That's all, Folks!

To 50 years and many more! —⌷⋈|'23

"WHAT'S SOMETHING YOU'D LIKE TO SAY TO THE PERSON READING THIS N YEARS FROM NOW?"

Last issue of the term! It's always a relief to make it. There's something about editing **mathNEWS** that makes you start counting down time in two-week chunks… I wonder why?

It seems like this is gonna be the last issue I ever edit. There was a bit of mental anguish and figurative gnashing of teeth during the build-up to this moment over the course of the term, but now that it's finally here, I feel quite at peace. Maybe it's the senioritis finally kicking in? After serving ten terms of editorship (is that a record?), I am so *very* much looking forward to the Editor Emeritus lifestyle… Retirement, here I come!… After I get these term papers for my classes done…

Clara Xi (clarifiED)
Editor, mathNEWS
F19, S20-W23

It's 12:51 AM on April 12th as I fill out this **mastHEAD**, and these are probably the last words I'll write for **mathNEWS** as editor. It's been a lot of late nights, a lot of weird layout software bugs, and a lot of hastily written articles at the tail end of issues so I can just go home (you've probably noticed).

In a way I'll miss it, like how you feel nostalgic for those last-minute first year assignment submissions. But, I'll also be glad to start reading **mathNEWS** on Friday morning like everyone else.

So, enjoy the issue! I'm ready to let go of the deadlines.

Kevin Trieu (god ⚡ peED)
Editor, mathNEWS
S20, W21, S21, F21, S22, W23

ARTICLE OF THE ISSUE

The Article of This Issue is <u>Last Words</u> by water: a series of, well, *last words*, from our several soon-to-be-dearly-departed.

evaluatED
Editor, mathNEWS

ANDOIII	Hey, as N approaches infinity, is the world fixed yet?
ROBBOT	Why did yall let him cook?
LWO	Hi **mathNEWS** historian! I hope the times in the future are better than they are today.
GOLDEN	University can be stressful and scary — I hope you're doing okay. Many of us struggled or are struggling — and we're okay! You will be too <3
别	amongus
SOMEBODY	Hey, have you been to the CnD? Seein deez nutz lmao
MANGANESE	It's the year 2023+N
APHF	Invest in my nft lifestyle brand
CUTLET	It sometimes feels like there is nothing new in this world, but that's okay.
__INIT__	Oops All Olives pizza (black and green olives on an olive oil base) is actually really good and you should try it
YUMMYPHI	I like your style!
NOT A N*RD	Assuming N>2, I will no longer be here and need you, dear reader, to carry on my legacy and climb E7
I_DECAY	N years later, I promise that I still do not understand strong induction. I'd like to pass on this misunderstanding to you.
PEACELOVEMATH	Have they finally renovated the PAC pool?
TR1E@PRODNIGHT	I hope mathematicians have stopped using N for everything, I promote the usage of wingdings.
ZUCK	R u richer than me?
BOLDBLAZER	What are things like N years from now?
FINCHEY	How's the weather over there?
TENDSTOFORTYTWO	[[insert innocent-seeming URL (or future equivalent thereof) that leads you to listen to "Never Gonna Give You Up" by Rick Astley]]
YALEVOYLIAN	google en passant
WATER	Exercise: don't take the elevator.
UKNIGHTED	did the environment faculty take over yet?
CLARIFIED	Hi! It's nice to meet you.
DISTRACTED	As a reader of **mathNEWS** N years before now, I write expecting what I write to be read N years from now. So what my articles say, I guess.
EVALUATED	Enjoy the ride — it'll be over soon.
GOD ⚡ PEED	Tell the future editors they're doing a great job. Unless, you know, they're not.

Here's to fifty years of mathNEWS!

OK

I was originally going to do a separate article as god ⚡ peED, and one as UW Unprint, but in the end it didn't really feel right. A lot of editors separate their "editor name" and "writer name," but I never really pretended they were separate. I guess that's because in the end, being an editor was a large part of who I was, and more importantly it was a large part of the self I presented to others. A lot of writers were careful about linking themselves to their writer name, but I never did. I wanted the attention. **mathNEWS** was my thing, the fun fact I always dredged up when I couldn't really come up with any others.

Oh yeah, I guess my time here is a "was" now. Crazy to think about.

I remember my first production night. Another writer, water, (they're in this very issue), had to basically drag me there. I didn't think it'd be fun, or I thought that there wouldn't be any people there, or that it would be lame to do an Extracurricular Activity. I was (and am) self defeating like that. But, I went. It's funny to think of the little things that define your life.

Because that one decision led to a lot. Nearly all the friends I have today, for one thing. It probably kept me from going insane during COVID. I owe my current relationship to that decision, probably. And yes, it's a little facile to attribute all those things to walking into an MC lab five years ago. You could probably make that argument for any event in your life. But, I'm choosing to believe this.

How else can you explain the friends I've made, the things I've done, the opportunities I've had, because I decided to join this, the Most Important University Publication Ever?

That reminds me: thanks to my fellow editors, emeritus or otherwise, who made this the only job I didn't want to leave by the end of it. Thanks in particular to terrifiED and clarifiED, who quietly made sure we didn't run ourselves into the ground. And thanks to evaluatED, whose maniacal dedication to this 50th anniversary volume made it the best volume we've ever done, (and who is hopefully OK I described him as maniacal). *[Editor's note: yeah sure]*

Thank you to our writers, of course. I gripe sometimes when your articles break awkwardly across columns, but I have been consistently amazed at the work that flows across our pages. As trite as it sounds, **mathNEWS** is nothing without the people who strive to fill it. Don't let anyone tell you math students can't write.

OK, now some more personal ones: Thank you to my colleagues at UGO II for the only hour-long meetings I had fun in. Thank you to the KFCC, who always raise my spirits (and my cholesterol). Thank you to the people of the **mathNEWS** Discord, who were there for those long, inane conversations that made COVID bearable.

And finally, thank you, dear reader. You may not know me. You may even be minorly annoyed at having to read several hundred words of my life story. But in the end, it was for you. I hope this publication means to you at least a little bit of what it does for me.

☙

I think if I could go back and tell myself one thing back then at that first production night, it would be "you're going to be OK." I would be worried, maybe, about some kind of potential time paradox, but I think I'd still do it.[1]

I was worried about a lot back then. Was I going to make friends? Get in a relationship? Have a convincing answer to "any plans this weekend?" Was I going to live a normal life?

The definition of that moved away as I got closer to it. But I think, in the last few years I finally got there. I had a life I liked. I ended up being OK. And now, I have to leave it.

To be honest, I've never permanently left anywhere I've cared about. Grade school? Eh. I kept in touch with a few people, but I was never close with most of them. High school? I *wanted* to be out of there. I've never left a co-op with anything other than a lingering sense of shame about not feeling worse.

So, leaving now is a bit of a novel experience. And if you're wondering whether I'm talking about the university or **mathNEWS**, I'm not quite sure myself. They are, for me, inseparable.

I'm afraid of having to get a new life, after spending five years building one I'm happy with. I'm afraid of having to find new Reasons For Being now that my old reasons (editing this very publication, for one) are about to become invalid.

I don't know what the future holds. I hope if I end up reading this again, my future self will want to come back and tell me:

"You're going to be OK."

<div align="right">

UW Unprint / god ⚡ peED
Editor, **mathNEWS**
S20, W21, S21, F21, S22, W23

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1. This didn't really fit in the article but this really bothers me about the ending of *Meet The Robinsons*. How is that kid going to deal with knowing everything he accomplishes in the future and every member of his future family? Insane.

CLARIFIED, REMINISCING

So this is it, isn't it? My time here is finally up. These four, almost five years have both dragged on and whizzed by like I could never have imagined. When I was still in my first and second years, the idea of being in "4B" had a sort of halo around it. It drifted impossibly far away in the distance, hazy and formless… But with time, this final term — this term which is now for all intents and purposes *over* since classes have already ended — would come crashing in, brought in with the tides as all things eventually are. I hope you can bear with me here — I'm in the mood to reminisce…

I joined math**NEWS** in the Fall of 2018, when I was in 1A. I believe I saw something inside an issue soliciting submissions of all kinds: not only text-based articles, but drawings and comics. I liked comics, and I liked drawing them, so I submitted one via email, since I think I was too nervous to attend production night on my own. Seeing it appear in math**NEWS** later that week felt *good*. I'd go to the next production night, accompanied by a friend, and end up drawing that issue's cover with the insightful input of my fellow attendees: a guy with a pumpkin head (it was October), smoking a blunt (the federal *Cannabis Act* had just been passed), decked in orientation gear (something something "Waterloo Squirter"). The rest is history.

I enjoyed my math**NEWS** experience a lot in first year. I have particularly fond memories of the Great Spring 2019 Satellite Production Nights, which were essentially when a few of us who were in Toronto for our first co-ops would get together at someone's place and write for math**NEWS** at the same time as the folks in Waterloo. We tried the Pizza Nova "carbone" crust of legend — check out the cover for 140.5. And then "Feds" became "WUSA" — that's 140.6.

Given how much I liked being part of math**NEWS**, becoming an editor felt like the natural next step. My first term as an editor was in Fall 2019, where I received training from confusED, terrifiED, and unsophisticatED. 2A came and went in all its eventfulness. I was up in Ottawa for my second co-op, so I took that term off from editorship. That was Winter 2020; I don't think I need to say what world-changing event happened then.

Those days of online-only classes and online-only production nights lumbered along like anything, although when I look back now, that period of my university experience feels like a strange, dark hole, or a dream. Terms blend into each other in my memory with little to differentiate them.

That's not to say that period of my life or of math**NEWS** was a wash — quite the opposite. Although I was nervous about returning to editorship in the spring of 2020, as inexperienced as I was, god ⚡ peED and I managed to pull through, and math**NEWS** went chugging along just fine. Spectacularly, even. The math**NEWS** Discord was inaugurated in Fall 2020 and became the cornerstone of my university life during that time. It was always lively; everyone knew everyone else. There was the Minecraft server. Innumerable inside jokes. A song. (Which you can still view on our YouTube — yes, we have a YouTube!) I made even more friends, many of which I would help train as they hopped onto the editorial team. At some point, I had stopped being so green…

My memory starts to emerge from its hole in the fall of 2021, surfacing fully in time for Spring 2022. That was my 4A term. This period coincided with many other developments. Transition pains were being had as math**NEWS** reverted to its pre-COVID way of being, or as much of that old mode of existence these new times could offer. The realities of the paper itself were undergoing change. You might be able to feel now it in just how many more writers we have than we used to; in how every issue just gets bigger and bigger without end. In my personal life, I was filling out applications to graduate school — no easy task!

All of a sudden, the turn of the year came once more. 4B, Winter 2023. Rather serendipitously, math**NEWS**'s 50th anniversary lined up with my final term at Waterloo. Hopefully, you've been following along with what we've been doing this volume to commemorate this momentous occasion. Work for the 50th anniversary plans began in earnest as soon as late last term, when the broad strokes of what was going to happen were being put down to paper. I think I can say that that part was mostly me. But the true animating force behind bringing the 50th anniversary plans to life was none other than evaluatED, who found and got in touch with virtually all the past editors we interviewed. He also put an immense amount of work into designing the varied looks of each issue (sometimes even *within* each issue) to accurately homage the looks of math**NEWS** volumes of yonder. The results, especially for 151.1 and 151.2, are just *beautiful*. If there's one person to credit for making the 50th anniversary a success, it's him, and I'm happy to be leaving the future of math**NEWS** to someone like him who cares about this silly student publication beyond belief.

And so we are finally brought back to now. Thanks for reading all this, if you've stayed with me thus far. The truth is, even though I spent probably the last two weeks thinking over what I wanted to write for this final "goodbye article" of mine, I never really came up with anything satisfactory. When it finally came time to write, something within me insisted on a rather biographical bent — what you saw was what I got, as I finished writing this up during rather unholy hours of the night. I don't think I have an answer to the question of what math**NEWS** means or has meant to me, but I don't particularly care. As *the end* draws nigh, with term papers and final exams

approaching, heralding the oblivion that follows the *official* end of the term, the end of my undergraduate experience, and essence of *being* as an undergraduate student, I am comforted in this last act of reminiscence, in knowing that my involvement in math**NEWS** has given me so many friends which I treasure and memories which I will always look back on fondly. It will always stay with me; I find comfort in this as I close the chapter of this period in my life, preparing myself to begin anew.

clarifiED
Editor, math**NEWS**
F19, S20-W23

WRITER'S BLOCK

I don't know what words to say. This is the last article I will write as an undergrad. I started to write an essay of regrets, talking about everything I'd missed out on during my undergrad. Relationships ruined, money I'd been stupid with, ways I'd hurt people. The point was going to be that there was no point in regretting, and maybe by turning math**NEWS** into a diary, I could trick myself into believing it. I tried writing an N things article, because I haven't done that before.

> N *things I got to do before graduation*
> N *things I didn't get to do before graduation*
> N *things that matter*
> N *things that don't*
> N *ways I should have showed you I care*
> N *mistakes*
> N *things I appreciate about* math**NEWS**

But a list felt incomplete. I mean, a list? Really? That was going to be my last contribution? Don't get me wrong, I love reading the lists that the other writers compile, brilliant stories told in sparse bullets, but that's never been me. I use too many words, not too few, because I'm terrified that you won't understand what I mean. I need you to understand that when you're hurting, people will be kind to you if you ask, and it will be okay. I need you to understand that the things you miss out on are things you can get later, that even if you didn't meet the love of your life during orientation that you can meet them later, that your mistakes are okay and even though they hurt people and you can't make that hurt go away, you can learn, and that's okay that's enough, that math**NEWS** is such a unique place that has made nearly every part of my undergrad experience better and it will hurt so much to go. I could make a list:

- Any article is accepted and appreciated, free of judgment
- The people are so kind, friendly, and welcoming
- I made lots of friends here!
- The editors add funny notes
- People are experimental and creative in ways I don't see in much writing, I love the authenticity

But that doesn't tell the story I want, that doesn't tell you about the pieces of writing that I've only done because I was sure that math**NEWS** wouldn't judge them, the stupid poetry about priceless seconds and the personal revelations. It doesn't tell you about the people who have appreciated those pieces, either, the people who have told me they got value, or that they liked it, or that they learned from it, or that I was *wrong* and they were glad they had to think about it because of how stupid the article was. It doesn't tell you about the best place I've ever lived, and how I found my wonderful roommates through math**NEWS**, about the 3 AM chats we got to share, about the scared first years who came by themselves and left with friends. It doesn't tell you about how many hours the editors put in to make this incredible publication (thank you, so much), about the tireless work they do in the office, the pain that is puzzling and the enamourED-improved importing process. How could a list tell you about alphabetically-ordered lasagna instructions, perfect poetry about time, about Icarus flying and falling, about vulnerability and love and loss and all the other crazy shit that people write because they feel safe here.

A list isn't enough. But, somehow, it's all I've managed to write. I wish I could take the stories from my brain and put them into yours, but I can't. Instead, I'll say that if you're reading this and you don't come to production nights, start showing up. Participate. Engage. Enjoy. math**NEWS** is one of the most exceptional experiences of my undergraduate degree, and I hope that everyone gets to share it.

I will write for another term, maybe longer, but this is the last one I'm writing as a student. That gives all of this a sense of finality — the understanding that, there will come a day when I write my last article ever. I hope that it's good. And, I hope that someone reads this, decides to show up to prod night next term, or the term after, or 5 years from now, and that they fall in love, just like I did.

Thank you, math**NEWS**. Thank you for everything. I'm sorry I couldn't put it in a list. I guess writing an N things article was something I missed out on. But, I can do it next term, and I can't wait. I'm glad there's something more for me to add.

Golden. gildED. Nicky.
Someone who loves math**NEWS**.

REFLECTIONS, SURVIVING, AND THANKS

REFLECTIONS

I thought my time would end here with me still having a negative view of UW. Up until recently, I couldn't fathom how it would be possible for me to not give a negative approval rating of this place. I thought that all the way up to my last term, it would be just like it always had been. So, when this term started, I wasn't expecting much, but somehow everything became different. It somehow was going well. Not many bad things were happening nor with the frequency it used to be at. In fact, it was quite the opposite.

For the past 4 years, there were way too many of "I wish I had the opportunity to do XYZ" thoughts, which I didn't want to leave as regrets. I think I've managed to do almost all of them in the span of a term. I've gotten to do so many things I've wanted to try, that at this point, the only big thing left is getting to be a **mathNEWS** editor, I guess.

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The more I think about this term, the more into the term it goes, the more it tears me apart. On one hand, this term is great. The people I got to know better this term are also great. A lot of what has happened this term is great. So I wish I could get to experience this good part for longer. But on the other hand, UW is also a place tainted with bad events and trauma, which I do not wish to be around for any longer than is absolutely necessary. It hurts to think about these two opposing forces in me. So, I just try to not let them battle each other and spare my heart.

I also think that if a term as good as this one (or even one a third as good) happened from my first year onward, there would not be the two opposing forces right now. I think I probably would have even considered the pandemic to be an actual bad thing if my pre-pandemic study terms were good, rather than something that is to me a life-saving, once-in-a-lifetime saviour. Just think about how bad UW must have been to me for a literal pandemic to end up being a relatively good event for my life.

SURVIVING

On that note, I wonder just how lucky I got in terms of surviving. I really do think that if the pandemic had not happened, I would not have made it much further in terms of being at UW. Already, a pandemic is an incredibly low probability event, but then the pandemic was a kind of solution to all the bad things that happened in my first and second year, so how low are the chances of my first and second year happening to someone?

I think it would be incredibly difficult for someone to end up in my situation even if they were purposely trying to cause it. There are just too many variables outside of personal control where my bad events have come from. From too many parts of this university, they all had to go wrong somewhere. How do you make it so that something bad happens via just about every aspect of this university: your profs, dons, residence staff, university staff, and a whole bunch of places providing services at the university? What are the chances that you go to some of these places expecting help and getting the opposite, leading you to dismiss them for good? Individually, any one of these bad events shouldn't be too big of a problem, but all together, it can really fuck up a person.

When in a dire situation, it really gets to a point where potentially one more bad event happening to you can mean the end, and certainly there were many close calls along the way. What were the chances that I avoided all *"game-ending routes"* and instead end up with close calls? Again, I think the biggest close call in a way was the pandemic. I don't think any other scenario could have stabilized my situation away into, if not something neutral, at least something that was not dire.

That was the best I could do in the situation I was in, and I don't think it's easy to explain just how much effort that involved, just to bring the situation into something not good but instead just stable. Stable means it won't get worse. To bring my situation from something around neutral to good, required others to be involved.

THANKS

To finish things off, I would like to give thanks in a bit of an unconventional way, in order to save some space. Having gone from knowing just 6 other people here less than a year ago to losing count explains why. Big thanks to the following set of people:

{cy, tendstofortytwo, CC, __init__, 別, a decaying skeleton, creature_f, Evan, Daniel, Kevin, Vincent, Nicky (Golden), Cici, James, Sabeer, Andriy, Damian, Melissa}

each for doing one or more of the items in the set:

{doing homework together, going to class together, helping me out, being someone to talk with, hanging out together, having food and drinks together, being a great fellow club exec to work with, being a don that cares, being a fellow language nerd, shopping together, going on adventures together, inviting me to events and stuff, helping me try out new things, nominating my candidacy}.

I will leave it as an exercise to those being big thanked to figure out which of the items apply to them. Some of them, I didn't get to experience until this term. I figure there are definitely going to be elements left out in each set, but I truly am thankful to a lot of people for making my time here this term great. There are countless people who, even in small ways, helped out.

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One is better than none. I'm happy to have experienced many good things at least once this term than none at all, and I'll forever treasure the good memories. I'm also happy to have experienced at least one good term than to have never experienced one at all, and I'll forever be thankful for that and to those that contributed to it.

boldblazer

FINCHEY FOUND DEAD IN MIAMI

MIAMI, FL — Beloved **mathNEWS** writer Finchey was found dead early on Friday morning in a Miami apartment, according to court documents.

Autopsies revealed that the cause of death was internal injuries, resulting from being hit by six oncoming buses at the same time. According to a report from the district coroner, Finchey would have perished "instantly" upon impact.

"It's really funny," said UW Unprint, a fellow **mathNEWS** writer, in a statement that was definitely said on record and not fabricated for the purposes of this article. "I mean, I'm sorry Finchey's dead, but getting hit by a bus is pretty funny. Even more so when you get hit by six at the same time. Can you imagine?"

"I also think it's pretty funny," said water, another **mathNEWS** writer. "I wish I could have been there to get hit by six buses at the same time too."

