



“HOW ARE YOU SPENDING THE LONG WEEKEND?”

In case you weren't aware, this issue comes out on Canada Day, a statutory holiday in this country. That means a long weekend—will it be filled with revelry, celebrations, and debauchery, or endless toiling at your looming pile of assignments? The choice is up to you, but if you're looking for inspiration, a look to your right will reveal a sampling of the shenanigans our writers will be getting up to this weekend.

By the way, what do you think of the cover? It's actually inspired by this wonderful piece by **mathNEWS** writer CC:



HANG THIS IN THE LOUVRE.

clarified
Editor, **mathNEWS**

terrified
Editor, **mathNEWS**

FINCHEY	Downing maple syrup-tequila shots and drunkenly riding the fireworks into the sky, far, far away from this place.
MOLASSES	Entering a Waterloo-induced coma
DERIVING FOR DICK	What long weekend
MUTT	crying
TENDSTOFORTYTWO	The trick is not having a long weekend. (sobbing with sunglasses emoji)
METHNEWS	Probably drugs, but let's pretend im doing something fun like school work
XX_420SONICFAN69_XX	Dreaming about Oops All Olives
CUTLET	Working on Friday when everyone else isn't, and not working on Monday when everyone else is
JEFF	Sending emails
TEFF	Having fun with Turing!
hJ	Making PDFs
YUMMYPI	Being in Toronto and NOT seeing old man cock in broad daylight (yes I went to Toronto Pride yesterday, how could you tell?)
PREDAP	Seeing family and prepping for group presentations
WEWLAD	Racing a Super Metroid randomizer
NOT A N*RD	Plotting how to take over the entire pizza vote and banish cheese forever
SKIT	The real question is "Why are you spending the long weekend?"
CLARIFIED	Celebrating a birthday 🎂
GILDED	Seeing my mom and meeting a friend's family!
TERRIFIED	Not sure, how about you?

ARTICLE OF THE ISSUE

This Canada Day, why not celebrate by reading *The absolute state of Theoretical Physics?* It's a wonderful introduction to just why this field is so fascinating and yet so hard. It almost makes me want to study physics; alas, I lack the necessary brain cells.

Oh, and if you're a lowly Physics student, come by MC 3030 to pick up your \$25 Conestoga Mall gift card. After all that physics, I think you've earned it.

Maple syrup-tequila shots sound pretty good, actually.

CLARA XI, **mathNEWS** EDITOR FOR SPRING 2022
ALONG WITH CHEN CHAI, TERRY CHEN, RYAN CHOW,
NICHOLAS PRIEBE, KEVIN TRIEU, AND YANG ZHONG

mathASKS 149.4

FEATURING mathNEWS EDITOR GILDED

CIX: WHY DID YOU BECOME A mathNEWS EDITOR?

I really enjoyed contributing, and I wanted to do more! **mathNEWS** has been an incredibly positive part of my life—lots of friends, lots of great memories—so I wanted the chance to give back. More importantly, I wanted to know who Finchey was.

JEFF: WHAT'S SO GOOD ABOUT mathNEWS?

The fact that you get to publish anonymously and we publish almost anything means that people are willing to take risks, and be a little more authentic. Many of my favourite articles are either deeply personal or incredibly creative, and I think we would see fewer of both if people couldn't use pseudonyms and if the editors rejected articles based on our own tastes.

TENDSTOFORTYTWO: WHAT DOES THE FUTURE OF mathNEWS LOOK LIKE TO YOU?

It's beautiful.

MOLASSES: WHY DID YOU CHOOSE THE NAME GILDED?

Because it fit with Golden, my writer name. There are 3 reasons that I picked golden; my hair, the fact that I'm often compared to a golden retriever (which brings me endless joy); and finally, someone once told me I have a golden heart, and to this day that is the greatest compliment I've ever received.

PREDAP: DID YOU HAVE ANY BACKUP EDITOR NAMES, IN CASE GILDED HAD BEEN TAKEN AT SOME POINT IN mathNEWS' HISTORY? WHAT WERE THEY?

My biggest candidate was **belovED**! I thought it was cute and fit me, but I went with **gildED** because it felt more right.

BEYOND META: WHO ARE YOU AND WHY SHOULD I RESPECT YOUR AUTHORITY?

I am a **mathNEWS** editor and a pure math student!

TENDSTOFORTYTWO: IS THERE SOMETHING ABOUT BEING AN EDITOR THAT SURPRISED YOU? IF SO, WHAT WAS IT?

How little of the work actually consists of editing people's articles. A shocking amount of effort goes into laying out the issue and getting everything together.

BEYOND META: WHAT IS YOUR BEST MISADVENTURE STORY?

My parents and sister read **mathNEWS**, so I think to hear this one you'll need to ask me in person.

hU: WHAT'S THE MOST ANNOYING PART OF YOUR ROLE, SO FAR?

Commas. I have seen so many sentences that I thought needed a comma, but then I couldn't justify why and I had to look up the relevant grammar rules. My intuition has been right all but one time, but I still need to check because of that once.

TENDSTOFORTYTWO: WHO IS YOUR FAVOURITE EDITOR?

enamourED has the most fun outfits, and is an incredible presence at production nights. However, I appreciate and really like all the editors, and I'm glad we're all friends :)

ETERNALLY PUZZLED: WHAT ARE YOUR THOUGHTS ON THE MET GALA'S GILDED GLAMOUR THEME CONTROVERSY?

I hadn't heard of it until this question—honestly, all I'll say is that there are many, many issues that have more impact than this theme, which are easier to address. It is a little insensitive, but out of touch rich people doing something a little insensitive really isn't something I want to waste effort being angry about.

CLARIFIED: WHY DO YOU LIKE MATH?

Math has this beautiful combination of logic and creativity which I just adore. I get to discover new things, and it requires a ton of creativity to figure out how to approach problems, but I can be completely sure that what I write is correct. I get to explore this whole magical world, but at the same time, there's a concreteness created by the internal logical consistency. It's fun, it engages my brain, and I get to be creative.

SOMEBODY: EXPLAIN ALL OF MATH AS ACCURATELY AS POSSIBLE IN EXACTLY 69 WORDS.

The fundamental act of the mathematician is to generalize. Whether they are going from a specific example to a broader theorem, taking an existing theorem and applying it to new cases, or drawing new conclusions from an existing proof, the mathematician always generalizes. Definitions abstract away specifics, revealing a broader, clearer picture. Discoveries are made by looking at specific examples, which reveal patterns that guide us to the truth.

ENAMOURED: HOW DO I FIND LOVE?

Be honest, open, and kind to the people in your life. When you feel a connection to someone, explore that and strengthen it. Love is built gradually, with energy and time invested. I think both platonic and romantic love are beautiful and worth pursuing, and that both need to come from a baseline connection and care for the other person, not an ulterior motive to be loved.

FINCHEY FAN: WHO IS FINCHEY?

Oh yeah I know this because I'm an editor now! Finchey is- [muffled gunshots and screaming]. gildED is fine. No more questions about Finchey.

EVEN BIGGER FINCHEY FAN: HOW IS FINCHEY?

Alright! Looking forward to the long weekend.

CLARIFIED: DESCRIBE YOUR STYLE IN AT LEAST TWENTY WORDS.

My style is: "I have a hot body and also body image issues and I want people to be aware of the former without exacerbating the latter and also blue looks really good on me and crop tops are cute."

PUPPY: WHAT IS LOVE?

I think that, for me, to love someone means to care about their well-being more than my own. It means that I'd do nearly anything to make them safe and happy, even at my own expense, and that if there's a choice between me and them, I pick them. It means that their happiness is one of my highest priorities, that I feel extremely deeply connected to them, that their misfortune is mine. Love is much more about how important someone is to me than about anything individual going on. I can be in a fight with someone and still love them, I can be mad at someone and still love them—hell, I can stop liking someone for a while and still love them, because love is about how important they are to me and how deeply I feel connected to them.

PUPPY: WHAT'S THE BEST WAY TO DIVORCE SOMEONE?

Probably with the help of lawyers and the advice of people a lot more experienced than me.

CC: WHAT'S YOUR FAVOURITE BOOK?

This is a hard question! I think that the book *Representation Theory: A First Course* by Fulton and Harris is a beautiful introduction to the subject, and is probably the thing that led me to my current research term, but it's not a particularly fun read. In terms of books or book series I've read for enjoyment, *The Lord of the Rings* (JRR Tolkien), *Thinking Fast and Slow* (Daniel Kahneman), *The Wars* (Timothy Findley), *Wizards of Earthsea* (Ursula K. Le Guin), and *The Stormlight Archive* (Brandon Sanderson) all stand out.

TEFF: WHAT IS YOUR FAVOURITE PROGRAMMING LANGUAGE AND WHY IS IT TURING?

I'm gonna pick C++ even though I don't know it, since my friend jeff has such obvious and immense passion for it. I like seeing something that someone finds that cool. I think Turing is a close second since the **mathNEWS** articles about it are phenomenal.

LOOP: DO YOU LOVE THE BIG BROTHER?

I love my big brother and I think he's so fantastic he gets the title of *the* big brother. Benjamin, *Ich habe dich lieb*.

WEWLAD: WHAT IS YOUR FAVOURITE ALCOHOL, AND WHY IS IT FUCKING SAKE?

For my parents: What are a "alcohol"? I've never heard of it. You can move to the next question.

For real: I have a soft spot for straight vodka since I have many good memories of shots with friends. I think in terms of taste, most alcohol is gross straight, but I've had two wines I enjoyed. I really enjoy many different mixed drinks - Mojitos and Long Island Iced Tea are two which come with some very happy memories.. I have never had sake, but I will give it a shot [Editor's note: we almost fired him for this pun] soon!

FEMALE BORN AFTER 1993: FAVOURITE HOT CHIP AND LIE COMBO?

Bisexuality.

LOOP: COKE ZERO OR COKE DIET? (NOT SPONSORED)

Water.

LEMMAN: IF YOU HAD TO CHOOSE BETWEEN EATING THREE POUNDS OF RAW MUSHROOMS I SCAVENGED FROM THE WOODS (IN ONE SITTING) OR DRINKING A GLASS OF WATER (ALSO IN ONE SITTING) WHICH WOULD YOU PREFER?

Water.

AMON GUS: CAN YOU NAME 5 REASONS WHY YOU ARE NOT SUS?

I have a cute face, fluffy hair, soft hair, I give excellent hugs, and I have pretty eyes. Would someone like that lie to you?

NOT A N*RD: HOW DO YOU MAKE GOOD POPCORN?

Heat a neutral oil with a high smoke point (canola/peanut/vegetable) over high heat, add 2–3 kernels; when they pop, add the rest. Pour into a bowl, immediately salt. Melt a fuckton of butter, add it together with some combination of the following: {smoked paprika, cayenne, garlic powder, Cajun spices}. Alternatively, instead of butter, use some toasted sesame oil and add garlic powder, and gochugaru!

MATH

$$(100.6^{\circ}\text{F} - 32) \times \frac{5}{9} = 38.111^{\circ}\text{C}$$

PMAMC&OC WEEKEND UPDATE

PMC? AMPMC? AMC&OC? PMAMC&OMFCMCSC?

That's right, folks! It's everybody's favourite column of everybody's favourite publication! Now, to open, I'm very proud to announce that for the 110th academic term in a row, PMC has been awarded the prestigious "Offers Strictly Better Pop And Other Foodstuffs Than CSC" award. Believe me when I say that the PMC executive is extremely humbled by the unanimous decision to endow PMC with this award. We really try our best. If you'd like to experience some award-winning pop and other foodstuffs for yourself, you're invited to make the customary pilgrimage to the PMC office in MC 3033. With that out of the way with, let's see what else is going on.

SASMS

The first series of Short Attention Span Math Seminars, held last week, was a tremendous success—the talks were phenomenal, and most people got some certified "pretty good" Subway sandwiches for free. The event was so good, in fact, that we're holding it *again* next week, with a new lineup of speakers. SASMS II (2 (Two)) will be happening **next Thursday, July 7th at 7:00pm in MC 4020**. There will be food again if you've paid your membership fee. Pay your membership fee. \$2. MC 3033.

CUMC

Yeah, I've talked about this one a bit already but I'm excited, alright? In approximately 11 days, select esteemed members of the undergraduate math community here at Waterloo will be shipped off and banished to Québec, forever. Never coming back. Ever. Good riddance, I say. Hold on—I've just been informed that they will actually be returning on the 17th. Please disregard what I said just now. I've also been told that some members of the press here at **mathNEWS** will be present at the conference to report on it throughout. I'm anticipating some strong talks from the Waterloo delegation, and some strong on-location reporting from the **mathNEWS** delegation.

MERCH

PMC finally accepts card payment. Well, kinda. You can pay for merch at the MathSoc office and then bring a receipt to us and we'll give you the thing you ordered. You should probably check with us first to make sure we actually have enough stock though, otherwise that'd be pretty awkward.

That's all for this week, probably, unless I forgot something which would be pretty funny. Next issue, we should have some dates on the Pure Math and C&O prof talks, which haven't happened yet but will in a few weeks. See you soon!

Evan Girardin
President, PMC

MATHSOC ELECTIONS! VOTE!

VOTE FOR YOUR GOT DAM REPRESENTATIVES

Hello! It's me, your local PMC guy and PM/AM/C&O MathSoc councillor who also sometimes writes articles under other names. I'm here to shill MathSoc stuff. I'm also here to talk about PMC stuff but that's on another page.

The election for next term's MathSoc Council and Executive is coming up in a week, and with a prospective M4 on the horizon (in case you haven't heard), now's a really important time to care about who's advocating for you to the Math faculty.

While councillors are responsible for program-specific advocacy, the VPA and President are responsible for most of the advocacy that happens within MathSoc on the faculty level. I'll be one of the candidates on the ballot for President, but I encourage you to learn as much as you can about all of the candidates for every position you're able to vote for. The voting period for the election runs from July 11th to July 15th, so remember to vote for your representatives when voting opens!

Evan Girardin
PM/AM/C&O Representative, MathSoc

DRAG SHOW!

8 P.M. JULY 9TH - SLC BLACK & GOLD ROOM

Hiya~ 🙋

UW Drag Club is doing a Drag Show!

