

snowdozer



“WHAT’S YOUR PLAN FOR WORLD PEACE?”

Time really flies by, huh?

I hope the start of midterm season is finding you all well. Personally, I didn’t even remember they were happening until I read the reminder email for this issue’s production night, which went out the day before the morning of my first midterm. Whoops.

(Psst: if you also want periodic reminders of when midterm season is, and you also happen to be interested in contributing to **mathNEWS**, then go sign up for our mailing list at mathnews.uwaterloo.ca!)

Yes, the midterm went okay, thanks for asking. The next one I have isn’t for another week, so I have plenty of time to sit back, relax, and enjoy this fresh issue of **mathNEWS**, complete with articles about fun things to do in Waterloo region (shoutout to Kate Bueckert), reviews of reviews and rebuttals to rebuttals, innovative storage solutions, arguments for why AFM is the hardest major—wait, hang on a minute. If you really want to compare classes, I’m not sure AFM 273 holds up to ECE 105.

Hey, am I allowed to shill the engineering faculty in here? We have some hard classes, but we have some pretty cool ones too. Here’s a tip for any CS people reading who are interested in the digital hardware side of things: you should take ECE 327, preferably with Nachiket Kapre. If you don’t have the prereqs, take those too. Don’t you want to know how a CPU works? Don’t you want to design adders and matrix multipliers and flip-flops? Don’t you want to learn Verilog?

Okay, I’m being told to stop before MathSoc cuts our funding. I love math too, by the way. *[Note to self: ask abstractED for a funny PMath reference to put here]*, am I right? If you, too, are a math enjoyer, you can check out a list of [N.Math.Jokes](#), or the MathSoc Cartoons, which are back this term in case you missed it. Also, definitely avoid the one called [Engineering Is Better Than Math](#).

There’s something for everyone! Happy reading.

derailed
Editor, mathNEWS

abstractED
Editor, mathNEWS

PLATYPUSGOD	Simply believe it will occur
QUAAAAAAAAAACK	Eat everyone. Can’t have war if there’s no people.
EPIC_WATERMAN	World peace? Don't they still need to find the one piece?
WICKED	biting
NIKE	sharing animal crackers. it makes everyone want to be your friend
AND0III	get everyone addicted to old school runescape thus everyone has common ground
TERMINAL	the free market will fix it
LARS NOOTBAAR	Please refer to mathNEWS 153.6 to view my PLAN FOR LONG-LASTING WORLD PEACE
HYPERLYNX	Just destroy the Earth for vacuous world peace
MOLASSES	I would elect Lars Nootbaar to president of the UN and also the World Bank
APHF	Discover oil under every country so they don't have to fight each other for it any more
JEFF	Global distribution of mathNEWS issues
SEXY_SOFTWARE_BABE	Force everyone to play in one massive tabletop roleplaying game game in real life
SNOWDOZER	Ask Lars Nootbaar
ERALOGOS	Connect all people and let them fight in VR/AR video games
VERDANIK	On the sticks with twelve lines
NOT_A_UW_STUDENT	World domination
DISCRETE MUSINGS	have we considered live, love, laughing?
HELIx2	invite hostile aliens to earth
NOT A N*RD	World War III
BLINCHIK	Extreme micromanagement
CUTLET	the answer is left as an exercise to the reader

ARTICLE OF THE ISSUE

Congratulations Resident Cuber, we enjoyed [My First Bite of Burger King](#). I wasn’t aware Burger King was capable of creating food and hope to one day be blessed by the same magic. Come by MC 3030 for your prize.

You ever just sit by the egg fountain and admire the outer walls of MC?

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

mathASKS 155.3

FEATURING mathNEWS EDITOR ABSTRACTED

ROCKFACTS: IN MY HEAD GENGAR IS ONLY A FEW LETTERS OFF FROM GENDER. I THINK ABOUT THIS FACT A LOT. WHAT ARE YOUR THOUGHTS ON GENDER?

Social construct, based on time and place and culture, roles and conceptualizations shift, etc etc, read Judith Butler.

NO PUN INDENTED: WHY DON'T YOU PLAY LEAGUE OF LEGENDS?

I did, briefly. Twice actually. Once in middle school, one in high school, for like less than a week either time. I feel like it could've clicked with me, that'd be a darker timeline. Also how did you know I don't play League? I'm frightened but impressed.

WICKED: THOUGHTS ON WOMEN? YES OR NO?

Cannot predict now.

PINK BOMB: I ALSO HAVE AN UMBREON PLUSH (A SHINY ONE)! IS UMBREON YOUR FAVORITE EEEVELUTION? IF NOT, WHICH ONE? AND WHY?

It is, I attribute it to younger me being edgy, I was very into ghost and dark types as you might've guessed. Though I also really like Sylveon, I think a fairy type Eeveelution was a neat concept and its colour scheme is fun. A shiny Umbreon plush sounds very cool.

PINK BOMB: HAVE YOU DM'ED BEFORE? IF YES, DO YOU ENJOY IT?

I have not, but I'd really like to. Plans have fallen through before but I think I'd really enjoy it. I'd also eventually like to run Call of Cthulhu.

DISGRUNTLED LONGBOARDER: OKAY BUT CAN YOU EVEN DO A KICKFLIP? 😏

No, but I can ollie. Also I longboard too 😊. We don't need to be enemies.

APHF: WHO IS YOUR LEAST FAVOURITE OTHER EDITOR AND WHY

awED, CS enjoyer.

APHF: WHO IS YOUR FAVOURITE OTHER EDITOR AND WHY

awED, PMC frequenter.

JEFF: WHAT'S YOUR FAVOURITE BATHROOM ON CAMPUS?

Third floor MC gender neutral bathroom. Chosen for familiarity and proximity to **mathNEWS** and PMC offices.

NOTAKLUTZ: WHAT ARE SOME OF YOUR FAVOURITE VIDEO GAMES?

Big fan of the Monster Hunter series, extremely hyped for Wilds. Also the DrakenNier franchise, which I've written about previously. I have over a thousand hours in Warframe but haven't played seriously in a few years now. The Yakuza series is also really good. The Soulsborne games are fantastic too, I'm partial to Dark Souls, Dark Souls 3, and Sekiro personally. Paradox games like Hearts of Iron IV, Victoria 3, and Crusader Kings 3. Minecraft, of course. Stardew Valley. Disco Elysium is one of my favourites, which I've also written about. Red Dead Redemption 2, The Witcher 3, Fallout New Vegas, Persona 5 Royal. The DooM games, Baldur's Gate 3, Hollow Knight (Silksong might release before we graduate), Hades, Celeste, Skyrim, Undertale, and the Portal games.

ROBOU TE GUILLIMAN: CHILD OF THE EMPEROR OR FILTHY HERETIC?

Heretic unfortunately, I haven't gotten to play yet but I've been building a Tyranid army. I wish I hadn't chosen a horde army for my first because it's been quite daunting but we'll get there.

VERDANIK: FAVOURITE POST-GEN II POKÉMON? WHY?

Very tough question, has to be a tie between Rayquaza and Haxorus. I'm partial to dragon types and I think these two are very cool. I like Rayquaza's design a lot, mega and shiny Rayquaza are very pleasing. I love the design of Haxorus and also think dragon dance sweep teams are cool.

0.423: ANY REASON FOR NOT BUYING A VAPOREON PLUSH INSTEAD?

I was never super into water types as a kid, and I thought Umbreon was the coolest Eeveelution (still do).

AAQSR: YOU LOVE MODULES RIGHT? WHEN DO YOU THINK THIS EXCELLENT FEATURE WILL BE SUPPORTED BY THE C++ COMPILER?

L + different module + commutative algebra sweeps + I know where you live

ERALOGOS: YOUR FAVORITE CLASS IN D&D/FAVORITE ARMY IN WARHAMMER/FAVORITE COLOR OR COLOR COMBINATIONS IN MAGIC?

I'm a fan of spellcasters in general, but my favourite class has to be Warlock. The amount of cantrips makes it really fun imo, and being able to cast all spells with max level slots. I also think there's a lot of cool roleplay potential with the whole patron situation, I have a Warlock I'm itching to play soon. Quite proud of their backstory. For Warhammer, I haven't played yet, but I've been building a Tyranid army so I suppose

that wins by default. Though I'd like to try Chaos Space Marines at some point. My go to for Magic is mono black, though I like black/white as well. I think the mechanics of black are really cool and engaging, with all the sacrificing your own creatures and hit points and such. For commander, I play this rat deck, the whole theme is summoning a billion rats every turn and like half of them have death touch. Infuriating to play against, so fun to use.

LARS NOOTBAAR: WHAT MAKES A GOOD mathASKS QUESTION?

One that lets me ramble about a special interest, or is out there and makes me think.

SNOWDOZER: WHAT ARE YOU FAVOURITE STORY-BASED RPGS?

I love everything by Yoko Taro, namely the Drakengard and NieR games. One of my favorite games of all time is Disco Elysium. I've written about both of these already. Besides that, I'm a big fan of the Yakuza series of games, I enjoyed Red Dead Redemption 2 and Persona 5 Royal. Baldur's Gate III is also amazing. The Witcher 3 of course. Omori is really good too, and Fallout New Vegas and Skyrim are classics.

NAZZ: FAVORITE SONG TO PLAY ON BASS? HOW LONG HAVE YOU BEEN PLAYING? HAVE YOU PLAYED WITH OTHER MUSICIANS?

Symphony of Destruction by Megadeth. I've been playing about 6 years now but not regularly so I'm not that good. I've only played with other people in the context of my school band which was orchestral so probably not what you meant.

TERMINAL: WHAT ARE YOUR FAVOURITE COPYPASTAS?

Eggman's announcement from the Snapcube fandub of Sonic Adventure 2 is pretty good. Also the Reddit AITA one where the kid (12M) throws his controller (138 KPH) at his mom (82F) when asked to stop playing Fortnite. The one with the guy bringing his gaming laptop to class and shredding his peers with the gale force winds generated by the cooling fans is good too. And the classic owning a musket for home defence.

MOBPSYCHOFAN: WHAT'S THE FIRST VIDEO GAME YOU REMEMBER PLAYING?

The timeline is jumbled but it would've been at a friend or relative's house, before I had the means to play any myself. I can remember trying Just Dance, Super Mario Galaxy, Wii Sports, Super Smash Bros. Brawl, and GTA V in this manner, so probably one of those.

PLATYPUSGOD: DID THE WORLD END BY NOW?

Better not tell you yet.

NOT_A_UW_STUDENT: FAVOURITE ABSTRACTION?

Vector spaces to modules are cool. You relax the field of scalars to a ring of scalars. You lose certain properties like necessarily having a basis. If you're sane and accept choice, all vector spaces have bases, but not all modules do. When a module does, we call it free. A module may not have well defined dimension, called rank for modules, as it may have bases of different cardinality. The Z-modules are precisely the abelian groups. The (left) ideals of a ring R are precisely the submodules of R as a (left) R-module. Modules have lots of cool properties and I recommend looking into them.

NOT_A_UW_STUDENT: WHEN DID YOU REALIZE IT WAS TIME TO DITCH PHYSICS FOR PURE MATH?

MATH 145 was the catalyst for me. It was partly because I was not having the best time in PHYS 121. It felt like high school Newtonian mechanics but significantly harder (probably because that's what it was), and usually not the stuff people go into physics for. I recognize most physics enjoyers also didn't love 121, and there's absolutely a timeline where I'm still doing physics and enjoying it. But 145 was so different from anything I'd done in math before. Working with rings and groups and finite fields was so unlike math I'd seen before, I fell in love. So MATH 145 was the catalyst for me.

__INIT__: WHAT'S YOUR LEAST FAVOURITE THING ABOUT PHYSICS?

More a fault of mine than physics, but I struggle in converting word problems and scenarios into the relevant equations to solve. Big props to people who are good at physics.

CERRY KARPENTER: IN WHAT ORDER DO YOU CUT YOUR FINGER NAILS?

I've never thought about it before but I guess pointer to pinky and then thumb on left hand, and then same on the other.

POPCORN ROCK EATER: ANY TIPS FOR LEARNING BASS? I'VE BEEN FOOLING AROUND ON MY DAD'S BASS BUT I'D LIKE TO GET MORE SERIOUS ABOUT IT. WHAT DID YOU FIND HELPFUL WHEN STARTING OUT?

To be honest, I'm the worst person to ask. I do not practice regularly. I started playing when I joined my 7th grade band, and found it fun, but wasn't super engaged since it was orchestral style and not really what I wanted to play. I also didn't own an amp for the first few years and was only able to practice at school. Now I mostly just learn songs I like for fun. I'd say don't do what I did. Try to practice regularly, a bit a day is good. Exercises are important, scales and rhythm and such, break bad habits early so you don't have to years in like me. Plenty of good content online and channels on YouTube.

CUTLET: WHAT'S YOUR FAVORITE GREEK LETTER? (HINT: GIVEN YOUR EDITOR NAME, THE ONLY CORRECT ANSWER IS "λ".)

ξ, lowercase xi. It's like ζ (lowercase zeta) but cooler.

CUTLET: WHAT'S THE BEST PART ABOUT ALBERTA?

Declaring possible conflict of interest as I am from Alberta. Has to be the nature. Banff and Jasper national parks are gorgeous, and I love going to lakes and on hikes and such. The mountains are also very cool. Just a very pretty province in my opinion.

CLASSIFIED: WHAT IS YOUR OPINION ON ANCHOVIES AS A PIZZA TOPPING? YAY OR NAY?

I have never had anchovies in any form actually, and I'm vegan so that will continue to be the case ideally. Every time I have had anchovies, I have enjoyed them. Vacuous yay.

HYPERLYNX: WHAT'S YOUR FAVOURITE "SHE X ON MY Y TILL I Z" JOKE?

She generate on my element till I cyclic.

CUTLET: HOW LONG DID IT TAKE YOU TO ANSWER ALL OF THE QUESTIONS IN THIS mathASKS?

In total, I think 3-4 hours over a few days.

BANK OF CANADA REINTRODUCES THE \$1,000 BILL MAKES PAYING RENT "MORE CONVENIENT," SAYS MACKLEM

OTTAWA, ON—Tiff Macklem, Governor of the Bank of Canada, unveiled the design of a new \$1,000 bill to make its way to Canadians' wallets this fall.

Previously, the \$1,000 note was in circulation from 1935 to 2000. In 2001, the Bank of Canada ceased printing the denomination for concerns that it was used in money laundering operations.

"We're not so concerned about the bill being used for nefarious purposes anymore," explained Macklem: "inflation has made this a necessity for Canadians to pay their bills."

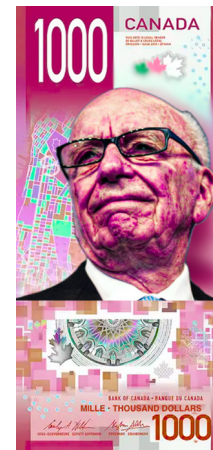
Indeed, when the \$1,000 bill was withdrawn, it had the purchasing power of \$1,700 today. A thousand dollars in Canada nowadays would have bought only \$588.50 worth of goods in the year 2000, a 41% decrease in value due to inflation.¹

"I look forward to the new bill," said local landlord Will Leasly. "I'm tired of having to count out twenty or more bills each month from my ingrate rentoids. They always try to swindle me by 'forgetting' \$100."

"A lighter wallet will improve my life," mentioned local trucker Miles Lane. "It'll make the pain of emptying it at the gas pumps a few seconds shorter."

Depicted on the bill is Arthur Irving, an esteemed Canadian small business owner who passed away earlier in May. He was the owner of Irving Oil and ruled the province of New Brunswick from 1992 until his death.

"Canadians can expect to pay their expenses with the new note as soon as September," promised Macklem. "We're ramping up the printing presses here at the Bank to record levels."



easyyyy

1. Not satire: <https://www.bankofcanada.ca/rates/related/inflation-calculator/>

REVIEWING ALL CAMPUS BUILDINGS AS STUDY SPOTS, PT 2

ENGINEERING EDITION

Hello again! Alas, I've reached the engineering stretch of my plight, but we prevail.

DOUGLAS WRIGHT ENGINEERING (DWE)

I couldn't find any actual designated study spots, so I scrounged and claimed an empty classroom on the third floor. On the walk up, I noticed many a biohazard sign; I guess engineering lectures were in session. The room I studied in had a surprisingly nice view of CMH, a remnant of the past (last year). To see (one of the) newest buildings on campus from inside of the oldest building on campus felt warm.

ENGINEERING 2 (E2)

Yet again, were my study plans thwarted ☹️. I tried to enter a computer lab, but I was denied entry due to my affiliation with the Math faculty (I am not in Civil Engineering). And yet, there are those who wonder why I yearn for a Math-only DC library... Instead, I studied next to a piano which quite nice. Many students played (or tried to play) said piano which was uplifting in my time of need. I've been inspired to listen to piano music whilst studying.

ENGINEERING 3 (E3)

A terribly odd building. If you take a walk through the backrooms, you'll find that E3 connects to DC on multiple levels (woah!). There's a funky green computer lab on one of the many basement levels, but I did not study there due to personal reasons.

ENGINEERING 5 (E5)

So!! Many!! Windows!! This building is moderately reminiscent of a cardboard box from the outside, but at least this provides for ample views. That being said, you can faintly hear the blaring bells of the ION at any given moment, which is cool. What's even cooler is watching UW students run frantically across the ION crossing when the barriers are coming down, potentially risking their lives to save a solid 45 seconds. We've all been there.

ENGINEERING 6 (E6)

Another engineering building. I don't have much to say about this one. Yet another spectacular bridge coupled with solid architecture. Sometimes the wooden group tables on the upper floors seem to disappear and I don't understand why. Can the engineers not afford to keep them there permanently?



ENGINEERING 7 (E7)

A lesser known silent study lies here (silently). So does an inferior Coffee and Donut shop. Eng CnD (E7 edition) may not have coffee for \$1.10, but it does have those Greek spinach-cheese pastries which are delicious. Math CnD please take notes.

headphones97

N EXOTIC DRINKS AVAILABLE AT FARAH FOODS

OR HOW I LEARNED TO STOP WORRYING AND LOVE ASPARTAME

1. Skittles Soda
2. Green Tea Canada Dry Ginger Ale
3. Reese's Pieces Iced Coffee
4. Warheads Soda
5. \$8 Starbucks Coconut Milk Drink That Doesn't Taste At All Like Coconut
6. "Thumbs Up" (Bootleg Indian Coke)
7. Baskin Robbins Sorbet-flavored soda
8. My harvested hopes and dreams in liquid form
9. Oreo iced coffee
10. Many energy drinks with amounts of caffeine that should be illegal
11. Loop Fruit Soda infused with with David's Tea Earl Grey
12. Please just one more chance
13. Black Cherry Canada Dry Ginger Ale
14. Toxic Waste Soda
15. Welch's Grape Juice In A Can With Even More Added Sugar I think
16. I know I can do better (from concentrate)
17. Pokemon soda (several varieties)
18. Hershey's Chocolate Slushes
19. Some Hard To Find Prime Flavors i.e. Logan Paul Juice
20. Water

BONUS TERTIARY MICRO-ARTICLE: REVIEW OF DYING MY HAIR

I dyed my hair orange and it looks very good. A day later, a random person at Square One complimented me on it which was nice because I cannot ever recall being complimented by a random stranger over my looks. I highly recommend doing it regardless of your gender.

epic_waterman

A PUN (PART 3/6)

STARTED ON P28 OF 155.1, CONTINUED FROM P37 OF 155.2

“Wait wait wait wait wait,” I said. “So the plan was just to induce mechanical Ferris wheel failure? After this operator guy died, what was the plan to even ensure you were next in line? Were you planning to keep killing off new operators until it was eventually your turn?”