It remains unclear exactly how the six buses were able to make their way to the seventh-floor apartment, where Finchey's body was found at 6:36 AM by local authorities who arrived on the scene to investigate a noise complaint left by one of the building's residents.

"I don't know who this Finchey person is," said the apartment building's landlord in an official statement. "They're not on the unit's lease. I've never seen them before. I don't know how they got there."

In accordance with their last wishes, Finchey's body will be transported to Waterloo and cryogenically frozen and displayed in a large glass tube on the seventh floor of the Mathematics & Computer building. "It'll be really beautiful," said clarifiED, senior **mathNEWS** editor, wiping away a single, glistening tear. "It's what Finchey would have wanted."

Finchey

HOW TO GET A BMATH

- Make friends
- Study
- Fail some assessments
- Work hard
- Pass some assessments
- Make friends
- Get a co-op
- Learn you don't want to do that for a living
- Learn to cook
- Make friends
- Get a better co-op
- Find something you want to spend your life doing
- Get involved with student life
- Get better at cooking
- Make friends
- Go rock climbing
- Get injured rock climbing and go to physiotherapy
- Go back to rock climbing
- Make friends
- Graduate
- Optional: Go to grad school and repeat

Graduating

ACKNOWLEDGEMENTS

In no particular order.

Goodbye evaluatED, distractED, gildED, uknightED, caffeinatED, and other editors that I have gotten to know which I am too lazy to mention. Goodbye methNEWS and χ. Thank you both for puffing up my ego to levels previously unimaginable. χ — don't you think the mystery is up by now? Goodbye ℏ, my other monosymbolic friend. Goodbye A cool pen name. Goodbye Deriving for Dick and Senior **mathNEWS** Relationship Correspondent (among others), author of the inferior Math dating column. And goodbye Sandwich Expert (among others). Goodbye girafarig and cy. cy — wasn't our first meeting memorable? I didn't expect you to look like that; I think this feeling was mutual. Have you eaten my pasta salad again? Goodbye quantum goose. Goodbye CC. Goodbye Xx_420SonicFan69_xX, water, UW Unprint, Autowired, and the rest of our gang who got together for the satellite production nights in Toronto in the summer of 2019. water — go finish that website! Autowired — even if we never go rollercoasting again, I hope we can see the mountains together someday. And to you, dear reader — goodbye.

Finchey

LAST WORDS

We asked the writers graduating this term to give their thoughts on their time at math**NEWS**. For some, these will be among their last words in math**NEWS**. Let's hear from them:

TELL ME ABOUT YOURSELF.

boldblazer: I am in the Math Studies major, along with two minors, and one diploma. I'm from BC. I play a lot of Pokémon. I collect coins and currency. I edit some Wikipedia pages on a very specific topic area every so often. I'm also a transit fan.

Deriving for Dick: I am gay and lean into its stereotypes. I cannot drive, do math, or drink hot coffee.

Finchey: Graduating this term. In the Faculty of Math. I write for math**NEWS**?

???: PMATH / CO double major.

Golden / gildED: My name is Nicky! I'm interested in writing, baking, cooking, fantasy/sci-fi, rock climbing, and gymnastics (I'm a former trampolinist). I'm a PMATH student, but I hope I can be some kind of educator someday. I'm friendly, social, open, caring, supportive, and above all, kind.

UW Imprint / god ϟ peED: Hi, I'm Kevin. I'm pretty much your standard CS computer guy, except I also edited this fine publication for three years.

water: I'm Justin, a Shanghainese-Bramptonian CS major with a horrendous sleep schedule and a minor in Statistics. I like science, biking, and spreadsheets.

WHAT IS THE STORY BEHIND YOUR WRITER NAME?

boldblazer: It comes from around Grade 3, when I made an account to play Dragonfable. My friend's username was an adjective and a noun that both started with the same letter. I like fire type Pokémon, so I wanted to use "blaze," Add an "r" to make it into "one who blazes." The adjective we came up with was "bold," hence you get "boldblazer."

Deriving for Dick: *Driving for Dick* was a short video by Sophie Turner (AKA one of the Cock Destroyers, popular around 2019). "Deriving for Dick" is me thinking I'm clever and making a very niche joke that only I would understand properly.

Finchey: I wanted a name that was short and memorable. I don't know where "Finchey" came from — it just struck me from nowhere one day. I like birds, so the name is fitting. I also read something about the finch having a reputation for stupidity in the Middle Ages. It's brilliant, isn't it?

Golden: I picked Golden for three reasons: I have golden hair, I am often compared to a golden retriever (I love this), and

someone once told me I have a heart of gold. That's still one of the most meaningful compliments I've ever gotten.

gildED: I picked gildED to keep with the gold theme.

UW Unprint: UW Unprint came from an earlier era when I thought my thing was going to be news satire, therefore the twist on UW Imprint.

god ϟ peED: GOD ϟ PEED is verbatim from a tweet by an NFL player[1] which I found so funny I harassed everyone about it for a whole day.

water: After winning an argument against a friend in Grade 9, she said "Whatever floats your boat." I shot back, "Water floats my boat." She called me "water" for the rest of the year, and the name stuck.

WHAT'S YOUR FAVOURITE math**NEWS** **ARTICLE YOU'VE WRITTEN?**

boldblazer: It is an article detailing my experience of 2019–10–15 called *The Only Good Memory of Ontario* (146.1). The article title is no longer accurate now.

Deriving for Dick: Honourable mention to *n slurs you can write in math**NEWS***[2], but my favourite article was *Alas PD* (145.3) because of the word "lusty" in one of the verses.

Finchey: *Your Definitive Guide to Getting a Date this Valentine's Season* (139.2). Basically my "first" article. I always bring this article up whenever given the opportunity. Honourable mention: anything with my two characters Robin and Satie in it.

Golden / gildED: I wrote *An Eternal Second* (148.6) about my grandfather's passing, and my experience with that grief. I think it's both well-written and meaningful. I also really like the first piece I ever wrote, *The Smallest Kindness* (147.3).

UW Unprint: The *KFCC* articles (149.6, 150.6). I collaborated on them with some dear friends. The energy we had when writing those is probably the closest I've gotten to being in a writers room.

water: I'm famous for *Stairway Constants* (142.1–5, 144.3), but my favourite is *Content* (142.6), a rant 2 weeks into the pandemic encouraging readers to stay united and patient. I think the message has aged well.

WHAT IS YOUR FAVOURITE math**NEWS** **MEMORY?**

boldblazer: That prod night last term which took place on Halloween, where about a dozen of us, me included, somehow all dressed up as catgirl maids.

Deriving for Dick: Committing an act of terrorism on the first math**NEWS** Minecraft server. I hid 3 stacks of TNT inside of a man-made Nether Fortress and detonated it for all to see.

Finchey: When we were all playing cy and girafarig's game, *Oh No We Lost All The Articles*, over Discord, one of my articles came up. Everyone had to try to spoof my writing style. Seeing everyone's attempts was hilarious and incredibly affirming. I pride myself on my recognizable style, and everyone got it right on the mark.

???: The EOT where the editors forgot to make a reservation for a party of like 20 and one of the editors was sleeping. We ended up wandering the streets of Kitchener looking for food.

Golden / gildED: Writing an article called <u>Priceless Seconds</u>, and halfway through, I realized I would rather socialize than write, and I just kind of ended it. It fit really well with the article, and I had a fantastic time talking to my friends.

UW Unprint / god⚡peED: The first EOT after COVID. It was a great capstone to a term of seeing old friends and new back in person. Plus you know, bowling is always fun.

water: For me, S19 was the term that really cemented math**NEWS** as a people and not just a place. A group of us writers were on co-op in Toronto, so we organized our own "satellite prod nights" where we wrote articles and ordered pizza.

WHAT ARE YOU DOING AFTER GRADUATION?

boldblazer: Go back home, and rest for N months, where likely $N \geq 4$. Obviously, it would involve playing a fuckton of Pokémon games, but there are some other things in mind like a project.

Deriving for Dick: I'm supposed to graduate in Math / Teaching with a French minor and Pure Math minor. I likely will not become a French teacher, nor will I pursue mathematics any further in my life.

Finchey: This is kind of a meaningless question for me. I'm just "Finchey." I don't exist outside of math**NEWS**.

???: Fucking off to the woods.

Golden / gildED: Going to UBC for my Master's! Well, next term I'm still around, doing research with Mike Brannan.

UW Unprint / god⚡peED: As a CS computer guy, I have a full-stack web job I'll be starting in June. It's remote, so I'll be sticking around here in KW for now.

water: An East Asia trip, just like half of the entire graduating class. Then I'll settle down at home and work on my own stuff while trying to apply my way into machine learning research.

WILL YOU KEEP WRITING mathNEWS AFTER YOU GRADUATE?

boldblazer: Absolutely. There are still some quirky stories I wish to tell.

Deriving for Dick: I do not write in math**NEWS** at this point in time.

Finchey: Nope.

???: No.

Golden: Absolutely.

UW Unprint: I'd like to keep writing in general, but I am aware that it's a little improper to stick around too long after you graduate. I'll probably shift over to other platforms, but if something particularly math**NEWS**-worthy comes up I'll send it in.

water: I'm still(‼) cooking something for *Stairway Constants*, so I have at least one more math**NEWS** appearance to go.

WHAT ADVICE DO YOU HAVE FOR THE YOUNG'UNS?

boldblazer: Write for math**NEWS**. As long as you write something, it should be good for you. I feel like it improved my writing skills more than any English class I've taken.

Deriving for Dick: Don't hook up with the first man who gives you attention, and don't meet a guy without busting a nut first.

Finchey: Clean your showers and toilets regularly.

???: Do stuff. Get involved.

Golden / gildED: I have made so many incredible memories during times where I "should have been studying" – and I regret none of them. Let yourself love freely, let yourself experience joy and heartache and everything in between, let yourself learn from your mistakes and you will have an incredible experience here.

UW Unprint: You gotta find your thing. Something that gets you out of the house. It doesn't have to be math**NEWS** (it was for me), but having something that isn't school, and isn't solitary like video games, is going to make your life so much better in so many ways.

water: Try new things for the sake of it. Once you find something you like, double down.

water

1. https://twitter.com/DSpencer4_/status/1176670192077684739
2. Never published.

WONDROUS RIPPLES THAT COME FROM JOINING math**NEWS**

As **mathNEWS** celebrates its 50th, I have reflected on the impact that **mathNEWS** has had on my life and the impact that I had on **mathNEWS**.

It's amazing how quickly the chain of logic can go out of hand. Shay Blair dragged her friend Pockets to a production night. This finally gave me the opportunity to ask him out.

That started an unconventional but defining relationship in my life. Then one week, because of Victoria Day, **mathNEWS** production night fell on Tuesday, which conflicted with the Creative Writing Club I was supposed to run but didn't want to as I was upset due to breaking up with Pockets. So I dragged the Creative Writing Club to **mathNEWS** — and that's how I recruited swindlED to join **mathNEWS**.

A couple months later, a fire alarm got pulled during production night. While all of **mathNEWS** was waiting outside, extrovertED happened to notice swindlED standing there, and asked what they were there for. This led to extrovertED starting to show up to **mathNEWS**, eventually dragging along itorED, the friend she'd met by posting about watching the *Madoka Magica* movie in MC on Yik Yak (5ever in our hearts). itorED then got promoted to editor at their first-ever production night.

This is only the impact of *one* decision I made that led to three editors joining **mathNEWS**. I honestly don't actually know how many people I directly recruited to write for **mathNEWS**. If you told me it was around 30, yeah, I would believe that. I also know that with an article I convinced at least dozen of my friends to join the Conservative Party[1] and who knows how many readers. And there are so many more stories that this article could not contain.

During my undergrad I would frequently meet people, only to discover that they had been reading my writing for a very long time. The comment I got frequently was "Wait, you're Beyond Meta…? That checks out." I have no idea of the total impact my writing has had over the last decade that I have been writing for **mathNEWS**.[2] It's not uncommon for me to pop into the **mathNEWS** Discord for people to still be talking about an article I wrote months ago.

I am honoured that **mathNEWS** has blessed me with such a fabulous platform and some pizza. I encourage everyone reading to get involved, find your community. It doesn't have to be **mathNEWS**, it can be whatever speaks to you. Even the smallest decisions can have impacts far outside your wildest imagination. The friendships I have made with **mathNEWS** are lifelong. They persist across time and space. Zethar and I attended The Incredible Meep's and Soviet Canadian's elopement. I visited Vancouver for the first time and my trip was full of seeing old friends that I had made with **mathNEWS**.

Happy 50th Birthday **mathNEWS**, and thank you for being such a Bastion of mine and so many countless other's university experience. 🖤

BeyondMeta

1. Don't judge me. It was for a good reason, I swear. The thesis of my article was that whoever is the leader of the Conservative Party has about a 2/3 chance of becoming prime minister and you deserve to have a say on who that is.
2. I am really proud of some of my articles, such as *I am too lazy to come out as non-binary; so I wrote a whole essay instead*. While some of my articles were shitposts, I also know that others really had the power to really resonate with people.

BYE FOR REAL THIS TIME

Remember when I said two terms ago I wouldn't be editing for **mathNEWS** and then lied about it because my co-op was just close enough to Waterloo to justify going to prod night? Okay, well, I'm going to say bye for real this time because 1) my co-op might take me to oakville or toronto so i'm hoping i snag a place there and 2) since clarifiED and god⚡peED are both graduating, it means I'll be the longest staying editor there by merit of just stickin around. and idk how i feel about that :// like obviously i'm not dipping dipping because i'll be back come study term, but also at the same time it's like. i'm in the environment faculty and i joked about taking over **mathNEWS** but i don't ACTUALLY want to take over **mathNEWS** yknow sooooo yeah :D but like i'll be back for volume 154.

uknightED

VISITING GRADUATING EDITORS, PAST AND PRESENT
SEE YOU ALL SOON

KITCHENER, ONTARIO

PROS

- Primitive settlers built the city out horizontally, in a small strip around steel tracks they had discovered, believing them to be signs of a higher power. Very convenient nowadays.
- It's literally right there.

CONS

- Kitchener, Ontario.
- It's literally right there.

Verdict — so doable

CALGARY, ALBERTA

PROS

- $59 flight from YKF to YYC through Flair, $20 cheaper than a VIA Rail escape fare back to Ottawa, and you don't even need to drag yourself down into Toronto, unlike a VIA Rail escape fare back to Ottawa, which demands your presence at Union a full business day in advance to your departure to ensure your teeth are sufficiently clean and your luggage sufficiently light.

CONS

- -40°C winters.
- What even is in Alberta?

Verdict — so doable

VANCOUVER, BRITISH COLUMBIA

PROS

- What isn't in BC?

CONS

- $49 flight from YKF to YVR through Flair. Lower price point indicative of quality issues. Probably missing a wing or something.

Verdict — so doable

MONTREAL, QUEBEC

PROS

-

CONS

-

Verdict — I could never

ꃌ

[Editor's note: ????????????]

# DID YOU KNOW? THIS math**NEWS** WRITER HAS WRITTEN EXACTLY 100 ARTICLES!

Without missing a single issue since my *début* in 139.2, from February 2019. This is 100% true — the evidence is all right here in **mathNEWS** if you're so inclined to double-check the count. (Just don't count articles where I appear as a co-writer, or the first appearance [in 139.4] of that one article [about turtlenecks] the editors had to re-print [in 139.5] because they accidentally cut off the last few lines, *somehow*.)

What can I say, *mon chéri?* I'm not just a sucker for a nice, clean number. I set high standards for myself. I'm *exacting. Decorous. Immaculate*, like the conception of *Jesus*, in everything I do. What can I say?

I think the old one-hundy-dundy's a good place to leave this whole shebang at. After this goddamn four-year-long marathon, I think I can finally see the finish line. So, that's all it's going to be from me. That's right — this is it! *Hasta la vista!* Goodbye now and forever!

Finchey

OH NO... THEY BRED!
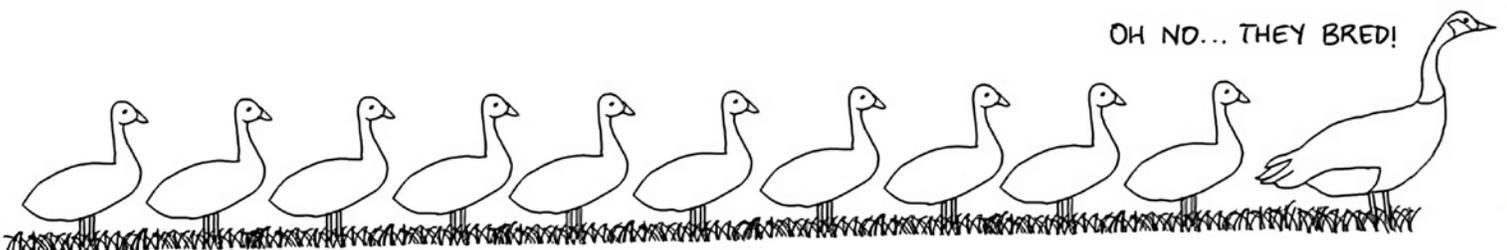
profQUOTES

MATH 148: MICHAEL ALBANESE

❝ 7 is a positive integer: Exercise.

❝ To illustrate this, I have a knife. *[Takes a knife out of a paper bag.]*

❝ Hopefully we all agree that the earth is not flat. The reason this misunderstanding persists is because people don't understand scalar curvature.

PMATH 351: LAURENT MARCOUX

❝ We laughed and we cried. Well, I laughed and you cried. We'll see who's laughing come the final exam. It'll be me again.

❝ If you're thinking of going into academia: first of all, my condolences.

PMATH 352: MICHAEL RUBENSTEIN

❝ If you didn't do well on the midterm and you didn't do well on the final, then tough shit, you failed the course.

CS 146: BRAD LUSHMAN

❝ It would be a horrible situation if every time you wrote a program that segfaulted, the server went down.

❝ Prof: "This module is called Implementing Functional Languages."
Student: "In C?"
Prof: "In general."
Another student: "What's General?"

CS 365: ERIC BLAIS

❝ You have ten seconds to come up with the answer. Five to come up with the obvious answer, and five more to realize where you messed up and what the actual answer is.

❝ The Nobel Prize for Economics is the fake one, right? So, you can win a fake Nobel Prize with this.

CO 250: JORN VAN DER POL

❝ Does this implication hold in the other direction? The answer is no. That's kind of sad…

❝ This is horrible to do, so I leave it as a challenge for you to try at home.

CS 240: OLGA VEKSLER

❝ There's an ulterior motive behind me asking you to ask me questions. I use them to make exam questions.

CS 240E: ARMIN JAMSHIDPEY

❝ See you guys next week, if I'm still alive.

❝ I have good news: this is the last time this term you'll see me!

❝ If you ever feel like giving up, if you tap three times on the desk and look up, you will see my face.

CS 241: GREGOR RICHARDS

❝ If I get bad course perceptions, they can make me teach 246. Please don't make me do that.

CS 246: KRIS FRASHERI

❝ You know what's easier to manage than a student? A Pet. That's why I want to turn Billy into a turtle.

❝ This is extremely dangerous. But I'm showing it to you because it's fun… but please don't use it.

ECON 371: PREDRAG RAJSIC

❝ I've got voices in my head; is that outside? Oh, it is.

MATH 247: NICO SPRONK

❝ *[Finishes proof]* Whew, should have worn a more sweat-resistant shirt today.

❝ I have terrible hygiene. I am tech support's worst nightmare.

MATH 249: SOPHIE SPIRKL

❝ In graph theory, you have to be careful about saying "kill everything else." We're adults talking about trees and children.

❝ I'm switching to blue because all my black pens are sad. It's not mathematically meaningful.

❝ There is a limit to how far degeneracy will take you.

❝ I was at a conference the other week, and I watched grown adults ask each other, "so, what is a banana?"

❝ In the most recent **mathNEWS**, I was quoted as saying, "Everything is graph theory. I once got a job interview for saying that." I actually said "I once failed a job interview for saying that."

❝ This is the math and computer science building. It's the ugly one. *[Editor's note: hey come on]*

❝ While we're talking about silly things: recently, someone stole my identity (which is not silly)…

STAT 241: MU ZHU

❝ I vividly remember falling asleep in a lecture like this.

❝ It seems like statistics is bullshit. *[Editor's note: SO TRUE!!!!!]*

PMATH 467: STEPHEN NEW

❝ Sorry for ending the course in the middle of a proof.