Free admission just show up 😊

Drag Club President

EPISODE 40: VOLUMES OF REVOLUTION

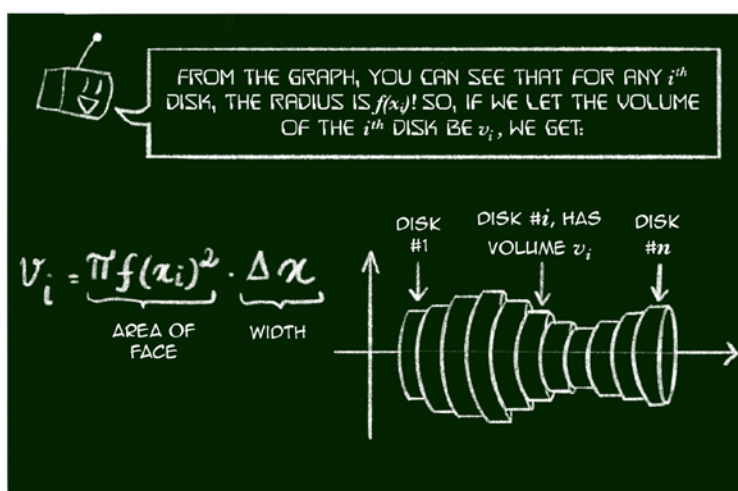
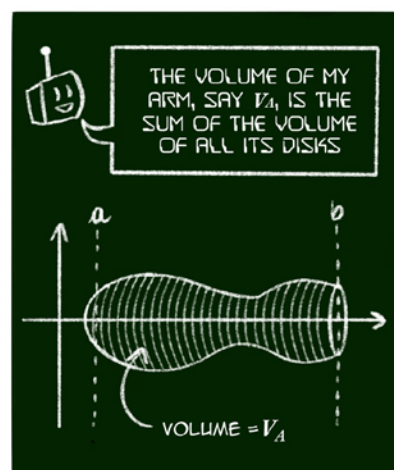
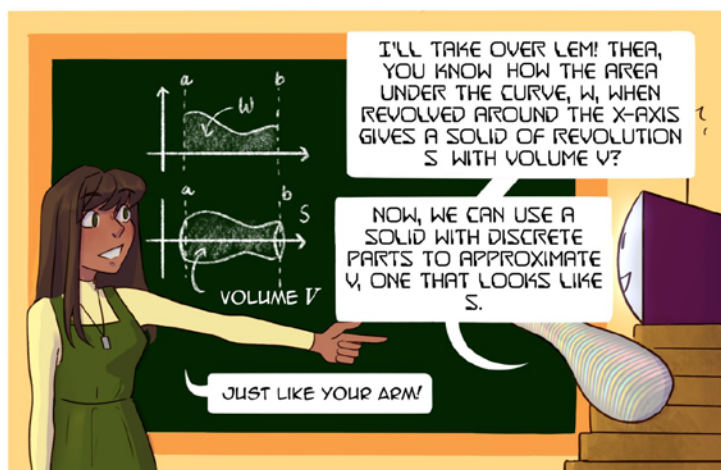
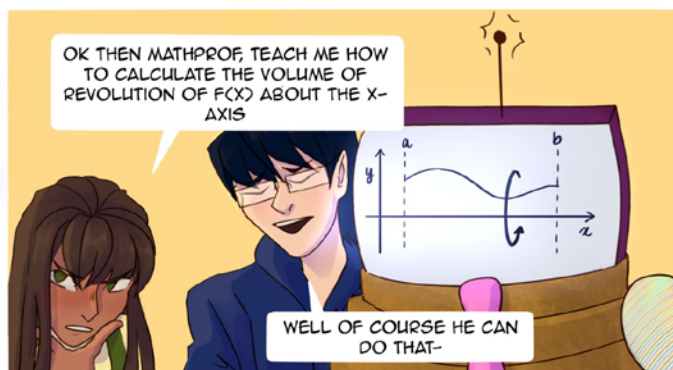
Enjoy Episode 40 of the MathSoc Cartoons series: *Volumes of Revolution!*

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

MathSoc Cartoons

MATH 138—VOLUMES OF REVOLUTION

STORY BY SHRIYA KULKARNI | ART BY AICHA GHIDAoui



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IF I UNDERSTAND CORRECTLY THEN:

$$V_A = \sum_{i=1}^n v_i$$

i.e. : $V_A = \sum_{i=1}^n \pi f(x_i)^2 \Delta x$

BUT HOW DOES THAT GET US TO V?

YOU MEAN IF n GOES TO INFINITY AND Δx BECOME INFINITELY SMALL, I.E. dx , THEN:

$$V_A = \lim_{n \rightarrow \infty} \sum_{i=1}^n \pi f(x_i)^2 \Delta x = \int_a^b f(x)^2 dx$$

WAIT! BUT THEN YOUR ARM HAS THE SAME DIMENSIONS AS S!

WELL, IMAGINE EACH DISK SO THIN THAT IT TAKES INFINITE DISKS TO MAKE MY ARM

AND THAT'S THE DISK METHOD OF CALCULATING VOLUMES OF REVOLUTION, WITH THE FORMULA:

$$V = \int_a^b \pi f(x_i)^2 dx$$

WHOA MATHPROF! CAN YOU ALSO TEACH ME TO USE THE SHELL METHOD TO FIND THE VOLUME OF REVOLUTION IF $P(x)$ ABOUT THE Y-AXIS

SURE! THE SOLID OF REVOLUTION, SAY R, LOOKS LIKE THIS. GIVEN THAT IT LOOKS SUSPICIOUSLY LIKE MY CARDBOARD BODY, LET'S USE THAT TO ESTIMATE V!

LET'S ASSUME MY BODY IS MADE OF n SHELLS AND THE i^{th} SHELL HAS A HEIGHT OF $P(x_i)$, RADIUS x_i , AND THICKNESS Δx .

THEN, THE VOLUME OF THE i^{th} SHELL IS:

$$2\pi x_i \cdot P(x_i) \cdot \Delta x$$

CIRCUMFERENCE THICKNESS

THE VOLUME OF MY BODY IS THE SUM:

$$\sum_{i=1}^n 2\pi x_i P(x_i) \Delta x$$

TO GET TO V THOUGH, WE CONSIDER THAT n GOES TO INFINITY, AND Δx IS INFINITELY SMALL, I.E. :

$$V = \int_a^b 2\pi x P(x) dx$$

MATHPROF! YOU REALLY DO TEACH WELL!!

WHAT YOU LEARNED WAS BUT THE KNOWLEDGE THAT LEM BESTOWED UPON ME

LEM REALLY IS A GENIUS!! I LEARNT SO MUCH BECAUSE OF HIM! HOW COULD I EVER REPA-

HABA, THANK YOU THANK YOU!!! THAT WAS NOTHING HAHABA...

AAAAND HE'S DAYDREAMING AGAIN...

BATHROOM REVIEWS: MC & DC

PART 1 OF BATHROOM REVIEWS

Hello, and welcome to the first part of a series where I intend to review every public male or non-gendered bathroom on campus! Ever wondered which bathrooms were worth an extra few minutes of stair-climbing to get to? Well, wonder no more!

I started my quest on the first floor of MC, and worked my way up. As you may know, each floor of MC contains four washrooms; mens' on the northwest and southeast corners, and womens' on the northeast and southwest corners. Since there are six floors of MC, I used twelve total bathrooms there.

Or I would have, if the second floor bathroom on the northwest corner of MC hadn't been closed for maintenance for as long as I've been planning this series of articles. Seriously, MC, fix the bathroom! I'll have to go back and review it at some point.

Basically, all the washrooms from the first floor through the fourth floor are the same, and you'll probably know the template well if you're a Math student. A few stalls against the back wall, a few urinals on a side wall, a window in the corner, those tiny square tiles dotting the floor, and the sink.

Yes, *the sink*. For some reason, these bathrooms all have one sink, a huge basin that is strictly controlled by a foot pedal that stretches around the bottom of the sink. No temperature control, and a huge waste of water for only one person using the sink. It sucks!

MC opened in 1968, but even back then people must've known this sucked, right?

The only real difference any of the lower floor bathrooms has is on the first floor, where there's a tiny door in one of the walls. I don't know what this tiny door is for, but it definitely caught my eye so I figured I'd mention it.

Luckily, the upper floors do get somewhat better. By better I mean they replace the one giant sink with individual sinks. You can even control the temperature of these sinks! Such luxury compared to the lower floors! Seriously though, if you're on the fourth floor already it's probably worth popping up to the fifth floor to use the washroom. The sinks are really that much better.

I give this building a $\frac{2}{10}$. It'd be even lower if not for the sinks on the upper floor, but it'd also be higher if the one washroom on the second floor wasn't closed for weeks on end, so it evens out a bit.

DC is quite varied in its bathrooms, especially compared to MC. It opened twenty years later, in 1988, so you can tell that the architects really learned how to make actually unique bathrooms in that time. I used ten bathrooms here; I'll walk through each one individually.

On the first floor is the infamous bathroom on the north side of the building. This one is definitely the biggest bathroom in DC, double the size of the nearest contender, but it's infamous for a reason. It's constantly busy, and usually unclean. I'm very glad it exists so that the other bathrooms aren't constantly clogged up, but I wouldn't recommend using this one unless you really need to. At least it has individual sinks with temperature controls.

The second floor and third floor also have mens' bathrooms on the north side; the difference is, these are actually really nice! They have a couple stalls and urinals, so not tiny but not super large either. But what really makes these bathrooms work is the window on the north side overlooking Bill Tutte Way. It just makes the whole bathroom experience click. Definitely worth attending, just a quick stair flight up from the one on the first floor.

The second and third floor have bathrooms above the library, too. These only have one stall and two urinals, I think? They feel pretty cramped. The one on the third floor also ran out of soap when I used it, forcing me to run down the hall to the one on the north end to finish washing my hands. Not the best choice, but also not the worst option at DC.

Fun fact! Davis Centre continues south of the road south of the Davis Centre. I don't think it has an official name, but y'all know what I mean. When you take the bridge south across that road, you're still in the Davis Centre, and there's a washroom on the second floor of that area. I tend to prefer using the toilet for these reviews, since it gives me a greater picture of the washroom at large, but when I went to use this bathroom, the only stall was in use and I had to use the urinal. It looked pretty similar to those bathrooms above the library, though; serviceable, but not anything worth seeking out.

And now, there are only the bathrooms within the library left. There were a surprising number of these, which worried me because I know I'll have to review Dana Porter eventually and I'm not looking forward to that.

The bathrooms on the back wall of the first floor may be one of the smallest public bathrooms I have ever used. They're non-gendered, though, so that's a win! It was maybe a metre wide and half a metre long, with barely enough space to squeeze in a toilet, a sink, and a towel dispenser. Honestly, they're fine bathrooms if you're studying and don't want to go too far from your seat, but in any other circumstance the size makes them a no from me.

There are similar bathrooms in the basement; single stalls, and non-gendered. These are around twice the size, though, so they're marginally better. I'd put them on par with the bathrooms on the second and third floors above the library.

The only set of gendered bathrooms in the library is on the east side right when you step in, and these are pretty good!

They have a modern Dyson hand dryer and a couple stalls, nothing special but they have more room than the other bathrooms in the library. If good hand dryers matter to you, use the bathrooms on this wall.

There's also a non-gendered bathroom over here, and it's huge, with a ton of extra floor space. One would think they could use that floor space in the bathrooms on the other side of the library, but I digress. Again, good hand dryer, and as this one is a single stall it's also quite private. If things aren't too busy and you want something a bit nicer than the gendered bathrooms or if you want a non-gendered bathroom in general, this is one of your better options in the Davis Centre.

I give this building a 6/10. It has some really stellar washrooms, but it also has some that are really cramped and happen to be out of soap. But it's some decent progress from MC!

Next time, I review the bathrooms of M3 and QNC! If you have any corrections for me (such as bathrooms I missed) or suggestions on which buildings I should review next, please email mathnews@gmail.com!

Predap

profQUOTES 149.4

ACTSC 231: KEITH FREELAND

“ Say you get life insurance, and you pay a \$300 premium. You walk out and bam! You get run over by a bus and you're dead. What a waste. All you needed was 20 minutes of insurance—what a rip-off.

CO 250: MARTIN PEI

- “ Nothing in this class is innocent.
- “ Should have made it 69.
- “ I'm starting to feel that I have some problems with numbers.
- “ I can't copy things, that's why I can't cheat.
- “ (*Fearfully*) Oh, we have three minutes.
- “ You guys seem excited today, must have had a good weekend. I don't have good weekends.
- “ These are the CS conditions, or for some people, the impossible conditions, because you can't get into CS.

CS 452: MARTEN KARSTEN

“ You showed yours, now I'll show you mine.

CAMPUS FEATURES THAT WERE NOT AROUND IN WINTER 2019

I've been around on God's green earth for a long, long time, but that matters nothing to you. To YOU, I came into existence in February 2019, when my name appeared on these hallowed pages for the very first time.

My sunset days on this campus are nearing, if they are not here already. Campus has transformed in these three years. I'm feeling nostalgic—sue me. So, here are some features on campus today that weren't around when I came around.

The iON station: The iON trains began operation in Spring 2019. How did we all live without them? Well, I dunno about you, but my legs were made for walking. All the way to Uptown, or even downtown Kitchener if needed. Back in my day, it was never about the destination, but the journey! Oh, there were still GRT buses too, I guess. Speaking of...

The bus terminals on the east end of campus: These things are nice. And useful if you take the GRT or GO buses, probably. Whatever. Now, you don't have to walk through the parking lots to get to campus anymore. And the long stretches of shade are a fucking lifesaver during those sunny days when you can just FEEL the UV rays mutating every last strand of your DNA. If you're into that sort of thing, well, you do you, honey.

The SLC expansion: If I could time-travel to three years in the past, I'd tell **mathNEWS** writer Fruitboy this: *shit ain't broken any more!* I can't tell you how gratifying it is to see SLC in its full glory, without the eyesore of construction to the northwest of MC. Some of the many, many new things you can do in SLC include:

- going rock climbing;
- traversing the SLC-MC bridge;
- futilely looking for your name on the glass windows to the east;
- patronizing Jugo Juice;
- patronizing the Teriyaki Experience;
- patronizing the many other new restaurants which I've forgotten the existence of but am CONFIDENT do exist; and
- admiring the artwork of the geese on the glass wall of the Black and Gold room.

BONUS: A CAMPUS FEATURE THAT WAS AROUND IN WINTER 2019 BUT IS NOT AROUND NOW

The Math C&D.

Finchey

sasmsQUOTES

Working under the two assumptions that our dear President keeps up with the PMAMC&OC Weekend Updates, and that our dear EDs keep up with the Logical Article Orderings, there isn't much ado to be furthered as we move onto our wonderful speakers and their wonderful words.

Though it would be really funny if one of the two failed to hold.

NICK PRIEBE — WHEN ALGEBRA AND ANALYSIS MEET: AN INTRODUCTION TO HARMONIC ANALYSIS BY WAY OF REPRESENTATION THEORY

- “Now most mathematicians saw that and went ‘okay, we’re boned.’”
- “And my question was: ‘How the fuck do you do that?’”
- “You can always just do nothing to it: observe.” (*does nothing*) “Wow, I’m so cool.”
- “Hey! That’s not what group theory is at all! Group theory is pushing symbols on a piece of paper.”
- “So the way I would like to think about this (and this is a correct perspective)...”
- “First of all, linear algebra is really easy. Like, not *classes*—”
- “Sorry Fourier, your life’s work is being erased.”