“Does seem like, if you step up and miraculously the Ferris wheel’s working again, everyone would figure something was off,” Steve added.

Mark nodded. “Yeah, Bethany had already planned ahead on that front. She had me enrolled in the required training to become certified in the operation of Ferris wheels. That way I’d be the obvious choice as successor. We kept it on the down low so as not to make a stir, but in the aftermath of Danno’s death, no one else jumped at the opportunity provided by the vacancy, so I was the sole applicant anyways.”

“Well,” Steve asked, “did it work?”

“Perfectly. After we’d sabotaged it, the Ferris wheel needed repairs, and the time it took to fix it was the exact time I needed to become completely certified. As a bonus, the downtime just served to increase demand for the Ferris wheel. By the time it was back up, we had our longest lines ever and I was all too happy to operate for ‘em.”

“And what happened with the mechanics you framed?” I asked.

“That was the best part,” Mark replied. “They couldn’t handle the heat. We woke up the next morning to find the maintenance van gone. Over the next couple days we heard they’d gone to Adelaide. Most of us already had gripes with maintenance cause stuff at the fair never ran properly, but Callum and Don fleeing served to condemn them in the minds of most of the staff. Of course we had to get a couple new maintenance guys, but finding people who are self-sufficient and good with tools out in these parts is pretty easy.

“So we resume travelling. Every other night is a new outback town and you gots to remember, for these people we are the only entertainment they can get for the whole year, hell, we’re practically the only new thing they get to see all year, so we are kind of a massive deal. Now, the nature of traveling outback fairs is to be scuffed, but things definitely took a turn for the weird after I started on as Ferris wheel operator. For one thing, the basket that replaced the one I sabotaged kept garnering complaints. People complained that it felt shaky and uncomfortable, unclean, but most of all they complained about hearing rattling—feeling like the basket was loose. Every new town—no matter how much we tightened those bolts—people wouldn’t ride in that one car, so in the end we had to retire it. Sucks for capacity, but more than anything it looks plain weak to send the empty car around every time.

“There’s some other stuff too. A week into my tenure, one of the llamas at the petting zoo mauls a kid trying to pet it. It

crashes right through the fence in the process. Also, our new mechanics were pretty good, but rides and attractions seemed to break more often. Food at the stands went bad way more than it used to and, above all, people just seemed to stay away.”

“Hold on a second,” I interrupted. “Wouldn’t people be staying away because of the kid getting injured by the llama?” “Oh, the kid wasn’t injured,” Mark replied. “He was dead as a doornail. That llama completely thrashed him, ripped his face right off. We had to put it down, but we didn’t manage to shoot it before it got the kid. Regardless, have you guys heard about this incident?”

I looked towards Steve.

“Not much news makes its way out here,” he said.

“Exactly,” Mark said. “Towns like these are our prime demographic for that very reason. Nobody gives a shit about anything that happens on the outside cause they don’t even hear about it. They could drop an atomic bomb on Melbourne and the northern half of New South Wales wouldn’t even know.

“There’s no way one kid dying would affect us to the level we were seeing. We had to get rid of the llamas cause they were attacking each other: at least one of them ended up cannibalised. The only animals available to replace them were cows we got from nearby ranches, but those required a whole lot more food and upkeep, and we got the old lame ones since farmers wouldn’t sell their prime cows at a price we could afford. And then nobody was interested in petting the cows since half of who came to the fair were ranchers anyways.

“And things still got worse, worse than the food rotting in the fridges, worse than the frequent technical issues, worse than the low attendance, worse—even—than the killer llamas. I think a couple people started to get suspicious. Banner, the new maintenance guy—someone we’d sourced from a tractor repair garage—seemed to find it odd how much the one basket on the Ferris wheel was acting up. Duffy, the guy who ran the duck shooting gallery stationed right across midway from the Ferris wheel, saw me trying to fix that one damned basket every day. I noticed him taking extra precautions—double and triple checking the air rifles. Even as I tried to ingratiate myself to him he seemed guarded, and he never left his stand. Now, almost everyone was still convinced that Don and Callum’s incompetence had done Danno in, but I could never shake the feeling those two paid extra attention to my every move.”

To be continued.

A COMPREHENSIVE COMPREHENSIVE REVIEW OF SHAWARMA IN WATERLOO PT. 1

AMERICAN SHAWARMETHEUS

J. Robert Oppenheimer: We're building this [Shawarma Article] to end the [Shawarma Article], all [Shawarma Articles]. Once they see what we've done, they'll never fight again.

Edward Teller: And what if they don't? What if they build a bigger [Shawarma Article], an even more devastating weapon?

Reading **mathNEWS** 155.1, I came across the article [A Comprehensive Review of Most \(Decent\) Shawarma in the KW Region](#), by *epic_waterman*. The article was quite well written and introduced me to 4 new restaurants I would not have known of otherwise. However, the article made a bold claim. It said that it was a *comprehensive* review. This claim kept me up a night. Was it possible to go to every shawarma place in the Regional Municipality of Waterloo? Could this review cover every place that had been previously covered in the countless Shawarma Review articles published in this hallowed journalistic institution?

An idea then came to me. What if I aggregated every Shawarma Review article in the history of **mathNEWS** and made a truly *comprehensive* review? I am surely the most qualified. I am majoring in the statistically rigorous science of Geography, and cannot take more than 2 lines of hot sauce on my Lazeez.

I combed through every **mathNEWS** article which contained the word "Shawarma" (or "Shawerma") and recorded the names and notes of interest of each establishment (quoted with its author and issue). To fill in some of the gaps, I interviewed some current writers to give their perspective on locations only covered by one article. The reviewed *shawarma hubs* were then sorted into 4 categories; Mystical Chain Shawarma, Forgettable Shawarma, Standalone Shawarma, and Lazeez. Reviews without number rankings are included, but were frowned upon for not quantifying every facet of the human experience. Due to the enormity of shawarma in the **mathNEWS** canon (as well as the draconian word limits), this article will be split into two, much like the **atom shawomb**. Without further ado, here are the results:

LAZEEZ

J. Robert Oppenheimer: I don't know if [Lazeez] can be trusted with such a weapon. But I know the Nazis can't.

A comprehensive Shawarma review cannot start without Lazeez. For many it is the gateway drug into this world, and like drugs, it can sometimes come with devastating consequences (for one's insides). Even in **mathNEWS**, Lazeez was the first step into the **shawarmaPOSTING** that exists today. On March 27th, 2020, in one of the first shawarma reviews, *this_is_sarcasm* stated, "A terrifying new disease has been discovered, originated from Waterloo, Canada. The disease is being called the SWRMA-69, and is believed to have originated from a

local restaurant known as "Lazeez" (142.6). The great *epic_waterman* just simply gave it a middling 5/10 score with no explanation due to its ubiquity (155.1).

Yet, despite the bad rap Lazeez gets in the general UWaterloo populace and these initial articles, if one only read the totality of **mathNEWS** reviews, one would realize what a wonderful place it is. In 147.3 **methNEWS** defended the establishment, saying, "A popular joke is calling Lazeez a "shawarma restaurant," and if you've never been you might believe it. But it's actually short for la zone maleeze, and it's an exquisite French restaurant right on Columbia Lake". In 150.1 President Vivek Goel himself even said "the shawarma with many lines is the most recommended for optimal nutrition." They even offer a very generous scholarship from their founder John Lazeez in **mathNEWS** 148.1.¹

Despite its prominence, correspondents *Shawarmaphia* and (*Pomegranate*) *Molasses* have not yet been. *Pita Love Math* noted that they use far too much sauce and have bad vibes. (*Pomegranate*) *Molasses* seconded this by sending me the Lazeez countertop foot video.² In my visits, I have definitely not been blown away, but when I want a high calorie meal and no regrets about what will occur after, it definitely does what it is tasked to do.

STANDALONE SHAWARMA

Edward Condon: Why would we move out to the middle of the desert for two to three years?

Leslie Groves: Why? How about because this is the most important fucking [Shawarma experience] in the history of the world!

Standalone shawarma are the one-off locations where people make shawarma not for profit, but for love™. The locations in this category probably are the best shawarma in this article. However, their locations are varying degrees of inaccessible from campus, making more than 1 review for each of these locations rare. *epic_waterman* did a great job of visiting a lot of these far-flung locations in 155.1 and 155.2. On this voyage, they visited Zay Zaman, 1001 Nights Shawarma, Highland Halal, Four Seasons Shawarma, Phillips Shawarma, and Sultan's. Zay Zaman, 1001 Nights, and Sultans got exceptionally high reviews, with praise for Zay Zaman's great sauces and bread, 1001 Nights' tender chicken and more refined feel, and Sultans meat and vegetable quality.

The one Standalone Shawarma location that has many opinions about it available is Foreign Shawarma. For full disclosure, this is the shawarma place I most frequent in the Regional Municipality. I think the chicken wrap never disappoints me and it's decently priced, although the fries leave something to be desired. *epic_waterman* scored it an 8/10, and really enjoyed both the seasoning and the poutine (unlike me). (*Pomegranate*) *Molasses* described Foreign Shawarma as

a “wonderful place to stop after grocery shopping [at Food Basics],” however they found the interior a bit dull. In my experiences, I have found the interior, which consists of bland walls previously painted for whatever business came before it, interrupted by one large Group of 7-esque painting, to be kinda fun in a way.

The comprehensive Comprehensive Review of Shawarma in Waterloo will return for Part 2.

Lazeez Nootbaar

1. Accessible at <https://johnlazeez.com/#apply>
2. https://www.reddit.com/r/uwaterloo/comments/z0j3xd/where_lazeez_gets_their_spice_from/

SPEAKING MY TRUTH: AFM IS THE HARDEST MAJOR AND IT'S NOT EVEN THAT CLOSE

Everytime a groundbreaking truth comes to light, delivered to crowds who rely on their continued ignorance for their own bliss, the messenger becomes the target of hate and backlash. I'm ready to withstand that if it means illuminating the masses. The truth shall set you free.

As you probably guessed from the title, I'm an AFM student. I am not in Math. I know, I know, business student, with our fancy suits and frequent showers. But we also have to go through a harder program than those in Mathematics and, I would wager, any other program at the University of Waterloo. Before I get into any hard evidence (and I have plenty), I'll share some stories.

When I was in 2nd year, during Fall 2020, I had to take AFM 273. It's arguably the hardest course in the world. So hard, in fact, that Math students need their own—no doubt easier—course in similar material, such as AFM 272 or ACTSC 291. The same rings true for other courses in AFM needed by Math students in a finance-adjacent field of mathematics. However, they are ill equipped to handle their rigour.

Anyways, in AFM 273, the first midterm was 77 questions to be completed in 60 minutes. The professor simultaneously told us that we would not be able to finish on time, but also that we should finish 5 minutes early to check over our answers. It is precisely this logical contradiction which Math students can not begin to comprehend, since any deviation from the internal consistency of mathematics is sure to destroy their sense of reality.

The second midterm¹ had an average in the 20's, with multiple classmates of mine in single-digit percentages. Going back a few years' worth of crying threads on Reddit about Math, I don't see anything this bad. Even in the infamous “Inside Out” generation of MATH 137 students, I don't see scores of people with such terrible grades.

Now, I know what you're thinking at this point. What does this guy even know about the difficulty of Math courses? Chances are, more than you know about AFM courses (unless you're a Math/CPA student). Most notably, I've taken MATH 137 and 138. Among everybody I know who took both of the flagship 1A courses, MATH 137 and AFM 101, everybody does better in calculus. I personally had the largest discrepancy, scoring 25% better in MATH 137 than AFM 101. I'll admit that

I took it as a 4th year, but what does that matter? If anything, it's been even longer since I've done calculus, and most of the concepts have fully left me apart from what I used in econometrics and finance here and there. Delta-epsilon proofs simply fall short in the face of the behemoth that is balancing debits and credits. Taylor approximations in 137 and 138 are child's play when compared to depreciating an asset and selecting the method to do so. Don't even get me started on AFM 291 and 391. I'm convinced that only graduate-level stochastic differential geometry can compare in difficulty to intermediate accounting.

And when it comes to statistics? Data analytics courses within AFM are ridiculously hard compared to those in Statistics and Actuarial Science. In the first quantitative finance course offered, AFM 323, all the work is either done by hand or through Excel, where you actually have to do the formulas and modelling yourself. In STAT or ACTSC courses where the focus is on financial modelling, everything tends to be done in R or Python, which is essentially cheating since the computer is doing everything for you. Additionally, the visual fidelity of Excel outputs is simply gorgeous, much better than the TeX garbage that is pushed upon Math students. This gives AFM students mastery over not only numbers, but pictures—well known to be worth a thousand words. In other analytics courses, projects for course evaluation are directly inspired by Kaggle, where we are thrown in with the wolves and competing with the big dawgs of the world of machine learning, while Statistics students are sheltered away from these projects to protect their self-esteem.

Overall, I think I've presented sufficient evidence of the academic rigour of AFM, and the struggles that we have to go through. The next time you see someone in AFM, give them a salute and a round of applause, because chances are they are braver and stronger than anybody you know. As mentioned in my introductory paragraph, I am aware that this piece will stir some unpleasant sentiments among the unenlightened. Such reactions are understandable. I welcome rebuttals, but please only do so if you scored higher than 88 in MATH 137, as that was my score, and if you didn't even score higher than me, that's just proof that AFM is harder.

MathIsTooEasy

1. Which was so difficult I couldn't even wake up in time for it.

THE FIRST DAY I WAS FINE

Hello my darling, my delight, my dove,

Sometimes things don't work out. Sometimes they do. I wish they did, but ultimately it was up to you.

It's Friday night and life is getting good again. Simple joy can be found through the clouds in the sky. It's time to get back to living life which means it's time for another... H00ters review!!

This time I am coming to you from the luxurious downtown Toronto! This H00ters is the easiest to get to for anyone who wants to play along! It is a mere 15 minute walk from Union Station. On this expedition I took a local expert with me. And truly I do mean local. This H00ters was reviewed by myself and my friend Ben who lives across the street from the H00ters. Can't get more local than that. Every day he wakes up and walks past it on his way to work. He is haunted by it. He has only ever been twice.

DENIAL

All H00ters in Canada have a unique architectural element, whether it be a secret gambling den or many stories. The Toronto one is no exception as it has a delightful ✨ Rooftop Patio ✨.

It was closed.

It's fine. I can still have a lovely time at H00ters without the patio. I'll sit inside instead.¹

The floor is wood, the table is wood, the walls are wood. The ceiling does not exist and instead you are greeted with industrial chic rafters and air vents entwined with Christmas lights. The tops of the walls were lined with different teams' football helmets at the height where the ceiling would start (if it existed). Other sections are adorned with a delicate mixture of TVs, sports memorabilia, and kitschy signs. During my visit, almost all TVs were playing the same Blue Jays game. It was a beautiful harmony that deeply contrasts the lunchtime atmosphere. The signs at this H00ters were unique to others. They were cream coloured background with jokes painted on with classic brown and muted orange lettering. This H00ters is definitely a sports bar first.

An alarming decoration is the printer paper signs on most walls urging "no taking photos of the staff without their consent."

I catch myself through the week still referring to you as my partner. It takes some time to get used to the loss.

ANGER

This menu differs from other locations. It is the smallest by far. Some pithy comments were kept in the food descriptions like "Technically it's still a salad." Otherwise it was devoid of

personal touch. Despite the menu size, Snow Crab is back! It is market price. Interestingly, the menu only had the location and phone number for the Niagara Falls H00ters.

We came here with the express purpose of getting a pitcher of beer. We got waylaid looking at non-beer items. What is the "purple H00ters shooter"? I am so curious. Even curious-er, the beer didn't have prices. Our waitress had to go back and ask the bar how much a pitcher was.² We got a pitcher of Alexander Keith's to get a real authentic beer experience.³ Halfway through the pitcher of beer we decided on a "Teaser"⁴ to sample.

I go over our argument in my head and during my walks to work. I come up with witty replies and counter arguments. But none of it will bring you back. None of it will take back what you said to me.

DEPRESSION

After nigh on hours examining the sections, we decided on a dish called "lots-of-tots": It is just a pile of tater tots with nacho cheese, bacon bits, sour cream, and green onions. It is a food that sounds great on paper, but in reality is a shit show. How you could fuck up tater tots? Well...

It was impossible to properly stab a tater tot and it would fall apart on the journey to my mouth. It gets onto the table and liquid cheese is everywhere. Or worse, on your shirt. A saving grace my companion remarked upon was the bacon bits looked surprisingly real! And indeed I think they were somewhat real food. As real as any food is from H00ters.⁵ Interestingly, they don't give you napkins with your food. Instead, every table has a roll of flimsy unperforated paper towel. It's like they just expect you to get wings and make a mess.

I cried so much. I stared off into the distance and spiralling through my mind, thinking of how empty I feel now that I am alone.

BARGAINING

We talked about boats a lot and wondered. There is so much good food in this neighbourhood? Why am I here?

Why go to H00ters ever?

The same reason why I do anything:

Why not try?

You said "get out." That doesn't mean it's over over. And like, maybe we can make things work. Maybe maybe maybe I can give up on my beliefs and convictions then we can ignore together the cruelties of the world... Maybe if I hurt this much then you are too... Maybe in an alternate world we could have worked out.

ACCEPTANCE

When you get drunk at H00ters, it all falls away. You ignore your bizarre surroundings and it becomes regular. I was at a regular sports bar having a regular beer with my friend. We talked about work and summer plans and everything is fine.

A lull in the conversation breaks the spell and it all comes crashing back. I take a moment to look around. I see people posing with the waitresses and tacky signs everywhere.

And you left me.

Sorrow twists and turns and plays through the stages of grief. Even in “acceptance,” a moment comes when you are struck. A sip of coffee you want to share or an empty set on the subway that you wish was filled. Instead, things remain empty. I have to become fuller instead.

I’m better now, I just wanted to tell you about the first day I was fine.

rockfacts

1. rockfacts lore: I went to this H00ters before last summer and we did drink beer on the upstairs patio. It is really nice tbh I love a rooftop patio. It even has a rooftop bar.
2. 21.49 plus tax
3. Without getting awful beer like bud light
4. real fans know H00ters call their appetizers *teasers* to keep things light and fun
5. Allegedly it is all real legal food. I checked the city of Toronto health inspection website and it was inspected earlier in the day! https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/food-safety/dinesafe/#infracton_details/9007081/0

PSA: USE PREFIX, NOT POSTFIX

It’s just about two hours into running my office hours, and a last straggler comes in asking for help. My eyes are worn and sore. The student tabs away from LeetCode and shows me their work on their assignment. I do a quick scan and, pulled as if by a gravity well, my eyes lock some onto misfortunate code resembling this:

```
for (int i = 0; i < n; i++) {
    // ...
}
```

They don’t know. *They don’t know.*

Immediately, I’m overcome with an urge to *shake* them and ask them where it all went wrong. Who taught you to do this? **No one** did. If you had any sane instructor for CS 136, they would’ve shown you `++i`, *never* `i++`. In CS 246, they *definitely* use `++i`—I know because I’ve been course staff for a few years.

If you don’t already know, let this serve as a PSA: when choosing between `++i` and `i++`, **always** choose `++i`. Here’s the difference between the two:

- `++i` increments the value stored in `i` and returns a reference to `i`—evaluated, this would yield the value of `i` after being incremented.
- `i++` increments the value stored in `i` and returns a copy of the value stored in `i` *before* being incremented.

