on (your) coq all night

coq and open ball torture

**It's only filler until somebody
loses an eye.
Then it's a felony.**

The Most Incredible Plane Landing

So I guess I'm the person that's gonna write about plane crashes?

Last issue, I wrote about the time a pilot tried to land with his curtains up, just because of a bet. Now, let's look at the complete opposite end of the spectrum. I'm going to talk about a landing that I couldn't believe happened when I first heard about it. It's not very well-known, so it's not the Miracle on the Hudson (though that ranks high on the list of most incredible). This is the story of Pilgrim Airlines Flight 458, occurring on February 21st, 1982.

Pilgrim Airlines was an airline founded in the 1960s, and was absorbed by another airline in 1986. It mainly served short commuter routes, mostly in New England, particularly in Connecticut, where it was based.

Flight 458 was on a de Havilland Canada DHC-6 Twin Otter, a small plane that can be used anywhere you please. You can have normal landing gears, or you can attach skis to make landings on snowy runways, or you can attach floats and convert it to a seaplane. In fact, they use these in the Maldives to connect rich people (or influencers) to their luxury resorts.

Tangent aside, these planes are tough, but they are small. This flight was a full plane, but only ten passengers and two pilots. Good for the short hops this flight was taking, which was a New York LaGuardia to Boston route, with a bunch of stops along the way in Connecticut. The events occurred on the final leg, from Groton to Boston. It took off at 3:10 pm.

During this leg, ice was forming on the windshield. So First Officer Lyle Hogg activated the deicing system, which was a spray made up of isopropyl alcohol. After the first attempt didn't work, he tried again for longer. Unknown to everyone, the deicing tubing detached itself from the nozzles, a common occurrence with this type of deicing system. Because of this, First Officer Hogg was accidentally spraying the fluid inside the plane, possibly on wires and heated surfaces. He smelled the alcohol during the second attempt, so he stopped, knowing something was wrong. Unfortunately, it was too late. The spray started a fire that wouldn't be put out for the rest of the flight.

The fire started as smoke, so Captain Thomas Prinster called air traffic control about the situation of smoke, and asked to divert to Providence, Rhode Island. Moments later, the smoke got so thick that the pilots couldn't see. Moments after that, flames. The pilots resorted to opening their windows, sticking their heads outside of the plane just to see, while the fire was burning them alive.

Since this plane was small, people could tell what was happening. Smoke and fire quickly filled the cabin. The only fire extinguisher was in the cockpit, and when First Officer Hogg tried to use it, it was too hot to touch. Two passengers unsuccessfully tried to put out the fire in the cockpit with their jackets. One of those passengers, desperate to help in any way, used a tennis racket to break the plane windows to try and air

out the smoke. *[Note to everyone: do not do this. It'll only feed more oxygen to the fire.]*

The pilots, having initially wanting to land at Providence, knew that they didn't have time. They could be moments from breaking up in the air, or just straight up dying before they could land. So, they went with the only option available: the Scituate Reservoir, twelve miles from the airport in Providence. Since it was February in Rhode Island, they hoped that the ice on the reservoir was thick enough for a landing. Luckily, it was a foot thick, and could hold a small plane that had to land there and then.

So Captain Prinster, still burning alive from the fire AND freezing his head that was outside the plane just to be able to see, managed to do as good of a landing as he was going to get onto a frozen reservoir. It was a hard crash landing though—the right wing and left landing gear broke off. After the burning plane came to a stop, people had issues getting out of the plane. Since the fire was so intense, the exits had melted onto their frames during the flight, so people had to escape through the windows. When the fire finally stopped burning, all that was left was the stainless-steel passenger seat frames, and the lower body of the plane structure. Everything else was basically destroyed by the fire.

So I've described something that I hope never happens to you. A plane on fire, burning the pilots alive to the point where their headsets melt off of them, that crash-lands onto a frozen reservoir, whose exits melt onto their frames. When I heard these details, I thought that seeing over half the people surviving was out of the question. Guess what? Of the twelve people on the plane, eleven survived. Let me repeat: **only one** person died from this accident. Unfortunately, a lady that already had respiratory health issues was overcome by the smoke and toxic gas before she could escape, and died. While that is very unfortunate, I couldn't believe that everyone else survived. Even the pilots, who were landing a plane while burning alive, and ended up with third-degree burns, survived the ordeal.

