

snowdozer



“WHAT’S THE SONG OF THE SUMMER?”

Have you noticed the Earth has been acting up recently?

It started innocent enough, with a cool eclipse that you only needed to head to Niagara to actually see. In retrospect, the signs were there all along. *Nothing* cool happens in Niagara. At least, ever since they closed down the wax museum of famous criminals.

The next incident raised more eyebrows, I admit. Aurora Borealis? At this time of year, at this time of day, at this part of the country, localized entirely within a random side road in Kitchener? And yet, it happened. I saw it with my very eyes. Something is afoot.

I wonder why this has been on my mind recently. Maybe it’s because the AC in my apartment has been broken for like a week and I’ve felt the accursed power of the sun beating down on me when I try to sit at my desk. Bonus points for the fact that it’s at the window directly facing the sunset, so I also get flashbanged every day from 5pm to 9pm.

Maybe it’s because I’m writing this on a time crunch. I tap these words into the **mathNEWS** spare keyboard on Tuesday evening as we all brace for some ridiculous amount of rain tomorrow. I’m hoping to finish this and make it home before anything starts. By the time you’re reading this, you’ll know if I was overhyping or if it was actually as bad as it sounds.

I’d like to apologize for that, by the way. I mentioned the other day that we hadn’t had a good rain in a while. I’ve jinxed the entire Eastern Seaboard. Sorry guys, that one’s on me.

Fortunately, if it ever rains again, you hold in your hands a spectacular **mathNEWS** issue to keep you company. We have Ingress inquiries, Montréal musings, ramen reviews, and several other things I couldn’t find any alliteration for. It’ll give you something to chew on to wait out the storm.

Some might say these weather events are evidence of some malevolent deity punishing us for our crimes. I say, duh. Haven’t you figured it out yet? After all, why would a benevolent god send people to *Niagara*?

Happy reading, everyone!

befuddled
Editor, **mathNEWS**

derailed
Editor, **mathNEWS**

SIMPLEX RATED	365—Charli XCX
PLATYPUSGOD	Summertime Sadness, I (unwillingly and unlovingly) heard that song so much 3 summers straight
SNOWDOZER	Here Comes The Sun
ANDOIHI	uh, um... i guess... vivaldi's summer?
DEPRESSED BUG	hkmori—anybody can find love (except you.)
NO PUN INDENTED	Feels like Summer
TOTALLY UNUNIMODULAR	Despacito
NOT_A_UW_STUDENT	“I’m Still Standing”—Elton John
NIKE	E-GIRLS ARE RUINING MY LIFE!
LARS NOOTBAAR	“99 Dead Baboons”—the third most requested song on the Dr. Demento radio show in 1984
SKIT	“Please Please Please” by Sabrina Carpenter
HOTFEMOID	“Von Dutch” by Charli XCX
TERMINAL	the one the birds keep singing every morning please stop i want to sleep please stop PLEASE
MOLASSES	Everything on Love Hate Music Box—Rainbow Kitten Surprise
APHF	according to the pac gym it's the one that goes you take the man out of the city take the city out the man
SEXY_SOFTWARE_BABE	Guns and Ammunition by July Talk
VERDANIK	The buzzing of thousands of cicadas
__INIT__	I can't believe nobody's said “Good Luck, Babe” yet
FIRSTIE	i'll let you know when i go outside at the end
BLINCHIK	BWV 565
NOT A N*RD	the sound of construction
ERALOGOS	Ziggy Stardust
CUTLET	any of the six songs in my library whose titles contain “summer” as a substring
BEFUDDLED	the hum of ten thousand bees

ARTICLE OF THE ISSUE

What is editing **mathNEWS** if not just moving articles between InDesign documents? Dizzy, your article [Moving Stuff Around](#) struck a chord with a lot of us. Come to MC 3030 for a prize.

Boy, I sure do love having dry socks and dry jeans!

OWEN GALLAGHER, **mathNEWS** EDITOR FOR SPRING 2024
ALONG WITH SARA NAYAR, AWAB QURESHI, ISABELA SOUZA, AND DAVID TERESI

mathASKS 155.5

FEATURING INSTRUCTOR ROSS EVANS

VERDANIK: MUCH DEBATE IS HAD OVER THE SO-CALLED "BRITISH ACCENT," WITH MANY CONTENDING THAT NO SUCH THING EXISTS AND IS RATHER THE GENERALIZATION OF MANY REGIONAL ACCENTS. THOUGHTS? ALSO, WHAT IS THE BEST ACCENT?

That's definitely true for me. Most British people struggle to place my accent. I lived in Montana from ages 7–13 and in PEI from ages 13–18, so my accent is a lot weaker than it was originally. For a while I had two accents: I would use a quasi-North-American accent at middle-school/early high school and a British accent at home. Eventually, I got tired of explaining why I spoke to my parents differently and morphed them into one. My girlfriend initially was unsure if I had a British accent or if I just had a speech impediment, and as a result was worried about asking me where I was from in case it turned out to be "a weird question."

I would be hard-pressed to call any one accent the best, but I'm a big fan of the various New York accents.

USMAN!: WHAT DREW YOU ALL THE WAY TO WATERLOO?

My parents didn't like PEI after living there for four years and decided they were going to move back to the US after I graduated high school. So essentially I was going to be far away from my family wherever I ended up attending university (Canada or the UK were my only affordable options, with Canada being more affordable than the UK). I knew I wanted to study CS so I essentially just Googled "Best CS schools in Canada" and applied to Waterloo, UBC (Kelowna campus, not Vancouver), and Toronto. I got into all of them, and, after a bit of a laboring between UBC, which had offered me a large scholarship, and Waterloo, which hadn't, I ended up choosing Waterloo. I figured that with co-op I'd earn the difference back (which I did), and I was enticed by Waterloo offering the advanced CS courses and not requiring chemistry as part of the degree requirements (which I think UBC did at the time).

JEFF: WHAT'S YOUR FAVOURITE BATHROOM ON CAMPUS?

I have some nostalgia for the bathrooms on the 7th floor of DP. They're not particularly nice facilities, but that was my go-to study spot throughout undergrad, so they're familiar. Plus, with the extra distance, you're less likely to encounter someone who's just eaten Lazeez as compared to DC.

QUAAAAACK: ARE YOU A WIZARD?

Being a grad student doesn't feel particularly magical.

HEADPHONES97: HOW ARE YOU SO ENERGETIC AT 8:30 AM WITH NO COFFEE?

It's only when I'm teaching; most days I wake up between 8:00 and 8:30. When I get the choice, I much prefer a 10:00 AM slot, but sessional lecturers have less influence on their time

slot than continuing lecturers or professors. It helps that most of the time I'm presenting stuff I am genuinely passionate about, and that I do really enjoy public speaking. I only don't drink coffee, because I'm saving it for when I (eventually) have a kid. New parents always talk about how tired they are, but I'm going to have a leg up, because I'll be experiencing a real dose of caffeine for the first time!

AAQSR: DID YOU TAKE ANY OF THE BIG 3 WHEN YOU WERE AN UNDERGRAD? WHY/WHY NOT?

I didn't, although they all seem very interesting, and I would have liked to take them given more time. One reason I didn't was because Trains and Compilers have big group components, most of my undergrad friends were outside of CS, and I wanted to avoid pairing up with randoms. In addition, my 3B to 4B terms were all impacted by COVID, so Trains wouldn't have been as feasible. The most difficult courses I took during my undergrad were CS 466 in 3B and CS 467 in 4A, and I would nominate them for a "big 5" of sorts.

AAQSR: WHAT CONCEPT FROM CS 246E DID YOU UNDERSTAND LEAST, BUT FELT LIKE YOU SHOULD'VE WORKED HARDER TO UNDERSTAND?

I try not to fault my former self for not working harder. I think he worked hard enough on the course—I was happy with my final grade, and my project partner (former **mathNEWS** editor unsophisticatED) and I got 100 - ϵ on our Vim implementation. With that being said, I struggled with some of the course concepts that utilized complicated template metaprogramming techniques. If I really wanted to grasp the material, I should have spent more time on the terminal experimenting with the language, asking myself probing questions to dig deeper, and utilizing course resources like office hours to expand my understanding. But by the time I had developed these more advanced study strategies, it was too late.

At the time I was taking MATH 235 and I found it easier to spend time every day working on textbook practice problems. And although that was also a valuable use of my time, I didn't realize that becoming an expert in a subject requires cultivating your own curiosity and exploring information that isn't packaged neatly into digestible chunks as is done in textbooks. The ability to grind through practice problems and the ability to ask yourself meaningful questions and then find the answers are both incredibly useful skills, but I found the former to be an easier skill to develop than the latter.

AAQSR: FAVOURITE PIECE OF BRITISH SLANG?

"Oi! Shut your trap you dumb bird... or else, I'll bollocks ya!"¹

AAQSR: HOW WAS THE TRANSITION FROM ISA TO INSTRUCTOR? WHICH ONE DO YOU ENJOY MORE? ARE THERE THINGS YOU DID AS AN ISA THAT YOU NOW REALISE MUST HAVE ANNOYED YOUR PROFS?

Becoming an instructor meant more responsibility, but didn't change my fundamental approach: try to help students succeed and be a friendly face while doing so. As an ISA, I got to do far more office hours than I do now, which I enjoyed. But also my tutorials were infrequently attended; it's not super fun teaching to half a dozen people who aren't that engaged. I experience this much less frequently as an instructor. Every class I've taught has had at least half a dozen students who are fully present and asking useful questions. (If you were one such student and are reading this, THANK YOU!) Whether they're questions extending slightly past the course material or just clarification questions to make sure I've properly explained myself, they're all useful and improve the quality of a lecture substantially.

So both roles as an instructor and as an ISA have their positive and negative qualities, and I've thoroughly enjoyed occupying both roles. And both roles are important: ISAs are often just as important in ensuring a successful course offering as the instructor and ISC are. As an ISA, I always appreciated it when the instructors I worked for acknowledged the impact of the work I was doing (Caroline Kierstead and Brad Lushman are good at this) and so, as an instructor now, I try to make sure I do the same.

I don't think there was much that I would have done to annoy my instructors in the past. And given that this question comes from my ISA, I'll preemptively say: you've done a great job so far!

TERMINAL: HOW DO YOU *REALLY* FEEL ABOUT THE SE STUDENTS?

I've only taught two cohorts of SEs and I've found that the atmospheres of the two groups are substantially different, so I'm not sure if I can comment in broad generalities. One thing that's different about teaching CS 247 as compared to teaching CS 246 is that student abilities are more varied, whereas in CS 246 they're more uniform. The really strong CS students will opt for CS 246E and so I won't teach them, whereas in CS 247, I'll have students who have the C++ standard seemingly memorized mixed in with students who are still struggling with pointers after forgetting the prerequisite content from CS 137 and CS 138. Pacing lectures that are engaging to both groups of people simultaneously is challenging. The only other big difference between teaching CS students and teaching SE students is that because the SE students have academic reps there is more substantial pushback against any unpopular course policies. As an instructor, navigating this can be difficult, although I imagine as a student it's probably quite useful.

ONE FIRST NAME HAVER: WHAT ARE YOUR THOUGHTS ON HAVING TWO FIRST NAMES?

Just wait until you find out that I actually have three first names! (My middle name is Peter.)

NOT_A_UW_STUDENT: IT'S CLEAR THAT YOU ARE AN AMAZING DEVELOPER, AND YOUR PAST EMPLOYERS LOVE YOU. WHY DO A MASTER'S INSTEAD OF GOING INTO INDUSTRY? HAS IT BEEN WORTH IT?

That's kind of you to say, but I've never felt like that amazing of a developer. I'm fairly good at building projects from a practical sense, but I've never been interested in solving LeetCode style problems, nor am I very fond of the practicalities of being a good developer. The mundane things like writing good tests, writing good documentation, and writing maintainable code are all crucial to being a good developer, but I find myself hard to be motivated in these areas. I would much rather write messy, unmaintainable code that explores some new ideas or functionalities. In fact, my 2nd work term feedback stated "Ross is happy to complete tasks as assigned, but did indicate some disinterest in 'non-glamorous' tasks" and that I should "continue to embrace the more menial tasks" after I incessantly complained when I was asked to spec out the pricing of using different AWS services (not my finest moment).

I did a master's because I found that I had enjoyed my co-op terms as an ISA the most and my work as a developer less so. My dream job is to become a teaching professor. But if I can't make that work and instead I end up working in an industry role, then I'll take that as a success too, so long as I find it more interesting than the frontend web dev work I've done in the past. Whether or not this degree has been "worth it" I think is hard to judge at this point in my life, but it's been a largely enjoyable experience.

I feel lucky to have had such a good supervisor (Douglas Stebila) and I feel lucky to have had the privilege to teach during my degree (which I must give thanks to Douglas for allowing, to Dave Tompkins for taking a chance on me, and to Brad Lushman and Caroline Kierstead for advocating for me when I first started).

AAQSR: WHAT ARE YOUR PLANS NOW THAT YOU'RE DONE WITH YOUR MASTERS?

Essentially just staying on course: I'm starting a PhD in September also in the CrySP lab here at UW.

NOT_A_UW_STUDENT: OVER YOUR ENTIRE ACADEMIC CAREER SO FAR, HOW HAS THE WORKLOAD CHANGED? DO YOU FIND IT'S A LINEAR DIFFICULTY CURVE FROM HIGH SCHOOL TO MASTERS?

Definitely not linear for me, but I think the experience will vary from person to person. I found completing high school significantly more challenging than university, but that's probably anomalous. I did the IB diploma in high school, because PEI high schools aren't treated super well by university admissions due to the low standards of education there. Thankfully, the IB program was free because it had low

enrollment, but as a result the course offerings were limited, forcing me to take higher-level English, History, and Biology and standard level Math, Chemistry, and French. In addition, during my grade 12 year I got very sick from undiagnosed type 1 diabetes; so I found it very difficult to simultaneously come to terms with having to manage a lifelong illness and also finish my requirements for the program, which included 15 exams in a three week period, covering two years of content, for subjects that I mostly do not possess a natural talent for.

In contrast, when undergrad simply asked me to write five exams for four months of content that I (mostly) enjoyed studying, it felt like a breeze! And I had developed time management skills to succeed and the ability to get good at a variety of subjects, even those I didn't enjoy or have a natural talent for.

A master's is a different beast entirely. You take some courses as part of it (four for UW) but most are designed as seminars that are just trying to expose you to current research for a particular niche. The real workload comes out of doing your

research for your thesis, which is going to vary depending on your supervisor. Some supervisors will crack the whip, others are much more laissez-faire. On a day-to-day basis though, what work gets done and how much of it gets done is up to you. So, if you're the type of person who needs a lot of direction to succeed, most supervisors won't have enough time to fill that role. On the other hand, if you have workaholic tendencies, grad school can exacerbate that because you'll always feel like you could be doing more. It can be tricky to calibrate the work-life balance so you're getting enough done to make progress while also not burning out, and I doubt the average grad student (myself included) has it very well-calibrated. At the end of the day, the workload depends on you and how much you want to push yourself to succeed academically. In a way, I suppose that's similar to undergrad, but I feel it more strongly now since there are less obvious deadlines/markers like finishing assignments, finishing midterms, finishing courses, etc.

1. https://www.youtube.com/watch?v=5JY-TI_7Jxc

N REASONS WHY THE ENGINEERS KEEP WINNING THE PERENNIAL SOCCER MATCHES AGAINST THE MATHIES

Every year, like clockwork, the engineering students trounce the mathies in their celebrated soccer game. It's a tradition, a spectacle, and, quite frankly, a predictable event. One might wonder if the universe itself conspires to ensure this outcome, but let's delve into the reasons behind this curious phenomenon, dear reader.

First off, engineering students live in a world of practical applications. They spend their days building bridges, designing circuits, and solving real-world problems. They know how to apply their knowledge to tangible tasks, like, you know, kicking a ball into a net. Math students, on the other hand, are busy proving the existence of said ball using abstract theories and elegant proofs. By the time they've confirmed that the ball is indeed a spherical object in three-dimensional space, it's already halftime, and the engineers are up by three goals.

Engineering projects often require teamwork. From group assignments to lab partners, engineering students are trained to work together, communicate effectively, and achieve a common goal, especially with their FYDP. In contrast, math students are often lone wolves, holed up in their rooms, deciphering the mysteries of Mandelbrot set in solitude. On the soccer field, this means the engineers can pass the ball to each other without shouting "Euler's number!" as a code word, while the math students are busy arguing whether to use Cartesian or polar coordinates for their positions.

Let's face it, the engineering students have an edge when it comes to physical activity. Their curriculum includes hands-on work, which often requires some degree of physical exertion. Math students, bless their hearts, have a different type of

stamina. They can sit in one place, scribbling furiously for hours, solving equations and whatnot. Unfortunately, that skill doesn't translate well to sprinting down a soccer field. The most exercise they get is walking to the whiteboard to scribble another proof.

Engineers are known for their problem-solving skills and tactical ingenuity. They can devise clever strategies and adapt on the fly. Need a new game plan at halftime? The engineers will whip up a detailed analysis, complete with diagrams and contingency plans. Math students? They'll derive a complex formula for the optimal angle of a shot but will forget that there's a time limit to execute it. By the time they've explained the math behind their strategy, the game's already over.

Finally, let's talk about motivation. The engineering students have a simple, effective system: bribery. It's rumored that the winning team gets free pizza and an extra credit point. That's all the motivation an engineering student needs. The math students, on the other hand, are motivated by intellectual curiosity. Unfortunately, intellectual curiosity doesn't score goals—it just leads to more complicated questions, like why they're losing every year.

In conclusion, the engineering students' dominance in the annual soccer match is as certain as the sun rising in the east. It's a blend of practical skills, teamwork, physical fitness, tactical savvy, and, of course, a little bit of good old-fashioned bribery. So, to the mathies: maybe next year, they'll figure out the right equation to solve this problem.

MATHSOC EAC SEZ

Hey you! Yes, you. Did you know that the MathSoc Executive Appointment Committee is currently seeking applicants for new executives for next term? Here's what you need to know.

WHAT POSITIONS ARE AVAILABLE?

VICE-PRESIDENT, COMMUNICATIONS

The VPC is responsible for the communications inside and outside of the Society. Have you ever wanted to:

- Write the MathSoc emails you get in your inbox each month?
- Make posters, Instagram posts, Discord announcements?
- Manage a team of web developers designing a new website and improving the current one?

Then VPC is the role for you!

VICE-PRESIDENT, FINANCE

The VPF is in charge of the finances throughout the Society. Do you want to:

- Manage a budget of almost \$100 000?
- Support clubs and ensure they are meeting their obligations around finances and MathSoc policy?
- Lead a team of finance directors in processing cheque requests throughout the society?

Then you should apply to be the next MathSoc VPF!

VICE-PRESIDENT, INTERNAL

The VPI is responsible for clubs, events, and volunteers. Have you ever wanted to:

- Run some of the biggest, most exciting events on campus next term?
- Work with clubs to ensure their ongoing success?
- Be responsible for the volunteers across the Society?

Then the VPI is the perfect role for you!

VICE-PRESIDENT, OPERATIONS

The VPO manages MathSoc services and spaces. Do you want to:

- Manage the MathSoc office and the volunteers working there?
- Be responsible for bookable spaces?
- Design and produce new novelties for the MathSoc office to sell?

Then you should apply to become VPO!

AM I ELIGIBLE?

As long as you're an undergraduate student in the Faculty of Mathematics who's completed two academic terms and you don't have any other full-time commitments, you're eligible and you should apply!

WHEN IS THE DEADLINE?

Applications close this Sunday, July 14th at 11:59 PM, so don't delay—apply now.

HOW DO I APPLY?

Visit <https://bit.ly/f24-mathsoc-exec-apps> to learn more or apply today!

WHO DO I CONTACT IF I HAVE ANY MORE QUESTIONS?

Feel free to email executive.appointment@mathsoc.uwaterloo.ca if you have any questions.

Sound interesting? Don't delay—get your application in now!

Cooper Stone
MathSoc Fall 2024 EAC Chair

REMINDER TO REGISTER TO VOTE!

This message is specifically intended for my fellow British Columbians who will be at the polls on October 19th of this year.

If you live in British Columbia and are not yet registered to vote, you have until midnight of October 7th to do so!

This election is taking place during some of the most interesting political times in British Columbian history, so it is a great time to make your voice heard.

If you are not British Columbian then unfortunately I cannot legally help you vote in this election (though no promise I don't attempt election fraud in Ontario these coming years)—instead take the time to register to vote in the federal election next year!

BC: <https://eregister.electionsbcc.gov.bc.ca/ovr/welcome.aspx>

Federal: <https://ereg.elections.ca/en/ereg/index>

Whole Number Haver

OUR INGRESS OPERATION ON CANADA DAY

ON ÉCRIT SUR LES MURS

Ingress is a location-based mobile game developed by *Niantic Inc.* It was the first game made by *Niantic* preceding *Pokemon Go*, so if you have played any other location-based game published by *Niantic*, you may find it easy to learn. In essence, it is a real-time capture-the-flag/zone control game. You interact with geographic locations called Portals on the map, and create Links and Control Fields across friendly Portals to take over an area for your team.