KAVIN SATHEESKUMAR — COMMUNICATION

- “I assume you’ve all used something that communicates at some point in your life? You know, wireless technodoodads that do all the fancy science and things?”
- “And this is very bad. Like, a lot of errors happen in this process. And that’s not good.”
- “In order to do that, we’re going to need a mathematical model, because physical objects are outside the paygrade of pure math students.”
- “Now, I know you’re all dying for the proof of this theorem. I’m not going to give it to you.”
- “You know code, right? Code and stuff. Computers.”
- “I’m a bit of a gambling man, right?”
- “Now I’m gonna go on a very hard tangent. I would have liked to have smoothed this over, but I was finishing this talk two hours ago.”
- “This is the last piece of random nonsense I’m gonna define.”
- “This... this is the foundation of all of coding theory, and I am cutting it from the talk, so I am jebaiting you a bit. I am sorry, but in my defence, [*inaudible*]”

YANG ZHONG — COMPUTER-GENERATED PUZZLES

- “Under NDA circumstances I cannot talk about this.”
- “I’m obviously pretending, I do know how this works.”

- “Takes a very special gamer to enjoy an 86-move [REDACTED] puzzle.”
- “This is for the ‘core gamer demographic’, as my boss calls it.”
- “My test listener told me they call it a ‘cut vertex’. I’m not gonna call it that.”
- “Gimme one. Computer please. Gimme those.”
- “How many times am I gonna solve this puzzle?”
- “Ooooooh, this is the cool move. Fireworks pop off here.”
- “4. COOLNESS.”
- “I don’t have a program that tells me ‘ooh, this is a cool one, the humans’ll like this one.’”
- “I want the red piece to move around a lot, because it would be cool if the red piece moved around a lot.”

DANIEL XIANG — A TOPOLOGICAL PROOF OF THE UNSOLVABILITY OF THE QUINTIC

- “[...], but we’re going to take an esoteric approach.”
- “I can’t even embed it inside the PowerPoint because it’s so incredibly long.”
- “There’s like two hundred proofs of this theorem, I’m not going to prove it here.”
- “So we can take commutators, and commutators of commutators, and commutators of commutators of commutators, and [...].”

A. X. Dee

THE CHICKEN

No one could be sure it was a chicken. Maybe it was, maybe it wasn't. It might've walked like a chicken, it might've talked like a chicken, but at the end of the day, it might've not been a chicken. But I digress. This thing, animate or inanimate, feathered or featherless, the thing, crossed the road. And as any scientist would, assuming they were a scientist (though they may not be), the Party decided to propose theories as to why. Well if we assume it had feathers, then it must've crossed the road to get rid of them. Who would want such fluffy nuisances tickling about their every move? And if they didn't have feathers, if it wasn't a chicken, that is, then it is out of our field of study and out of the scope of the paper. Tenure will never be achieved this way. And thus the Party decided to venture a guess at a more fundamental question: why was it a chicken? It couldn't be because of the feathers, for we did not know if it had feathers. If its aunt was a goose, would it be a chicken then? But the genealogy had been lost in the third war. The Party was at a loss. It was for that reason that the Party decided to cross Party lines— to get to the other side.

The Party

WHY YOU SHOULD NOT STUDY IN E7/MC/DC

It's midterm season, and you've decided to make the productive and reasonable decision as a Waterloo Student to study on-campus and leave the comforts of your waifu body pillow (please do not bring your body pillow to campus).

The first decision arises here, you have to decide where to study. Most people will opt to study in the popular buildings, namely the DC library, E7 piano floor (I don't know what department this floor is for, and I do not care) and around the insides of MC. Listen to me and you'll understand that you should leave the comforts of these buildings and seek discomfort in other faculties.

Here is a ranking of the best places to study outside of E7/MC/DC.

5. EV3 THIRD FLOOR

Take a break and touch grass somewhere that probably has grass (I don't know, don't ask me). On the third floor by room 3404, there is a nice corridor with some seats overlooking Ring Road. Adjacently similar to the E7 tables overlooking a parking lot, EV3 offers the same atmosphere but with a much more pleasant view.

4. QNC FLOORS 3+

Beyond the ever-popular first and second floors of QNC, there lies the quietness of the rest of QNC, next to useful single-user washrooms for ever important study breaks and post-Lazeez meditation. You can study here for an ever pleasant view of the rock garden. This place might be only for grad students, so study with risk.

3. EV1 COURTYARD

Yeah, a Geomatics student might have ghostwritten this but the courtyard is an excellent option for those looking for natural light, for with the courtyard's skylight you can feel the UV rays hitting your nasty acne-filled pores. Do be warned, this study spot might be horrible for those of you who one, study in the night and two, do not own an iPad. This amazing light source has one caveat, it happens to be the only light source. For brave soldiers who write on paper and pen, you might not be able to see your work.

2. MC 5TH FLOOR ATRIUM ROOMS

YEAH I FOOLED ALL OF YOU, THIS IS THE 2ND BEST PLACE TO STUDY EVER. Sometimes you need a depressing place to study and these rooms offer just that but MORE pizzazz than the rest of MC or DC BASEMENT. These rooms might also be for grad students and math talks or something. These rooms offer an allure that you can not get from any other room. Check it for yourself and be amazed.

1. YOUR BEDROOM

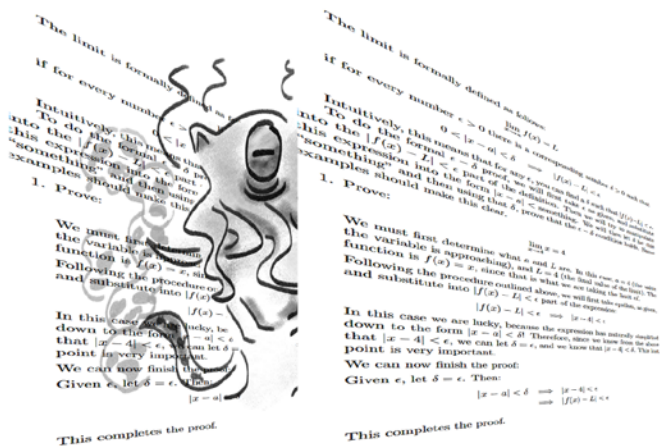
Yeah, it all leads right back to where it came from. Let's be real here, you study at EV1 Courtyard and you get irritated by the heat of the sunlight hitting your Vitamin D-deficient skin. You go to QNC, and miss the cold lifeless embrace of your anime body pillow. You go to MC 5th Floor and the fact you have to wear pants irritates you. So you come back from campus, having looked at 2 slides and 0 progress on your CS assignment, back to where it all came from.

Welcome back.

tr1e

THE ADVENTURES OF PROFESSOR M. GOOSE

CHAPTER 8



THE ABSOLUTE STATE OF THEORETICAL PHYSICS

DEFINITELY NOT WRITTEN BY A MATH-PHYS STUDENT

Theoretical Physics is a very complex field of study. In fact, you must learn physics, applied mathematics, pure mathematics, chemistry, and statistics just to scrape the surface of what theoretical physics, or even physics as a whole, actually is. There will be many instances where you will be sitting in front of your computer, doing homework or research, and just wonder, “What in the Lord’s great name am I doing with my life,” as you scroll through the papers realizing that there are no more words, just symbols. The only thing that is constant in this field is that you will be addicted to two out of these three things (non-negotiable). First is coffee: the sheer amount of information you must intake is absolutely absurd. Not only is there too much information, but as you read textbooks and papers, line after line, they start to make less sense. Throughout the average theoretical physicist’s career, they will be exposed to so many equations, theorems, and physical anomalies that make no sense but have to be taken as true. You absolutely need coffee if you want your brain to even be able to process what is being said in half of the published papers on arXiv. Next is nicotine: I cannot advocate for smoking, but let me just say that your stress levels will be off the charts. You will literally have so much information in your system that you are trying to process that your cortisol levels will be through the roof. Finally, our beloved alcohol: this one is self-explanatory. Now that we’ve covered the foundation for this god-forsaken field of study and the fellow enjoyers that put themselves through hell to study it, it’s time to talk about what’s in it.



Physics at a high school/early university level is understandable. The equations: neat. The math: very intuitive. The concepts: easily understandable. What follows university physics is an absolute mess of symbols that are a pain just to look at, let alone understand. The following concoction of horrifying symbols is what’s known as Christoffel symbols:

$$\Gamma_{\mu\nu}^{\lambda} = \frac{1}{2}g^{\lambda\alpha}(\partial_{\mu}g_{\alpha\nu} + \partial_{\nu}g_{\alpha\mu} - \partial_{\alpha}g_{\mu\nu})$$

What follows suit is an inequality which arises in distribution theory:

$$\infty > \int \langle P(\lambda) | (\psi_1 u)^{\wedge}(\lambda) \rangle^2 \lambda^{2\tilde{A}_1} d\lambda > \int |(\psi_1 u)^{\wedge}(\lambda)|^2 \lambda^{2(\tilde{A}_1 + N)}$$

They are literally just slamming symbols together hoping that somehow, in the grand scheme of things, it works. Although I do admit that these are obviously credible equations, theoretical physics requires so much mathematical framework that only people who study a very niche and specific field of physics could understand the equations that arise from this specific field. This almost makes it the most “gate-kept” field of study to exist.



Before coming to Waterloo and studying Theoretical Physics, I thought that everyone agreed that the Big Bang was legit, that it was a valid explanation for the origin of the universe. Then I walk into my modern physics lecture, and my teacher says in response to someone asking about the Big Bang: “It’s the least credible theory we know.” I’m sorry but, what is that supposed to mean? Turns out, after walking back home crying and doing research, that physicists can’t agree on a model that described the early universe, because none of it makes any sense. There’s the steady-state model, the Ekpyrotic model (whoever named this one was definitely smoking some heavy stuff), the Big Bounce model, Plasma Cosmology, Conformal Cyclic Cosmology, and the list goes on and on and on and on and on... Don’t even get me started on how they predict the universe to “end”; the list of possible endings is even longer. Theoretical cosmology can only go so far before it’s just drunken physicists at a bar hurling the most god-awful theories at each other, and just saying “fuck it” as they put it in their paper the next day. They have the audacity to say “we’ve potentially discovered a new, ground-breaking model” every single week. Now, because this is a **mathNEWS** article, you’ll be happy to know that this extends into the math behind said possible theories. The mathematical framework is valid in each, but there’s so little evidence that even other physicists think the math is too theoretical. What do you have to do to get your fellow delusional theoretical physicists to shake their heads in disbelief?



Particle physics is a very beautiful field of physics which studies the various particles that whiz around us while we sit here studying them. The world of particle physics is one of great mystery, and a bunch of drunk physicists coming up with the most absurd theories. To my dear particle physicists, “Leave us alone with your quacks and bozos and fartons and leprosy particles.” The equations that arise in particle physics are not only crazy, but most of the time, require you to be smoking some form of hallucinogen that lets you see the fourth dimension to even grasp what they mean intuitively. The following equation describes the strong force:

$$\mathcal{L}_{QCD} = \bar{\psi}_i(i\gamma^{\mu}(D_{\mu})_{ij} - m\delta_{ij})\psi_j - \frac{1}{4}G_{\mu\nu}^{\alpha}G_{\alpha}^{\mu\nu}$$

Now again, going back to the classic math argument, unless you study this specific field, and focus on this specific force, you will have absolutely no clue what any of these symbols mean. Not only this, but if you know anything about particle physics, you’ll be happy to know that there’s an experiment which disproves the theoretical framework by a total of 6σ (take that as being incredibly wrong, usually we’re off by around 0.9σ to 1.2σ). It was so far off that it required them to repeat the experiment 3 times before coming to the conclusion that they have absolutely no clue what was going on. (If you wish to look into this, it’s the famed W-Boson experiment.)



Don't even get me started on what physicists are working on right now. You have people telling me that gravity is a particle, people telling me that there's a hole in the universe, and people just rambling on about theories that require hundreds of years to prove. If you could see my face right now, it would be the face of a man who has absolutely had it with this absurd field. I bet you wouldn't believe me if I told you that there is a grand total of 25 dimensionless constants that govern our world in the standard model... constants that cannot be derived from equations, literally just numbers... numbers that if shifted by just a few decimal places, the entire universe wouldn't be able to exist. My absolute favourite is the fine structure constant, denoted α , which is roughly 0.007297. If this number were any different, literally a smidgen off of what it is now, stable matter wouldn't exist. Isn't that lovely?



The issue isn't the field itself, it's the fact that it requires you to be the most grounded human being in existence. To be able to look at a problem and fully admit that what you're working on makes absolutely no sense. Then again, it's in the attempts to rationalize these absurdities that we've made it so far in the field. You know what, I've absolutely had it with Physics, I'm going to go study astrology now. At least I know that astrology is credible science. Maybe the stars will align and tell me why I'm in so much pain, sadge.



Yours truly,

a lowly Physics student

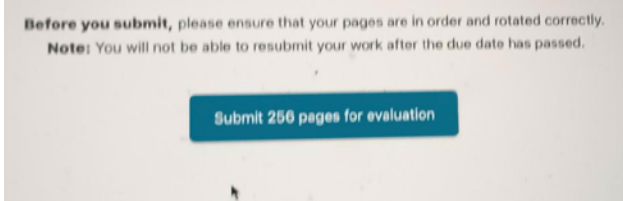
REASONS TO GO TO mathNEWS INSTEAD OF STUDYING FOR MIDTERMS

YES, I STILL HAVE MIDTERMS

- It's a nice break from studying
- They give free pizza
- You'll probably pass so why not get pizza to celebrate early
- There may be people there who will help you study (or not, idk)
- You can make new friends
- You can make new rivals
- It's important to realize that academics aren't everything
- You'll probably fail anyways so why not get pizza instead of wasting time studying
- Let's be real you still haven't started studying

N QUOTES FROM PMATH STUDENTS

NO CONTEXT WILL BE GIVEN

- 
 - “My stupidity has standards”
 - “Imposter syndrome is useful for us”
 - “There is no evidence you are a dumbass”
 - “I will find it”
 - “Sleep is for the weak”
 - “Food is for the weak”
 - “Can you see a wall”
 - “No I can only see the roof”
 - “You have [upper year PMATH student] and BTS”
 - “No one knows BTS in the Olympiad community”
 - “Okay that's like 10x the size of my vocabulary xD”
 - “Imagine taking CS”
 - “This is not so bad once you know the answers”
 - “Fuck English”
 - “No do not fuck english”
 - (one hour before the exam) “How do you do this limit problem?”
 - (one hour after the exam) “There was a limit problem on the exam?”
 - “This TA is not a clown, this TA is the entire circus”
 - “Counting too hard”
 - “What is 0?”
 - “My happiness index”
 - “How to talk?”
 - “It's a fucking 16 question assignment from which 50% isn't graded, and the shit that is graded is graded for English”
 - “what are some major problems with it” (talking about slide on engineers)
 - “the fact that they're engineers”
 - “Why do engineers get burnt out the fastest? Bcoz they get roasted the most”
 - “if I ever sit and do computations kill me”
 - “To combat imposter syndrome, you just need to do pd”
 - “Your package is shit” (referring to LaTeX)

BEGINNER'S GUIDE TO COMPILE-TIME DESCENT, IV

IV: CUTTING THROUGH

Hello.