That's why it's the most incredible landing. I've heard of unbelievable stories of the ways planes have landed incredibly damaged, or in bizarre locations, but the way the pilots managed a landing onto a frozen reservoir that saved all but one passenger, *while literally on fire and sticking their heads out of the window like a dog*, is the most unbelievable of them all. How those people don't just pass out, let alone *die*, from the extremes their bodies are put through, I can never fully understand.

Both pilots, somehow, managed to return to flying, but for Captain Prinster, it was only a brief return before he retired. Unfortunately, his lungs were damaged by the ordeal, and he died in 2018 from complications of that damage. First Officer Hogg would move to US Airways in 1984, and eventually became president and CEO of Piedmont Airlines (one of the airlines that operates American Eagle flights) from 2015 to 2020. Both pilots would receive awards for their actions.

I wanted to talk about this accident, because I thought it was the most incredible thing I've ever heard from aviation, and I only heard of this somewhat recently. I listen to a podcast called "Take to the Sky", a podcast about air disasters, and when they covered this story, I couldn't believe that I'd never heard of it before. So here I am, imparting this story onto you. I recommend listening to their episode, because they describe the sequence in so much more detail than I could. If nothing else, read the sources on their episode page¹ if you want to learn more.

If all else, have this story, and share it to people. Thomas Prinster should be as well known as the other great pilots, like Sully Sullenberger and Carlos Dardano.

Wait, you haven't heard of Carlos Dardano? I think I have to tell that story next time. ;)

Two

1. <https://taketotheskypodcast.com/pilgrim-airlines-flight-458/>

N Things I Discussed with My British Nursing Student Friend While He's in Waterloo

- Toilets
- Canada's military budget
- Non-commutative pronouns
- My previous *mathNEWS* article, *Rating Every UW Residence for Having Sex*
- Toilets
- The best way to cover up fascist graffiti
- Being autistic about trains
- Buildings named after women on campus
- The best noodles in town
- The most efficient way to climb over tables
- Drugs
- The Rust programming language, the Rust Programming Language book, and the crab on the cover of the Rust Programming Language book
- The *mathNEWS* *gridWORD*
- Being deported from Israel
- Vans in which you can commit bank robberies
- "Being grateful that I'm not studying maths" —the nursing student friend

RapidEyeMovement, Stabby Vale

Message for those who use the MC women's bathrooms

If you don't use the MC women's bathrooms, turn away, this is not for you.

.....now that it's just us.....

This is a message... and part of a system of messages... pay attention to it!

The MC second and third floor women's washrooms are not places of honor... no highly esteemed deed is commemorated there... nothing valued is there.

What is there is dangerous and repulsive to us. This message is a warning about danger.

The danger is in a particular location... it increases towards the stalls... the center of danger is there... of a particular size and shape, lurking behind stall doors.

The danger is still present, in your time, as it was in ours.

The danger is to the body, and it can kill.

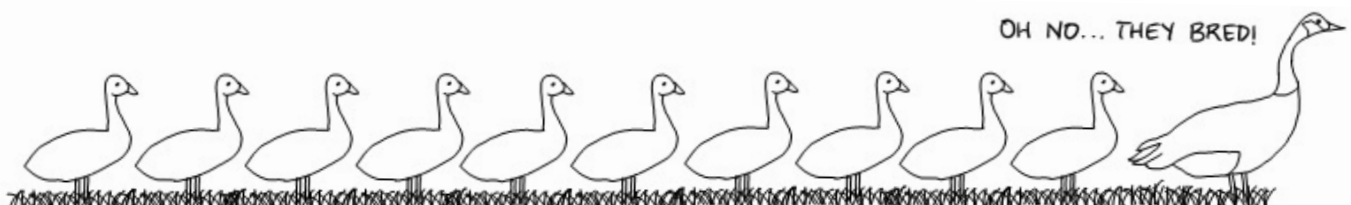
The form of the danger is the collection of unflushed shit, toilet paper, blood, piss, and unidentifiable materials.