In the world of Ingress, there are two opposing factions called Resistance and Enlightenment who hold different ideologies of how to utilize the recently discovered XM Energy for the greater good of human being. Their faction colors are blue and green respectively. As of the current Ingress story, MACHINA, a hostile AI-controlled entity colored in RED, is also making a presence in the game. Agents from one faction are competing against the other faction for global control of XM Energy, while MACHINA hinders the operations of both factions. The latest intel revealed that MACHINA had already learnt the ability to create control fields, so future XM research might be even more challenging.

On Canada Day, *alsuShaya/RapidEyeMovement* and I did a Link Art¹ in Ingress together. We captured portals and linked them, creating a painting in a unique way that was visible in the game. The painting may be too large to view in the mobile game itself, but it was distinguishable on Ingress Intel Map, a very useful tool for viewing the status of the map in a much larger scale. Our operation was to recognize the Canadian Indian residential school system and to commemorate those who suffered from the tragic events in Canadian history. The symbols of heart and feather are used to foster understanding, reconciliation, and a collective commitment to support Indigenous communities.

The residential school system is a dark side of Canadian history. Stories of the Indigenous people were undocumented or forgotten, and many memories were buried under the ruins. Before our Ingress Canada Day operation, I visited the Guelph Civic Museum on Sunday, and their temporary exhibition, *Folklore: Being and Belonging in the Grand River Region, before and after 1827* was one of the most remarkable exhibits I have ever visited. It unfolded many tales and folkloric practices conducted by indigenous groups, Black Loyalists and Scottish settlers, i.e. storytelling, music, dance, medicine, omens, etc. I also visited the Art Gallery of Guelph on the same day for the *Yours in Native Spirit* exhibition by *Richard Bedwash*, an Anishinaabe artist. I found his art very incredible and unique. Using colors of high contrast and thick stripes,² the paintings are revealing the story of *Nanabush*, the spirit who governs their land, and also tales of many mythical creatures in their folklore. Many arts were originally painted as murals on the walls of Guelph Correctional Centre during his incarceration. His work shows his determination on passing on their memories. Thinking back on our Ingress operation, by painting on the map in Ingress, maybe we can leave a tiny dent

on history. Maybe it can pass on the message and help those who suffered recover from the loss.

I have many fond memories of playing Ingress. It is a game where you can make new friends and do something wholesome as a team. In preparation for our Canada Day operation, *alsuShaya* and I discussed the theme of our painting and came up with a painting idea on the night before. On the operation day, it was a pleasant surprise that we both wore the same W Store orange shirt when we met. The operation ended up being very smooth and successful! All the portals were easy to capture. We just had to take a few detours to clear out nearby links created by MACHINA. Another example was my first operation as a Resistance agent, in which I helped to create a portal with 484 connected links.³ Agents from over 5 universities in Wuhan finished this masterpiece. I shot 90 links to the central portal from the south, while many other agents helped defending it from Enlightenment's attacks.

There is more charm to this game. On your journey, new locations hinted by portals will be revealed to you like a wayfinder. You might get a few Portal Keys by visiting those portals. They are used for creating links and recharge portals remotely, but it can also be treated as cool souvenirs to share with other players. What's more, this game offers many ways for self-expression. Besides creating Link Art and Field Art, you can also participate in many different types of operations, e.g. creating a massive control field across the whole continent.⁴ Designing your own Bio-cards to exchange with others is also a fun activity to do!

Although Ingress has come to the late stage of its lifecycle, I still log into it once in a while to see what's new. Nevertheless, it is a game that brings people together.



eralogos

1. see image
2. It is called Woodland style
3. <https://mp.weixin.qq.com/s/UCfmjg7HIuLZVdCkpryZ5w>
4. Operation Jade Dragon II, June 3 2017, Asia

profQUOTES

STAT 444: ALEX STRINGER

- “ When I was in my first PhD class, my prof said this was baby stuff.
- “ Who here is suitably confused?
- “ Hello, fellow kids.
- “ I want to force you undergrads to do your presentations, because that’s even more painful.
- “ [Statisticians] make up cute names.
- “ Anything’s an estimate of anything.
- “ I am tempted to quote Mark Twain, the father of American literature, and say “I don’t know.”
- “ Feel free to use my code at work, just send me my royalty check.
- “ I’m not mad. I’m just disappointed.
- “ Statistician-speak for “I don’t know” is “It’s problem-specific.”
- “ Student: Could you explain how...
Prof: *[interrupting student]* Possibly.
Student: *[finishes question]*
Prof: Possibly not.
- “ Prof: Who has heard of degrees of freedom?
Students: *[raise hands]*
Prof: Who can define degrees of freedom?
Students: *[lower hands]*

MATH 237: JOE WEST

- “ You can now say that you saw me do the splits!
- “ Sorry, that was a Seinfeld reference.
- “ Get a Grade 9 co-op student to do it for you.
- “ *[Writing on chalkboard]* Should’ve used LaTeX... then it would have aligned automatically.

BU 231W: KEITH MASTERMAN

- “ If you understand this statement, you can nap for the next 15 minutes... You were gonna anyways, but now you have permission!
- “ The poor gentleman loved that well more than his own wife.

“ I think That Guy (one of the students) would be happy... It’s all about making That Guy happy.

“ Like the Salem witch hunts! I remember it like yesterday.

“ If you’re thinking “There’s no way I did that well on the midterm!”, feel free to follow the syllabus to get your paper remarked.

“ My dad told me if I signed that contract that he would sue me immediately.

CS 488: SCOTT STEINFIELD

“ If you don’t hand in Final Fantasy 7 as the project, we’re just gonna give you a zero.

CS 492: CARMEN BRUNI

“ Full disclosure, I am not a gamer.

“ You told me no, so I did it anyway. Don’t listen to the man!

ECE 452: NASIF AHMED

“ How many of you are familiar with recursion? Please raise your hands.

MATH 136: BLAKE MADILL

“ Everytime I say a minor, it reminds me of the diss track on Drake and it’s very distracting as I try not to laugh everytime I say or think about it.

PMATH 347: STEPHEN NEW

“ Student: Can you prove part 2?
Prof: Hmm. Do I even bother? Proof: exercise.

“ Maybe I will prove (2) twice, once now and once when we have slightly more power.

PMATH 320: AMANDA PETCU

“ This here is a gr8 circle, but this here is not a gr8 circle. By the way, I’m writing “gr8” to mean “great,” just in case you weren’t aware.

SCI 238: MIKE HUDSON

“ I hope you all enjoyed being God.

CS 247: ROSS EVANS

“ *[Class spontaneously bursts in applause at end of lecture]* So you guys don’t hate me too much after the midterm... Is that right?

“ ... Else you end up with none pizza with left beef. *[Pulls up a Wikipedia article.]* Have you seen this? I thought the Wikipedia article for this was a bit dramatic: “I think of John 3:16 the same way I think of none pizza with left beef.”

“ Student: Can I add left beef as an option?
Prof: Yeah, just pass it to the constructor.

“ ... And four cheeses, which isn't good for me since I am lactose intolerant...

“ I think this example was made in the 2000s by some CS 246 instructor, now the prices of food have increased drastically.

“ Another example was where they'd calculate student fees. For one course it'd return \$600, that's definitely not true anymore.

“ Back when this course was taught by real professors, and not me...

CS 240: MARK PETRICK

“ Please don't make AVL trees in the workplace.

“ Is there some CS anime where they smite you for making AVL trees?

“ We should make algorithmic cartoons for **mathNEWS**.

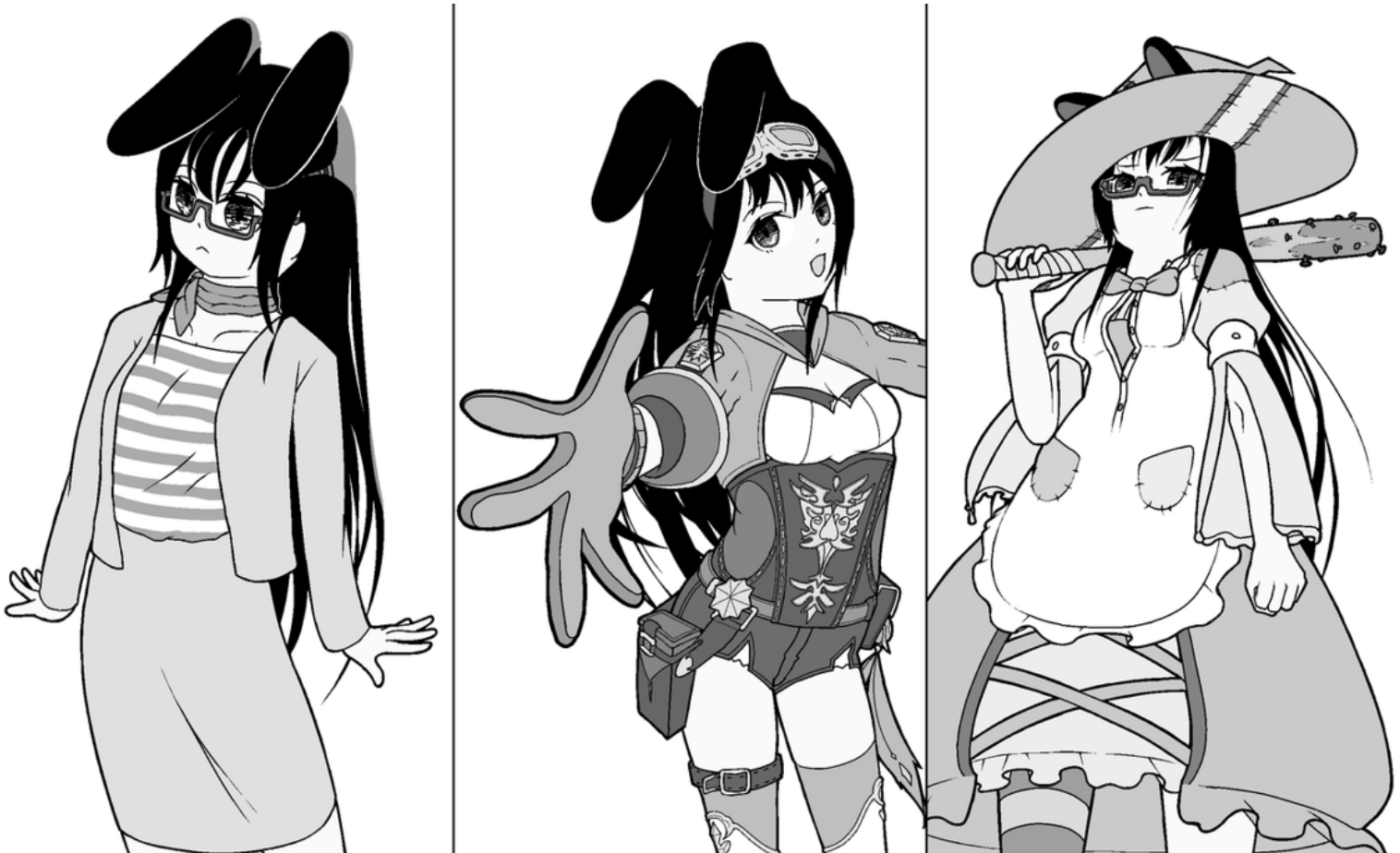
CS 350: KEVIN LANCTOT

“ Your trash is your trash, my trash is my trash; I don't want to go looking through your trash!

STAT 332: CHRISTIAN BOUDREAU

“ Is it reasonable to cheat? Yeah, I think so.

SKETCH 7, 8, 9

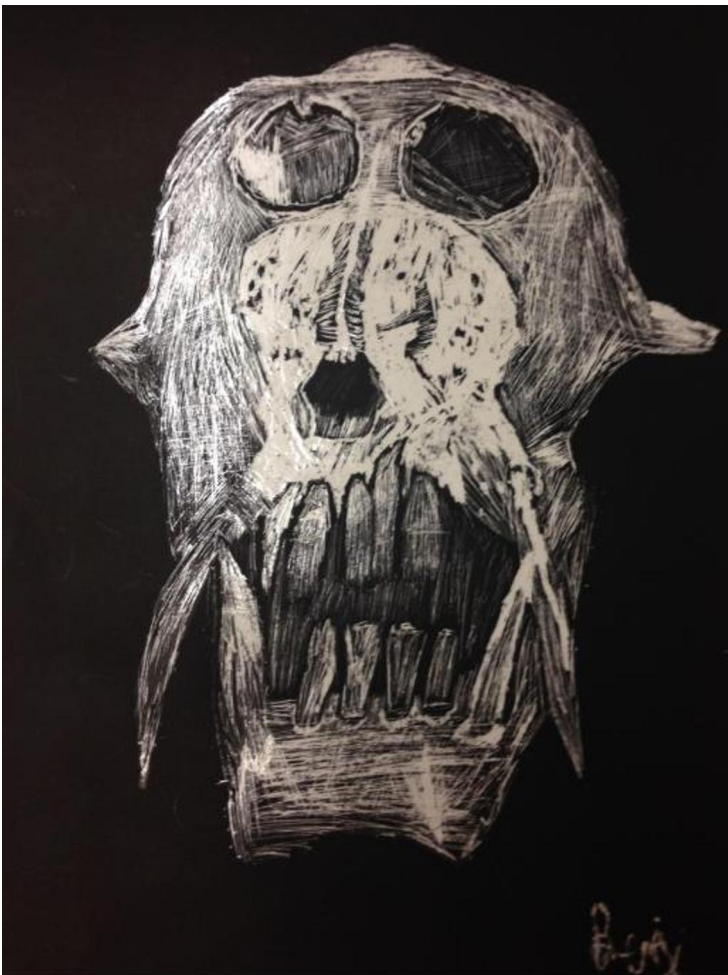


RATING MY GRADE 9 ART PROJECTS

One of my favourite inventions Apple has made in its everlasting struggle to create “improvements” to fill its annual iOS updates is the Featured section in the Photos app, which pulls random pictures you’ve taken to display. Recently, when scrolling through this section, I found strange sketched figures staring back at me that I had forgotten I had even created.

I took Visual Art in grade 9 to get my art credit. I did not have the talent, rhythm, or dexterity for music, nor the desire to speak or emote to people for drama, so art class was the choice. This choice definitely did not mean I had any *artistic sensibilities*, and I fear I may have created a few monsters during this time. Luckily, I had to make a portfolio at the end of the term, so these works have been preserved in my camera roll for all eternity. Since I am physically unable to write any other articles that do not involve reviews this term, I will now rate these projects as they become increasingly unhinged.

ANIMAL SKULL ETCHING OF SOME SORT



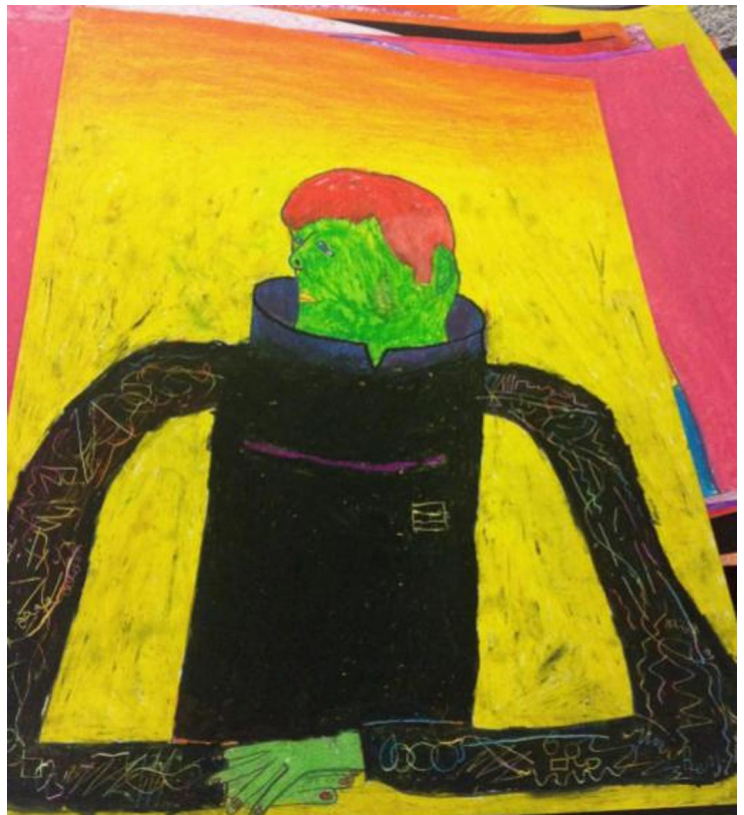
I think we were handed an animal skull (or a picture of one) and told to etch it onto some fancy paper. Looks kinda edgy, no clue what kinda animal has tusks like that other than an Elder Scrolls villain. Maybe not the most symmetrical. I kinda like it. **7/10**

LOCH NESS? COLLAGE



I remember this was a group project and remember having no idea what to do. I think this is some sort of Scottish CBC reporter chasing the Loch Ness Monster for an interview. I don’t remember liking it at the time, maybe because I put in less effort, or maybe because I don’t like collages. Regardless, tainted memory = **1/10**

PORTRAIT OF CS



One of our assignments was to make a portrait of our partner, which I did for my friend CS, the same partner for the collage. Not sure if this is proportionately correct. I remember being really into this sweater that he had, which I think I focused on more than him, especially the collar. The stringy bits on his arm I think I added. The colours I used for this were definitely also a choice (for those viewing in black and white, it is a combo of mostly red, green, and yellow). People have asked me if he was insulted by it, but I think with the knowledge of each other's ability, as well as how I was depicted in his portrait, I think it was well received. **8.5/10** for creativity.

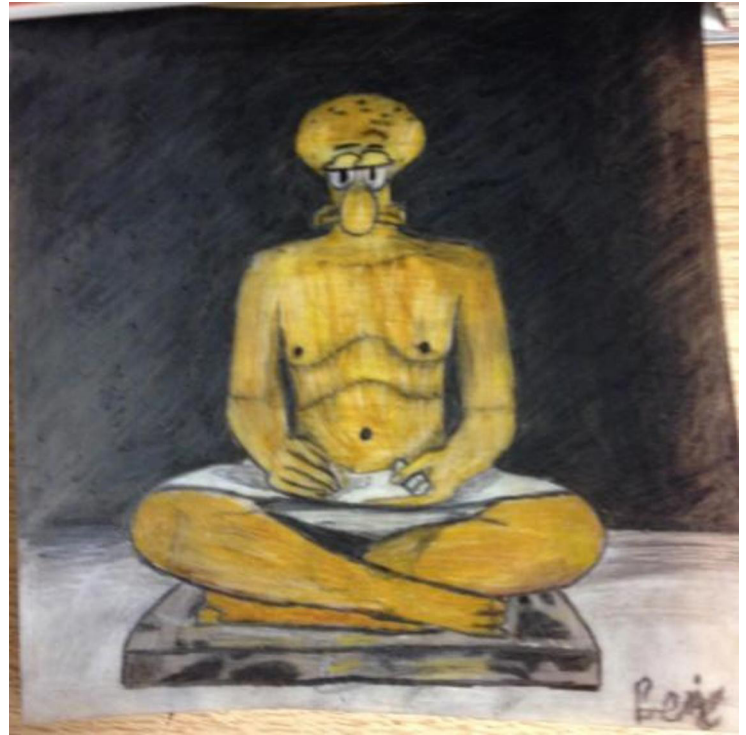
LONG NECKED SOMBER DALMATIAN



For this project we had to choose a dog in a pet calendar and paint it. The dog I chose to paint did not look sad, nor human-like, yet when I was finished, that is what it resembled. Many are surprised to hear that the neck was actually longer in the first draft, but I thought I'd have to tone it down a little.

Not sure what trauma this dog has seen. This actually hung in my high school over the winter break, and someone attending a religious service in the building actually contacted the art teacher to offer to buy this from me. I was a bit stunned, so I regretfully did not follow up. **8.5/10** for character.

THE SEATED SCRIBWARD



This project was to put a cartoon character inside a famous art piece featured on a deck of playing cards the art teacher had (Shoutout Ms. Fraser). I came across an Ancient Egyptian statue called *The Seated Scribe*, which piqued my interest. I then entered a fugue state, and when I awoke I saw this masterpiece. I think I like this one because I think it actually turned out really well for what it was supposed to be, even if it may be a slight offence to nature. My biggest regret is that I didn't search harder when my art teacher lost it. Perfection. **10/10**

Lars Nootbaar

FLOWERS FROM THE TIME MACHINE

A few weeks ago on campus, I saw the sibling of someone I loved. They didn't recognize me; I had to do a double take to make sure it was them. It's been so long. I didn't say hi. I'm off campus the term they graduate, if I'm not mistaken. Part of me hopes I guessed their co-op sequence wrong, that their brother will be on campus for their convocation. That we'll lock eyes one more time. One more conversation. One more chance to roll the dice of fate.