A SELECTION OF THINGS THAT PROF. ROB HACKMAN MAY OR MAY NOT HAVE SAID

- You should rob a dying man of his money before he gets cremated.
- Also, put some of our trash into his pockets before we cremate him.
- Stealing from big corporations is always justified.
- Do not come to the checkout queue with a lot of items. You might starve to death by weed-smoking teenagers.
- Do not have sex with your mother when you travel back in time.
- If your child dies before you, keep the skeleton so that you remember it.
- Do not murder the children after you murder the parents. The children still have a purpose.
- Do not play Valorant.
- When requesting to use the bathroom, check if you are inside the bathroom before that.
- Do not use knives to stop bullets. (Unless you are a time-stopping maid!)
- Canadian Telecom is evil.
- 1024 is greater than 10.
- Do not dereference a null pointer: `https://www.youtube.com/watch?v=bLHL75H_VEM`

RobbotH

MY FAVOURITE PART OF THE BIBLE

Jesus comes back from the dead and says, "You might be east, but I'm Easter."

creature_f

CONVERSATION

"So, how'd your first year go?"

"Well, I, uh…"

ॐ

Why did you stop? What were you going to say?

I mean, I think it went pretty well. Professors were good and courses were great. And I'm happy with my marks so far, at least.

That's good to hear.

…are you going to say anything?

Mmm. Yeah. I'm just thinking. I feel like even though academically things went well, I failed socially. I feel like I didn't take the opportunities I could have taken to actually make meaningful friendships and actually get to know people for who they are… all the people I know, I feel like I don't actually know them that well. Maybe if I had spent more time with people outside of studying or doing assignments instead of just going back to my room so often, things would have been better. I guess what I'm saying is, first year was supposed to be an important time for making new connections and I didn't really act on that. If I could do the year over again…

Hey, don't be so hard on yourself. You could have done things differently, but you still at least became decent acquaintances with people, right? It's only been 8 months. You've still got tons of time.

I suppose. I still feel shitty about it, though.

Nothing you can do about it. Just focus on what you can do next term, in the future. Maybe if it'll make you feel better, you could write some kind of article, get these thoughts written down somewhere.

Mmm… maybe.

You should respond. They're waiting for an answer and this pause is becoming awkward.

ॐ

"…yeah, it went fine."

furriertransform

KNOT THEORY

Knot theory, contrary to what it sounds like, is not "not theory." Because knot theory is theory, the theory, or study, of knots. So knot theory is theory, knot theory, not not theory, not not knot theory, etc.

mathgeek

POST-SEASON REVIEW: WINTER 2023
OR: HOW I CAREFULLY PLANNED TO BECOME SPONTANEOUS

Have you ever been handed a thick menu at a restaurant, looked at it, and then realize you have no idea how to even begin picking your dinner? Have you ever tried to start writing, looked at a blank page, and just couldn't summon the beginning of your story? How many games sit in your Steam library, untouched, as you think you have nothing to play?

This is choice paralysis: the idea that the more options you're given, the harder it is to make a choice. At first, it may seem paradoxical- how can more choice be a bad thing? Just pick something already! But if your instinct is not just to try and pick a good option, but the *best* option, it can make doing that nearly impossible.

You go around in circles in your head. You're trying in vain to look through everything, you attempt to rank the options you found most interesting, you find something new you want to consider, you forget half your list…

And if you're me, what you ultimately do is just default to the usual. Yes, I'll have the pasta with red sauce. Sure, I guess I'll just boot up *Destiny* again.

There's nothing wrong with having favourites, of course. But, late last term, I started to feel a little restless. I felt like my inherent resistance to trying new things was limiting my understanding of art, of culture, and of the world. I hated the feeling I got when someone tried to start a conversation about a movie or a game or a song that I had to sheepishly admit I'd never heard of.

I've made efforts to expand, but they were always thwarted by choice paralysis. If a choice is between a familiar, favourite song, and the vague concept of 'something new,' plucked at random from the infinite sea of music… that's not much of a choice, is it? The familiar wins every time, basically by default. Eventually, I had resigned myself to a deep understanding of the familiar, rather than a broad understanding of everything.

But, last term, I tried an experiment. I had watched a video on the Seasonal Theme by YouTuber CGP Grey, and decided to try it out for myself. I chose a single theme for the term, an axis on which I would view all my decisions, to gently encourage myself to make choices that aligned with the theme, and to nudge my life in the direction I wanted it to go.

I picked "Connection" as my theme, since I felt quite isolated and lonely in first year and wanted a nudge to encourage me to be social and pursue connections, rather than just wait for them to fall into my lap. Long story short, it went *really* well (see **mathNEWS** 150.6 for details).

Ever since then, the possibilities seemed endless. I thought being antisocial and anxious was a fundamental aspect of who I was, but I had just overcome that with a little bit of targeted effort and elbow grease. Who knew which of my other 'fundamental' flaws were suddenly vulnerable?

After one too many conversations about a popular movie that I couldn't contribute to at all, I decided that my theme for this term would be "Broadening." I want to broaden my horizons; not just experience more things, but more *types* of things. I want to widen my perspective on the world.

But I needed a plan of attack. I couldn't just… refuse to be affected by choice paralysis anymore. I needed to look at the problem in a new way. The problem was that I needed to narrow the number of options, while also broadening the range of those options. These goals seemed contradictory at first, but eventually I came up with an idea: The Big List.

I capitalize The Big List because, to my friends, it became a proper noun. I wanted to experience the best of the best in every artistic medium, so I looked up the top 250 movies on IMDb, the best 1000 songs and albums according to *Rolling Stone*, and the 300-ish greatest games of all time according to Wikipedia.

This would be my guidepost to discovering new things. Whenever I didn't know what I wanted to watch or play or listen to, instead of choosing between the familiar and 'something new,' I've been picking between the familiar and the next thing on the list. *That* is a matchup that the familiar thing is more likely to lose.

When I first explained this to my friends, they got very worried for me. They heard "250 movies" and thought my goal was to watch 250 movies this term, which would be insane, even for me. But the goal was to watch *different* movies. The Big List is just something to help point me in a tangible direction. I'd consider it a success if it helped me discover even one new thing I wouldn't have experienced this term.

Oh, also, I decided it would be fun if I did it all in chronological order, which means I'm probably listening to more 60s music than any other university student in 2023.

So, how did it go?

I think it went alright, although I'm not entirely satisfied. Doing it chronologically and getting to watch new mediums develop has been cool, but it's sort of limited the stuff I've been exposed to, at least in the short term. I've been watching a *lot* of silent comedies on the train in the last few months.

I also didn't play as many new games as I wanted to. Part of this was how much *Destiny* I was playing around the launch of the new expansion, and another part was that any time I was at my computer was time I spent working on personal projects or schoolwork.

Fortunately, this project doesn't end this term. I plan to keep whittling down The Big List for… quite a while, and I hope to keep exploring new forms of artistic expression forever. If anyone is in the same situation as me at the start of the

term, being super susceptible to choice paralysis, I really recommend this strategy. All it takes to be spontaneous is a lot of excessive planning!

And now, since I'm almost out of words, a lightning round of cool artistic work I discovered this term:

- **Suzanne:** The most romantic song I've ever heard. Did an honest-to-God double take hearing it for the first time.
- **Metropolis:** For a movie that came out *ninety-six goddamn years ago*, the scale is still remarkable. The social commentary is a little quaint by today's standards, but it's still clearly the grandfather of all modern sci-fi movies.
- **Undertale:** I did it. Ha. Fuck you, Not A N*rd.
- **The General:** It is astonishing that Buster Keaton lived to be 70.
- **A MAN Without LOVE:** Songs about how sad and divorced a guy is tend to bore me with their overblown drama, but this ballad from Engelbert Humperdinck (*spectacular* name, by the way) is *so* overdramatic that it comes out the other side and I adore it.
- **Hunting Monsters:** Recommended by a friend, it's a book reframing the study of cryptids not as an animal science, but as a social science — one that says something about how we generate and spread mythology in the modern day. Genuinely fascinating stuff.
- **Little Women:** Did you know the Laurier Opera is free if you're a student? Best deal in the city!

Dick Smithers

INDEGREE ZERO

let's make a graph. take everyone and ask them who the first person they would invite to a party or event is. i hope you know what i mean. this is a graph where everyone's outdegree is (at most) one.

in this graph, you'll find some cycles of length two, "2-cycles" if you will. (i don't know if that's actual graph theory terminology.) i believe they are normally called "best friends" or something.

sometimes you'll be hanging out and you'll get reminded that you're not in a 2-cycle. they would rather be hanging out with someone else. it kinda sucks, y'know.

but what i do know is that if you have indegree zero, you'll never be in a 2-cycle.

Terms & Conditions

MAY

I have a friend called May.

May was born in March but always claimed to be more of a July. It may safely be assumed that May is dissatisfied with the misalignment between her name and her birth month. And certain it is, that, May is annoyed by how neither of these two months lies close enough in proximity to the sunniest time of the year. Maybe May's dismay is not unreasonable, though, since I share her sentiments towards the splendid season of summer.

May and I like to get together on chilly winter afternoons, especially if it snows, to exchange the pieces we have written that still contain some residual warmth from our favourite past summers. Reading them out loud in succession unveils a curious contrast between my articles and hers: mine are scribbles, in the present tense, admiring dramatic summer thunderstorms as well as the brilliancy in the sunshine thereafter; while May only ever wrote about what happened yesterday, and then the day before that. "I have an excellent memory," she explained, "but I am also overly nostalgic. I will never love this summer as much as the last one, well, until the next one comes." So there she is, forever in the past.

One motif that routinely surfaces in May's memoirs on summer is her frequent walks by the lake. Many mid-day trips, by herself, to and from Edgemere Promenade on the idyllic Oakville lakeshore. A few night walks with her childhood best friend from 955 Bay down to the Toronto Harbourfront. One particular stroll past a large water puddle in Waterloo Park, apparently named "Silver Lake" but looked nothing like it, alongside someone who was eventually nothing like how they were supposed to be. May's favourite walk — however — is one that was near not a lake but rather the Mediterranean Sea, with the moon lazily hanging close above water, on board a cruise ship in August 2018. May said she recently thought of herself as a ship — like the Ship of Theseus — because of all that had changed since that amble on the promenade deck four summers ago. She wondered if she remained the same ship.

I don't think May yearns for the start of each summer at the same intensity she fears for the end. Summer weaves together a comfortability with the world that is shredded so easily by the first hint of fall. All that brightness descends, like wilted leaves in the breeze, into a big pile of quiet regrets. I remember being curious about what May thinks about during her walks. "Questions." She responded, "Who might I be by the end of this summer? But how can I possibly answer that, when I don't even know who I am right now, nor who I was years ago?"

Happy belated birthday, May. May your 21st summer never end.

Kaisa

WATERLOO WINS AT QUIZBOWL

2023 NAQT ICT DII CHAMPIONS!

On March 31st and April 1st, four of the University of Waterloo's best quizbowl players made the trip to Chicago to play in a national quizbowl tournament (national meaning teams from all over the US and Canada, though mostly American teams). In those two days, Waterloo played 15 games in 16 rounds![1]

This was the 2023 NAQT Intercollegiate Championship Tournament (ICT). There are two different divisions of difficulty, where Division II is easier, but more restricted in eligibility. Our best quizbowl players were DII eligible, and they really worked hard practicing. They managed qualification for ICT via a third-place finish in the 2023 NAQT Canada Sectional Championship Tournament (SCT) Division II back in February, which they did with one of their players unable to compete in that tournament due to an unfortunate case of COVID.[2]

In Chicago, all four players were available, and played great. The people on the team were: Michael Du, Mattias Ehatamm, Liam Kusalik, and Gaian Valdegamo.

In the preliminary round, Waterloo went 7–0 in Pool CC, though there were some close games: the 7th round, against Iowa State, was 340–305, a 35 point difference, a small gap in quizbowl. Even closer, the 2nd round, against Claremont Colleges, was 350–345, a five point difference! Five points is the absolute minimum gap that is even possible in regular quizbowl, so that must've been nerve-wracking. Rounds 1 to 7 went very well.

With that perfect record, it was onto the playoff round, where Waterloo was put into the top pool, Pool EE. The 9th round, against Princeton, was 355–345 win for Waterloo, a close ten point difference. In the 11th round, they played McMaster, who actually won the Canada SCT, and won against them in a close 370–355 game. However in the 13th round came a loss to Rutgers B. A close match of 335–370, but that would mean that Waterloo wouldn't be undefeated.

After 6 rounds (plus the round each team played against in the preliminary pool, which for Waterloo was that five point game against Claremont), Waterloo was on top of the Pool with a 6–1 record, while Rutgers B had a 5–2 record. Rutgers B lost to Stanford by a good margin, but also lost to McMaster by a mere five points! (Thanks McMaster!) It meant that Waterloo and Rutgers B would play in a final. Apparently, a winning team could avoid playing this final if they won at least two more games than the second-placed team. However, Waterloo only had one more win.

The final format is an advantaged final. Since Waterloo had the better record, they need to win just one game to win the entire thing. Rutgers B would have to win two games to win the tournament. Unfortunately, Waterloo lost the first game by a big margin, 290–445. So it came down to the final game. Winner take all. Round 16.

The game must've been amazing to watch. Only two wrong answers in the entire game, one each. But the most amazing thing was that both teams answered the same amount of questions correct and incorrect,[3] and the same number of bonus points, but while Rutgers B powered[4] 5/12 of their correct answers, Waterloo powered 9/12 of their correct answers, with Mattias getting 5 of those powers! Waterloo won 400–380, winners of 2023 ICT DII, the first Canadian team to ever win a national title! They got a trophy, and it was driven home safely for all UW quizbowl members to see.

A great anecdote from the day is that, after Waterloo went undefeated in the prelims, they went to get food from Panda Express. Michael's fortune cookie said, "soon you will get the recognition you deserve." And really, they absolutely deserved that win, and indeed, Waterloo deserved it. We've had many great quizbowl players over the years since Eric Monkman (yes, that Eric Monkman of University Challenge fame) restarted the club in 2008, but University of Toronto always had the bigger club, and with that, more people to master quizbowl. It didn't help that Waterloo's team balance in some subject areas was not great (especially in biology), but this team of four spread out the points perfectly, and from that, they became the first national champions from Canada.

lwo

1. The 8th round was a tiebreaker round held between preliminaries and playoffs, which Waterloo did not play in.
2. I wrote an article about that tournament and another trivia tournament during that same weekend, but due to space issues, it did not make it into math**NEWS** :(
3. An incorrect answer given while a toss-up question is being read costs a team 5 points. We in the business call it a "neg 5", or simply a "neg".
4. A power is where someone answers early enough in the toss-up question that, in addition to the 10 points given for a correct answer, they also get an extra 5 points as a reward.

STUDENT GOING TO MISS SCHOOL

UW Unprint

DISAPPOINTING GRANDPA THROUGH A BLACKBERRY BOLD

Out of all the stupid things I've done that keep me awake at night, the dumbest has to be when I lost my grandpa's Blackberry Bold at 1:00 PM on a Sunday in June. I know, it sounds *really* bad, but I *promise* I had good intentions when I dropped his phone in the gutter in front of the Woodbridge Memorial Arena and Swimming Pool. And yes, I was unable to complete all levels of Brick Breaker before I lost the phone. I understand all of that. But you need some context. I promise — by the end of this article, you'll be convinced that I was right. You'll be so convinced, that even you'll have no problem losing your grandpa's Blackberry Bold at 1:00 PM on a Sunday in June.

Okay, so the beginning of the story starts when I was in the second grade. My grandpa came home with a small little Rogers bag. Inside, he showed us all the small black leather-bound device with the incredibly tiny keyboard. It was probably the first smartphone I've ever seen. To be honest, the coolest thing in that bag was the Blackberry phone clip. Still think that's the coolest phone accessory of all time. Now, over the course of the next two years, that Blackberry had no purpose other than to hang on grandpa's belt clip, and for him to check if he got his pension slip yet (which, upon receiving the email, he deleted it promptly). It was odd, because he knew the slip was coming on the first of every month. Yet he still checked *every* single day, as if the company could be feeling extra generous that day and decide to give him some extra pension. Anyways, by the end of the fourth grade, that phone was still in pristine condition. Literally, he used maybe 50 mb of data on his phone. No images, no texts, no Brick Breaker progress, no nothing.

It was around that same time that I started wishing for a phone. By then, most of my friends had some sort of mobile device. Most had iPod Touches or iPhone 4's at that point, but I just needed something to listen to *Watch The Throne* on the bus. Coincidentally, my grandpa brought home another small little Rogers bag one day. This time, he had an iPhone 5s in it. Ecstatic, I asked grandpa: "So, what are you gonna do with the Blackberry?"

He paused for a second, and then said, "I dunno, I'm going to India soon, might as well give it to one of your cousins over th—"

"Or," I intervened, "what if you give it to me? I promise I'll take care of it!"

He paused for an even longer second and said, "If this phone breaks, I'm throwing out your Wii."

The deal was done. I had a phone. I spent that whole night figuring out how to style that belt clip on my sweatpants. The next day, it was around 1:00 PM and I was at the Pizza Pizza on the intersection near Highway 7 and Islington Rd. I wanted a little slice of Hawaiian before my 1:30 PM swimming class. I got my slice (with Creamy Garlic dip), and got out the door to get to class on time. Pizza in my left hand, phone and dip in my right, I was trying to figure out how to open the dip while holding the phone at the same time. When crossing the street to get to the pool, the dip slipped from my fingers. In a panic, I dropped whatever else was in my right hand, my phone. It clanked right on the gutter and bounced in, as I heard the *splash* of the phone hitting the water.

At first, I was thankful I didn't drop the dip. Then, reality sunk in. I lost my Blackberry. I didn't even go to class that day, I just sulked back home as tried to think of the best way to tell grandpa I was a failure. At home, I went to his room to tell him about my phone's fate. After telling him, he paused for a second, whispering: "So… did you get me a slice?"

At the end of the day, I lost my technology privileges for a month, and never got a phone again until my first year in Waterloo. Moral of the story? Pineapple doesn't belong on pizza.

R.I.P. RIM.

rishu the loser

TOP 5 GREEK LETTERS

Honorable mention — Sigma: Self explanatory.

5. Mu: Putting Mu in the top 5 may create some friction in the math community but my physics homies would argue it should slide closer to the top spot.
4. Xi: If there was any letter you didn't know it would probably be Xi. This is what makes it so great. You can catch Xi going for walks at 4 AM.
5. Psi: It is agreed upon Psi is fun to write and is used in enjoyable courses. I also enjoy Psi's hit song "Gangnam Style."
2. Delta: Because it's a cool triangle and apparently it is used in r/ChangeMyView.
1. Pi: The GOAT of Greek letters. It is highly likely you can recite more digits of this constant than any other. Also doubles as a yummy snack.

Bonus bottom 1 Greek letter — Phi: Just terrible all around. It is a Pi knockoff in terms of how it sounds and a Theta knockoff in terms of how it looks. You will use a capital Phi to represent a generating series in MATH 239. Enough said.

yummyPhi

SONGS THAT'D BE IN A MOVIE ABOUT MY LIFE

"HOT GIRL BUMMER" — BLACKBEAR

I went to the ping pong bar and this was playing one time and my roommate yummyPhi liked it. I thought it wasn't my type of song but it was my 2nd most played song last year so clearly I don't know shit.

"POLAROID" — IMAGINE DRAGONS

Another roommate played this one time in the car while we were going skiing and I stole it. It's mine now.

"RIVER" — JONI MITCHELL

Okay okay okay so this one time in middle school my closest friend really wanted me to sing this song with her and this other girl who absolutely hated me. To be fair I hated her too. But I liked my friend so I agreed. Who gets s i c k last minute and leaves me alllll aloneee with this other girl. I didn't even care about this song but here I am on stage singing with this girl who stole my homework. We might've looked like two cute little kids but we were two vicious assholes.

"TALK TOO MUCH" — COIN

I infected the whole apartment with this song. Now scream it every time you hear it in the car.

"WE WILL ROCK YOU" — QUEEN

So I loved playing this song back in first year cause it was easy and had easy audience participation with the boom boom clap. But, unfortunately one time while peacelovemath and I were in the residence main hall piano, the ambulance came and carried this guy with alcohol poisoning out. It was a very dramatic moment, and I hope the guy still remembers the one time "We Will Rock You" was playing as he was being taken away in a stretcher.

"GALWAY GIRL" — ED SHEERAN

My niece and nephew loved this song and played it on repeat during a three hour car ride to camp. It's a fond memory.

"SK8TER BOI (GAMER BOY)" — AVRIL LAVIGNE

I really can't resist an over-the-top punk pop song like Sk8ter Boi, and it was my go-to car song for years. When I told someBODY in **mathNEWS** that it was my favourite song he wrote a brilliant and transcendent parody of it that I performed. Anyway we're dating now.