TYPE TRAITS

...are, in essence, a cute way for us to query properties of types and produce new types with properties transformed in some way. It's here that we're really going to start using our template classes like functions operating on types and returning types, or values.

Here's a problem: I want to know if a type is floating point or not. There are a lot of types which I'd call "floating point." Let's say **float**, **double**, **long double**, hmm... I can't think of anything else. Okay, how's about we manifest this via a template class `is_floating_point` and do the usual "pattern-matching-like" stuff where we give an unspecialised version which will be used for non-floating point types, and specialised versions for floating point types. They'll all have a boolean member `value` that tells us whether the type is floating point or not.

```
template<typename T> struct is_floating_point {
    constexpr static bool value = false;
};
template<> struct is_floating_point<float> {
    constexpr static bool value = true;
};
template<> struct is_floating_point<double> {
    constexpr static bool value = true;
};
template<>
struct is_floating_point<long double> {
    constexpr static bool value = true;
};
// ...
is_floating_point<double>::value; // true
is_floating_point<int>::value; // false
is_floating_point<const float>::value; // false!
```

Uh oh. What a lot of ugly duplicated code that was, and we didn't even hit all the right types! We forgot all about `const` types. Yeah, those don't get taken care of automatically. That adds another 3 specialisations! And I'll cut to the chase here, we'd still be forgetting another 3, because we'll have forgotten about **volatile** types. Now, you might be asking yourself, *what?* Yeah, you and me both buddy. Seems like everything's volatile nowadays, even our precious little types. That's life, I guess. Anyway, we'd still be leaving a few out because, naturally, we'd also be missing the **const volatile** types. I don't know about you, but I've lost count of how many specialisations this is supposed to be anymore. I think I'm going to lose touch with reality if I have to copy and paste this stupid class that many times.

I think you get the idea. It'd be nice if we could abstract out some of the themes of `is_floating_point`, both for use

elsewhere, and to make our code a bit more compact. Well, a good first step would be to cut out the **constexpr static bool** value nonsense. We're in C++ for god's sake! Let's use inheritance.

```
struct false_type {
    constexpr static bool value = false;
};
struct true_type {
    constexpr static bool value = true;
};
```

Now, instead of copy and pasting that huge line for every single specialisation, we can just have them inherit from `false_type` or `true_type`. Actually, since we're on an abstraction kick, let's take it a step further:

```
template<typename T, T Val>
struct integral_constant {
    using type = T;
    constexpr static T value = Val;
};
using false_type = integral_constant<bool, false>;
using true_type = integral_constant<bool, true>;
```

So now, we have this `integral_constant` structure that serves as a type meant to wrap a (type, value) pair. So, we can actually represent the integer **3** as `integral_constant<int, 3>`. I'd like to make very clear to you the level of abstraction we're on: **the number three is a type now**. Sure, we can access the underlying integer value by doing `integral_constant<int, 3>::value`, but fundamentally, we can represent the number 3 as a distinct type. Hahahah, this is absurd! But I'm totally serious.

Anyway, I got a little side-tracked there. That shortens things a little, but it doesn't change the fact that we'll have to write, like, 15 versions of this stupid `is_floating_point` class that are virtually identical. The four we originally wrote were making me dizzy alone. Really, we'd like to cut through nonsense **const** and **volatile** nonsense and get to the "heart" of the type. For brevity's sake, I'm going to use the word *cv-qualifier* to generally refer to **const**, **volatile** and **const volatile**. Yes, this is a term from the C++ Standard. I'm just trying to poison you with Standard-isms. Only a little; promise. Anyway, we want to cut through the cv-qualifiers and access the "real" underlying type. If we had some sort of operator that could do that, we could just apply that to the type first, and then have `is_floating_point<T>::value` operate on that underlying type.

If you haven't caught on yet, `is_floating_point` is the "query" part of type traits; what we're about to see is the "transform" part of type traits. Removing cv-qualifiers is a common thing to want to do, so why don't we make something that can do that? In particular, we're going to make a template class, call it `remove_cv<T>`, which takes one parameter, and that has a

type member called `type`, which'll be the “underlying” type of the parameter. So, for example, `remove_cv<const volatile int>::type` would be an alias for `int`. Let's see it:

```
template<typename T>
struct remove_cv {
    using type = T;
};
template<typename T>
struct remove_cv<const T> {
    using type = T;
};
template<typename T>
struct remove_cv<volatile T> {
    using type = T;
};
template<typename T>
struct remove_cv<const volatile T> {
    using type = T;
};
template<typename T>
using remove_cv_t = typename remove_cv<T>::type;
```

Yes, it's four things again, but this is the only time we'll ever have to do this; the problem will be solved forever. Also, I made a template alias so that we can write `remove_cv_t<T>` instead of `remove_cv<T>::type` (it's not too complicated, look it up if you want to know more).

This is really interesting. I can't help but return to that weird thought I had last issue; these really are like functions, aren't they? Like weird, fucked up rogue classes-turned-functions that take a type parameter and “return” another type through a member type. And, I mean, it's all kind of *functional*, don't you think? We can't chain together multiple statements like this, we're only able to make `type` equal one thing; we only get one statement to operate and “return.” Or “produce.”

Kind of like Racket?

Anyway. Let's revisit the `is_floating_point` thing from earlier. Our first change was to make `integral_constant` which took a literal type and an instance of that type, for example `int` and `3` or `bool` and `false`, so we could just make our `is_floating_point` specialisations inherit from `true_type` or `false_type`, which were just aliases for `integral_constant<bool, true>` and `integral_constant<bool, false>` respectively. But you know what? We can do better than that. We don't need to restrict ourselves to specifying `true` and `false` explicitly. Remember, the whole point was to trick the compiler into figuring things out for us! Well, let's make it figure things out!

Remember from last issue when we made the `is_same<T, S>` template class, such that `is_same<T, S>::value` was `true` if and only if, well, `T` and `S` were the same. We're gonna dig that up and use it again. How? Well, with `is_floating_point<T>`, we ultimately want to know whether the “underlying” type, past the cv-qualifiers, is `float`, `double`, or `long double`. That is, we want to know if `is_same<remove_cv_t<T>`,

`float>::value` is true, or `is_same<remove_cv_t<T>`, `double>::value` is true, or `is_same<remove_cv_t<T>`, `long double>::value` is true. So, to be absolutely and ultimately precise, we want to

```
template<typename T> struct is_floating_point :
    integral_constant<bool,
        is_same<remove_cv_t<T>, float>::value ||
        is_same<remove_cv_t<T>, double>::value ||
        is_same<remove_cv_t<T>, long double>::value>
    {};
```

Huh? Wait, we didn't even do any specialisation? It's just one thing! We just stuffed a big “or” chain into the `Val` parameter for `integral_constant`. We can do that? The audacity!

Oh, yes. Of course we can.

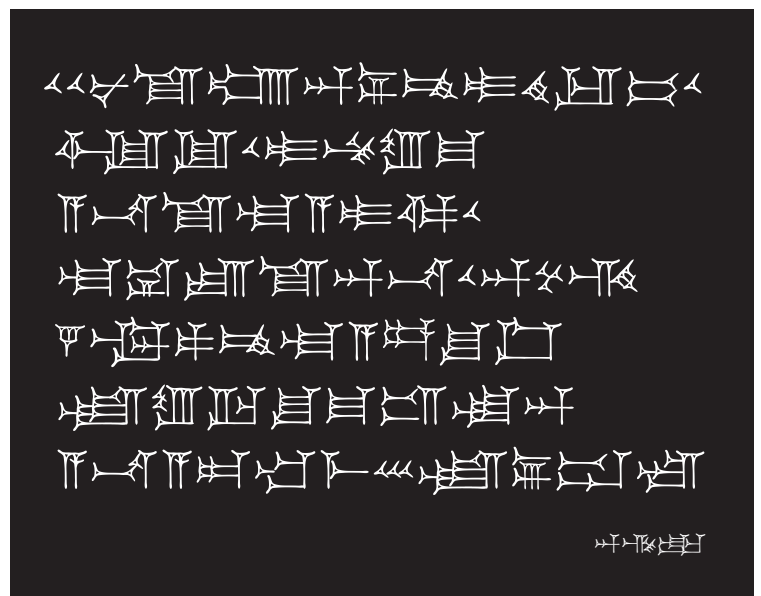
It's beautiful. There's so much meaning packed into such a tight space. Trace back through the inheritance chain; it works. Remember your 246: inheritance is just “is-a,” after all. Now, `is_floating_point<T>::value` will access the underlying `integral_constant`'s `value` member, which has our answer to whether the damned type was floating point or not. I used inheritance here, but at this rate we could've just as well used a template alias like I did before with `remove_cv_t`. In fact, why don't you go and do that? Not very much work, and it'll strengthen your sense of the land.

Oh and yes, as per usual, all of this stuff we've tirelessly written already exists in the standard library, in the `<type_traits>` header.

What'll it be next time, then? Hmm, let me think on it for a moment.

Mmm. SFINAE. Don't you think we could do better?

jeff



PIZZA WOES

As I'm writing for **mathNEWS** tonight, I expect to experience the same song and dance. We will get the opportunity to recommend pizzas for the enjoyment and consumption of the writers. And I will attempt to recommend a culinary adventure that is disruptive, breaks the mould, and pushes boundaries.

I craft a pizza that is eccentric. Bold. Out of the box. Uncharted territory. An exhilarating experience. It's the next level of pizza. In fact, it redefines what a pizza really is. It bewilders and impresses the strong-willed, and terrifies the feeble-minded. Everybody, I present to you: the "Oops All Olives."

Oops All Olives works as follows: standard pizza crust base. Olive oil replacing the tomato sauce. Double black olives. Double green olives. No cheese.

This pizza represents the Waterloo spirit. It's ingenious, and inventive, and truly beyond ideas. Yet time and again, I fail to rally enough votes and campaign for Oops All Olives to get a fair shot at our palate.

Pizza should be an experience, especially one that's shared with your friends. And this would get everyone out of their comfort zone and talking. Commenting on the pizza. How the dough texture differs. How the bread, olive oil, and olive flavours come together. How they're glad to have tried something new and edgy.

Instead, they pick the safer options. "Chicken Florentine." "Meat Lover's." "Hawaiian." No one seems to want to radically change their understanding of pizza, and are too stuck in the status quo. But, if the last few years have taught us anything, the status quo should be malleable and change to circumstance based on picking the best of many alternate paths, like online vs in-person learning. Much the same, my Oops All Olives is juxtaposed with these banal pizzas.

There have been attempts to make Oops All Olives work. Alternatives include Oops All Olives + tomato sauce, Oops All Olives + cheese, and Oops All Olives + both. But even these candidates which would seem to be more viable in the marketplace of pizza ideas once again fall short. And then the pizza run. And then we eat "good pizza." And once again, **mathNEWS** has failed to innovate their gustatory and olfactory senses.

I write this both as a call to action and a lamentation. **mathNEWS** writers: be more daring with your tongues! Alas, I doubt Oops All Olives will happen. Nonetheless, I will attempt the campaign time and again, as in hopelessness one can only try. I have been workshoping my next project, however: the All-Tomato. Hopefully this one gains more traction!

MARMOSET-CHAN IS A SADIST



TURING 102E

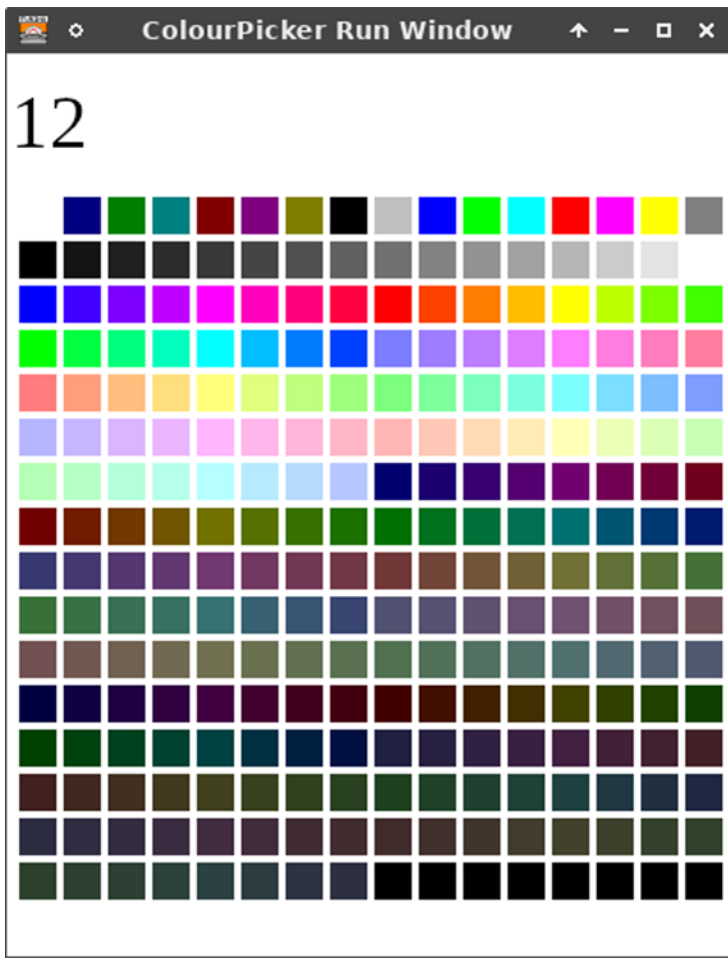
ADVANCED COLOURS

I have more to say about colours in Turing. The colour system is one of the weirdest parts of the language.

Turing associates the integers 0 to 255 with colours. Each integer has a specific colour associated with it, but some colours have multiple integers mapping to them!

While there should be 256 unique colours, if you check there are actually only 240. Also, there is no real pattern to what integer maps to what colour, other than the first few integers mostly being basic colours and then light and dark colours mostly being near each other.

Here is the output of a program I wrote that makes a Turing colour chart, with colour 0 in the top left and colour 255 in left-to-right, top-to-bottom order (same order as you would read English). Apologies if you are reading the print version of **mathNEWS** since we unfortunately still print in black and white.



It says 12 at the top because my mouse was hovering over red (which is colour 12) when I took the screenshot, and I programmed it to display the colour of the box the user is currently hovering over.