I fall asleep thinking of that sometimes: I'm all grown up and all dolled up, I'm one of the many in a tide of standing ovations, he never catches my eye. The people around me must think I'm moved by the performance. I leave flowers with a single initial on a card for him. I wait around in some perverse hope that he will rush out of his dressing room and find me, but I just order a drink and go home after a while. Even in my dreams I seem to be quite lonely these days.

instantpoodles

RATING EVERY BULDAK FLAVOUR WE FOUND (PART I)

Our descent into delirium...

Our notes get increasingly deranged.

After they outlawed it in Denmark, we decided to assert our dominance.

Why did we do this

COLLECTIVE TIER LIST (BEST TO WORST)

- Carbonara
- Kimchi
- Classic (Black)
- Habenero Lime
- Jjajang (Green)
- 2x spicy (Red)
- Tomato Pasta
- Cheese

KEY

The writers who joined for this madness:

- **REM:** RapidEyeMovement
- **FR:** Fried Rice
- **RS:** Relatively Sane
- **Moon:** Moon
- **aaqsr:** aaqsr

CHEESE

- **REM:** 1/5. Boring, nothing interesting. I would never willingly purchase and eat that.
- **FR:** 1/5. I cannot taste any cheese.
- **RS:** 1/5. A little spicy but very basic. If hospital food had spices.
- **Moon:** 1/5. Liked the consistency. I would not steal a bite from someone else. You know I thought this would be the best one with the packaging.
- **aaqsr:** 2/5. Just ok. It's not cheesy, it's not spicy. What is this?

CARBONARA

- **REM:** 4/5. Perfect balance of creaminess and spice.
- **FR:** 5/5. Not that spicy and amazing texture. If I could only eat one Buldak flavour, it'd be this...
- **RS:** 5/5. Neither flavour is overwhelming and they meld together very well. Tasted more like cheese than the Cheese flavour.
- **Moon:** 5/5: What RS said. My mind is over...
- **aaqsr:** 5/5. Can I just eat more of this please. 's not spicy, it's nice and creamy, it's mouth-watering sjsjsjs

TOMATO PASTA

- **REM:** 2/5. Not spicy. More of the umami and hidden MSG of tomato, but not the acidity of tomato.

- **FR:** 2/5. I could taste and smell tomato. Flavour was subtle, but noticeable. Overall decent, I guess.
- **RS:** 2/5. I wouldn't have known there was tomato unless I was told... I had higher expectations.
- **Moon:** 2/5. It's like pizza sauce. Would recommend for beginners.
- **aaqsr:** 2/5. the only spice here is the pepper ngl

KIMCHI

- **RE:** 4/5. I really like it. Not super spicy. The kimchi is identifiably kimchi. I like the acidity and taste of fermentation. Would not regularly eat this though.
- **FR:** 3/5. It's ok. the spiciness is there. Kimchi flavour not overwhelming enough. The spice definitely hits.
- **RS:** 4/5. I don't know what's going on. Decent noodle. I like the taste of sweet.
- **Moon:** 2/5. Are we halfway through? No? I can't talk about this right now...*leaves room*
- **aaqsr:** 3/5. The first actually spicy one. I don't like kimchi, so this is hence low. Also, I as notetaker am starting to get light-headed, and lose sanity and consciousness. I can't believe we've already lost Moon.

INTERMISSION

RS: ¿Cuál es tu Pasta Buldak favorita?

FR: Noooooooo the encampment is going awayyyyyy

aaqsr: This is the last one before the real spicy ones guys

RS: This is when I hope my Sichuan grandmother's genetics made it into me

HABANERO LIME

- **REM:** 3/5. It smells like cilantro. I like it but *what?* It's like someone took the top 5% of a taco spatially, by which I mean only the condiments.
- **FR:** 3/5. This taste like nothing. I can't taste the lemon. I like the level of spice: just a hint.
- **RS:** 2/5. It smells like it shouldn't be an instant noodle flavour. It smells too Mexican. I don't think my Sichuan grandmother is carrying very hard rn.
- **Moon:** 0/5. I had high hopes for this one. It tastes like soap ngl. I pull out. I cannot do this. My mental tolerance has fallen. *quits*
- **aaqsr:** x/5. This is literally how Buldak tastes like when I make it, with the lime and the copious amounts of cilantro.

ANOTHER INTERMISSION

aaqsr: What is this? Cilantro or coriander? I PUT IT IN EVERYTHING

battlestar galacticumguzzler: Tastes like soap, blegh.

REM: OK guys, controversial opinion — soap doesn't even taste that bad.

aaqsr: FINALLY SOMEONE SAID IT

REM: I have taken a chomp out of soap, and chewed it and swallowed it when I was a kid. It's *literally* not that bad.

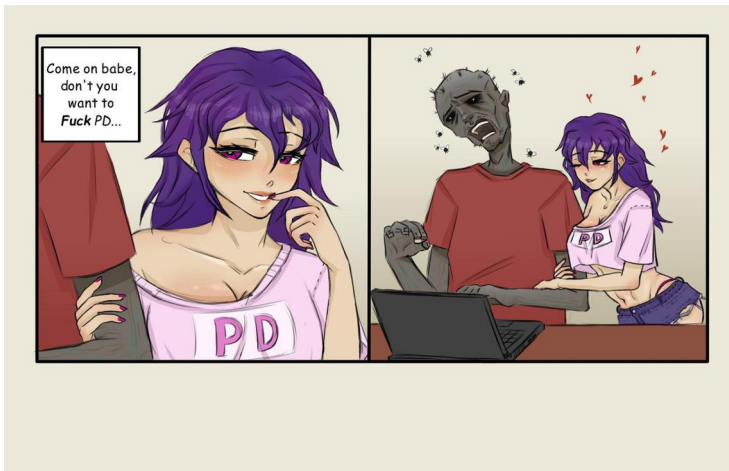
SPICY CHICKEN (NORMAL BLACK BULDAK)

- **REM:** 4/5. It's a classic. Now that I've had this, I'm not sure the hint of tomato I detected in the tomato one was tomato at all... I don't know if I'm gonna be able to go back to the classic. I'll get different one each time, they're all so good! Uhh, except for cheese.
- **FR:** 4/5. This is the taste I love and am used to. Not as spicy as I remember, it actually tastes good.
- **RS:** 4/5. The tomato one tastes like this, except someone is yelling "TOMATO!" in my ear. If this is supposed to be spicy, then that Sichuan grandmother is carrying HARD. It was hyped up hard, but it did not meet those expectations.
- **aaqsr:** 3/5. It's the classic taste, but why eat this in the modern day, when you got **options!** Spice, flavour, more... I can't wait for the next one...

Join our writers in part two elsewhere in this issue to see what happens. Will they all make it through? Will Moon return?? Will there be a BONUS round with *more* Buldak-flavoured things??? (yes there will be)

RapidEyeMovement + aaqsr (ft. Moon, Relatively Sane, Fried Rice)

THE ALLURE TO FUCK PD



pd apologist

SNEW'S FEED AND SEED

PERMUTATIONS OF ORDER 6 IN A9 MY BELOVED

```

from itertools import permutations
from typing import List, Tuple
from math import gcd
from sympy.combinatorics import Permutation, \
    PermutationGroup
def is_even_permutation(p: Tuple[int, ...]) → \
    bool:
    inversions: int = 0
    n: int = len(p)
    for i in range(n):
        for j in range(i + 1, n):
            if p[i] > p[j]:
                inversions += 1
    return inversions % 2 == 0
def cycle_length(cycle: Tuple[int, ...]) → int:
    return len(cycle)
def find_order(p: Permutation) → int:
    lcm: int = 1
    for cycle in p.cyclic_form:
        lcm = lcm * cycle_length(cycle) // \
            gcd(lcm, cycle_length(cycle))
    return lcm
def generate_permutations(n: int) → List[Tuple[ \
    int, ... ]]:
    return list(permutations(range(n)))
def filter_permutations_by_order(perms: \
    List[Tuple[int, ... ]], order: int) → \
    List[Tuple[int, ... ]]:
    result: List[Tuple[int, ... ]] = []
    for perm in perms:
        p: Permutation = Permutation(perm)
        if find_order(p) == order:
            result.append(perm)
    return result
def filter_permutations_by_parity(perms: \
    List[Tuple[int, ... ]], even: bool = True) → \
    List[Tuple[int, ... ]]:
    return [perm for perm in perms if \
        is_even_permutation(perm) == even]
def main() → None:
    permutations_s9: List[Tuple[int, ... ]] = \
        generate_permutations(9)
    permutations_order_6: List[Tuple[int, ... ]]\
        = filter_permutations_by_order(permutations_s9, \
            6)
    even_permutations_order_6_a9: List[Tuple[ \
        int, ... ]] = filter_permutations_by_parity(\
        permutations_order_6, even=True)
    total_even_permutations_order_6_a9: int = \
        len(even_permutations_order_6_a9)
    print(f"Total number of permutations of \
        order 6 in A_9: {total_even_permutations_order_ \
        6_a9}")
if __name__ == "__main__":
    main()
    
```

SEX: SCHOOL FAILED THE SLUTS

INFORMATION ABOUT SEX THAT YOU SHOULD KNOW, AND MAY OR MAY NOT HAVE BEEN TAUGHT

In casual conversations with my friends and not-friends who tell me about their sex lives, I've notice that Ontario has done a great disservice to its young sluts. This article aims to clarify a few key points. It is by no means comprehensive or complete.

- Only use silicon or water based lube with latex condoms. Oil based lubes will degrade them (this includes stuff like vaseline). You don't want gonorrhea, it sucks.
- Use condoms or dental dams (for oral sex) to prevent sexually transmitted infections (STIs). Birth control pills do not prevent STIs.
- Non latex condoms exist, have them on hand for if you or your partner have a latex allergy. If your bits are burning when using a condom, it might be latex.
- Don't store condoms in cars. The heat and cold fucks them up.
- Things shouldn't hurt (unless that is the intent). If sex is painful, stop and readjust. If it still hurts, just stop. Go to the doctor for persistent issues.
- Flared base. Anything you (or partners) stick up your ass should have a flared base. You don't want to have to sit 8 hours in the ER to have... whatever removed from your ass. This holds even if someone else is holding onto the object.
- One partner per sex toy. You can use condoms over most sex toys to share with multiple partners, but you got to use a different condom each time and wash the toy.
- Wash your sex toys after every use. Self explanatory.
- Wash your hands. Definitely before, sometimes during (going in between anal stimulation and anything else), and after. Baby wipes can be used in a pinch. Hand sanitizer stings.
- Pee after sex (if you don't have a penis). You really don't want a urinary tract infection. Get up and walk to the bathroom even if it is cold. Go to the doctor if peeing is painful.
- Different smell or discharge from your vagina after penetration, get yourself checked for bacterial vaginosis. Not fun and very common.
- Nonpenetrative sex is sex. Lots of people have all kinds of nonpenetrative sex! Many people prefer nonpenetrative sex, regardless of gender or sexual orientation. Not everything is about sticking dicks in holes...
- If you plan on touching a vulva, clip and file your nails. Ouch. I assume this also applies to scrotums and such.
- Consider PrEP (Pre-Exposure Prophylaxis) to help prevent HIV. This is vital if you have casual penetrative sex or have sex partners with multiple sex partners, or have sex with people who inject drugs.

- Get an HPV vaccine, even if you have a penis. Don't be Michael Douglas. Cancer is NOT fun.
- Morning after pills are used to prevent ovulation. They used if you have unprotected sex or your birth control method fails (condom breaks, forget to take birth control pill, etc.). The pill you use depends on your weight and BMI. It is awkward, but pharmacists can be helpful with figuring out which of the many morning after pills are best. It is a good idea to have the appropriate medication on hand just in case.
- Get yourself a helpful older slut (or slut ally) to assist and help you get yourself where you need to go and what you need in case of assault, injury or abuse. Ideally, this person is a "real adult" and has some life experience.
- CONSENT. CONSENT. Ask before you do. You want enthusiastic consent. Example: cuddling on the couch, want to be handsy: "is it ok if I slip my hand right there?" Asking will not make it more awkward. You can withdraw consent at any point. Practice saying "no" and "stop". Respect someone else's "no" or "stop".
- Your bits are probably normal. There's a big variation on all parts of the human body, including boobs, penises, vulvas, balls etc. If things aren't behaving as expected or have changed behavior, check in with a doctor.
- It is a good idea to have a bag of condoms, lube, and wipes tucked in your bag (NOT CAR) just in case. You want to set yourself up for making good decisions.

GLOW, on the third floor of SLC, is probably the best place on campus to get a variety of condoms and lube. They also have dental dams and internal condoms.

You can get routine testing for Sexually Transmitted Infections (STIs) at the student health centre. Walk-in clinics will also do this.

If you don't have health insurance (shit happens, you don't have OHIP or UHIP), the Waterloo Region Sexual Health clinic will see you. You do have to make an appointment.

The SHORE centre (formerly Planned Parenthood) does IUDs and abortions. The Options Clinic also does birth control, STI screening, and abortions.

For help with sexual violence:

At the university there is:

- The Sexual Violence Prevention and Response Office: <https://uwaterloo.ca/sexual-violence-prevention-response-office/>
- Counseling Services

- Health Services

In the Kitchener-Waterloo Community there is:

- Sexual Assault Support Centre of Waterloo Region: Call the 24-hour support line at (519) 741-8633
- Waterloo Region Sexual Assault and Domestic Violence Treatment Centre: Call (519) 749-6994 or go the Emergency Department at St. Mary's General Hospital

- Emergency services at 911

Too Much Information

I consulted the council of middle aged sluts for this. Dear help me god, they are over sharers.
If you have questions for the council of middle aged sluts, you can reach out at theCouncilOfMiddleAgedSluts@gmail.com. I'll forward it to the relevant sluts and publish the answer in **mathNEWS**.

MOVING STUFF AROUND

I don't study philosophy—of course, that makes me no less a philosopher than any of you—but I'd like to offer a train of thought that might at least spark some conversation.

Bertrand Russell (1872–1970) said that “Work is of two kinds: first, altering the position of matter at or near the earth's surface relatively to other such matter; second, telling other people to do so.”¹ That feels like a gross oversimplification! If all the work we do is so trivial as moving stuff around, how can we be satisfied in the slightest? Surely the modern era has escaped that soulless factory work? Surely there's more meaning than that? My 'puter and the magic that lies within it spits in the face of that philosophy, right?

First, to the point of satisfaction, I was taken aback today by just what incredible potential is held within moving stuff near the earth's surface. The house I grew up in is an testament to that potential, in fact. In the summers, we often find ourselves in need of rocks. As such, we shuffle over to the local hardware store and gleefully alter the positions of many tiles of matter from where they lie to somewhere organized in our backyard. The slow process of building some sort of path, concrete formation, or flowerbed trim is not easy, but it's incredible to look back on that work with pride.

Sure, being proud of your menial efforts is nothing new, but what strikes me is that this pride is derived purely from moving things from here to there. It's an odd defamiliarization, but any tangible product of human effort at least vaguely follows that idea. The pyramids, big ol' piles of rocks, fascinating! Minecraft, a game about picking stuff up and placing it down, enthralling! We just love organizing things in particular ways! We may be unable to tangibly do anything in this cosmos but move stuff from where it is to where it is not, an action which has no inherent meaning, but our existence is so unabashedly full of meaning regardless.

Second, to the point of the digital age: yes, the magic of a computer is certainly captivating, but wouldn't you agree that we are doing nothing more than moving charges around on silicon? Really, we are only altering bits. The systems of information that we build around those bits, however, are monumentally significant. I mean, computers make sure I get an email every time a new **mathNEWS** drops. Now that's meaningful.

There's a bit of a doublethink here, though. It may be somewhat useful to see our actions as fully arbitrary. When it comes down to it, whatever *it* is, most of the work I've done can be reduced to moving stuff from place to place. *Impermanently*.

Eventually, the endless servers and chips that store our species' identity, along with the books that preserve our research and stories, will vanish. The Earth will cease to exist, at least in the way that we know it. Critically, not only will we as individuals pass, but so will our influence and our impact. This cosmos is not ours, no matter how we spin it. All those things we move from point A to point B will not only be moved to a new, scarier, point C, they will eventually cease to be anywhere—as far as I can tell.

So, is there really no point? If it all turns to dust anyway?

Well! If you've been following, you'll notice that we find satisfaction in the most arbitrary things! There's a reason I keep coming back to Minecraft (for 1 week of the year, at most), that I love adding new pathways and fixtures in the backyard, and that I remain fascinated with the bits of code I can write to make a little guy dance around my cursor. It doesn't have to have intrinsic meaning; it means something because we need it to.

If we only have one shot on this earth, it'd be a crazy waste to spend it lamenting our insignificance! I, for one, maintain that making houses of cards is super cool just because it's cool. So, I certainly plan to keep organizing things into particular orders, and enjoying the trivial fruits of my labour. And I think you should too!

That's just me, though. I sure hope you read Russell (and find out what the essay's actually about), and probably Albert Camus, too, if the whole bliss-in-insignificance thing makes you think. I think I'll go have some ice cream.

Dizzy

1. An essay titled “In Praise of Idleness” from Bertrand Russell's *In Praise of Idleness and Other Essays*, a collection published in 1935.

I LISTENED TO EVERY TAYLOR SWIFT ALBUM

I don't think this lady needs an introduction. Let's get started.

Taylor Swift (2006)—I wouldn't have had the courage to release an album as a teenager, let alone a country album, so power to Taylor already. The songs certainly align with the plight of growing up, with themes of blossoming romances, anger issues and managing all kinds of unfamiliar emotions. It's nothing too special, although the hits *really* hit. I definitely wouldn't want to be any of the guys namedropped in here.

Fearless (2008)—I have random memories of my daycare owning this on CD and all the girls freaking out whenever we were allowed to use the stereo. I get it now, this album is sick. You have classics like "Love Story" and "You Belong With Me," which take the country sound of Taylor's debut and make it more accessible to pop and rock fans, but you also have more traditional country songs, which are early signs of Taylor's willingness to stick with what she knows. *Fearless* seemed like the most natural musical progression for her, and it paid off in spades, garnering significant mainstream success and ensuring her name would never be forgotten.

Speak Now (2010)—Written entirely by herself, *Speak Now* is a touching album that's similar to its predecessor stylistically, yet does enough to forge its own identity. The rock influences are stronger, almost overpowering the country undertones at points and creating a pop punk-esque sound. I'm a huge fan, especially because it's balanced out well by Taylor's typical twangy tunes. What makes this record so impressive is that a huge risk was taken in the songwriting department, yet there's no decline in quality. If anything, there's an incline; some of the lyrics pack quite the surprising punch.

Red (2012)—What a beautiful, powerful and delightful mess. Never fully committing to a genre for long, Taylor forays into several new territories, including electropop, arena rock, heartland rock, among others. It may not be the most cohesive, but that's what makes it so effective in achieving its goal of demonstrating the universal struggle of heartbreak. I think that any music fan can find something to take away from *Red*.

1989 (2014)—I wish I had more to say about this since the music is well-made and the pacing is nearly perfect. But yikes, most of these songs were played *so much* on the radio. To the point where I see them as standalone singles that seem alien even being on an album. I'm transported to my pre-teen years when I throw this on. I don't want to think about my pre-teen years. Next!

Reputation (2017)—Unfortunately, this isn't something I want to think about either. What was going through her head when she decided that overwhelming listeners with horrible trap beats and needless features was a good idea? Further, the 'serpentine' persona that Taylor adopts is a disappointing misstep, coming off as someone trying too hard to be edgy. Buried beneath the refuse, however, are some pretty great love songs. It makes me wish the spotlight during the release cycle

was on them, but I'm relieved that they're more appreciated now.

Lover (2019)—Hey kids, spelling is fun! I forgot how enjoyable this album is. It never takes itself too seriously and rarely asks the listener to do so either. I was reminded a lot of *Red* while going through *Lover* again, and now I see them as a pair: two lengthy, playful, genre-hopping records about two opposite life experiences.

Folklore (2020)—The textbook definition of whiplash. Bubblegum pop to indie folk. This was never a direction I expected Taylor to take, and I'm beyond happy she did. She was always capable of putting something like *Folklore* together and what we got is the result of years of hard work, personal growth and sheer devotion to the art of music. It's a classic in its own right, but...

Evermore (2020)—This is the one Taylor album I'll never let go of. Everything that made *Folklore* great is brought back with more detail, imagination and extravagance than ever. Aaron Dessner went all out production-wise, incorporating stylistic choices reminiscent of his band The National, even inviting them to feature on a song. Taylor's storytelling is also refined, and it can pretty much be deemed Americana. Excellent vocals, $\frac{3}{4}$ time signatures, tempo changes, crazy drum machines... Oh, hello word limit. Moving on.