So, if you set `i = 3` and then print out `i++`, it’ll print 3 instead of the probably-more-sane 4. Either way, I’d wager most people use the `++` increment operator almost exclusively for its side-effects, treating it like a **void** function—I’ve definitely graded my fair share of exams which mistakenly treated it this way—so it’s not a *huge* deal in most cases. I think there might be a slight performance boost from using `++i` (something to do with caching), but I don’t really care about that since it

won’t matter for programs which aren’t performance-critical. The real problem is that, in the off chance that someone *does* finally decide to use `i++` for its value, there’s a pretty good chance they won’t know about this little quirk and hence birth a new bug then and there. There *are* some cases when you’d want to write `i++`, i.e., when you specifically want to read the value of `i` *before* incrementing it, but I guarantee that this is *not* what you want in over 99% of all cases.

Where *do* people learn to write `i++`? *Is it because they called the language C++?* [Editor’s note: *nobody* asked me, but I think it’s because `++i` looks kinda weird and in any case they’re both silly and the real best notation is `i += 1`.] I don’t have any hard data for this, but I suspect it’s because of the myriad shitty programming tutorials online. For some reason—probably self-perpetuating—most online tutorials use postfix increment without ever mentioning prefix increment. Seriously, if you look up “JavaScript for loop” on any reasonable search engine, the first few results will be some half-baked snippets that use `i++`. Most people in CS probably have at least some nominal exposure to programming prior to starting, which is probably where they pick it up. Either that, or they pick it up from an overconfident friend who tells them it’s better to use postfix.

So, if you’re reading this: as one of my last dying wishes, please, *please* never ever ever ever use postfix increment. Yes, I know it hasn’t introduced a bug yet; I know it doesn’t matter right now. I don’t care. Your overconfident friends are wrong. It *will* matter someday, and you will create a bug and you will be sad about it. Be a good programmer and write `++i` instead—at the very least, you might make one of your TAs happy.

24 HOURS IN UWaterloo: 8 AM TO 2 PM

CONTINUED FROM THE MIDNIGHT - 8 AM SEGMENT OF 155.2

9:00 AM

“Good morning!” Nasirah says, sunny as ever. Claire has no idea how she does it every day, wake up at 7:00 am and not be tired. Not like she is. “Morning.” She replies, voice as drudgy as ever. Was that even a word? Whatever. The manager was already off on the phone, ordering some more milk since they ran out.

Wait, they ran out?

Claire slowly turns towards the mini fridge, opening it. Soy milk, oat milk, chai concentrate—that wasn’t milk—almond milk. Oh boy. Time to face the upset crowds who all wanted ‘normal milk’, not her fault they ran out of 2%.

“Sorry, we’re out of milk.” She says to the older man who filled his thermos up with coffee, a loonie in hand.

10:00 AM

“Sorry, we’re out of milk.”

Well, Lionel expected as much. The day had been going so well, too—his class just ended at 9:50, so like clockwork, he’d head down to the coffee shop to get his fill before office hours at 11:00 am. He always got it with sugar and a heavy dose of normal milk, but Claire just shook her head.

“That’s okay, what milk do you have?” From the options—oat, almond and soy milk—he wasn’t a fan of soy milk, and he was allergic to nuts—but he’d never had oat milk before. Well, no time like the present—and to his surprise, while it *did* taste different, he wasn’t too opposed.

He sits back in his chair. He already knows who’s going to show up at the door when the clock strikes. There’s a knock.

“Professor Longley!”

11:00 AM

“Professor Longley!”

It wasn’t really Mateo’s fault Professor Longley was his favourite. After the pandemic, he never really got to know any of his professors, and the moment it came out, he’d selected all in-person classes. Longley was cool—he let the third years fly drones, explore the campus, map stuff out—and he was great to talk to! Of course Mateo would suck up to him if it meant he could potentially get a research position with him.

“Um, Mateo.” The professor interrupts. “I think someone else would like their turn.”

Has it been an hour? The clock’s reading 12—and he blushes with embarrassment as he realizes he’s probably yapped this

guy’s ear off for the good chunk of an hour. He nods, says his goodbye, and to the girl at the door, offers a sheepish ‘Sorry’.

12:00 PM

‘Sorry’.

Xiao Jingyi was wondering when this guy was going to be finished. She wasn’t *too* pleased she had to wait 30 minutes, especially when this guy didn’t have a pressing question about the next assignment like she did. Or maybe he did and things just got out of hand. Apologies? Really?

Oh well. It’s her turn now. Turns out Jingyi spotted a pretty glaring error in the assignment—flustered, Prof. Longley profusely thanks her as he sends out a LEARN announcement to update her classmates.

Satisfied with how the visit went, she exits the building and makes her way to Hagey Hall for her next class, passing someone with a bright pink jacket. It looks a bit flashy—but to her, it’s pretty nice. She could never have the confidence to pull something so bright off. The girl brushes past her without a second thought. There’s only one thought on Jingyi’s mind.

She’s so cool.

1:00 PM

She’s so cool.

Ha, yeah *right*. The girl who passed by her looked near flawless, hair perfectly cut straight and clothes so neat and modern, not like Aliana’s out-there fit. She feels so exposed, even when she’s wearing two layers.

It’s been a new thing she’s doing. Getting creative with her outfits, having to put so much effort in when there are people who wake up with clear skin and nothing weighing on their mind. It’s been so hard to look in the mirror and finally be satisfied, somewhat, with what she’s chosen.

Crossing the Arts Quad, she passes the massive cube-like structure of Dana Porter Library, turning left at STC to go up Ring Road to MC. Her stomach’s growling—she can almost envision the samosas in the MC&D rack, the smell, it takes her everything not to run up the stairs, but the moment she gets there, she comes to a realization.

There are no samosas left.

2:00 PM

There are no samosas left.

Does Beck feel bad about taking the last samosa? Of course not. He’s been waiting for this all day. He literally had a class

go from 10 to 1, lunch is a *luxury*. Not his fault if anyone else is too slow.

He goes along the fridges and shelves, nabbing a can of soda. The whole thing doesn't ring to more than \$5, which he fishes out at the counter. By the time he gets to the booth, his hands

are shaking, head feeling light from hunger pangs or low blood sugar or—whatever it was called. He sinks his teeth in and makes an “Mm” of relief.

Skit

MY FIRST BITE OF BURGER KING

On June the Sixth, I experienced a Burger King Whopper for the first time. I never ate much fast food growing up. My parents weren't strict about not eating fast food (though I don't believe they were particularly thrilled about the idea either) and so that kind of food was foreign to me. At seven I begged to try a Happy Meal. When I finally bit into that tiny burger, the pickles which adorned it were both slimy and unexpected, and these factors alarmed me to the point of tears. It's tough being an undiagnosed autistic kid. The world turns overwhelming in an instant, and you know neither why this happens nor how to face it.

My first bite of Burger King was, I must admit, heavenly. I love to cook. I pride myself in my skill at it. But something esoteric must have happened in the Burger King kitchen on that cool June night. I've had phenomenal burgers in my life—bison, elk, blue cheese and brie—and it was unsettling how close to those illustrious heights that the bacon and cheese Whopper soared. As I chewed on the last bite, a tantalizing thought entered my mind: “I want another.” This impulse, or rather the emotions surrounding it, would plague me over the next three days.

For the past few months, I've been doing Exposure and Response Prevention Therapy for the OCD I've been experiencing since I was fourteen, and though I still struggle with it and have far to go, I'm proud of the strides I've made in addressing my obsessions and the compulsions I wasn't even aware I had. I've learned that Moral Scrupulosity underpins all of my other OCD themes. This is an obsessive fear of acting, or even thinking, in ways that go against my moral compass. In essence, I am obsessed with whether or not I am a “good person.” To my surprise, this moral obsession somehow latched onto the very concept of having a second burger.

I know this is rather silly. Nothing was physically preventing me from putting on my shoes, walking down the street, and purchasing another burger. And yet the thought of doing just that sent my mind spiraling. I simply could not allow myself to get a second burger because... well, there is no coherent reason for why not. OCD preys on fear and guilt and shame and extrapolates these feelings to the point of irrationality. Over the following three days, my “rationale” for fast food asceticism orbited around vague ideas of “fast food is bad for you” and “overconsumption of fast food is a personal moral failing.” The first statement lacks nuance; the second is plainly untrue. I knew this. I knew that my visceral discomfort and mental self-flagellation over the idea of getting another burger—not even on the same day as the first, but on the

following days too—had no basis in reality. And yet still it gnawed at me.

This did not prevent me from eating at another restaurant however. Sunday, June Ninth, after purchasing a prerelease pack of Modern Horizons 3 to Winston Draft later that day with my boyfriend, we stopped by an Indian street food restaurant on King Street North called The Sobo which had held its grand opening earlier that day. The food was excellent and well priced, and eating there was strangely invigorating.

My boyfriend and I went back to Burger King that night. Heart pounding, though mind at ease, I purchased two bacon and cheese Whoppers so as to not repeat my earlier mistake of being left wanting. Sitting down at home to eat, I wondered if this would become something of a regular ritual. To my immense disappointment, whatever strange magic had occurred three days prior was gone: the first burger was mid. The second burger also. I will not be returning for another Burger King burger any time soon.

Resident Cuber

DISPLACED: A COLLEGE ADMISSION ESSAY

I want to learn how to say my name. I say it the way my parents say it, the way I'd thought was the right way to say it. But, as I meet more international students, and as I spend more time in online spaces with people of my origin, I hear a distinctly different way to say my name. A way that feels right. Like it belongs. I think there might be two different ways to say the name. Or maybe just one that people here use, and one that people there use. Because why else would every international student say it one specific way, but people here another? Why would they repeat my name back to me in a way different to how I said it to them? Either way, I want to say my name like they do, if only just to myself. It sparks joy. I've tried multiple times to mimic the pronunciation, but it feels wrong. My mouth does not know how to create the same sounds. I feel once again that I do not know my culture.

discrete musings

I LISTENED TO EVERY RADIOHEAD ALBUM

Don't try this one at home unless you want depressive and existential thoughts to plague you for weeks. Not the best experience to have. It's a sign of an amazing band though.

Pablo Honey (1993)—Every artist has to start somewhere. Radiohead started with “Creep,” by far their most popular song, even now. It gained so much traction that the band started to hate it and as time went on, it became a rarity at their live shows, which is unfortunate from a fan's perspective since the song is great. “Creep” is the second track of Radiohead's debut, *Pablo Honey*, and really the only high point, since the rest of the songs are either not as memorable or not given enough runtime to be memorable. However, these humble beginnings would soon be forgotten...

The Bends (1995)—Facing pressure from their label and growing afraid of repeating the “Creep” formula, Radiohead released their follow-up two years later. And it is such an improvement. It was the first appearance of producer and mainstay Nigel Godrich, who takes these already beautiful songs and elevates them to new heights. It's not too different instrumentally; instead, the writing and the actual song structures do the heavy lifting to make this record so impactful. Many of the new ideas explored on *The Bends* would contribute to Radiohead's signature musical styles, growing and maturing along with the band.

OK Computer (1997)—Insert nerd emoji here. Many online music circles consider this album to be the greatest of all time. I may disagree, but their opinions have merit; *OK Computer* is one hell of an artistic statement that has cemented Radiohead as masters of their craft. Every track, including the robotic interlude “Fitter Happier,” is bursting with pure talent and near flawless musicianship. The album itself exists in its own dystopian universe, one that I would say reflects modern-day society fairly accurately, making the lyrics all the more harrowing. Sometimes you just need to destroy your emotions in order to enjoy great music.

Kid A (2000)—The experimentation found throughout *OK Computer* bled into *Kid A*, a complete departure from the band's earlier work. Rather than aiming for straightforward rock music, the album features heavy use of electronic elements and incorporates styles from jazz and classical. It's surprisingly cohesive, despite each song possessing a unique sonic identity. Radiohead have never been afraid to try new things, and this acts as solid proof since they really went all out on the newness: crazy vocal effects, sampling, the list goes on.

Amnesiac (2001)—Sessions for *Kid A* were rather prolific, generating enough material for a double album. The band thought a double album would be too dense, so they split the work into two albums. *Amnesiac* is similar to its predecessor, yet different; simply calling it a B-sides collection would be dismissive. It lacks the flow that made *Kid A* so impressive, but that helps it stand out, especially since it was released only eight months later. It's not necessarily a step down, just a step aside.

Hail to the Thief (2003)—A pretty heavy listen here. This record combines the rock and electronic styles found on previous releases, but what fascinates me the most is the lyrical content, which was penned in response to the election of American president George W. Bush, as well as events like 9/11 and the resulting war on terror. Thom Yorke, lead singer and songwriter, almost softens the topics by including various references to children's literature, although it doesn't provide much comfort, especially when combined with the somewhat ominous instrumental compositions.

In Rainbows (2007)—After a few albums that primarily discussed the world at large, Radiohead returned to the introspective lyricism of their earliest work. Having progressed sonically since then, the music on *In Rainbows* has an unmistakable grandiose quality. This is one of those records that sticks with me for no particular reason; it just sounds awesome. [Editor's Note: *Of course, it's dedicated to all humans!*]

The King of Limbs (2011)—I don't have much to say about this one. The band took an unconventional approach to recording, relying mainly on looping to create the instrumentals. Most of the songs feel rather one-note as a result, never reaching any highs or lows. It's pleasant to listen to, and it's produced well, like any other Radiohead album, but at the end of the day, it's just another Radiohead album. Funnily enough, it reminds me of some work by The Smile, a band consisting of two Radiohead members, who are also worth checking out.

A Moon Shaped Pool (2016)—The most recent record also happens to be the saddest. *A Moon Shaped Pool* features a softer sound palette consisting of drum machines, piano, strings, and choral arrangements. Personal narratives are once again brought to the forefront lyrically. The symbiosis between the instrumentation and the songwriting was enough to move me to tears, so yeah. Classic Radiohead still shines through, evident in the scope of the songs themselves, each taking you on their own little journey. It's hard to articulate; over time, the band has inherited a certain charm, and there's no shortage of it on this record.

Final Ranking and Favourite Songs

1. OK Computer—“Karma Police”
2. In Rainbows—“All I Need” {Editor's Note: *Weird Fishes got robbed smh*}
3. Kid A—“Idioteque”
4. A Moon Shaped Pool—“Ful Stop”
5. Hail to the Thief—“Backdrifts”
6. Amnesiac—“Dollars and Cents”
7. The Bends—“Planet Telex”
8. The King of Limbs—“Give Up the Ghost”
9. Pablo Honey—“Creep”

N FUN THINGS TO DO IN AND AROUND WATERLOO REGION

There is more to life than math. You should leave your house and see that the Waterloo area has fun things to do, especially during the summer. I can not take credit for this discovery, because my mom told me—every fun thing to do in Waterloo every weekend is published on the CBC website by Kate Bueckert in a weekly article called “Kate’s 5 fun things to do in and around Waterloo region: Month name Friday’s date to Sunday’s date.” Here are 5n (n=1) of these events that I either went to or reallly wanted to go to, shamelessly plagiarized from Kate.

1. **Indian Food Carnival:** A Waterloo Square event last weekend with live performances and several food vendors. It was raining but I got to try Pani Puri and enjoy the performances, **10/10**.
2. **Woolwich Expressions in Fibre Traditions (WEFT) Fest:** Fuck that’s so cool. what the fuck. wish I had been in town. **10/10**.
3. **Community duck race in Wellesley:** so intriguing, and presented without context by Kate... She just a linked a facebook page, gifting the reader with a few seconds of wondering about how many people own racing ducks. It turns out it was a rubber duck race and barbeque so I didn’t go, but it looked adorable. **8/10**.
4. **Robin In The Hood Medieval Festival:** I wanted to go but I found out after I already had plans! Never make plans before you hear from Kate. **5/10** I’m bitter.
5. **Summerfest (Tripride):** Fun to see friends, less fun to go to a loud hot field with stalls you don’t want to spend money at. Although technically on her list, I can’t blame Kate for this one—I was going to go anyways. I should have heeded her word and gone to the medieval festival. **2/10**.

This is practical advice: use Kate’s 5 fun things to do in and around Waterloo region! According to Wang et al.’s longitudinal study, “frequent arts participation and cultural attendance were associated with lower levels of mental distress and higher levels of life satisfaction.” Ignore Kate at your own peril.

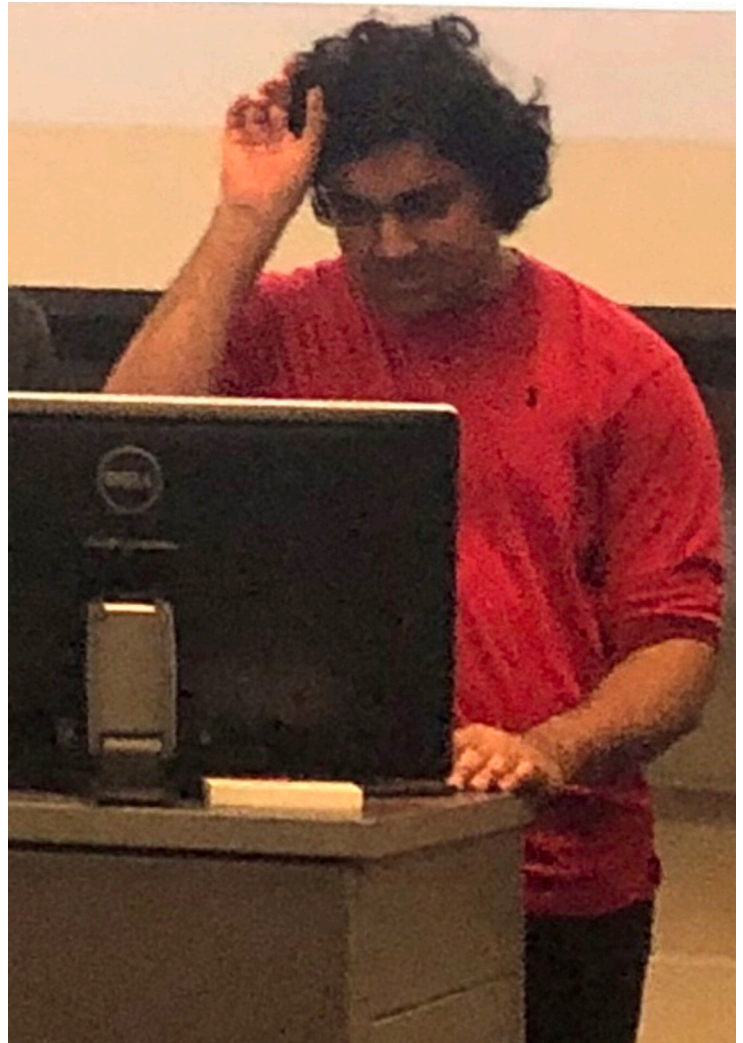
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THE WRITERS WERE CUT OFF AFTER 34 PIZZA SUGGESTIONS

After reaching this record-shattering number of pizza suggestions from the writer base, the editors imposed a firm limit and would not add any more rows to their pizza spreadsheet. But did you know that this restriction is actually a historic **mathNEWS** guideline? Google “**mathNEWS** editors rule 34” to learn more. *[Editor’s note: Surely this won’t go wrong, right?]*



A **mathNEWS** EDITOR UPON SEEING THE LIST OF PIZZA SUGGESTIONS, AND PROBABLY ALSO UPON REVIEWING THIS ARTICLE

hyperlynx



profQUOTES

PMATH 347: STEPHEN NEW

- “ I’m lost.
- “ “It’s a group.” Wrong; you’re stupid.
- “ If you don’t see it, then just think.
- “ So the set of all groups...
- “ These prisoners are not murderers or rapists, they’re student demonstrators. You want to save them.
- “ You can’t say that, that’s illegal, you’re one of the 100 prisoners now.
- “ Mathematicians then had too much power, and they didn’t want all that power.
- “ Somebody has a reason for it, but I don’t know. Ask Wikipedia.
- “ You suppose God exists, you do this [*Editor’s note: what did he do???*], by contradiction God exists.