The danger is unleashed only if you substantially disturb this place physically. This place is best shunned and left uninhabited.

If you are using a clean toilet for more than a piss, consider flushing once or twice throughout the wiping process... These toilets are not able to withstand the dark forces they are currently being taken through...

*In all seriousness I understand that if you're leaving a toilet in a bad way, you're probably not doing it purposefully and have done your absolute best to try and fix things. Been there/done that. Most women already get shit for natural bodily functions and I'm not trying to make that any harder, but I think we can do better: I've walked into the MC bathrooms enough to notice a pattern which is not seen elsewhere on campus (leading me to think the toilets just suck more), and I think we can conquer this issue. The best preventative measure against toilet annihilation when taking a shit is **flushing early and flushing often**. Do it for yourself, for your fellow students, and most importantly, for the janitorial staff.*

hotfemoid



How John Argyropoulos died

We talked to a professional librarian in DP to find out

For those who are out of the loop, we decided to look into the story of John Argyropoulos who lived in the the 1400s and supposedly died of a watermelon overdose... or so we thought.



The OCR of the 2000 page French book finished, and we found John in the book. He was mentioned as part of somebody else's biography because John accused the other guy of plagiarism. Unfortunately this didn't get us any closer to finding out how John died.

We went to DP library to get help from a professional librarian.

We looked at two books in the library, *The New Century Italian Renaissance Encyclopedia* by Catherine B. Avery and *Dictionary of the Middle Ages, Volume 7, Italian Renaissance to Mabinogi* by Joseph R. Strayer. John was mentioned, but no mention of his death.

After that the librarian looked in the computer system for the books that were cited in the above two tomes. We then found that DP has a copy of *The Life of Lorenzo De' Medici: Called the Magnificent* by William Roscoe and Thomas Roscoe, which was the book we got stuck on last time. That book claimed that John was obese, ate too much food, and drank too much wine. It credited this to Paulus Jovius (which is a really fake-sounding name), who was the Bishop of Nocera. Paulus Jovius is his Latin name. His Italian name was Paolo Giovio (alternate spellings also exist).

According to Wikipedia, he was born in 1483, making him a young child when John died. He was knighted by Pope Leo X and was a physician for a cardinal who later became Pope Clement VII. You could say that Paulus hung out with the big boys. He became the Bishop of Nocera in 1528. In 1549 Pope Paul III didn't make Paulus Bishop of Como, so Paulus then moved to Florence and died in 1552 at the ripe age of 69 (nice).

Anyway, back to *The Life of Lorenzo De' Medici: Called the Magnificent*. There was a funny-looking citation on page 255: "Jovii. Elog. xxvii". What does this mean? We figured out that Jovii was probably Paulus Jovius, but what was "Elog. xxvii"? We eventually figured out that Elog. was an abbreviation for "NOVOCOMENSIS EPISCOPI NUCERINI Elogia: Virorum literis illuftrium, quotquot vel nofra velavorum memoria vixere", which translates to "BRIEF BIOGRAPHIES OF SCHOLARS Illustrious within the memory of our grand-fathers for the published monument of their genius" according to a wonderful 1935 English translation¹ by Florence Alden Gragg, a Professor of Latin at Smith College. According to her preface, Paulus' Elogia was not the most reliable of sources. From this, we infer that it's possible that the melon story was just made up. On the melons, the translation says "His capacity for food and wine matched his appetite so that he grew enormously stout, and finally, after eating too many melons, he fell an easy victim to autumnal fever, which carried him off in his seventieth year."

That's right, **melons**. Not **watermelons**. We have no idea where the **watermelon** detail came from. As far as we can tell someone completely made it up. We looked at another translation of Elogia, and they didn't use a word that means watermelon either. For all we know, John died from a cantteloupe, or maybe he died a normal death.