You can use the `RGB.AddColour` command to add new colours with red, green, and blue values between 0 and 1. However you cannot have more than 1024 colours in your palette at once; if you try to have more it will just overwrite previous values without returning 1, which the function is supposed to do if it cannot create a colour. Also, 1 should be a valid output for this function.

teff

RIDICULOUS COMMENTS AND FEEDBACK

It was a typical (P)MATH **** day, when I got my assignment returned back and I got a score of 80 something. It wasn't a big surprise—until I looked at where the marks were deducted from. I looked at this with some of my friends, thinking that most of it was ridiculously subjective, and decided to compile a list of the ridiculous feedback I got:

- **Me:** Assume...
- **TA:** This should be "Assume for contradiction." (-1)
- **Me:** $\langle x, y \rangle$
- **TA:** This should be $\langle x, y \rangle$. (-3)
- **Me:** Can't we use this fact directly from ***?
- **TA:** It wasn't covered in my offering of ***, so you couldn't use it directly; also I found another error by the way. (-3 → -5)
- **Me:** [Explains the exact same thing as another student who got a full mark on this question.]
- **TA:** I don't get it. (-4)
- **TA:** What a great answer/solution to the question! [Proceeds to give 3%.]
- **Me:** Consider a subsequence (x_{n_k}) ...
- **TA:** The definition of subsequence needs that n_k is increasing, which is not true in general. (-4)
- **TA:** [Comment is longer than the entire answer.] (-10)

BONUS

- **Me:** I can't find my exam seating.
- **TA:** So? I can't find it here either.

toxicsbridge

I WANNA KISS SOMEONE SO BAD

bottom text

mutt

“TEXT ME WHEN YOU GET HOME SAFE”

A BLURB ON GUYS WALKING ME HOME AT NIGHT

If you ever ask me what my biggest fear is, you'd get an answer without pause: the dark. I'm absolutely terrified of the dark. I sleep with the lights on unless there's someone with me. I can't stand open doors and open hallways unless I can see through each room. Growing up, I wasn't really allowed (i.e. this was “frowned upon” by my Jewish parents, which means not allowed) to go outside after dark; and in Manitoba, this tends to happen around 4pm for most of the year. So I consider myself a sheltered person—literally. A trip to the Starbucks across from my street along a well-lit road at night would leave me flinching at every shadow.

If you ask me what my biggest fear is and ask me not to lie, you'd get a much quieter answer: bad men. I'm scared that someone will do things to me when I don't want them to. I'm scared of being followed at night. I'm scared of nice boys who open doors in the daylight who turn out to be bad men when the lights are off. I hesitate before saying the r word. It's a very selfish fear, fear for my own survival rather than fear of losing those I love, but the underbelly of this world teaches it's better to be selfish in these things.



When I came to Waterloo I was scared of the dark. It's just a 7 minute (4 minutes if you're late to class) walk from MC to the front lobby of my building, but it cuts through the East campus parking lot. The trees around that lot always look like they could be harbouring a stowaway at night, a predator waiting for someone to walk by close enough—like a Venus flytrap waits for its buzzing prey. I'd be scared to walk alone and I would rush back home once the sun began its daily descent.

But things changed so quickly! I made a wonderful friend. We talked and talked for hours, and the first time he walked me home I thought it was quite the relief! I was to be *accompanied*. This was special. For that one night, I could stop worrying about when the fun would stop and enjoy the moment. But the amazing thing was, he kept offering! Night after night, it became tradition—we would stay as late as I wanted to, and then he'd walk me home. It was phenomenal. Thank you friend. Thank you Waterloo.

But freedom is a funny thing. I wasn't really free, was I? Dependency can be a rotten bitch once it shows its fangs. I needed to learn to cross that parking lot on my own.

Nowadays, I'm the first roommate out the door in the morning and the last one to come in at night. Walking back at night is unavoidable for the life I live, for being free to join clubs and see friends and study in MC until 2:37 A.M. I feel so incredibly free when I'm not scared of the dark.

Even better! I *enjoy* walking at night, for the simple reason that Waterloo at night is the Waterloo I'd been dreaming of. Every

time I walk by Dana Porter, with its glowing rainbow lights, under the night sky and no one around to keep me company except the chill wind, I feel so incredibly grounded on this planet. This is where I wanted to be! I am *here*. Legitimately, truly. This is a dream that I've realized; and hell if I don't enjoy every moment of it because I've forgotten that I wanted to be here and moved on to the next fleeting fantasy. I want to be alone. I haven't been on my own for a while, and it's only now sinking in that I did want to live by myself and be by myself after high school. This is it! It's beautiful and there's nothing more than this. And if I can enjoy walking beside Dana Porter in the night on my own then I know I can enjoy the rest of the world.

But the reality of life is that this simple pleasure has a cost. It's a risk I have to pay. I crossed paths with a man in the park at night and for a brief moment wondered if this would be the last time anyone ever saw me. I had to make the decision to risk it, to keep walking, to trust this human not to steal my life away from me in the middle of these dark woods. It's not a risk I'm willing to pay every night. So I'm not writing this article to talk about my fears or my past or my character growth or whatever. This article is a thank you.



Three of my very dearest friends (all boys) live a half hour walk away from my home. And without fail, every time we stay out way too late living our silly young adult lives, I get an offer to be walked home. No, I get an insistence to be walked home.

My buddy will walk to campus every night to accompany a girl back to her apartment. It takes him 45 minutes, and it's usually late at night when he's either about to go to bed or hanging out with friends. And he does it without complaining, without prompting, and without the expectation of romantic reciprocity.

I was drunk off my rocker this weekend and in no state to get home on my own. I needed someone to take care of me, and I was in a very vulnerable position without a plan. It wasn't even a question—my friend let me put my life into his hands and guarded it with honour. It was such a simple matter of trust in a dear person, but looking back I wonder how much luck the universe must've granted me.

Thank you to anyone who's ever offered someone a walk home. Thank you to anyone who's asked someone to send a text once they're home safe. It feels like we're all still kids taking care of each other. Thank you to the kind-hearted, and thank you to the caring. I'm not so scared anymore.



I remember that night last September, sitting under the fairy lights at the rock garden with two friends and feeling for the

first time that we're grown enough to call each other a family away from home. And I said, I do have love for you.

X-Student

N SIDE EFFECTS AND COMPLICATIONS THAT CAN ARISE FROM PREGNANCY

AND OTHER MISCELLANEOUS FACTS ABOUT REPRODUCTION

- *Anemia*
 - Low iron, leading women to feel tired and weak
- Mental health conditions
 - *Depression*
 - *Eating disorders*
 - *Anxiety*
- *Hypertension*
 - Hypertension may lead to a serious condition called *preeclampsia*. Preeclampsia can cause damage to kidneys, liver, brain and other organs. It leads to a higher risk of heart disease. It stunts fetal growth and can lead to it being stillborn
 - Approx. 1 in 25 pregnant women will experience preeclampsia
 - *Eclampsia* is when preeclampsia is severe enough to effect brain function, leading to seizures, comas, and even death.
- *Gestational diabetes*
 - Pregnant women who previously did not have diabetes may find their bodies unable to process sugars effectively when pregnant
- Obesity/weight gain
- Viral and/or bacterial infections, including:
 - *Urinary tract infections*
 - *Bacterial vaginosis*
 - *Cytomegalovirus (CMV)*
 - *Maternal sepsis*: If a fetus dies and is not naturally expelled or medically removed from the woman's body, it will decay in the womb and harm the body. This can lead to septic shock—meaning disability or death for the woman.
 - Even seemingly common and non-serious infections can lead to lasting repercussions to both the mother and the fetus
- Morning sickness
 - Nausea and vomiting, which can lead to dangerous dehydration and weight loss (This condition is called *hyperemesis gravidarum*)
- *Placental abruption*
 - Placenta separates from the uterine wall before delivery, leading to vaginal bleeding, abdominal

pain, and in severe cases, necessitate early delivery of the baby

- *Ectopic pregnancy*
 - In this case, the fertilized egg has been implanted somewhere not in the uterus (likely a fallopian tube). If not removed, it will cause the organ to rupture and the woman will die. Ectopic pregnancies are non-viable in all cases: they will not lead to a living baby being born
 - Approx. 1 in 50 pregnancies are ectopic

This is, of course, a non-exhaustive list.

Other facts:

- Medically speaking, a legal abortion is safer than childbirth. The risk of death associated with childbirth is 14 times that of abortion
- From conception to birth, a pregnancy is typically 40 weeks long
- A miscarriage is typically defined as the loss of a fetus before the 20th week of pregnancy and a stillbirth is defined as the loss of a fetus at or after 20 weeks
- Roughly 10 to 20% of known pregnancies end in miscarriage, though many are not reported, and many miscarriages occur before the woman is aware that they are pregnant
- Not all women who are pregnant consented to sexual intercourse
- Contraception can fail. Safest bet if you don't want a child is sterilization
- The one who is pregnant bears 100% of the biological risk associated with childbirth

yummyPi

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HEARTS

My friend,

I hope things are well at home. All is well here, far outside the walls. Within the heart of a heart, I've found a hidden balcony from which I write you now. On Monday, I'll gather with new friends and contribute this letter to **mathNEWS**—devoid of math and news, of course. I hope you don't mind if other people read it; I hope you'll find someone to read it to you.

That Monday, we'll gather to be together, catch up with old friends, and maybe make new ones. We'll translate heartbeats into words, gather for pizza under the evening sky, then thrive brightly hours into the night, before eventually drifting apart, back home, back to bed, forty thousand students filling maybe five streets.

Do they remember when it was not this way?

From the Kitchener GO, a single set of tracks leads one hundred kilometers to a city, not three but one, that some of them call home. Outside the reach of its starlight is nothing, a shroud of darkness by night and void by day, which hides deep within a silent cluster of homes, a community in size, a cemetery in character. They do not have **mathNEWS** meetings on Mondays.

We grew up in one such town, you and I. It is surrounded on all sides, enclosed entirely by imposing walls of trees and sky, or fields and streams narrow enough to see the other side, but wide enough we could only yearn to cross. From the center, we could run for only twenty minutes before finding ourselves bouncing off of the boundary, off of the river or field or highway, the ever-present bounds we used to call home. You still do; it is not so small for you.

The night only tightened its chains; the enclosure, once stretching to the great rivers and fields, contracted inwards to the four walls of our home—its edges now enforced not by space but by the coyote's midnight lullaby.

One such night, you and I were left alone, told to lock the doors and seal ourselves away, because no one would do it for us. One such night, you and I did not.

So we walked through the lightless night, twenty minutes in a single direction—it could have been ten, but you walk slowly; there is so much to smell. Alone, we reached the main artery that led to the boundary; alone, we strode its lamplit runway; alone, we reached its border, unseen, unimpeded—there were no ION crossings to block our way.

At the border we found Nothing. Hiding under the intersection's red and verdant neon glow, we could not see the trees across that intersection, nor the highways we took to school, nor the bridge we crossed to our families' homes. That night, we found nothing there but Nothing, a filled world hidden by that black wall, a blank canvas we could fill with naught but our silent hearts.

What would it be to live in a heart? To pass through this Nothing, discovering within the beating core of an unsleeping greater creation? To live within it, to experience amid ten thousand other souls, connected by naught but existing together, here, the same endless lightning of life joining our veins. What would it be to share in their life, to live without bounds; to walk their roads or ride together along them, to eat their food from one thousand places we've never seen; to experience every moment amid an orchestra of others—others' lives, others' passions, others' hearts. What would it be for every night to be a new adventure, for every stone to be unturned, for every street to hold another story, for every group to play a different tune, for every beat to come together to shout to the world our rebellious song: we're alive, we're alive, we're alive.

Would someone please show me what it would be to be ALIVE?

There is a tug at the rope on my hand. I yearn into the dark edges of our tomb, but their silence has grown boring, and you are returning home.

The next month I did not return with you. I am finally alive, and the world is so bright.

I wish you were here to see it with me.

molasses

mathNEWS

Let's say, hypothetically, I am sexually attracted to you. Now, let's say, for all intents and purposes, that I would like to see you naked. All the facts show that I would greatly benefit from seeing you undressed.

Now, for the sake of argument, let's say you are also predisposed to initiating virtual coitus with me.

Therefore, evidence clearly states that we should send each other pornographic autobiographical photographs of our unclothed bodies.

mutt

THE EARLY YEARS: A GUIDE FOR THOSE JUST STARTING OUT IN LIFE

goo goo ga ga

mutt

N WAYS TO ENJOY BEING SINGLE

- Go on a walk to shake out those sad and lonely vibes
- Buy eggs so you have a sense of purpose
- Start tutoring so you get \$\$\$
- Spend that \$\$\$ on yourself
- Buy ice cream. But not like a tub of ice cream. Get a cone from Marble Slab and eat it. Stop being frugal.
- Go to Dana Porter top floor and cuddle up with a good book. Like “America’s War of the Greater Middle East: A Military History”
- Eat a red hot chili pepper. Not like you’ll be kissing anyone
- Eat some garlic. In particular, not like you’ll be kissing Dracula
- Make good friends
- Subscribe to the latest religion
- Go to the gym and check out all the pretty girls
- Go to the gym and check out all the pretty guys
- Realize you’re bisexual
- Reflect on the sociopolitical meaning of queer people objectifying others in a strictly non-hetero-normative sense as a comedic portrayal of the male gaze
- Take a really long dump
- Sew some pants
- Cut some logs
- Grow some balls
- Drunk text a person you met once for their cute roommate’s number
- Regret your drunk self’s actions but still quietly hope for their number
- Write a N Things **mathNEWS** article
- Write an N Things **mathNEWS** article specifically about being single so you’re simultaneously relatable to Waterloo students while spouting your current emotional state onto the world
- Realize you don’t know how to end the article so you get into some weird meta thing that started out “blow air through your nose” kinda funny but is now a little bit confusing tbh
- Get back to your job because your supervisor is coming in to the office and I haven’t done shi

A cool pen name

JEFF IS POINTING A GUN TO MY HEAD. HERE ARE N REASONS C IS A GREAT LANGUAGE

- It doesn’t have native booleans because why would I want to know if things were true?
- I have to manually allocate memory, which is great because I don’t enjoy having free time anyways.
- Using embedded SQL in C for my CS 348 assignment has really taught me meaningful things about the fragility of the human spirit.
- It would make me feel superior to others for using it, if I remembered how to compile a goddamn C program.
- Is jeff still standing right behind me?
- Fuck, he totally is.
- Objects are overrated.
- Just like my first year res room, there is no garbage collection.
- The null terminators remind me of the way my degree is about to get terminated.
- Who doesn’t love a language that requires 250 lines to solve easy Leetcode problems?
- You risk a buffer overflow attack every time you copy a string.
- OK, I’m gonna try making a break for it while he isn’t looking.
- Its low level access to memory allows you to— **sprints away in pure panic**
- I think I escaped... It seems safe to hide in this janitor’s closet.
- I can see Jeff looking for me through a crack in the door.
- Why is he holding an axe???
- He keeps repeatedly whispering, “I’ll undefine your behaviour,” to himself...
- OH FUCK HE SAW ME
- I’LL HAVE TO RUN ACROSS THE ROOM TO REACH THE EXIT
- C is a fast language, but Jeff runs even faster.
- It’s so good they made C++.

methNEWS

Why should you write for mathNEWS? It's fun, it's easy, and there's free pizza. Yes, free pizza! Check the lookAHEAD for the next production night!

A COOL mathNEWS EDITOR

A SUBSET OF ARTICLES BY ME THAT mathNEWS EDITORS DIDN'T LIKE

HAPPY PRIDE MONTH

I have written for mathNEWS for three years because a) they give me pizza, and b) because I have a need for artistic fulfillment and this journal gives me crumbs.

Many of my articles have been published in this publication but I would like to highlight a couple of times that the publication-that-publishes-almost-everything did not publish my written material.

