

Nov. 6. 2020



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## “WHAT IS THE ELEVENTH MONTH PLOT TWIST OF 2020?”

It snowed for the first time this season this past Sunday here in Waterloo, which can only mean one thing — winter is nearing. So swap in your snow tires, get your boots out of storage, and prepare to hunker down wherever you are like you're a bear about to go into hibernation. The winter cold and snow are normally deft deterrents to “going out,” and this pandemic is just the icing on top.

To me, winter just feels inextricably linked to the feeling of sleep. For one, the days get much shorter. It gets colder — making your bed more inviting than ever. As a child and even as a student at this university you'd get a few weeks of break from school, allowing you to sleep in as much as you please.

Winter is quiet: no birds are around to sing; the insects go dormant or die off. Winter is still: there are no leaves left on the trees to flutter in the breeze or cast trembling shadows on the earth. The snow itself often looks like a thick duvet smothering the land beneath.

But what about during a snowstorm? Once, I had to walk from the University to King Street along Columbia during a blizzard. I think the walk took 35 minutes or so. The wind was blowing towards me, so I had to look at the ground so that my face wouldn't get too cold. If I tried to look up, I would only be able to see two or three metres ahead. My breath vapours would condense and then freeze on my hair. And underneath the weight of my backpack and my parka, every trudging, sweaty step through the snow in my clunky-soled boots took effort. It was the sort of sensory distortion and overwhelming lethargy you normally only feel in dreams. I have this commonly recurring dream where my eyelids keep drooping as my vision swirls around me; no matter how hard I try to force them, pry them open, or look up at the goal in front of me, they fall. Like they do when I've stayed up too late trying to study or write a **mastHEA**— oops, I think this is getting too meta.

Let's pivot to this issue proper, shall we? I anticipated that the content for this issue would be dominated by the US election, but it appears that I didn't factor in how long it would take to count the ballots. In any case, we've got a nice, hearty issue full of great reads here from all of your favourite writers. Plus **profQUOTES** on page 3! I know you're starved for 'em.

clarified  
Editor, mathNEWS

**CC** | Surprise sweeps society since somehow s-nothing splodes, soothing suffering. (Super serendipitous!)

**A COOL PEN NAME** | The world gets rewound back to November 2020 and we get to experience the last year over and over again for the rest of eternity.

**CLOAK AND VORPAL DAGGER** | Murder hornets return, but bigger?

**ABALD MAN** | (Editors please replace this with Biden wins if Biden won and Trump wins if Trump won) [Editor's Note: "\\_(ツ)\_/"]

**FINCHEY** | We still won't know the results of the US election by Friday November 6.

**TENDSTOFORTYTWO** | They delete the “Great” after America collapses in the aftermath of the election. The new leader's slogan is “Make America Again.”

**BEYOND META** | God breaks the 4<sup>th</sup> wall and starts narrating and explaining his decisions. Turns out he does not have people's best interests at heart but is rather doing it for the lols.

**BOLDBLAZER** | Even more bad things that were predictable, or in the making of, or warned would happen at some point in the future, will occur by no surprise, by happenstance, or by chance, before the end of this year. What the exact bad thing(s) will be, will be unknown, and that is what precisely will make it a plot twist.

**VARIOUS PSEUDONYMS** | All nations declare a unified plan to move to a 13-month calendar, just to mess with a certain student-run publication in Canada

**APHF** | Everything after module 7 from CS 135 was all just a nasty dream and I can go back to getting above 60s with simple recursion stuff

**DERIVING FOR DICK** | A gender reveal party causes the death of an important political figure.

**GOD ⚡ PEED** | Sorry, folks, our tv show is cancelled. Earth is being replaced with *Cutthroat Kitchen*.

**CLARIFIED** | A perfect COVID vaccine is released, everyone gets it, and we all go back to our pre-March '20 lives. Hah!