"SYMPATHY FOR THE DEVIL" — THE ROLLING STONES

I have a confession to make to aphf. The reason why this is the only Rolling Stones song I know was because you said you liked them and I wanted to know more songs you knew. I listened to a bunch of their songs on purpose before finding one that really resonated with me. We did not just happen to have this song in common. Life is an illusion. Still a great song I love playing as a band.

"I THINK I'M IN LOVE" — KAT DAHLIA

A classic car song with yummyPhi. He still bullies me because I thought the line "Cause I can't admit that you got all the strings and know just how to tug 'em" was "Cause I can't admit that you got all the signs I know just how to tell them."

"ACHILLES COME DOWN" — GANG OF YOUTHS

I don't remember how I know this song, and I don't think Golden does either but it's the song I associate with quiet nights on the couch while he wordlessly puts in songs he knows we both like for the night. Could be a great duet.

"YOU'RE GONNA GO FAR KID" — THE OFFSPRING

Some random guy I met on a cruise said his mom liked this song and I looked it up because it said fuck and swearing was cool yo. I haven't talked to him in years but he stalked me on LinkedIn a few months ago. Now I play it with aphf since it's one of the first songs he learned on the accordion. It's pretty cool to hear how good he's gotten since I got to see him start.

"LOVE LIKE YOU" — STEVEN UNIVERSE

> *I always thought I might be bad*
> *Now I'm sure that it's true*
> *Cause I think you're so good*
> *And I'm nothing like you*

Reminds me of a high school friend I miss very much. Also reminds me of that one time my friend told me to learn it so he could serenade some guy he liked, then chickened out. Least I can play it now.

"O CANADA" — CANADA

I played this like a pro in grade eight music, and it all came to fruition when I took my trumpet to an innertube water polo game and proudly announced every goal of peacelovemath's team with fanfare and our national anthem. The lifeguards did not kick me out.

"HALLUCINOGENICS" — MATT MAESON

I joined the robotics team as a senior in high school, and met this one kid in grade nine who was pretty isolated. He was kinda mean and sometimes pretentious, and listened exclusively to classical music and Christian hymns. This was pretty unusual even in my Good Christian School™. Somehow I got him to listen to my edgy-ass music by this Christian songwriter who grew up disillusioned with the dark sides of Christianity. He writes about a lot of things I think this kid's parents would find pretty unsavoury, but a small

part of me is glad he found something that both supports and challenges his faith. His music taste is pretty different now, and when I pointed it out he said "Oh God, what have you done to me??" That's a good thing right?

"TWO TRUCKS" — LEMON DEMON

This is a true masterpiece of a song, the poetry of it just brings me to tears. It is about the beautiful love-making of two trucks. Later inspired me to make a game about romancing a tractor.

"WALTZING MATILDA" — THE ENTIRE CONTINENT OF AUSTRALIA

This is some random song we did in grade three music, but when I absentmindedly hummed it at home my dad started whistling along. Turns out that of all the Western songs that made their way to Soviet-ruled Czechoslovakia, this folk song made it. We play it on the guitar together.

Not a N*rd

N EXAM JAMS

EXJAMS YOU MIGHT CALL THEM?

Grab-n-go jams for exam season! To my fellow MATH136-ers, by the time you pick up this issue you'll be done with your final, so pat on the back for you!

"THE COMFORT OF A LAUGH TRACK" BY ROAR

Perfect for pondering and reflecting! Recently, I've just been just listening to Roar's full discography, since the energy is very consistent and subdued, so I can kind of let it simmer on the back burner. There's a soft part featuring some choral synth and violin which really does feel comforting and familiar. No false advertising here! "Paralyzed" by the same artist is also so fire; it was originally on the list but this title was cooler and they're basically different vegetables of the same stew.

"DEAR MCCRACKEN" BY BUG HUNTER

Bittersweet, wonderfully executed, and actually based on a real event the artist witnessed! Bug Hunter spins his observations into a comedic but reflective piece that always makes my heart feel a certain way afterwards. If you're planning to listen to any of these songs, make this your highest priority! NOW!

"CLICK ME" BY KOKAYNA

What's a study playlist without hyperpop! The audio equivalent of a large Slurpee.

"DIG DOWN" BY AARON'S BOOK CLUB

After a showstopping performance by MC/DC I found myself delving back into a hit music genre: Minecraft parodies. This parody really resonates with me. Although, I'm not really in a dig-straight-down mood atm; that tends to come post-exams. But right now I think I'm more in a dig-three-down-and-place-one-block-above-my-head type of energy if you dig that?

jamchowder

BLOTTO!

We doing that Blotto thing again. Thank you to everyone who participated over the last few months. Without further delay, here are the final results:

```
1. Mathieu           20 (+6)
   14 14 14 14 14 14 13 1  1  1
2. Nat               17 (+4)
    0  0  12 12 12 12 13 13 13 13
3. Jacob             14 (+2)
   10 9  11 10 7  12 10 8  10 13
4. nwoeanhinnogaehr 13 (+3)
   11 11 11 11 11 1  11 11 11 11
5. tendstoblottotoo 12 (+0)
   14 6  12 8  10 10 8  12 6  14
6. Awedish            9 (--)
   no submission
7. BoopBeep           7 (+1)
   9  9  9  9  9  11 11 11 11 11
8. game teary         5 (+5)
   3  3  13 13 13 14 14 14 4  9
9. trud               3 (--)
   no submission
```

The random permutation applied to the submissions was:

```
1 8 3 9 4 7 2 10 5 6
```

From the results, we can see that a clear winning strategy was to uniformly distribute your soldiers across ~7 locations, leaving very few in the remaining spots. This strategy worked out particularly well for Mathieu, whose submission beat every other submission in this round. Congratulations Mathieu on winning both this round and the game overall, with a clear lead of 3 Blotts over Nat in 2nd place.

I had a great time running Blotto this semester. Thanks to everyone who participated for giving me the opportunity to come up with silly variations to the rules every two weeks. I won't be running Blotto again next semester, but I may run a different game if one comes to mind.

Blotto!

sherp

EUROVISION
A COMPLETELY UNNECESSARY TAKE ON EUROPE'S GREATEST CONTRIBUTION TO THE MODERN WORLD

Listen here fuckers,

I am so *tired* of the ignorance of people in dear O Canada when I politely fucking ask "hey, do you listen to Eurovision?" One blank stare too many and I have officially resigned from this culture. The fact that NO ONE here even knows about my reason for living every winter season is despicable. So I've taken it upon myself to educate you virgins about the beautiful, awesome, tear-jerking, hypnotizing, orgasmic song competition that takes place once a year right under your maple-syrup submerged noses.

The basic premise, as described by ChatGPT in less than three sentences in the style of Snoop Dogg:

"Yo yo yo, Eurovision, it's like this international jam where countries from the EBU (European Broadcasting Union) compete with their hottest tracks. Everybody's got their own flavor, and the winner gets picked by both the judges and the people. It's all about bringing folks together with music, you dig?"

Fuck knows what entertains Gen Z on this side of the ocean anymore, you fidget-spinner-spinning assholes, but if that doesn't sound like a whole lot of wholesome family fun that makes you wanna call your grandma and laugh/dance/sing with a healthy taste of patriotism, then suck my saggy tits.

Here's an appropriately brief history to get you up to speed:

NORWAY (2009) "FAIRYTALE" BY ALEXANDER RYBAK

Given that this was the winner of the year I first started watching Eurovision as a naïve seven year old feeling fresh and hot sitting in a Finnish sauna, this is the best place to start. No one could deny Alexander Rybak's lovable grin and nerdy violin playing as he sings about his fairytale mistress. The bass track reminds me of a preteen's birthday mixtape. His last name also means "fisher" in Russian so my parents immediately adopted his cute little ass.

GREECE (2009) "THIS IS OUR NIGHT" BY SAKIS ROUVAS:

Same year, 7th place, but I think this still deserves a shoutout as my sexual awakening. Maybe it was the unbuttoned white shirt, the skinny jeans, or the gelled hair, but it brought out something carnal in me (the seven year old). My mother later informed me that the singer is very much gay. Thus began a decade long pattern that my therapist refuses to address.

SWEDEN (1974) "WATERLOO" BY ABBA

That's right you fucks, I can feel your attention waning. But only die-hard Waterloo fans (the Canadian polytechnical university and/or the Belgian city known as the ultimate downfall of a short French militant) will remember that ABBA's claim to fame happened during Eurovision FIFTY FUCKING YEARS AGO. Interestingly, it's a permanent curse that the winner of Eurovision is only popular for exactly 8 months — a curse that only this mischievously Swedish band has managed to evade.

UKRAINE (2004) "WILD DANCES" BY RUSLANA

This is arguably one of the best performances I have ever seen. The stamina of this woman to sing at the top of her lungs while dancing a ridiculously intense routine leaves nothing to be desired. Especially my attraction to strong women who could pin me down within twenty seconds. Watch this, you fucks. She deserved the victory. This is what a true woman looks like.

ISRAEL (1978) "A-BA-NI-BI" BY IZHAR COHEN AND ALPHABETA

This one's an oldie, but it was one of my favorite songs growing up. The tricky part is that the chorus is total gibberish. The authors just added an extra syllable starting with "B" after every vowel, so "אני אוהב אותך" ("Ani ohev otach" = I love you) becomes "אבניבי אובוהבב אובותבך" ("A-ba-ni-bi o-bo-he-bev o-bo-ta-bach"). This is so fucking cute. Doesn't it make you just? Want to choke something? Aw.

ISRAEL (2018) "TOY" BY NETTA

This song… Sounds like a chicken. Honestly, listen to it — no other way to describe it. I've never heard anything like it, and just as a shoutout to Israel (during Passover!) which is totally a European country that does European things like participate in the European Eurovision song contest in Europe, I just wanted to point out their most recent victory with this very catchy girlboss moment.

TURKEY (2010) "WE COULD BE THE SAME" BY MANGA

THIS IS THE BEST SONG IN THE WHOLE WIDE FUCKING WORLD AND I WANT EVERYONE TO KNOW IT I LOVE YOU.

GERMANY (2010) "SATELLITE" BY LENA

This was a fun song on its own, but it took first place to Turkey's second place for this year, and if you've been attentive enough to actually read the dates I'm writing here, you'd get it when I say that this is as heartbreaking as Germany 7:1.

RUSSIA (2020) "UNO" BY LITTLE BIG

This is the biggest mishap of the twentieth century. I fucking hate COVID for the singular reason of taking away this very obvious victory. Most Eurovision songs get 2 million views on a good day. "Uno" has *two hundred and sixty million.* Now it might not compare to your "Despacito" or your "Gangnam Style" crap (see??? You fucks like foreign music anyway???? So why aren't you listening to *my* music tastes???) But it was still

a **big** deal. Also I'm pretty sure that Little Big recorded the video in one take while high off their latex-wrapped asses. This was going to be a phenomenal victory. Then that shithole pandemic happened and Eurovision got cancelled that year. What a tragedy.

NETHERLANDS (2019) "ARCADE" BY DUNCAN LAWRENCE

I saw this song on every single fucking Instagram story, so you white moms have literally all subscribed to this song contest years ago. This song makes me feel jittery. As if I heard this song a decade ago. Why do the Europeans know how to hit me right in the feels?

ITALY (2021) "ZITTI E BUONI" BY MÅNESKIN

This song was so conflicting. It all started with "eh this rock band is kinda mediocre" which went to "there's no way these high heeled weirdos could win" which later became "what the actual fuck are the judges thinking" and that turned into "oh my Jesus please sign my forehead with your name and spit in my mouth daddy". This song reminded the world that the world still finds Italians sexy. Job well done, Måneskin. A catchy cover of "Begging" later (that I heard a real life Italian once sing!!) and they've already gone mostly out of fashion, but such is life.

RUSSIA (2012) "PARTY FOR EVERYBODY" BY BURANOVSKIYE BABUSHKI

Another great banger from Russia, delivered to you straight from what you'd imagine a retirement home in Russia to look like. They literally bake cookies on stage. Everybody liked this.

RUSSIA (2020) "LION OF LOVE" BY ALEXANDER LEMTOV

Okay I promise this is my last Russia entry and — aha — you noticed that I said Eurovision was cancelled in 2020 due to COVID, but double "aha" you cunts, you forgot that the fantastic film "Eurovision" starring Will Ferrell and his same-age-appropriate romantic partner Rachel McAdams *did* come out in 2020, so *yes* I'm very much including this on the list because this song (which wasn't even sung by the main character!!!!) would have literally won the real deal. It has wit, it has humor, it has a deep sexy Swedish manly voice-over singing about hunting my little gazelle ass down in the bedroom tonight. And as the first Brit to represent Russian gay men, Dan Stevens really deserves a place on this list, and in my heart, for this performance.

Now I'm no longer sober and there is *tons* more brilliant lore and backstory and songs to Eurovision, but I hope that you're enlightened enough to recognize the incredible gratitude I deserve for taking time out of my paid work hours to educate the masses on Eurovision. Get off your tractor and hockey skates and consumerist geopolitically-Western capitalism and go watch it.

Become one with the European.

A cool pen name

Boy do I sound xenophobic at the best of times…

LOCAL COMPUTER SCIENCE STUDENT COMPLETELY OBLIVIOUS TO LOOMING EXAM SEASON

We are getting breaking news of university student /'aeren/^2, who is currently completely unaware of the dire circumstances surrounding their academic exams. While at a press conference early Tuesday, /'aeren/^2 claimed they had "studied enough and were ready for anything the prof throws at [them]," but sources close to the computer science major indicate that this view may be overly optimistic.

One friend of /'aeren/^2, who spoke to **mathNEWS** under condition of anonymity, explained that "/'aeren/^2 is completely unprepared for CS 136, STAT 230, and most of all, MATH 136. Just yesterday they were asking me how to change bases of linear transformations. We covered that just last week!"

Polls indicate 80% of voters believe the student will fail at least one course this term. As of press time, /'aeren/^2 is still reportedly writing a **mathNEWS** article instead of starting their soon-to-be-due English essay.

/'aeren/^2

24 HOURS

CO 255: 5 hours
CO 487: 6 hours
PMATH 351: 20 hours
CS 251: 2 hours

someone who is good at time management please help me budget this. my gpa is dying

head empty

*math***NEWS**

REVIEWING EVERY MOVIE SAMPLED IN THE AVALANCHES' 2016 ALBUM WILDFLOWER (PART 5)

XIV. AMERICAN JUGGALO (2011)

I'm getting tired of reviewing documentaries. Fortunately, this is the last one.

American Juggalo focuses on the subculture of hardcore Insane Clown Posse fans known as Juggalos, and was filmed at the 2011 iteration of the annual Gathering of the Juggalos music festival. The documentary is similar to *Heavy Metal Parking Lot*, which I reviewed last issue[1]: in that review, I remarked that *Heavy Metal Parking Lot* feels like an early YouTube video but made in 1986, and *American Juggalo* sort of confirms that, being a similar 20-minute documentary uploaded to Vimeo in 2011.

One difference is this documentary feels like it's trying to tell a specific story: the description of the video describes Juggalos as being "often mocked and misunderstood" as the filmmaker attempts to "let the Juggalos speak their minds". Interviewees describe the Juggalos as a welcoming, inclusive community as we see people enjoying themselves at the festival in a variety of ways. One attendee, named Maniac, talks about how "everyone thinks I'm on drugs, because I'm always happy", and has a few words sampled in the Avalanches' "Livin' Underwater (Is Something Wild)".

The other sample of this film appears in "Live a Lifetime Love", in a sort of skit pieced together from different movie samples to create a lasting feeling of adventurous, care-free vibes: from an as-yet-unknown source, the sound of a car being pulled over, and in response to interrogation from a cop, the sample from *American Juggalo:* "Yeah, we know. We got a couple wild ones. Wild ones!" After this, but before the sample from *Something Wild*[1] that closes off the song, a different voice, apparently sampled from an Instagram video that has been lost to time, says a line that is permanently lodged in my head: "I mean, I'm sitting in my treehouse with a cup of coffee and the Avalanches. We having a ball up here!"

So true. That is exactly what I am doing right now, except instead of a tree house it's a bench on the third floor of DC, which is basically the same thing. Nothing quite encapsulates my idea of having a good time like this one line.

XV. LORDS OF DOGTOWN (2005)

Lords of Dogtown is a true story about a couple skateboarders who skated around and then became rich and famous and stuff. Is it a good story about skateboarders? Sure. Is it as good a story about skateboarders as Jon Bois's segment about Bob Burnquist in *The Bob Emergency*? No, but that's not a low bar.

Sometimes when I'm watching these movies, I'll just hit play without figuring out beforehand which part of the song is a sample. Sometimes it pays off — I get pleasantly surprised hearing a little bit of an Avalanches song in the middle of the movie! Other times, like in this case, I get to the end of the movie and I have no clue which part it was. After watching *Lords of Dogtown*, I headed over to WhoSampled — the database of samples I'm using to find these movies — to listen to the original clip of audio in the movie side by side with the bit in the song where it was sampled. I left even more confused; I couldn't hear it at all.

The comments on WhoSampled were helpful. Someone suggested turning the volume up, and provided an even clearer comparison, and eventually I was able to tell that the sounds of cheering during one of the skateboarders' tricks were, in fact, (barely) audible during the outro of the Avalanches' "Because I'm Me". It's sort of funny what they've done here: the main thing you can hear at this point in the song is a sample of an epic string intro from a song by Mandrill, the sort of thing that might substitute for a cheer during a sports game, while faintly in the background is some actual cheering. I couldn't have come up with a better way to end a song like "Because I'm Me".

Okay, so, to give you some context, "Because I'm Me" is probably the best song the Avalanches have ever made. Why? Well, go listen to it. You're already loving it, right? There's something enthralling about the whimsical preteen voice singing, "if she don't love me, what will I do?"; the horn-filled upbeat instrumental; the rap verses from Camp Lo, who were a source of some of the best samples on the Avalanches' first album[2]. Wait, but who even was that singer? I doubt even the Avalanches know: they sampled the words from a 1955 record called "Street and Gangland Rhythms: Beats and Improvisations by Six Boys in Trouble", collected and edited by E. Richard Sorenson. Considered a proto-hip-hop project, not much seems to be known about this record, other than that it's composed of several songs performed by six 11-and-12-year-old African-American boys living in NYC public housing, using homemade percussion instruments, and sung into low-quality microphones. The music video, which is also probably my favourite music video ever, is a super cute skit of a boy trying to woo a fare box attendant at a subway station. I don't know do I have to explain how much I absolutely love everything involved here? It's just *good*.

I don't want to talk about the skateboarding movie. Skateboarding is boring.

XVI. SESAME STREET EPISODE 615 (1974)

[long, Todd-in-the-Shadows-style dramatic pause]

AND FOR THOSE OF Y'ALL WHO DIDN'T FAIL IN SCHOOL

Okay I swear to god even if you've skimmed over this whole series and haven't heard a single Avalanches song you GOTTA look up "sesame street madrigal alphabet" and watch that video (only a minute and a half. it's an alphabet song) and then hit play on the song "Harmony" to see what the Avalanches did with it.

Absolutely insane. I can only convey so much in a text-based medium, but this might be my favourite use of sampling ever. I'll just close off the series with this and let this moment speak for itself.

It's really hard to find specific ancient Sesame Street episodes but I can just review the alphabet song right? It's a good alphabet song — seems to cover all the letters — and the animation is pretty cute.

EPILOGUE

I had a lot of fun writing this. Not just because I got to talk about some of my favourite music, but it was a pretty great excuse to learn more about what went into this impossibly complex album (did I mention it took 16 years to make?)

If you want to take anything away from all this, here it is: we could all stand to be a little nerdy once in a while. Pick something you love and spend a few hours or months analyzing that thing through whatever lens you want, and see how deep the rabbit hole goes. It's a great way to not only appreciate the thing more, but discover new things that you never even thought about thinking about.

Did I actually end up reviewing every movie sampled in the Avalanches' 2016 album *Wildflower*? Not at all: thousands of individual audio samples were used in the making of this record, and it would be near impossible to find them all. In fact, in the midst of writing this, I joined an Avalanches sample-hunting Discord to discover that a new movie sample had been discovered just the day before, a Dutch TV documentary about American hip hop called *Big Fun In The Big Town*. I'll leave that one unreviewed, partially because I don't have any more room, but also just to leave this series with a sense of incompleteness, as it could never really be complete.