WHY WE NEED STRAIGHT PRIDE (~1007 WORDS); REJECTED; JUNE 2019

- This one was satire.
- This article tells my story as a straight individual and most importantly the relevant traumas of different sorts and sizes that have occurred. Think of core memories but they all stem from the fact that I identify as straight.
- “please remember that I do not reflect every straight person’s experience” is a direct quotation.
- The conclusion is that straight people paved the way for me to be proud. The kicker is that the whole time I am referencing gay historical events and cultural movements that were indeed spearheaded by gay/trans individuals and not straight people.
- This one was signed by the Pseudonym “Str8 as Ring Road”. I thought it would make it clear that the article’s narrator was unreliable because I lied to you.

WHY WE NEED STRAIGHT PRIDE V2 (2 WORDS); PUBLISHED 140.4; JUNE 2019

- 2 Words being “we” and “don’t” because this is an easier way to get my points across
- The following Author’s Note was omitted from the article:

Note from author: This is the second version of an article entitled with the same name. The original article entailed many of the tribulations of the LGBTQ2S+ community throughout history laced with personal experiences of internalized homophobia and coming to terms with sexuality. However, due to the systematic erasure of queer history, the original version of this article would have gone over the heads of straight people who allegedly would have taken a satirical article the wrong way. Therefore, I have made the article much more clear and concise to appease straight mathNEWS readers and editors. As a result, I have sacrificed 1000 more words, detracted from my own happiness, and have successfully contributed to the erasure of queer history by refusing to workshop the original article’s content. Yippee.

N THINGS I, AS A GAY PERSON, DO FOR SOCIETY (10 WORDS); REJECTED; JUNE 2022

- Reason for rejection given: “we didn’t like this article. at best it’s mean-spirited”
- So at first this was actually “n Things that the Gay Community Does for Society”
- I was advised that it would be rejected, and you know what fair. I changed the title and I removed some bullet points. Notably “Continue to let RuPauls Drag Race succeed” or something along those lines.
- Maybe I’m in the wrong. I don’t know. Is this satire? I don’t think so. I think this is me, as a gay person, just actually expressing what I think about myself and how my my queerness manifests into my lifestyle.
- Is it supposed to be funny? Probably, cuz that’s everything I do. From a small group of people I asked, they said they can see what humour I’m going for because they know who I am personally.
- I like to believe that artistically this article is supposed to force you to read for subtext. Like damn, this person is racist? Read between the lines, you tell me.
- I’ll go through the n=4 things one by one.
 - First Thing: Contribute to Fast Fashion, probably.
 - I pride myself in being unique and trying to serve, but I will admittedly shop at H&M, the clearance rack mind you, because I dress according to trends. I am not claiming to be any better or worse than other gay people who shop at Shein or whatever. I don’t think this was a point of contention.
 - Second Thing: Gonorrhoea.
 - This is factual. I have had gonorrhoea. I have had to text a sexual partner that I have contracted gonorrhoea. I may have given gonorrhoea to the person who tested positive for it first. I don’t know. Either way I’m past that. I have contributed this.
 - Is this because I am gay? Sure. I would love to be into hookup culture as much as I am if I weren’t exposed to gay media growing up. It is (sadly?) rooted in gay culture to use hookup apps and the like. Is gonorrhoea a specifically gay thing? Of course not. But I never said it was.
 - This might read like *all* gay people contribute gonorrhoea to society. Not exactly what I’m saying but sure I’ll admit that I am trying to misdirect the readers. For the record I do not think this is the case. I think that gay people in general are at higher risk (see above). Am

I calling them out? Maybe, don't ask me. I've actually had gonorrhoea I can't point fingers at anyone.

- This might also contribute to the negative stigma that gay people are vectors for HIV/AIDS. I am treading that line because it is provocative. I will not make a case to defend myself here. I understand the criticism but know that I am not intentionally calling out gay people.
- So then maybe this is self-indulgent. Well damn I guess I can't indulge myself in **mathNEWS**.
- Third Thing: Racism
 - something something racism exists in the gay community something about appropriation, something about erasure, something about equity.
 - I am not a perfect individual. I like to believe that the point that I am making here is that just because someone is a minority does not mean that they are morally correct.
 - I probably shouldn't speak on this issue since I am not well-versed in racialized conflicts/issues. I don't have to be, even if I'm a queer person of colour. My lack of research/knowledge on the topic doesn't excuse someone else's.
 - Have I perpetrated racism? I try not to. I probably have at some point. Thus racism lands on this listicle.
- Last Thing: Give into Capitalism
 - I was being quirky and relatable. Aren't we all doing this?
 - Maybe this is rainbow capitalism sneaking its way into the article.

A SUBSET OF ARTICLES BY ME THAT **mathNEWS** EDITORS DIDN'T LIKE. (934 WORDS)

- Will this article in itself be published? Your move.

Deriving for Dick

A SAD DAY TO BE A FAN OF BEING CLOSE TO FRANCE

Denmark is now geographically tied with the US as the closest country to Canada, thanks to the new Hans Island agreement. France, who were previously second after the States, have been pushed down to third.

This is the first instalment of the Countries Closest to Canada Catalog.

A SUBSET OF ARTICLES BY ME THAT **mathNEWS** EDITORS PUBLISHED

I have written for **mathNEWS** for three years because a) they give me pizza, and b) because I have a need for artistic fulfillment and this journal gives me crumbs.

Many of my articles have been published in this publication but I would like to highlight a couple of articles that are published likely because **mathNEWS** allegedly publishes anything that won't get them sued. Let's take a look:

- [How to: Wash Your Hands](#)
- [Rating Synonyms for 'penis'](#)
- [Rating Synonyms for "Seamen"](#)
- [Rating Synonyms/Euphemisms for 'Semen'](#)
- [A great **mathNEWS** article written in three easy minutes](#)
- [The Backyardigans as a K-Pop Group](#)
- [Rating Synonyms for "Erection"](#)
- [Rating Synonyms for "Breast\(s\)"](#)
- [Cum or Piss](#)
- [Cum](#)
- [poop-shaker](#)

If this article is not accompanied by its sister article then know that my time in **mathNEWS** amounts to this and that this is the stamp that I leave on this publication.

Deriving for Dick

CLOTHING

There is clothing in which one is the centre of attention, and clothing in which one is not. I often wear the latter, but I have a piece or two of the former.

The world changes when you dress up. People who wouldn't give you the time of day stop to compliment you.

When I was in Toronto, land of sky-high housing prices and difficult-to-locate apartments, I did a touch of apartment touring. My entire wardrobe had been overdone in an attempt to compensate for crippling self-esteem issues, and I was wearing a nice wool overcoat and bowler hat, both black, over a relatively formal outfit. Combine that with a youthful, clean-shaven face. It was so easy. Whenever I toured a place, the owner was very enthusiastic about having me move in. Dressing a bit more nicely sure makes it easy to rent places, right?

For those who can control how they dress, it makes a marked difference, doesn't it?

CUTLET COCKTAIL COLUMN #1

CHRONICLING A CAIPIRINHA

Welcome, reader, to the inaugural issue of the Cutlet Cocktail Column. It's a simple format—I choose one or more cocktails, make them, drink them, and review them. I may also give some info on the history of the cocktail(s). Last, it's worth mentioning that my choices will probably draw from the set of International Bartenders Association (IBA) official cocktails.¹ Here's hoping I continue this with at least some consistency!

BACKGROUND

For this issue I have just one cocktail, the caipirinha. The caipirinha is the national cocktail of Brazil, and its primary ingredient is cachaça (pronounced “kuh-shah-suh”), a spirit made from fermented sugarcane juice. Cachaça is closely related to rum, which is usually made from distilling fermented sugarcane molasses, but some specific styles of rum² follow the same process as cachaça.³ Cachaça is the most popular spirit in Brazil, but much less common elsewhere, so it's not a large surprise that the caipirinha is the sole IBA official cocktail to contain cachaça. For comparison, a quick search gives a count of at least sixteen IBA official cocktails that contain rum out of the total list of ninety.

According to Serious Eats,⁴ cachaça is older than rum, which I suppose makes sense since rum is made from an ingredient produced later in the sugar refinement process, but this still surprised me for some reason. Wiktionary doesn't have any certain info about the etymology of “cachaça” (it may come from “cachaço,” meaning “boar” in Portuguese); however, “caipirinha” comes directly from “caipira” (meaning “hillbilly”) and the diminutive suffix “-inha.” In other words, the drink's name means something kinda like “little hillbilly”... or something. (I have a feeling there's no really good way to translate its name into English and retain the same meaning.) Wikipedia seems to have conflicting info on the history of the cocktail, but according to one source it was invented by farmers in the interior of the state of São Paulo in the 1800s, which could maybe explain the “hillbilly” name.

Enough with background info. Next up is the recipe, followed by the review!

RECIPE

The following recipe comes from the IBA website (see <https://iba-world.com/caipirinha>).

Ingredients:

- 60 mL cachaça
- 1 lime, cut into small wedges
- 4 tsp white cane sugar

Preparation:

Place lime and sugar into a double old fashioned glass and muddle gently. Fill the glass with cracked ice and add cachaça. Stir gently to involve⁵ ingredients.

REVIEW

First thoughts: for a cocktail containing pretty much just a primary alcohol, lime, and sugar, the lime and sugar are surprisingly unnoticeable, but they definitely offset some harshness of the cachaça. I imagine if the drink was made not by muddling lime and sugar but instead with lime juice and simple syrup, their flavors would be stronger, and perhaps it would have a kinda generic sweet and citrus feel (something like a mintless mojito or a margarita whose rim has sadly lost all of its salt. Or like a plain daiquiri, I guess).

Since the lime and sugar are subtle, the caipirinha distinguishes itself from similar cocktails by virtue of the cachaça, which is *really* not simple to describe at all! I've read others describe it as “earthy” or “funky” or “vegetal.” Earthy, vegetal, maybe; funky, definitely. A bit smoky, as well. In spite of what I'd read about cachaça tasting different from rum, I couldn't help but expect a similarity, and while maybe the two share something in common, something I can't really put into words, that something isn't really huge. The best way I can describe it is that cachaça is to rum as mezcal is to tequila, but with a greater difference. But even if it's pretty different from other alcohols, you shouldn't be scared off! It may be unusual but that doesn't mean it's unpleasant. The only way to find out if you like it is to try.

I won't say I wasn't a little alarmed pouring in two shots of cachaça into what looked like a stack of lime wedges with ice on top; I was concerned that there would be a pool of limey liquor at the bottom with ice on top. (I admit this is partially because I didn't have the right glass for the job, what I needed was something wider; in fact, I had to make do with a mug, so I couldn't even see into it 😊) But don't worry! The pour of (a rather large amount of) cachaça does a great job of melting enough ice for the drink to be sufficiently diluted, for it to mix with the other ingredients and become more than just some slightly citrusy, rather strong cachaça and instead something that fills the glass to properly contain all of its ingredients.

**Even more than taxes
and Euler's equation,
beer was a historical
inevitability.**

PROF. PETER NELSON

I will add that as you approach the bottom, the flavors of sugar and lime become significantly stronger. I really like this—it gives the drink a more friendly and sweet ending.

Now, aside from taste and smell, don't underestimate this drink. I already said it has two shots of cachaça. That's a lot of high-proof liquor, and it manages to disguise itself with the help of the ice it melts and just the right amount of sweet and citrus. Don't be fooled, and don't drink this too quickly, or it'll hit you like a brick. (Note to self: eat more before next review.)

Now, I've just taken my last (very limey, very sugary!) sips, so I'll mention that I tried the cachaça neat as well ahead of this. I've been able to find the term "sipping cachaça" online but what I bought is definitely not one. For another rum analogy: dark rum can be had neat. White rum cannot (at least from my experience). What I have is what I imagine to be like a cachaça analog of white rum. Maybe someday I'll get some cachaça that can be drunk neat, but for now, the local LCBO has just one kind, so that's what I got (Pitú Silver).

If you've read this far, I hope you enjoyed 😊 and no matter what, drink responsibly!

cutlet

1. Which can be found at https://en.wikipedia.org/wiki/List_of_IBA_official_cocktails: I realized while writing this article that the list not only adds cocktails from time to time, but can also remove them, so for future reference, the current revision of the list can be found at https://en.wikipedia.org/w/index.php?title=List_of_IBA_official_cocktails&oldid=1091055490 (shortlink: <https://w.wiki/5Mzh>).
2. Such as *rhum agricole* of the French Caribbean.
3. According to Serious Eats, the key difference between the two is that cachaça may or may not be aged whereas rum must be aged (<https://www.serious-eats.com/what-is-cachaca-how-its-made-taste-versus-rum>).
4. See the link in footnote 3.
5. Honestly, I feel like the word "involve" here has a slightly... snobby? feel. Why not just use the word "mix"? Whatever, it's not my International Bartenders Association.

Author's note: I bought a 750mL bottle of cachaça for this review. I have probably 90% or so remaining. I will gladly pour some off to whoever wants some (and is of legal drinking age!!!! yes, I ID), or else I see an overabundance of caipirinhas in my future.

ON DRINKING WATER

You only need to drink water when you're thirsty!!! That's just your body telling you to go take a goddamn sip of water!!! Stop using up the world's freshwater supply to have clear piss!!!

A cool pen name

W EVANGELISM

I am going to show you something that will increase your quality of life drastically! It is ... w! Just w? Why yes, and I'll show you how.

The premise is that w = lol. The reason for this doesn't matter, just know that it's already partially in use. During text talk, you can tag the start or end of a message with any amount of ws you want. Think of it like showing that you're laughing at those times, with more ws being more laughter.

The reason this is so life changing is because of the simplicity. "lol" is 3 characters already, and if you do touch typing like me then they're all done with your ring finger. Annoying! w is also typed with your ring finger, but you don't need to move it at all. This lets you type out large strings of ws without much practice or effort. Great for when something is really funny. You can also use this to fill up an entire line as a reaction to something.

So yeah, w is great and I spam it maybe too much. You can use it, too. And I promise it will make your life so much better.

読んでくれてありがとうございます。

別

PIRATE COMMUNISM

A MANIFESTO

Can you feel it? Deep within you, the call of the sea? For far too long, the landlubbin' bourgeoisie has held our boats from our grasp. The 1% can take the Pirate out of the ocean, but they can't take the ocean out of the Pirate. As a continuation of the Br*tish colonial project, the Empire of Canada continues to persecute the humble Pirate lifestyle. This struggle need not be suffered alone. The Pirateriat has nothing to lose but their anchors and their bounties.

The Pirate Communists of the Seven Seas (PCSS) propose a world organized into crews as opposed to the brutal borders of our world's nation states. A Pirate Communist crew does not have a captain but is in fact governed by will of the crew. All crews will report to the PCSS on Pirate Island annually to pool resources, exchange intel, and receive the help they need to continue Pirate activity.

The saying goes; red sky at night, sailor's delight. The time is ripe to send the capitalists to Davy Jones' Locker.

Sailors of the World Unite!

a decaying skeleton

SONG TRANSLATIONS ARE HARD!