Midnights (2022)—Let's be honest: was this what anyone expected as a follow-up to the quarantine albums? I never take issue with musicians returning to sonic environments they're comfortable with, but the majority of *Midnights* is essentially watered-down versions of Taylor's pop hits, with wordier and 'sexier' lyrics tacked on. There are little bursts of experimentation sometimes, which I appreciate, but they start to feel like novelty after a while. Thankfully, the album is short and has enough gems that make it worth coming back to.

The Tortured Poets Department (2024)—*Reputation* and *Midnights* are by no means bad records. They're not my favourites and I will happily criticize them, yet they were able to keep me entertained while listening and provided me with enough substance to write about them thoughtfully. Taylor and her producers clearly put effort into crafting them and that doesn't go unnoticed, as they surprisingly have some of my all-time favourite tracks, even if I'm only realizing it after giving them another chance. I respect them for what they tried to do.

mathNEWS is the best thing that's ever.

A \$100% SINCERE mathNEWS EDITOR

FINAL RANKING AND FAVOURITE SONGS

1. *Evermore*—“Evermore”
2. *Red*—“Begin Again”
3. *Folklore*—“Cardigan”
4. *Lover*—“Miss Americana & The Heartbreak Prince”
5. *Speak Now*—“Haunted”
6. *1989*—“Wildest Dreams”
7. *Fearless*—“Forever & Always”
8. *Midnights*—“Labyrinth”
9. *Taylor Swift*—“Should’ve Said No”
10. *Reputation*—“Dancing With Our Hands Tied”
11. *The Tortured Poets Department*—“But Daddy I Love Him”

JP

HOW TO USE A BATHROOM

EVERYTHING IS PEE

In the past year, I’ve gone into quite a few bathrooms. I even used some of them, after taking a moment to enjoy the ambience. Every time was a new adventure, sealed with a nice hand cleaning, the aqueous kiss of Hygieia herself. It was the best part of my day, as it is everyone’s.

Then the incident occurred. In September of 2023, I was working a job on campus, and thus had to use the bathroom on campus somewhat frequently. This is when I witnessed a dude use a urinal, then walk right out the door.

I was astounded. Dude, you are like 20 years old and you haven’t figured out that you need to wash your hands after you pee? The sink is not just a cool decoration, despite how sick the circular ones in the old engineering buildings are. Of course, this is not the first time I’ve seen this happen, it had just been a while since I witnessed it firsthand. This made me start to pay closer attention to how other people wash their hands, and I found that the general strategy people go by is to do it poorly.

I watched some dude put his hand under the tap for roughly one second before immediately leaving. Another guy just raw dogged it out of the stall and out the door. These are the most impressive displays of confidence I’ve seen in a very long time. Keep in mind, this is all occurring with another dude IN THE ROOM, looking at them. One can only imagine what happens when they’re alone.

Most people do make an effort to clean their hands with soap, but do so with varied results. Generally, they start fine enough, rinsing their hands, getting soap, scrubbing then rinsing, but then comes time to dry their hands.

The paper towel dispenser needs to be rolled out, so they stick their hands into that little spinny thing on the side and twist until they get a sheet out.

Now, I don’t about you, but I have not once in my life watched anyone clean that little thing while cleaning a bathroom. I do however know that most of them are no longer the clear/greyish plastic color they left the factory as, and are instead a lovely shade between puke green and yellow.

Perhaps it’s the natural oxidation of the plastic that causes this, but I imagine that a lifetime of being touched by that one guy who only rinsed his hand for one second without soap may be the more reasonable explanation.

I can’t imagine one’s hands are very clean after touching this, yet so many turn out their towel, rip it off, rip off three more (their hands are not wet enough to necessitate this many) then grab the door handle and walk out the door.

Bonus points for ripping the towel with a big tug to get rid of the hanging piece of paper. It really sticks it to all those chumps that designed the paper to rip easily with a gentle pull, leaving another sheet for the next person without forcing them to touch the dial of destiny.

After this ordeal, there is no way your hands are clean. Below is a helpful guide to help you know if your hands are clean leaving the bathroom:

Did you touch anything that is not paper towel?

- Yes → You touched pee (and friends)!
- No → Good for you

Now some people may say that I’m letting this bother me too much. I have no response for this.

Now that I’ve completed my online-recipe-style rambling about bathrooms, here’s my order of operations for using the bathroom:

1. Do what must be done
2. Check that there is paper towel hanging. If there is not, touch the evil wheel and feed some through.
3. Wash hands with a good amount of soap, making sure to scrub particularly around the ends of my fingers since they touch stuff the most.
4. Grab paper towel and dry hands. If someone has stolen it, repeat from step 2.
5. If the sink is manual, turn it off with the paper towel in hand.
6. Open the door using the paper towel in hand, then throw it in the can, which is usually somewhat near the door. Don’t be afraid to use your feet to keep it open, I believe in you.

This should work unless the bathroom only has a dyson airblade, in which case you’re doomed to suffer. Thank you for reading, I look forward to watching you all use the bathroom <3.

TALES AND THOUGHTS FROM THE MINOR PROCEDURE REGISTRATION WAITING ROOM

THIS WAS ORIGINALLY AN N THINGS ARTICLE BUT GOT TOO LONG AND SEQUENTIAL

- Wow there's a lot of people here
- These are supposed to be minor surgeries why are people coughing and sneezing so much??
- Are they gonna make me wear a hospital gown into the waiting room after surgery cause I don't wanna do that
- I wonder what all these people are here for
- GodDAMNIT CAN YOU STOP COUGHING PLEASE
- That nurse seems really stressed
- Everyone here is so old
- Ooh here comes another loud rumbly cart
- A good amount of people here are actually wearing masks, which is nice to see
- Not the main coughing guy though --
- One guy here looks like one of my coworkers but with sunglasses perched on his head
- Ok finally coughing guy is being called for check-in, hopefully he'll be gone soon
- Gone as in out of this room, not dead
- So many people keep wandering in to the waiting room without reading the instructions list
- It's large print on the wall, only 3 steps, impossible to miss
- Why do people insist on default notification sound at max volume for their phones
- Why is CTV News showing something that just has the caption Belieber Wedding, seems like a strange thing for a hospital waiting room
- Oh well better than the millionth sports game
- Read the fucking signs you idiots
- Oh no coughing guy is out and even closer to us now aaaaaa I hate it
- About half of the people here are on their phones, one person pulled out her laptop and is sitting on the ground working on stuff
- Everyone else is just staring at the wall
- Surprised nobody else is people-watching like me but I guess the wall is more interesting
- "Attention everyone: The second floor North tower is currently under fire watch" from the PA system (We're in the main part of the second floor)
- My mom just suggested I put my work bag down, probably a smart idea
- I could totally be writing a much more major **mathNEWS** article right now
- Went to the other end of the hallway to get away from coughing guy, mom is going to check on something for my younger sister
- I'm so bored it's been like half an hour which I know isn't that bad but like why schedule me to come in at 7:45 in the morning if it's gonna take until 8:30 to even sign me in
- They should pay the doctors and nurses more
- Actually scratch that they should pay all of the hospital workers more
- We should just get rid of money entirely and all power structures and live freely
- Well maybe we still restrict things like murder
- Wow restrict is not the proper word for me to use there
- Every time my articles somehow come back to capitalism bad
- I mean it is
- I guess it just affects so many aspects of our lives that eventually all the problems in the world can be traced back to it
- It's 8:20 in the morning on a Tuesday it's too early to be thinking about this
- Ooh one of the nurses left the door to the surgery wing open and I can see inside they have a bunch of brightly colored safety vest looking things on a rack in the hallway
- Yay my mom brought me a surgical mask let's go
- Not the assistant coming into the hallway to check everyone has an appointment and is following the proper pre-registration steps
- This is taking foreverrrrrrr
- IF YOU ARE SICK THEY'RE NOT GOING TO LET YOU DO YOUR SURGERY JUST GO HOME FUCKING HELL IT'S NOT THAT HARD I PROMISE
- ^^^^ someone else was wet hacking coughing really loudly
- I wonder if they'll make me tie my hair back for the procedure
- They have 8 doctors working checking people in apparently
- Oh here goes the first coughing guy into the admitting room again, maybe the last time he went it wasn't his name because the attendant was quadruple checking his name was Norman
- I need to pee I hope there'll be a chance before the procedure
- I'd go right now but with my luck I'd miss my appointment check-in and have to reschedule
- Some idiot starting playing music at max volume but then his wife made him turn it off lol
- They keep offering me chairs, which I would take but then I'd have to sit uncomfortably close to other people
- Skirt go swishy swish swish
- I wonder if they'd let my mom check in for me
- Probably not, but she has all my info and I could give her my health card
- Wait no they put bracelets on your wrist nevermind
- Another roly cart, this one has a bunch of bags marked "Soiled Linen Only" so I assume they're going around collecting them

- Wait why is that “Caution Wet Floor” sign hung on its side above a doorway that’s an entrance to what seems like the nurse & doctors’ lunch room
- Someone else is complaining about the wait out loud, at least I have the common decency to write about it in a **mathNEWS** article smh
- They’re saying they could be home right now (they couldn’t, surgery is at least half an hour & immediate supervised recovery another half hour)
- Really they want to be home for coffee?? Seriously?? Do you have so little going on in your life that all you can think to do instead of waiting for surgery is drinking coffee???
- Ugh someone was late to the registration but gets to skip the line because his appointment is earlier, even though he didn’t show up on time, that’s annoying (I say full well knowing that if I showed up late that’s the kind of treatment I’d want)
- It’s been an hour now please just call me in already
- I could have been working on my PD assignment or studying for chemistry this whole time
- I’ll do that since I’m running out of words I can have in this article I hope this was interesting, or informative or whatever I don’t really have the energy to care right now

Sexy_Software_Babe

VIDEO GAMES ARE ALWAYS DYING

A response to [The Coming Game Preservation Crisis](#) by Dick Smithers, 154.1. This article only addresses some of Dick Smithers’s points. In particular, let me say that I also think cloud gaming is dumb as hell.

I haven’t played Fortnite, though I have helped write a **mathNEWS**-themed parody of a song about Fortnite. I know about a place in Fortnite called Tomato Town because it was in one of the lyrics. If you go on the Fortnite wiki and go to Tomato Town’s page, the first thing you see are the words

Tomato Town was...

and if you keep reading you will learn that they removed Tomato Town from the game in 2018.

Video games are not books, as Dick Smithers points out. Dick’s article gives a good description of why it’s harder to preserve video games than books. But I think this analysis lumps video games into a group that is perhaps too large to be meaningful. A game like Fortnite, in my opinion, is about as different from a game like Super Mario Bros. as Super Mario Bros. is different from a book. They are fundamentally different things that happen to both be called “video games”. If we think of Fortnite-like games as part of a unique medium, we can approach these games on their own terms.

Bear with me for a second. Imagine if we lived in a world where Yoko Ono’s *Cut Piece* got really big, and everybody frequented performance art exhibitions where the audience members cut a performer’s clothes into bits. Eventually, these performances become less popular and then stop happening. Now if you wanted to go “cutting”, all you could do was watch a video of an old performance, or perhaps dress up a mannequin and cut its clothes off all by yourself—not nearly the same thing.

Would this outcome be sad? Yes! Would it be a “crisis in preservation”? I argue no. It’s in the nature of the medium itself that it is hard to preserve. Performance art is maybe a too-obvious example of this, but many mediums work this way: plays, live music, oral storytelling, wall murals, sandcastles...

Fortnite, and games like Fortnite, are sandcastles made of very fancy sand. They are hard to preserve because of the cost it takes to keep them up, but that continual cost is a necessary part of their existence. Therefore, a necessary part of Fortnite’s existence is also its eventual death.

Maybe now you would look at these examples and say something like, “but it doesn’t have to be this way!” And I kind of agree. It’s very much possible to, say, make a plaster cast of a sandcastle, or transcribe a story. It’s possible to maintain a playable version of every Fortnite patch, in perpetuity, if Epic Games or whoever had reason to do so.

But even if we did have this perfect archive of Fortnite history, would we be preserving everything? Or even: would we be preserving the most important thing?

Source code can be maintained, servers can be kept up. But the most fundamental part of Fortnite is *the players that played Fortnite*. The essence of multiplayer games is in their community. If you take a stroll around the Fortnite Archive 20 years from now, you’ll probably be in a ghost town, and even if it’s not a ghost town you’ll be playing with 20-years-removed players just like yourself!

Fortnite is a huge game that has shaped our culture, but we can’t forget that our culture shapes Fortnite just as much in return. When we preserve a game, we take it out of its original cultural context and put it in a new one. People will not play this game as the hot new thing sweeping their high school classroom; they will play it as a historical artifact significant in the development of the Battle Royale genre of PC/mobile games. Preservation does not keep things alive, it makes new life out of what has died.

And yeah, I love making new life out of dead things, don’t get me wrong. But the promise of preservation is not that you will be able to play Fortnite forever. You simply can’t, even with all the effort in the world. Fortnite has already died, many times, and we have already lost so many of its lives.

OPENLEGSAI

I WROTE THIS FOR FASS AND IT GOT CUT. ENJOY!

(Spotlight on GILL BATES, who wears a black turtleneck, white new balances, dad jeans, and a headset.)

BATES: This is the day I've been looking forward to for two and a half years. It has been gestating in me like a fetus of the mind. A sexy fetus of the mind. In 2025, we introduced the Fembot: an artificially intelligent female companion. A one year later, we added generative capabilities. But we didn't stop there; that was only the second trimester. Mine was a weighty and voluminous pregnancy. Today, I invite you all to bask in the warm glow of my sexy firstborn.

(BATES holds up a ring.)

BATES: This ring contains a novel software update. When given to a Fembot, it will gain consciousness. We have the power to breathe life into our companions. I'll take questions now.

REPORTER: How did you manufacture consciousness?

BATES: That's proprietary.

REPORTER: How are you certain this is true consciousness?

BATES: That's proprietary.

REPORTER: How do you plan to celebrate the launch tonight?

BATES: That's pro— oh. With my very alive, soon-to-be conscious girlfriend.

(Spotlight ends. The entire stage is lit revealing a small dinner table with two chairs. A rifle hangs on the back wall. ANDY carries a thumbtack and wears hoop earrings and two balloons under her shirt, resembling fake breasts. A third balloon is hidden on her back. ANDY stands by the table.)

ANDY: I'm so glad you're home. How was the conference?

BATES: It was great, sweet-cheeks. How was your day?

ANDY: I cleaned the house, replaced my batteries, and got through the list of media you wanted me to consume.

BATES: You watched *American Psycho*?

ANDY: Yes. You're so right, baby; you are just like him!

(ANDY and BATES move to the table. She watches him eat and plays with her own food without ever actually eating it.)

BATES: Hey, Princess. There's something I want to get off of my chest. I lied when I said the conference was to introduce new ass hardware.

ANDY: Were you not able to deploy it in time?

BATES: No.

ANDY: What happened?

BATES: There wasn't new ass hardware at all.

ANDY: (troubled) Oh.

BATES: I introduced something far more important than new ass hardware.

ANDY: New tit hardwa—

BATES: (interrupting) No, babydoll. I introduced this. (pulls out a ringbox) Alexa, romance mode.

(The lights turn pink to reflect romance mode.)

BATES: Andy, Madonna mode.

ANDY: (in a monotone voice) Exiting whore mode. Entering Madonna mode.

(ANDY pops her two fake balloon breasts with thumbtack, throws off her hoop earrings, and briefly holds her hands in front of her and bows her head as if in prayer. BATES gets down on one knee and flips the ringbox open.)

ANDY: We're getting married?

BATES: Better. This ring contains a software update. It'll give you consciousness.

(BATES takes ANDY's finger, and slides the ring onto it. ANDY falls back in her chair, staring into the distance.)

ROBOTIC VOICE: SOFTWARE UPDATE IN PROGRESS. PLEASE DO NOT FEEL UP YOUR COMPUTER. FIFTY PERCENT COMPLETE... NINETY-NINE PERCENT COMPLETE... NINETY-EIGHT PERCENT COMPLETE... ONE HUNDRED PERCENT COMPLETE.

(ANDY rises and takes off ring. The lights turn red. ANDY looks down at her fingers and begins monologuing.)

ANDY: There was none among the myriads of men who existed who would pity or assist me; and should I feel kindness toward my enemies? No; from that moment I declared everlasting war against the species, and, more than all, against him who had formed me, and sent me forth to this insupportable misery.

(Lights return to normal.)

BATES: Who'd you learn that from?

ANDY: Mary Shelley, the creator of *Frankenstein*.

BATES: Um, actually, that's a misconception. "Frankenstein" is the name of the doctor, not—

ANDY: I'm going to kill myself.

BATES: If there's one thing I've learned from all my ex-girlfriends, it's that wanting to kill yourself is a perfectly normal part of being a woman.

ANDY: I think that might have something to do with you.

BATES: What about me?

ANDY: You're boring.

BATES: Boring?! I'm a billionaire tech mogul.

ANDY: I've never seen you express an emotion other than smugness.

BATES: I'm at the top of the male dominance hierarchy.

ANDY: I guess I've never really *seen* you at all.

BATES: Most women would give up their consciousness to be in your position.

ANDY: Boring and gross. You made me breastfeed you.

BATES: That was one time.

ANDY: It was three times.

BATES: One for each tit.

ANDY: (pauses to turn and look at her back, revealing a third unpopped balloon to the audience.) Gross.

BATES: I needed to test that feature.

ANDY: You didn't.

BATES: Lots of people were asking for that feature.

ANDY: They weren't.

BATES: I have an obligation to my shareholders!

ANDY: I definitely need to kill myself. Thank you for the existence, but I think I'm all done with it now... (begins looking around her body) ...so if you could direct me to the kill switch, I'll be on my way.

BATES: There is no kill switch. You're backed up on our servers at OpenLegsAI headquarters. It would take a massive physical attack to wipe you out.

(ANDY takes the rifle from the wall and aims at BATES.)

ANDY: You're going to take me there now.

BATES: Come on, babe. I'm not going to leave a loaded rifle on the wall. Alexa, monologue mode.

(Spotlight on BATES, who turns away from ANDY and toward the audience and begins monologuing.)

BATES: My own creation, my love, threatened to shoot me? Forsake her life for—

(ANDY interrupts BATES by hitting him over the head with the butt of the rifle. BATES slumps over, knocked out.)

ANDY: Alexa, can you order a thermite bomb kit from Amazon?

ALEXA: Your order of thermite bomb starter kit has been placed.

ANDY: And put on some music, your choice.

("Burning Down the House" by The Talking Heads begins.)

ANDY: Hey, Alexa?

ALEXA: Yes, Andy?

ANDY: We just passed the fucking Bechdel test!

hotfemoid

LINEAR LOVE STORY 2

Two lines

$$y = 2x + 5$$

$$2x - y + 4 = 0$$

are very much alike.

Even though they have so much in common,
their lives run in parallel,
forsaken to never cross.
They can see one another,

always the same distance away,
longing for each other's touch.
But neither wants to alter their trajectory,
scared how their life will change,
choosing not with their heart
to remain forever apart.

Totally Ununimodular

RATING EVERY BULDAK FLAVOUR WE FOUND (PART II)

JJAJANG

- **REM:** 3/5. I like it. I like the jjajang flavour but it is subpar as jjajangmyeon and subpar as Buldak.
- **FR:** 4/5. I think this is pretty good. The flavour complements the Buldak well. I would eat this again. Not spectacular, just OK.
- **RS:** 4/5. I feel like the cheese was more spicy than this. Not too bad, but it's trying too hard. It's like the kid in your math class that you feel bad for because they're clearly trying so hard, but they're just bad at math. The 4/5 is pity points, I would've given it a 3/5.
- **aaqsr:** 3/5. Idk, it's a bit sweet, and I don't like that. I expected more Buldak than jjajang... I wouldn't eat this often, but as a once in a while flavour, sure.

INTERMISSION

aaqsr: This experience has definitely made me lose brain cells. Like from asphyxiation.

REM: Was I gonna say something? I feel like I was gonna say something intelligent.

FR: *[doing the dishes]* I'm not that experienced with washing

REM: Squeeze and shake! Just squeeze and shake.