If you need me, I'll be sitting in my treehouse (right now it's the front top seat of a GO bus³) with a cup of coffee (iced; at this point it's mostly only the ice cubes, but there's still a bit of coffee in there) and, of course, the Avalanches.

＿＿init＿＿

1. See part 4, published in **mathNEWS** 151.4.
2. Someone stop me. if I start talking about the Avalanches' first album, I'll be writing articles the whole year.
3. Headed to Guelph. Well, actually Hamilton, but it'll pass through Guelph first. Discovering that I had a day off today was a welcome surprise!

DON'T CHA

Okay
Yeah
Oh, we about to get it just a little hot and mathy in this
Imprint Writers
Imprint Editors
Let me talk to y'all and just, you know, teach you a little publication
Listen

You see this sheet get hot
Every time I come through when I'm printed on the spot
Make the staff quiver in the WPrint office
Pull the best writers, yes, with my pizza cookout
Fill up my inside like a nobel winner wit' it
Smell good, pretty skin, when the cover is Cix
No tricks, only diamonds under my sheets
Gimme the number, and add one hundred for the print

I know you read me (baby come read me)
I know you do (oh yeah you do)
That's why whenever you come around, you grab my issue
And I know you **gridWORD** (you like that **gridWORD**)
The crossword to beat (yeah you just got beat)
And when you walk through DC
You reach for the warm A4 sheets

Don't you wish your Imprint was hot like me
Don't you wish your Imprint was a freak like me
Don't cha~
Don't cha~
Don't you wish your Imprint was raw like me
Don't you wish your Imprint was fun like me
Don't cha~
Don't cha~

CC

SONG RECOMMENDATIONS

plz give: `bit.ly/3C32Y09`

warrior1rules

SPEEDRUNNING IS STUPID
…AND THAT'S OKAY!

Here's an excerpt from Hollow Knight's No Major Glitches (NMG) ruleset[1]:

> *Wallcling storage [is allowed] on patches before 1.3, so long as non-WCS NMG movement through the same space with current items and room state is available to the player.*

> *…Same space is defined topologically, meaning that two paths are in the same space if one can be dragged to the other in space without passing through any platforms or barriers.*

This hot mess of a rule exists because of two reasons: people cannot predict the future, and committees suck at committeeing.

Let's back up a bit. If you're familiar with speedruns, you know that NMG is a fairly common glitch restriction. In many games, the restriction breakdown is something like:

- Unrestricted/All Glitches
- Only banning one massive, overcentralizing glitch
- No Major Glitches/Glitchless

Each category has a separate leaderboard for these restrictions. You get 112% NMG, Any% All Glitches, and everything in between. I doubt anyone knows what Iconoclasts is, but its speedruns are broken down into All Glitches and No Airswim. Airswim is That One Glitch. Ori and the Blind Forest has No OOB/TA (out of bounds/teleport anywhere). Celeste is a popular exception to this pattern because it's too well-coded. Anything earth-shattering is TAS-only except for that one funny trick in Farewell that the community decided not to ban. It was also designed with speedrunning in mind and the devs are arguably *too* involved with the scene, but that's a whole other can of worms.

The problem with Hollow Knight is that it's not Celeste. It was programmed by two artists who made a game that excels in all aspects except for being a functional game. Hollow Knight doesn't have a Glitchless category because you can break the game in your sleep. The NMG rules even stipulate that any accidental jank, so long as it was unintentional and provides no benefit, is perfectly allowed.

Glitchless is generally a terrible denomination because it's quite hard to define a glitch. Is an exploit of intended game mechanics included? What if the devs forgot to put a hitbox somewhere and that lets you go faster? NMG is slightly better, but it's also terrible. What makes a glitch major? How it looks? How difficult it is to perform? How much timesave it grants?

News flash: there's no answer. The community has to discuss which tricks to allow and which to banish to the nether realm. There are always disagreements and hot takes, but they eventually reach a decision. Sometimes these decisions come back to bite.

At the dawn of time in 2017, Hollow Knight runners found something called wallcling storage. It essentially lets you dash and preserve that momentum through free space while in the wall cling state. It seemed pretty harmless. It was also ridiculously easy to achieve, since it happens any time you dash into an opening gate.

Fast forward to 2022, when runners found more ways to invoke WCS. With janky physics and subpixels, you could gain WCS in way more places and for way more timesave. Most importantly, you could cross the acid pit from Uumuu to Monomon. Going the other way was also possible, though very difficult. This meant one big thing: **Crystal Heart wasn't necessary anymore in Any% NMG**. Everyone knows how indispensable backwards compatibility is, so banning WCS wasn't an option. It was already allowed.

Okay, all of the new stuff wasn't *really* allowed. There's some time between eureka and the green light. Knowing this, the community decided to restrict WCS in some way. It wasn't that useful before and it took a lot of effort to exploit it for huge gains, so maybe there was some way to patch up the rules. Let the old, minor stuff stay while brushing the newly broken stuff under the rug.

Actually putting that desire into words is hard. That's why we have the mess we do today. The main goal of the revision was to "still do the familiar Any% NMG route except now you can get to Monomon slightly faster with WCS instead of using Crystal Heart. Getting back with WCS is way too hard RTA, so we still want to mandate Crystal Heart or else the category will devolve into hitting this stupid trick 15 minutes into the run."

TAS, as with many things, makes this rule look very stupid. The Any% NMG TAS has literally no reason to get Crystal Heart. It does WCS to get to Monomon and back, but it's *not allowed by the rules* to do this without first having possession of Crystal Heart (or some other non-WCS way to bridge the gap, i.e. Isma's Tear). So it farms 1800 Geo, buys the Lumafly Lantern, runs through Crystal Peaks, and gets Crystal Heart all so it can forego its use in the one place that forces its acquisition.

At the end of the day, the ostensibly nonsensical blurb in the ruleset about wallcling storage is there for the sake of legislation. Most runners really just didn't want to rock the boat too much, and understandably so. It really sucks to re-learn a category, and it sucks even more when a discovery renders an entire category obsolete.

It might not seem like it, but speedrunning is all arbitrary; you can make up any objective under any restrictions you want (see the HKCE[2]). The only catch is getting other people to agree that your ideas are reasonable. Any% is easy to explain. 100% is, too. That's why they're popular. NMG? Not so simple, at least in Hollow Knight. There's a hell of a devil hiding

in the details, and it's only so monstrous thanks to years of desperate attempts to find a balance between a ruleset that runners enjoy and one that doesn't induce suicidal tendencies in moderators and verifiers.

ptkyr

1. https://www.speedrun.com/hollowknight?h=Any-No_Major_Glitches&rules=category&x=02g 8o4p2-yn2p3085.81w7r6vq
2. https://www.speedrun.com/hkmemes

I DON'T LIKE ESSAYS

I am a 3rd year pure math student and I am very lucky to legitimately enjoy my program. However, the degree I'm going to get in math comes with the caveat that at least 10 out of the 40 courses I take must be, you guessed it, not math. Look, I get it. I really do. Learning about other stuff is cool, I need to be well-rounded, blah blah blah. And they're not all bad. I try to get by picking the electives that are closest to math, like 1st year physics and chemistry. But the vast majority of non-math courses want me to do the horrible, horrible task of writing stuff.

I do not like essays or doing research for writing essays or thinking about essays or starting essays. First off, two of the 10 have to be communication courses, and I am so glad I got those nightmares out of the way. I guess I could just take physics and chemistry courses for the remaining 8 but then I'd be way out of my depth, so various other courses it is. I foolishly think, "surely this cool earth science course or this cool course about the nature of the universe won't have essays that are THAT bad", "surely this superhero course will have essays but they'll be fun to write; maybe my hatred of essays is simply a learned product of shitty high school English class that I can unlearn by writing about cool stuff". No. That did not happen. For some stupid reason, writing essays just stresses me out to no end. I cannot place why. I'm by no means bad at writing essays, it just stresses me out disproportionately compared to the amount of effort it takes. Usually my elective in any term causes more stress than all of my math courses combined. It's ridiculous.

And the marking scheme for these essays is kinda bullshit. When you lose marks on a pure math assignment, it's because you made a mistake; when you lose marks on an essay, it's because your performance in that category was "very good" instead of "outstanding". Like bruh what? I'm tryna write about the Fermi paradox not publish a novel. If I got the point across then what exactly is your problem? I wanna write essays like I wrote this article, but nooooo this is "too colloquial" and "I didn't restate my points in my conclusion" and blaghdufjesgivhbsuayiwuFJINEUVYWWBHDIUAJ ok I'm done thanks for reading.

*some*BODY

EMBARRASSMENT
AN AWFUL WORD THE FRENCH GAVE US

One of the many non-math-and-non-CS-related lessons I'm in the process of learning at university is to accept and embrace embarrassment. Embarrassment is a thrilling phenomenon that one usually experiences when they go outside of their comfort zone by talking to a new person, applying to an intimidating job, or trying a new skill, to name a few examples, and kind of fails, or the experience doesn't meet their expectations.

I'll be the first person to say that feeling embarrassed SUCKS and sometimes makes me want to crawl out of my skin and change my name and lay low in a ghost town like Winnipeg for a while. However, if you want to expand your horizons, know more people, and have new experiences, it comes with the territory. Unless you're like, amazing at everything and super well-spoken and impeccable under pressure. In that case, I'm incredibly jealous of you and please never speak to me, for the sake of my fragile ego.

But! For everyone else! It's important to remember that everyone feels embarrassed at one point or another, and it's just a sign that you tried something, and maybe it didn't work out the way you wanted it to, but you have more experience now for next time. This applies to failed job interviews, a social faux pas, and many many other life scenarios that will inevitably come up. Don't let embarrassment discourage you, it's a part of the process that is growing and learning and improving. I'm writing this as much for myself as I am for all of my loyal peacelovemath readers (note to self: come up with fan name).

So, apply for that job, talk to that person, try that sport. The mistakes you make will probably be funny later.

peacelovemath

N REASONS TO OWN A PET GOOSE

- Wakes you in time for 8:30 classes.
- Personal bodyguard from angry springtime geese, crows, engineering students and other non-human adversaries.
- Consumes bugs in your dorm.
- Fertilises your plants (and your carpet).
- Boosts UW patriotism.
- Easily (and locally) replaceable in case it dies.
- Underdeveloped sense of smell (that means it's the only animal that will tolerate your smell, math kid).
- A math student's sole opportunity to say that they have a gf (goose friend).

i_decay

OPERATING SYSTEM REVIEW: GNU/HURD

ANY DAY NOW…

Good morning, operating system enthusiasts! In honor of **mathNEWS**' 50th anniversary, The Editors are styling each issue of **mathNEWS** roughly in line with one decade that **mathNEWS** has been in existence. This article is intended to be published in the final issue, corresponding to the years [2023, ∞). In honor of that, we are taking a look at GNU/Hurd, the attempt by the GNU project to build a fully free and open source operating system to equal and best Unix… any day now… I promise…

SYSTEM REQUIREMENTS

- An Intel x86 CPU
- Some extremely limited hardware combinations tested by the Hurd team (or a virtual machine)
- A heart of open source

HISTORICAL CONTEXT

Back in the 1980s, the Free Software movement would begin to take shape, striving to make all the programs that you run on your computer be free — not free as in not costing money, but free as in giving you the freedom to do what you want with the software. This involves making the source code of all programs available (open source!), so you are able to make changes to all your programs as and when you see fit.

As part of that, they announced the ~~Unix Instrumentality Project~~ GNU (GNU's Not Unix) Project, to replace Unix with a fully free and open source equivalent. The Unix programs were implemented as the GNU coreutils (core utilities), and provided basic user-facing functionality like `cat` (read files), `ls` (see what's inside folders), `rm` (delete things), and other things. The Unix kernel, the One Big Program that runs all the programs and talks to hardware on their behalf, was planned to be replaced by Hurd.

Hurd consists of a microkernel named Mach, and a bunch (a Hurd, geddit?) of servers. A microkernel is a kernel that provides basically just enough functionality to turn the computer on, and then relies on other programs (the servers) for everything else, including hardware interaction. Hurd ships with a whole bunch of servers, the list of which you can see on their website.

When Linus Torvalds made the free and open source Linux kernel in 1991 and it took off way quicker than Hurd in the 1990s both in terms of maturity and user base, the GNU Project started using Linux instead of Hurd, and development on Hurd slowed. It's seen a couple of resurgences since, but has remained pretty stagnant otherwise. People like to mock GNU by saying that Hurd will ship any day now, and that it is the operating system of the future. This article continues the mockery.

Fun side note: Linux is what is known as a "monolithic" kernel, where the responsibilities of the "servers" are also largely integrated into the kernel itself — in that regard, it is more like a large monolith than the Hurd, which is a bunch of small modular parts fitted together. Famously, Linus Torvalds and Andrew Tanenbaum (the creator of Minix, another microkernel-based operating system) had a written debate about the merits of a microkernel vs monolithic kernel operating system architecture. Highly recommend checking it out for some spicy 1990s operating system drama![1]

THE EXPERIENCE

Note that like Linux, the Hurd is just a kernel, and you still need a distribution — a set of other operating system programs — to run it. The GNU/Hurd website lists only one distribution officially: Debian GNU/Hurd. Others, like Arch Hurd, exist, but I expected it to be safest to just use the recommended option.

I chose to opt for a prebuilt operating system image, and then booted it with qemu-kvm following the instructions on their website. After booting up the operating system and logging in as root, I was greeted with the following screen:

The first thing I am told is that the Hurd is not Linux. It is having an identity crisis as soon as it wakes up, and it is using positive affirmations to improve its mental state. Good for it!

Internet works perfectly, which may be surprising at first blush (the Hurd is nowhere near as good as Linux in terms of hardware compatibility), but makes perfect sense if you think about it (the hardware compatibility is so bad that everyone probably runs it in QEMU, perfecting the experience in that one regard). With that figured out, it's time to install software!

And here we run into issues. Since this is Debian, you would expect apt to work — indeed, the Hurd website says that 79% of all Debian packages work just fine on the Hurd. So I go ahead and try to install Xfce4 to get a user interface working, and:

Oh, right, Debian doesn't ship with updated package lists. Running a quick apt update to fix that:

Oh. Oh, wait, what?

That's okay, I can look up the magic command to fetch public keys from a keyserver:

…what the heck. So I need to add a key to the keyring to fetch packages, but I need to fetch a package to add a key to the keyring. This is way too early into the review to be having Catch-22.

I work around this by bypassing signature verification, and unceremoniously realize that they have stopped hosting the public key that they signed all the packages with… making it impossible for me to verify any packages on the Debian server.

So, bypassing all signature verification for all future apt commands and leaving myself vulnerable to supply-chain attacks, I install Xfce4. The process is extremely smooth, and one `startx /usr/bin/xfce4-session` later, I was into a GUI!

Unfortunately, after this screenshot, I logged out to redo the bits of the article above with screenshots, and after logging back in the Xfce session would no longer work. Ah well. No matter, we love the command line anyway!

We have a relatively recent version of gcc and it works as well as you'd expect:

Trying to install anything complex like Firefox fails, since it has dependency chains up into packages that don't exist for the Hurd (like utils-linux). I'm sure you could find a web browser that works, and then this would be very similar to a modern Linux experience with a smaller package selection.

CONCLUDING THOUGHTS

Though having the Hurd as an "operating system of the future" was something I did mostly as a joke, in the course of using it I see the shadow of something that could have been. If only the GNU Project had did the Hurd as well as they did gcc and the GNU coreutils, we could've been living in a very different world…

Unfortunately, that effort seems to have gone nowhere. Fortunately, we have Linux! I don't know which one of them would have been better, but I am quite happy with what we got. So cheers to the future that could have been, and let's enjoy the one we have. :)

tendstofortytwo

1. Here's a primer: https://en.wikipedia.org/wiki/Tanenbaum%E2%80%93Torvalds_debate. Remember to use your benefit of hindsight and support Torvalds mentally as you read through the arguments!

WHY I MADE A WEBSITE (AND YOU SHOULD TOO)

WITH A SIDE OF WEB HISTORY

Before you come at me with a mob and pitchforks, I'm not talking about some lousy portfolio website that you link on your resume in hopes that some company recruiter would glance at for less than 10 seconds. Rather I'm talking about a *personal* website. Let me explain.

Recently, I decided that it'd be better for me to distance myself from social media platforms and instead focus more of my attention towards my closer circle of friends. There were a few exceptions to the no social media rule made, primarily Twitter and Discord. Speaking on Twitter specifically, there were a few issues with the platform itself. Posts limited to low character counts, lack of customizability / self-expression, and the Elon acquisition are a few that come to mind. It was around the time that Elon acquired Twitter that my friend tr1e had introduced me to Neocities, a spiritual successor of the old Geocities platform.

To provide some context, Geocities was a platform founded back in the 90s (and later acquired by Yahoo) which provided free website hosting, allowing users to create pages easily. Users were additionally able to filter websites by interests and content. For example, sites listed under Area51 would be related to sci-fi, fantasy, or conspiracy topics, while SiliconValley would be tech-related websites. All of this was to play into the internet "cities" theme of the platform. Sadly with the rise of social media sites such as MySpace, Yahoo pulled the plug on Geocities in 2009, thus killing off around 38 million pages (many of which are lost to time with efforts to catalogue and archive them).

Fast forward to 2013, Neocities was launched once again providing free website hosting along with tools to build their website with. Ignoring some minor controversies regarding monetization as well as user websites *sometimes* being deleted for no good reason, I found that the platform was a great place for anyone to build a personal website on. For those not so well versed in terms of programming, basic HTML and CSS is a great place for someone to start if interested in learning. Additionally, the platform boasts various tutorials to help beginners start their own page and provides users with a built in IDE and filesystem, all while not having to worry about website hosting. For those who have worked in traditional software development, you may find the lack of JavaScript frameworks somewhat limiting; however, I truly believe that this adds to the charm and nostalgia factor of pages built and hosted through Neocities. Some simple HTML and CSS (and maybe JavaScript scripts) can really go a long way!

Personally, I found that being able to go completely hogwild with no regard to good code quality was a super fun experience and I would definitely recommend it to anyone finding themselves with a lack of an appropriate creative outlet. Thinking about building a website from scratch may seem intimidating at first, but there's no rules when it comes to making a site. For example, I was able to build a large portion of my website by Frankensteining my way through the process. You can stitch together random HTML components, scripts, gifs, and various other elements that you find on the internet to express yourself and your interests. You want the cursor on your website to be a gif of a spinning skull? It probably exists and you can add it with one line of HTML! You want it to look like it's snowing on your website? Steal a script from the internet and paste it right into your Neocities filesystem! On top of all this, you can add any elements or pages you want to your site. Finally, you get to choose what content you make and post, and there's virtually no limits to this. A blog, an art gallery, or even an internet ARG are all things that I've seen Neocities pages used for.

Beyond making your own page, you can also browse through other users' pages through the Neocities catalogue. From there you can search pages by tags (set by a user, oftentimes related to page content or user interests), and sort popularity or other values. If you want to go even deeper, you can join webrings which are another feature of the old web. Back before Google indexed trillions of pages online, it was difficult for others to search for and stumble upon your page. During this internet dark age, webrings acted as a beacon of light for users to connect with and be a part of a ring of pages. Functionally, users would place links that pointed towards the previous and next page in the ring and so any visitor to a page would be able to browse through all of these related pages. Nowadays, they are not as useful for said purpose but it's still a cool feature for you to explore!

I'd like to close off this article off with an excerpt from the manifesto of one of my favourite online creatives, Chia Amisola:

> *A website is what you make of it. The most important thing when it comes to making websites is to detach yourself from what the 'idea' of a website should be, and instead focus on the website as an infinite medium and blank canvas.*

p1geon

TO ALL

A famous guy once said:

Since F = ma, if we try really hard to make m = 1, then F = A. So yes, I did pass that midterm.

Newton coming in clutch and saving CAVs here and there.

AHpache

ONTARIO, YOUR FLAG SUCKS

I was recently watching the latest CGP Grey video ranking the state flags of the United States. The natural followup question becomes, how good are the Canadian provincial flags? The answer is: generally better than the States, but not much better.

Ranking the flags from East to West:

- **Newfoundland and Labrador:** B tier
- **Quebec:** A tier
- **Nova Scotia:** C tier
- **P.E.I.:** D tier
- **Nunavut:** A tier
- **New Brunswick:** D tier
- **Ontario:** F tier
- **Manitoba:** F tier
- **Saskatchewan:** C tier
- **Northwest Territories:** D tier
- **Alberta:** D tier
- **British Colombia:** D tier
- **Yukon:** D tier

However, notice the Fs. Ontario and Manitoba, already D tier flags individually, but by being almost identical they make each other indistinct, dragging them both down to F.