PMATH 352: MICHAEL BRANNAN

- “ The proof is immediate. [*Thinks about it*] Is the proof immediate?

CO 342: MARTIN PEI

- “ Always go for the curvy ones.
- “ I don’t understand what eigenvalues are.
- “ Everything in graph theory is an edge case.
- “ [*Talking about physics*] If you know, you know.
- “ I copied this from Wikipedia.
- “ These are some kind of things.
- “ I copied this from a book, so it must be correct.

CS 247: ROSS EVANS

- “ Sorry, I am python mode-ing.
- “ [*Compilation takes over 5 minutes*] Believe it or not, this is “minimal compilation.”
- “ Surely controller cannot be included in too many files... huh, controller was included in lots of files.
- “ Maybe my Software Engineering isn’t the best here.

- “ Do any of you guys read **mathNEWS**? I saw someone made fun of the way I say “to-ron-to.”
- “ I’ll just say that again: [*in bad Canadian accent*] Oh no yeah bud, I go to the university of Toronno.
- “ Not many accents I can do without getting into trouble.
- “ You may ask me “Ross—”, ok I won’t do another Canadian accent to bug you.
- “ Who thinks it’ll be this? OK, lots of people... don’t want to participate because it’s a Thursday morning.
- “ A student has never destroyed the university, but the university has destroyed many students.

CS 350: KEVIN LANCTOT

- “ So what we do in computer science is when we have a problem, we blame the hardware people.

ECE 124: ALBERT WASEF

- “ If you stop answering me, I will put this on the exam.
- “ I miss you guys.

BU 231W: KEITH MASTERMAN

- “ Your midterm is June 22nd, remember to dress casual.
- “ I don’t like losing, so keep that in mind when submitting midterm regrades.
- “ Courts generally assume you don’t want to sue your own family. They obviously haven’t met mine.
- “ Suppose I put in my will that I will give each of you \$500— now remember that when you do your course evaluations.

CS 349: KRIS FRASHERI

- “ Make sure you do your Spanish lessons guys. Or the bird might come for you.

STAT 333: STEVE DREKIC

- “ State 2 is kinda like the loner of the party. Kinda like me. You can tell. I kind of just talk to myself.

BU 398: KIM MOROUNEY

- “ *Prof*: What is the purpose of trade associations?
Student: Trade.
Prof: 😊

CS 240: MARK PETRICK

“ It’s much better to use LSD.

CS 251: DANIEL CAO

“ Don’t think critically.

PMATH 441: DAVID MCKINNON

“ Trust me. Or read the notes. Or both!

“ I’m not going to draw that since you saw it in kindergarten.

“ ~This is the number line!~

“ This is hard to see... because it’s 0.

“ There are lots of possible answers. Wolfram alpha is one of them.

“ Only a pure math person would say it’s approximately $2\sqrt{2}$ and not 1 point something.

“ You’re even more of a pure math person if you don’t know what the first significant digit of $2\sqrt{2}$ is.

“ Any questions other than “That’s a very crappy estimate”?, which isn’t a question. So hah!

“ There’s no deep significance to these numbers, because they’re kind of yucky.

“ So we got a 4–1 reluctant here.

“ I don’t wanna give you the impression that all number fields are called K . Some of them are called L .

“ *[Finishes long calculation]* A quantity better known as 0.

“ Isn’t it great that we can just have 4 dimensional boxes and nobody freaks out. I love pure math.

“ Even in MATH 138 they know what this angle means.

“ You got a better picture? Go for it. Can’t be worse than mine.

“ Internal angle 120° , which is about this. *[Stretches arms out]*

“ It’s something you can get matlab to do. And, therefore, isn’t so hard.

“ I said “we”, but I didn’t see you do any work.

“ And then the puck went into the net. Fascinating.

“ We’ll go into more detail later. *[Waits less than a second]* Oh! It’s later!

“ Honestly, if you ever run across a ring that’s not Noetherian, you should call the police. They’re terrible.

“ *[Talking about Shor’s algorithm]* It actually factors small numbers into primes, too, but that’s less interesting.

“ Chinese magic so it’s extra cool.

“ Such obstacles are not lethal to the likes of us.

“ What happens if you divide 7 by 9? 85% of the human race runs screaming when they see this.

“ Something to impress your elementary school friends with.

“ 6 divided by 3 is 2. You came all the way to 4th year to learn that.

“ Don’t try to divide by 0. Bad idea anyway.

“ I would probably be kidnapped by the US government.

“ We’re doing actual math here not movie math, even if movie math is surprisingly accurate.

“ So math is still consistent, no Fields Medal for us. Actually, I’m too old for a Fields Medal.

“ Sweet. We have factored 2. You came all the way to fourth year to do that.

“ It’s beautifully laid out, and there are no problems. Unless your professor is a loser.

“ THIS is why we’ve been doing all this module and integral stuff. Well, this and a hundred other reasons.

ACTSC 231: KEITH FREELAND

“ Today we’re doing continuous annuities. These are difficult for students who don’t show up today.

“ They know their answer is fucking wrong!

“ If you have something that’s easy to calculate and something that’s hard to calculate and they’re both wrong, you might as well do the easy one.

“ You should’ve heard me swear.

**2**

Cannot think or write
Every single place today
Is so fucking cold

N OBJECTS FROM THE WATERLOO MAINTENANCE TUNNELS

MY SOURCE IS A JANITOR I BEFRIENDED

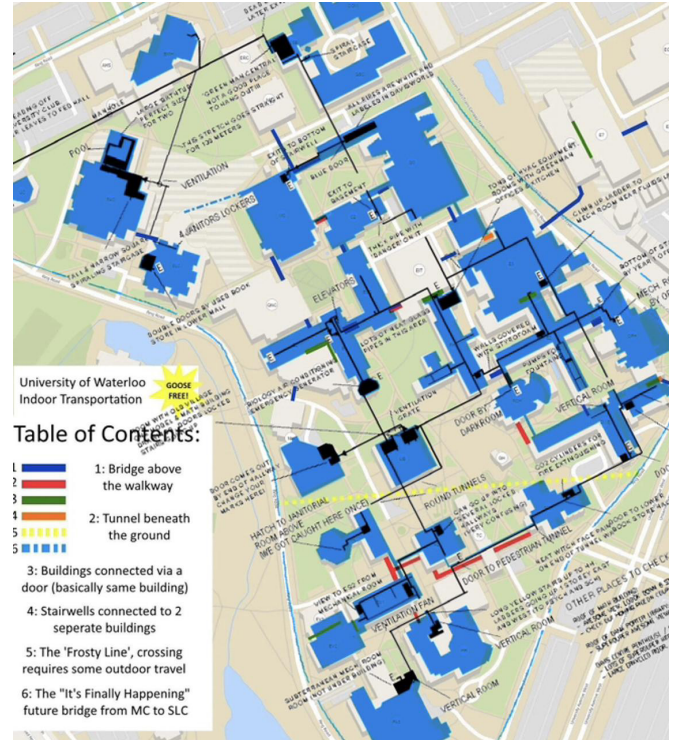
Hello, math and math adjacent ne'er-do-wells. Today I come to you from the deepest corners of perdition to you bearing a list. You've heard of objects from the **mathNEWS** office, so now, get ready for the highly anticipated sequel: objects from the tunnels!

No, not the tunnels connecting HH to EV1 to AL to ML and SCH. And not the decrepit MC-C2 tunnel, either. If you aren't aware, Waterloo campus buildings are all attached by underground maintenance tunnels that house a centralized steam heating system or whatever. To begin my research for this article, I spent hours going through countless PDFs of old **mathNEWS** copies, looking for any prior articles that have already done this very topic. I didn't see anything too thorough, but didn't check every single issue, so sue me if I missed anything.

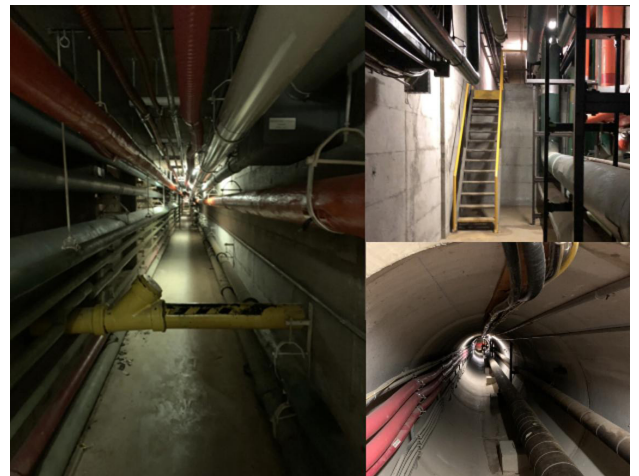
These tunnels, mind you, are not for student access. To summarize, a bunch of keys got copied around the nineties, and exploring the tunnels suddenly wasn't so niche. The university cracked down, and nowadays, the locks are Medeco (nigh unpickable) and have that shoddy circle metal thing around it to prevent devices to slide under the door and to the lock. Liability and all that, considering there are lots of high temp pipes and voltage things down there.

While neck deep in these records, some things popped up. Likely, retired **mathNEWS** writer Candu definitely knows something based on the articles I found by them associated with the tunnel system.¹ How did I do this? Well, by simply ctrl F'ing my way through the **mathNEWS** archives, that's how. I used keywords *tunnel*, *janitor* and *plant ops*. The primary usage of "tunnel" in **mathNEWS** often refers to a) Carpal Tunnel syndrome, or b) seeing a light at the end of the tunnel. Which is a mildly disturbing phrase to see, especially twice in one issue (Are you guys okay?). I also used *steam* as a keyword, but had to stop once I got to the 2010s, since writers were mass referring to Steam, the gaming platform, and not the steam tunnels.

Which brings me to my next resource! You can read about the tunnels on some guy's website.² And on that website, there is a map. I took the liberty of overlaying *that* map .png of the maintenance tunnels with one of today's campus, that I downloaded somewhere on Reddit and is too far gone to cite:



So, as you can see, that's a lot of tunnels! The black spots along the lines are larger rooms in the tunnels. You never know what you're going to find down there. The ones around Dana Porter are cylindrical. Closer to Physics and Engineering, there are lots of ups and downs over stairs. In the downs, you get to sink your feet into leaks that have been pooling green and brown tinted water (?) for so long that they threw down some grates to walk on instead of cleaning it up. All of this is happening right below your feet.



But those aren't *objects*, and objects are what I promised. So, without further ado, once you obtain employment within Plant Ops and are authorized to travel in the tunnels, you may find:

I read **mathNEWS**
devoutly.

PROF. STEVE FURINO

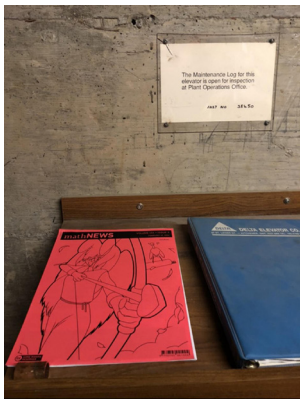
- Ten-year old Tims coffee cups
- Various chairs-
- A black office pleather chair with a wet stain in the middle
- A splintered wooden chair they make students write PAC exams in
- A stool down an unlit dead end of a cement corridor
- A red office chair (it looks comfy?)

But seriously, I don't know how anyone gets any work done with all of these inviting chairs around.

- Acetylene under pressure
- Screws on the ground that look like they go somewhere important
- WD-40
- Asbestos
- A door with a tiny hole that somebody wrote "gloryhole" on (this is why we can't have nice things)
- An empty bottle of Corona

And finally...

- **mathNEWS!!!!**



How do you feel, mathNEWvians, knowing that your literary prestige has made its way to the entrance to hell? Instead of there being 30 year old issues scrunched into the dead grip of skeletons of missing students, the most recent copies of **mathNEWS** reside in the warm, safe care of whoever brought them down to the most cursed place on campus, if only to act as a beacon of safety and familiarity in this bleak, mildewy hell. I hope that the unnecessarily neon covers and their pristine goose OC and **mathNEWS**-chan continue to brighten the maintenance crews' days and nights.

My janitor friend wishes to retain anonymity and is on the run indefinitely. I hope this quenches your curiosity for now.

nike

1. **mathNEWS** volume 104, issue 4; and volume 120, issue 6.
2. <http://matt.wandel.ca/tunnels/tunnels.html>

GUYS I JUST FOUND A FREE AND UNLIMITED CLOUD STORAGE SOLUTION!

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01000010 01110101 01110100 01110100 01100101 01110010
01100110 01101100 01111001 00100000 01110011 01100101
01100001 01110010 01100011 01101000 01101001 01101110
01100111 00100000 01100110 01101111 01110010 00100000
01100001 00100000 01110010 01100101 01101100 01100001
01111000 00001010 01010000 01110101 01101100 01101100
01101001 01101110 01100111 00100000 01100110 01110010
01101111 01101101 00100000 01110100 01101000 01100101
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01110011 01101111 01110101 01101110 01100100 01110011 00100000
01110100 01101111 00100000 01110100 01101000 01100101
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nazz

N BETTER STORAGE SOLUTIONS

- pen and paper
- your brain
- your neighbour's brain
- your neighbour's laptop's ssd
- your neighbour's laptop's ram
- minecraft
- excel
- dna
- d flip-flops
- shout and wait for the echo
- write it on a beach near the water
- ICMP Echos
- Tetris
- Cue COVID-19 Tests

terminal

KITCHENER GO TRAIN PROGRESS REPORT

PART 2

Welcome to Georgetown! We've been stopped at this train station for a while for some reason, so I'll take the opportunity for a bit of a history lesson.

In the 1950s, the people of the growing city of Toronto got tired of all the freight trains passing through downtown all the time and taking up the entire waterfront with train yards. The federal government agreed, and so CN, the then-government-owned railway company in charge of the tracks through downtown Toronto, decided to pack up and move to the suburbs. They built a new railway from Brampton to Pickering running north of Toronto through Vaughan and whatnot, called the York Subdivision, and filled the surrounding area with factories, warehouses and train yards. This freed up space in downtown Toronto for less-industrial redevelopment, and also happened to free up so much space on the railways into Toronto that the Government of Ontario decided to start up a new commuter rail service, which they named after themselves. (Hint: look at the initials.)

There was a second piece to the York Sub plan though: in order to get freight trains from the York Sub's new terminus in Brampton to the important industrial city of Hamilton, CN reused an old railway that went north from Burlington through Milton and into Georgetown, calling it the Halton Subdivision. And since Georgetown wasn't Brampton, the Halton Sub just ate up the portion of the Kitchener-to-Toronto railway between Georgetown and Brampton to meet up with the York Sub. This probably won't be a problem later – Kitchener isn't all that big, and the University of Waterloo won't even be founded for another couple years, so there aren't any students who need to get home or anything. What could go wrong?

Anyway, so, yeah, that's why we've been stopped here for a while: we've been waiting for a freight train to pass through this junction ahead of us. This doesn't happen all that often, but the fact that it *can* happen definitely limits the number of GO trains that can make it all the way out to Georgetown from Toronto. So what are they doing to fix this?

6. GEORGETOWN STATION IMPROVEMENTS

I don't think anything is publicly planned here just yet, but there's a lot that *could* happen to make our lives easier.

If you look at the diagram again, the freight trains on the Halton Sub come in from the south (where it says "to Hamilton"), and leave to the north (where it says "to Vaughan"). This means that, even if our GO train has a track all to itself and leaves the others for the freight trains, it still has to cross those freight tracks at some point. There are a number of places where this can happen – one is right here, just east of Georgetown station – but it has to happen at an at-grade junction, which causes conflicts and slows things down.

A solution floated in a 2021 business case for Kitchener Line expansion discusses instead converting the junction west of Georgetown station into a grade-separated flyover or something, then rebuilding the station to use the south tracks instead of the north track. I can't find any mention of this plan past then, however, and there are other places where the flyover could be built, like in the countryside between Brampton and Georgetown where there's lots of empty space (which another plan from 2019 suggested).

Also, there are a bunch of dead-end platforms that don't really need to be here anymore because the Kitchener line hasn't ended at Georgetown in years, and the speed limit on the track through Georgetown station is really slow because it's still technically a siding (meaning it doesn't have any signals) since it used to be one of those dead-end platform tracks.

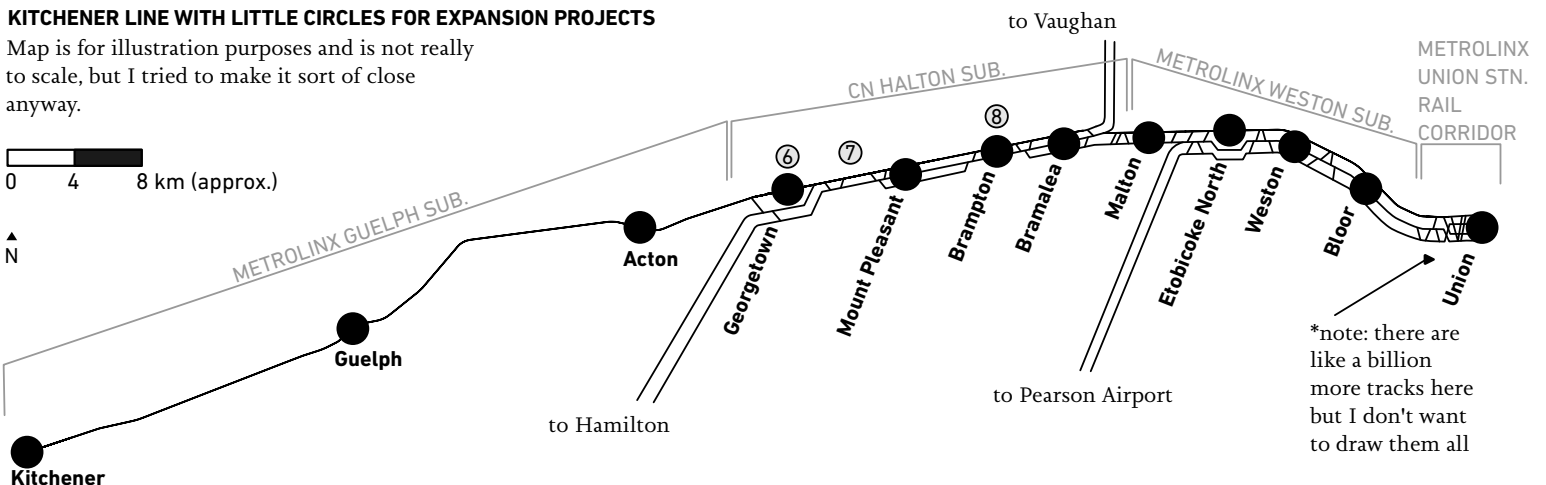
There are a lot of small and big fixes to be made here. It's hard to comment on the plans when they mostly consist of a handful of non-final concepts scavenged from random PDFs on the Metrolinx website, but it does seem like something is probably going to happen at Georgetown, and when it does, we'll probably notice it. Here's hoping.

KITCHENER LINE WITH LITTLE CIRCLES FOR EXPANSION PROJECTS

Map is for illustration purposes and is not really to scale, but I tried to make it sort of close anyway.

0 4 8 km (approx.)

