

warSOC #1



## “HOW DO YOU FEEL ABOUT THE UNIVERSITY'S IN-PERSON PLANS FOR FALL '21?”

Hello everyone! I'm a new editor. You can call me bipED.

It feels like plans are on everyone's mind these days. This issue you'll find some seriously in-depth articles surrounding a recent WUSA motion, something about mandatory fees. I'm looking at the Imprint website right now and they're silent on this, and WUSA hasn't uploaded their minutes yet; you literally won't find this stuff anywhere else. It's great material to chew on for when you've been stuck inside for too long and miss being overwhelmed with the unfathomable complexity of interpersonal relationships, or maybe that's just me.

If that's not your thing, this issue is full of fun little snacks too. Online **mathNEWS** is suffering from a drought of N-things lists, but the three we have this issue are shining examples of the medium's potential. Rhyme enjoyers should read aloud the two poems we have this week, preferably loud enough for everyone in earshot, or maybe in a stand-up to start your co-workers' days on a high note. Really, don't skip any of this week's short articles. I could fill a **mastHEAD** talking about any one.

And as for this publication's burgeoning little world of long-form urban fantasy fiction, don't miss the first installment of two(!) new series: *Axioms of Resistance* by CC and *Tie Guard* by Predap. Maybe you can't tell from my writing, but I cannot contain my excitement right now. The seeds of something great have been planted.

Finally, if you're in something of a reflective mood, maybe you're reading this in bed after a long day, or maybe you're sitting at your window watching the leaves, it's a great time to read something with a nice thick atmosphere. Allow me to suggest *The fear of having missed out*, *The Only Good Memory of Ontario*, and *The Next N Words*. Get comfortable now, because it may take you a while to get back up.

Now go.

And if reading is not your thing, this issue also has a video game. It's very hard; can you get all 16 points?

bipED  
Editor, mathNEWS

<b>PREDAP</b>	Plans didn't mention <b>mathNEWS</b> , 0/10
<b>TENDSTOFORTYTWO</b>	The only plans for Fall 2021 that concern me are the plans any employer might have of not hiring me, and the plans on how to foil the former plans.
<b>DERIVING FOR DICK</b>	It feels logistically impossible and I will find something to complain about when it comes around.
<b>QUANTUM GOOSE</b>	Gives me more people to honk at, honk
<b>FINCHEY</b>	Fall '21? I've been squatting here since Spring' 20! Plant Ops will <i>never</i> find me. NEVER!
<b>BOLDBLAZER</b>	Just go back to fully online courses (for those courses that can go fully online) until Canada is fully vaccinated. There's still too much uncertainty all about.
<b>ABALD MAN</b>	Gimme real classes.
<b>CC</b>	Abald man: knows what's up cares: long since run out pizza: in my face
<b>WALDO@&lt;3.LE-GASP.CA</b>	Not that confident to be honest. I just hope the staff who were laid off this whole time will be taken care of, no matter what happens.
<b>A COOL PEN NAME</b>	Hello Prez Feridun, I would like to submit an official proposal to amend your plans for this coming fall. The best plan of action is to get every student on campus, 100% class sizes, all activities in person. How do we do this, you ask? Four words: Glass dome, complete quarantine.
<b>APHF</b>	I have lost the ability to feel
<b>CY</b>	I have an incredible article series planned for the next in-person term. Let's see if I get to release it Fall 2021.
<b>ME</b>	Hell it's about time!
<b>TERRIFIED</b>	Cautiously optimistic.
<b>GOD ⚡ PEED</b>	People keep asking if I'm back. And I haven't really had an answer. But now, yeah, I'm thinking I'm back.
<b>CLARIFIED</b>	Fingers crossed.
<b>BIPED</b>	My mind is filled with thoughts of airplanes.

## ARTICLE OF THE ISSUE

This issue's winner is *Sympathy For The Devil*, by methNEWS. Anti-PD rhetoric and Satan? How could it not win?

god ⚡ peED  
Editor, mathNEWS

This issue does not taste as good online.

YANG ZHONG, mathNEWS EDITOR FOR SPRING 2021  
ALONG WITH TERRY CHEN, KEVIN TRIEU, AND CLARA XI

# MATHSOC SEZ

Frabjous day! Callooh! Callay!

Despite the weather and the pandemic,  
We hope your May hasn't been too grey.  
We miss the club rooms and the CnD.  
But just because the term is online,  
Don't think that we are just playing DnD.

MathSoc and our clubs (<https://mathsoc.uwaterloo.ca/clubs/>) are running events regularly and we encourage you to join and meet new people. The best way to find out about events is still reaching out to the clubs directly. MathSoc Council is where a lot of MathSoc's decisions are made and it is open to everyone. Our next meeting is this Sunday May 23 at 11 a.m. EDT and you can join by clicking the link in the agenda—[shorturl.at/jkDHX](https://shorturl.at/jkDHX). If you would like to join the council mailing list you can do so here: <https://mathsoc.uwaterloo.ca/council/>.

Keep your eyes peeled to your UWaterloo email, **mathNEWS**, and MathSoc's social platform pages ([facebook.com/mathsoc/](https://facebook.com/mathsoc/), [instagram.com/uwmathsoc](https://instagram.com/uwmathsoc)) for more details on all of these opportunities, including application deadlines. If you have any questions, send an email to [info@mathsoc.uwaterloo.ca](mailto:info@mathsoc.uwaterloo.ca), or message us on Facebook or Instagram!

Want to contact us?

President ([president@mathsoc.uwaterloo.ca](mailto:president@mathsoc.uwaterloo.ca))—reach out for:

- Questions regarding MathSoc clubs and external organizations, or about MathSoc itself.

Vice President Academic ([vpa@mathsoc.uwaterloo.ca](mailto:vpa@mathsoc.uwaterloo.ca))

- Academic and co-op-related questions, concerns, and feedback.

- Suggestions for exam bank, textbook library, and academic events.

Vice President Operations ([vpo@mathsoc.uwaterloo.ca](mailto:vpo@mathsoc.uwaterloo.ca))

- Questions and feedback regarding the MathSoc office, website and the services we provide.

Vice President Finance ([vpf@mathsoc.uwaterloo.ca](mailto:vpf@mathsoc.uwaterloo.ca))

- Questions about refunds, cheque reimbursements and club budgets.

Vice President Internal ([vpi@mathsoc.uwaterloo.ca](mailto:vpi@mathsoc.uwaterloo.ca))

- Questions and feedback regarding MathSoc events.
- Marketing requests (i.e. poster approval).
- If you would like to takeover our Instagram account.

Cheers from the Math Society Execs,

Harleen Bhandal (Prez), Mary Sybersma (VPA), Sandra Huang (VPF), Abhiraj Lamba (VPI), and Arnav Gupta (VPO)

Your Mathematics Society Executive Team  
Spring 2021

## SPRING TERM IS HERE!

Thought I'd let you know.

tendstofortytwo

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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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# MANDATORY WUSA FEES MOTION PASSED

On Sunday, attendees of the WUSA Student Council meeting debated the motion “Ratification of New WUSA Fee Model”. This motion sought to make some of the currently-optional fees mandatory. Specifically, the fees made mandatory would be the fees for university and government advocacy, as well as fees that covered various aspects of student life—clubs, events, and services that WUSA provides. As could have been expected from a meeting about money, the discussion on this topic was long and complex, with many different perspectives and concerns.

A shorter summary of the points below, along with some discussion, can be found on the r/uwaterloo subreddit thread here: <https://tinyurl.com/WUSAFeesDiscussion2021>.

The discussion started off with the WUSA Vice President of Operations and Finance, Matthew Schwarze, laying down the reasons behind this motion. In this initial description, he outlined the “free rider problem”, where students would opt out of these fees, but still use the provided services anyway. This meant an increased cost for the students who *did* pay the fees, to cover for the ones who didn't.

There are two parts to this. Firstly, there's advocacy. WUSA can't simply single out the people who had opted out of advocacy, and somehow exclude them from benefiting from it. Advocacy inherently benefits all university students, so according to Matthew it made sense that everyone pays for it. Secondly, there's clubs, events, and services (for conciseness, I will refer to these three things as “services” from now). Here, to enforce fee payment in order to access clubs, they would have to train execs of hundreds of clubs, hire checkers or bouncers at events, and turn down students who did not pay the fees beforehand. This, according to Matthew, is a cost that WUSA could not afford to pay, and even if they did, the money would be better spent in places that benefit students, rather than simply enforcing collections.

One final benefit of this entire plan that Matthew highlighted was that if all the fees were mandatory, they would not be subject to taxes, and would be eligible for OSAP/other student aid programs. This, along with the reduced costs from not needing to subsidize non-paying students, meant that the costs of the fees would go down once they were made mandatory.

Next to speak was the WUSA Vice President for Student Life, Catherine Dong. She reiterated a lot of the points Matthew had made. Further, she pointed out that WUSA offered a lot of services like a food bank for students in financial need, peer support for students experiencing mental health issues, and so on. WUSA believes that all students should have access to these services, and they shouldn't be turned down from accessing these simply because they opted out of it. Regarding events, she said that WUSA had tried to police access to those, but they had to pay staff overtime for the enforcement, and the enforcement didn't cover the cost of the fees gained from this. Finally, she said that WUSA intended to offer many more

services once campus was open again, and urged first years to not make decisions on how useful WUSA was based on the limited online experiences they had had.

The next person to speak was Councilor Vincent Macri. Vincent also has an article in this issue where he speaks to why he ultimately voted in favor of the motion. I have not read that article yet, but I will once this issue is published, and I encourage you to do so as well. That said, I will try to summarize the views he presented at the discussion.

Vincent claimed that he had received 7 emails from his constituents against the motion, 13 for the motion, and 1 email asking for a student referendum on this issue. Vincent had initially planned to support mandatory advocacy fees only, but by the date of the discussion had been convinced that mandatory student life fees were a good idea as well. According to a WUSA report that was distributed to inform the councilors (see page 114 of <sup>1</sup>), opt-in rates for student life services were at 70–80%. Vincent claimed that often, the students opting out didn't understand where the money went, and ended up at those events or services that they accidentally didn't pay for.