If you want to read a bit more about John, here is the full passage from Gragg's translation of Paulus' work:

ARGYROPOULUS

John Argyropoulos of Constantinople, who was driven from Greece by the same invasion of the Turks as Theodorus Gaza, won the favor of that illustrious and generous patron of letters, Cosimo dei Medici, who esteemed him so highly that he made him tutor to his son Piero and his grandson Lorenzo, by whom Argyropoulos was regarded as a father, and secured him an appointment to lecture publicly on Greek authors to the youth of Florence. As evidence of his gratitude to the Medici for such benefits there are glorious monuments of his labors treasured in that house which was the foster-mother of true excellence. For he made a very fine translation of Aristotle's Naturalia and Moralia, which was received with such enthusiasm by his old friend, Theodorus Gaza, who had himself selected various parts of Aristotle to 57 translate, that he burned his own versions of certain of these passages, that, in case of rivalry and invidious comparison, they might not interfere with the growing reputation of a man with whom he was on the most friendly terms. Superior as he was to Argyropoulos but withal the most modest of the Greeks, Gaza readily did this service for one who was proudly ambitious and very eager to advance his fortunes, while he himself had always disdained riches and earthly glory as being but fleeting.

The conversation of Argyropoulus, however, was not only wearisome but actually distasteful to scholars and the climax was reached when he rudely declared that Cicero knew no Greek.

Finally, when the plague was ravaging Tuscany, he came to Rome, where he made large sums by his lectures in Greek on Aristotle. But he lived in such style that his whole income sufficed only for his everyday expenses and his last act was a jest by which he made a will leaving his richer friends heirs to his debts.

His capacity for food and wine matched his appetite so that he grew enormously stout, and finally, after eating too many melons, he fell an easy victim to autumnal fever, which carried him off in his seventieth year. John Lascaris commemorated his fellow citizen and teacher in Greek verses, which are thus translated by Lascaris's pupil, Maiorano:

In this tomb far from his native land lies Argyropoulus, who cultivated the lofty precepts of philosophy. His birthplace gave him his name, Rome his hallowed tomb. I know not which was more truly his country. The former gave him race and name, but illustrious Rome nurtured him, honored him, and keeps him forever.

Special thanks to UW Unprint for helping with the research.

And a huge thank you to the very nice librarian in DP (and her dog) who spent two hours with us looking into this in the middle of a snow storm until closing.

Melon Expert, hu

1. <https://elfinspell.com/PaoloStartStyle.html>

Unwise purchases I've made

- \$70 katana umbrella
- This shirt



- One copy of Factorio I impulse bought (2am) at full price, which I then proceeded to play for less than two hours and never touch again
- Tuition
- Exactly one TF2 crate

warrior1rules

N things that have decreased

For some definition of decrease and some definition of thing

- The number of i's in my writer name
- The function e^{-x} , who has been decreasing since the beginning of time and will continue to do so
- The Number of days to Christmas (i t s c o m i n g)
- My sanity
- The number of Double Degrees (probably) (F in the chat)
- My insanity
- The amount of nighttime per day
 2. The hours of sleep that we got when we swapped to daylight savings
- $y = -x$
- The number of real numbers (It seems that someone deleted the number 0 from the fabric of spacetime. If you were previously using this number please contact Evan the mathNEWS editor ASAP to get it replaced with the number \emptyset . Apologies for the inconvenience.)
- The number of complex numbers (which has destroyed all complex numbers with said real component)
- ```
for (int i = 0; ; --i) { printf("%d has decreased\n", i); }
```
- Instances of mathNEWS Prod Nights for Winter 2023
- words remaining in this N things post
- idk, Aggregate Demand
- Days due to that project, eh?
- Time the Inexorable, whose relentless ticking strikes dread into all, whose presence staves humanity of joy and optimism with his everlasting advance, whose merciless grasp comes for us all 's cookie supply. someone remind this dood to go to Costco to get some more
- Silicon Valley Banks in America

Ando

## C&D Meal Ranking

1. Mac and Cheese and Coffee: The Mac and Cheese always runs out in the afternoon, so realistically your only chance to get some is in the morning. So, if you're eating in the morning, it's basically breakfast, and if it's breakfast, you *have* to drink coffee. So, this is a normal meal.
2. ...
3. Egg salad sandwich and lemon Snapple

UW Unprint

## A kind request

please don't die please don't die please don't die please don't die. I am not done with your big anime tiddies.