▲
N



7. HERITAGE ROAD LAYOVER FACILITY

Between Georgetown and Brampton lies a long stretch of farmland. Metrolinx has decided this is the perfect spot for a brand new layover facility, used for storing and maintaining trains. It's planned as part of the next bundle of Kitchener Line expansion projects and should begin construction fairly soon.

At the moment, most GO train maintenance is done at a really big yard in Etobicoke. Some is done in Kitchener, but moving more of the storage and maintenance to other parts of the Kitchener Line is probably a good idea if we're adding all these new trains.

8. MORE TRACKS

Thought we were done adding tracks? Think again.

Since the Halton Sub has all this freight and passenger train traffic, wouldn't it be nice if we had four tracks to fit it all? Two for the freight trains and two for the GO trains? It would be nice to separate passenger traffic from freight traffic, since

freight trains are so much slower than passenger trains and I like getting places quickly.

Right now, the Halton Sub mostly has three tracks, so we're pretty close already. There are two sections with only two tracks: one through downtown Brampton, and another in that aforementioned stretch of land between Georgetown and Mount Pleasant (the station at the edge of Brampton). Downtown Brampton has a couple of old bridges that would need to be replaced in order to build more tracks through there, but there are plans to get running on that soon, and to add a fourth track to other parts of Brampton while they're at it.

On the contrary, I couldn't find any recent plans to add more tracks to the section between Georgetown and Brampton, even though that seems like a comparatively much simpler project, and they're already building a layover facility there. Are they doing this? They're doing this, right?

Man, I wish this info was easier to find.

derailed

LORD OF THE RINGS EXTENDED IN THEATRES!

MY BLADDER IS UNHAPPY WITH ME

Despite not being old enough to have seen the Lord of the Rings in its original cinema run, I am deeply in love with the series. Introduced to me by fellow writer *Moon*, the films very quickly burrowed into my heart and gained a special place in my life. Now clearly, the Lord of the Rings trilogy is the best piece of cinema ever made. They feature a magical expansive world, warm and lovable characters, and the type of healthy masculinity that no other media has managed to portray.

Some fans however disagree with this statement, citing even better films: the *extended cuts*. I agree with this set of people. For those not in the know, the *extended cuts* are the original three films including a bunch of extra scenes that were left on the cutting room floor upon theatrical release. Despite having a total runtime of 11 hours and 36 minutes across three films, every moment is essential, the soundtrack is exquisite, and the costume and set design is Oscar-winning.

A sticking point in all this for me, however, was that I was convinced that I'd never get to see Peter Jackson's original vision on the big screen, in a dark room, with too much popcorn and a large pop. Not only had I missed the theatrical release, but the extended editions had never been shown in cinemas either! So imagine my excitement when I discovered that Galaxy Cinemas Guelph (and other cinemas, but this happens to be the closest) was running the extended trilogy in honour of the release of a recent upscale. I instantly spent way too much money and booked seats for all three films.

So how was the experience? Well, it was certainly tiring. This is easily the longest I have stayed in the cinema, despite

having to leave multiple times in the middle for my bladder to not kill itself. And it's not like they put an intermission in the middle to allow the audience to go take a stretch break.

But you know what else the experience was? Fucking incredible. I greatly underestimated the effect that watching the films in cinema would have. Not only could I see more, I could *hear* more of the dialogue that I had previously missed. The soundtrack was louder, crisper, and more impactful. The story flowed better, and I was able to pick up on subtleties that I had missed before. I felt more emotion with the characters—at the end of *The Two Towers*, when Frodo turns to face Sam, my heart filled with so much love that I cried. The cinema forced me turn off the distractions in my brain and in my pocket, and let me actually focus on the film.

This will sound silly, but another thing I discovered in the cinema was just how much comedy there is in these films. At home, I would merely snicker every now and then at Gimli's misfortune. But in the cinema, with others at my side, I laughed at every ridiculous scene that popped up (and believe me there are many). The energy in the room was electric, as even the smallest hint of a joke would send everyone around me into quiet laughter. And it was infectious.

Anyways, it was worth the time investment, and I would recommend that you go check the films out if you are a LotR fan even in the slightest.

aaqsr

A WALK ALONG THE SHORE

August, 2018

“Ready to come *jaser* with me?”

I jolted awake. Darting my eyes around, I struggled to get my bearings, my head resting uncomfortably on the couch armrest. I sighed.

I'll regret resting like that.

I looked up and saw a familiar face looking back at me. Embarrassed, I sit up and face her. “Of course! Always ready,” I smiled. I couldn't stop thinking about that word, though.

Jaser. I had never heard that one before. Better look it up once I get back.

“Alright, let's go,” she replied. The sun shone low in the sky as we left the building, a tall, dark, wooden thing straight out of a gothic horror. We continued towards the grassy area behind the building. Hearing some joyful cries, we saw friends playing with a Frisbee. Others lay in hammocks, shaded by their anchoring trees, chatting, reading, sleeping. Am I ever glad to have come here this summer.

“You know I'm bi, right?”

Oh, thank God.

I was shocked by the abruptness. “Really? Well, I... I'm fine with that,” I hesitated. I didn't expect to be talking about that. To be honest, I didn't know what I expected.

“Good,” she replied, flashing a confused look. I knew it was a weird response, but she seemed to brush it off. I smiled to myself.

Maybe I can tell her. She, of all people, should understand, right?

We entered a small opening in the greenery. The breeze died, replaced by the peaceful shade of the trees and the calls of sheltering birds. I looked down. Along our path, hundreds of colourful rocks lay, painted by generations of students who walked the same way as us. I reached down and picked one of them up, looking for something to talk about.

“This is one of my favourites,” I said, turning it to give her a better view. We both leaned in. Our faces were near, sharing the same space, breathing the same air. All I could think about was the closeness. Maybe she was thinking the same thing.

She grasped the rock and pulled it closer, placing her hand around mine as if she were holding the rock herself. After a short moment, she set it on the ground, but she did not let go. She raised my hand and stared intently, looking from all angles. I was embarrassed but I could not pull away.

She shifted her eyes up at me. “I love your hands.” She adjusted her grip, bringing us palm-to-palm. “How big they are compared to mine.”

I looked away. “Thanks. My parents always said I had farmer's hands. From my great-grandparents or whatever,” I said dismissively.

I always hated when they said that. It made me feel large, lumbering, hulking. It reminded me of the way I was born.

She laughed. Everyone loves that bit.

“I'm glad you like them,” I lied. I like to think I hid it well, but I could never be too sure.

We continued, hand-in-hand. The trees gave way to the open air. Reeds and cattails surrounded us, blocking our view, waving gently. I drew my eyes towards hers but she ignored me. Instead, she brought her hand along my arm, caressing up and down. I bristled at the feeling. Almost as soon as she had started, her hand found mine again. But I dwelled on that feeling. It was inescapable.

It feels like insect hair. Foreign and revolting, barely human. It doesn't belong. Can't she feel it too?

Our route opened onto a rocky trail. To our left, the forest we had come from, with the gothic building poking above the trees and the nearby church's spire piercing the sky. Ahead of us, a long rocky path extended towards a distant lighthouse. To our right, the sand, the shore, the bay, the horizon, the vivid orange forever. Low tides stretched the beach towards infinity, with small pools of seawater between the ridges of sand reflecting the sun's blinding sparkle.

A log was along our path, bleached white from years in the open. We sat down to admire our surroundings, to take a breath, to revel in each other's company. But my mind was stuck. With every passing second, I was lying to her. Lying to everyone.

Why can't I tell her? Her, of all people?

In that moment, I needed to speak. In that moment, I was frozen. In that moment, I did nothing but stare across the water, letting the rays of sunlight sting my eyes.

In that moment, she kissed me.

And I stayed silent. All I could do was bring her close and let her enjoy that moment.

We sat and talked and watched the sky dim. The newfound darkness revealed the dancing light of a bonfire just down the shore. “Let's go check it out. I might know someone,” she invited. But she was already gone. Maybe she sensed my hesitation, my evasiveness. Maybe not. I stayed for what few

more seconds I could steal, trying to distract myself from what had just happened.

How can you lie to her? To everyone? How can you do this to yourself?

I got up and ran to rejoin her. She was already with the others, engaged in lively conversation. I sat and tried to adjust, but my mind raced and I could not concentrate. Faces and names blended together. I heard but could not listen. I looked but could not see.

A tear was coming. I tried to hide it, wiping with my hand, but someone called out from across the flames. "Hey, are you all right?" the faceless voice asked. Ashamed, I covered my face with my arm and turned away. Through the tall grasses, the sun was gone now. All that remained were the faint whispers of the bay lapping at the shore. I let the tear roll down my cheek and stifled my trembling voice. I lied for the final time.

"I'm all good. It's just the smoke."

verdanik

VANCOUVER GOOSE

I would just like to express the pleasure I had seeing a solitary self-righteous Canada Goose during a road trip my friends and I made to Vancouver last week. They stood in the very centre of the Fir Street off-ramp leaving the already congested and under-construction Granville Street Bridge, making full use of the lane as they rightfully should. It is unfortunate I could not grab a photo of this accomplishment but I am very glad to see my university continue its greatest export, especially here on the west coast which had heretofore been suffering from an anserine deficit.

Whole Number Haver

THERE IS A TRASH CAN

IN M3

that is labelled



RapidEyeMovement

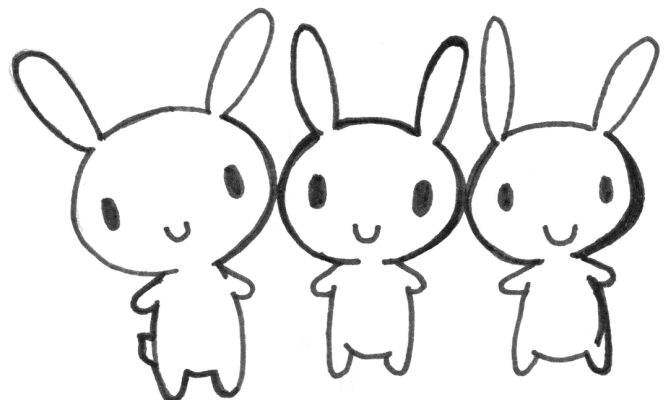
HEY THERE, MC

A REWRITE OF "HEY THERE, DELILAH" BY THE PLAIN WHITE T'S (INSPIRED BY "WAH GWAN DELILAH" BY SNOWD4Y)

Hey there, Math and Computer,
 What's it like to be so brick-y?
 I'm standing here at M3,
 But bestie, tonight you look so pretty,
 Yes, you do,
 QNC can't shine as bright as you,
 I swear it's true.
 Hey there, Math and Computer,
 What's it like to be so sweet?
 These other buildings are all slacking,
 They don't have third-floor CND,
 Oh no, they don't,
 Please trust me, I really wish they would,
 But they don't.
 Oh, your sweet, sweet CND,
 Oh, your Jamaican patties,
 Oh, your sweet, sweet CND,
 Oh, your Jamaican patties, sweet CND.
 Hey there, Math and Computer,
 I've got so much left to learn,
 From all your lecture halls and classrooms,
 And the scent of academic victims
 I'll stay right here,
 Solving problems, shedding tears,
 I'll persevere.
 Hey there, Math and Computer,
 You're the bane of my existence,
 All these hours spent together,
 Make me never see my parents,
 I'm mad at you,
 For every single thing you do,
 I'm here with you.
 Oh, your sweet, sweet C&D,
 Oh, your Jamaican patties,
 Oh, your sweet, sweet C&D,
 Oh, your Jamaican patties, sweet C&D.

~insert rest of song because I ran out of the tune I know off the top of my head~

top left top left



RATING MY NICKNAMES, OR SHOULD I SAY WILL-NAMES

DON'T LAUGH AT THE TITLE, IT WILL ONLY ENCOURAGE ME

I named myself Will after William Shakespeare, but not the actual guy, the version of William Shakespeare from the musical *Something Rotten*. I could write an entire separate article based on how much ~~I wanna get in his pants~~ gender envy I get from him. The funny thing about naming myself Will is that, even though it is a fairly short and to-the-point name, people have come up with a plethora of nicknames and long-form versions of it. Thus, I have decided to rate them all based on how much I like them/how funny they are.

WILLIAM — 8/10

I used to hate William a lot; a lot of people just automatically assumed my full name to be William once I introduced myself and it got annoying to always have to go “No, it’s just Will.” But, I’ve grown to like it quite a bit. When I picture someone named William, I picture William Shakespeare (the actual guy, not the character) in a medieval painting with his goofy hairline, so hearing someone call me William makes me giggle.

WILLY / WILLY WILL — 0/10 OR 6/10

Only one person in the world is allowed to call me Willy Will, but they’re allowed because I like the way they say it (shoutout Olivia, you’re a real one). Anyone else who has called me this is either:

- Saying it because “HAHAH WILLY LIKE PENIS”
- Referencing the Stardew character.

In either respect, I don’t like it. Don’t get me wrong, I love Stardew Valley, it is probably one of my favourite games of all time. But, respectfully, I am not an old fisherman nor am I a penis so I will not accept being called Willy.

SQUILL / SQUILLIAM — 9/10

I don’t know why but this one tickles a specific section of my brain. My roommate started calling me this randomly one day as a joke and it has stuck with me for some reason. Considered making my writer’s pseudonym squill for a hot second, but I think wicked has a better edge to it (~~I wanna be cool so bad~~). A squill is also a very pretty flower, if you disagree I’ll cry about it, so I only associate good things with this name. All around, solid nickname that reminds me of one of my best friends, a cool flower, and Squidward Tentacles from Spongebob.

MY DEADNAME — 0/10

Get more creative. I’m not the most sensitive about it, but I am still strongly against anyone calling me that (negative 1000 points if you met me after I changed my name and still decided to call me it). If you wanna try and offend me just insult my height or something; there’s plenty of things I’m

more sensitive about than my deadname. So please, if you’re going to go through the effort to insult me, at least do a little research and try just a little bit instead of going for the low hanging fruit.

LEE — 4/10

You might be thinking to yourself, “how on Earth do you get Lee from Will?”. A valid question to ask, dear **mathNEWS** reader. Before I changed my name to Will, I went by Lee during most of my high school years. It was a nice in between for me because I could excuse it as a nickname for my deadname but it was more androgynous. I didn’t really love the name, I just stuck with it as a safety net for a bit until I was more comfortable being trans. Some people from high school still call me this, which is fine, but it’s just such a “meh” name to me. Don’t hate it, don’t love it, just “meh”.

EVERY NICKNAME MY DAD HAS FOR ME — 20/10

My dad has so many nicknames for me, I can barely remember all of them. Here’s the non-exhaustive list of my favourites: tiger, princess, pal/my pal, palindrome, and boss. Some of them may seem weird for outsiders, but I love my Dad and I think all of these silly nicknames is just his way of expressing his love for me, so how could I hate any of them?

THE WICKED WILL — 5/10

My user on pretty much all social medias. Most people will call me this as a joke, and it is weirdly funny to hear someone refer to you as your online name in person. The name originates from the Wicked Witch of the West from *The Wizard of Oz* because I’m a big fan of the movie. That then turned into the Wicked Will of the West, and then turned into just the Wicked Will. I’m not going to get offended when someone calls me this, it’s just kinda strange and slightly funny to hear.

WILL — 10/10

There’s a reason it is in italics. What I’m referring to with this nickname is not just my name “Will”, it’s the way my boyfriend will sometimes say it that makes me laugh so hard. The best way I can describe it is to pronounce it like “well” and elongate the e and l sounds. Only he ever calls me this and it’s why I like it so much; my favourite person in the world came up with it. It is the silliest nickname because it itself is not a nickname, but it holds a special place in my heart so it had to go here.

So that’s it, all of my nicknames rated based on how much I like them/how much they make me laugh. While writing this, I noticed a pattern of how I rated the different names; every nickname that either came from a loved one or I associated with a loved one automatically got a decent/high score. So

maybe I don't actually care about the nickname itself, but rather that it is the people that have given it to me. I mean who am I to say if a name is good or not if someone I loved cared about me enough to give me it. There we go, that's a meaningful conclusion to give to this article.

wicked

N THINGS THAT HAPPENED ON FRIDAY

THESE ALL HAPPENED IN ONE WEEKDAY, THERE ARE NO LIES, I'M NOT JOKING

I'll give 5 dollars to anyone who tracks me down IRL and tells me the exact order in which all these events happened on Friday.

- I attended Rotary Club's Annual Lobsterfest and the guy beside me ate 11 lobsters.
- I wore a tank top for the first time.
- I got rejected from the Velocity \$5K Pitch Competition because my application was too good.
- I started working in a new office building.
- I went to a bunch of different groups of people and held my long arm out for them (don't ask).
- I started a meeting at the exact moment a fire alarm went off (not a drill).
- I called my bank for an hour while in the middle of a library.
- I officially hired (yes, pay) my primary supervisor from my first co-op.
- My roommate discovered all her Zebra Fish have leprosy.
- My roommate kept his shades on for 12 hours straight.
- I sang all of Pizza Angel by Silly Songs with Larry in someone else's house.
- I hosted a mocktail event at my house.
- Someone destroyed my pristine non-stick frying pan.
- I spent 3 hours actively trying to use my printer.
- My new passport arrived over a week earlier than expected, after being returned to the sender in Ottawa.
- I booked a train to Ottawa.
- I rode in a local politician's convertible.

Just kidding, there is exactly one lie.

One of these items happened on the next day. Hint: it has the word "Ottawa" in it.

no pun indented

SKETCH 6



snowdozer

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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MOVIE REVIEW: POKÉMON HEROES

In issue 155.1, esteemed writer Lars Nootbaar mentioned they didn't feel they had the expertise to review films in **mathNEWS**. For this, I respect their self-awareness, as I too have little experience in reviewing movies. Unfortunately, I am not Lars Nootbaar. Let's talk about Pokémon Heroes.

If you haven't read my article in 155.1 (I wouldn't blame you), the tl;dr is that I've never played a Pokémon game, collected the cards, or watched the show. But knowing that I wanted to engage more with the franchise, a friend suggested we watch Pokémon Heroes together.

Pokémon Heroes is a 2002 movie in which Ash and his friends journey to the canal city of Alto Mare, meet the legendary Pokémon Latios and Latias, and save the city together. So, some basic expectations I had going in: this is a movie made primarily for kids, so I assumed the plot would be pretty basic and that most of the effort would be put into showing off Ash and the Pokémon.

Warning: the next section between the dividers has spoilers. You can skip to the last divider for my no-spoilers conclusion.



So the movie begins with what I can only describe as a massive lore dump and I'm all here for it. The first ten minutes of this hour-long movie thoroughly explain the history of Alto Mare, how a Latios sacrificed himself to save the city, gifting a powerful gem called the Soul Dew to the city to power a defense mechanism and protect it, and how his descendants, a Latias and Latios, allegedly guard the city today. It's honestly really long; I kept thinking it was going to end but it just kept going. We then find out that Team Rocket agents Annie and Oakley are reading this all in a library and they plan to steal the Soul Dew and control the defense system—standard kids' movie villain shenanigans, really.

Moving on, the next half-hour is a giant exposition and introduction to the other characters. We meet Ash and his friends participating in a canal race, we're introduced to Latias, though she stays invisible for now, and we see Annie and Oakley planning to capture Latias to set their plan into motion. This first part of the movie honestly just exists to show off the pretty animation, put the culture of Alto Mare centre stage, and insert as many Pokémon into the movie as possible. As I mentioned, I wasn't expecting much plot, so I wasn't too bothered by all this; honestly, I was really into the worldbuilding.