Next, after briefly describing the policing issue again, he pointed out that the fees wouldn't be in effect until fall 2021, when the university had planned to increase campus activity significantly. Further, he noted that a lot of the services WUSA provided were necessary for students, especially at UW which already had a reputation for being “depressing”. He pointed to events and services like peer support for mental health as necessary services. Further, he brought up the WUSA food bank—he was strongly opposed to having to police access to the food bank to students who might need that service, just because they had opted out of it earlier in the term.

The next speaker was Councilor Jay Lan, the first one to speak in opposition to the motion. He pointed out that in Winter 2021, 47–49% of the students had opted out of fees (shown on page 114 of <sup>1</sup>). He brought forward his constituents' concern that they did not want to pay for services they did not intend to use, and that they had come to university to get an education, not for events. He called into question the severity of the free rider problem, requesting to see how many students had actually opted out of and then tried to use WUSA services. According to him, one of his constituents told him that nobody should be forced to pay for advocacy that goes against their political views. For his part, Jay supported a mandatory advocacy fee but not a mandatory student life fee. This entire speech led to a big debate, where a lot of Jay's concerns were addressed.

First, Matthew pointed out that WUSA is a non-profit owned by the students, not a for-profit business. The way for students to show their dissatisfaction with campus services is not to “vote with their wallet”, but rather to “vote with their vote”. He said that if people waited for events to get good before they started funding those events, they would never get good

because WUSA would never have the funding to do so. Lastly, he claimed that WUSA advocacy saves students more money than it costs, citing a \$100–300 savings per term per student. In response, Jay reiterated his point about students not wanting to pay for the services they didn't use, and wondered if WUSA actually did the advocacy or just took credit for the things done by the government.

In response to Jay's last question, Matthew, Vice President of Education Stephanie Ye-Mowe, and Councilor Kanan Sharma brought forward a few examples of things WUSA advocacy had achieved:

- Created a Student Relief Fund when COVID-19 hit
- Removed GRT charges for terms when majority of students were off-campus
- Got sports and rec fee cancelled for many COVID terms
- Pointed out provincial government's \$400 million OSAP budget cut, and lobbied against it
- Acted as voice for international student when government did not particularly care for non-citizen students
- Increased funding to sexual violence prevention on campus
- Got an accounting error fixed where international math co-op students paid much more tuition than domestic students

Matthew further reiterated that WUSA does not claim credit for work it did not do. Steph pointed out that WUSA is one of the largest and most influential student associations in terms of government advocacy in Canada, second to only perhaps Western's. Matthew and Catherine then said that “hundreds” of students opted out and then used services, but they did not have exact numbers since they did not have the money to collect this sort of data. They also said that WUSA was mandated to offer services that students had requested. If students did not want those services anymore, they should let WUSA know so WUSA could stop offering them.

Jay responded to all this by explaining that he did not want services to be shut down, but only for them to remain opt-in, so students did not have to pay for things they did not use.

Councilor Rebecca Dragusin was the next to speak. According to her, one of her constituents mentioned that optional fees were good for transparency, and were required to ensure that the services WUSA provided remained high quality. Further, she pointed out that every club and society that collected fees dealt with this issue, and that while not every student participates in elections, every student pays fees. She also sought clarification on which fees were remaining optional and which were being made mandatory. Regarding this, it was clarified that orientation would remain optional and first-year only, and student refugee fees would also remain optional.

Matthew and Unnamed Student Councilor 2<sup>2</sup> responded to these concerns. Matthew said that it's not just that WUSA didn't want to police those events; it simply couldn't, given

WUSA's scale of operations. Further, he said that mandatory fees were “the lesser of two evils”, where the other option would be to shut down niche clubs and services that were needed by some students, which these fees also paid for. USC2 added that WUSA councilors should engage with the student body to see which services were not felt to be high quality, and then work on fixing them. They also noted that any student, regardless of opt-out, has the same influence.

The next person to speak was not a member of the WUSA council, but an at-large member who requested to remain anonymous for the purposes of this article. They will be referred to as UAS<sup>2</sup> (Unnamed At-large Student). UAS claimed to be an impartial entity, and believed there to be good points on both sides of the argument. Their main concern was that the fact that such a major change was happening without consulting (or even informing) students. According to them, they had not even heard of the motion until the night before the meeting, and that too was only in an informal setting. They pointed out that councilors were very passionate about student government, which these fees were crucial to funding, so they had an interest in making the fees mandatory. They suggested a referendum—having all the students vote on whether or not they believe that mandatory fees for student life and advocacy is a good idea. They pointed to Matt saying that students were the real owners of WUSA, and asked the council to “let them vote with their vote”.

WUSA President Ben Easton pointed out here that there was precedent for students paying for the decisions of past students, citing the examples of health services and the SLC/PAC expansion. So, adding the fees without a referendum was justified.

Councilor Kanan Sharma said that every student has access to the WUSA mailing list, so they could subscribe to that if they wanted to stay up-to-date on what WUSA was doing. He claimed that he had heard from many of his constituents that they did not want so many emails from WUSA. He pointed out that WUSA councilors do not receive a salary, and so have no monetary benefit from increased funding. Further, he was skeptical that a lot of the people who had shown strong concerns about this motion on Reddit had taken the time to read and understand it fully. He pointed out that WUSA was a representative democracy, and councilors were elected so that every single student did not need to spend the time or energy to make an informed decision on every single topic that WUSA discussed. According to him, certain councilors worked up to thirty hours a month to do their job at WUSA, and the same could not be expected of every single student on campus.

Jay said here that WUSA should make more of an effort to inform its constituents at least about important things like this, if not everything. UAS pointed out that an email had been sent at the start of the term encouraging students to join committees in WUSA (an action item of this same meeting), but did not mention the mandatory fee. Ben acknowledged that the messaging around the issue could have been better, and it was on him to not have mentioned the mandatory fee in the email. He said that the Registrar's Office only gave

limited access to the mailing list, so this was not an easy problem in general. USC2 noted here that the fact that UAS was here at all, and that other councilors had received emails from concerned students, meant that the system to inform students did work to an extent, but acknowledged that it could probably be made better.

The next turn at speaking was of Unnamed Student Councilor 3<sup>2</sup>. USC3 noted that they had received 3 emails from constituents against the motion, and 2 emails for the motion. According to them, the emails against the motion believed that the Student Choice Initiative (the rule that had forced WUSA to make fees mandatory, that was struck down by courts as unconstitutional) was inherently a good thing. The emails for the motion understood that reduced funding would mean worse services. They concluded that they had a mixed response from constituents and weren't sure how to take that into account.

Matthew provided some context for the Student Choice Initiative here. He told the meeting that the SCI promised to give students choice in how their money was spent, but all it really did was weaken student unions' advocacy capabilities by making advocacy fees optional. At the same time, the SCI made sports and recreation fees mandatory even though most students did not use those services, which showed that they did not really care how students' money was spent. According to Matthew, the fact that the provincial government tried to weaken student unions showed how effective student advocacy was at forcing them to do the right thing.

At this point, a councilor moved to "call the question". This meant that all further discussion on the topic would cease, and the council would immediately vote on the motion as it stood. It had been the subject of discussion for over an hour at this point, and though this article omits them for brevity, certain points had been brought up time and time again and it seemed clear that there was not much further discussion to be had. The vote to call the question needed to pass with a  $\frac{2}{3}$  majority, which it did.

The motion itself was then voted on, and passed 20–3.

Personal opinion alert: I would like to note that while, based on my spring 2021 fee bill, I would have to spend \$7 or so more in fall, >50% of the student body didn't opt out of anything even in the worst possible scenario (Winter 2021). Thanks to this bill, they will all pay a smaller, and more subsidized tuition amount. So while I will spend a few dollars more, I am still glad that this motion passed, since so many of my fellow students will benefit.

I would also like to take a moment to thank all the councilors, the WUSA exec team, and the at-large member, who presented their views that day. It was absolutely exhausting to even just listen and make notes for multiple hours straight. Doing so much research beforehand, and then speaking on the issue on top of that, is hard work. Note how both sides of the issue were represented here, even though there was a clear pro-motion bias. This shows that WUSA, despite what it may

seem like, is not a uniform hivemind. At the end of the day, there are councilors who will listen to students and act on their wishes. So if you as a student are unhappy with what your student association is doing (or not doing), *let them know*. They're honest, hardworking people, and I don't doubt one bit that they will do what they can to make your problem go away.

tendstofortytwo

1. [https://mailinglist.wusa.ca/sympa/arc/council/2021-05/msg00007/2021\\_05\\_16\\_WUSA\\_Students\\_Council\\_Agenda\\_%281%29.pdf](https://mailinglist.wusa.ca/sympa/arc/council/2021-05/msg00007/2021_05_16_WUSA_Students_Council_Agenda_%281%29.pdf)
2. For any people tagged with this footnote, I could not get in touch with them, so I don't know if I have permission to use their name. So I err on the side of safety and don't.
3. I wanted to write this in a satirical manner, but it was hard to be funny while preserving so many intricate details. Just imagine there's a bunch of jokes in there, mokay? There's a good mathNEWS reader.

## SPRING SONG, COLD OPEN OF THE YEAR 2021

The lightless winter has finally come to end,  
 Will the achy wounds of ours hopefully start to mend?  
 We said our goodbyes. To home, we flew.  
 Yet another lonely summer, without UWaterloo.  
 Bummer after bummer, our hearts turning blue,  
 Facing the black swans, even our geeses had no clue,  
 Forcing this viral function to converge towards zero,  
 We made our sacrifices by consuming milk with oreo,  
 At home, facing mental crises alone, have to be my own hero,  
 Til we greet again, if we move on, we all must  
 Never forget the struggle, be glad to have tomorrow,  
 Because the integral of that curve is the family we have lost.  
 (I didn't use the word "me" a single time in this poem, I am so jaded right now.)

me

# MATHNEWS

# WHY I VOTED FOR WUSA TO HAVE MANDATORY ADVOCACY AND STUDENT LIFE DUES

I was originally unsure about this motion. While I understand the importance of making the advocacy fee mandatory, as all students inherently benefit from the advocacy we do, it made a bit less sense to me why we would make the Student Life fee mandatory. However, after spending the past several days talking to students, councillors, and the VPOF it began to make a lot of sense to me why this fee should be mandatory.