A modern interpretation of the Princess Bride

## Pizza Quest Chose Us

*To the Tune of Macklemore & Ryan Lewis — Can't Hold Us*

Hey, hey, hey  
 Good to see you  
 Come on, dude, let's go  
 Yeah, let's go  
 Hahaha, Prod Night  
 Prod Night, okay  
 Uh, Prod Night, okay  
 Prod Night, okay  
 The CC is back  
 Get 'em; what it is? What it does? What it is? What it isn't?  
 Looking for a better thing to read up in yo class  
 Instead of getting on the internet  
 then check in on yo CC, warSOC  
 wordy, pop off, writin'  
 Little bit of fiction, little bit of process  
 Somewhere between like Finchey and god ✨ peED  
 Writer game, nope, nope, y'all can't copy, yup

### [Verse 1]

Bad, moon snowing, this here is our party  
 My heading's East on Tutte way, and we did it our way  
 Cold, this trip, I freeze my skin and turn Ring Road  
 Into Farah's food, I record frostbite-and yet go on  
 Let that green light go and shine on down  
 Cross that Phillip Street / Uni, feels like we've gone a mile  
 Money, pay on my card, and pick it up, got those pounds  
 But I do that to get the pizza and put food in those mouths  
 Trust me I'm a P-I-Z-Z-A-Q-U-E-S-T-E-R, hustlin'  
 Making dreams since I was 1A  
 Pizza four-stack bussin'  
 Halfway back to MC with the phat (phat) stax (stax), bread  
 (bread) flats (flats), crushin'  
 Snax are out here, now they can't tell me N things (*Hey, hey, hey*)  
 We give that to the people, spread it across C and D (*Hey, hey, hey, oh*)  
 Pizza out here, now they can't tell me N things (*Hey, hey, hey*)  
 We give it to the people, spread it across C and D (*Hey, hey, hey, oh*)

### [Chorus]

Can we go back? This is the moment  
 Tonight is Prod Night, pizza voting is over  
 So we put our hands up  
 Cause the editors called us  
 Cause the editors called us  
 Can we go back? This is the moment

Your order is done, Pizza Nova just told us  
 So we put our gloves on  
 Cause the pizza quest chose us  
 Cause the pizza quest chose us

### [Verse 2]

Now, can I eat it? Thank you  
 Yeah, I'm so damn grateful  
 I go first 'cause I did the hard parts  
 But that's what you get when P-Quest raised you  
 Y'all can't stop me  
 Go hard like I got a pizza vote in my heartbeat  
 And I'm marchin' on my feet like you gave a little geese  
 a demonic mark and sparked it, honk  
 Time to go off, I'm gone  
 Gooses, goodbye, I got a world to see  
 And my girl, she wanna carbone  
 Charcoal will make you a believer  
 Nah, I never ever did it for a throne  
 That validation comes from giving it back to the people  
 Now, sing a song, and it goes like  
 Raise those hands, this is our party (*Hey, hey, hey*)  
 We came here to move dough like nobody was watching (*Hey, hey, hey, oh*)  
 I got my writers waiting for me, if I fail, they starvin' (*Hey, hey, hey*)  
 Learn from that failure, gain humility (*Hey, hey, hey*)  
 And then we keep marching, I said

### [Chorus]

Can we go back? This is the moment  
 Tonight is Prod Night, pizza voting is over  
 So we put our hands up  
 Cause the editors called us  
 Cause the editors called us  
 Can we go back? This is the moment  
 Your order is done, Pizza Nova just told us  
 So we put our gloves on  
 Cause the pizza quest chose us  
 Cause the pizza quest chose us

### [Bridge]

Let's go  
 Piz, za, za-za, za, za-za, za (*Uh-huh*)  
 Hey (*And all my people sing*)  
 Piz, za, za-za, za, za-za, za (*Hey, hey, that's right*)  
 Hey (*Here we go, all right, uh*)  
 And all my people sing