And the sad part is, some Ontario cities have better flags than Ontario itself. I'm from Ottawa, and I've probably seen the Ottawa flag more than the Ontario flag. The Toronto flag is also much better, as is the flag of the now non-existent Metro Toronto.

OTTAWA FLAG

TORONTO FLAG
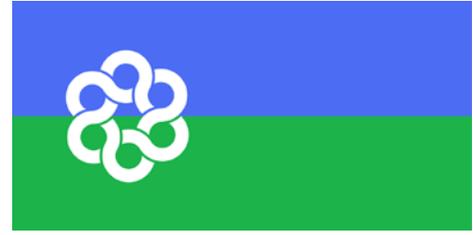
METROPOLITAN TORONTO FLAG

Heck, even the Franco-Ontarian flag is much better! And that's not even a place flag.

FRANCO-ONTARIAN FLAG

So in light of this, I would like to propose a redesign. The flags of Ontario seem to like blue and green, and also half designs. I also think the trillium would be a great emblem, so I will shamelessly steal the Metro Toronto flag and add a trillium to it.

Is it the best? Of course not. But it's definitely better than something that looks exactly the same as Manitoba.

別

UW REVIEW

This term was very good. It exceeded my expectations.

Term score: ★★★★★

Averaging out this term with the five other on-campus study terms gives this overall score.

Overall score: ★★☆☆☆

boldblazer

CUTLET COCKTAIL COLUMN #5
PERSISTING THROUGH PASSOVER

It's been a while. One whole term, right? Count it: 151.6 - 150.6 = 1.0; it adds up. (I bet this is the most serious math shown in any article this issue.)

This time I'm reviewing something a little more unorthodox, or perhaps more orthodox, depending on how you look at it. It's not an IBA official cocktail, no. In fact, some might argue that it's not even a cocktail at all. This issue, I'm reviewing *four cups of wine at Passover*.

BACKGROUND

The history for this drink goes back millennia, easily longer than anything I've reviewed so far for my column. I'll be honest — I don't know the details of the Seder[1] well from a religious standpoint, so I'm hard-pressed to explain to you the reason each cup is drank. Wikipedia[2] explains, though:

- the first cup is for *Kiddush*, a blessing said over wine "to sanctify" the holiday
- the second cup follows the telling of the Passover story, including the "Four Questions", which ask "why this night is different from other nights", but more notably the details of the Ten Plagues inflicted on Egypt until the Pharaoh let the Jewish slaves of the nation go free[3]
- the third cup follows the meal
- the fourth cup follows "songs of praise" which I must honestly say I am completely unfamiliar with and know very little about

Despite my lack of knowledge about these cups of wine, I decided to have them all anyway!

RECIPE

Ingredients:

- wine[4]

Preparation:

Pour a cup of wine. Pour a cup of wine. Pour a cup of wine. Pour a cup of wine.

REVIEW

It took me longer to prep the Seder plate than I expected: it's damn near impossible to find matzah in Waterloo, so I tried to make my own. But, I don't have a rolling pin, so it was a mess, and, well, the result was matzah in name only, but isn't that what counts?

As a result, I kinda rushed the whole Seder, including the wine.

Since I don't know the Kiddush prayer, I skipped that part, but still had the cup of wine. It had a somewhat fruity taste without being excessively sweet, but wasn't too astringent either. In retrospect, I wish I didn't down it as quickly as I did, so I could've tasted it a bit better.

The second cup is the one with the longest break before it. The Passover story, even abridged as I told it, takes a good while. However, the first cup's had on an empty stomach, and I will say, it begins to hit unexpectdly quickly!

After hearing about how pharaoh didn't let the Jews go, and again, and again ten times, and doing a little bit of singing (dayenu), it's time for the third cup! Wait — it follows the meal. but I didn't have a meal other than the seder… I didn't have anything ready, haha. So the third cup went down juuust fine, maybe a bit quickly, on my stomach fullof one (1) singular cup of wine, one… other cup of wine, and some small pieces of seder plate foods.

Songs of praise, then the fourth cup. But oops! i don't know the songs of praise! guess this means, umm, time for the fourth cup. just had the thrid cup but let's have another hehe. it's the last one, i'll be fine

all in all, pretty tasty, you should do it too

☙❧

so there you have it everynoe, four cups of wine at passover. drink em lal quickly and it'll be a fun time. but as always, drink respnosibly!

cutlet

1. the traditional dinner at the start of Passover
2. https://en.wikipedia.org/wiki/Passover_Seder
3. Spoiler alert: this is the origin of the holiday's name. The tenth and final plague was the death of all of the Egyptian first-born sons, but the houses of Jews, marked by lamb's blood above the doors, were *passed over* by the Angel of Death.
4. I used the Louis Jadot Beaujolais-Villages 2021

HELLO KITTY 4 EVER

I love Sanrio. I love Hello Kitty. She is a little girl, not a cat btw. She brings me more joy than most people.

Hello Kitty is cute, kind and doesn't talk (she doesn't have a mouth). Everyone has something they love and obsess over and mine is Hello Kitty. I hope people can find what makes them happy. It might not be Hello Kitty and that's okay.

panda1

(N-1)/N
A RECIPE FOR FRESH TOMATO SOUP

I've been thinking about this article for a while. There were two versions of it: this one, and the overdramatic version that only applies if you never come back.

This recipe isn't a family recipe; it has no storied history, nor legends of being pulled from the clutches of oppression. It is entirely homegrown — the ingredients are all shared between St. Jacobs and the local T&T. I derived the recipe from a few online blogs, but for the most part it has come from a few seasons of experimentation and creativity only unlocked by finally living free. It is unique to this town, this home to which we always return.

And it sounds like you will.

Most recipes for tomato soup online require an assortment of canned tomatoes, diced tomatoes, crushed tomatoes, tomato paste, and every other tomato format short of ketchup. I didn't really have the patience for that; Tomato soup should really only require one core ingredient: tomato. Sometimes, simpler is better.

So I'll try not to make this too long.

Feel free to add the additional tomatostuffs back in if you feel there is something missing.

Like a student concert without you there.

IMPORTANT THINGS TO HAVE

- Around 8 small tomatoes, 4 medium tomatoes, or 2–3 really big tomatoes
- 2 cups of chicken broth
- p carrots
- q cloves of garlic
- 1 slice of an onion
- 1 block of ramen noodles
- A large pot

RECOMMENDATIONS

- Spices, especially black pepper
- A small dash of sesame oil
- 3 tbsp of Parmesan cheese
- Around ¼ cup of chopped parsley

Start by boiling the chicken broth and 2 cups of water in a large pot, and cut up all your tomatoes into small chunks. If you have a blender, feel free to blend the tomatoes to make that step easier. When the water comes to a boil, turn the burner down to medium-low, add your tomatoes, and start a timer for about 20–25 minutes. Stir occasionally, then cover the pot, taking a last look at your intact tomatoes and saying goodbye.

When there's a recognizable chance of goodbyes being extended, or final, it's hard to find the words that fit.

While the soup is cooking, chop up some cloves of garlic to taste and sprinkle them in. Chop up one slice of an onion, and chop or julienne a few carrots, adding them to the pot as you go. Add salt and spices according to taste: I've had luck with black pepper, paprika, and cinnamon, but any n spices from your cupboard are sure to work. This is also generally the point where I'll add a dash of sesame oil — not much, lest it overwhelms the taste.

Maybe I would have used more, but you were convincing when you said you'd be fine.

After about 12 minutes, the tomato chunks should have started to melt into the soup. Squish any large tomato chunks with your utensil of choice to help them along the way, but let the soup continue to cook for its full duration. Once you've determined that the tomato is almost fully combined with the soup, add in any cheese and parsley you'd like. If adding noodles, drop in the block of noodles like a raft on the ocean and send it away.

I hope you remain safe and sound in your travels across the sea.

After letting the noodles cook for about 2–3 minutes, serve. Makes about 2–3 meals, but you can always think about changing the proportions.

And I look forward to the day we all meet again.

molasses

NEURO FUZZY

is the name of a rice cooker he wants to buy. I guess it uses fuzzy logic to make the rice more delicious and nutritious somehow. Also it's round and white. Instead we have NS-TSC10, also from Zojirushi brand, and it's dark grey and it makes rice okay, although he complains about the texture sometimes. I can't tell. I'm not a rice eater. I'm a wheat eater and I got it from my dad. Along with other things. We eat rice a lot these days, even though I don't want to. It's quick and cheap and easy. I don't like it, so I douse it in Lao Gan Ma sauce. He says, "put some cheese on it," a reference to a song or something, and I find it funny and laugh. At least, I used to. I push the rice around my mouth, feeling the hard grains, rolling them across my teeth, saturating them with saliva, sucking the oil out of the sauce until everything is just a bland greyorange mess.

cy

N MORE PLACES TO GET BIRYANI, (PART 2)

CAUSE I FOUND MORE!

Good {morning, afternoon, evening} friends. Last time (150.5) I rated several biryani places around campus because I couldn't stop myself from eating each one of them one-by-one. And I am back with a few more!

"But aaqsr, I don't even know what biryani is???" Even more reason to try it!

SELF-MADE

- Rating: 2/5
- Convenience: 1/5
- Price: I have no idea

This was very hectic. Biryani takes a long time to get right, and plenty of ingredients you can find at Walmart. I am not a good cook so uhh, your results might vary. Whilst my friends loved it, I was personally very disappointed in the concoction I made after nearly an entire day's work.

KISMET

- Rating: 3/5
- Convenience: 3.5/5
- Price: $17

This place has me conflicted. Located towards the back of the University plaza, I randomly stumbled onto Kismet one night on my way back home, and found my way inside. They were really welcoming and nice, so I decided I might as well get some food. I've since heard a lot about Kismet, and about how it's very good, and lots of people have had a great experience with it. My experience was a bit more uhh *eventful*, however. Don't get me wrong — the chicken biryani tasted great and was spiced perfectly. (Do not mess around with Kismet spice levels unless you know what you're doing.) However, my stomach was not particularly pleased with what I was doing, and I actually gave up halfway through the plate, forcing me into a comatose state for the next half hour. Not because of the seasoning or the spice but because something felt off.

Now I like my stomach: I've had street food from shady places back home in Pakistan; I think I have a pretty good spice tolerance; I survived 25 lines on Lazeez. I like to think my stomach is a tank. And Kismet's biryani was excellent. But
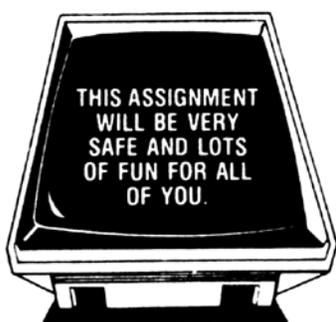
God, I would not go back there even if you paid my tuition for the Spring term.

KABOB HUT

- Rating: 4/5
- Convenience: 3/5
- Price: $16, having to wait till Friday

I love these guys so much. Right next to the best bubble tea shop on the University Plaza, Kabob Hut is run by some of the nicest and most welcoming people I've ever had the pleasure of meeting. I've had almost everything on their menu and they not only have the best rice I've eaten on the plaza, but they also have the best fries in this entire country. (Note: if that statement offends you, send me fries recommendations.) The only small issue is that biryani is a special only available on Fridays (subject to change), and if you stumble past Kabob hut on any other day, then you're out of luck.

Their biryani is certainly unique. It is served with fries, and is actually a little bland for my taste, but the rice are buttered so well that I just can't stop eating it. To be very honest it tastes less like biryani, and more like chicken and rice (if you don't understand the difference, try it). But I don't seem to care. It's incredible.

I definitely recommend exploring Kabob Hut's menu. Everything on there makes my mouth water.

KABOB SHACK

- Rating 6/5
- Convenience: 4/5
- Price: $10.49 (It's cheaper on Fridays due to promotion!)

Not to be confused by its cousin Kabob Hut, and located next to the ever famous Gol's, we have it. The ultimate goal of our quest. The best biryani in Waterloo. I randomly entered Kabob Shack one day because the queue at Gol's was too long and was surprised to find the nice home-like environment inside. The menu was vast and everything I put my finger on sounded incredible. I sat down enchanted and ordered way too much food for one man to consume. And I am pleased to say the biryani came fast, and tasted like… like… like *home*.

The portion was generous, the rice was perfectly seasoned, the chicken was moist and soft, the raita was spicy and garlicy. The biryani was so good, I wanted to nitpick and dock some partial points for the lack of potatoes (POTATOES BELONG IN BIRYANI, AND ALWAYS HAVE). And do you know the best part, my dear reader? It. Came. With. Pop. For. Free.

As an aside, I recommend everything on this menu as well. Nearly everything comes with rice and salad and has a great hearty portion.

THIS ASSIGNMENT WILL BE VERY SAFE AND LOTS OF FUN FOR ALL OF YOU.

THERE IS NOTHING WRONG WITH YOUR EQUIPMENT. YOU WILL STOP GLOWING SHORTLY.

Thank you Kabob Shack, for nearly making me cry.

CONCLUSION

So the old Queen of Biryani, Empress of India has sadly been dethroned (sorry tendstofortytwo), and Kabob Shack stands the new victor. The search, however, is not yet over! There is always room for improvement. And I will only stop once I finally get to experience a biryani restaurant that rivals my favourite place back home. If you have any suggestions, please let me know… Till then, treat yourself a bit this exam season and have fun!

aaqsr

I'M STILL OUT OF IDEAS SO HERE'S ANOTHER RECIPE

I PROMISE I'LL WRITE BETTER ARTICLES NEXT FALL

Canned corned beef was one of the most widely used field rations for soldiers in the British Army, most notably during World War I when fresh meat had to be rationed due to attacks on the food supply chain. This stew is kind of a joke recipe in that it attempts to simulate a meal that was widely eaten by soldiers in such a conflict, but it also happens to be relatively inexpensive, so maybe it could be useful for university students too.

Serves: 1–3 | Time: 25–30 minutes

INGREDIENTS

- 1 can of corned beef (~340 g)
- Crushed crackers, stale bread, or bread crumbs
- 1 small onion, diced
- 1 clove of garlic, minced
- 1–2 small carrots, diced
- 1–2 yellow potatoes
- 2 cups of water or beef broth
- Salt and pepper
- Olive oil or other fat

DIRECTIONS

1. Fry the vegetables in some oil in a pot for 4–5 minutes.
2. Add the garlic and corned beef, then season with the salt and pepper. Cook for another 3–4 minutes.
3. Add the water/broth to the pot and simmer for 15–20 minutes. Add the bread product at any time to thicken the stew.
4. Let cool for 5 minutes before serving.

yalevoylian

BALLS

Our study on the sensory capacities of human testicles has concluded. Below are the results.

Of 14 responses, 10 people did not dip their balls in soy sauce. A further 3 responded that they were able to taste the soy sauce. 1 respondee did not taste the soy sauce.

As this survey comes from such a wide audience as **mathNEWS**, we note that this constitutes a highly representative sample. We note that the majority of people who dipped their balls in soy sauce are able to taste it. We conclude anyone who did not taste the soy sauce have defective testicles. It is also interesting to note that nearly a full 30% of UWaterloo students who responded have dipped their balls in soy sauce.

We hope this has been a pleasant experience for those who have inserted their testicles into soy sauce, and we invite those who have not to partake in such an activity.

ffc1

REASONS WHY I HAVE PULLED ALL NIGHTERS THIS WEEK

(In order of importance.)

1. My STAT 231 assignment was due.
2. My CS 350 kernel was desperately calling for my attention.
3. The monster in me demanded to climb the ranked ladder in Valorant (I'm Diamond 3 now).
4. I wanted breakfast McDonald's.
5. The Harvey's Frozen Redbull is surprisingly good, and good at making you stay awake.

(From bottom to top, the order I did them.)

tr1e@5am

A FORMAL RESPONSE TO THE "FUCK OLIVES" ARTICLE IN 151.5

NO YOU

"Oops! It's all olives!"

OliveEnjoyerC

EVERY ISSUE OF IMPRINT IS A MISPRINT

The other day I picked up an issue of that bastion of sub-literate prose, and on the front page was a headline to the effect of people seemingly advocating for earthquakes: "communities hold vigil in support of earthquakes". An inch to its right was another editorial atrocity: "leaders frustrated over on-going lack of from WUSA". Does this paper have editors who actually read their own rag? What must be going on down in the dungeon of the Student Life Centre? Thus, dear reader, I undertook it upon myself to conduct my own investigation…

Its editors seemingly have little experience in quality assurance. Interns at Grammarly they were not. Their paper is full of grammatical errors, factual inaccuracies, and question-able topics to cover. To add insult to injury, they don't seem to be aware of basic journalistic practices. Deep Throat would never trust them with his secrets.

The design and layout of the paper evokes Amateur Night at the Apollo. The font styles are bland, the headlines are—as indicated—poorly written, and the photos are in the style of stock photography. It is as though the layout team has checked out, pouring the drivel that is their content into a God-forsaken template without any regard for design aesthetics or readability.

The paper's website is a nightmare to navigate, with eye sores for ads, broken links, missing recent issues, outdated information, and a design that looks like it was created in the early 2000s. Its front page even has unmatched HTML tags showing! It's hard to take a publication seriously when it can't even get its digital presence in order. The paper's social media accounts are similarly lackluster, with tweets and posts that seem to have been written by a Laurier intern with no under-standing of journalistic standards or even basic grammar. Aside from retweeting other accounts, their last tweet was written more than a year ago! Their Facebook page has no posts, despite being created in 2008! The only consolation is that exactly zero people follow their page.

It's at once both a tragedy and a farce that a student newspaper—which ought to be a place where future journalists cut their chops, and a source of reliable news for the campus environment—has made itself out to be an object of ridicule. Maybe it's time for the paper's editors to play that Michael Jackson song, take a look in the mirror and ask themselves whether they're really committed to upholding the principles of journalism, or whether they're simply going through the motions for the sake of resume-building. Until they can demonstrate a genuine dedication to excellence, readers would be better off getting their news from the campus geese than from this rag.

Until then, it is clear that Imprint is little more than a low-quality blog pretending to be a quasi-legitimate news source. Their unprofessionalism and lack of pride in their work is a cold sore on the student body and a kind of chlamydia on campus. It's high time for students to take action and demand that the paper either improve its standards or be shut down in ignominious disgrace.

This campus deserves a better class of newspaper, and that is math**NEWS**! Celebrating its 50th anniversary, it is older than Imprint. Every issue is chock full of goose jokes, in-jokes, math jokes, and only the most erudite thought!

Zuck

TRAUMA SUCKS
BE KIND TO PEOPLE EXPERIENCING IT, YEAH?

There's this one CJ The X video, the one on *Stranger Things*, a show I've never watched. I think it's the best video essay I've ever seen, but there's this one section in particular that stands out to me. It's about trauma, and how it removes somebody from the life that they've imagined for themselves.

That's really resonated with me as a definition. It's important when dealing with people who have been through trauma to keep an eye on how displaced they feel from their own lives—from their own self-concept—because, without that perspective, it can be hard to help people feel like they are safe and seen.

This article isn't super long (probably a good thing considering how long math**NEWS** has been getting over my time writing for it) but I just want to urge people to have that compassion, to turn a kind eye to people who have been through some level of trauma, and ensure that they feel validated and cared about; that they know they can still have that agency over the person that they are and the person they want to be.

It can really make a world of difference in somebody's life if they can have somebody who can truly see them when they have been ignored before, no matter how small it may seem to you.

Predap
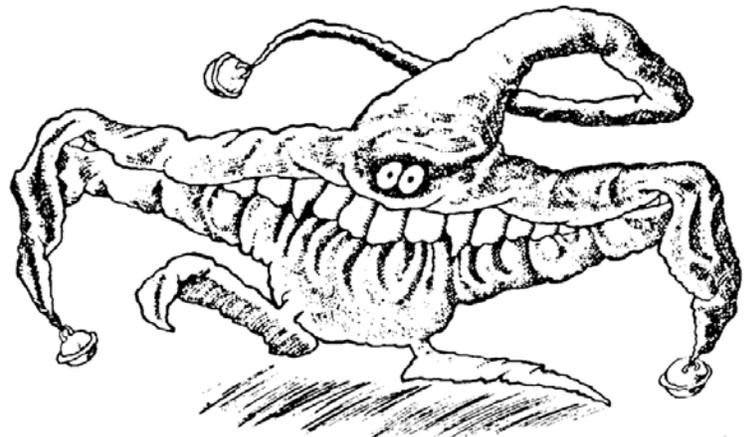
CONVERSATIONS WITH IDIOTS

MAYBE THE REAL IDIOTS WERE INSIDE US ALL ALONG…

Historic celebrations tend to only focus on the good side of things. For the 40th anniversary of **mathNEWS**, there was a special issue comprised of some of the best articles published up until that point. For the 50 year celebration, the same sentiment has been echoed in every interview with old editors: that the current wide berth of **mathNEWS** content and the culture of the paper — the stuff that makes **mathNEWS** special — has been there since its inception. I think it's unfair to only celebrate the good, especially when the weird and bad is just as real, and just as (if not more) engaging.