Preface: Throughout this article I will be referencing the song “Phony” by Tsumiki as well as the English cover by Sayri quite liberally. Familiarity is required to understand a lot of the article.

Also, this is only half the article. The full lyrics can be found on page 25.

So I stumbled across the song Phony one day. I think it’s a pretty good song. The Internet seems to agree because there are just so many covers. One of the more popular ones is an English cover by Will Stetson, with translation by Sayri. It’s a fine translation, but I felt that it doesn’t quite align with what I want.

See, it’s full of internal rhymes and abstract imagery. However, I feel like the amount of effort you can see is higher than my liking. There’s nothing wrong with it, of course. We all have our preferences. But I really like a translation where the line feels natural. It’s honestly surprising how different translation covers can be, so I thought I might as well try. And also I’m learning Japanese.

To make this perfectly clear, I am not saying Sayri’s cover is bad. I just wanted something that aligned more closely with my personal tastes. Also, one of my personal tastes is trying to hide the amount of effort put in. So I’ve written this article to show how much work this requires if you couldn’t tell from the final product, even for a relatively simple translation like mine.

First of all, I noticed that the very opening line didn’t have quite the right feel to me. So I changed it. But I never found I could get the flower metaphor to work properly within the line so I ditched it. Some people might get mad at me for this, but sometimes decisions are made through laziness.

Next, I wanted to make “Antipathy world,” an English line in the original, feel more deserved. I wanted to create an oppressive mood, so that’s what I did. Again, veering pretty far from the original meaning. I also stole the very first 2 words because I thought they sounded good. This is about the only thing I took from hers.

After that, the verses were pretty straightforward translations. Something I didn’t really like about her version are all the interjections. They sound unnatural to me. So a lot of the effort went into making lines that fit neatly, so I wouldn’t need interjections. This is also the only place where I don’t have a rhyme. Don’t ask me why, but the original doesn’t rhyme here either so I think I can get a pass.

Next I interpreted the metaphor to be a bit more literal and swapped a few lines. Pretty minimal stuff. The lines following were giving me trouble as well, so I dropped a lot of the detail. This gave me more freedom, but I still don’t like the final version.

These lines. Oh boy. These were annoying. Of all the internal rhymes, I really liked the quadruple rhymes that she put in this section. But I really don’t like writing slant rhymes. They don’t sit well with me. I opted to take the other section like this and swap the end bits. This conveniently left me with the reference to dance right before the dance break. Convenient. But even with the swap I had to settle for a consonant that gets elided into the next to make the rhyme work perfectly. Also this is another place where I didn’t like the imagery she used but also didn’t really use that of the original.

Next, the chorus. This one gave me a lot of trouble, but in the end I don’t think it came out with many sacrifices. This is another place where I took the rhyme structure she used. I don’t like how many internal rhymes she has, but her main form is definitely in line with my preferences. One final thing with the chorus, I really don’t like the sound of “fake phony” for some reason. I think the alliteration sounds artificial and I can’t for the life of me say why. Probably because to me it sounds redundant. So I made sure to structure the line differently there.

The next verse is, once again, pretty close to the original. With the exception of line 2 where I completely changed the metaphor. Again, this was to preserve the mood, even though I know some people would get angry at me for it.

This bit I’m proud of, though. Japanese, being a language without length or volume accents in words, can flow very smoothly. Will Stetson did it quite well, so the bar was set. But

Ever wonder how much filler is in a given issue of mathNEWS?

Just count the number of items in all the “N Things” articles.

Oh, and these little blackBOXED quotes.

**A mathNEWS EDITOR WHO
JUST WANTS TO FINISH
LAYOUT AND GO HOME**

I think I managed to translate very close to the original. I'll let you be the judge of that.

I'm also proud of this next bit. The quadruple rhyme is back, and now it's humorous. Also, the mention of dance precedes the instrumental, called "dance break" in the music video, which I quite enjoy.

After the instrumental comes the section that I think best demonstrates how my version is different in tone from others. In this bit, I use the word "still" in almost every line. This gives it a sense of exasperation and stagnation that isn't in the original but is definitely omnipresent in mine. Some people might not like this, and I didn't even plan for it. It just happened. But we all have our own likings, and I'm fine with a slight change in theming.

The last chorus is pretty straightforward, being mostly a repeat of the first one. I changed line 3 to match the change in the Japanese, and I changed a couple of conjunctions to give it a different nuance, but it was mostly the same. I finish it with a reference to the very first line of the song, just like in the original, and that's the end.

I hope you enjoyed this deep dive into a surprisingly creative process and I hope you enjoy the final version.

読んでくれてありがとうございます。

別

PHONY - ENGLISH COVER BY ME

Feel free to use! (With credit, please. If you're reading **mathNEWS** you can probably find some way to ask for my name.)

☺

They say you can get anything you want
if you are willing to lie.
That's how the world is made. Every day, being hated from all
sides.

Antipathy world

I have my umbrella to shelter me;
This rain has always felt bleak.
Even before my clothes and my hair get all soaking wet the
gloom had already sunk in.

But even with the truth becoming clear I don't know what to
say.

Before the the words are forming they wither away.
I look into the mirror; I'm falling apart.

I'm missing something, something I lack in my heart.

Pa~ Pa papapa padapapapa
Let's count to 10, running through the maze until the end.
Ta~ Ta tatata tadatatata

It's now, that's then. But this place is painful once again.

I still can't understand the simplest things, how on earth
would I know me!
Suddenly the feeling of the night, just make a fright, holds me
gently.
(the feeling is fading)
Even after tears I cannot say a goodbye Phony, phony phony!
And everything I do is lie; I'm nothing but phony.
Antipathy world

And coming with the lightning and the thunder the sky is all
greyed.
And paranoia that you are being surveyed.
I look into the mirror and what do I see?
A face that makes me wonder if it's really me.

But "love," so many lonely people flocking to it. How does it
give them the courage to go on?
Today, the train departed. I was struggling and couldn't have
noticed it's gone.
There's nothing left to do but

Pa~ Pa papapa padapapapa
Let's sing this song, even though we know the words are
wrong.
Ta~ Ta tatata tadatatata

It's been so long, when did I decide to dance along?

[Dance break approx. 11 s]

I still feel miserable every day.
Still waiting for this rain to just go away.
And I still can't even say a simple goodbye.

Phony, phony, phony
And everything I do is one big lie!

I still can't understand the simplest things, how on earth
would I know me!
Suddenly the feeling of the night, just make a fright, holds me
gently.
(the feeling is fading)
So I mumble "see you later" and a "goodbye."
Phony, phony phony!
But everything I do is lie; I'm nothing but phony.
That's how the world is made, but still I hide that I'm phony.

別

I CAN'T STOP READING KOSUKE KINDAICHI

Kosuke Kindaichi — that isn't a name you expect to hear in the groupings of Sherlock Holmes, Hercule Poirot, and Miss Marple. But the Kindaichi books — a hit in Japan, at the very least — have cemented Kosuke Kindaichi among the ranks of legendary detectives of fiction (despite his abysmal track record of saving people).

Kindaichi was written by Seishi Yokomizo through a series of 76 books over roughly 40 years, selling at least 50 million copies and spawning many influential stage plays, films, and even manga adaptations, even if they are completely Japan-exclusive. Quite recently, four of his best works have been translated to English. All of them so far I've perused in VIA trains and GO buses as I traverse the GTA in what is probably a really inefficient transit system. (If I want to go from Kitchener to Hamilton, I have to go through Mississauga, which is equidistant. I'm travelling twice the distance. I'll cover this in another article because it's a whole new rant.) All four of them cover a case of multiple murders that Kosuke Kindaichi attempts to solve, and also draw focus on the traditions, customs, mindsets and drawbacks of rural Japan in the early 20th century.

In the first novel, *The Honjin Murders*, shortly after a wedding, the night is pierced by the haphazard sound of a koto. A newlywed couple is found brutally murdered, and a bloody katana is found thrust into the snowy ground with no footprints whatsoever. This one is shorter than the others, but it's an exceptional locked room mystery that pays homage to the works of Gaston Leroux; the payoff and the exact unravelling of how the case went down is especially page-turning.

The second novel, *The Inugami Curse*, details a family in dispute over a will, plagued by a curse of past events in which the family's three sons are systematically murdered, associated with the three heirlooms the family possesses. This one took me for a spin mainly because of the content, so read that, and the next one, at your own risk. Also because one of the solutions felt like the first thing the other characters would think of, not Kindaichi, but when I read it, I thought, "Go off I guess." Once again, it's a wild ride from start to finish and the culprit's reveal at the end had me in shock, with a bittersweet finish.

The third novel, *The Village of Eight Graves*, is centred around the titular village, plagued by the deaths of eight samurai in the 1500s, and how they suffer years after in a self fulfilling prophecy when a madman commits a senseless massacre of eight people, matching the eight lives took earlier. Thirty years later, Tatsuya — the madman's son — is summoned to the village to take charge of family affairs. But history seems to repeat itself when people begin to drop dead — and Tatsuya can't seem to catch a break when people finger him as the culprit. Somehow this manages to balance both a romance and a murder mystery at the same time in a mysterious, foreboding atmosphere of limestone caves and a small village. This one has the happiest ending out of all three, which was nice to see.

The fourth novel, *Death on Gokumon Island*, balances all three novels. Like *The Honjin Murders*, it's a locked room mystery that takes place on an island village, akin to *The Village of Eight Graves*. It's centred around Kosuke who arrives on the island after witnessing a man die on a ferry, and asks him to warn his three sisters, who are going to be in grave danger. Like *The Inugami Family*, three siblings are picked off one by one and Kosuke is in a race against time. Now, I'd go into detail more, but the book isn't published yet. I don't want to wait. You said June 2022. It's July 1. (The earliest I can get it is July 7, shortly before I take a brief journey to Montreal.)

But to finalize my thoughts — you should definitely read the Kosuke Kindaichi series, and take a listen to the affiliated music of the film scores. They've been amazing study music and I consider it to be the predecessor of city pop, blending both funk and Japanese folk. Each murder mystery is a page turner to the very end, and the puzzles are amazing to try and solve as you read along.

Happy reading!

Skit

N ABSOLUTE BANGERS I REDISCOVERED IN OLD PLAYLISTS AT 3 AM ONE NIGHT

- "I Love You Baby, I Love You Doll" by Parekh & Singh
- "This Is Gospel" by Panic! At The Disco
- "Butterflies and Hurricanes" by Muse
- "Boomerang" by Barenaked Ladies
- "Almost" by Bowling For Soup
- "Ohio (Come Back To Texas)" by Bowling For Soup
- "Answer" by They Might Be Giants
- "Erase" by They Might Be Giants
- "Figure Me Out" by The Summer Set
- "This Is War" by Thirty Seconds To Mars
- "Radio" by Hot Chelle Rae
- "Car Radio" by Twenty One Pilots
- "Famous Last Words" by My Chemical Romance
- "Good Times" by All Time Low
- "Songs I Can't Listen To" by Neon Trees

tendstofortytwo

It's actually 3:52AM as I write this. Thank God I don't have work tomorrow.

HOW MATHEMATICIANS END

IN WEIRD WAYS

Math research is hard. It's so hard that we don't even know whether there's an ultimate goal like the Theory of Everything in physics. Moreover, we don't even know if one day we will reach its "end."

However, we can tweak the problem by a few letters and consider the question, "How mathematicians end?" In particular, how do mathematicians die in weird ways?

Archimedes, one of the greatest mathematicians in classical antiquity, was killed by a soldier during the siege of Syracuse. Some say that he was too concentrated on a geometry problem and did not notice the army until a soldier stepped on the diagram he was working on. He asked the soldier to go away and to not destroy his beautiful diagram. Out of rage, the soldier killed him on the spot.

Isaac Newton, another great mathematician, also died in a surprising way. There was nothing intriguing until his burial place was moved. During the exhumation, it was discovered that his hair and body had high concentrations of mercury—probably resulting from his alchemical pursuits.

What do these stories tell us? Don't write on the ground when you do math: do it on papers or tablets instead. Also, stick with math, which is not poisonous and good for your health, instead of alchemy :)

_ted_fu

MINOR SERVICE DISRUPTION

"Excuse me, do you know what 'minor service disruption' means on the ION schedule?"

"No. Yesterday the sign read: 'major service disruption' and the ION was only 5 minutes late."

A dark cloud rolls over Waterloo as the ION light rail arrives at the terminal five minutes later than scheduled

"Huh? It looks like the ION doesn't distinguish between minors and majors."

"Kind of like a tone deaf person?"

"Yeah. Or kind of like a pedophile."

cat LISPerer

GARFLIELF CARTD

LASAGA

In many ways, the work of a critic is easy. We risk very little, yet enjoy a position over those who offer up their work and themselves to our judgment. We thrive on negative criticism, which is fun to write and to read. But the bitter truth we critics must face, is that in the grand scheme of things, the average piece of junk is probably more meaningful than our criticism designating it so. But there are times when a critic truly risks something, and that is in the discovery and defence of the *new*. The world is often unkind to new talent, new creations. The new needs friends. Last night, I experienced something new: an extraordinary game from a singularly unexpected source. To say that both the game and its maker have challenged my preconceptions about fine entertainment is a gross understatement. They have rocked me to my core. In the past, I have made no secret of my disdain for Garfield's famous motto, "I hate Mondays." But I realize, only now do I truly understand what he meant. Not everyone can become a great artist; but a great artist *can* come from *anywhere*. It is difficult to imagine more humble origins than those of the genius now developing at Artefacts Studio, who is, in this critic's opinion, nothing less than the finest game designer in the world. I will be returning to *Garfield Kart* soon, hungry for more.

garfield_enjoyer

help

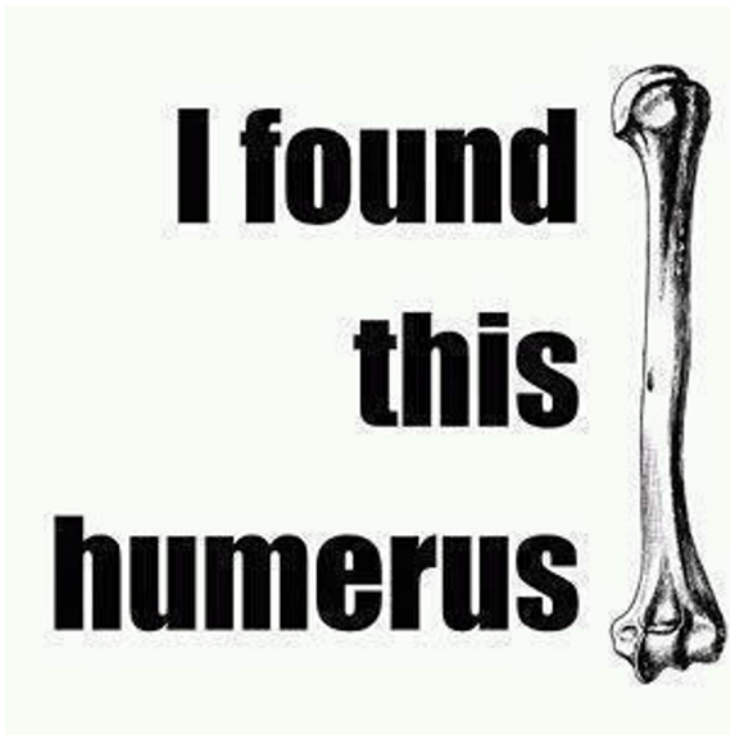
PDF

A probability density function (abbreviated as PDF), also known as, though less commonly so, with applications of these alternate names being "not standard among probabilists and statisticians", to quote Wikipedia, a probability distribution function (abbreviated as PDF), a probability function (abbreviated as PDF), or a function (abbreviated as PDF), is in the case of a continuous random variable, which is to say a random variable whose cumulative distribution function (abbreviated as PDF) is continuous on its domain, the case of a discrete random variable being analogously defined, a function (the F in PDF, the abbreviation of a probability density function) that provides at each point (the P in PDF, the abbreviation of a probability density function) the relative likelihood, or otherwise put the density (the D in PDF, the abbreviation of a probability density function), of the probability (the P in PDF, the abbreviation of a probability density function) that the random variable will take on values (the V in PDF, the abbreviation of a probability density function) within some interval at that point, implying that while the value it (it here referring to the PDF, abbreviation of function) produces is not as useful in standard applications, its integral over intervals within its domain can mean something to someone.