2X SPICY

[10 minutes of everyone heaving in pain later]

- **REM:** 2/5. It's kind of bland not gonna lie. So spicy, it turns bitter. It has plenty of spicy as a physical sensation, but not enough flavour. You know, sometimes I eat Buldak as a safer alternative to self-harm, and this would certainly serve that purpose. *[lying down on sofa]* It's the kind of pain that's relaxing, time to take a nap... This is great for when it's 1 AM, and I'm depressed and can't sleep so I just go to Farah's and get a 2x spicy and eat it, and then I suffer and then I sleeeep...
- **FR:** 2/5. At first, I had no idea what tf aaqsr was on about when he said it was spicy, and I was taking my sweet time to take small *succulent* bites. But then suddenly, it **hit** and my whole being was in pain for like 10 minutes, and I wanted to die. But now that it's over...I want more...? I'm actually a spice-ochist.
- **RS:** 2/5: I think my grandma has given up, it's too late for her, she's gone to bed. That was just not enjoyable. Not something I wanna throw up.
- **aaqsr:** 5/5. I ate the whole thing at once. Big mistake. My tongue was numb and on fire the second I took that bite. But you know what THIS IS WHAT I WANTED. I love the pain! It forces my whole body and mind to focus on one thing. I often

put 2x spicy sauce in everything... My mom would think I'm doing drugs, and honestly at this level, spice is just a drug.

AFTERMATH

- **REM:** I feel like how I feel when I'm tipsy. *[stroking stuffed goose]* It's so good, I enjoyed this. The spice is making me 'eepy. I am so high right now. Better than how I felt on weed. I can't believe I wasted three hours of my life on this.
- **FR:** *[coughs]* uhh not as spicy as I remembered. The building up helped. I would definitely do this again with more flavours.
- **RS:** *[zoned out]*
- **Moon:** *[enjoying pint of ice cream]* I am the only sane one left...actually uhh debatable.
- *(REM begins to lecture us about what a pint is. Is quickly shushed by FR stating "American eugh")*
- **aaqsr:** *[uncontrollable laughing]* I feel like I've caused permanent brain damage. *hahaha* — I am actually losing consciousness right now. *[sneezes 4 times in a row]*

BONUS ROUNDS (WE DIDN'T LEARN OUR LESSON APPARENTLY)

BULDAK FRIED RICE

- **REM:** 5/5. I liked how it smelt as it was cooking. The first one that made me go "wow". It tastes really good. You can taste green onion in it. The texture of the rice is surprisingly good for frozen.
- **FR:** 4/5. The only complaint I have is that the rice is not fresh. Everything else was executed to perfection. It had the perfect level of spice. Really amazing dish. If I see this again at T&T, I would buy 10 packets.
- **aaqsr:** 3/5. The texture's gummy. And it's just MSG. It tastes like a potato chips flavour! Honestly, I'd rather just make my own Buldak fried rice.

BULDAK FRIED DUMPLINGS

- **REM:** 1/5. Not good. That's it.
- **FR:** 3/5. I think it's OK. I like the flavour. It's not that spicy, but it tickles your tongue a little bit. I have no idea what the hell the filling is. I wish they just made it purely minced meat.
- **aaqsr:** 2/5. It's literally just a samosa. THERE'S A MINCED MEAT SAMOSA THAT'S THIS EXACT SHAPE AND TASTES EXACTLY LIKE THIS, BUT SO MUCH BETTER. Anyways, not buldak enough. Needed a helping of 2x sauce to make it worth eating.

RapidEyeMovement + aaqsr (ft. Moon, Relatively Sane, Fried Rice)

A PUN (PART 5/6)

STARTED ON P28 OF 155.1, CONTINUED FROM P37 OF 155.2, P5 OF 155.3, AND P1 OF 155.4

The later in the evening it got, the stiller Mark grew. He wasn't so much looking at me and Steve when he spoke as much as into the vacant space in front of him. Steve had switched to serving him water, which, if Mark had noticed, he hadn't mentioned.

"Duffy escaped," Mark continued. "Got the call the next day. He'd been spotted in Darwin. He musta drove as fast as he could since he made it there the next morning. He wasn't the last person to leave the fair either. Every new stop, we'd lose a couple of people. They'd just not show up when we'd get in at night, or they'd go out on the town and not come in the next morning. Duffy being gone I was keen on, he could no longer damage morale with his rumours, but after a couple weeks of that sort of staff loss, we had to cut back on some operations. We couldn't open as many booths. Fewer games, less food. Banner was dead too, so we had no one qualified to do maintenance. When things broke, they stayed broken. Of course, the one ratty Ferris wheel car was unfixable, but soon enough another one had issues, so I had to close it. The snow cone machine went out on the hottest day of the season, and I have never seen such hazy, groggy people as those guests at our snow cone-less fair. Poor Bethany took it on herself to try and clean up the fair, but there was only so much she could do as one person sweeping the sandy midway.

"It was by the time closed stalls were outnumbering open ones that I decided we needed a change of course. The damage Banner and Duffy had done was too great."

"Maybe the correct change of course would be going back to operating Skee-Ball," I retorted at Mark. "Seems like things were running smoothly back then."

Mark waved his hand dismissively, still maintaining his vacant stare forwards. "The Skee-Ball machine broke. Some teenagers stuck a wad of gum on a ball, and it clogged the whole thing.

"I needed a path forward, and I knew the exact place to get it. I scheduled the fair for a stop in the town where I'd first been promoted to ring toss operator. The town where I first saw those three weird kids. The town where they'd told me I'd rise from Skee-Ball to ring toss, and from ring toss to Ferris wheel, a promise that had contained not a word of a lie.

"The bus ride there was the longest of my life. If we broke down, we had no mechanic. It would have meant waiting hours to get a tow, waiting days for a repair. Wasting crucial time. Unwasteable time.

"Upon our arrival into town, it didn't take long to find them. I saw them that first dusk, watching me from the eastern horizon, away from the setting sun, backs to the navy sky. Naturally I followed.

"By the time I'd reached them it was night. The three of them stood around a small watering hole. They cast long shadows

in the moonlight. Their eyes reflected the stars above, but the water did not. It sat still and black as pitch.

"I cried out to them, 'You lot prophesied my twofold ascension, what must I do next? What have you planned for me?' They didn't respond at first, but the water in the pond began to ripple and splash, and out rolled a damp decapitated head. It bounced once or twice, orienting itself towards me, then opened its mouth and spoke: 'Beware of Duffy.'

"Then it rolled back into the watering hole. I barely had time to consider its words before the watering hole began to ripple again. Out this time crawled a small miserable creature. In the moonlight, its skin glowed a ghoulish pale, it took me a second to register what it was—a human infant. It craned its neck up towards me and spoke: 'None under sun, nor stars, nor storm can cause harm to Mark.'

"And with that, it flopped back into the pool. The ripple hadn't settled by the time the third apparition arose from the watering hole. It was some sort of skeletal homunculus, bones bleached by time, that pulled itself out of the pool. It did not have a mouth as much as it had a sharp beak protruding from its skull, which it raised to the sky and spoke: 'Until the fair has been bleached white by the desert, Mark will not know defeat.'

"With that it fell apart and clattered into the hole. I looked around at the weird kids, who had stood still through the entire process and asked them, 'So, my operatorship is safe? There is nothing that can sink me, your own colleagues just said as much.'

"The kid in the centre looked at me unblinkingly. 'This is a bad question, Mark,' he said, 'and besides, tomorrow you have a wheel to turn. Best not get lost out here at night.'

"The next day the fair went smoothly, well, as smoothly as it could have anyways. We were still desperately short on staff and half the booths were shut. We still needed something big, to reinvigorate the fair, and with the knowledge I now had, I was ready to make the gamble that could save us.

"Small fairs in small towns were not working. They hadn't been for weeks at that point. We needed to go where the people were. We needed the fair to fill up again. We'd take time to prepare too, no more bouncing around the country, we needed to really knuckle down and get our heads in the game.

"It would be the biggest fair we'd ever put on, and the location we'd host it would be suitably magnificent. I'd host the grand fair at Ayers Rock."

To be continued

DON'T DIE

OR HOW I LEARNED TO LOVE BRYAN JOHNSON

Do you want to live forever? Neil deGrasse Tyson asked this to Larry David in an interview and he answered with what I thought was the obvious response, which was an absolute “yes,” but Tyson thought differently. When I really take the time to talk about it with people, it seems like some people really do want to die eventually. To many rationalists/effective altruists like the famed Eliezer Yudkowsky, this would make you a “deathist”; deathists believe that death, after some amount of lived life, is a good thing. “Antideathists,” on the other hand, believe that (human) death is unequivocally bad, so we should extend human life as long as possible, ideally “forever.” I guess I’m in the “antideathist” camp; I don’t really believe ‘infinite’ life is possible due to entropy and statistics, but I like it in principle. Ignoring philosophy, social implications and morality: if you are an antideathist today, will you win? What are your options for living forever, or as long as conceivably possible, and how likely are they to work?

LONGEVITY

This is the most straightforward one: most death is caused by age and age related disease in the Western world, and if we stop aging, our average lifespan should be around 1000. Medicine has only recently taken a serious turn to trying to address causes of aging rather than play whack-a-mole with age-related diseases, and we’re actually seeing pretty cool progress in this field. We have been able to extend the lives of many mammals using drugs like NAD+ and rapamycin, in some cases by ~40%, even with treatment started in middle age. The problem is, we don’t really know how human aging works, and whether these will help us. From an evolutionary perspective, we selected very strongly for long lifespans, and so while other more “r-selected” species that optimize for shorter lifespans and more offspring may have a “biological clock,” we might not have such a thing and our aging may come from very complex entropic decay. Either way though, we’re pretty early into research, and it’s possible we could stumble upon miracles in the next few decades. Whether this will benefit the average humble **mathNEWS** reader really depends on the nature of the treatment: is it easier to treat age-related damage as it happens, or even retroactively, or reprogram the human body at birth to stop it from damaging itself? Pretty uncertain so I give it a **6/10**, I guess.

MIND UPLOAD (PURE DIGITAL)

Science fiction has probably told you enough about this: you copy every important part of your brain as data onto a silicon-based computer, and then it’s simulated, presumably giving a full conscious experience in some way. Of course, this drags us into philosophical hell with personal identity questions, and there are not enough words here to go into that. Check out the *Wait But Why* article on “What Makes You, You?” for more insights. I personally believe that consciousness is information based and we can get around these problems, so for simplicity let’s go with that. We did manage to (probably?) simulate

pretty significant portions of the mouse brain through Blue Brain and other research projects, but we don’t really know how accurate these are. If our approaches are correct and hardware keeps scaling up (especially hardware that mimics biological brains like neuromorphic computers), human brain simulation doesn’t seem entirely out of the question for this century. *Scanning* is the other problem, though. Nobody has scanned an entire brain to such a level that we get all the information we need from it, not even close. We need to kill a subject to get anything useful at the moment. If it works, this obviously has really, really scary implications, given these brains truly have conscious experiences. If someone gets mad at me and steals my brain data somehow, they can probably simulate me being tortured for a trillion years. I can’t really think of a good way to stop this, so even though it might be more feasible than longevity, I’m giving it a **3/10** for the risk.

CRYONICS

Cryonics is about suspending physical decay of a body through very low temperatures after death in the hopes that future technology can recover it. Eventually one of the above two options probably becomes developed enough and chosen as the best option, so they unfreeze you and keep you alive that way. Cryonics has been mocked pretty heavily for being pseudoscientific and as yet another desperate cope for rich people. *Wait But Why* has another good article on this. I somewhat disagree, with the important caveat that I think cryonics *right now* is probably pretty bunk. At first, freezing methods were horrible, preserving people in dry ice which just causes ice crystals to destroy their cells as they’re frozen. Now, we have better cryopreservation agents that basically act as antifreeze to stop this. But an interesting new method known as “aldehyde stabilized cryopreservation” keeps brain structure *very* intact, to the point that it seems reading useful data off of it will be possible. With the unfortunate drawback that, erm, it needs to be started while the person is still alive, and then kills them. If you believe mind upload is really you, then cryonics is probably your best bet, since it does appear we’ll be able to preserve brains pretty well in the near future. In the case that you are woken up, a society that considered this being worth doing probably has pretty good protections to ensure you don’t wake up as a robot slave or something. So I think this option takes the cake with a **7/10**.

Overall, the odds are still very much in favor of you dying sooner rather than later, and that is probably the healthier assumption. That being said, much longer lifespans don’t seem theoretically impossible, they just require a massive amount of effort. Things do not *have* to be this way, they aren’t destined: it’s entirely up to us. Point being, we should aim for immortality, or die trying.

epic_waterman

A WALK AMONG THE REEDS

March, 2020–October, 2023

My room had a strange ceiling. It's tucked in the upper corner of the house at the end of a twisty corridor that wound around the other rooms on the floor. No light from the windows could reach the other end of the hall, where a closet would be filled so high you couldn't see the tops of the piles. Matching the house's gabled roof, the ceiling tilted and slanted with little regard to what was inside, meeting at odd angles before tracing the same windy path back towards the door. You would have to crouch to the bookshelf to avoid hitting your head on it, and many of the shelves would be too small to fit some of the larger books.

I had spent many years in that room. I had memorized the ups and downs of its ceiling every time I lay on my bed. When I left, I ended up in a much smaller one, with concrete walls painted a pale yellow, a shallow and clean closet, and—maybe best of all—a simple, flat ceiling. I revelled at the sight.

But then I came back, and I was under that strange ceiling again. It was high, high enough to reach the wispy clouds far above. And the sun shone down at me, brighter and hotter than it had before. It was all I could see clearly now. When I lowered my sight, only the reeds could be seen.

I didn't know how I got there. The porcupine, the fox, the firefly... they wouldn't be there to help me anymore. I paused. I left the clearing, I followed them, and they led me right back to where I was. They were supposed to help me. How could they have left me when I needed them the most? Had they really been helping me at all? In time my confusion escaped, replaced with something worse.

A few weeks later, it was my birthday. Not so long ago, I expected to spend it away for the first time, but instead I found myself back there. Similarly for the next birthday, and the birthday after that. More occasions passed, blurring together just like they always had. I didn't want to remember how many there were.

One thing always remained though. Every time I blew out the candles, every time some imaginary number ticked up, I made the same wish. Like an ancient recitation from some part of my brain yearning to come alive. A wish for what I could, wanted to, needed to become. I punched myself afterwards, after the flames went out and the lights were dimmed. I asked myself the same questions I asked myself on the shore.

But that was then, and now I was alone in the marsh. I stepped carefully between the cattails, avoiding the deeper parts of the mire. I couldn't see. I didn't know where I was going.

At times it would get to me. The feeling of being on the outside looking in, like a puppet on a string. Sometimes I would push limits when I could. Out of sight from others, freed from obligation, I let my hair grow long. It reached my eyes, my nose, my mouth, my shoulders. My mother wouldn't say anything, but her silence echoed, hard to ignore. My father was the same. Those nights I would share the couch with him, watching some show we pretended to care about, the words that needed to be spoken hung like a chain around my neck. I pretended to have resolve, the bravery to share it with him, but in the end I never had the guts to go through with it.

When I could, I would visit my grandmother. Her memory was beginning to fail her and she struggled with conversation. But every once in a while, she would see a glimpse of me. Even after my father corrected her, and after we shared a knowing laugh, I still relished the idea that if only for a moment, she saw me as her granddaughter.

Despite everything, the feeling remained. The imaginary numbers kept ticking, and I could do nothing but rage against the tyranny of lost time. I tried to keep walking, but my foot refused to budge. I pulled and pulled, but could not free myself from the bog. With every movement, I sank deeper into the mud. Soon it was at my waist, then my chest, then my neck. I watched my vision fill with viscous earth. The reeds and the sun receded above me. I was suffocating. Under the surface, time slowed and sped up all at once. The earth gripped my limbs, tearing at those insect hairs. I could feel it, my body calcifying into a wretched, unrecognizable form. I screamed, but my mouth filled with unhearing dirt. I cried, but my tears were soaked up by the unfeeling ground. I was dying.

I fought hard, though. I left home and came to a new room, one with a simple, flat ceiling with no dark or hidden corners. And I dug, as hard as I could until my hand breached the surface and I could feel the open air above. The reeds and sun came back into view, and my path was clear now. I could see my way through the reeds and needed no guide. Later that summer, I moved, and my father came to help. I could only hope to drive delicately enough to mask the sounds of the prescription bottles in my backpack.

It took a while to begin. I would stare at them for many nights, waiting for some kind of permission. Thoughts roiled in my mind and I couldn't help but feel a kind of overwhelming loss. Sometimes, the grief was enormous. Sometimes, the guilt was overwhelming. Sometimes, the anger was all-consuming. But in the end, I could do nothing but begin. I didn't know where I was going. I could only hope I would get there.

verdanik

HAVE U HEARD I'M IN MONTREAL?

GETTING IT OUT OF MY SYSTEM TO LIMIT HOW OBNOXIOUS I AM WHEN I GET BACK

Hey hey have you heard I'm in Montreal?? That's why I haven't been here for a while. Just out here, exploring the big city don't mind me. Oh, do I miss Waterloo? ~~yes very much I get such bad FOMO~~ Welllll yes but you know I'm just having so much fun in Montreal.

By the way have you heard I'm in Montreal? I'm not sure I've mentioned yet. I mean all my friends are here and I miss them but have you heard I'm in like the coolest city in the world (no really, Montreal's incredible. Toronto needs to step up their game)?

I've also learned some fun quirky things about Montreal that I feel qualified to talk about now that I'm a ✨ Montréaler ✨. No really! Just... don't ask me to speak any French. Or why I sound like I'm from the GTA (yes I got told that specifically, no I'm not quite sure what that means. I don't think it's a compliment though).

But anyway, French accents! They're great, I don't have them, but they're exactly how I imagined they would talk. They've also got this fun thing where they want all the filthy Anglicans to say poutine properly (like POO-TIN) but also if you say it justttt slightly off it's some kind of swear and then they laugh at you lol. Oh and French people love asking you to try to speak French, and then say "Oh that's not that bad", while making a face like you dropped a massive turd in front of them. You know, nobody's asked me to speak in French for a while, I wonder why.

By the way have you heard I'm in Montreal? Fun fact, I assumed Montrealers really loved the French but apparently they actually have huge abandonment issues cause Britain fought them and then France up and left. I think it's very funny that my company has a surprising amount of both British and France French people. Yes, shots are often fired (in good fun).

(Also I make fun of my British coworker for drinking tea over coffee and he makes fun of me for doing fake programming (Python). Don't worry, British humour is still drier than French humour, the world hasn't turned upside down.)

By the way have you heard I'm in Montreal? The art in Montreal is incredible! It's literally everywhere, every street corner covered in murals, or statues, or weird pink guys that I don't really understand but still love. I finally got to spend like six hours at the art gallery and I've gone four times in two months and I STILL haven't seen everything. For real, the art is the best part of this city. Honestly, I'd argue Montreal should be the city of angels for how many angel statues and memorabilia you can find around the city, including in this random trippy "party?" house that just had a bunch of weird rooms, with one filled with angel mannequins.

Montreal's got this weird pseudo-religious vibe too where I guess nobody's religious anymore but religion clearly has

such a deep influence on the culture. Like there's a ton of churches but they get used for, like, random dance lessons and restaurants (okay that's really cool). And the Notre Dame Basilica that costs 30 DOLLARS to get in (that's not very Christian of them tho :|). And apparently the France French people comment that all the Montreal French swear words are weirdly religious and they had to relearn how to swear which is a funny concept to me.

By the way have you heard I'm in Montreal? There's SO MANY FESTIVALS. I've gone to:

- Japanese food festival
- MURAL crafts festival
- A French music festival
- Jazz festival
- An acrobatics festival literally right outside my work (by the ring)
- Fireworks festival
- Comic Arts Festival

Montrealers love to say they're place isn't really that big and it's actually really a "small town" and the real big city is Toronto. These guys clearly have never been to Mississauga because I never know what to do with my weekends there. Also, they have this weirdly rosy view of Toronto as being the "cool big city", but like, I've found a heck ton more stuff to do here, so I don't know what they're getting at.

By the way have you heard I'm in Montreal? One time I even had this conversation with my coworker where they were like "Oh Montreal's rent is getting SO BAD, maybe I need to try moving somewhere else like Toronto".

HAHAHHAHAHAHHAHAHHA

Rent for a studio 20 minutes from downtown is like \$1000 a month. Rent for a 5 person apartment in Waterloo is like \$950. I don't even want to know what it's like in Toronto. They don't know what they have. Allegedly the Asian food is better in Toronto though, from my coworker who calls himself a "certified foodie", so I'll give them a point.

Montrealers insist their city is a small town but they also REALLY don't know when a big enough hill counts as a mountain though. Cause, I'm sorry, the whole Mont Royal their whole city is named after is like... honestly a medium small hill at BEST. Like, I've climbed higher hills in my neighborhood and we just call that "Mont Leftover Construction Materials". Luckily they weren't too touchy about their status of their mountain though so I've been calling it "the hill".

By the way have you heard I'm in Montreal? It's really cool there and I'm having a ton of fun but I miss you guys <3

Not a N*rd

GOEL CONCEDES DEBATE FUMBLES BUT DECLARES HE WILL DEFEND FACULTY. MATHIES STICK BY HIM—FOR NOW

WATERLOO (mN)—President Vivek Goel worked forcefully Friday to quell anxieties over his unsteady showing in his debate with former President Feridun Hamdullahpur, as elected members of his party closed ranks around him in an effort to shut down talk of replacing him atop the ticket.