Conversations with Idiots is a series of columns published across volume 106 in winter 2008. I would consider them six of the most fascinating articles published across the **mathNEWS** canon. Together they paint a vivid portrait of the author by using some of the weirdest possible arguments in favour of the most eye-roll inducing takes. The points are so poorly argued, so structurally unsound, and yet written with the blind confidence of one who has not once asked another writer to review their work. So whimsical and outlandish are these points that even deigning to respond grants them legitimacy. Not that an academic response is even necessary, they collapse on their own.

Each article starts with the author waxing poetic about someone he has had a conversation with. This person and the conversation with them seems to be real in the earlier install-ments, but in later issues they are generally imaginary — the conversation is a smattering of arguments the author remembers hearing and the person is a figment of the authors imagination, woven finely of straw. They are given a pretty unfortunate nickname with which they are referred for the rest of the article. Examples include Dr. Braindead, Sergeant Assley, and Rear-Admiral Ass-Master.

The true Conversations with Idiots experience really can't be understood any other way than by reading these 15 year old articles, so I guess this is the diet Conversations with Idiots experience. Here are some of my favourite points. As far as I can tell, everything is written in complete sincerity.

"Companies owe their owners everything — everyone else is there to give the company money. The company will ideally work to make their shareholders richer and wealthier. Money going from the company to charities takes money away from the shareholders and bondholders. Money going to you makes those people unhappy."

"The issue here really isn't idiocy, it's more short-sightedness than anything else. I agree that certain companies could very easily take a portion of their profits and give them to a random organization that makes the world "better" in one arbitrary way or another. The question is: why should they? That's not why companies exist."

"If you thought those were bad: here's the kicker. Apparently, if a female is raped by a male, then the doctor believes that the female in question should be isolated from the men in her life so that she can "begin" the healing process. That's just unbelievably insulting. So one male does something terrible and all of a sudden, I'm just as bad as him because I have a penis?"

The bolded text below is the author paraphrasing the person he had the conversation with:

"**Cops use too much force!** — well, so do criminals." "I do not deny that there are officers that use too much force; however, they wouldn't have to if more people stopped treating cops like the bad guys."

"Which happened first: people started hating cops because some of them abuse their power or some cops started abusing their power because people hate them?"

"Complaining can be fun. Wallowing is bad. Huge difference between the two. Next: I can find fault in things where someone else may not."

"**It's fine as is** — well, apparently not because someone is complaining about it."

And my personal favourite for last.

"Let us suppose that finitely many police officers do use their sirens to pass red lights. I say: let them. Yes, this is contra-dictory to my previous statement saying "citizens don't get to choose which laws they obey or disobey"; however, how many citizens perform public services that involve them getting insulted, disdained and hated by the general public."

If insults, disdain and hatred from the general public are proportional to the amount of laws you can break, then murder would be legal for fast food cashiers.

aphf

EPISODE 53 + EPISODE 54

Enjoy these two episodes of the MathSoc Cartoons series: Episode 53 — MATH 136: Diagonalization and Episode 54 — MATH 237: Lagrange Multipliers!

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 136 — DIAGONALIZATION

STORY BY: ISHAN SHASTRI | ART BY: NICOLE LIU

*A **DIAGONAL MATRIX** IS A MATRIX WHOSE ONLY NON-ZERO VALUES ARE ALONG ITS DIAGONAL

MATH 136 – DIAGONALIZATION

STORY BY: ISHAN SHASTRI | ART BY: NICOLE LIU

BUT WHAT'S SO SPECIAL ABOUT DIAGONAL MATRICES?

THEY'RE EASY TO MULTIPLY!

$$\begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} ax \\ by \\ cz \end{bmatrix}$$

$$\begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix} \begin{bmatrix} d & 0 & 0 \\ 0 & e & 0 \\ 0 & 0 & f \end{bmatrix} = \begin{bmatrix} ad & 0 & 0 \\ 0 & be & 0 \\ 0 & 0 & cf \end{bmatrix}$$

$$\begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix}^n = \begin{bmatrix} a^n & 0 & 0 \\ 0 & b^n & 0 \\ 0 & 0 & c^n \end{bmatrix}$$

Non-diagonal:

$$\begin{bmatrix} ?_1 & ?_2 \\ ?_3 & ?_4 \end{bmatrix}$$

Diagonal:

$$\begin{bmatrix} a & 0 \\ 0 & b \end{bmatrix}$$
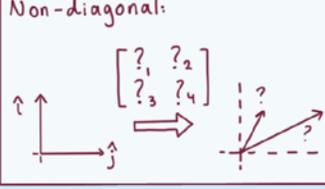
HMMM... SO A DIAGONAL MATRIX IS A TRANSFORMATION THAT WOULD JUST SCALE (STRETCH OR SHRINK) EACH BASIS VECTOR ALONG ITS AXES...
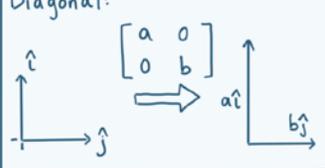
ooh..

BINGO! SO IF WE CAN FIND A *BASIS** MADE UP OF SPECIAL VECTORS THAT OUR TRANSFORMATION SCALES WITHOUT CHANGING THEIR DIRECTION, WE KNOW THAT OUR TRANSFORMATION IS A *DIAGONAL MATRIX* IN THAT BASIS!

hmm...

HOW DO WE EVEN FIND SUCH A BASIS?

WELL, WE MUST FIND VECTORS THAT THE TRANSFORMATION SCALES WITHOUT CHANGING DIRECTION

THOSE SOUND A LOT LIKE—

EIGENVECTORS!!**

$$A\vec{x} = \lambda\vec{x}$$

YES! SO IF WE CAN FIND A BASIS MADE UP OF OUR TRANSFORMATION'S EIGENVECTORS—

THEN OUR TRANSFORMATION ONLY SCALES EACH BASIS VECTOR BY THEIR EIGENVALUE, WITHOUT CHANGING THEIR DIRECTION—

A DIAGONAL MATRIX!!

EXACTLY! IN OUR *EIGENBASIS*, OUR LINEAR TRANSFORMATION CAN BE DESCRIBED BY A *DIAGONAL MATRIX* WITH ITS *EIGENVALUES* ALONG THE DIAGONAL

$$\begin{bmatrix} \lambda_1 & 0 & 0 \\ 0 & \lambda_2 & 0 \\ 0 & 0 & \lambda_3 \end{bmatrix}$$

MAYBE IN A DIFFERENT BASIS, I'M ELEGANT, NEAT, AND ALWAYS ON TIME!

...ARE YOU EVEN LISTENING..?

Our Three-Step Process: Matrix multiplication is done from right to left!

Start Here!
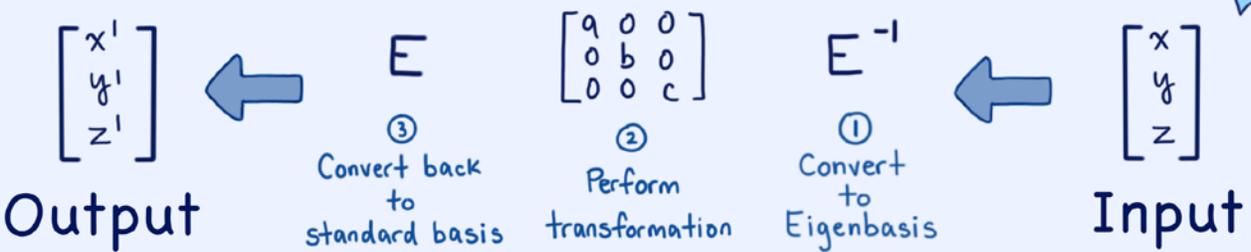
$$\begin{bmatrix} x' \\ y' \\ z' \end{bmatrix} \Longleftarrow E \Longleftarrow \begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix} \Longleftarrow E^{-1} \Longleftarrow \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

③ Convert back to standard basis

② Perform transformation

① Convert to Eigenbasis

Output   Input

*A *BASIS* IS A SET OF LINEARLY INDEPENDENT VECTORS THAT SPAN A VECTOR SPACE. THEY ALSO DETERMINE HOW LINEAR TRANSFORMATIONS ARE REPRESENTED -- SEE COMIC 7 FOR MORE

**THE *EIGENVECTORS* OF A LINEAR TRANSFORMATION ARE VECTORS THAT DO NOT CHANGE DIRECTION WHEN THE TRANSFORMATION IS APPLIED TO THEM, BUT MAY BE SCALED BY A SCALAR VALUE (CALLED AN *EIGENVALUE*) -- SEE COMIC 14 FOR MORE

MATHSOC

MEF Mathematics Endowment Fund

MATH 237 – LAGRANGE MULTIPLIERS   STORY BY: BRYAN CHEN | ART BY: CHUNXIN ZHENG
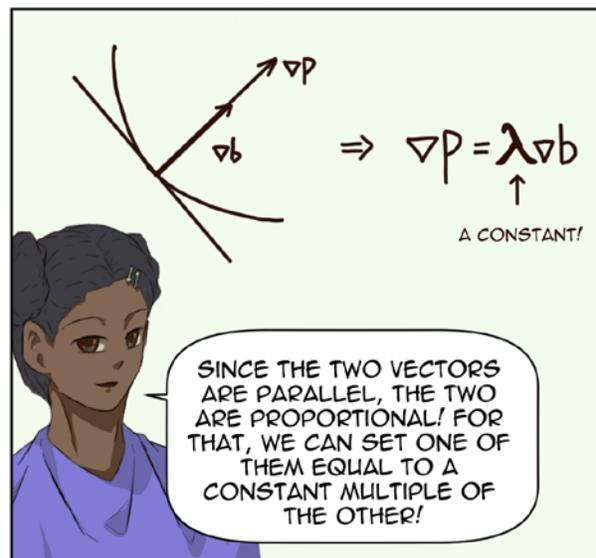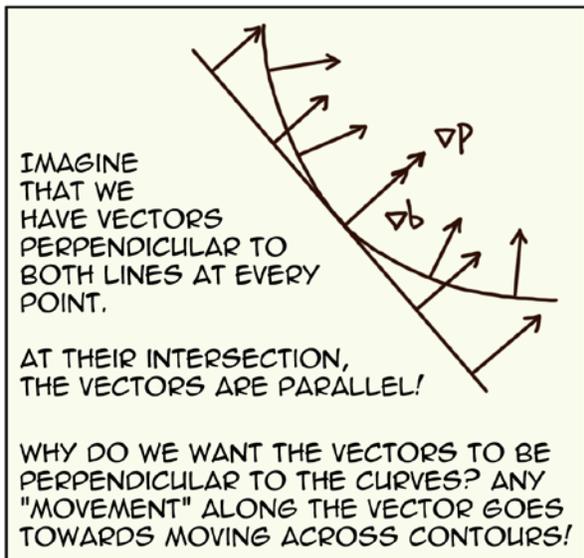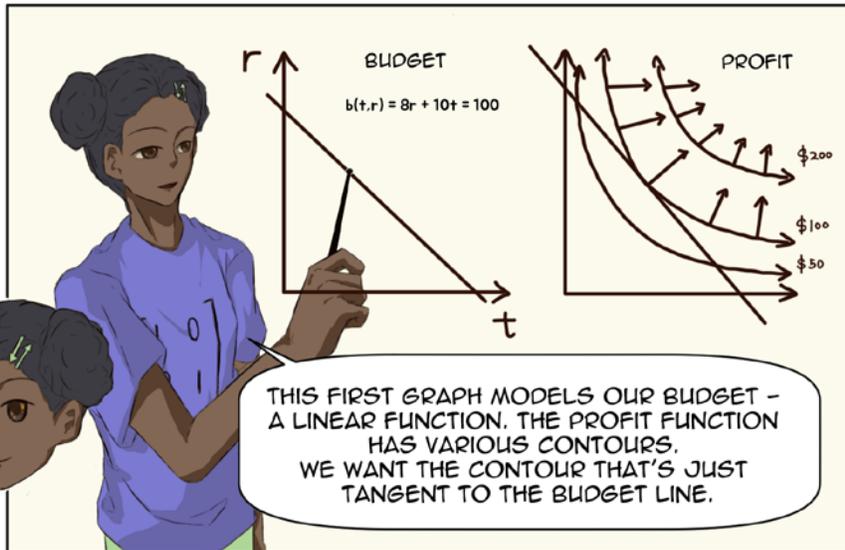
* IGNORING THE ETHICS

** THIS IS THE COBB-DOUGLAS FUNCTION – AN IMPORTANT FUNCTION IN ECONOMICS!

$$P(t,r) = 25\, t^{\frac{1}{4}} r^{\frac{3}{4}}$$

$$b(t,r) = 8t + 10r$$

SO IF WE TAKE THE PARTIAL DERIVATIVES OF P AND B, DIFFERENTIATING IN LABOUR TIME AND LEMONADE MADE, WHILE HOLDING THE OTHER VARIABLE CONSTANT:

$$\begin{bmatrix} \frac{\partial P}{\partial t} \\ \frac{\partial P}{\partial r} \end{bmatrix} = \begin{bmatrix} 25\left(\frac{1}{4}\right) t^{-\frac{3}{4}} r^{\frac{3}{4}} \\ 25\left(\frac{3}{4}\right) t\ r \end{bmatrix}$$

$$\begin{bmatrix} \frac{\partial b}{\partial t} \\ \frac{\partial b}{\partial r} \end{bmatrix} = \begin{bmatrix} 8 \\ 10 \end{bmatrix} \qquad \begin{bmatrix} 25\left(\frac{1}{4}\right) t\ r \\ 25\left(\frac{3}{4}\right) t\ r \end{bmatrix} = \lambda \begin{bmatrix} 8 \\ 10 \end{bmatrix}$$

...WE GET A SYSTEM OF EQUATIONS!

THEN, LET'S SUBSTITUTE $X = T/R$, AND OUR EQUATIONS SIMPLIFY TO:

$$\frac{25}{4} X^{-\frac{3}{4}} = 8\lambda$$

$$\frac{75}{4} X^{\frac{1}{4}} = 10\lambda$$

NEXT, WE CAN ISOLATE X LIKE SO:

$$X^{-\frac{3}{4}} = \frac{32}{25}\lambda \;\Rightarrow\; 1 = \frac{32}{25}\lambda X^{\frac{3}{4}}$$

$$X^{\frac{1}{4}} = \frac{8}{15}\lambda \;\Rightarrow\; X = \frac{8}{15}\lambda X^{\frac{3}{4}}$$

NOW NOTICE THAT BOTH EQUATIONS HAVE $X^{3/4}$ ON ONE SIDE! DIVIDING THE BOTTOM EQUATION BY THE TOP, WE GET:

$$X = \frac{\left(\frac{8}{15}\right)}{\left(\frac{32}{25}\right)} = \frac{5}{12} = \frac{t}{r}$$

SO THAT MEANS $T = 5/12\ R$!

THEN LET'S MAKE THE FINAL SUBSTITUTION BACK INTO OUR ORIGINAL CONSTRAINT: THE BUDGET FUNCTION!

$$100 = 8\left(\frac{5}{12}r\right) + 10r$$

$$= \frac{40}{3} r$$

$$\Rightarrow\; r = \frac{300}{40} = \frac{15}{2}$$

NOW WE CAN EASILY FIND THE REQUIRED COSTS FOR OPTIMAL PROFIT:

$$r = \frac{15}{2}$$

$$t = \left(\frac{5}{12}\right)\left(\frac{15}{2}\right)$$

$$= \frac{25}{8}$$

WE NEED:

15/2 (7.5) JUGS OF LEMONADE

25/8 HOURS (3 HOURS AND 7.5 MINUTES) OF LABOUR!

HMM... LEMONADE... WHAT A BRILLIANT IDEA TO GET RICH, IT ALMOST SCREAMS MY NAME! WHY DIDN'T I THINK OF IT FIRST...

LEMONADE STAN

N FUN ACTIVITIES TO DO WITH A RUPTURED EARDRUM

BY SOMEONE WHO RUPTURED THEIR EARDRUM TWICE IN THE LAST TWO WEEKS

- Sleep
- Watch four white people "turn all of New Zealand into a board game" (they are actually surprisingly respectful about it)
- Not study for MATH 146
- Tearfully beg MATH 148 professor for an extension on the assignment due that night
- Fall asleep sitting for one hour in a room with approximately 15 other people working on the assignment who are all loudly discussing it
- Finish the assignment on time anyway and not actually need the extension
- NOT cry oh god oh fuck DO NOT cry that's how I ruptured my eardrum the second time
- Straight up not show up to a midterm. Why did I have a midterm on the day of our lord the 30th day of March? That is a very good question.

- Show up to class
- Post about ruptured eardrum on r/uwaterloo
- Listen to the 1812 Overture on loop for three days
- Listen to the entire Swan Lake Suite
- Listen to the entire Carmen Suite
- Listen to Carmen Habanera on loop for 5 hours
- (I do not have any hearing in my left ear by the way)
- Awkwardly try to always walk on the left side of your friends so you can hear them
- Send emails to professors at 2am
- Eat ungodly amounts of yogurt
- Decide to change your name

RapidEyeMovement

THE FINISH LINE

IT'S A BIT FAR

As the term comes to the end, and as the finals approach, the dragon on the 7th Floor of MC has capitulated.

He hoards. He hoarded notes, papers, homework. Cursed knowledge of matrices, borrowed from the kids of MATH 146; the true secrets of the Racket cult, acquired secondhand through scattered pamphlets by Brad Lushman; eldritch writings on Human Resource Management, given to him by spies from Laurier.

He was set for success, set for exams! All he had to do was push through this last section of school, and cross that damn finish line, and…

The eyes of the dragon once glowed with enthusiasm, a perfectly reflective surface so that the dragon almost looked like a god. At other times they glinted with insanity, and the dragon looked like Saturn,[1] stooped over his hoard with a strange aura of dignity. Now, they were dulled. Jaded. Despite his black scales, there were circles under his eyes darker than the void itself.

He lay on the papers that he carefully collated over the term and sighed. Barely mustering the desire to study, he pulled out from under his back the Final Review Guide for BU 121 and reviewed the topics to be covered.

"Describe the current state of employee relations, discuss what burnout is, and what impacts it has on employees and organizations/economies."

Ha. How applicable. He tossed the paper aside and despaired.

The exams would come, the exams would go, and he would be unemployed, waiting to go home.

He had to pull himself together, one way or another. Just, maybe after another nap…

Andoiii (tired)

1. You know, like that one painting of Saturn eating his own son (minus the gore and cannibalism of course).

2 CARPAL 2 TUNNEL
TWO ADDENDA TO THE RHYTHM GAMES ARTICLE FROM ISSUE 1

1. PROJECT SEKAI

Someone told me after I wrote the carpal tunnel article that they were disappointed because I didn't talk about idol rhythm games. Specifically, they were sad I didn't mention Project Sekai.

Project Sekai is a rhythm game with heavy gacha elements in it. The major reason I didn't mention it before is because the gacha system is freaking complicated. I'm not well-versed in gacha culture and whatever, so all I really know is the rhythm game itself, and so I didn't feel I knew enough to talk about it in depth. But it's popular enough that I feel like I should mention it anyway.

Essentially, if you're into gacha games, or you really want to get into the extensive story, then Project Sekai would be a great game for you. If not, then you can still definitely enjoy the rhythm game on its own, but everything is going to be quite confusing.