First off, opt-in rates for the Student Life fees were decently high before COVID; around 70% to 80% of students paid those fees then. We also found that a lot of students didn't really understand what fees they had opted out of. While it wasn't feasible to have bouncers scanning WatCards at every WUSA and club event, at *each* event where we did do that we signed up 100+ students to pay those fees who previously hadn't. So a lot of a students actually want those services but just didn't know prior to paying fees what the fees included. To me that shows two things: students really like the Student Life services we offer, and we do a poor job communicating to students about what those fees cover. The latter is definitely something we need to improve on.

Currently, we have to waste a lot of resources paying staff overtime to act as bouncers, as well as manage a cash register at our events to make sure that students who participate actually paid their fees. This is a massive waste of money. By making the fee mandatory we will no longer need to police all of the events, and those savings actually mean this change will reduce the total amount of money that WUSA expects to bring in. Without this waste, we're able to not only lower the mandatory fees compared to when they were optional, but we're actually able to offer the same things to students while spending less money in total.

Those were the arguments that convinced me that the Student Life fee should be mandatory when we're in-person, but I was still a bit unsure of why this makes sense to be in place for Fall 2021 when we're unsure of how much in-person events we'll be able to have. So I asked around for some details on our extremely tentative plans, and my understanding is that we are hoping to offer as many in-person events and services as public health allows. With Canada currently on track to vaccinate everyone by early fall, I am very hopeful that we will be able to offer the in-person programming that we usually do, albeit possibly in a modified form, at least in the middle and end of the fall term. For instance, one of the ideas I heard bouncing around a few places was to do an outdoor prom for all the first years and second years who had their prom cancelled. I think events like that are what we need to ensure sure we have a bright and vibrant campus life. Waterloo already has enough of a reputation as a depressing school, and defunding our ability to hold fantastic events that bring students joy will just make that worse. The University itself does very little to support students socially and is pretty lacking in mental health supports as well. WUSA is the only

body on campus that is well-placed to support students in making campus an enjoyable place to be.

Even if you're not as optimistic as I am about the vaccination timelines, it's a massive logistical pain to make this change, and so delaying this change for Student Life fees until after fall term just isn't very feasible.

The Student Life fee funds more than events and clubs. It also funds Health and Safety services on campus. One of the things this includes is the food bank WUSA runs to make sure that students who are struggling financially are able to eat. If we defund the food bank by making the fee optional, we will have no choice but to police access to the food bank. I do not want WUSA to have to tell starving students that they cannot access the food bank until they pay their Student Life fee, which would be artificially inflated by all the students who are not paying into it while still reaping all the benefits of the Student Life work that WUSA does on campus. However, if the Student Life fee is optional, WUSA will have no choice but to restrict access to the food bank, among other critical services.

Of course, the proposal wouldn't make any fees besides advocacy and student life mandatory. Regarding all other fees, it either keeps them as mandatory or keeps them as optional (and doesn't touch a bunch of other fees).

Vincent Macri  
WUSA Math Councillor

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## CALL FOR RECIPES

Hello to all **mathNEWS** writers who like food,

I am looking for recipes from **mathNEWS** writers. Please send a recipe that is meaningful to you to [mathnews@gmail.com](mailto:mathnews@gmail.com). For example, a recipe for a personal "comfort food". It does not actually have to taste good, but it must be food. Shorter recipes preferred. You can write the recipe yourself or send it from a link. Optional: you can also include a few sentences describing why this recipe is meaningful to you.

By sending me the recipe, you agree for me to put your recipe, or a shortened version, and your few sentences, or a shortened version, in a future **mathNEWS** article. Your **mathNEWS** name will be credited.

I want recipes from those who have written at least one article. If you have not but wish to submit a recipe, you can send it to me anyway and write an article next issue.

# SYMPATHY FOR THE DEVIL

It was the middle of exam season and I was sitting in a park  
 For no reason, feeling hopeless, waiting for my mark  
 Of what to do or who to ask for help in this demanding  
 stressful time  
 And you would never guess who crossed this lonely little path  
 of mine  
 It was a man whose eyes were gleaming with a strangely  
 wicked shine  
 I could not recognize it after months of being trapped online  
 The world then fell to silence, you could hear each step he  
 walked  
 I wanted to leave but was quite intrigued and suddenly he  
 talked

## THE MAN:

A young man of your age should not be so stressed  
 About assignments and tests, you should give yourself rest  
 Though your life in these times might now seem like a mess  
 You could get help in ways you would never once guess

## ME:

How do you seem to know the things that go inside of my  
 head?  
 And the events the unknown future over us holds ahead?  
 Although this talk would make most people flee away with  
 great dread  
 Why don't you tell me who you are and what you want from  
 me instead?

## THE MAN:

I was there when the communists rushed the Tsar  
 In every war I keep pacifists from getting too far  
 I saw battlefields fill up with hills of innocent corpses  
 And I was there when they wrote your cursed first year math  
 courses  
 And now I'm here since I see the blood, sweat, and tears  
 That you put into your classes although still you must fear  
 Your work won't be rewarded and the cheaters will prosper  
 Well I can stop you from suffering such a shameful disaster

## ME:

It's clear this plan you devised doesn't mean any well  
 With your dead blood red eyes anyone could probably tell  
 You are the Devil in disguise so any deal you try to sell  
 Will be a trap full of lies that will drag my soul to hell

## THE MAN:

How dare you, gentleman? Your accusations are foundation-  
 less!  
 In the days of Pontius Pilate they would throw you in the jail  
 for this  
 And why even complain that my appearance is suspicious  
 Your attempts to look as good in quarantine have been

fictitious

So I much prefer we talk about the offer on the table:  
 I will help you pass exams in all the various ways I'm able  
 You will be wiser than ever and get power and success  
 All I ask back is your soul when your body lays at rest  
 So this is your final chance and I suggest you come along  
 With the way your study is going you won't be enrolled for  
 long

## ME:

I'd rather get expelled than be in the pocket of Satan  
 You're clearly taking advantage of the exams that I'm hating  
 But I have to turn you down despite how well you debate  
 If I give you my soul I'll never pass through heaven's gate  
 Only one thing will convince me, it's my deepest desire  
 Far beyond some passing grades or just an internship hire  
 You might be the king of demons but there's evil much worse  
 If you could rid of it you can consider me coerced  
 So I'm asking you Devil, leader of unholy forces  
 Can you go destroy the evil that they call PD courses?

## THE MAN:

I have fought with God himself, I can take a dragon's form  
 I possess the brightest spirits and can make them feel scorned  
 But any being has its limit and the line is drawn clearly  
 If I even try to do this our fate will become dreary  
 So take what I'm confessing as a warning and lesson  
 Leave this matter behind lest you want great tragedy  
 You can keep your young spirit, I will never go near it  
 But never temper with something as terrible as PD

So it was the middle of exam season and I was sitting in a park  
 With a man whose eyes were evil once but now they simply  
 lost their spark  
 He sat beside me and his gaze turned shameful and defeated  
 "I guess you found my only weakness" he said and retreated  
 And with a great flash of light he disappeared into smoke  
 Leaving no trace behind like a cruel divine joke  
 And thus I lost my only wish and PD is to blame  
 Instead of trying to end it I could have asked for fame  
 But readers, don't worry about this calamity  
 This poem just confirms our well-deserved vanity  
 And now you know why between schools we're on the highest  
 level  
 Waterloo made the only courses that could beat the devil

methNEWS

I love mathNEWS.

SATAN, LORD OF HELL



# RETROSPECTIVE: VIRTUAL GOOSE 2021

>>> Play it here: <https://chilitrumpet.gitlab.io/goose>

**cy:**

We began work on *Virtual Goose 2021* on May 3<sup>rd</sup>, two weeks before the first **mathNEWS** production night. As I'm not a gamer, I don't know what the right words are for categorizing this game. You'll find out when you read girafarig's section.

The whole thing, that we would make six video games over the course of a term corresponding with the **mathNEWS** release schedule, was his idea. It was conceived near the end of last term, borne from the realization that we won't become good at game design until we start making some games ourselves. After all, neither of us (unfortunately and obviously) is a game design prodigy.

Preparations for this term-long project began about two weeks before May 3<sup>rd</sup>. The first order of business was picking which language and framework to use and getting some practice with it. Although girafarig is always partial to LOVE with Lua, I insisted that we use JavaScript for the ease of distribution, so you can thank me for the fact that you can just click the link above and play it right now.

After a couple days of fruitlessly struggling with some JavaScript game frameworks like Phaser, it turns out that the HTML5 Canvas API itself actually has everything that I need (minus physics but I'll cross that bridge when we make a physics-based game). So our game is plainly written in JavaScript with Canvas.

I describe myself as the “lead programmer” of this project, which basically means that girafarig tells me what he wants and I code it. An important clarification to make here is that *the code for this game is not good*. We focused on programming everything as fast as we can to get as much time as possible to playtest it.

And playtest we did. Programming was the part of the project that took the least time, and I only spent about an hour or two each day on it. Technically speaking, the code for the finished project could be written in three days or fewer, but we were limited by our creativity. I was always stuck waiting for girafarig to answer the question, “What should we add next?”

I never contributed much to answer that question. What I did, though, when we were out of things to do, was play the game over and over, trying to make myself feel like I was playing a *real* game, not some shoddy project I'd made. I tried to identify the things that engaged me and the parts were preventing it from feeling like a real game.

Something that girafarig really wanted was lots and lots of abilities for the player. I wrote on our schedule that we needed to add 4 new abilities on Tuesday and 4 more on Wednesday. But, on Wednesday, I was playing the game repeatedly while

racking my brain for new ability ideas. I couldn't come up with any.