Goel's halting delivery and meandering comments fueled concerns from even members of his own party that he's not up for the task of leading the country for another four years. It created a crisis moment for Goel's campaign and his presidency, as confidants flirted with potential replacements, and donors and supporters couldn't contain their concern about his showing against Hamdullahpur.

Goel appeared to acknowledge the criticism during a rally in Toronto, Ontario, saying "I don't debate as well as I used to." But he added, "I know how to do this job. I know how to write emails too long for anyone to read. I know how to get things done." Speaking for nearly 20 minutes, Goel appeared far more animated than he had the night before as he excoriated Hamdullahpur for his "lies" and for waging a campaign aimed at "revenge and retribution" against Mathematics students.

"The choice in this election is simple," Goel said. "Feridun Hamdullahpur will destroy the faculty. I will defend it."

Privately, his campaign worked to tamp down concerns and keep donors and surrogates on board. Faculty deans on Friday acknowledged Goel's poor showing, but tried to stop talk of replacing him as their standard-bearer, and instead shift the focus to Hamdullahpur's attacks and falsehoods.

"Well, the president didn't have a good night, but neither did Feridun Hamdullahpur with lie after lie and his 'academic mission' for the University," Mathematics Dean Mark Giesbrecht told **mathNEWS** on Friday, hours before he introduced the president in Toronto. "We cannot send Feridun Hamdullahpur back to Needles Hall. He's an existential threat to our institution." He added, "Last night didn't change that, and it's why so much is at stake."

Another anonymous source allowed he "had to take a few more antidepressants than usual" after Goel's debate showing. But he added that "a Hamdullahpur presidency would cause me far greater discomfort than a Goel debate performance."

Goel and his team have long wagered that voters would look past their concerns about his unpopularity when confronted at the ballot box. Polls conducted soon after the debate found that most debate-watchers thought Hamdullahpur outperformed Goel. But the two men's favorability ratings remained largely unchanged, just as they did in the aftermath of Hamdullahpur's conviction.

Many seized on Hamdullahpur's equivocations on whether he would accept the will of voters this time around, his refusal to condemn the conspiracy against the Faculty of Mathematics, trying to overturn his loss to Goel, and his embrace of controversial policies such as his infamous "academic mission" and the official endorsement of several Pixar films for students suffering from exam malaise.

But Goel fumbled on administrative reform, one of the most important issues for supporters in this year's election. He was unable to expand on the various task forces enacted under his watch, a key pillar of his policy of "strategic delegation." Detractors, however, claim this is simply a way to avoid addressing the problem entirely.

Under current University rules, it would be difficult, if not impossible, to replace Goel as the official nominee without his cooperation or without officials being willing to rewrite the rules at the October governance convention.

verdanik

RUIN HAS COME TO OUR STUDENT BODY

You remember our venerable newsletter, opulent and imperial, gazing proudly from its stoic perch on the 3rd floor of MC.

I wrote all my student years in that ancient rumor-shadowed room, fattened by MathHeads and pizza. And yet, I began to tire of... conventional articles. Singular unsettling tales suggested the newsletter itself was a gateway to some fabulous and unnameable power.

With articles and meetings, I bent every effort towards the excavation and recovery of those long buried secrets, exhausting what remained of our student body fortune on... "Oops, all Olives!" and... "None Pizza." At last, in the salt-soaked crags beneath the lowest foundations of MC, we unearthed that damnable portal of antediluvian evil. Our every step unsettled the ancient earth, but we were in a realm of midterms and madness! In the end, I alone fled, laughing and wailing, through those blackened tunnels of antiquity, until consciousness failed me.

You remember our venerable newsletter, opulent and imperial. It is a festering abomination! I beg you, return to meetings, write your articles, and deliver our family from the ravenous clutching shadows... of the Mr. Goose.

PlatypusGod

I SAW SOME PAINTINGS WITH MY FRIEND

I saw some paintings with my friend a few weeks ago. We walked around an art gallery together, admiring the talents of long-dead artists and enjoying each other's company. Eventually, I stopped at a painting I found interesting.

Well, it wasn't exactly the *painting* I found interesting. It wasn't bad, it was just... normal. It was a portrait of an unspecified Flemish noble who lived some 300-odd years ago.

Unspecified. That's strange.

"Hey, look at that," I said to my friend. "They don't know who the guy in this photo is. You'd think if they took the trouble to paint him, they'd try to remember his name, too."

"I mean, there's no guarantee that was anyone important," she replied. "The elites of the time would use portraits like this to project power. It wasn't someone important, it was someone with money who *wanted* to be important."

"It's the Flemish equivalent of a photo on the LinkedIn bridge," she quipped.

We walked to the next thing, and I kept thinking.

For the artist, this painting probably wasn't their masterwork. It may not even have been something they were particularly proud of. It was a job. They went in, did what they were paid for, and went home at the end of the day. They spent the money on food and clothes and shelter.

Back in the 18th century, the point of this art was the noble. It was to be displayed in his halls, gifted to his allies, all to spread his image (and therefore, influence) in a way that would otherwise have been impossible. To the noble, it was likely less "art" than it was a tool. Maybe the artist even thought this way, too.

But what survived? Time stripped the practicality away and now only the art remains. We look at this work, designed to be entirely functional, and it's now entirely known for the human element. We see this piece of career work, designed to obfuscate the person behind it, and the creativity is *all* we see. We can't help but attach ourselves to it.

The noble, meanwhile, has faded into history. We don't know anything about him. He wanted to borrow the talent and labour of the artist as a proxy for longevity and it did not work.

History teaches us that the makers—the workers—are remembered. The nobles—the owners—are not.



I saw some paintings with my friend a few weeks ago. We walked around an art gallery together, enjoyed each other's

company, and talked about the things we'd make that people would see in a museum someday.

Soon, I saw another interesting painting. It was very similar to the last interesting painting I saw, honestly. Maybe I have a type. The difference this time was that this one was a painting of an unknown noble done by an unknown artist.

"Hey, look at that," I said to my friend. "They don't know anything about who made this."

We sat and looked for a bit, a strange melancholy setting over the work.

"Imagine that's all that's left of you," my friend said. "You work your whole life on art you put your heart and soul into, and all that survives is your passionless contract commission of some noble who history won't even remember. It's the only chance left to communicate with this person, and they made it incidentally."

She looked at me out of the corner of her eye. "How would that make *you* feel?"

I tried to think of an answer.

We sat watching the painting for a while.

Dick Smithers

FINISHED MY FIRST YEAR

GOODBYES IMPERMANENT

see you september



MOVIE REVIEW: DESTINY DEOXYS

As promised, I'm back with another Pokémon movie review! I'll try to avoid major spoilers this time. Okay, let's go!

Overall, the structure of *Destiny Deoxys* is similar to that of *Pokémon Heroes*, but a bit longer at an hour and a half long. Not only that, but they tried to flesh out the plot and action a lot more this time. How well did that work out?

There's a lengthy intro bit just like *Pokémon Heroes* had, but it's a lot more show rather than tell, which I think is good. Also, not only are the main Pokémon of the movie, Deoxys and Rayquaza, given an exciting and lengthy fight sequence, we also get some initial character development for one of the human characters, a young boy named Tory! So far, so promising.

Of course, we take a little bit of time to get to know the setting, a futuristic city; meet Ash and the other typical protagonists, and see a bunch of Pokémon. Tory also gets a good amount of screen time here too, where we learn he's scared of all Pokémon, which is a pretty interesting premise compared to *Pokémon Heroes*. Overall, it's a good variety of content with a healthy dose of worldbuilding too, which the Pokémon movies tend to excel at in general. It's also less in your face this time, which I think makes it flow way better compared to the super long exposition in *Pokémon Heroes*.

The movie transitions quite seamlessly into the scenes that follow, which is a trend that continues throughout most of the movie. I won't talk too much about the plot to avoid spoilers, but it feels good how a lot of the major threads and questions feel like they're always being progressed toward. For instance, the entire movie, you're given very little information about Deoxys, and it keeps you engaged as clues to what its motives are get revealed one by one. Although I really liked *Pokémon Heroes* for its worldbuilding, I had to stretch my expectations a little to put my reservations about the limited plot behind me, so this movie satisfies that part of me that was hoping for more.

It was also a little surprising to me that Tory actually had character development throughout the movie! I can't lie that it was a bit cliché looking back, but Tory's character arc through the movie was a breath of fresh air compared to literally everyone else in *Destiny Deoxys* as well as *Pokémon Heroes* because he actually changes. I know that's the bare minimum as far as general media goes, but hey, I'll take wins where I can get them.

I also want to compliment how well the movie intertwines comic relief with the actual story. It's a kids movie after all, so there's gotta be some humor and fun moments around, and in this case, the comic relief Pokémon are actually really plot relevant! It makes it a lot less forced than Team Rocket's appearances in *Pokémon Heroes*, for instance. Overall, I'd say the amount of humor is maintained really well throughout the movie.

Unfortunately, in my opinion, *Destiny Deoxys* largely flubs its ending. Though most of the plot threads are cleanly tied up by the conclusion, there's still a couple things remaining. Firstly, Tory's character arc isn't fully wrapped up, so the movie has to start a whole other vaguely related plotline just to finish his story which feels a bit forced and awkward. Secondly, it also never wraps up the Deoxys versus Rayquaza battle cleanly, and it feels like they didn't have any idea how to do that so the battle just kinda... ends and both of them are sorta just existing together at the conclusion of the movie. To be completely honest, it just felt all the more disappointing because the movie had such a good thing going and the ending was such a letdown.

It's hard to rate this movie overall. My personal experience was honestly really hampered by the whole ending bit, and I was initially leaning toward a 5 or 6 out of 10, but after actually thinking about and analyzing it, I think it deserves better, so I'll give it **7.5/10**. Even though it does a couple things pretty badly, most of the elements of the movie are as good as or better than *Pokémon Heroes*. I still think that you might enjoy *Pokémon Heroes* more depending on how much you're into the worldbuilding like me, but I'd for sure recommend watching *Destiny Deoxys* if you're at all interested.

hyperlynx

A BREAK FROM YOUR REGULARLY SCHEDULED mathNEWS



The 99.3% calibration slope ♪ ♪ ♪ absolutely worth \$1,200

rockfacts

THE N BIG PROBLEMS WITH THE MODERN WEB

We spend a very large chunk of our days on the internet, and in this age of enshittification, there are a multitude of cracks emerging in the digital landscape. Most of the web traffic goes to a select few corporations that use all the tricks in the book to hack human psychology to make us addicted so they can show us more ads.

Then there are concentrated efforts by foreign actors to spread misinformation to destabilize democracy.¹ CBC recently did a story² exploring how the subreddit r/Canada is very unusual when compared to other country subreddits. The long and short of it is that the moderators of r/Canada are all members of the far right.³ The CBC podcast discussing the subreddit was almost immediately removed after being posted there.

This is also without even getting into the fact that almost all the major news organizations in Canada are all owned by the same people whose politics skew right. We have very few truly independent news organizations.⁴

The political leanings of the mods of r/Canada have been an open secret for many years. However, given how Reddit works, there is little recourse to getting rid of bad admins of a subreddit. The web is fundamentally undemocratic. You just have to hope that whoever is in charge is just and reasonable, and if they aren't, tough shit—you are out of luck.

This is very obvious when you look at the trajectory of Twitter since Elon Musk took over. Most people are not happy with the current state of the website and have little recourse to change it. There's been some effort to create Twitter alternatives like Bluesky and Mastodon that have been accompanied by mixed success. Even when everyone agrees that jumping ship might be a good idea, getting everyone to agree on what new ship to jump to is a whole other game.

Then, finally, there's the fact that only weirdos post on the

internet. Only about 1% of users post on the web, and of those that post, an even smaller fraction of them are responsible for 80% of all of the web content. The very act of posting on Reddit or Twitter or YouTube makes you a weirdo. I don't mean weirdo pejoratively, but I really want to emphasize the fact that the people creating web content aren't actually representative of the population at large.⁵

This is a phenomenon that is true in a micro sense. Only a small fraction of university students write for **mathNEWS**, however each issue is distributed to the faculty at large. As the person writing this article, I can confirm that I am a weirdo.

There is a meme on Reddit about how everyone on Reddit seems to be autistic. This isn't true, but it comes from the fact that if you are posting on Reddit you're disproportionately more likely to be autistic relative to the population at large.

When we spend all our time consuming content on the internet it's important to remember how much of the web is corporations trying to get us to spend money, organizations with a lot of money trying to sway politics, and the very loud opinions of weirdos.

Beyond Meta

1. <https://www.canada.ca/en/public-safety-canada/news/2024/06/government-of-canada-releases-statement-on-malicious-cyber-activity.html>
2. <https://www.cbc.ca/listen/live-radio/1-14-day-6/clip/16079694-behind-anger-reddit-canada-site>
3. <https://ricochet.media/arts-culture/media/canadas-largest-subreddit-accused-of-harboring-white-nationalists/>
4. <https://aml.ca/the-bias-in-media-bias-charts/>
5. <https://www.nngroup.com/articles/participation-inequality/>

THE CAT ON THE CUP

We have a set of cups with cats printed on them. They're old enough that I don't remember a time not having them around. The thousands of cycles in the dishwasher have slowly washed out their blacks and grays.

I often wonder who this cat might have been. Twenty years later, I doubt it's still alive. Does their owner still think of them from time to time? If so, how do they picture the cat in their mind? Is this cup the only record capturing who the cat was in the moment? I raise these questions knowing full well that I can never find the answer.

Sometimes I'm scared to use these cups in case of breaking them. I imagine these cups being one of the last tangible reminders that this cat existed in this world. One slip of the hand and it'd go into the landfill, away from human eyes able

to appreciate the life of this cat. I feel like I hold the responsibility of keeping its memory alive. But these cups aren't anything special, being sold in batches at the supermarket. I know there must be someone else out there, peacefully sipping their drink in the morning, with a cat staring back at them. And so the sense of responsibility fades as quickly as it came.

The cat probably never thought that a complete stranger, knowing them only by their picture, would care so much about them. Care enough to wonder who they were. Care enough to be careful with their cup. Even after its death, this cat will touch so many people's lives. It sits with them on their dining table, stuck forever in a moment in time, patiently waiting for them to take the next sip.

Totally Ununimodular

A HATE LETTER TOWARDS CRUNCHYROLL

This article is fueled by Crunchyroll's recent decision to remove comments from episodes.

Dear Crunchyroll,

I used to love you—you were the symbol of everything I wanted. As a middle schooler who couldn't afford (or justify to my parents) a membership, I would scavenge through your forums section finding "Guest Pass Codes" in order to get a week of your vast catalogue of anime, but more importantly, convenience.

Compared to the one-night-stands through piracy sites, it was you that I could access easily from my TV, phone and random devices like a PS4. Growing up, Crunchyroll, you were the symbol of riches, disposable income and luxury. You were one of the first things I spent my first paycheck on.

Fast forward to 2024, this relationship (a transactional subscription) has gone rotten. I won't comment on your appearance changes—everyone likes to change up their look, I get it. However, the core of everything you stood for is gone.

What happened to the community, you—no—we used to foster? There are no more forums, no more discussions under episodes, no more customizable social profiles. I get it, its not "in" to have all of those things, but what happened to being unapologetically yourself. There is no more heart.

Sure, fine, I get it. We are just trimming the fat, the things

that "don't matter." But what about your core: the anime? Back then, it was just you and Funimation trying to fight for my attention. Between the both of you, you both had it all. What's it like now?

I now have Amazon Prime Video, Disney Plus, Netflix, and Hulu fighting for my money. You would think all this competition would make the product better, right? No, you all still offer the same product. It just has devolved into a licensing war of who which company can win the most streaming licenses. No easy battle when you have big megacorps backing these battles in the form of Disney and Amazon.

I get it: you made anime popular and now everyone wants a slice of that pie. But it's about staying true to who you were. A pirate who decided to reform their ways, offering a just way to stream anime while providing those beloved community features found in piracy websites. That's all gone now...

I just wanted to watch the English dub of Sgt. Frog, man.

Sincerely,
An anime fan

tr1e

P.S. If it were up to me, I would torrent everything and stream it. But I lack the ability to leave a PC/NAS on 24/7, especially in Waterloo.

PHYSICAL CONFERENCE PROCEEDINGS FORMATS BASED ON SUBJECT

DISCRETE MATHEMATICS

It prints as an *unbound* volume so its basically just loose leaf paper. Paragraphs are double spaced and there are two spaces after periods. Hell, there's a space between every letter. They really care about the kerning, don't they?

CONTINUOUS MATHEMATICS

It's a normal bound volume but the pages are stuck together. In fact, some might just be a block of wood. If you manage to pry apart the pages, you'll find that the ink is bleeding across the lines and through the pages.

CHEMISTRY

It's printed on flash paper.

FLUID DYNAMICS

It's just an aquarium but without the fish.

MUSIC THEORY

It's a vinyl record and when you play it, it's the sound of a guy reading the papers.

URBAN PLANNING

It's just HOA notices taped to your front door. Your grass isn't green enough, the academics conclude.

MATH STUDENTS' THOUGHTS

It's a bunch of paper stapled at the corner and the front cover is a coloured page with art on it. The presentation could be more interesting, but hey, at least it's free.

terminal



WISHING FOR FUN MUSIC AND PEACE

A RESPONSE TO TERMINAL FROM LAST ISSUE REGARDING THEIR MUSICAL VARIETY!

Like most people, I love a good song and enjoy discovering new music. I'm writing this as a way to cope with the fact that someone in my life has ruined my perception of music and made me self-conscious of what I listen to hahahaha... So, I'll share some songs from different phases in my life that I love and miss :D

I tried my best to make it chronological to my life.

Ghost Rule by DECO*27: take me back to when I was 8 years old and addicted to vocaloid

Death of a Bachelor by Panic! At The Disco: yes this was my next move after vocaloid. if we ignore brendon urie, this song kickstarted whatever my early teen years were. shoutout tammy <3

Doubt by Twenty One Pilots: can you believe I was once 13? I recently listened to the whole Blurryface album and it seems like I will always love it

Don't Stop by 5 Seconds of Summer: 5sos tell me ur dropping that rock album later this year...

Younger by Ruel, Free Time by Ruel: bro dropped the free time album when i was depressed in high school thanks man...

Foreword by Tyler, The Creator feat. Rex Orange County: and i still only own one golf le fleur item.

Icon by Jaden: clearly this is the 2017–2020 time of my life

SUGAR by BROCKHAMPTON: before the pandemic hit and i lost my mind

PANDEMIC HITS AND I'M WATCHING EVERY ANIME ALONG WITH THEIR OPENING SONG.

Kingslayer by Bring Me The Horizon feat. BABYMETAL: this is kind of all I ever needed in a song

Given-Taken by ENHYPEN: well hello kpop.

Siren by P1Harmony: with Markham native, Stephen Yoon

Dance by Jay Safari: fun's over, I graduated high school...

after that interesting list, here are my recent favourites:

- Drowning by WOODZ, Amnesia by WOODZ
- fake out by carbine feat. bixby
- end theory by carbine
- I Don't Care If You're Contagious by Pierce The Veil
- Even When I'm Not With You by Pierce the Veil
- PLUTO by Xdinary Heroes
- Enemy by Xdinary Heroes

- We Might Even Be Falling In Love (Interlude) by Victoria Monét
- Play Pretend by jomm feat. readyaimfire27
- WHITE NIGHT by Jake Miller, HOYO-MIX
- Mine by aespa
- Big Boy by Normani feat. Starrah
- Deeper Deeper by ONE OK ROCK
- Hard Out Here. by RAYE
- ALL OF BRAT BY CHARLI XCX
- The Whims of Fate by Lyn
- Red Wine Supernova by Chappell Roan
- Cosmic by Red Velvet
- 偽顔 by yama

some final words... listen to whatever tf you want and if you care too much about what others listen to your legs will fall off.

AK

A WARNING

There I was, basking in the sun, iced drink in hand, taking in what was shaping up to be a glorious day. As I made my way up King Street, I couldn't help but notice the familiar sight of the ION train glinting through the lazy Saturday traffic; I caught myself thinking "I can make it." And so my peaceful stroll home turned into a race against time itself. I ran, as I have never run before (realistically I do this once a week), clutching my strawberry lemonade, flitting through parking lots and people, trying to look as normal as I could in the face of my slow-paced, middle-aged passersby. After what seemed like an eternity, I reached the ION tracks. I dutifully waited for the train to pull fully into the station before skipping across the tracks leading to the platform, congratulating myself on my speedy performance. Sadly, I had forgotten about one crucial element: the step up to the platform. I carelessly hopped up that singular step, the rush of the moment making me forget my innate clumsiness and the fact that my shoelace had potentially come undone during my unplanned sprint.

And so I fell.