**“The third verse of our rap is about standard deviation, after a few remarks (mostly inappropriate) about your mother, of course.”**

**- Prof. Don McLeish**

Piz, za, za-za, za, za-za, za (*You do it, Ray*)  
 Oh (*Ha-ha, let's go*)  
 And all my people sing  
 Piz, za, za-za, za, za-za, za  
 mathNEWS-uh, uh, uh, uh,

**[Chorus]**

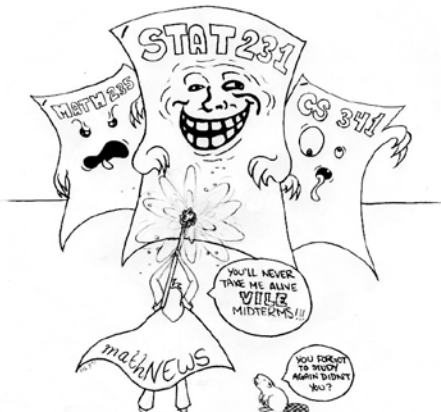
Can we go back? This is the moment  
 Tonight is Prod Night, pizza voting is over  
 So we put our hands up  
 Cause the editors called us  
 Cause the editors called us  
 Can we go back? This is the moment  
 Your order is done, Pizza Nova just told us  
 So we put our gloves on  
 Cause the pizza quest chose us  
 Cause the pizza quest chose us

CC

## N reasons why math students need a girlfriend

- they can define new data types in C++ but not the word "love"
- they think wearing a light spring jacket in  $-18^{\circ}\text{C}$  weather is "perfectly fine"
- they think a bagel is enough food till 6:30pm
- they have never felt human emotion before
- they need an incentive to shower (getting a girlfriend doesn't always solve this problem, unfortunately)
- they think it's okay to walk around with stains on their clothes
- they need someone to destroy their god complex
- they somehow always get the most unflattering, absolutely horrendous, vomit-inducing haircuts I have ever seen
- they use math as a coping mechanism
- they never wear the 2 pieces of nice clothing they own because they're "too good" (seriously, what are you saving them for?)
- they think integrating on a blackboard is a cute date idea (ok fine they're right about that one)

math student observer



## Noah's Ark

*The year was 1656 (~2000 B.C.), and God was very unhappy. The Lord saw that the wickedness of man was great upon the earth, and gosh darn it, He was going to do something about it.*

**God (unto Noah):**

"The end of all flesh is come before me; for the earth is filled with violence through them; and, behold, I will destroy them with the earth."

**Noah (unto God):**

"Gee whiz God, don't you think that's a little?"

**God:**

"Make thee an ark of gopher wood; rooms shalt thou make in the ark, and shalt pitch it within and without with pitch. And this is the fashion which thou shalt make it of: The length of the ark shall be three hundred cubits, the breadth of it fifty cubits, and the height of it thirty cubits. A window shalt thou make to the ark, and in a cubit shalt thou finish it above; and the door of the ark shalt thou set in the side thereof; with lower, second, and third stories shalt thou make it. And, behold, I, even I, do bring a flood of waters upon the earth, to destroy all flesh, wherein is the breath of life, from under heaven; and every thing that is in the earth shall die.

But with thee will I establish my covenant; and thou shalt come into the ark, thou, and thy sons, and thy wife, and thy sons' wives with thee. And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee; they shall be male and female. Of fowls after their kind, and of cattle after their kind, of every creeping thing of the earth after his kind, two of every sort shall come unto thee, to keep them alive. And take thou unto thee of all food that is eaten, and thou shalt gather it to thee; and it shall be for food for thee, and for them."

**Noah:**

"You got it God."