I was also having trouble paying attention to the game. Some of the abilities we had added were really *weird*, and they were pretty weak. I kept desperately making shapes on the screen, but half the time, it'd result in what was basically a non-action, as the ability was too weak to affect any enemies. I had to keep track of what shapes were available to me and which ability they were tied to. Even though this is a game that requires some thinking, I felt that it was too much.

We removed most of the new abilities we had added, and buffed some of the old ones. Surprisingly, this actually worked. Now I didn't have to think too much about which abilities I had, because they were all fairly good. From then on, it became much easier to concentrate on and play the game, even when I was listening to people talk on Discord.

**girafarig:**

Ideally, you should read this after you've played the game a few times and get the idea.

I've been obsessed by Michael Brough's games recently, and so this game is an attempt to make something similar to his recent work of incredibly dense and intricate rogue-likes. If you liked my game you'll love love love his, and if you didn't like my game you should play them anyway. Go buy and play one now; if you want one that's on Steam get *868-HACK*, and my current favourite is *Cinco Paus*. Go.

So I started designing this game with the whole brough-like thing in mind, so that set some immediate limitations down: it'll probably be turn-based and on a somewhat small grid. I additionally wanted it to have a goose in it. And if there's a goose there should be goslings, especially in the summer, and hey when goslings follow you around you can make funny shapes! Thus the core design was created.

Making a game is hard, much like any other creative pursuit, because it's very difficult to imagine the effects of your actions. As an amateur artist, for example, it's hard to visualize what would happen if you used this tool or painted in this color or anything—you have to try it and mess up and fix it afterwards. And so as I was making this game I didn't really have a good understanding of how everything would fit together.

Like, it felt right that you move on a grid, that there are enemies, that you can hit them, that they move towards you whenever possible, that there are rocks to impede movement, that you have some amount of health, and so on, but why did I make these decisions? It was mostly because several Brough games and a lot of other ‘brough-likes’ have those things and I was cargo-cultishly applying these mechanics to my own. It felt like I was grabbing around in the dark and hoping that everything eventually works out, that all these pieces and

decisions will fit together by themselves and make something fun or interesting.

And they kind of did? I think the game is alright, I'm still tweaking it now, it's hard to tell exactly how much the outcome is influenced by skill and how much is luck. You don't really get stronger as you progress since the spells you get are random, though you can make some tradeoffs—if you have a set of good spells you might not want to take any more since they'll replace them, for instance, but that would of course lower your score.

Sometimes you will get swarmed and die if you make a few empty moves, just owing to the fact that if you can't move you're basically screwed, and maybe sometimes getting swarmed is unavoidable? I'm not sure. I would need to playtest it a lot more. Maybe like a month more, then the game would be “pretty good”, I hope. At least by my standards. To be truly good I think it'll need a few BIG CHANGES that basically upend the whole game, I don't think just hill-climbing is gonna get me very high up.

I also did the art, not completely done yet at time of writing, and the art is passable. It's good enough. I didn't spend that much time on it as it makes my neck hurt.

And finally I suppose this game about a highly intelligent book-reading goose that goes around abstract environments killing things and gathering forbidden knowledge could possibly feel like a connection to last term's **warSOC**, and yes that was definitely a source of inspiration. You can consider this a fan-game.

*cy and girafarig*

P.S. To Michael Brough: Thank you so much.

...

The ellipsis is a strange and glorious tool. If a period ends off a thought, why should three extend the thought for an indefinite, even infinite length of time? It's a magical piece of punctuation, the Magneton or Dugtrio of written language. I'm glad it exists, so I don't have to write out infinite sets by hand, but it does so much heavy lifting that it's almost carrying all of math by itself. On the other hand, in writing... it's just a pause. Do you know how many other tools we have for pauses as writers? We have the comma, the dash, and even the semicolon. In writing it's just redundant, but in math it's one of the most powerful tools we have (at least to avoid wrist strain). So here's to the ellipsis, in all its wonderful glory. Give it its due, for it deserves recognition, by us mathematicians especially.

Predep

## RATING SYNONYMS/ EUPHEMISMS FOR “SEMEN”

**sperm:** 7/10, we can do better

**spermatic fluid:** 9/10, this is better

**seminal fluid:** 6/10, meh

**seed:** 4.5/10, too ambiguous

**milt:** 5/10, who would say this?

**ejaculate:** 6/10, adequate

**emission:** 2/10, what is this, a car?

**spermatozoa:** 9.7/10, this is even better

**come** 4/10, not committed enough

**cum:** 9/10, this is commitment

**jism:** 8/10, we love a word with two syllables and one vowel

**jissom:** 3/10, the one above but worse

**jizz:** 7/10, disgusting but it gets the point across

**spunk:** 9.9/10, despunk them balls in our mouvssss

**nut:** 6/10, naive

**load:** 5.6/10, sufficient

**juice:** 4/10, the consistency of semen is different

**baby batter:** 7.4/10, this is what you say in a southern accent

**bonkjuice:** 9.3/10, this is perfect

**cocksnot/cockvomit/cockspit:** 2.5/10, all gross

**daddy sauce:** 5/10, exclusive of non-daddies

**dongwater:** 7/10, hate to love it

**erectoplasm:** 8/10, simultaneously bad and great

**nut butter:** 9/10, the assonance is strong

**him/her/them (any pronoun):** 5/10, this is too divisive depending on the context

Deriving for Dick

# THE FEAR OF HAVING MISSED OUT

AN ATTEMPT AT EXPLAINING THE REASON WHY I'M HESITANT TO TRY NEW THINGS SOMETIMES.

So I recently got into watching slice-of-life anime, and was hunting around online for suggestions, when I came across *K-On!*, the story of a few high school girls who come together to form a music club, and have fun together. The reviews promise comedy, romance, and a lot of lighthearted fun. It sounds wonderful. But I can't bring myself to watch it. Even just reading the title, it sounds like someone is super passionate and dedicated about having being part of something for a long time. Like they've been part of this community for so long, and I have not. Implicitly, somehow, I feel unwelcome. That's not to say it's a bad anime, or even that they didn't title it right. The anime is not the focus of this article. This irrational feeling I just had, of feeling like an unwelcome intruder in a setting which is supposed to be welcome, is. It's what I call the "fear of having missed out".

It sounds very similar to the common term FOMO, "fear of missing out", a peer-pressure-like anxiety people get to try something new – let's say, a new game called X – just because their other people are playing X and having fun doing so. The fear of having missed out (FOHMO?) evokes a similar feeling, but has completely the opposite effect. When I feel this feeling, I feel like there was a window of opportunity, where all these people started enjoying X, and I missed that window and now I'm too late. Now, if I start trying to get into X, I feel like I'll feel continuously excluded by the people who *are* enjoying X, and end up not having fun myself. So, I don't even bother to try X, because of the fear that I have already missed out on it.

And it's not just watching new anime that make me feel like this. I feel the same when joining new clubs at university, trying new software with large, established communities (like vim or emacs), and playing new video games (like *Animal Crossing: New Horizons* or *League of Legends*). I feel like as a newcomer, I will always be a burden on the community; the worst player in the team, the one who's always posting help threads without contributing back, or the one who doesn't get any of the inside jokes.

I know that over time all this will pass, I will also become one of those "established members", and everything will be fine. But that doesn't stop the fear. Part of it is because the fear is not rational. In my experience, it's almost always worked out for the best when I did my best to suppress the fear and joined the community I was so afraid to. But just because I did it once, somehow never seems to signal to my mind that it's okay to generalize this comfort to every time I have this problem.

I wonder sometimes if other people feel the same way, but in my experience, that doesn't seem to be the case. Whenever I describe this feeling to people I know, they look at me weird, like it's some sort of an alien concept. That's also not the best feeling, but I don't blame anyone for that.

I write this article with the hopes that someone who *can* relate reads this, and knows that there is at least one more person who feels the same way. As for solutions... I don't have any yet, other than Be Yourself® and Just Do It™, and I know that's not very helpful. But hey, if I knew how to fix this problem, I wouldn't be writing about having it, right?

tendstofortytwo

This article was originally posted on my blog: <https://prose.nsood.in/fear-of-having-missed-out>, and I figured mathNEWS readership might enjoy it too.

## RATING SYNONYMS FOR "SEAMEN"

**sailors:** 7/10, we can do better

**seafarers:** 9/10, this is better

**seafaring men:** 6/10, seafaring meh

**crew members:** 4.5/10, too ambiguous

**boatmen:** 5/10, not good

**hands:** 3/10, non-descriptive

**mariners:** 8/10, ain't this a baseball team?

**ratings:** 2/10, I would never interpret this in the right context

**salt:** 7.8/10, ngl I kinda love it

**sea dogs:** 9/10, we do love it

**bluejackets:** 8/10, like the yellowjackets but nautical!

**matelots:** 6.7/10, fun

**matlo(w)s:** 6.5/10, a little less fun

**tars:** 7.5/10, nars

**Jack Tars:** 8/10, aye aye

**hearties:** 9/10, wholesome

**crews:** 2/10, even more ambiguous

**complements:** 1.2/10, bleh

# sexNEWS: QUESTIONS ABOUT SEX, LOVE, AND RELATIONSHIPS

Welcome back to **sexNEWS**, a biweekly column in which I answer relationship advice questions submitted by you, the readers.

As always, feel free to send your questions to [mathnews@gmail.com](mailto:mathnews@gmail.com) to be potentially answered in this column. Anonymity is guaranteed<sup>1</sup>. You're also welcome to include additional information to give context that you don't want included in the article if you're worried that your situation is specific enough that fully explaining it would expose you. This column is not restricted to just romantic relationships, we discuss personal relationships as well.

*I finally decided to see a therapist for my relationship problems (described in previous questions to **sexNEWS**) but I'm scared he'll just think my problems are silly. May I have a nice warm dose of reassurance?*

SHIRKING FROM SHRINK

You can do it bud!

*Someone keeps sending me mysterious messages alleging that I'm being cheated on. What should I do to resolve this?*

SOME CUCK

You should thoroughly investigate these serious allegations.