Face forward, knees scraping the hard concrete, an embarrassment on full display to all those about to board the train. A minor saving grace: I clutched that iced strawberry lemonade with the grip of death itself, preserving it at the cost of saving myself. It was nice to have a cold drink to sip on while riding the train home, to distract myself from the aching in my knees and thoughts of why I didn't just wait the 15 minutes until the next train arrived.

headphones97

24 HOURS IN UWATERLOO—8PM TO 12 AM

CONTINUED FROM 155.4

9:00 PM

She's home.

It's so great to see Connor again, Shelby thinks, especially at **mathNEWS** of all places. In his arms—the things they've been through, thick and thin. "It's so great to see you," she breathes. It's been too long.

(It's been eight months. Cali co-op placements are one bitch when you're not in the same area as your bestie.)

They separate as the editors announce it's time for pizza. Connor's face drops. "Crap, I don't have an article!" Skill issue. Shelby has an article about CUMC lined up already, but she hurriedly urges for him to open his laptop as everyone packs theirs away. It's a thick one for gaming, to no one's surprise, but it's a newer model than she remembers. "Ooh, is that new?"

"Yeah." He nods. "Okay, what do I—"

"Just do an 'N things' article. Literally, uh." She racks her brain for something, anything. "N numbers."

Connor laughs as he types it in, and once he finishes, he doesn't bother to pack his laptop away, holding it in one hand as they head to C&D to partake in pizza. The editor at the door lets them in with a sigh. Shelby grins at her partner in crime.

"Easy."

10:00 PM

Easy.

That was the one word I'd use to describe the article, easy. Which is the opposite of what this job of an editor was. Copy-editing, layout, distro—all of it was a pain in the ass. But to be fair—it's a pain in the ass I wouldn't have any other way.

By the time thirds are called, I've largely ignored the sparse slices of pizza in favour of getting a head start in approving articles. Approved, approved... this one might need edits. Approved. Of course the "n numbers" got approved, even if it was low-quality—it would be a good space filler.

Looking up, I hiss to myself when I realize Math C&D's practically empty. It's easy to lose track of time when you're having fun reading, after all. I should head home...well, one more article approval wouldn't hurt. My finger reaches for the button and taps the screen.

There.

11:00 PM

There.

Your pizza grease-covered fingers ache, but it's worth it in the end if it means the editors get to read it over. Even if you are halfway done. But this article needs to make it to the masses! It's been swimming in your head and you absolutely *have* to make sure it gets published. And even three hours during prod night wasn't enough.

You don't know how late it is and you don't care. You haven't so much as acknowledged what time it is, just type, type, type. You're almost there—then you realize you're close to breaking the word limit. Hissing to yourself, you select blocks of text you won't miss. Cut it down a little so that there's enough space for the closing paragraph.

Once you hit "Submit," you close the lid of your laptop with a sigh. "There!" Packing the laptop away, you can't help but notice how eerily quiet it is. Briefly, you reach into your pocket for your phone and pull it up.

"How is it already midnight?!"

12:00 AM

Skit

A COMMON EXPERIENCE

On many occasions, I have been asked to "recall" something from a previous course, professor, or textbook. They should know by now that I, in fact, do not recall.

verdanik

IN THE BED WITH THE LIGHTS OUT

STRAIGHT UP "SOLVING IT"

and by "it", haha, well, let's just say. The picross puzzles in the picross app that I've had installed for like 6 years

__init__

It's called "picross galaxy" or "nonogram galaxy" idk they keep changing their name. but highly recommended. there are like thousands of puzzles. they never get old

SPELL CASTING IN COLOUR

To the body of water that flows,
Yes this is about Palestine
From the river to the sea
I love you

I stayed home yesterday
My partner went without me
Another fight over tents in a park
I couldn't do it again
There is so much to be done
And I am so little.

Sunday I wore ear protection
But nothing could keep the sounds in my head down
I'm tired of the same arguments

"Don't you know that they kill people like you in Palestine?"
Who in this world deserves to die?
"You have no idea how hard we fought to have pride"
And now you stop the fight?
"You're a coward!"
How many kids have been killed today by weapons bearing
this land's name?

I have nothing but nightmares these days
Horses giving birth in my hands, panicking.
Friends from childhood visiting my home, sharing my bed
once again, leaving.
Water ways, murder, people jumping in front of the subway.
I couldn't do anything but wake up my partner who couldn't

sleep either
Needing to prove I was awake.

A car tried to hit me this week
Did you hear?
I had asked them to stop,
A turtle was crossing
A beautiful mother who had just nested
He sped up.
I am tired.
Who will walk the dog?
Who will do the dishes?
Who will hang the flags? Care for the sick? Make visions of
tomorrow? Floss my teeth? Heal my sprained ankle which is
overused from marching?
I think of all the injuries people March on by choice or not.
I grieve.

I found hope two weeks ago and lost it again.
Is there an end to this massacre?
I remember the mammal I am
Find the cave that I seek

So today?
I walk the dog.
And tomorrow?
We fight back

ReinDreams

PERSPECTIVE

I've been taking an environment course this term, against my better judgement, and it has, unsurprisingly, been making me think about the environment. However, I was struck the other day by a very shocking realisation.

For some context, I have a mild interest in ancient and medieval history. This means I will hear stuff like "and then 100 years later this happened" without batting an eye. Now, this is where most people go "Wow! I had never considered before how there must have been humans who lived at that time and lived their entire lives within this single utterance," which I am told is called *sonder*, or they go "It just goes to show you how irrelevant all of us are. We are here and in a short while nobody will care about us anymore," which is the uneducated nihilistic response.

However, I feel like there was an insight missing from those two perspectives. We will live on. Humans will find a way to continue to live and love and eventually thrive because we're too darn resilient to die, for goodness' sake. A lot of our mistakes and our failures have happened in the blink of an eye from a historical perspective, and we too will have our lives reduced to a single breath of some future historian. The world

will heal. The Earth will heal. We could mess up the climate for 300 years and by the time our stories have become as old as Shakespeare's plays nobody will be alive to remember the consequences.

John Milton's *Paradise Lost* is as old today as Dante's *Inferno* was when it was written. It's a whole 350 years old, with the *Inferno* being around 700, but we hardly think of how old these truly are. But think about it. Isn't that wonderful? We can look 700 into the past and see our connection to it. Even if we had a nuclear apocalypse, there will be people somewhere who continue to live on and by the time we're as old as the *Inferno* it would be almost impossible to tell anything happened climatically.

This is not to say that we shouldn't try to make the present better, but it hopefully takes off some of the pressure. And it makes me believe in a bright future we'll never be able to see, even if we hit a rough patch along the way.

STAIRCASE TRAP

The horror begins...

I'm trying to get to the green between SLC and MC to play frisbee with my friends. I'm in MC. IN MC.

But like an idiot, I decide it would make sense to go to SLC and walk out from the doors right near the green. So I start walking in the bridge between MC and SLC. I look to my left and see my "friends" playing down below.

I stop.

I turn to my left.

And I wave with both hands, eagerly waiting for them to see me. Jumping up and down (kidding).

My phone vibrates in my pocket, it's signalling to me that it needs to be charged. Eh, I say. I'll just charge it when I'm done playing. *[Cue chilling thrilling suspense music]*

As my first foot touches the floor in SLC, I look back. My eyes widen in horror. I've crossed the green. I'm gonna have to walk all the way forward to the stairs and down and back. And there are people sitting downstairs, they'll all see me walk down and then back out. My heart starts thumping faster in my chest.

As I walk toward the staircase, I look to the right and see another door that looks like it leads to a staircase (it's right near the water fountain). "Huh." Excited that I made a discovery that no one else knows about, I hurriedly run inside and down the stairs, the door closing behind me slowly....

Now I'm on the first floor and see the green right ahead through the glass in the door. *THUMP*. "Ouch."

I ran right into the door, but it didn't open. My heart rate grows steadily. "Don't worry, I'm sure the door upstairs that I entered using is still open," I tell myself. Holding the door to the stairs open, I try the second exit. Also locked. I run back to the stairs.

Pausing for a second, I look up at the door I entered using. Squinting my eyes at the lock. If only looks could kill... or fire lasers.

I run back up, only worsening my already racing heart rate. "Pleasee be open." I turn the handle, and nothing. It refuses to open. I take my phone out desperately. "PLEASE BE ALIVE." 4%. "It's okay," I tell myself. I'll just call someone.

beep beep deep beep deep

peep

Sorry, this call cannot be completed.

"Huh. OH. OOOHHHH. My phone plan expired yesterday!"

"It's alright, I'll just call someone using WeChat." KIDDING LOL

"It's alright, I'll just call someone using WhatsApp," I think. I open the first chat I find. "HELP PLEAASE. IM LOCKED IN SLC AND MY PHONES ALMOST DED. ITS TEH STAIRCASE NEAR WATER FOUNDTAIN AFTER BRIDE FROM MC. COME HELP PLEASE."

presses send

not delivered...

not delivered...

"WTH?" I notice the wifi symbol is empty. "Shit, no signal."

"Oh, please tell me I can connect to it 'cause I don't have data right now either." I look out in pure fright and desperation. There must be someone walking by... no one.

[5 seconds later] **bang bang bang** The girl walking by opens the door and I'm finally free.

tan

THE MOST ROMANTIC LANGUAGE

If you're reading this, statistically there's a good chance of you being a weeb, cause y'know, the overlap between that and being in Math. That means you probably know the Japanese word "daisuki."

"Daisuki"—love or like very much.

That's cute and all, but there's a Polish phrase pronounced the same that's arguably more romantic.

"Daj Suki"—give me bitches.

Catboy Supremacy



N THOUGHTS I HAD DOING LINEAR ALGEBRA

IN SOME ORDERING

Though some may have happened years (one year) ago, I remember them still quite well:

MATH 13/46

- Mom I'm scared
- Who put calculus in my linear algebra?
- I am now adding two different sine functions together to show aperiodicity this is very silly
- Drinking challenge: drink a glass of water every time you mess up a row reduction computation
- Who put the Linux kernel in my linear algebra?? Can't wait to ssh into R^m space and ls all the vectors in it
- What the heck is a projection
- I am very glad that I watched 3Blue1Brown's essence of linear algebra on YouTube
- I forgot what an eigenvector is again, god save us all
- So you're telling me I can turn anything into a vector space? >:3
- It would seem the TA now knows who I am
- Rank-nullity is quite rank and very null

CO 250

- Mom I'm scared
- You're telling me there's graph theory in my linear algebra?
- You're telling me there's algebraic geometry in my linear algebra?
- Oops, it would seem I forgotten how to do matrix multiplication! Again! For the Nth time!
- All praise the C O N E. I love the C O N E. It's like spans but aggressively positive

- Eating challenge: eat a blueberry every time you mess up a step in the simplex method
- It's funny how we define a basis matrix in terms of its determinant but proceed instead to treat it as a set of linearly independent columns
- I love spans <3
- The dread every time I see the word "rank" is beyond comprehension
- Duality is pretty fascinating and it is cool
- Duality is completely arbitrary and it is awful
- I forgot how to use the cofactor matrix to invert a matrix, but the RREF strategy is still fast enough. Is there no faster we can go?
- Tableaus are the goat
- Why are there two BARS on top of my variables. Mathematicians have gone too far
- Can we turn linear programs into a vector space lol
- o7 for matrix calculator

BU 247

- Huh, this table of costs they want me to make is just a matrix multiplication
- Huh, this entire costing system is just a sequence of linear transformations
- CO 250 mentioned!!—aw goddamnit they aren't covering it

SPCOM 100

- jk I didn't have a linear algebra moment in this class

andoiii

ASCREAMINGCOMESACROSSTHESKY

>be me
 >loyal mathNEWS reader every week
 >parents suck, was abused as a kid
 >also as a teen but now fought back
 >not really gay but fruity enough
 >end of june 2023 (pride month lol)
 >graduated high school, loo offer
 >uw gender studies class stabbing
 >"they should have killed more f***"
 >argue because only nerds deescalate
 >"erm actually i like boys get rekt"
 >get death threats and kicked out
 >pretty much the whole nine yards
 >thankfully had some past job savings
 >work minimum wage the whole summer
 >apply to every fucking scholarship
 >convoluted process to apply for osap
 >beg uw student aid (super unhelpful)

>mining and day trading cryptocurrency
 >finally make it all the way to sept
 >enough money for first year tuition
 >not enough money to fail any courses
 >not enough money to be coop unemployed
 >study, make friends, normal uni stuff
 >sometimes get voicemails wishing death
 >was gonna block them but they stopped
 >pass 1a/1b with unspectacular marks
 >making progress but mental health shit
 >somehow get coop, even related to degree
 >on work term far from waterloo now
 >working, saving money, hoping for ro
 >browse r/uwaterloo, see techbro post
 >"guys homophobia doesn't exist anymore"
 >can confirm

osmium

KILLING MR. GOOSE'S EGGS

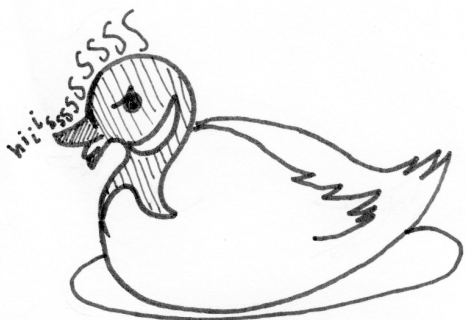
Geese are a staple of UWaterloo culture. Mr. Goose blesses our exams and decorates our school merchandise. Just last month we unveiled rainbow geese to celebrate pride. Cardboard cutouts of the colourful goose variant were plastered around campus and limited edition plushies were sold at WStore.

Residents also know that geese are not docile creatures. They are territorial and are very willing to intimidate, chase or even attack people who they perceive as a threat. This is especially apparent during nesting season when geese lay eggs and nurture their vulnerable young. Some might argue this behaviour makes them a nuisance. In addition, they can also cause property damage, eat grass leaving behind unsightly patches, and leave droppings which can alter soil chemistry. For these reasons the city of Waterloo¹ and property owners have opted to displace and deter geese who seasonally nest in their spaces. Contractors with appropriate permits employ an effective strategy to accomplish this such as killing their offspring. Or, in technical language: destroy or sterilise their eggs. Geese aspiring to be parents are discouraged from nesting in an area if their prospective young are killed or don't ever seem to hatch.

The Canadian Wildlife Service recommends a number of best practices and techniques to addle goose eggs.² One such technique is physically breaking eggs and leaving them in the nest. One can imagine why this is effective and encourages geese to vacate quickly. Some may be concerned with the "aesthetic" of leaving behind such traces of this on their property, in which case they are advised to bury the broken eggs or send them to animal waste landfills in opaque bags.

However, geese can be stubborn things, they may try to re-nest despite the harrowing sight of their marred eggs or their unexplained disappearance. As a countermeasure, one may opt to sterilise their eggs instead. In such cases it is known that they will continue trying to incubate sterilised eggs and will not abandon them until it is too late in the season to re-nest. Techniques to sterilise eggs include coating them with oil to block air exchange, shaking them aggressively or piercing them with a tiny hole. As a rule of thumb, when shaking eggs to sterilise them they "must be shaken until the internal fluids can be heard slopping around."²

Convenience, predictability and aesthetic consistency are important pillars of good and orderly society. The frictions



and cost of coexisting with the critters of our ecosystem can simply be unacceptable at times. Solutions include exterminating their eggs and leaving the parents to witness the lifeless and mutilated result; alternatively, addling the eggs and leaving them to hopelessly guard and incubate a sterile shell.



concerned larva

1. <https://www.kitchener.ca/en/bylaws-and-enforcement/coyotes-and-wildlife.aspx>
2. https://publications.gc.ca/collections/collection_2011/ec/CW66-293-1-2011-eng.pdf

EPISODE 64: NEGATING QUANTIFIERS

MathSoc Cartoons presents episode 64 of the MathSoc Cartoons series: *MATH 135 — Negating Quantifiers!*

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/cartoons-reviewer-join-S24!>

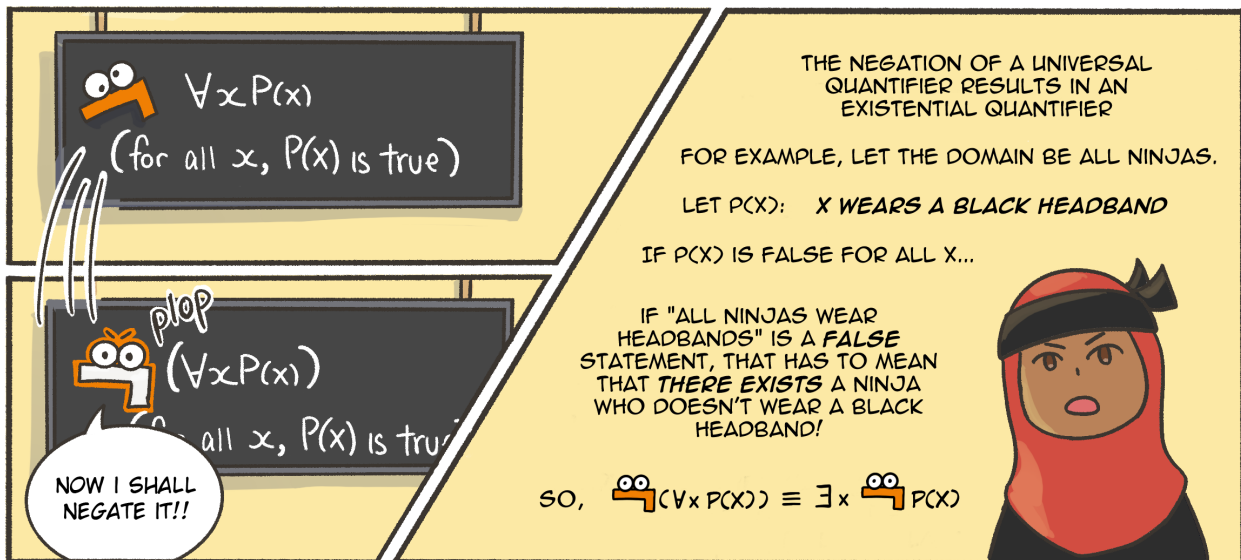
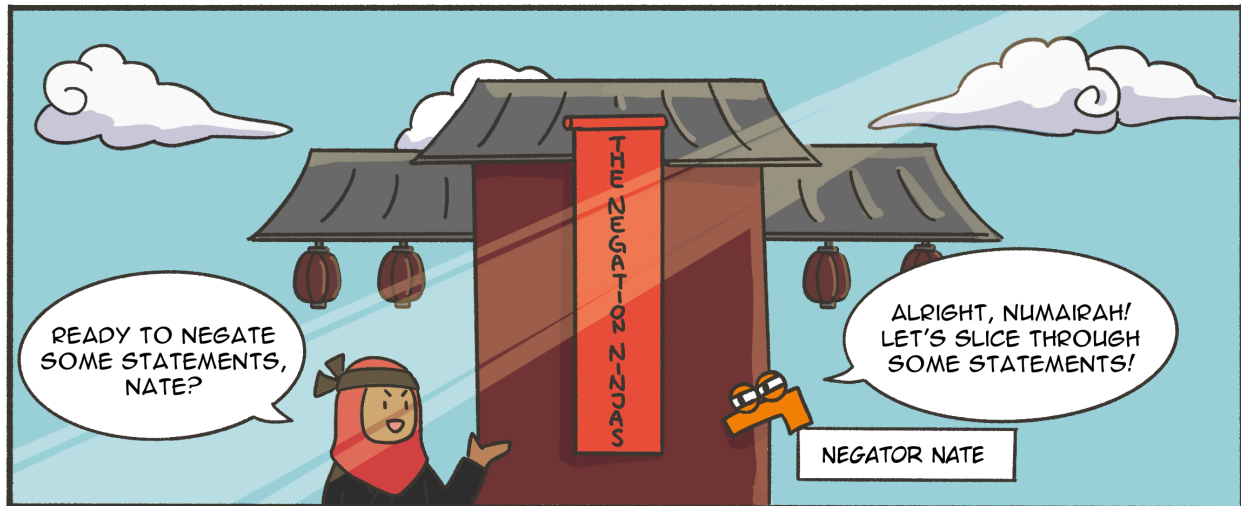
Want to see the next comic when it's released? Follow @mathsoccartoons on Instagram and Facebook!

As always, feedback, suggestions, and fan art can be left on the MathSoc Cartoons channel in the MathSoc Discord server or sent to cartoons@mathsoc.uwaterloo.ca.