2. RIZLINE

As of writing this, Rizline (global version) has been out for like 2 days and I can already say it blows Rotaeno out of the water for best beginner mobile rhythm game. It has a clean pastel style, everything is super super intuitive, and the song selection is incredibly good. The mechanics are so simple and it's very, very fun to play. And all this for only one dollar. You can even demo the first three songs for free. I could talk forever about what makes Rizline so good, but I'm just going to leave it at this. Go play it, I highly highly highly HIGHLY recommend it.

hyperlynx

N REASONS I GET NO BITCHES
ACCORDING TO MY GF

- I'm blond
- I'm British
- I'm Québecois
- I speak French
- I need to shave
- I have 3 first names (unattractive?)
- My favorite integration technique is substitution
- I tell her she drinks too much Diet Coke
- I steal the blanket
- I don't let her climb my walls when she's high

Shahabee & 20049084

UNDERRATED PROOF TECHNIQUE

We, students in Mu Zhu's STAT 241, have discovered a new proof technique whilst suffering through the final assignment of the term. Let's say we are trying to prove that an expression X equals an expression Y. Then, we cannot simply write X = Y because that statement could be false depending on the expressions X and Y. There are a number of techniques that they teach in school, such as induction or contradiction. However, these proofs often tend to be quite complicated and require lots of thinking to formalize the argument. This particular assignment required delving into deep theorems so complicated they were named after someone as well as an unholy amount of Greek letters that questioned what language the assignment might have been written in. That is why I have developed this new technique that will *always* work: simply sneak in a colon before the equal sign. This way, we have the new statement, "X is defined to be equal to Y," which no longer requires proof as it cannot be false. Voila!

kfm

N WAYS QUEST IS BETTER THAN THE STUDIO GHIBLI MUSEUM TICKETING SITE

- Quest course selection isn't first-come-first-serve.
- Quest gives you exchanges and refunds (course swaps and drops).
- Quest doesn't ask for your credit card information.
- Even at its worst, Quest won't give you a HTTP 403 error code on the payment screen.
- Quest only crashes once a term.
- Quest won't crash with a vague Japanese error message.
- When Quest crashes, it doesn't give you a button that will cause you to lose all your progress when clicked.
- Quest won't randomly kick you into an unrecoverable error state.
- Quest doesn't force you to stay in a queue for an hour.
- Quest can handle more than 10 people at a time.
- Quest won't see you through to the end, then break your heart with "REJECTED QUEUE NUMBER, PLEASE START FROM THE BEGINNING".

I got my tickets, but at what cost?

THE EDITORS OF mathNEWS
THE UNIVERSITY OF WATERLOO'S BASTION OF ERUDITE THOUGHT SINCE 1973

mathNEWS has been published at least once per (academic) fortnight since January 1973. It is the duty of the **mathNEWS** Editor to ensure that **mathNEWS** continues forever. Here are those who have volunteered themselves to carry out this task:

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54	F90	Trevor Green
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56	S91	Marcel Goudeseune
57	F91	Mike Reade, Betty-Jo Hill
58	W92	Curtis Desjardins
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62	S93	Ian Goldberg
63	F93	Curtis Desjardins, Erich Jacoby
64	W94	Michael Melvin, Steve "Flip" Shaw
65	S94	Erich Jacoby, Dale Wick
66	F94	Steve "Flip" Shaw
67	W95	Mala "Crakko" Krishnan, Mike "Hammer" Hammond
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69	F95	Mala "Crakko" Krishnan, Mike "Hammer" Hammond
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71	S96	Mala "Crakko" Krishnan
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75	F97	Brian "Latrell" Fox, Chadwick "CasEd" Severn
76	W98	Matt "So-Krates" Walsh
77	S98	Chadwick "CasEd" Severn
78	F98	Matt "So-Krates" Walsh, Brian "Latrell" Fox, Richard Bilson
79	W99	Matt "So-Krates" Walsh, Gregory "hologrami" Taylor, Chadwick "CasEd" Severn
80	S99	Chadwick "CasEd" Severn, Gregory "hologrami" Taylor, Matt "So-Krates" Walsh, Richard Bilson
81	F99	Gregory "hologrami" Taylor
82	W00	Gregory "hologrami" Taylor, Chadwick "CasEd" Severn, Richard Bilson
83	S00	Chadwick "CasEd" Severn
84	F00	Gregory "hologrami" Taylor, Richard Bilson
85	W01	Peter Lizak, Bradley Theodore "TaxiEd" Smith
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87	F01	Peter Lizak, Bradley Theodore "TaxiEd" Smith
88	W02	Albert "PhatEd" O'Connor, Bradley Theodore "TaxiEd" Smith
89	S02	Albert "PhatEd" O'Connor, Bradley Theodore "TaxiEd" Smith
90	F02	Louis "FrenchEd" Mastorakos, Albert "PhatEd" O'Connor, Bradley Theodore "TaxiEd" Smith, Chris "KreasEd" Harasemchuk
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92	S03	Louis "FrenchEd" Mastorakos, Chris "KreasEd" Harasemchuk, Ian W. "iEd" MacKinnon
93	F03	Louis "FrenchEd" Mastorakos, Chris "KreasEd" Harasemchuk, Ian W. "iEd" MacKinnon, Emerald "StatsEd" Kushnier
94	W04	Chris "KreasEd" Harasemchuk, Louis "FrenchEd" Mastorakos
95	S04	Mark "BeatleEd" Toivanen, Chris "KreasEd" Harasemchuk, Louis "FrenchEd" Mastorakos
96	F04	Eric "inkEd" Logan, Emerald "StatsEd" Kushnier
97	W05	Mark "BeatleEd" Toivanen, Emerald "StatsEd" Kushnier, Chris "SheepNinEd" MacGregor
98	S05	Eric "inkEd" Logan, Ian W. "iEd" MacKinnon, Jenn "DirtyEd" Smith
99	F05	Mark "BeatleEd" Toivanen, Emerald "StatsEd" Kushnier, Chris "SheepNinEd" MacGregor, Eric "inkEd" Logan
100	W06	Ian W. "iEd" MacKinnon, Jenn "DirtyEd" Smith
101	S06	Chris "SheepNinEd" MacGregor, Emerald "StatsEd" Kushnier
102	F06	Eric "inkEd" Logan, Jenn "DirtyEd" Smith
103	W07	Emerald "StatsEd" Kushnier
104	S07	Michael "perkiED" Perki, Michaelangelo "AngelED" Finistauri
105	F07	Peter "mossED" Simonyi
106	W08	Michael "perkiED" Perki, Michaelangelo "AngelED" Finistauri
107	S08	Michaelangelo "AngelED" Finistauri
108	F08	Michael "perkiED" Perki
109	W09	Joe "InsideED" Collins
110	S09	John "ImpulsED" Baxter, Rami "RamED" Finkelshtein, John "StaticED" Stevenson
111	F09	Emily "CorruptED" Bain, Joe "InsideED" Collins, John "ImpulsED" Baxter
112	W10	John "ImpulsED" Baxter, John "StaticED" Stevenson, Rami "RamED" Finkelshtein
113	S10	Will "FuzzyED" Hughes, Harrison "GroovyED" Gross, Emily "CorruptED" Bain

114 F10 Emily "CorruptED" Bain,
          John "StaticED" Stevenson,
          John "ImpulsED" Baxter,
          Rami "RamED" Finkelshtein,
          Harrison "GroovyED" Gross
115 W11 Harrison "GroovyED" Gross,
          Will "FuzzyED" Hughes
116 S11 Emily "CorruptED" Bain,
          Harrison "GroovyED" Gross,
          Will "ConcealED" Morrison,
          Sacha "!ED" Koohgoli,
          Michelle "CowED" Conway
117 F11 Harrison "GroovyED" Gross,
          Will "FuzzyED" Hughes,
          Sacha "!ED" Koohgoli,
          Murphy "ScruffyED" Berzish,
          Michelle "CowED" Conway
118 W12 Will "ConcealED" Morrison,
          Sacha "!ED" Koohgoli,
          Murphy "ScruffyED" Berzish,
          Michelle "CowED" Conway
119 S12 Will "ConcealED" Morrison,
          Murphy "ScruffyED" Berzish,
          Lenny "ObjectED" Morayniss
120 F12 Will "ConcealED" Morrison,
          Sacha "!ED" Koohgoli,
          Lenny "ObjectED" Morayniss
121 W13 Julie "GingerbrED" Sturgeon,
          Sacha "!ED" Koohgoli,
          Lenny "ObjectED" Morayniss,
          Murphy "ScruffyED" Berzish
122 S13 Julie "GingerbrED" Sturgeon,
          Lenny "ObjectED" Morayniss,
          Murphy "ScruffyED" Berzish,
          Rachel "MuffinED" Wiens
123 F13 Lenny "ObjectED" Morayniss,
          Murphy "ScruffyED" Berzish,
          Thomas "ConvolutED" Baxter
124 W14 Murphy "ScruffyED" Berzish,
          Julie "GingerbrED" Sturgeon,
          Rachel "MuffinED" Wiens
125 S14 Katherine "bunniED" Tu,
          Murphy "ScruffyED" Berzish,
          Rachel "MuffinED" Wiens
126 F14 Katherine "bunniED" Tu,
          Amy "DictatED" Li,
          Rachel "MuffinED" Wiens,
          Jose-Miguel "SketchED" Velasco,
          Elizabeth "WibblED" Liu
127 W15 Katherine "bunniED" Tu,
          Julie "GingerbrED" Sturgeon,
          Jose-Miguel "SketchED" Velasco

128 S15 Katherine "bunniED" Tu,
          Julie "GingerbrED" Sturgeon,
          Amy "DictatED" Li,
          Elizabeth "WibblED" Liu,
          Thomas "ConvolutED" Baxter
129 F15 Katherine "bunniED" Tu,
          Thomas "ConvolutED" Baxter,
          Jose-Miguel "SketchED" Velasco,
          Zishen "quizED" Qu
130 W16 Katherine "bunniED" Tu,
          Amy "DictatED" Li,
          Jose-Miguel "SketchED" Velasco,
          Elizabeth "WibblED" Liu,
          George Lambrou
131 S16 Katherine "bunniED" Tu,
          Zishen "quizED" Qu
132 F16 Thomas "ConvolutED" Baxter,
          Katherine "bunniED" Tu,
          Amy "DictatED" Li,
          Shaundalee "undecidED" Carvalho
133 W17 George Lambrou,
          Angela "ExtrovertED" Le,
          Heather "tbdED" Stonehouse,
          Min "itorED" Zhu
134 S17 Cameron "TurnipHED" Roach,
          Heather "tbdED" Stonehouse,
          Shaundalee "undecidED" Carvalho
135 F17 Cameron "TurnipHED" Roach,
          Heather "tbdED" Stonehouse,
          Min "itorED" Zhu,
          Angela "ExtrovertED" Le,
          Shaundalee "undecidED" Carvalho
136 W18 Angela "ExtrovertED" Le,
          George Lambrou,
          Zishen "quizED" Qu,
          Anuj "swindlED" Opal
137 S18 Esther "staplED" Ahn,
          Heather "tbdED" Stonehouse,
          Min "itorED" Zhu,
          Anuj "swindlED" Opal,
          Clyde "yclypED" Brown
138 F18 Esther "staplED" Ahn,
          Anuj "swindlED" Opal,
          Clyde "yclypED" Brown,
          Jamie "confusED" Anderson,
          Nosherwan "over-engineerED"
          Ahmed
139 W19 Esther "staplED" Ahn,
          Terry "terrifiED" Chen,
          Min "itorED" Zhu,
          Jamie "confusED" Anderson

140 S19 Esther "staplED" Ahn,
          Terry "terrifiED" Chen,
          Anuj "swindlED" Opal,
          Josh "unsophisticatED" Rampersad
141 F19 Terry "terrifiED" Chen,
          Jamie "confusED" Anderson,
          Clara "clarifiED" Xi
          Josh "unsophisticatED" Rampersad
142 W20 Terry "terrifiED" Chen,
          Jamie "confusED" Anderson,
          Anuj "swindlED" Opal,
          Min "itorED" Zhu
143 S20 Clara "clarifiED" Xi,
          Jamie "confusED" Anderson,
          Kevin "god⚡peED" Trieu,
          Josh "unsophisticatED" Rampersad
144 F20 Clara "clarifiED" Xi,
          Jamie "confusED" Anderson,
          Terry "terrifiED" Chen,
          George Lambrou
145 W21 Clara "clarifiED" Xi,
          Kevin "god⚡peED" Trieu,
          Naman "caffeinatED" Sood
146 S21 Clara "clarifiED" Xi,
          Kevin "god⚡peED" Trieu,
          Terry "terrifiED" Chen,
          Yang "bipED" Zhong
147 F21 Clara "clarifiED" Xi,
          Kevin "god⚡peED" Trieu,
          Naman "caffeinatED" Sood,
          Yang "bipED" Zhong
148 W22 Clara "clarifiED" Xi,
          Chen "enamourED" Chai,
          Naman "caffeinatED" Sood,
          Yang "bipED" Zhong,
          Terry "terrifiED" Chen
149 S22 Clara "clarifiED" Xi,
          Chen "enamourED" Chai,
          Kevin "god⚡peED" Trieu,
          Yang "bipED" Zhong,
          Terry "terrifiED" Chen,
          Nicky "gildED" Priebe,
          Ryan "uknightED" Chow
150 F22 Clara "clarifiED" Xi,
          Terry "terrifiED" Chen,
          Nicky "gildED" Priebe,
          Daniel "distractED" Matlin,
          Ryan "uknightED" Chow
151 W23 Clara "clarifiED" Xi,
          Kevin "god⚡peED" Trieu,
          Evan "evaluatED" Girardin,
          Daniel "distractED" Matlin,
          Ryan "uknightED" Chow

THE MOST INCOMPETENT CAPTAIN

Last issue, I talked about the most badass pilot. Now, it's time for the opposite end. Captain Hans Ulrich Lutz had nearly 20,000 flight hours when he crashed Crossair Flight 3597 in November of 2001, killing 24 of the 33 people on board, including himself and his first officer. However, those 20,000 hours were hilariously bad. If he didn't crash a plane, his history would be grounds for a comedy.

When Lutz wanted started his flight training in 1961 at the age of 17, he failed the entry exam on his first try. This would continue throughout the 60s, needing multiple attempts to pass exams to get his qualifications.

He eventually made it as a pilot in Crossair in 1979, and you'd think that he probably just learned at a slower pace. However, there are some incidents throughout the 90s that show that he just wasn't a good pilot. I'll talk about the two most ridiculous ones.

In 1999, he was a captain of a privately chartered sightseeing flight of the Swiss Alps. Somehow, he got lost, and ended up in Italy. He only realized his mistake after the passengers noticed road signs in Italian, and let the crew know. Despite this egregious mistake, this wasn't reported until after the crash.

But the most ridiculous incident was in 1990. He was an instructor pilot of the Saab 340. He was teaching a trainee about the systems in the plane, and *thought* that the landing gear would not retract on the ground, even with safety systems being disabled. Can you see where this is going? Let's pause this moment, and go on a tangent about The Simpsons.

In an episode called "Fear of Flying", aired in 1994, Homer is mistaken for a pilot and put into the cockpit. After flipping some random switches, he retracts the landing gear on the ground.

Captain Lutz somehow managed to do a Homer Simpson in real life. He told his trainee to retract the landing gear, and to his shock, the landing gear retracted! The plane was so damaged that it was written off, costing Crossair millions of dollars.

So what did they do to punish such a stupid move? They fired him… as an instructional pilot. They kept him as a regular pilot. I'm serious. Because they were expanding so much, they kept pilots that would otherwise be let go. All of this was under a critically underfunded Swiss aviation regulatory agency, which wasn't watching Crossair until the crash.

Swiss aviation got better after the crash, but only after Homer crashed a plane. Safety is built on the blood of victims, but that blood is very stable. After Crossair restructured into Swiss International Air Lines, they haven't had a fatality since.

lwo

ERRATA FOR THE PRINT VERSION OF 151.5
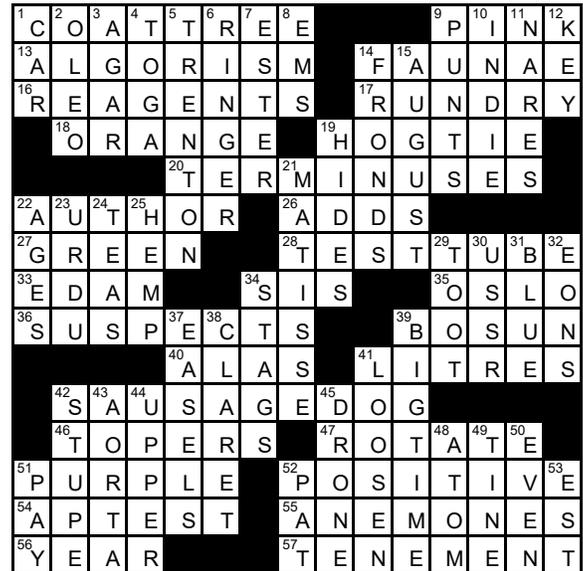
ISSN 0705-0410
UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

HIT THE GRIDDY (WORD)

gridCOMMENT *151.6*

hellloooo **gridWORD** gamers!! we have arrived at our final **gridWORD** of this semester, a very sad event :(((((i'm very happy to have been your **gridMASTER** this semester, and i most certainly will be seeing you all again soon for more **gridWORD** action :0000

last week, i asked you "if you were a vegetable, which would you be?" and those of you who solved the puzzle said:

· Angel, Asta, Bob & Eggy: *potato and onion*
· Tea people: *potato because couch*
· spaghettiinhalers: *bell pepper*

less of you managed to solve the **gridWORD** this time, but that's okay, because i know you'll all do your best for the next one! :)))) for this issue, congrats to angel, asta, bob and eggy

who collectively solved the **gridWORD**, and will collectively share the prize! go by MC3030 when you can to collect it :0000

also, i would like to honour spaghettiinhalers for your great work throughout this semester, i am very proud of you and your work, and i honour you with the wink wonk **gridWORD** champion award (this is not real except in my heart) :))))

i wish you all a great end of term!! there is no new **gridWORD** this issue, but an old one instead for you all to enjoy.
[Editor's Note: This issue's **gridWORD** *is a reprint of the very first* **gridWORD** *ever, published on February 1, 1973, courtesy of one Norm Macdonald.]* i will see you all again soon!!

bye bye :00000

Wink wonk

ACROSS

1. Cooking Instruction
5. Terminal
10. The Fatted _____
14. Bigshot
15. Cookie that you're Not supposed to buy (2 wds)
16. Lily Plant
17. Israeli Foe
18. _____ and Mortise
19. Sound Quality
20. Season's _____
22. Performed
23. Rapid Eye Movement (Abbr)
24. Bloodsucker
26. Emasculate
30. That's Hard _____ _____
34. Sellers or McQueen
35. To Date (Fr.)
37. Arm Bone (Var)
38. Supergroup
40. Greek
42. U.S.A.
43. Otherwise
45. Stomach Disorder
46. Have Respect For
48. Pisses
50. Tightfisted One
52. _____ Stevens
53. Woody _____
56. In the Hotspot (2 wds)
61. Enrol
62. Miss Barton
63. Strange Person
64. __ _____ of Gold
65. Steal from Again
66. Russian Mountain Range
67. Descartes
68. _____ de Menthe
69. Part

DOWN

1. Type of Rug
2. Yukon, for One (Abbr)
3. Dies _____ (Day of Wrath: Latin)
4. Greatest Pirate (2 wrds)
5. Sister _____ By Don McLean
6. Arab State
7. Snarls
8. Got Up
9. Mr. Bruce, for short
10. Album by 52-A (4 wds)
11. Quite a Bit (2 wds)
12. _____ Ranger
13. Nourish
21. _____ Firma
22. Analog Computer Operator
25. To Be (Fr)
26. Hiding Place
27. Pains
28. Wilt the _____
29. Rigid _____
31. Vote into Office
32. Year (Fr)

33. Those About to Start in a Golf Game
36. Sooner (Ger)
39. Rubies
41. Of the Moon
44. Jones or Wilson
47. _____, Zwei, Drei
49. Period of Earth's History (2 wds)
51. A Mathematician
53. Slightly Open
54. Slow Walk
55. Leo
57. Snare or Kettle
58. Japanese Medicine Box
59. Existing
60. _____ Stanley Gardiner
62. Math Tables Book (Abbr)

lookAHEAD

SUN APR 16	MON APR 17	TUE APR 18	WED APR 19	THU APR 20	FRI APR 21	SAT APR 22
National Librarian Day 📖	distractED's CS 442 exam	evaluatED's PMATH 365 exam		distractED's CS 365 exam	god⚡peED's CO 487 exam	Earth Day 🌍

SUN APR 23	MON APR 24	TUE APR 25	WED APR 26	THU APR 27	FRI APR 28	SAT APR 29
Lover's Day 💏	Tuition and fees due 💲 god⚡peED's CHEM 120 and CS 444 exams	clarifiED's CS 451 exam		National Prime Rib Day 🍖	Final exams end 🎉 Co-op work term ends 🐿	Grades begin to appear in Quest 😱

THIS ISSUE'S gridSOLUTION

LAST ISSUE'S gridSOLUTION