*how 2 cope?*

NOT COPE

You just do man idk.

*how 2 get qt3.14 math gf in pandemic?*

SIMPLE MAN

Do clubs and stuff. Or just wait a little bit for no pandemic. It's almost over (I hope).

*If I had the choice, should I date someone with more money than me or less money than me?*

GOLD DIGGER

You shouldn't date someone for their money.

*If I had the choice, should I date someone with more hair than me or less hair than me?*

HAIR DIGGER

Whichever you prefer.

*If I had the choice, should I date someone taller than me or shorter than me?*

SIZE QUEEN

Whichever you prefer.

Senior **mathNEWS** Relationship Correspondent

1. Unless there is a court order or something, but if I foresee that being an issue I probably won't answer the question in the first place. Canada has unfortunately weak laws protecting journalists, and I don't know if this column even counts as journalism.

## BUILDING REVIEW 2: M3

I still don't know why Saury didn't go to UBC or McGill or what, schools with actual writing programs. If I ask, Saury would always avoid talking about it.

Saury and I sit in M3 1006, for privacy. I am writing and Saury is waiting. Today Saury wants a straightforward N things list. Saury is doing nothing, just sitting totally still, which was a bit disturbing at first; now it's comfortably natural, as if Saury is taking a nap.

I push my chair out and start pacing around as a sort of uptight writing tic. *I'm not asking for AOTI*, Saury calls out, in a cordial and fully unsarcastic way. I want to hug Saury, I think for an instant. I finish up thing N and sign my initials and rip my list out of my grid pad and pass it to Saury. Saury folds it up and swallows it and gulps.

A lull. Saury turns to poking at a math proof. I'm trying to mash words into lucid things I can say.

*Do you own a toothbrush?* I ask, finally. What an awful way to put it.

*Normal food is tasty too, if that's what you want to know. I could probably stay living just on normal food. But I wouldn't fancy that sort of situation.*

Uh huh.

girafarig

## THE NEXT N WORDS

Anyway, at some point, I must have told Rebekah I didn't care about her stupid reverse harem visual novels, and somehow somehow that convinced her that she should start telling me all about her personal life like how she had an annoying little brother and Asian parents that never let her do anything she wanted. All that was fine, only what followed were some truly disgusting details, like how she only liked tall guys and how she was taking birth control for her acne but she wouldn't mind using it for other purposes. I can't condone this type of promiscuous behaviour, since it led my sister down the road to insanity, but it was especially filthy to be hearing all that from Rebekah, who regularly attended church and whose face was practically had a halo of purity circumscribing it. At least my sister looked scant from the very beginning and we stopped going to church when I was about seven. All this is to say that the truth about those nerdy Asian NPCs is that they're all about as horny as any other NPC, only they have stricter parents. We got through the whole year of ninth-grade Japanese like this, with her talking my ear off and me passively listening, not saying much one way or the other. I don't know how she didn't bore, but regardless, I thought it would be the end when that school year came to a close. She even baked me cookies for the last day of class, so I thought it was surely a forever farewell. That kind of thing can't last more than a year. Even a year is a bit much. And I was right. This year, even though we're in the same Japanese class again, it seems that one of her real friends is also here, and they sit completely on the opposite side of the classroom, so we can't talk there at all, not even about her reverse harem visual novel mobile games.

Then on the very first period of our cooking class, Rebekah noticed me and sought me out, and signed me up to be her partner for the year. I had thought that was a good sign, that even though we couldn't sit together in our Japanese block, *this* class could at least be tolerable. Maybe I did still have a bit of that *anime* wonder in me back in September, but nevertheless, it was completely destroyed after a few classes when I ended up being so useless at everything cooking that she did most things alone and I was assigned the most menial of menial tasks instead. I'd thought it was just the end of our friendship, if you could even call it that, what we had. I'd thought I'd blown my chance at having that cheesy girl group high school life. But now, with Rebekah standing in front of me, wide-eyed and flushed, full of that classic NPC naivete, maybe I'm getting a second chance. I mean, I don't really know what my sister's high school life had been, but surely it wasn't full of casual idle days spent eating lunches with friends and chatting up a storm about nothing. Nobody can go insane from that, certainly. On the other hand, that's what NPCs do, and I don't know what is worse between being an NPC and

being insane. One thing is for certain, though; for one reason or another, I've found myself noticing a marked absence of Rebekah in my life even though she hadn't brought much to it in the first place, and if this is what it'll take to get her back, I guess I really have no choice. With this, I know what I have to do, and I don't care if I have to rid of any shred of dignity that still remained in this miserable shell of a person. "Rebekah," I say, and this is without any hesitation at all, "Rebekah, I guess there's no place to go from here but setting you two up somehow somehow."

cy

## SILLY GOOSE



Cix

I basically only read the profQUOTES.

MOST PEOPLE WHO READ mathNEWS

# THE ONLY GOOD MEMORY OF ONTARIO

2019, October 15: a day that will live on... not in infamy, but as the only remotely good memory I have had while I was in Ontario.

Let's start off with some context. Earlier that year, the Confederation of North, Central America and Caribbean Association Football (CONCACAF) announced a new soccer competition called the Nations League similar to what the Union of European Football Associations (UEFA) did for Europe. Since CONCACAF has less national men's teams than UEFA, the teams were grouped a bit differently, but the overall structure was the same.

The 41 nations of CONCACAF were divided into Leagues A, B, and C with each League consisting of 4 groups. Each group in League A has 3 teams, each in League B has 4, while the groups of League C has either 3 or 4 teams. The higher ranked teams were placed in League A, with the lower ranked teams in the lower leagues, obviously.

Each edition of the Nations League would take place over 2 years, where at the end, the worst 4 teams of each League would be relegated to the lower League, while the best 4 teams would be promoted to the higher League. The 4 best teams of League A would proceed to a final bracket tournament to determine the champions of the Nations League.

I was excited when the Nations League was announced because you don't see Canada's national team compete that often and this competition would give more possibilities in seeing them compete. The prospects even got better when Canada was drawn into Group A1 with the United States and Cuba! What more could I have asked for? There's no better rivalry possible in North America. There were going to be two matches between Canada and the United States!

The circumstances were even better as I was in Waterloo for university, and if you don't know, Waterloo is close to Toronto where Canada's national soccer team play their home games at BMO Field.<sup>1</sup> Usually I never even get a chance to see a home game since the national team mostly tends to stick to playing in Toronto and I live in BC.

What was even better was that Canada's home game against the United States was scheduled for October 15<sup>th</sup>, the Tuesday of Reading Week for the Fall term. The stars could not have aligned any better. This was my one and only chance, and I damn well took it. I decided I should probably go the match with at least one other person, and my good friend Chris, who studies at the University of Toronto, agreed to go with me.

We found that the corner seats at the stadium were the cheapest, but I noticed that adjacent to one of the corner sections was the section reserved for the Voyageurs, the supporters' group for the Canadian national team. So, I went ahead and booked the seats in the section adjacent to them. I figured the atmosphere near them would be better.

The day before match day, I got my stuff ready. I packed my bag with an extra vest in case it got colder, some water, and a six-foot Canadian flag in case I found a use for it at the stadium.

When I woke up the next day, it felt like as if I was back at elementary school and it was a field trip day, except I didn't need to leave before lunch. Once I ate, I headed over to Laurier-Waterloo Park Station to take the Ion LRT to Central Station, then a short walk to Kitchener Station to take the 14:57 Go Train to Toronto.

The Kitchener Line schedule only had that one train in the afternoon. The other trains were either too early or too late. I could have taken the buses to get to Toronto and there were far more buses available leaving for Toronto throughout the afternoon, but as taking the bus took more time and because I really like trains, I decided on the train option. In fact, taking this Kitchener Line train would be my first time riding commuter rail in Canada.

Perhaps I was a bit too eager to take the train as I had arrived at Kitchener Station before the actual train itself had even arrived. Looking around, it wasn't the best looking station but it seemed adequate enough as Kitchener was the terminus and one platform seemed to be enough for it. Soon, I saw the train coming in, and so I prepared to board.

I excitedly went straight towards what I estimated to be the middle train car, and headed to the top section to take a seat. There was barely anyone around, which was a plus. Soon, the train began to move.

I took pictures along the route, sightseeing whatever was available for me to see from my window. Whenever there was a stop, it was interesting to see what was near the station. There was this one station where it looked like a suburban development hellhole with just two-story buildings as far as the eye could see. Other than that, the train ride went well and soon I arrived at Union Station.

What a nightmare finding your way around Union Station is, with its dozens of platforms. The station construction didn't help either. I barely made my way to the entrance of the subway Union Station where I finally met my friend Chris.

We started with a tour of the University of Toronto campus and surrounding area, such as his fraternity house and some nearby consulates of note. When he gave me a tour of the campus, he even brought me to the dorms where some of the other people we knew lived. He also taught me some local UofT references, such as with that one food truck.

Since the campus was surrounding Queen's Park, we also made our way inside to sit while it was in session. At the entrance, the receptionist noted how everyone who signed in that day all had BC identification cards. Unlike my friend, this was my first time sitting for a session of the Ontario Legislature. He

mentioned that the last time he was there, the entire gallery was kicked out.

We sat down at our seats in the gallery and watched as the session progressed below. We were basically only allowed whispers. I guess I was too focused on observing literally everyone below, including the servants, meaning I didn't notice that Chris fell asleep beside me, until the gallery entrance guard came by me to tell me to wake him up. He got a warning from the guard. We left soon after anyway.

We went to Koreatown via subway for dinner, then took the streetcar directly to the stadium. The streetcar was absolutely packed and I noticed that just about everyone was heading towards the stadium from all the conversations heard. Also to note, taking the streetcar meant I took 4 different trains that day; I couldn't have been happier about it. Although, I wish we had left about 10 minutes earlier as it was starting to get a bit too close to the start of the match. The match was to start at 7:30 p.m. with the stadium opening 30 minutes beforehand.