Not much happens for a while, but one notable plot point is that a mysterious girl leads Ash around for no apparent reason, disappears without explanation, and when Ash finds her again, she seems not to know him. When she gets a proper introduction, we learn she's acting weird because sometimes when we see her, she's just a girl named Bianca, but other times, she's actually Latias disguising herself as Bianca! Totally

not confusing; I'm sure the ambiguity isn't foreshadowing anything weird.

After Latios and Latias get some characterization and expansion on their personalities, the plot does finally pick up the pace, so I was excited for some action. Things start to happen pretty quickly. Annie and Oakley manage to capture Latios and steal the Soul Dew, but Ash and Latias are able to save him. In the process though, the Soul Dew gets messed up which causes the defense system to send a massive tsunami toward the city. Why exactly the tsunami happens isn't fully explained, though. In any case, Latios sacrifices himself to stop the wave and create a new Soul Dew, in a nice parallel to his father and thus ends the main plot.

I have a few things to say about this. Firstly, I can excuse a lot because it's a kids' movie, but the entire latter half was filled with constant squeaking from Latios and Latias, which was so annoying that I have to admit the movie was mildly ruined by it. As for the actual plot, it was alright; I think Latios's sacrifice was nice, but somewhat predictable. However, as I touched on earlier, I felt that several important plot points had little real justification. Considering the effort that was put into worldbuilding in other parts, I wish that some plot points could have been justified more, which would have been more satisfying. It also could have doubled as some nice foreshadowing from the beginning, though I'm hesitant to suggest padding the lengthy exposition even more. And on that note, the actual plot was over really fast. Despite not really being there for the plot, I was pretty disappointed with how quickly it was wrapped up. I think there was a lot of missed opportunity that resulted from cramming everything into a runtime of only about an hour.

Anyway, the conclusion is pretty standard and not too noteworthy. Bianca gives Ash a painting of himself, kisses him on the cheek as he leaves and—wait, we don't actually know it's Bianca or Latias. In fact, it's purposely left ambiguous, which is an interesting direction to take. While it's debated, fan consensus seems to be in favour of it being Latias based on her personality and various details, which raises a lot of eyebrows regarding a possible romantic interest between Ash and a Pokémon. I'm not sure what I think of that.



So, overall opinion? **6/10** considering my expectations. I loved the worldbuilding, the animation was pretty, and I liked the characterization of Latias and Latios—though my favourite Pokémon is Latias, so I'm a little biased. My main complaint is that even though I expected not much plot, it still barely spent any time on it at all! You might argue that it's a Pokémon movie and that's kinda the point, with which I'd agree, but there's other Pokémon movies that do way more in terms of plot in comparison... but I'll save that for another article. See you then!

SCREAM INTO THE VOID

TW: SEXUAL ASSAULT, ABUSIVE RELATIONSHIP, CSA

Where did it all go wrong? I ask myself, ceaselessly. No matter what I do, it's always there. Sometimes, I can force it to the back of my mind for a little while. But no matter what I do, it eventually worms its way back in. It's like an earworm of that Dance Monkey song; it's catchy and if you aren't paying attention you find yourself humming along to it, but when you start paying attention you remember you hate it with every fibre of your being.

Except, that's the thing. I don't hate it with every fibre of my being. I actually find it rather comforting, in a way. Like by not answering it, I can avoid taking responsibility for it. Avoid acknowledging the harm that you've done, and the harm that's been done to you. Until you answer that question, you're safe. Protected. Hidden away, where nothing and no one can hurt you.



I know what that moment is for me. The push off from the shore that started my life cascading down a waterfall. *None of this would have happened. It could have all been avoided.* Had I not taken the jump the first time, I wouldn't have felt the need to take it a second time. Had I kept my boundaries firm the first time, they wouldn't have been violated again and again. Had I told someone, anyone what was going on, maybe they could have kept me safe. But the two other people outside of us who knew didn't know any better than I did.

And it's not like they would have gotten through to me even if they'd tried. His best friend completely cut contact with him within a month of it starting. His best friend tried to warn me, told him not to go down this path, but it was a fruitless endeavour. I thought I knew better than everyone at 13, 14 years old. After all, I had skipped a grade. I had been told I was mature for my age. He seemed immature for his. What was the harm?

It started off harmlessly enough. We played D&D together. He shared his package of Skittles with me. We hung out in the hallways together at lunch, and played Cards Against Humanity with some of our friends. An "I have the high ground" joke here. Holding hands there. One day, the Friday two weeks before the March Break of 2020, he kissed me, and I felt as though I was flying.

We spent 3 hours making out underneath a stairwell on a day we were supposed to be playing D&D. I skipped one of my classes to spend time with him during his spare. He introduced me to League (and that really should have been the first warning sign in retrospect). When COVID hit, I thought I was in love.

But he had learned how to cross my boundaries. He had used it to turn sending photos of myself in my swimsuit before my swimming lessons (still *taking* them at the time, I will remind you, not *teaching* them) into sending photos of myself

without anything at all on. I spent the "extended March Break" at my grandmother's, over in Stratford. He would video call me, got me to do things for him on camera. He introduced me to his family over video call, and I assume he told them I was older than I was because they didn't ask questions.

When I got back home, I started to take long walks because I had nothing better to do with my time; at least, that's what I told my family. I turned off my phone location so they wouldn't ask questions about why I was in one space for so long. I should have told my parents, but I didn't want that feeling of floating on air to end, and I knew enough to know that they'd take him away from me. In reality, of course, I was meeting up with him. He made me do things that I wasn't fully comfortable with at first, but he made me feel as though I enjoyed them. He would treat me so kindly, I thought, wrapping his arms around me and tucking my hair behind my ears. But it was all to make me complicit.



Early mid-July. I had turned 14 back in May. We hadn't done everything, but we had done a lot. We met up again the day of his 18th birthday. I hadn't gotten him anything, and he made me feel so very guilty about it. He pressured me, said I wasn't a very good girlfriend. He said it in a joking tone, but there was a hidden anger in his voice. There was something else I could give him instead, but I didn't feel ready. I told him as much. He told me it would be okay, and that he'd take care of me. He reminded me of all the conversations we'd had about our future together. He told me he'd make sure I wasn't in pain.

He wasn't wrong about that last part. I didn't feel any pain, at least not until much, much later. I didn't feel anything at all, like I was just watching it happen to a stranger. I left afterwards. He broke up with me right before I started Grade 10 that September.



So often I go back to the decision that started the cascade. *What would have been different if I hadn't skipped that grade? If I had gone to a different high school? Could I have avoided all this pain?* But I know now. I know I'm not at fault. I'm not to blame. I was a child who thought she knew better, and I was taken advantage of.

I replay that scene over and over in my mind. It never changes, it's always the same. Frozen in time, just as I was frozen in place. I turn back towards my work as I let out a silent, unending scream.

Sexy_Software_Babe

SLURRED LINES

A SHORT STORY

Ryan Reynolds stood in the shadow of the opulent Circle in the Square Theatre, clutching the script that promised redemption. Once a rising star in the theatre world, Ryan's name had been marred by scandal and addiction. Years of battling alcohol had eroded his career, leaving him a ghost in the profession he had won accolades in. But now, the role of Edgar in "The Last Call" could change everything. The character was a mirror of his past—a washed-up alcoholic seeking redemption—eerily perfect for Ryan's resurgence.

The first rehearsal was a collision of memories and aspirations. The director, Farhan, eyed him with a mix of hope and caution. Ryan felt the weight of expectation, especially with high society figures set to attend the premiere. Among them, his estranged father, the respected Judge Reynolds, whose approval Ryan craved more than anything.

In the dimly lit room of his small apartment, Ryan rehearsed before a cracked mirror. He donned Edgar's persona, clutching a bottle of Jack Daniels, a prop that felt too real. Each line echoed with personal resonance, blurring the boundary between character and actor.

"Is this who I've become?" he muttered, staring at his reflection. Memories surged—his first play, his mother's death, the nights lost to alcohol. His father's disappointed gaze haunted him.

He took a sip, method acting blending with reality. Lines flowed seamlessly with confessions. "I was never enough for you, was I, Dad? Never the son you wanted."

As rehearsals progressed, Ryan's method acting turned into a perilous descent. One evening, after hours of drinking and lamenting, he collapsed in a drunken haze. The pain of his failures and regrets consumed him, leaving him emotionally unbalanced and questioning his ability to perform.

The night of the premiere arrived with an electric tension. Ryan stood backstage, clutching a telegram. His father had passed away that morning. The words blurred as tears filled his eyes. The final chance for reconciliation, gone.

"Places!" Farhan's voice cut through his turmoil. Ryan staggered onto the stage, the lights glaring like an interrogator's lamp. The first act flowed, his performance a hauntingly authentic portrayal of Edgar's struggles.

Then came the pivotal scene. Ryan, already intoxicated, stared at the audience. Among the notables were the critics, the elite, the people who had written him off. His father's empty seat taunted him.

"Who are we, really?" Ryan slurred, deviating from the script. The audience, enraptured, believed it to be part of the show. "We put on these masks, pretend we're better than we are. But inside, we're all lost, aren't we?"

His voice cracked, raw with emotion. "I wanted to prove something tonight. To you, to my father. But what's the point if he's not here to see it?"

The room fell silent, the audience hanging on his every word. "We seek meaning in a meaningless world," he continued, "and we judge those who struggle. But we're all the same in the end."

The final lines blurred as Ryan's despair overtook him. He clutched a nearby prop bottle, shattered it, and glassed his neck; blood ran down his hand. The spotlight faded, and he collapsed to the floor, a tragic ending to both his performance and his life. The audience erupted in applause, oblivious to the real tragedy that had unfolded.

The curtain fell, and so did the final act of Ryan Reynolds' tormented journey. His performance, raw and unfiltered, left a legacy far different from the one he had envisioned. It was a poignant reminder of the thin line between art and life, and the human desire for redemption and acceptance.

TLC

THERE IS A TANK OF LIVE LOBSTER FOR SALE IN THE CONCOURSE OF HALIFAX STANFIELD INTERNATIONAL AIRPORT



Make sure they've got their boarding passes and identification ready for inspection!

Your Friendly Neighbourhood CATSA Officer

DON'T FALL FOR THIS SCAM!!

INTRODUCTION

To all **mathNEWS** readers, I am here to inform of a heinous scam in the world. Swindlers are using a sneaky strategy to catch you off guard to sell you a fake product. I'll be giving you a quick and dirty guide as to how to avoid it and not be caught by surprise when you encounter it in the wild.

SOLUTION

Before you know the problem, I'll give you a solution. All you need is to always carry around a nickel (ideally Canadian but American should work). Whether you buy your product through a seller or from a vending machine, it'll always be important to use your nickel to give your product a nice scrape. Remember: *If it leaves a scratch, the value won't match.* Otherwise, please seek a refund and inform your local sheriff of the incident.

You may be wondering why you should trust such a simple method to help you avoid losing your life savings, but luckily it is backed by science (with some extrapolation). Newer nickel coins are composed of a steel-copper core with nickel plating, while older nickels are majority nickel.¹ Nickel has a Moh's hardness of 4, while gold's is 2.5 and pyrite's is 6.5. This means that the nickel will scratch gold but not pyrite.

In case you are using a coin which is an alloy, fear not! Luckily the alloy will be harder than the two metals itself.² Looking at a table of cupronickel hardness, they have a Vickers scale hardness of 90–225,³ which (I assume) maps to around 3 to 4 on Moh's.⁴ Or, if you want to be more certain, just use your nails or teeth.

HISTORY

The word comes from Ancient Greek *pyrites lithos* which means "stone which strikes fire" as striking it with flint produces sparks.⁵ Often referred to as "Fool's Gold," Yeah whatever.

CONCLUSION

With this new knowledge, you will now be safe when buying your favourite metal. I hope my effort will help with reducing the number of people impacted by this emerging scam of swapping out authentic pyrite for objectively worse gold (eww). Although now you will not be swindled by dastardly gold-dealers, you must still be careful. Make sure to spend responsibly (be suspicious if the price is too high). Please make sure to spread the word so your friends and family don't fall victim. Finally, remember, *if it leaves a scratch, the value won't match.*

Totally Ununimodular

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3. <https://nickelinstitute.org/en/about-nickel-and-its-applications/copper-nickel-alloys/mechanical-properties-of-copper-nickel-alloys/>
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MOUNT PLASTIC

In a town by the river, food would spoil,
so clever Uncle Bob made plastic wrap from oil.
"Not an inkling of mold!" "That's it, I'm sold."
And now Uncle Bob was loaded with gold.

But after one use, the wrap went slick,
lost its shine, color, and stick.
So the townsfolk gathered, dug a pit,
and threw the used plastic into it.

A week later, on a cloudless day,
the townsfolk noticed they were covered in shade.
They looked around, and soon they found
that where the pit had been was now a huge mound!

They called it Mount Plastic. They grumbled and groused:
"My sunbathing's ruined!" "The view from my house!"
They were all glad food didn't go bad,
but they hated the mountain with all that they had.

They complained to the mayor, but his schedule was full.
He told them all, "How about in April?"
So they waited, and waited, and waited, and waited,
and then they all gathered, breaths abated:

He tapped the mic. Shuffled his bod.
Then loudly decried, "The wrap is outlawed!"
And then they all cheered! The mayor, revered,
For all of two minutes, 'fore congress was cleared.

And then the people went about their days,
and they were quite used to the shade anyway.
Mount Plastic stood, as tall as it could,
And they all went on like they typically would.

But the food again was starting to spoil,
so clever Uncle Bob made aluminum foil.
And wouldn't you know it, in just a week,
beside Mount Plastic rose Aluminum Peak.

snowdozer

References:

1. [https://en.wikipedia.org/wiki/Nickel_\(Canadian_coin\)](https://en.wikipedia.org/wiki/Nickel_(Canadian_coin))

THE LIFECYCLE OF DREAMS

dawn

If you take a left from the yellow brick road, you'll find a small thicket of bright green trees, with a round grass clearing at its center, a verdant haybale from the sky. In its center is a log cabin, in which a person lives. Sometimes it is me. Sometimes it is you.

There's not many visitors to the cabin. but once, one knocked at my oaken door. They introduced themselves, and looking around the clearing, they handed me a strange pile of multi-coloured seedlings; a suggestion unspoken. The clearing around my cabin was serene. But could it not be more?

This traveler returned every day thereafter, and each day we planted seeds. We carved gardens. We filled rockbeds, directed streams, turned grass into soil. At times we planted with care; at times we scattered seeds into the wind. We watered them daily. We watched them grow.

As winter turned to spring, the seeds grew into gardens. Soon, the first gold-eyed cardinals took nest amid the blooming truffula trees, and hidden under its roots, a family of rose-coloured foxes made their den. By April, the seedlings we'd taken from Valinor's twin trees bathed the clearing in eternal sunlight.

It was every dream and more.

day

The summer heat came, and the garden bloomed stronger. Each morning, I walked out of my cabin to see the hardy tato vines blooming along the trellis we'd built from the newly-reared mallorn tree. Under the afternoon heat, the rain birds sang to the beat of the pegasuses' wings, and in the evening, bunches of nirnroot hummed their resonant tune along the rushing streams we'd made. The dreams interwove so beautifully, I was blind to the wrongness when it took root.

As days went on, the garden grew grim. The once-cozy paths became constricting and overgrown; the shadowed enclaves became sunless. On the truffula trees and the mallorn roots, on the tato vines and lotus trees, a boiling violet growth quickly spread, leaving acid burns on every touch. The birds sang little, and the rose foxes stayed hidden in their truffula den.

I started to dread leaving the cabin then. I started to dread the garden. The truffula trees were so sweet, the world created of this traveler and I so wondrous, but the growth was so acidic, it made the truffula only memory. No efforts could undo it.

dusk

The wrongness was incredibly flammable. So was everything else.

That night, you sit on a stump outside of your cabin and watch the autumn lightshow. The fires raced along the strings of violet growth; with the drop of your match, it seared them all in a heartbeat. But the violet growth had spread to everything. It was the kindling, not the fuel.

The truffula trees did not smell of roasted marshmallow; they skipped straight to burnt sugar. The nirnroot's hum became frantic as it writhed, and the tato plants quivered before they popped. You watch the family of foxes; they dash out of their den just before it is crushed by the timber of a flaming truffula tree, it screams for a Lorax you've ensured it will not find. The inferno consumes your garden, months of work in one night, months of beauty crumbling into ash, as sunset rays fall into dark. Amid the choking smoke, soot-stained creatures: foxes and cardinals, pegasuses and beagles gather to your home, to the safety of one who had cared for them, and in the tear-stained eyes of each ash-streaked creature of shared vision is the begged question:

why?

and you can't say anything to them. you want to hug the creatures, the realized dreams of your combined efforts, but they're already out of grasp, each dream shies away from your arms. you want to tell each one it's not their fault, you want to tell the dreams you've doomed that it will be okay, that you'll revisit them one day, that the fire won't take all, but the truffula trees have burned now, and every nest is ash, and every den is ash, and every stream is buried, and every home is burned, and what can you say to the dreams, when you've destroyed their home, there's nothing you can say to the dreams, nothing to take that away, nothing to undo it, no quicksave, no changing of minds, no turning back.

did the good things deserve it?

midnight

you can't go to sleep after that. so you walk through the dark. the dreams have long since drifted away.

sometimes, you're missing the truffula trees. you smell the air, but clear night air has overtaken the fruity fragrance. sometimes you remember the bubbling streams, but put your hand down only to touch an empty riverbed still damp.

it's not all you remember though. as you walk, you still walk around the places the wrongness once was. you try to avoid the acid burns, try to skip over the once-corrosive pits in the garden. there's nothing there of course. it all burned in the inferno.

you remember it regardless. you can't stop yourself. you walk paths between acidic pools that don't exist, you listen for birdsong that has long since flown away.

maybe you wish you could stop holding your breath over acid long gone.

but maybe the peace is nice.

molasses

RANKING THE VOICES IN MY HEAD

This morning in the shower I was thinking of what article to write but could not come up with anything so I decided to ask the voices in my head but then I realized how non-normal that is so I decided to not ask them and just talk about them instead. Just as a preface, these are not all the voices in my head. These are just the ones that have stayed long enough and are recurring enough for me to have enough data to rank them. Obviously, I will not share their full names or pronouns because of privacy reasons and will just refer to them as their initials but I will shortly describe them for some context. With all that out of the way, let's get to the rankings:

1. **M:** M is the oldest one of them and even though we've grown apart recently, we've been through so much together that I have to rank them at the top. M is generally a dark, serious but good willed character who always ends up making the hard choice (i know they're very cliché but i was young when they were created okay)
2. **Au:** Au as a thought had existed for a while but they became much more concrete after coming to UW and finding my friend group. They are a bold, fun, bright(?) character who is generally proud of their identity. I wish I had their confidence but oh well.
3. **Ak:** Another oldie. This one often makes questionable choices and is kind of a douchebag at times. But they have also been good at times. Honestly their general vibe is whatever I'm feeling like because they're the one I relate to the most so they are number 3.
4. **R:** R is the newest addition and has not been on as many adventures. They are basically a character that branched off of M because M had too much going on and the stories started conflicting. That being said, the time that has been spent with R has been quite good and I expect better things happening soon.
5. **Ar:** Ar was also a branch (off Ak) but doesn't have enough character of their own to constitute a full voice but still get an honorary mention because they have appeared a lot. Personality-wise the best way to describe them is that they are very robot-like.

anon

REGARDING LAST ISSUE'S COVER PAGE

IS IT ANTISEMITIC TO STAND WITH HUMANITY?

I have certainly lost respect for the editors for censoring the original proposed cover of the previous issue.

For those of you who do not know, the last issue had a page-length "article" which contained images of the encampment that UW has been ignoring for the past few weeks, alongside a message against genocide and Zionism. Disappointingly, the caption above the art stated that it had been rejected as a cover for the publication after an internal dispute.