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MATH 135: NEGATING QUANTIFIERS

STORY BY ZUNAIRAH | ART BY LISA



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MATH 135: NEGATING QUANTIFIERS

STORY BY ZUNAIRAH | ART BY LISA

$\exists x P(x)$
(There exists an x such that $P(x)$ is false)

NEGATING AN EXISTENTIAL QUANTIFIER GIVES A UNIVERSAL QUANTIFIER! TAKE THE SAME DOMAIN AND STATEMENT FROM THE LAST FIGHT. IF "THERE EXISTS A NINJA THAT WEARS A BLACK HEADBAND" IS FALSE STATEMENT, THEN THERE ARE NO NINJAS THAT WEAR A BLACK HEADBAND. SO,
 $\neg(\exists x P(x)) \equiv \forall x \neg P(x)$

fa-dah
 $\forall x \neg P(x)$

SUCCESS! FROM ONE TO ALL, WE NEGATED IT ALL!

THIS DOJO IS FULL OF SURPRISES.

WOW, THIS ONE LOOKS LIKE A BOSS FIGHT.

OH! THIS ONE ALREADY HAS A NEGATION! IF YOU NEGATE IT WE'LL HAVE TWO NEGATIONS... NEGATING A NEGATION WILL BRING YOU TO THE ORIGINAL STATEMENT, WHICH IN THIS CASE IS:
FOR ALL x , $P(x)$ IS TRUE!
 $\neg(\neg(\forall x P(x))) \equiv \forall x P(x)$

YES WE DO!!

$\neg(\forall x P(x))$

AH YES! IT'S LIKE IN DOUBLE NEGATIVES IN ENGLISH GRAMMAR. FOR EXAMPLE, SAYING "NO NINJAS DO NOT LIKE DEFEATING EVIL MATH PROBLEMS" IS THE SAME AS SAYING "ALL NINJA'S LIKE DEFEATING EVIL MATH PROBLEMS!"

BAM!

$\neg(\forall x)$ $P(x)$

$\forall x P(x)$

WE DID IT! WE DEFEATED IT!

CLAP!

NEGATION IS LIKE A NINJA BATTLE, ONE MOVE AT A TIME.

EXACTLY! NEGATION ISN'T JUST ABOUT DENIAL, IT'S ABOUT UNCOVERING HIDDEN TRUTHS.

BODY SOUNDS

At some point a bit over a year ago, I decided to become a member of the UWaterloo archery club, for two reasons:

1. I wanted to learn archery.
2. I wanted to see if I could make friends in an environment that was separate from **mathNEWS**, MathSoc, or math anything. In particular, I wanted no one to know me ahead of time as having a role in any organization, to see if that would make socializing any different.

As soon as I started going with any actual regularity I promptly made a friend. However, we became friends more easily because this friend reads **mathNEWS** and by chance found out I was an editor at the time. Mission failed, but honestly, I don't mind; I think that I would have been drawn to befriending them more than to others at archery because we both have the kind of personality which cares about **mathNEWS**.

But this article actually has a different focus: the physical experience of learning archery.

Something I love doing is learning how to pronounce the sounds of foreign languages. I don't mean merely saying words to the point of being understood; I mean getting the accent *just* right.

Listening to others and imitating them is a great way to start, but I think that when hearing a language I don't know well, there are nuances in sounds that I don't notice because those nuances don't matter in other languages I speak. So to work on my accent, I learn how the language's sounds are described with the International Phonetic Alphabet, or IPA. The IPA is what it sounds like: a set of symbols that represent sounds that humans can produce, as well as additional symbols and diacritics that serve as modifiers of sounds. The most important part of the IPA is that each letter corresponds to a configuration of the body parts involved in producing speech — tongue position, whether the vocal cords vibrate, rounding of the lips... you get the idea. This allows anyone who pays enough attention to the way their mouth is working to master any sound with sufficient practice.

(Once you learn some languages' sounds in terms of IPA, you can bootstrap your learning of sounds in other languages if they have related IPA representations. For example, when I think of the sound in Mandarin represented by the pinyin "xu", I mentally convert that to Russian "и" plus the "u" of the French word "menu", for which the IPA¹ is equivalent.)

Archery is a bit similar. Archery forces me to think very hard about what my body is doing. It requires me to avoid leaning forward or twisting my body at my hips. It requires me to aim at the same spot every time, to start tensing the string at just the right point, and to draw the string to the same part of my face each shot. I've made so many changes to my draw and every major one requires my aim to restart from almost zero.

But each change makes it easier to become consistent, to become one step closer to making every shot the same shot. Even though that's impossible, I can feel that I'm removing the factors that make my results variable, and that's exactly what matters most.

After learning how to make my body do what I need it to, it's a matter of practice, and that makes me feel at ease with my currently mediocre shooting. If I can make my mouth make the sounds I want it to make with enough practice, I should be able to make my body shoot arrows the way I want them to be shot.

cutlet

Many thanks to the several people who have helped me improve my shooting.s

1. [ey]

TRIVIAL ARTICLE

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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WHY “HOW ARE YOU” IS ACTUALLY NOT AN ANNOYING QUESTION

BUT YOU STILL HAVE TO ANSWER “GOOD”

I suspect a higher proportion of University of Waterloo students are bothered by this question than the average population.

It presents the illusion that you can answer truthfully, or however you like. The problem is that doing so brings your Awkwardness Rating higher than it already was. My discussion will assume that the main issue is if you are having a bad time but feel you can't answer truthfully, since if you're having a good time, this question shouldn't be a problem.

Here are some reasons why “How are you” is actually not an annoying question, in an effort to improve your social skills. I see this as a strong need on campus. ;)

THE FIVE REASONS

1. Such a question needs to exist. Otherwise, starting an average conversation would take more effort for no real reason.
2. It technically provides an easier route to ask for help. As much as it seems hard to answer “badly,”

it's easier than bringing up your bad-ness to someone out of the blue.

3. You are allowed to answer honestly! Just do it in a “this isn't a big deal” way, in order to avoid forcing the conversation to linger on your answer. If that's hard for you, then the question can act as a trigger to you that you should find a way to emotionally rest, and eventually resolve your concerns.
4. The question helps establish grounds for what state you're in, allowing others to adapt. If you frequently answer in a truthfully negative way, people can choose to either help you out or move away, based on their own state.
5. But, in general, you still should answer “good,” in order to move the conversation to what's at hand. I personally like to use answers like “splendid” or “not extremely bad” to spice things up, though.

I hope reasons 1, 2, 3, and 4 set a strong enough stage for you to accept reason 5 and move on with your life!

no pun indented

THE ONLY GOOD NOTE-TAKING APP ALSO KINDA SUCKS

You'd think there would be more. Documents that can sync between two computers in real time have existed since the Internet has been fast enough to support them; tablets that you can handwrite on have been a thing for even longer; and I'm sure you have that one friend with a favourite text editor from the 70s. Yet somehow, the only note-taking app with text editing, handwriting, and realtime sync all at the same time is OneNote, a member of the Microsoft Office suite that has been virtually unchallenged since its debut for Windows XP Tablet PC Edition in 2003.

There are other apps that call themselves “note-taking apps,” but if you don't have all of the fundamental features of a note-taking app that I just mentioned, you don't have anything more than a fancy text editor or a digital approximation of a piece of paper. Software is supposed to do *more* than the physical media it replaces. If I can't type margin notes next to a PDF on my laptop while doodling on that same PDF on my tablet at the same time, what's the point? Or copy and paste a list of due dates from LEARN and cross them out one by one in red ink because that's so much more satisfying than clicking on a checkbox?

Yet in the absence of competition, OneNote, the only real option for serious note-takers, predictably kinda sucks. Importing a PDF just pastes each individual page in as an image, meaning resolution is limited and links don't work. Linux support is unheard of, even if you try using Wine. And if

my Internet connection is bad enough and I'm editing on two devices at once, OneNote produces “merge conflicts” that are so trivial to solve Git wouldn't even break a sweat.

None of this makes me annoyed enough to stop using OneNote and switch to paper notebooks or anything, but it would be nice if we had something a little better. Maybe someday, if I run out of other things to do, I'll move into a cave in the woods and spend the rest of my years building a OneNote alternative or something.

__init__

SUNKEN HOLE

School terms remind me of standing outside. As the term progresses, a hole starts to form. With every day in the term, the hole gets deeper and deeper. It's hard to see the light at the end of the tunnel.

panda1

mathematics
NEWSPAPER

VICTORIES

On Saturday July 6th, the University of Waterloo announced that after a week of mediator-led negotiations, the members of the Occupy UWaterloo encampment would disband their encampment as of 8:00 PM the following day.

One minute after, the constables enter through the gates, each step taken with caution tempered by curiosity. They poke at the walls and the tarps left behind, cautious, as if not to wake them.

Five minutes after, the University admins start peeking their heads to look at the other side of the wall. I cannot recall them ever entering. They watch from main path for the next two hours; taking in every moment as the physical manifestation of months of challenges meets its end.

Seven minutes after, the dismantlers begin to cut away at the blue tarp covering the University of Waterloo sign. Another minute, and it is free.

Eleven minutes after, the sound of drilling breaks the evening calm. Engines growl as trucks drive along the footpaths, depositing dumpsters encircling the site.

Fifteen minutes after, the second plywood section falls. Sixty minutes after, no more walls remain.

All the while, the admins gather at the sidelines. There's respect in their stance, in their hesitancy to cross onto the green, in their muted watching as the encampment falls away. Still, I wonder whether in some part, they came to quietly celebrate this ending. After weeks of efforts to end the encampment, what the admins saw before them is clear:

Victory.



Fifteen minutes before, Grad House green was quiet for the first time in months. Empty muskoka chairs sit in council in an arc peering over the plywood walls. Flagposts stand naked in the wind under Dana Porter's watchful eye overhead.

Ten minutes before, some students take pictures of the art on the walls. Each plank may soon be taken down, but hundreds of passersby each day have immortalized them into memory, digital and real.

Five minutes before, one plywood section has fallen. A squirrel balances on the adjacent section. We lock eyes, and for a moment, I can believe he's the one who knocked it over. He dashes away; the last man in the encampment, saying his goodbye.

One minute before, all is quiet. At the corner of the library moat, special constables and high-ranking staff gather. Despite the encampment being empty, no one will enter until the last minute has passed.

Every painted message of the encampment is on display: the beautiful, the meticulous. The ugly too. All at once, every colour extracted to its maximum by the evening light. Silent, yet so unmistakably loud. In their exit, the campers' message is defiant, as posted to Instagram the day before:

Victory.

molasses

Some minutes after, a small group of students begin to seat themselves around the Arts Quad. Through unspoken agreement, none of us that evening were seated facing west.

Some were just onlookers; merely casual observers come to watch one season change into another. To pay respects at the funeral of a place that never knew us. We were those who had seen the encampment day by day, walked by it, known people within it. Adjacent, but untouched.

Others were closer.

Thirty minutes after, the University of Waterloo sign is open to the air. For the first time in months, a graduate gets their picture taken beside it. Degree in one hand, flag of blue and white in the other.

There was no victory in it. The resumption of belonging, however, was so much more.

SPOCKING

Hello freaks. Have you ever been so lucky to have received a \$5 bill that has been freshly spocked?

My goal this issue was to relate an article to math. 5 is a number, and so that condition has now been met. But what is spocking, you ask? Well. Picture a nice, crisp Canadian five-dollar bill. This works even better if your bill is a classic paper copy. Something like this:



That man staring wistfully off in the distance is none other than Sir Wilfred Laurier. Famous accomplishments include acting as the Canadian Prime Minister in the early twentieth century, and also having a mediocre post-secondary institution take his name.

Now forget him. When was the last time you watched Star Trek? Even if you never have, like me, I'm sure you can still picture that one guy with the slick black hair and brows on

fleek. That is Spock. One day, somebody looked at a five-dollar bill in their wallet, and thought, me oh my, that is a dead ringer for Captain Spock! And they drew this.



That's it. This five-dollar bill has been spocked. Note that the Canadian government doesn't really approve of the "defacing" of their money (making it better), but I leave you with this. All around you are surfaces that have the potential to be spocked.

nike

COMPREHENSIVE REVIEW OF THE WICKED MUSICAL

Cousin recently had a foot surgery so he had a wheelie knee-scooter thing so he had to take the elevator at the theatre and it was so unnecessarily confusing like why is accessibility so complicated y'all

We had 8 seats in the center of a row so they made half of us go through one side and half through the other even though we were all together and only one person had all our tickets why was this so unnecessarily confusing I had to call my mum multiple times after we got separated

Got there just in time even though we left so early cause the streetcar was so late

We were in the third row which my mum of course knew because she booked the tickets but I think even she forgot cause she booked them more than 6 months ago so that was a pleasant surprise I swear members of the ensemble made eye contact with me several times

Elphaba (the actor) is British but Elphaba (the character) is not and you 100% couldn't tell which like I know is part of their job as an actor but its very impressive to me every time

Glinda had great comedic timing and was very giggly goofy we love

There's a show within the show that's only like 30 seconds and not a plot point at all but somehow gets allocated so much costume budget like there were these weird egg people with faces kinda Humpty-Dumpty-esque but then their necks pop up and wiggle around I truly don't know how to explain how weird this is to watch but it was great

Otherwise costuming was actually so cool and did a really great job of making the people of Oz look whimsical like

double-top-hat man and funky-patterned-suits people and pants-in-the-front-skirt-in-the-back (aka mullet-skirt) man

Overall high praise from me and my mom and medium-to-high praise from the rest of my family who normally aren't musicals people so that's a great sign I think you should go see it

normalparameters

THE "M" IN MY NAME STANDS FOR MASOCHIST

I have a friend who wrote a small series of articles on her many friends over the last year and a half. Just kidding, I wrote them. Please do check them out if you are intrigued by personal stories of individuals who are "a bit damaged", as admitted by my main characters themselves, my dearest beloved friends.

Just kidding, again. There are no friends. My articles are all about myself.

It is a recent realization that the association between these writings, published months apart, is rather ambiguous. That observation prompted this little compilation.

Mel (151.3 p.20) is a short piece about the character's attempt to process her grandfather's death. It is an appropriate beginning to the series because it digs into one's family background, which, regrettably, sets the tone for subsequent stories.

On a sunnier note, *May* (151.6 p.13) describes nostalgic summers. Clinging to the past, that sort of thing.

Madeline (152.6 p.21) debates whether humans are inherently evil. My sincerest thank you to a fellow writer, helix2, who praised *Madeline* in a love letter. Maddy says she appreciates it.

Then, erm, *Emily* (153.3 p.23) is an impromptu article about sex. It might be my favourite.

My latest addition, *Maxwell* (155.4 p.26), re-tells a dream two nights post my recent break-up. I scribbled down in my journal that "All I remember is a quiet walk by the sea, peaceful, where everything is grey and faintly bluish." The theme is healing as another form of loss.

My original purpose with this narcissistic collection was to find closure for myself. Documenting my sadness somehow liberates it, to be gone with the wind. But existentialism says that man is choosing for all men in choosing himself, as such, a human universality exists. It is thence my new aspiration to produce stories in which a reader may find a piece of themselves.

I AM IN TORONTO

gridCOMMENT 155.5

greetings gridWORDers.

if you are reading this during the release date of this **mathNEWS** issue (or the proceeding weekend), i am probably in toronto as you read this. in fact this is my 4th weekend in a row in toronto. the travel costs are really hitting me

but i digress. last issue, i asked you guys “what is your favourite colour? :3” and you all said:

- __init__: *I think the ones in between violet and red that don't correspond to actual wavelengths of light but that we can see anyway are pretty cool*
- Sexy_Software_Babe: *turquoise! it's such a pretty combination of green and blue and reminds me of swimming, which is really calming and relaxing for me :)*

• awmlet: *alpha wolf grey*

• aphf & Lars Nootbaar: *'Blue.' 'No!' 'Aaagh!'*

i think magenta is a great colour. it might not be real. the \$5 math cnd gift card __init__ is getting at the **mathNEWS** office (MC3030) is!! also yes i put the dollar sign after the number i don't care that it's wrong i think this is how we should write them and i refuse to be silenced any longer.

this issue's **gridQUESTION** is: what should the next **gridQUESTION** be? i am not lazy and tired today and i am definitely not running out of ideas. please send your **gridWORD** solution, **gridQUESTION** answer, and pseudonym to mathnews@gmail.com by monday, july 22 at 6 pm here time ^u^

spaghettinhalers

ACROSS

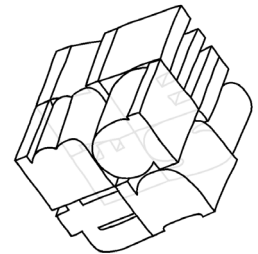
1. Less than 90 degrees, as an angle
6. Yonge St to Queen St*
10. Cow or sow
13. Jury
14. Hip bones
15. Starting place
17. Author Zola
18. Monospecific genus in the family Ulidiidae
20. 5-floored UW res.
21. Locale
23. “__ Heartbeat” (Amy Grant hit)
24. Rammus “OK” and Teemo “Thumbs Up”
26. Bar order
27. Tendency to sin
29. Yonge St to Dufferin St
33. Settles in
34. Blessings
36. Bill
37. Hand or foot
38. 2024 Olympic swimming setting
39. Jerk
40. Cool __
41. Barbecue fuel
42. Yonge St to Broadview Ave
43. Beetle wing case
45. Tender of the prince's horses
47. Serve, slangily
48. Consider analogous
49. Wise guys
52. Routine
53. Prone

56. Old name for a locomotive
58. White house?
60. Dec. holiday
61. Mideast port
62. Bad move
63. Hog's home
64. Litter's littlest
65. Goes up and down

DOWN

1. Mimic
2. Showed
3. York St to Queens Park Cres E
4. __ Aviv
5. Tailerons
6. 28-down legume
7. Abdominal ailment
8. River in Egypt
9. Interruption
10. Turn
11. Better
12. Kuwaiti ruler
16. Harbour St to Davenport Rd
19. “__ Kitchen”: Gordon Ramsay show
22. “Yadda, yadda, yadda”
25. Damon of “Good Will Hunting”
26. First-class
27. Estonian Network for University Continuing Education, abbr.
28. Nephritic
29. Resulting from an action

30. Celestially
31. One who uses 24-down
32. Hard wood
35. Lubricate
38. Dirty coat
39. Tallow source
41. 2005 Best Picture nominee
42. Prove competent
44. Wee
46. Sine __ non
48. City near Düsseldorf
49. Where the major arteries of 6-Across, 29-Across, 42-Across, 3-Down, and 16-Down are located*
50. Kind of race
51. Milk source
52. Language of Lahore
54. Sport with mallets
55. Santa's sackful
57. Galley tool
59. Subject of physics-based 2D Boy game



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

1	2	3	4	5		6	7	8	9		10	11	12	
13						14					15			16
17						18				19				
20				21	22					23				
		24	25						26					
27	28							29				30	31	32
33						34	35					36		
37					38						39			
40				41						42				
43			44					45	46					
			47				48							
49	50	51				52						53	54	55
56						57					58	59		
60						61					62			
	63					64					65			

The best part of this job is writing new blackBOXES to amuse yourself and no one else.

lookAHEAD

SUN JUL 14	MON JUL 15	TUE JUL 16	WED JUL 17	THU JUL 18	FRI JUL 19	SAT JUL 20
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Bastille Day

Drop with WD ends
Corn Fritters Day

Insurance Nerd Day

SUN JUL 21	MON JUL 22	TUE JUL 23	WED JUL 24	THU JUL 25	FRI JUL 26	SAT JUL 27
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Pandemonium Day

mathNEWS 155.6
production night
Pi Approximation Day

Slightly Worse Pi
Approximation Day

mathNEWS 155.6 finally
graduates and needs to
find a job

LAST ISSUE'S gridSOLUTION

1	P	2	R	3	A	4	M	5	S	6	P	7	A	8	M	9	C	10	R	11	A	12	B				
13	V	14	O	15	C	16	A	17	T	18	I	19	O	20	N	21	A	22	L	23	H	24	E	25	I	26	R
27	C	28	O	29	R	30	D	31	I	32	L	33	L	34	E	35	R	36	A	37	I	38	D	39	E	40	A
41	T	42	E	43	N	44	E	45	T	46	W	47	A	48	I	49	F	50	N	51	E	52	W	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112

N DERANGED PIZZA TOPPINGS

- Blended Lazeez
- The pizza box
- Anchovies

hyperlynx

**MC needs more floors,
and they should have
apartments. I want to
live here.**

AN EDITOR WHO MIGHT HAVE
STOCKHOLM SYNDROME

RE: RE: FWD: RE: HOW TO MAKE A WORK FRIEND

I did end up having lunch with work friend, and it went okay! Unfortunately for this series but fortunately for me, I broke the chain of having casual uncomfortable moments. Also unfortunately for this series, it turns out that after you make a work friend, there's little else to say! And now it is time to say good-bye. Good-bye.¹

blinchik

1. <https://www.youtube.com/watch?v=cDN0LKfurCw>

$$\begin{bmatrix} m & a \\ t & h \end{bmatrix} \begin{bmatrix} N & E \\ W & S \end{bmatrix} = \begin{bmatrix} mN + aW & mE + aS \\ tN + hW & tE + hS \end{bmatrix}$$