Once we made it to the entrance line to the stadium, I bumped into this woman who seemed to be in a slight panic. It turned out her son was part of the line up when the athletes entered the field and she didn't want to be late. So I let her in front of us so that those precious few seconds would hopefully ease her mind slightly. Every little bit helps. We eventually made it in and headed for our seats.

We cut it a bit close for my liking, but we found our seats just in time to see the players enter the field. Along with announcing the entrance of the two teams, the announcer said that Bianca Andreescu, who had recently beaten Serena Williams to win the 2019 US Open, was in the stadium to watch the match. The Canadian and US national anthems were sung, and after a short warm up by the athletes, the match started.

The Voyageurs, in the section next to us, were not about to let us down this match. They were a lively bunch and contributed greatly to the atmosphere of the stadium; people had large flags, banners, megaphones, large drums, and a plethora of available chants.<sup>2</sup> Meanwhile, the US supporters' group on the opposite side of the stadium looked more depressed than anything, comparatively speaking.

Honestly, my hopes for the game was that Canada would draw. I knew that the US team was better, but since it was a home game, the Canadian team would have a slight advantage. Losing the match wouldn't be the outcome I would hope for, but it would not be surprising. I expected a draw of 0–0 would be the likeliest. A draw larger than 0–0 would be a harder outcome to achieve as that would mean the Canadian team had to score against the US at least once.

In terms of the CONCACAF Nations League itself, Canada was already free from relegation as Cuba lost all of its games up to that point, which also meant Canada already qualified to the 2021 CONCACAF Gold Cup as the Nations League doubled as the Gold Cup qualification.<sup>3</sup> So the only thing at stake was

qualification to the Nations League Finals as the top team of the group.

The first half had some exhilarating moments where we almost scored a goal, but it ended with 0–0, exactly as I was hoping. It was starting to get quite chilly, even with my extra vest on, as it was an open stadium and the wind picked up as the night progressed.

The second half started soon, and it was going exactly like the first half with the score just staying at 0–0. That was until the 63<sup>rd</sup> minute. Everyone was around the US half near the goal with Canada in possession, then something weird happened.

From my point of view, it looked like there was just a crash of about four players into the US goal. At the same time while I'm trying to figure out just what happened, people start cheering like a wave from the US goal to the other side. It turned out that when Alphonso Davies crashed into the US goal, he had the ball with him. Canada was now leading 1–0!

I could not believe it! This exceeded my expectation of a draw. I prayed that the game would end 1–0, but there was still the potential that it could all go down south. There was about 30 minutes left, including stoppage time.

The game made it all the way to stoppage time with the score still at 1–0. There was very little chance that Canada would lose at this point; there was simply not enough minutes left for the US team to score 2 goals. Whether the score stayed at 1–0 or become 1–1, it still would end up being everything I hoped for or better. The day was already the best day I had at Ontario, but I had no idea it was about to get better.

Literally moments after, at the 90+1<sup>th</sup> minute, Lucas Cavallini scored an absolute banger of a goal. The score was now 2–0! The crowd went absolutely wild and crazy. No one believed what they were witnessing. Now I knew for sure that the match would end with Canada winning, and it did. An unbearable wait of two minutes passed and the final whistle blew. The stadium erupted into cheer again. My heart was pumping and it didn't feel that chilly anymore. I felt like I could continue on celebrating for days.

The match ended around 9:30 p.m., though we stuck around for a bit longer. The Canadian players came up to the Voyageurs section. We ended up doing that "Viking Clap" that the Iceland team is known for and the players kicked three soccer balls towards us for keepsakes. Two of them were caught by fans, but the third went so high it landed far up in the canopy over us. Chris and I soon left to take the streetcar back.

The only Go Bus back towards Waterloo left in around an hour, so we had some time to do more stuff. Mainly, walking through The Path, after arriving at Union Station, to head to a McDonalds for some late night ice cream since Chris had a coupon. The ice cream machine was thankfully not broken.

Eventually, we made it back to the Union Station Bus Terminal and said our farewells. I boarded the near empty bus and sat through the excruciatingly long journey back to UW.

I arrived back at my dorm around 2 a.m., but I didn't care it was that late. I was as satisfied as I could be, especially considering the amazing outcome of the match as well as the fact that I had taken many different forms of transit. I read through the news to try and get to sleep and learned that this 2–0 win was Canada's first win against the US since 1985 April 2, a span of 34 years, and I got to witness it! I don't know when I fell asleep, but eventually, I did.



A month later on November 15, the away game took place at Orlando, Florida which ended up being a 4–1 loss, so the US would proceed to the Nations League Finals, not Canada. It was unfortunate that it would not be Canada, but nevertheless that 2–0 win was still an amazing feat.



About two months later, the end of the Fall term arrived and I would pack up my stuff and head back home to BC. It was supposed to be a co-op term in the Winter, though it would not be that way. Who would have known that the pandemic would start shortly after? It would end up being a sort of blessing in disguise though, but that is a story for a different time.

I hope that there will get to be a chance for me to form at least one other good memory in Ontario, but the way that things are going now, it's looking like it'll take about a year for me to return to Waterloo. Even then, how likely is it that I'll encounter such a good moment anyway? This good memory was only possible due to an incredible series of coincidences and luck.

### boldblazer

1. It's also the same home field as Toronto FC.
2. One of my favourite and most memorable chants, and the easiest for the entire stadium to follow along, was the following:  
To the tune of that chorus section of "Pop Goes The World"  
Fuck!  
Fuck USA!  
Fuck USA!  
Fuck USA!  
Fuck USA!  
[repeat until exhausted]
3. The top two teams of each group of League A, i.e. the two teams not relegated, earned automatic qualification to the 2021 Gold Cup.



## COMPULSORY CREATIVITY

Over the past year and a half, I've been following a sprawling saga starring a coconut with googly eyes.

It's been running on the channel of the Youtuber Patrick H Willems, known for his video essays on popular movies. After the announcement in his newest video that this saga is coming to an end, I've started to think more about this series in general, and another important question: why?

See, this drama hasn't been getting its own videos; it's been running in the background of Willems' other video essays, before and after the essays themselves. In a recent Twitter thread, Willems said that the advertisers are mostly just paying for the video essays, which makes sense; weird short films about coconuts don't have the mass appeal of essays about, say, *The Greatest Showman*.

So, if he isn't getting paid for it (beyond the sales of plushes and pins), it's taking time away from the stuff he actually gets paid for, and it might drive away potential viewers, why is Willems making this stuff, much less uploading it?

Well, obviously he's having fun with it, and he wants to do it. And I think that's something that can kind of get away from us sometimes, with the commodification of all sorts of art. There's a real innate desire for humans to create things and put them in front of other people.

I mean, look at the paper you're reading right now. It was written by me, reviewed by editors, set out onto a page along with other articles or by itself, and sent to print. Or in this case, print on a WordPress page. None of us are getting paid for any of this work, we're just doing it because we want to. And after all, why shouldn't we?

That's the whole reason art exists in the first place. Back in the days before civilization, we still had art, we had music, we had dancing. Because it means something to us, creating something out of nothing like we'll never actually be able to do to physical matter.

Under a capitalist society where art is monetized because if it isn't its creators won't be able to survive, it can seem like you have to be good enough in order to create art, good enough that people will care and send you a few hundred dollars. But that's not just how it works.

If you want to make art, to write a novel, to write a song, whatever... just sit down and do it. Who cares what other people think? After all, that's what I'm doing right now. That's what people did before money was even a concept. And that's what Patrick H Willems has done for his coconut sketches that serve as bookends to his videos.

After all... creation is just as much for ourselves as it is for others.



# AXIOMS OF RESISTANCE I

“Hi Mr. Holt. I still can't figure out how to do the Euclidean Algorithm, could you help me out?”

It's the same question the first-year asked the last three office hours. He's a nice kid, but try as I might, my nerves are running thin—at myself, not the kid. Nonetheless, I try a smile and start with an analogy.

“Yes. Do you remember how we talked about filling up two rows on a cargo ship with differently-sized containers?”

“Yeah, um... and we took away containers until they matched lengths?”

He looks confused. I'm also confused. I've tried three other analogies, and each time, he'd seemed to understand before he left, but then come back to me confused again.

“On the right track!...”



“Office hours are really busy this term, huh?” My fellow TA Margaret's chatting with me as we wait in the C&D line. She sighs and waves a cup of coffee in the air. “I feel like I've been having the *worst* time helping students this term and I don't get it.”

I think back to the kid who'd come to me today. He isn't my only student struggling with MATH 135 concepts. “Don't you worry about it, Margaret. You're great at teaching, you care, and you'll make it work.”

We walk out of MC and through the rock garden, chatting and commiserating. I spot that same kid on a bench, napping; an open math textbook spilled across his lap. A goose has taken the seat next to him. Poor kid—he probably hasn't been getting enough sleep. The goose's beady black eyes focus intently on his resting face.



Back home now, and I'm idly browsing old education research papers with a glass of keeping company; a habit when something's bugging me. I've descended a rabbit hole of references, leading to one *Forgetfulness in Mathematics Education: The Importance and Pitfalls of Recitation (1996)*, which seems to describe me and the kid at office hours perfectly. It's a cathartic read.

There's one particularly interesting sentence in the Limitations section: a note on “external factors leading to forgetfulness not accounted for,” and references to two papers on drug usage and a third, *Preliminary Effects of Anti-mathematics on Post-Secondary Education (1995)*. A typo in the title, but there's something familiar about the phrase Anti-Mathematics. Oddly, there's no link to the paper. I look it up on a couple different databases, and there's still nothing—a

ghost of a paper. The author is one late R. Sibyllan; coincidentally, a University of Waterloo professor. Her obituary praises her contributions to mathematics, but curiously, she has very few papers to her name.

It's getting late though, and a missing research paper and late professor aren't worth worrying about.



I dream of secret rooms and hidden passages. I'm good at picking locks, better at exploring, and my dream settles on a single room I *know* is on the seventh floor of MC at the top of the stairwell. Seven tumblers in the lock. I lift one, two, three, and slip. The tumblers fall. I try again. There's something coming up the stairs towards me. I'm breathing faster now, anxious to get inside.