It is saddening that a student artist responsible for many recent **mathNEWS** articles could not submit a very topical cover about an active and prominent student movement that is struggling under the university's boot. It is saddening that it was buried within the issue, lessening its message and impact. It is saddening that the university and prominent student organizations refuse to take a moral stance.

It is saddening that many are "offended" by the mere suggestion of stopping the Israeli government from mercilessly *slaughtering* humans.

And above all, it is saddening that many conflate the anti-genocidal message with antisemitism.

sha256

EVICTION NOTICE

TO THE TINY LITTLE MAN WHO LIVES IN MY BRAIN

Date: June 10, 2024

To: The tiny little man

Rental Address: My brain

You are hereby being notified to vacate the premises named above.

The reasons for eviction are: relentless use of jackhammer on the premises, disturbing the landlord.

You are required to vacate the premises before 12:01am on June 11, 2024. Failure to do this will result in civil proceedings against you.

Thank you in advance for your cooperation.

Landlord name:

normalparameters

HOW TO MOVE ON FROM A CRUSH YOU HAD ON AN ENGINEERING GIRL

QUEER EDITION

- Find out if she is straight; if so, imagine her with the rusty dusty crusty boyfriend that she adores. Congratulations, you have moved on. Don't think about this too much: you might start to get nausea around her, which is not accepted socially.
- Oops, turns out she is gay. (in retrospect, OF COURSE she is gay, she has the most beautiful dyed hair ever.) My condolences, you are now going to think about her for every moment of the day. To minimize her free reign in your conscious (and sometimes unconscious), read Judith Butler and question your gender for a few weeks.
- You still haven't moved on and you just gave yourself a gender dilemma. You are officially going past the event horizon. Maybe you should throw yourself into a black hole, if you can find any close by.
- If you weren't able to find a black hole (skill issue seriously), get a minor in philosophy, very popular and trendy with science majors. You will complicate and philosophize your feelings for her to the point that now she is just a mythical god living rent free in your mind.
- After a mild existential crisis and many crying nights, you think you have moved on. She messages you out of nowhere, she wants to meet you. You better go get yourself killed by a goose. You haven't moved on. You will never move on. You will gaslight yourself into thinking that you have moved on like the pathetic tiny lesbian that you are.
- (Help me.)

I Definitely Have Moved On

ENGINEERING IS BETTER THAN MATH

Think about it. They have funky rings. You know who else has cool rings? Sauron, and he was cool [*Editor's note: Too bad he couldn't get the coolest one*]. They have cool bridges. You know who else has cool bridges? Jeff Bridges, in his role as Obadiah Stane/War Monger in *Iron Man* (2008). You know what math has? Virgins. Like the vestal virgins who tended the eternal flame in ancient Rome—the flame that was said to be connected to the life of the empire. Well, how did that work out for them. It didn't. Rome collapsed. Math collapses. Unlike bridges. Built by engineers.

Spin Cycle Steve

AMAZING MOVIES TO WATCH—FROM SOMEONE THAT NEVER RECOMMENDS MOVIES!

Here are a few movies and short films that have been really refreshing to see, even though they are animated.

1. US AGAIN

So, this is a 7-minute short film and although I saw this a couple of years ago, I remember it being one of the most beautiful and impact-striking films/pieces of art I had ever seen. I won't say much about the plot so that I won't spoil it but the way the story grew and the characters just transitioned fluidly was something new to see. Definitely recommend checking it out!

2. SOUL

Another great one. I saw this for the first time a few years ago as well, and just last term when thinking of movies to watch with my friends, this name came to my mind. So, my initial impression of the film was that even though the musical aspects were great, I didn't seem to remember the grasp of what the movie portrayed. But, as soon as we started rewatching it, I started remembering a few scenes from the film that were so beautifully created that they were imprinted as lifelong memories in my head. And, most definitely, watching it this time really proved my initial doubt wrong. It was another touching visual treat. (Spoiler alert: especially the scenes where the cat is sitting in Joe Gardner's body and just taking it all in with the leaves falling and time kind of coming to a pause.)

3. LUCA

Another super refreshing film that I can tirelessly watch again and again. The colors, the themes, the super real emotions and feelings between friends, the wonder, the curiosity, every single thing in this film felt priceless. Even the silly little moments seemed to bring back such youthful and cheerful vibes, the kind that makes you clench your heart in awe and reminiscence. I don't usually end up recommending movies but if these are truly seen without a critical lens of things being too cliché or cliché, I feel they would bring a sense of warmth that we all sometimes lack in this busy life and can for sure appreciate! < 33

soul_art

mathNEWS

N THINGS I ACCOMPLISHED WHILE WAITING AT A RED LIGHT

Recently I found myself in Mississauga and was approaching a red light. I stopped and looked at the pedestrian light and saw the longest countdown I have ever seen: 35 seconds. Not wanting to waste time, I of course:

- Looked left
- Looked right
- Looked left again
- Stretched my arms
- Pondered my existence
- Discovered the cure to cancer
- Found the love of my life
- Started a family
- Looked left again again
- Raised three wonderful kids
- Found great success in my career
- Grew old with my family
- Realized I didn't actually cure cancer :(
- Watched the collapse of society
- Experienced the expansion of our sun swallowing the earth
- Checked my blindspot
- Witnessed the heat death of the universe

And finally the light turned green and I was able to continue on my way.

Totally Ununimodular

CONGRATULATIONS TO THE GRADUATING CLASS OF 2024

There are no more universities left in Gaza.

“These attacks are not isolated incidents. They present a systematic pattern of violence aimed at dismantling the very foundation of Palestinian society.”¹

rockfacts

1. UN experts deeply concerned over 'scholasticide' in Gaza. (2024, June 10). Retrieved from <https://www.ohchr.org/en/press-releases/2024/04/un-experts-deeply-concerned-over-scholasticide-gaza>

N DUMB THINGS I'VE HEARD STUDENTS IN THE PHYSICS DEPARTMENT SAY THIS WEEK

- “I love gambling so much that I did a physics degree” — phys astro
- “I’m going to be here forever doing minor after minor” — honours phys
- “You look like you’re about to mansplain chess to me” — phys astro
- “I used to eat handfuls of sand in the sandbox” — MNS
- “Everyone is getting my ass” — honours phys
- “My fingering skills are too good to be used on duck” — honours phys
- “This is just an excuse to say more things about little girls” — former phys
- “Me when there is burning hot gas in something... mmmmmmm yum” — MNS
- “I’m not going after that mechanical engineering girl” — honours phys
- “She Eigened on my Value till I Hermitian operator” — phys astro
- “I’m a nasty little girl” — honours phys
- “Fold'er? I barely know her” — honorary physics student

ilovemyemotinalsupportboytoy

Y'ALL GOT PLAYED

RESULTS OF MY LOVE VS HATE POLL FROM LAST ISSUE

4 out of 7 survey respondents failed on a 50/50 choice between which 3 things I love and which 3 things I hate.

Indeed, it seems more likely that one would love Cucumbers, Anime, and Pure Mathematics, no? But that is not the case for me; I'm not your run-of-the-mill **mathNEWS** writer.

Instead, I love Doing Assignments Really Early, Ketchup, and My Mental Health.

Thanks for coming to my **tedTALK**.



At least 6/7 of you understood I hate League of Legends.

no pun indented

FOR THE RECORD™®©: JUNETUNES!

I LOVE MUSIC YIPPEE

👉 ON ROTATION IN MY HEAD CALL THAT ROTISSERIE

1. THE RISE AND FALL OF A MIDWEST PRINCESS, CHAPPELL ROAN

Will give you both the will to live & end your situation(s):
Femininomenon, Casual, My Kink Is Karma, Naked in Manhattan

Starting this list off right with my personal favorite; she's got sing-your-heart-out bangers, she's got brutal sob songs, she's got saucy songs about lesbian sexual intercourse. This album has carried me through midterm study sessions and the remnants of a minor heartbreak. Happy pride, lovers. 🐱

2. RIGHT PLACE WRONG PERSON, RM OF BTS

Like walking through a field of Minecraft red and white mushrooms:
Domodachi ft. Little Simz, Groin, LOST!

BTS' solo music is always an interesting surprise, especially with their extended history in the music history and all the resources at their disposal for top notch production.

I listened to *Indigo*, RM's previous album, for the first time snuggled up in bed in V1 on a cold, 1B Friday night. *RPWP* feels like a sequel to the most experimental track off *Indigo*, *Change pt.2*, and is just as spiritual of an experience, with the weirdness and wildness cranked all the way up, much to my delight.

3. ATAVISTA, CHILDISH GAMBINO

Songs to suit up and take on a dystopian world to: *Algorhythm, Time*
ft. Ariana Grande, *Final Church*

A very interesting experience start-to-end with earbuds in, even if none of this album's songs end up on your playlists. I powerwalked to the DC bathroom listening to *Final Church* and I have never felt more powerful.

4. DARK TIMES, VINCE STAPLES

Perfect grindset mindset soundtrack: *Government Cheese, Shame On The Devil, Étouffée, Little Homies*

Gritty ear candy, the kind of music you play when you want to feel cool. Great production with lots of texture and lyrics with interesting insight on the artist's life. Bonus points for being great gym songs.

5. MINI SKIRT, HIDEKI KAJI

Cured my depression, watered my crops, lifted my GPA out of the burning depths of hell: *MUSCAT, SIESTA, HEART, WATER*

Discovered this album on a cat meme post (@nabesent-ochiro) and listened to it for the first time walking to campus.

Listening to this made me stop to see the wildflowers on the side of the ION tracks, to enjoy Summerloo in all it's beautiful glory. Kind of feels like eating skinless grapes or having a runny egg sandwich.

👉 HONORABLE MENTIONS

HIT ME HARD AND SOFT, BILLIE EILISH

Some instant cultural classics like *LUNCH* and *BIRDS OF A FEATHER*. I'm really enjoying Billie Eilish's musical progression through the years; I don't ubiquitously enjoy it all but it's interesting and new, and certainly has its moments.

COWBOY CARTER, BEYONCÉ

I recently was reintroduced to *II HANDS II HEAVEN* and it felt truly rapturous. I have no strong feelings regarding the new soft-country wave but I've found myself indeed enjoying some of it. *LEVII's JEANS* is also still music to my ears (haha).

UPCOMING ALBUMS I'M EXCITED FOR!

THIS IS HOW TOMORROW MOVES, BEABADOOBEE (AUG 16)

Excited especially after the drop of *Take a Bite*; hoping for more soft rock vibes!

SHORT N' SWEET, SABRINA CARPENTER (AUG 23)

Will be a great album to wrap up the summer. *Espresso* was a lot of fun and Carpenter's music videos are a lot of fun.

Okay! Send tweet hope everyone has a great rest of midterms! Touch grass! Drink water! See your friends!

instantpoodles
(ft. ghostwriter & professional distraction:
sniffle)

WANTED: PERSON NAMED HENRY MICHAEL

We wish to complete the Alexander Henry Michael Alexander chain.

Henry Michael Alexander Henry Michael
Alexander Henry

mathNEWS

GUILTY: HAMDULLAHPUR BECOMES FIRST FORMER UWATERLOO PRESIDENT CONVICTED OF FELONY CRIMES

WATERLOO (mN) — Feridun Hamdullahpur became the first former University of Waterloo president to be convicted of felony crimes Thursday, as an Ontario jury found him guilty of all 34 charges in a scheme to illegally influence MathSoc through a hush money payment to a mechanical engineering student posing as a member of the Faculty of Mathematics.

Hamdullahpur sat stone-faced while the verdict was read as cheering from the street below could be heard in the hallway on the building's 5th floor where the decision was revealed after more than nine hours of deliberations.

"This was a rigged, disgraceful trial," an angry Hamdullahpur told reporters after leaving the courtroom. "The real verdict will be known by the people. They know what happened, and everyone knows what happened here."

The verdict is a stunning legal reckoning for Hamdullahpur and exposes him to potential prison time on the campus where his machinations helped catapult him from student to budding academic and ultimately president. As he seeks to reclaim the President's Office in this year's election, the judgment presents voters with another test of their willingness to accept Hamdullahpur's engineer-symphathizing behavior.

He's expected to appear Friday and will continue fundraising next week. His campaign was already moving quickly to raise money off the verdict, issuing a pitch that called him a "political prisoner of mathematical tyrants."

The charges carry up to four years behind bars, though Kitchener-Waterloo District Attorney Mr. Goose would not say Thursday whether prosecutors intend to seek imprisonment, and it is not clear whether the judge—who earlier in the trial warned of jail time for gag order violations—would impose that punishment even if asked.

The most pivotal witness in the trial, by far, was Nude Dude, who during days of testimony gave an insider's view of the hush money scheme and what he said was Hamdullahpur's detailed knowledge.

"Just take care of it," he quoted the former president as saying.

For another candidate in another time, a criminal conviction might doom a presidential run, but Hamdullahpur's career has endured through allegations of disliking memes made about him, investigations into everything from potential ties to the University of Toronto to plotting to overturn an election, and personally salacious storylines, including the emergence of a recording in which he boasted about never having eaten at Lazeez.

Ahead of the verdict, Hamdullahpur's campaign had argued that, no matter the jury's decision, the outcome was unlikely to sway voters and that the election would be decided by issues such as reducing goose attacks.

Even so, the verdict is likely to give President Vivek Goel space to sharpen arguments that Hamdullahpur is unfit for office, though the President's Office offered only a muted statement that it respected the rule of law.

Hamdullahpur maintained throughout the trial that he had done nothing wrong and that the case should never have been brought, railing against the proceedings from inside the courthouse and racking up fines for violating a gag order with inflammatory out-of-court comments about breaking ground on another Engineering building.

"While this defendant may be unlike any other in Waterloo history, we arrived at this trial and ultimately today in this verdict in the same manner as every other case that comes through the courtroom doors, by following the facts and the law and doing so without fear or favor," Goose said after the verdict.

verdanik

N MATH JOKES

YOU CAN THANK ME IF YOU FIND ME

1. **Why was the equal sign so humble?** Because he knew he wasn't less than or greater than anyone else.
2. **Why do plants hate math?** Because it gives them square roots.
3. **What do you get if you cross a mosquito with a mountain climber?** Nothing. You can't cross a vector with a scalar.
4. **Why was the fraction worried about marrying the decimal?** Because he would have to convert.
5. **Parallel lines have so much in common.** It's a shame they'll never meet.
6. **Why is six afraid of seven?** Because seven eight (ate) nine.
7. **How does a mathematician plow fields?** With a pro-tractor.
8. **Why was the math book sad?** Because it had too many problems.
9. **Why didn't the two fours want any dinner?** Because they already eight.
10. **What did the zero say to the eight?** Nice belt!

PEDAGOGY HARD

I HAVE A LOT OF INTERESTS THAT ARE HARD TO GET INTO

I had someone ask me to explain linguistics to them because they felt frustrated that they don't know enough to articulate themselves. I decided to take them up on it and wow did I underestimate the scale of what I'm undertaking.

Linguistics is such a sprawling field and I was quickly aware of just how much I would have to build in order to get to a workable scope. I want to get into sound changes. But you can't get into sound changes without getting into phonetics. But you can't get into phonetics without getting into sounds. So we start with sounds, and could theoretically work up from there... if it weren't for completely ignoring grammar. Grammar then splits into half a dozen subsections very quickly: syntax, marking, case, verb conjugation, TAM, other constructions. All while ignoring semantics, which is still a topic of hot debate in philosophy. Speaking of hot debate topics, there are sooooo many flame wars in linguistics. The Sapir-Wharf hypothesis and its gradation, the Altaic hypothesis. Now we're back at diachronic linguistics.

It's an entire mess, but at least you can untangle it and quickly go over each topic in about 5 minutes. But this reminded me of something else. I also, for various reasons, initially attempted to make a "quick" guide to practical music theory.

That attempt I abandoned.

Music theory does have the advantage of being able to make small examples yourself to demonstrate a point. However, I realised very quickly that the amount of information required in order to get someone up to speed on practical music theory is way beyond what I can explain to someone.

First problem is the fact that there is just so much going on. Musical traditions all around the world work in very different ways and so it's almost impossible to say anything in generality. Almost any meaningful statement you can make is broken by at least 1 prominent musical tradition. You need to treat all of these differently, and you need to become familiar with a lot of "vocabulary" for each of these genres to say anything coherent.

Next problem is the fact that everything is so interconnected. At least in linguistics I can go "and now we're talking about [topic]" without having to split it up too much or worry about how it interacts with other things. So long as I build the foundation of knowledge correctly I can guide you through linguistics to the top. The same cannot be said for music theory. All the factors of music interact to form the overall experience, including genre. Trying to tease them apart is a foolish endeavor, so you need to explain things in a single genre at a time. This then requires assumptions that you need to go back and either explain or break (or both) later. I can't even start by giving you notes without there being a large set of very basic questions that do have answers, but they are so esoteric nobody would appreciate the answers at first.

Another problem is that there are many forces that you need to counteract when learning/teaching music theory. The current institution is so outdated that people have been complaining about it for over 200 years. People come in with many pre-conceived notions about what is "better" or what is "proper" or how things "should" work, and you need to break all of those biases down. You're fighting a tide of snobby academics and archaic rudiments that are still somehow drilled and peoples' conceptions and your own preferences (and theirs, too).

Also, music theory is esoteric. People think that music theory will somehow make them "good" at music in some way. It will not. It is a tool for those who are invested enough to pick apart the stuff they love. People realise very quickly that music theory offers almost nothing for them, and they lose what little motivation they had to start. I'm a math student. We math students already know how hard it is to get people interested in a field as esoteric as math. Most people cannot bring themselves to care about something that feels so detached from reality. Even though practical music theory is connected, it's not enough to tie people through.

So. Why am I like this??? I don't know. But I most certainly have a lot of interests that are hard to get into.

別

N THINGS MY APARTMENT HATES

One of my all-time favourite pastimes is sitting around and bullshitting with my lovely roommates. Here's a list of things we hate that were created during one of those times. We had more serious things on here too but they have been cut for the sake of lightheartedness:

- The idea of creating a list of things we love
- The movie Elf (2003)
- Timbiebs (bieber balls)
- Owen's value village story (her actions)
- Administrative work
- Instagram
- Allergies (not the song)
- Hatred
- When people make you feel small
- Dialtone music
- When people hate cooked carrots
- Clay Walker not coming to Brazil
- Eventually forgetting what the above means

MAYBE I SHOULDN'T HAVE STOLEN JOBS FROM PHYSICISTS

PLEASE HELP

- > Be Me, 3B PMATH Major
- > Steal Job From Physicists at IQC
- > DeviousSmileEmoji.jpg
- > Asked to Work on Company Website (literally 1984)
- > Work on Fun Research Project Instead
- > Use ChatGPT To Find Papers To Read
- > Print Papers
- > Boss Catches Me Reading Papers
- > WillemDafoeLookingUp.gif
- > Actually He's Fine with It
- > Asks Me To Give Him A Presentation About It In Less Than 2 Days
- > Cry
- > Work on Slides
- > Cry
- > Show Him My Slides The Next Day
- > He Hates Them, Asks Me To Redo Them All In 3 Hours
- > Cry
- > Show My Boss Slides Next Day
- > No Comments
- > "Actually You Should Have Used ChatGPT To Write These Slides"
- > Confused
- > Cry

Shahabee

I AM PRACTICING MY SEDUCTION SKILLS



QUAAAAAAAAACK

A REVIEW OF THE PAC POOL

I WENT TO THE POOL

I went to the PAC Pool recently! One can further clarify that I, in general, went to PAC. It's been 2 years in this university and this is the first time I've even stepped into that building with the intention of properly doing exercise.