TO THAT ONE KINESIOLOGY WHO DARED ME TO WRITE THEM A REPLY

Dear Green,

Thank you, kind sir, for your words. Too bad you're supposedly a fourth year with so many things to do (like writing letters to math students going through an identity crisis). Although, most of the letters I get are rather tormented confessions of romance or dramatic pleas of reciprocity, and I almost got my hopes up—but at least you and your confident ways have, in the end, inspired me to stick it out with my degree, easy as pi as it is!



A fit math student

PUMPKIN PIE REVIEW

So my roommate and I bought some pumpkin pie from the grocery store the other day.

It tastes alright, I guess? If you've ever had apple pie, the whole thing tastes like the gooey bits around the apple. I'm personally not the biggest fan but eh it's fine.

I would have wondered if all pies actually taste the same, but I had pecan pie before this and that was way, way better.

I'M NOT STEPPING ON THE SNAILS ON PURPOSE, FINCHEY

It's the wee hours of the morning in April of 2019 and I'm wheeling two suitcases down Ring Road to the now-defunct Greyhound stop and it's raining. In Waterloo it can either rain very mildly or very violently, but only ever for a short time. In this case, it was the very mild kind, small drops that dripped infrequently from the sky. But any moisture is enough for the worms.

Ring Road was absolutely littered with worms that morning. Though you might want to imagine them writhing, in this case, most of them were totally still and cut in half. By whom? People on bicycles? Or maybe, I had the horrifying realization, it was those with suitcases, like me. Well, I couldn't turn around. I had a Greyhound to catch.

It's a sunny afternoon in August of 2021 and I'm cycling around the base of a foresty mountain. Every once in a while there's a messy pile of slime on the ground. What kind of animal leaves waste like that? But otherwise I'm enjoying the complete silence and the beauty of it all except when stronger and faster people pass me, breaking me out of my concentration and leaving nothing but the whirl of their wheels. It's an hour in when someone realizes the answer and runs up to me excited and out of breath. I figured it out—they're *slugs* that have been run over!

It's the middle of the night in June of 2022 and I'm sitting on the toilet still half-asleep. Below me there are silverfish—some silver, some black, walking across the crusty floor. I didn't even know they came in black. As my eyes focus, I count more and more. Up to four. I don't flush, instead crouch by the toilet and lift up the bathmat. There—the biggest one, runs out awkwardly and I squish it with the same piece of toilet paper I wiped with. Feeling guilty. Somewhat for the silverfish, somewhat for leaving all that detritus on my bathroom floor which I see so clearly now, another task on top of tasks for next day me.

It's an early-morning dream one day, or maybe it's real. I'm walking along Ring Road when I heard that distinctive crunch. I feel sick. I feel like I might collapse. But I have a class to get to. All I could do is apologize quickly and move on, ignoring all the other red spiraling shapes adorning the pavement. Or wait, did that really happen? Look, Finchey, I'm not TRYING to step on them. You think I don't watch my feet? Even after I saw a goose empty itself as it took off into the bright blue sky? The days are passing in a haze, and there's always somewhere to get to. If I had things my way, no snails would ever die. But unfortunately, I don't have it my way. So they die, Finchey. So they die.

A WRITEUP ON THE QUIZBOWL TOURNAMENTS LAST WEEKEND

Last weekend, the University of Toronto hosted two quizbowl tournaments in-person. I believe that these are the first in-person quizbowl tournaments in Canada since February 2020. A group of UWaterloo students made the trek to Toronto to compete in those tournaments, and that included me. While we didn't win any tournaments and didn't perform well against the other teams, we all had fun.

You might be asking: wtf is quizbowl? Quizbowl (or quiz bowl) is a team trivia game. There are two teams, up to a maximum of 4 people per team. There are many quizbowl topics, but they can usually be sorted into "academic" and "trash." Academic contains questions that you could've learned in a class. The general categories are arts (including classical music), science, literature, and history. Math does appear sometimes, though the answer is usually "prime numbers." Trash contains questions about pop culture stuff, like TV, movies, music that isn't classical, sports, memes, etc. Trash got its name because people who take quizbowl very seriously see trash as "not quizbowl."

Fortunately, these two tournaments did not have those people, as one was a hybrid tournament (half academic, half trash) called Canadian Hybrid, and one was a trash tournament called ACRONYM (which is an acronym).

The fun with hybrid is that you could get one question about the molecule that is made by an incomplete combustion, and the very next question can be about the team that lost to a Zamboni driver. It captures enough of both academic and trash that there is a question for everyone. However, the questions are a bit tough, and if you are not a great quizbowl player (e.g., me), you might lose a buzzer race to a person on the other team a bunch of times.

ACRONYM is fully trash. This tournament has easier questions, and there is no need for knowledge gained from school. This makes the games more relaxed, and is more enjoyable. There will always be that question you screw up (or a couple), but that's just the game. I did far better here, reaching the top 10 in points per game.

Overall, these tournaments helped me get to know people in my team more than I would have otherwise. There's time to do stuff after the tournaments (if you don't have plans), and they are good for talking to people in other universities (or who have graduated from university in this case).

And for those who are curious, UWaterloo's quizbowl club meets every Thursday at EV3 3408 at 8pm. You might even see me say "wewlad" in my natural habitat. I highly recommend just dropping in and seeing what the hype is about.

wewlad

MELODY PICKING

i don't pride myself of musical talent
i can carry a tune and in the right time

but i cannot sightread
time signatures mean nothing to me
notes don't have consistent lengths anyway

but i can play by ear
so long as the key signature isn't awful

i can dance my fingers through
pick the melodic notes as a set
especially if you give me the chords
watch me play and watch me dance

but don't ask me for a symphony
i can only give you a melody

feufhohfoeughuoghufghsf



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UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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UNTITLED.TIFF

Land of the free. You can do what you want. Whatever you want. You're an adult. Grown independent human being. You can make your own choices. You won't be questioned; after all, you have to take responsibility for yourself now. It is your job to question yourself, you can't have people telling you what to do your entire life.

Don't do that.

Anything but that. You're free to do whatever you want. But don't do that. You're so free. We let you do whatever you want. But don't do that, no. That's a step too far. What are you, a freak? If you're a freak, you can tell me, you know. Tell me. Are you a freak? Are you? No? Then why do you want do that?

Because you want to? That can't be right. You're being manipulated. Tell me, who's telling you this stuff? It can't be you. It has to be someone else. It's them, isn't it? You don't have to be like them. Don't be like them. Don't forget where you came from. What do you mean, it's not them?

You need to stop doing this now. We let you do everything. But you need to stop this. For me. You'll stop for me, won't you? You'll stop, right? Look me in the eye. Promise me. Promise me you'll stop. Say it. Say it.

Good.

Now, how's your studies going?

wall outlet

A MATH JOKE THAT ONLY ALGEBRAIC GEOMETERS CAN UNDERSTAND

Why were the two algebraic geometers arrested at the airport? Because they were talking about "blowing up 6 points on the plane."

TheEllipticCurve

COVID SUCKS, MASKS GOOD

I GYMMAXXED, I GOT FUCKED UP TOO.

Thank for coming to my TED talk. Hope to see you again at the next prod night. Take care.

loop

AMERICA: A HORRIBLE PLACE

if you are considering a move to the US for jobs or just a good place to live in, don't. it's a terrible country where guns have more rights than women, lgbtq+ people, and minorities. moving to the US only gives the US more money in taxes, and propaganda that "everyone wants to move here! therefore we are the best!" my family history is basically anti-US, so I'm super biased. but seeing SCOTUS taking away the abortion rights of people with uteruses (which is not exclusive to women) makes it clear to the whole world: America is shit to most people outside its borders, and it's shit to most people inside their borders.

fuck America

wewlad

POSSIBLY MAYBE

Do you think of me?

How often do you think of me?

Am I the first thing on your mind when you wake up?

Am I the last thing you think about when you fall asleep?

Do you hate yourself the same way I do when I can't find the right word to say?

Or do you never think of saying anything anyways?

Will you read this?

Maybe you'll skim the page.

Maybe you'll skip it.

Maybe you'll think this is about you.

Maybe it is.

Are you thinking about me? I'm thinking about you.

puppy

2 YEARS LATER

Mommy, are you here?

I've been sleepwalking, my dear
the plants are waving

supermagicpoint

MARCH MARCH MARCHY

march, march, march your feet 🦶

happy 😊 down the street

people cheering 🗣️ everywhere

life is like a dreammmm 🌫️

enamoured

HAPPY 🍁 CANADA DAY 🍁 !!!

gridCOMMENT 149.4

Hiya mathNEWS!!! 🙌

A few days ago I was looking 😊 around in my friend mathNEWS computey 🖥️ for fun ideas for 🍁 Canada Day 🍁 and I found a new friend 🤗! My new friend's name is Crossy 🍁 and she likes making crosswords 🧩

We played 🤗 and made fun 😊 crosswords together! Crossy is really really really really really good 🧠 at making awesome crosswords!! Some people are just wonderfully good at certain things, and I love 😊 meeting them and letting them show off their greatness 🌟!! And then, I had a great 💡 idea!!

“Crossy, why don't we make a **gridWORD** for 🍁 Canada Day 🍁 at **mathNEWS!**? It'll be soooooo fun!! 😊”

Crossy loved 🤗 the idea, and we made a fun awesome **gridWORD** together! It looks like 🍁 maple leaf 🍁 because the leaf on our Canadian flag 🍁 is a maple leaf!! And the little square in the corner is my fun surprise addition 😊

Canada 🍁 is wonderful because it accepts people like me and you for who we are!! 🤗

Hope you have a great 🍁 Canada Day 🍁!!!

enamoured

ACROSS

- 1. soup 🍲
- 5. programming language 🖥️
- 6. decentralised naming for wallets, websites, & more!
- 8. doris
- 10. law
- 13. Roman ruler 👑
- 16. chart people draw
- 18. circle number 🌐
- 20. cold, hard
- 21. a place
- 24. arrive on Earth 🌍
- 27. smol bug
- 28. cope 🧘
- 30. not to be confused with Akkadian Empire
- 33. two capitals
- 35. to purchase
- 36. 🍄
- 39. Hamlet decides whether to
- 40. fury
- 42. marinate 🍷
- 43. 4chan 🗨️
- 44. Eminem 🎤
- 46. POG 🍷
- 47. consume 🍴
- 48. mother
- 49. long fish 🐟
- 50. your
- 51. techniques
- 55. shortened secret (cryptic)
- 56. prod night snack 🍷

- 22. flatfish
- 23. lion
- 25. big missile 🚀
- 26. 🦋
- 28. scary movie 🎬
- 29. Red River Rebellion
- 31. — the crow flies
- 32. grab
- 33. mine this in Minecraft
- 34. opposite of on (cryptic)

- 37. you've been sussed
- 38. ring in ocean
- 41. will you be my pro
- 43. gets the bag
- 45. get this on your head 🧢
- 47. Islamic ruler
- 51. first person
- 52. she's headless (cryptic)
- 53. collect \$200 🏠
- 54. 5th note of scale 🎵

DOWN

- 1. money 💰
- 2. same as 5 across
- 3. horse 🐎
- 4. sprung from the land (10, 7)
- 6. good for fixing things
- 7. something to keep
- 9. 🧱
- 10. Elevators
- 11. Iranian 🇮🇷
- 12. a apple
- 14. run in newspaper
- 15. I be
- 17. Swedish band (I guess)
- 18. 🍁
- 19. it would
- 21. Japanese airline

LOOKAHEAD

SUN JULY 3

MON JULY 4

TUE JULY 5

WED JULY 6

THU JULY 7

FRI JULY 8

SAT JULY 9

National Caesar Salad Day

National Dive Bar Day

Nunavut Day

SUN JULY 10

MON JULY 11

TUE JULY 12

WED JULY 13

THU JULY 14

FRI JULY 15

SAT JULY 16

mathNEWS 149.5 production night

Drop with WD ends
mathNEWS moves to Quebec (permanently)

Drop with WF begins

mathNEWS 149.5 released

mathNEWS moves to Waterloo (permanently)

LAST ISSUE'S gridSOLUTION

1	T	2	S	3	A	4	R	5	P	6	A	7	U	8	S	9	E	10	H	11	A	12	S	13	S	14	L	15	E
16	H	17	E	18	R	19	E	20	A	21	M	22	A	23	N	24	A	25	O	26	M	27	E	28	L	29	E	30	T
31	I	32	N	33	C	34	L	35	I	36	N	37	A	38	B	39	L	40	G	41	O	42	D	43	I	44	V	45	A
46	S	47	O	48	L	49	I	50	Z	51	E	52	E	53	E	54	E	55	G	56	R	57	A	58	T	59	I	60	S
61	T	62	R	63	A	64	N	65	S	66	F	67	O	68	R	69	M	70	A	71	T	72	I	73	O	74	N	75	I
76	L	77	A	78	M	79	E	80	I	81	N	82	S	83	A	84	U	85	T	86	H	87	O	88	R	89	90	91	92
93	E	94	S	95	P	96	D	97	N	98	S	99	A	100	I	101	S	102	L	103	E	104	4	5	6	7	8	9	10
11	42	43	H	44	E	45	T	46	E	47	R	48	O	49	S	50	C	51	E	52	E	53	D	54	A	55	56	57	58
59	60	61	N	62	O	63	N	64	A	65	M	66	67	68	69	L	70	O	71	T	72	E	73	74	75	76	77	78	
79	80	81	P	82	A	83	A	84	85	86	A	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	
104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	
133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	



otherNEWS is made technically possible by club executives of the Math Faculty. I say "technically" because if they had actually sent us some news, this box wouldn't be here.

THE mathNEWS EDITOR WHO PUTS THE "NEWS" IN mathNEWS