*I need to get inside.*

*There's something inside I need.*

*There's something coming for me.*



I wake up with sweat soaking through my nightshirt and an incomprehensible urge to visit a certain MC room. It's a lab, or office, and I'd snuck into it once back in my undergrad days. I'd almost been caught by a pair of Plant Ops cleaners coming in while I was still inside—hiding behind a bookshelf, I'd heard their realization the door was unlocked and their ensuing panic had been enough to convince me to stay away. It was just dusty books in there, and I didn't need the trouble.

The nightstand clock reads 3 A.M. I can't shake the nagging. A quick change of clothes and I'm out the door, lock picks in my wallet. Just like the old night-time excursions of a younger me—hidden rooms, dark halls, and places I wasn't meant to be.

*To be continued...*

CC

**You didn't need  
creativity to get this  
part. You could do this  
on crystal meth.**

PROF DAVID MCKINNON

## YOUR horrorSCOPES IN TWELVE WORDS

**ActSci:** Strange as it may seem, only some things come out at night. (Your unlucky number: half the hours in a day.)

**AMATH:** Try something new to you every day. It can be absolutely mundane. (Your unlucky number: двенадцать.)

**CFM:** In these trying times, offer yourself simple pleasures—how about an egg? (Your unlucky number: a dozen.)

**C&O:** Don't mess it up. Don't mess it up. Don't mess it up. (Your unlucky number:  $3 \times 4$ .)

**CS:** You wanna know what love is... You want them to show you. (Your unlucky number: the number of years between Foreigner's *Head Games* and *Unusual Heat*.)

**DD:** No more waiting. You'll get what you want with your sly tongue. (Your unlucky number:  $\frac{22+2}{2}$ .)

**Math/Business:** What is it to know fear? Astonishment? You will soon find out. (Your unlucky number: the largest Beaufort number.)

**Math Studies/Undeclared:** Spare the love in your heart. Care for something; watch it bloom. (Your unlucky number: the number of books in the *Aeneid*.)

**PMATH:** Does the little guppy know what lies beyond the glass aquarium walls? (Your unlucky number: the number of months in a year.)

**Software Engineering:** Why make things so complicated? Surrender yourself to just being good enough. (Your unlucky number:  $[\pi] \times 2[e]$ .)

**Stats:** You will believe in anything. This is a blessing and a curse. (Your unlucky number: the largest monosyllabic number in English.)

**Teaching:** Why deny that you're a special guy? Truly one in a trillion. (Your unlucky number:  $\log_{10} 1000000000000$ .)

Finchey

## PURE MATH CLUB PROBLEM OF THE ISSUE

Hello dear reader!

We're starting off the term strong with a new problem series for anyone with a napkin, pen, spare minute, and available brain cell. This was my favorite problem growing up, and it's definitely a good one to have handy on a first date (to test someone's mathematical agility, of course). Feel free to send us your solutions at [pmclub@gmail.com](mailto:pmclub@gmail.com) and any banana-date related stories—there is a prize to be won! (For solutions, not the anecdotes.)

**Camel and Bananas:** Taken from *Math Puzzles Volume 1: Classic Riddles and Brain Teasers in Counting, Geometry, Probability, and Game Theory*, by Presh Talwalker (page 27):

“You want to transport 3000 bananas across 1000 kilometers. You have a camel that can carry 1000 bananas at most. However, the camel must eat 1 banana for each kilometer that it walks.

What is the largest number of bananas that can be transported?”

Happy problem-solving!

VP Propaganda, PMC

## N THINGS YOU CAN DO WHILST WAITING FOR UNIVERSITY ADMINISTRATORS TO ANSWER A YES OR NO QUESTION

- Take up knitting
- Learn to juggle
- Bake some bread
- Learn to solve a Rubik's cube
- Take up yoga
- Graduate
- Get a job
- Work your way up the corporate ladder, gaining experience and making connections until you
- Get hired by the University of Waterloo and
- Become one of the University Admins so you can
- Answer your own question

Этот текст просто  
выглядит круто.

ЭТО НИЧЕГО НЕ ЗНАЧИТ

# TIE GUARD PART 1: THE RETURN OF THE TIE

Closing the door behind her, Bhavya collapsed on her bed. She was finally back in Waterloo, after a year spent back at home. She let herself relax for a couple minutes before sitting up and stretching. Pulling out her pink tie, she smiled.

She had read that while she was gone, the original Pink Tie had been returned to Waterloo. It made it back before the students, almost as if it had been waiting there for them. Tentatively, she started tying her tie—the Half-Windsor, the knot assigned to her tie. As she finished tying the knot, there was a flash of pink light and her outfit magically changed.

While before she had been wearing a hoodie and sweatpants, she found herself in a white suit with pink highlights with pink goggles covering her eyes, and, of course, her pink tie.

Astonished, she laughed. “Wow.” She had heard of the legendary power of the original Tie Guard and how they protected the ideals of Math at the University, but after the disappearance of the original Tie from campus in the 80s, they had lost their ability to transform, becoming only ceremonial shadows of their former selves.

The four ties continued to be passed down to each generation of Waterloo Math students, but for almost forty years they were only symbolic. Though now, the Tie Guard would once more return to UW campus.

Snapping a quick selfie, she sent it to the group chat for the Tie Guard. She was the only one of them on campus this term; that just happened to be the way that their co-op terms lined up.

Bhavya opened her door to see her roommate Ally eating in the kitchen. Blinking through her pink goggles, Bhavya quickly turned back into her room to untie the tie before going to face Ally. With a flash of light, she transferred back to her normal clothes. Stuffing the tie into her bag, she headed out to the kitchen.

“Hey Bhavya,” Ally said as Bhavya headed for the door. “Ready for the new term?”

Bhavya nodded with a chuckle. “Yeah, I’m overloading so it might be a bit tough. You?”

Ally nodded back. “I’ve got my plans for my classes ready. Going to try and ace them. Plus, I’ve revamped my resume for co-op.”

Bhavya groaned. “Ugh, don’t remind me. I’ll do it on the weekend.”

“If you want my help, let me know!” Ally said, taking a bite of ramen. “I’d like to think I’m pretty good at all of that stuff.”

“Thanks, I’m just heading out to campus. Gonna do a short walk, reacclimate myself after the past year.”

“That sounds like a good idea,” Ally replied. “Enjoy yourself! I might go out myself after I finish eating.”

After walking for a few minutes, Bhavya arrived back on campus. Taking a deep breath in, she smiled. The Tie Guard were back, and no one would ever be able to stop them again.



Hey! I was inspired by CC’s writing to do my own Waterloo-inspired fiction series. This is a bit of a short intro to the concept, which you’ll get to see explored in more detail in the coming months. Hope you enjoy!

Predap

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## THE PMATH PIPELINE

it's real, oh god someone please intervene. I came here to do computer science and get programming jobs, but now I hate companies and willingly stay up past 2am doing pmath. I don't know where it all went wrong, I haven't even done a programming job yet. I laughed at an integral joke yesterday. truly the darkest timeline

This week's PMATH pipeline casualty

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## profQUOTES

CS 240: MARK PETRICK

“ Who remembers their calculus? Maybe a better question is, who wants to remember their calculus?”

“ Remember, math is fun. I have to say that because I also have a pure math degree.”