Being a man of proper scheduling, I decided to go during one of the nightly swims they have at 10pm to 11pm on weekdays. The PAC felt relatively quiet (for it was closing soon) and the experience of walking to PAC for 30 minutes at 10pm was something alright.

I don't own a padlock of my own yet, so I resolved to rent one from PAC for \$2 to use on their day lockers, but turns out, those are not deposits, you are actually paying \$2 each time you use their locks.

Pro tip: Don't spend \$2 to use their locks for 1 time like there's the W store right they sell those just like do that don't buy it from there I am scamming myself god

It feels strange going to the pool by myself—usually I would be going to swim lessons, or have family nearby. Perhaps I am not used to having such freedoms on how to conduct oneself near a body of water.

Pro tip: Do not drink the pool water they have water fountains I repeat you DO NOT NEED TO DRINK THE POOL WATER

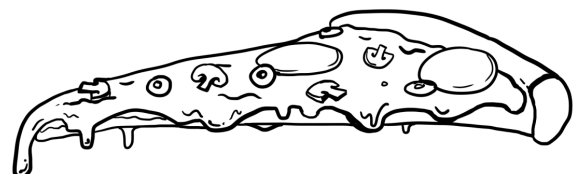
Swimming was alright, though it made me realize I was excruciatingly out of shape. I would have to switch between lane swims and chilling in the deep end to recover myself. Overall a pretty good experience and workout, I would totally recommend for those who fear the strange machineries of the gym.

Pro tip: The water cannot hurt you the way a leg press can (and there's lifeguards to save you)

I think the most intriguing experience is the swimsuit drier they had in the changerooms—you put your swimsuit in, it blends them, and they come out dry! It's like very loud magic. Would recommend going swimming just to experience this.

Overall would recommend going swimming at PAC at 10pm, I'm not sure what else to say I'm not that great at reviewing things just go

andoiii



REBUTTAL TO THE REBUTTAL TO THE OFFICIAL TIER LIST OF WATERLOO ROADS

A LETTER BY AN EVEN MORE UPSET READER

In **mathNEWS** 155.1, I greatly enjoyed *verdani*'s *The Official Tier List of Waterloo Roads*. I have never agreed with something as much as their exquisite dissertation. Imagine my shock, then, when in **mathNEWS** 155.2, I witnessed a blasphemy of Biblical proportions when someone staunchly disagrees with the listing! The worst part is, they didn't even disagree with most of it, they simply wanted to rank King Street higher (which it's, like, have you ever been to King Street?). There isn't even much that I can say, because I was taught to not argue with idiots as they take you down to their level and beat you with experience. I'm not saying that you have the worst road opinions in the world, but you better hope that whoever does is safe and healthy.

You are wrong, and you should consider a geography or urban planning course to bring your deficient insight up to *verdani*'s supreme level.

XxXRoadlover69XxXHaterXXX

N WORDS I CAN'T SPELL

MY DEGREE IS MOSTLY NUMBERS - NOT WORDS

I didn't know how to spell "water" until I was about 11. I also would regularly forget how to spell "yet." English is my first language. Here are some words I cannot spell reliably and correctly.

- seperate
- chrysanthamum
- vaccum
- diarrhea
- necessary
- reciept
- convienence
- neaseuaous
- camoflauge
- excercise
- fareignheight
- werid
- naseuaous
- accquire
- lasagunea
- whorechesire sauce

heli×2

RANKING THE WAR THUNDER CLASSIFIED DOCUMENT LEAKS

These are far from all of the leaks, just the most notable ones in my opinion.

4. F-16, JANUARY 2023

Kinda mid, tbh. Was only "classified" due to a technicality, sort of. The classification status of the documents had expired, but it was export-restricted and therefore illegal to publish.

3. F-15E, JANUARY 2023

Also mid, just incredibly funny that it happened literally 2 days after the F-16 leak, was of a similar topic and same classification status, also only export-restricted. They really did not learn.

2. SU-57, JANUARY 2023

Less than a week later, the radar cross-profile of a Russian fighter jet was also leaked. You have to commend the poster's self-awareness. In their post, they stated that they have had these documents for a long time but have not posted them on the War Thunder forums because they are not sure they have actually been declassified, as "the inscription is Top Secret—just crossed out with a felt-tip pen". I guess this argument was important enough to overcome their self control. In the same week, a different user leaked the radar cross-profile and armaments of another Soviet fighter jet, the MiG-29. Something must've been in the water in January 2023.

1. CHALLENGER 2, JULY 2021

The first well-known War Thunder leak, and an absolute banger. The user went through the trouble of photoshopping the documents to say "declassified", and it was pretty damn convincing. Unfortunately, the Ministry of Defence had previously already told War Thunder admins these documents were classified.

RoentgenEquivalentMan

LOOP TO INFINITY

when I like a song, the vibes are sad, and I have too many thoughts, the only solution is to loop a song. sometimes I would listen to the same song all day, week and throughout the month. without the song in the background, i cant think. my head is filled with too many thoughts.

panda1

AN INSTRUCTION ON HOW TO FIND CLIT

VERY HELPFUL

Hi, fellow nerds whose sexual orientation includes feeling attraction toward humans with clits, here is a simple instruction on how to find clit, since I noticed that most of you have never been near to one within the diameter of 5 meters.

Note: It is very important that you understand how to pleasure your partner, as it helps improve the quality of your sex life and hence benefits your relationship.

Now proceeds.

First, what is a clit?

A clit is part of the female genital system, where it contributes the main part of the sexual arousal of one who owns it. There are studies that indicate that most of the female population gains sexual arousal from clit stimulation rather than from penetration.

Second, where is it located?

Before you understand the location of a clit, you must understand the shape of a vulva.

And I suddenly remembered that y'all gameless math majors won't even have a chance to use this instruction anyways so why should I waste my time writing it, have a good day.

playboi cardiac arrest

AN ODE TO THE DC TIM HORTONS FARMER'S WRAP

Oh how soft your skin tortilla is

How eggy is your egg

I love both your sausage and your bacon

I will eat you

Farmer's wrap, farmer's wrap, farmer's wrap

let out your sauce

Yum yum yum

simpleX rated

I HAVE NO IDEAS AND I MUST EAT PIZZA

NO THOUGHTS HEAD EMPTY

As I sit in **mathNEWS**, desperately trying to come up with a masterpiece of a work to fit in with the others in this refined piece of literature, I experience nothingness. No ideas flow into my head, no ideas flow out of my head. Staring at the amogus displayed on the projectors, my mind slowly stops registering it as it devolves into (more) meaningless lines upon lines. Half an hour passes, 45 minutes, an hour. Time becomes meaningless. Space becomes meaningless. I decide to take a break and try the Wordle in a last ditch effort to jump start my brain. nothing

i try to recall why am i here. the faint allure of pizza a promise seemingly so far away it tries to ground me in reality it does not succeed time slips away as i write a last second meta article for the nth time i have done nothing but watch the metaphorical paint dry on the amogus for what could be years seconds decades eons

And yet I still can't be bothered to pick up my notes and study for my business midterms.

PlatypusGod

N THINGS IN MY HEAD

.

leah

no thoughts head empty 😊

EPISODE 63: DFAS

Mathsoc Cartoons presents episode 63 of the MathSoc Cartoons series: CS 241—DFAs!

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!

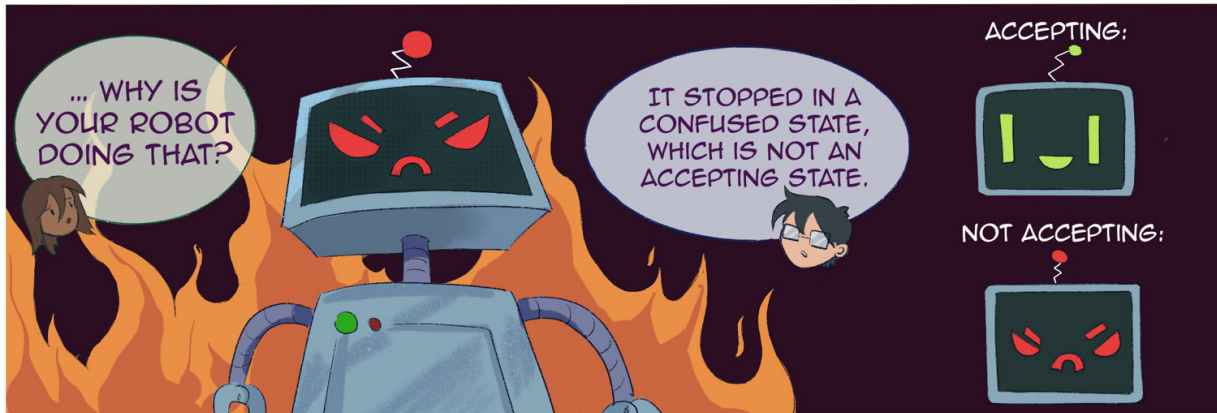
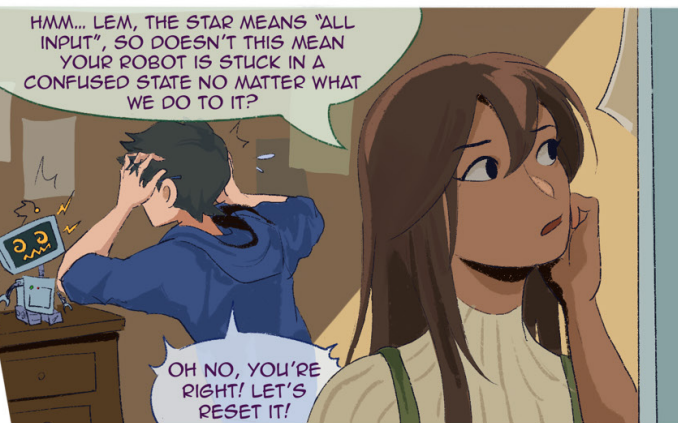
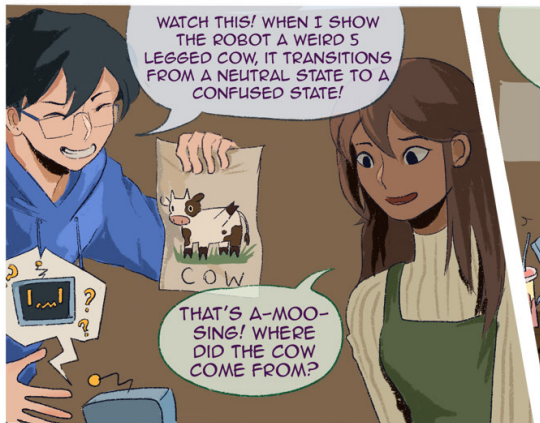
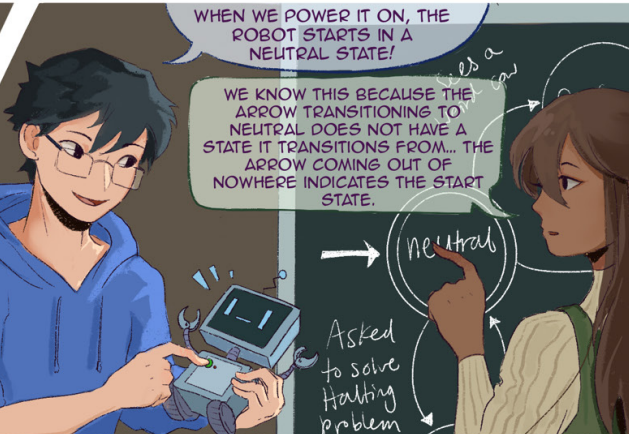
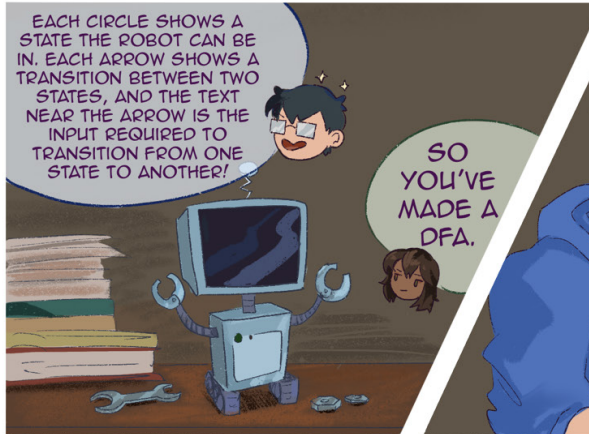
As always, feedback, suggestions, and fan art can be left on the MathSoc Cartoons channel in the MathSoc Discord server or sent to cartoons@mathsoc.uwaterloo.ca.

MathSoc Cartoons

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CS 241: DFAS

STORY BY VIVIAN DAI | ART BY LEE CHENG



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CS 241: DFAS

STORY BY VIVIAN DAI | ART BY LEE CHENG

HERE, LET ME SHOW YOU SOME MORE COOL THINGS MY ROBOT CAN DO! BECAUSE WE JUST RESET IT, IT WILL START FROM A NEUTRAL STATE AGAIN!

OKAY!

sees weird cow

Confused

Given ice cream, taught a new lemma

Happy

Give Ice Cream

Sad

Asked to solve the halting problem

Neutral

COMMAS SEPARATING INPUT VALUES MEANS ANY OF THEM CAN BE USED TO TRANSITION TO THE NEXT STATE. HERE, WE CAN TRANSITION FROM NEUTRAL TO HAPPY BY EITHER GIVING THE ROBOT ICE CREAM OR TEACHING IT A NEW LEMMA!

OR

$ax+by=d$

HAPPY = ACCEPTING STATE

FOR EXAMPLE, GIVING ICE CREAM TO A SAD ROBOT TURNS IT TO A NEUTRAL STATE, WHILE GIVING A NEUTRAL ROBOT ICE CREAM MAKES IT HAPPY!

THE STATE YOU END UP IN DEPENDS ON BOTH YOUR CURRENT STATE AND INPUT!

SO WHAT HAPPENS IF I GIVE THE ROBOT ICE CREAM WHEN IT'S IN A HAPPY STATE?

NO!

Tremble...



Nooooo!

MY DREAMS OF BECOMING RICH AND FAMOUS ARE GONE UP IN FLAMES AGAIN! THERE'S NO TRANSITION DEFINE FOR WHAT HAPPENS WHEN YOU GIVE AN ICE CREAM TO THE ROBOT WHEN IT'S IN A HAPPY STATE AND NOW IT'S IN AN ERROR STATE... WHY MUST THIS ALWAYS HAPPEN TO ME!?

IT LOOKS LIKE LEM TRANSITIONED TO A DEPRESSED STATE...

I DON'T LIKE THAT STATEMENT...

HAPPY NATIONAL POP THE WEASEL DAY

gridCOMMENT 155.3

hi gridWORDers,

i hope everyone's midterms are going/will go just swimmingly!! i would say mine are, but some of them are happening in between the writing of this gridCOMMENT and the release of this issue of mathNEWS, so i guess we will see then :|

in the last issue, i asked you to fill in a blank: she grid on my WORD til i _____. here's what you guys submitted

- cutlet: 12. Micturate
- water: came out of retirement
- jeff: am departed to quebec (permanent)
- hu: cross
- UW Unprint: am arrested for public indecency
- livzcy: drop out of math
- Coda: solve

- nike: word the grid
- awmlet: im not funny enough to think of a good answer to this
- Ben: 12 Down (PEE)

sorry cutlet but i think Ben may have done it better—please pick up your PEErize at the mathNEWS office, MC 3030. it was very funny tho thanks guys

this issue's gridQUESTION is: what should i have for dinner? don't be afraid to include a recipe should you wish. please send your gridWORD solution, answer, and pseudonym to mathnews@gmail.com by monday, june 24, 2024 at 6 pm edt.

have a great june 14 everyone :))

spaghettinhalers

ACROSS

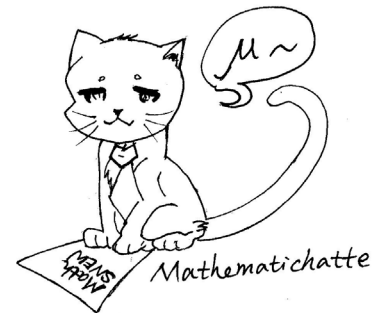
- Canyon effect
- "It's ___ Day!"*
- Caught some Z's
- Old-fashioned music hall
- Have a bawl
- Abdominal network
- Signal
- Paving materials
- Tortoise racer
- "Indubitably"
- "Holy moly!"
- "Cheers!"
- Singlish word expressing boredom
- Broadcasting unit?
- Arizona Alliance for Community Health Centers (abbr.)
- "Or ___!"
- Pallid
- "It's Wear ___ Day!"*
- Catalogs
- Eastern royal
- Booze: Abbr.
- Quick
- Alerted, in a hospital
- "It's ___ Day!"*
- Doe's mate
- Wet-ish
- Accident
- Guys
- Country bumpkin
- Expose to sunlight
- Purpose

- Question to which one might respond with the clues for 5-Across, 35-Across, 42-Across, or 32-Down today?*
- Ring bearer, maybe
- What the squeaky wheel gets
- With regard to
- Teary-eyed
- Squirrels' nest

DOWN

- School assignment
- Within walking distance
- Relieves
- Moonfish
- Lavalike
- Poems of praise
- Shadow Isles yordle
- Debtor's note
- "Star Trek" rank: Abbr.
- Calamitous
- Knave
- Sharer's word
- Buzzer
- "Guilty," e.g.
- "Hee ___"
- Pepper's partner
- Smooch
- Load from a lode
- Pronoun for a ship
- Barn topper
- Wednesday's roommate
- Shakespearean sonnet rhyme scheme
- Greeting in Grenoble

- "It's ___ Day!"*
- Waterloo winter setting
- Neighbor of Vietnam
- "___ It Romantic?"
- Maid's cloth
- Secretive org.
- Yellow fruit
- Future fish
- Rundown
- Samoan cash
- Scrooge
- Web mag
- Meshlike
- Sorrow
- Can. neighbor
- Flight segment
- Peel
- Blow away
- Get a move on
- Brewed drink



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			

Want to write for mathNEWS? Come to the next production night! New writers are always welcome!

lookAHEAD

SUN JUN 16 MON JUN 17 TUE JUN 18 WED JUN 19 THU JUN 20 FRI JUN 21 SAT JUN 22

Father's Day International Panic Day Finally Summer For Real Day

SUN JUN 23 MON JUN 24 TUE JUN 25 WED JUN 26 THU JUN 27 FRI JUN 28 SAT JUN 29

mathNEWS 155.4 production night Kick jeff Out Of The Office Day (how did he get back in here) Sunglasses Day ☀️ mathNEWS 155.4 released

LAST ISSUE'S gridSOLUTION

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

RETRACTION OF "I KNOW WHERE YOUR AIR IS GOING"

I COMMITTED AN INTERNET SIN

I hotlinked the HYSPLIT simulation image resulting in a simulation ending in Asia. Per a member of the Applied Math Club, hotlinking is an internet sin. The University of Waterloo is in North America, not Asia. I apologize for any inconvenience.

QUAAAAAAAAACK

Run your own damn simulations.

RE: HOW TO MAKE A WORK FRIEND

Since my last article, I've asked work friend if he'd like to get lunch sometime. He said yes, and then we walked back to our desks. (A few minutes later, we got up and encountered each other at the same time uncomfortably.)

Today, I've set the lunch with him to be on Thursday. Wish me luck with work friend!

blinchik

They should combine math *and* computer.
A PROPHETIC mathNEWS EDITOR FROM 1966