*And so, Noah went to work, constructing an ark 300 cubits by 50 cubits by 30 cubits, fit to hold two of every fowl, ruminant, and creeping thing of the earth. Noah worked tirelessly, and soon, the ark neared completion. During one of these industrious days, Noah is approached by his neighbor Joe.*

**Joe:** "Hey there Noah."

**Noah:** "Hiya Joe!"

**Joe:** "Nice weather we've been having."

**Noah:** "Certainly! No reason to expect 40 days and 40 nights of rain any time soon."

**Joe:** “Certainly not! As a meteorological phenomenon, it would be completely impossible. In fact, I reckon only an act of divine wrath could bring about such a thing.”

**Noah:** “Why, I reckon you’re quite right Joe.”

**Joe:** “Say Noah, that’s a mighty fine ark you’ve got there. It must be at least 300 cubits in length. And is that gopher wood?”

**Noah:** “Good eye Joe, gopher wood it is.”

**Joe:** “I can see you’ve got it pitched from without. I must ask, is it pitched within as well?”

**Noah:** “It is. You’d make a fine shipwright Joe.”

**Joe:** “It seems quite seaworthy. You know Noah, if I had to guess, I’d say it’s large enough to hold two of every thing of living flesh that walketh or creepeth upon the earth, and even food enough to feed them.”

**Noah:** “Well now that you mention it…”

**Joe:** “You know Noah, there’s been a lot of wickedness upon the earth lately.”

**Noah:** “I’m really not qualified to speculate about such things”

**Joe:** “God’s probably getting pretty antsy about all of it”

**Noah:** “ ... ”

**Joe:** “An ark 300 cubits long, you’ve got to imagine that it could store a few extra people.”

**Noah:** “Well it’s getting pretty late, I should probably be heading to bed.”

**Joe:** “Right, right. I’ll leave you to it.”

**Noah:** “So are we still on for brunch?”

loadedDreidel

## Blotto!

Blotto! I have terrible news: I’m bad at coding. I made a mistake in the script that scored last issue’s submissions. Thanks to Jacob for catching it, and sorry to anyone who I gave a false impression of doing well. Here is the correct scoreboard from last issue:

|                     |        |
|---------------------|--------|
| 1. Awedish          | 8 (+4) |
| 2. Nat              | 7 (+4) |
| 3. Jacob            | 6 (+2) |
| 3. Mathieu          | 6 (+3) |
| 5. nwoeanhinnogaehr | 4 (+1) |
| 6. tendstoblottotoo | 3 (+1) |
| 7. trud             | 2 (--) |

Nat’s 10\*10 submission actually tied for first in the last issue, earning 4 Blotts! I hereby apologize for ever doubting Nat’s genius. Here are the standings for this issue—hopefully I didn’t make a mistake this time.

|                     |                   |
|---------------------|-------------------|
| 1. Mathieu          | 13 (+7), used 140 |
| 1 1 15 20 25 25     | 5 5 10 33         |
| 1. Nat              | 13 (+6), used 150 |
| 13 13 14 14 15 15   | 16 16 17 17       |
| 3. Awedish          | 9 (+1), used 0    |
| 0 0 0 0 0 0         | 0 0 0 0           |
| 4. nwoeanhinnogaehr | 8 (+4), used 55   |
| 1 2 3 4 5 6         | 7 8 9 10          |
| 4. tendstoblottotoo | 8 (+5), used 100  |
| 5 5 5 10 20 20      | 20 5 5 5          |
| 6. Jacob            | 7 (+1), used 0    |
| 0 0 0 0 0 0         | 0 0 0 0           |

|             |                 |
|-------------|-----------------|
| 7. BoopBeep | 3 (+3), used 20 |
| 0 0 0 0 0 0 | 6 5 5 4         |
| 7. trud     | 3 (+1), used 0  |
| 0 0 0 0 0 0 | 0 0 0 0         |

I took the liberty of filling in 0’s for everyone who did not submit to avoid the strategy of “save all 300 for the next issue without giving my opponents any points in this issue”.

As a reminder, each player has 300 soldiers to use over this issue (with results above) and next issue. So if someone used 140 troops this issue, they have 160 left for next time. If you are a new player, you are welcome to participate, and have 300 soldiers at your disposal for next issue!