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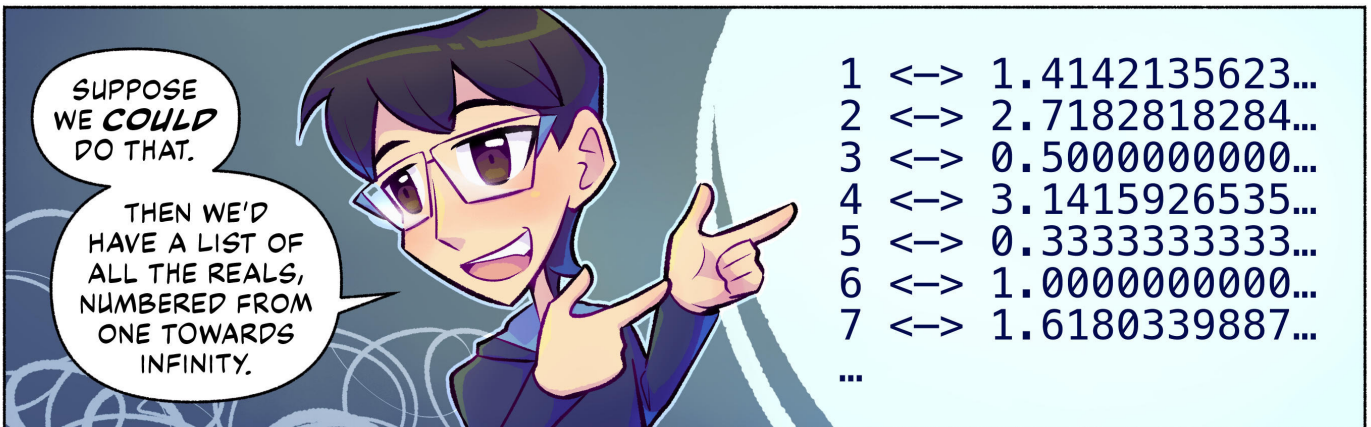
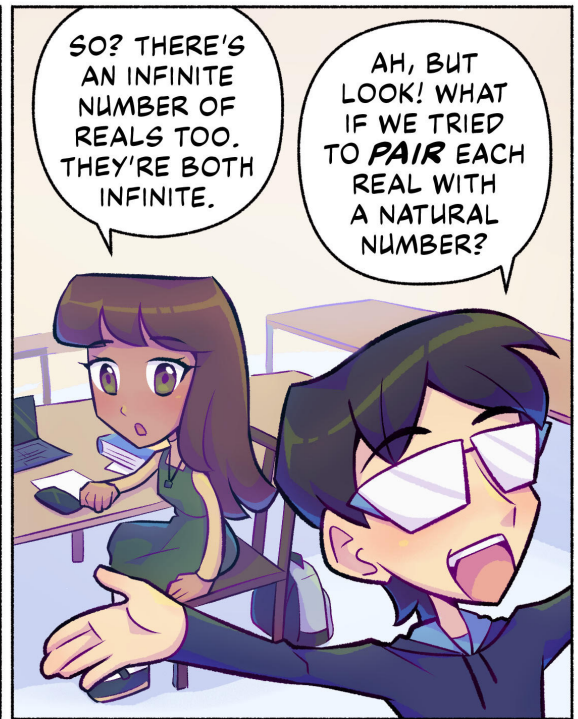
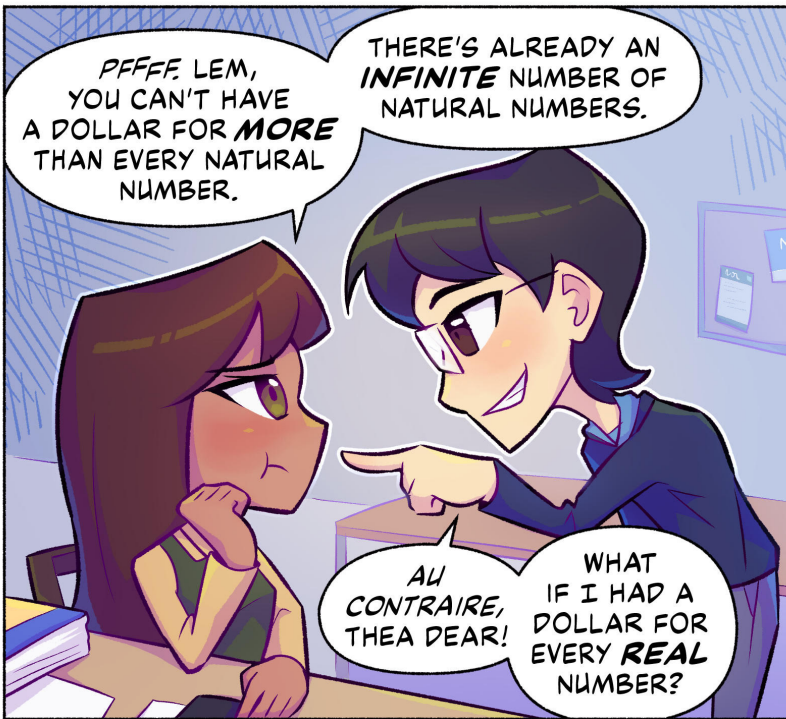
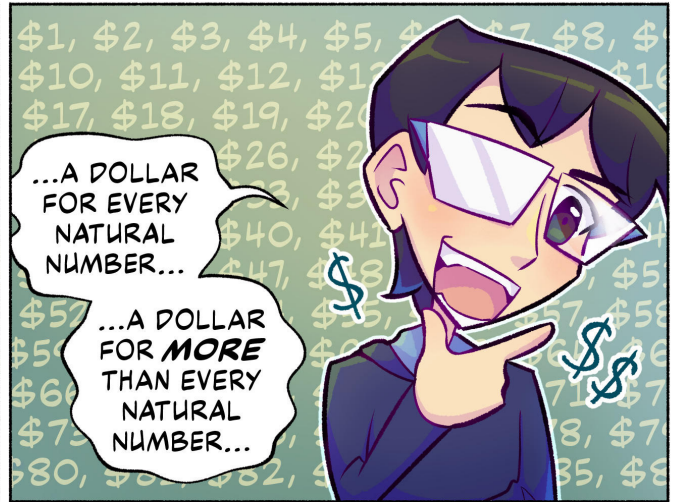
## EPISODE 19: UNCOUNTABILITY

Enjoy Episode 19 of the MathSoc Cartoons series: [Uncountability!](#) Want to see the next comic when it’s released? Follow @mathsoccartoons on Facebook or Instagram! Want to see the next comic BEFORE it’s released? Sign up to be a Reviewer at [bit.ly/mathsoc\\_cartoons\\_reviewer\\_signup](http://bit.ly/mathsoc_cartoons_reviewer_signup)! As always, feedback, suggestions, and fan art can be left at [mathsoccartoons@gmail.com](mailto:mathsoccartoons@gmail.com).

MathSoc Cartoons

# UNCOUNTABILITY

STORY & ART BY AVA PUN



LET'S TAKE EVERY DECIMAL DIGIT ON OUR LIST'S DIAGONAL—THE FIRST DIGIT OF THE FIRST NUMBER, THE SECOND DIGIT OF THE SECOND NUMBER, AND SO ON.

THEN, LET'S **CHANGE** ALL THE DIGITS TO MAKE A **NEW** REAL NUMBER.

1	$\leftrightarrow$	1.4142135623...
2	$\leftrightarrow$	2.7182818284...
3	$\leftrightarrow$	0.5000000000...
4	$\leftrightarrow$	3.1415926535...
5	$\leftrightarrow$	0.3333333333...
6	$\leftrightarrow$	1.0000000000...
7	$\leftrightarrow$	1.6180339887...
...		

THIS IS CALLED **CANTOR'S DIAGONAL ARGUMENT.**

THIS NEW NUMBER CAN'T EQUAL THE **FIRST** NUMBER ON THE LIST, SINCE THEIR **FIRST** DIGITS ARE DIFFERENT...

...IT CAN'T EQUAL THE **SECOND** NUMBER, SINCE THEIR **SECOND** DIGITS ARE DIFFERENT...AND SO ON.

SO IT **CAN'T BE ON OUR LIST!**

$0.5216... \neq 1.4142...$

$0.5216... \neq 2.7182...$

SO IF YOU TRIED TO PAIR ALL THE REALS WITH THE NATURAL NUMBERS...

...YOU'D **ALWAYS** HAVE SOME REALS **LEFT OVER!** THAT MEANS THERE ARE **MORE** REALS THAN NATURAL NUMBERS, EVEN THOUGH THERE'S AN **INFINITE** NUMBER OF EACH!

1  $\leftrightarrow$  1.414...  
 2  $\leftrightarrow$  2.718...  
 3  $\leftrightarrow$  0.500...  
 4  $\leftrightarrow$  3.141...  
 5  $\leftrightarrow$  0.333...  
 ...  
 ? 0.5216... ?

BECAUSE OF THAT, WE CALL THE REALS **UNCOUNTABLE.**

IF I HAD A DOLLAR FOR EVERY REAL NUMBER, I'D **LITERALLY** HAVE AN **UNCOUNTABLE** AMOUNT OF MONEY!

BUT WITH MY TUITION, I WOULDN'T **COUNT** ON **THAT** EVER HAPPENING.

~SIGH~ THAT'S **REAL-ATABLE.**

# lookAHEAD

SUN MAY 23

MON MAY 24

Victoria Day

TUE MAY 25

WED MAY 26

WaterlooWorks  
applications due

THU MAY 27

The city of St. Petersburg  
is founded

FRI MAY 28

SAT MAY 29

SUN MAY 30

MON MAY 31

World Multiple Sclerosis  
Day

mathNEWS 146.2  
production night

Last day to drop a class

TUE JUN 1

Fall 2021 course offerings  
finalized

WED JUN 2

Surveyor I becomes the  
first US spacecraft to land  
on the Moon

THU JUN 3

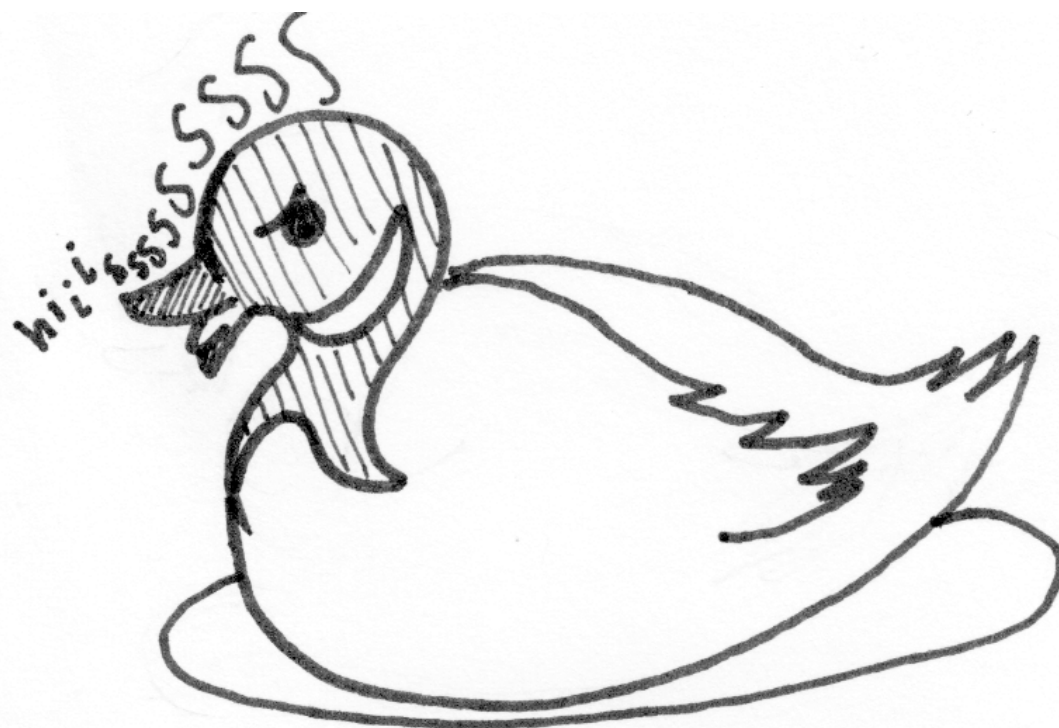
FRI JUN 4

mathNEWS 146.2 released

Final exam schedule  
released

A mathNEWS editor  
escaped their mother's  
womb after 9 months'  
imprisonment

SAT JUN 5



otherNEWS is made  
technically possible  
by club executives of  
the Math Faculty.

I say "technically"  
because if they had  
sent us more news  
this week, this box  
wouldn't be here.

THE mathNEWS EDITOR WHO  
PUTS THE "NEWS" IN mathNEWS