If you haven’t seen the previous issues, here is a quick reminder of the rules. Each player submits an allocation of 300-x (where x is the number of soldiers they used in this issue) soldiers to 10 castles. Then to award Blotts (the main number next to each player’s name above), every submission is put head-to-head against every other submission. To find the winner of a 1v1, the castles are each evaluated: if player A has more soldiers on castle x than player B, player A will win x points. Whoever has the most points after all 10 castles are evaluated wins one Blott (or each win 0.5 in the case of a tie).

If you’d like to participate, please submit your soldier allocation and preferred name to [sherpnews@gmail.com](mailto:sherpnews@gmail.com) by March 27 at 6 PM. As usual, new players are welcome to join!

sherp

# gridywordy

gridCOMMENT 151.4

Y'all are insaneo mode!!!! Here I was thinking last issues gridWORD was hard, but there are 8 of you sending in solutions! :0000

Dearest spaghettiinhalers: i too admire the way you think, and your gridword solving makes my lil wink wonk heart so happy, i love u. Please come to MC 3030 to collect your prize ☺

I asked last time, "Mirror, mirror on the wall, who is the sussiest of them all?" Those of you who sent solutions said:

I also want to honor eternallypuzzled for drawing amongi instead of A's, that is very cute :o000

- Jason Cannon: *gridword writers (14 across, issue 2)*
- eternallypuzzled: *the sussiest of them all is always yourself (drew amongus)*
- kumquatzz: *Theres been susurruses of a suspicious pegasus... (sorry it's long :c)*
- Terminally sane: *red*
- ☞: *Jerma985*
- yalevoylian: *mathNEWS contributor normalparameters*
- Etzalien: *The girl reading this*
- spaghettiinhalers: *thou, o crewmate, art the sussiest in the skeld*

There are many great gridWORDers this semester, and I am very proud of you all!!! :D Please keep up the great work with this **colourful** gridWORD! I ask you, "Mirror, mirror on the wall, who is the **least** sussiest of them all?" Send pseudonym, answer and gridWORD solution to [mathnews@gmail.com](mailto:mathnews@gmail.com) by March 27<sup>th</sup> at 6pm!!!

See you all again soon :0

Wink wonk

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 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 |    |    |    |    |    |    |

Across

1. Where to park a parka?
9. What colour a mathNEWS reader wears to graduation\*
13. Performing basic arithmetic by writing numbers in place value form
14. Animal life of various regions
16. Used to carry out a laboratory tests
17. Become depleted
18. Faculty colour with a notable pet animal\*
19. Immobilize
20. Final points in space or time
22. Spine line
26. Combines
27. Faculty colour for those with an aptly named thumb\*
28. What a student in the 31 down coloured faculty may use
33. \_\_\_ cheese
34. Bro's counterpart
35. 1952 Olympics host
36. Clue characters
39. Hull officer
40. "Ah, me!"
41. Metric units
42. Dachshund, slangily
46. Heavy drinkers
47. Spin
51. The colour of the faculty known for building\*
52. Absolutely certain
54. Most pertinent
55. Some zoophytes
56. Calendar span
57. Urban dwelling

Down

1. Jam ingredient?
2. Another word for margarine
3. Gelatin substitute
4. Robe for Caesar
5. Capital of New Jersey
6. One who uses a bell
7. Fragrant compound
8. What you get from an ambulance
9. Small boats
10. Low-budget film, often
11. Nostrils
12. Door opener
14. Palm leaves
15. 8<sup>th</sup> month
19. Stays out of sight
21. He took up painting while recovering from appendicitis
22. Long, long time
23. Pakistani language
24. Darjeeling and oolong
25. Rope fiber
29. Choo-choo's sound
30. Cold war initials
31. The colour of the faculty known for experiments\*
32. Millions of years
34. Bucks
37. Stands for things
38. Bordeaux product
39. In a major way
41. Ease up
42. Bonehead
43. Blood line?
44. Stimulant
45. Stingless bee
48. Bit of physics
49. Fork prong
50. All square
51. Salary
52. Congratulations, of a sort
53. "C'\_\_\_ la vie!"



Last Issue's gridSOLUTION