## ARTICLE OF THE ISSUE

The winner of this issue's Article of the Issue is Gradient Descent for their piece *Waiting!* Congratulations! But if you're *waiting* around for your prize, I have to be the bearer of bad news — we've got nothing. I hope that doesn't discourage you from writing though. I'll be *waiting* to see whatever you come up with next! (Sorry, I just had to.)

clarified  
Editor, mathNEWS

### Advent calendars: coming to a supermarket near you.

CLARA XI, mathNEWS EDITOR FOR FALL 2020  
ALONG WITH JAIME ANDERSON, TERRY CHEN, AND GEORGE LAMBROU

# WHY I USE GINGER AS A FOOD SUBSTITUTE FOR EVERYTHING, AND YOU SHOULD TOO

It all started when COVID hit. As the increased need for natural immunostimulants forced my mother to start shopping in the vegan-whole-foods-zero-calorie-body-health aisle, an amazing discovery was made. It's called ginger beer. And it's the best thing you've ever fucking tasted. When you drink it, the first sip you take tastes sugary and carbonated, like Sprite or ginger ale. You think to yourself, "Hm, this isn't bad," and take another sip.

And that's when the good shit hits. The spice comes out of nowhere. It coils around your throat like a boa constrictor, scratching your uvula with painful nails. The chill fills your mouth, hugging your teeth, persuading you to swallow—but you can't swallow because your throat is on fire as the slippery liquid trickles down your esophagus like gasoline into a vehicle. And like gasoline it fuels you up, energizing every battery in your cells until you're working and studying and fighting and yelling to dominate the day.

Also the glass bottle it comes in is kinda cute. So after replacing all juices, bottled waters, and alcoholic drinks in my household with ginger beer, my family took me to Costco. It was here that I witnessed my second love, a feeling deep in my stomach that I knew was the destiny written for me at the beginning of all time and space: crystallized ginger slices.

These hairy golden chips were sent down by the holiest entities of all religions combined. Little beads of crystallized sugar on the surface reflect the soft texture of your lips before your canines tear off piece after piece. Parallel to the hairs, the chips tears easily, peeling off in layers with a kind of satisfaction akin to giving birth. But perpendicular to the hairs, the devil be upon ye. The chips resist any tear and pull, splitting painfully while the crystallized sugar crumbles upon your tongue. But the spice is unparalleled; it quenches all other emotions—fear, hunger, love, empathy.

I've sacrificed all bodily necessity of eating other foods for the spiritual gratification or these majestic ginger slices. The inner coating of my stomach is permanently damaged. I don't feel my tongue, on good days. By immune system is at maximum strength. No virus can touch me. But no icepack can extinguish the flames in my neck.

And when my throat really starts burning, I water everything down with a nice cup of tea.

Guess what I put in the fucking tea.

*A cool pen name*

# MATH 137 AND INSIDE OUT

I was recently browsing Reddit, when I came across a video post from r/uwaterloo which had a lot of awards given. It's something you don't see there everyday. Oh boy, it did not disappoint. I suggest all of you to go and see that video first.

Let's just say simply that my initial reactions were that I was just gobsmacked and completely baffled after finishing the video. The part that shocked me the most wasn't all the complaining and panic about the midterms MATH 137 had. My mind was solely focused on one completely different thing. Did someone legitimately recommend that people go watch Disney's *Inside Out* as a solution to their current woes?

Maybe there was some other reasoning behind it which I am not understanding. If that was the case, then sure, there is some good intentions backed by logic and reasoning. If that is not the case then... bruh. Solely from a PR move, it was a disaster to say the least, but what bothers me the absolute most out of all is the choice of movie.

How do you expect people to even watch *Inside Out* to begin with? Not to mention that most of those people won't have time to spare, and I'm sure that most people don't even own a copy or have paid for a streaming service that has it. Barring everyone suddenly going through illegal means to obtain a copy, recommending watching *Inside Out* is like a *nothing-suggestion*—you may as well have said nothing.

At least that person could have recommended a movie that was available on Criterion. What is Criterion, you may ask? Well, that is surprisingly the main topic of this article.

Criterion is a catalogue of movies that you can use right now. If you have a WatIAM username and password, or your last name and the 14 digit number of your Watcard, then you can login into Criterion and start watching whatever movies you want that is available. It's how I spent a part of my reading week.

The UW site description of Criterion says that "it contains programs from producers such as Paramount, DreamWorks, Warner Brothers, Lionsgate Films, Mongrel Media, Miramax Films and more" with "more than 3000 titles available." Notably, movies by Disney are not available.

Hopefully my article has had a much more positive impact about what movies you can watch than just MATH 137 simply telling you to go watch *Inside Out*.

**boldblazer**

P.S. If you go to <https://uwaterloo.ca/information-systems-technology/services/media-resources-library/streaming-sites> you'll see that there are even more catalogues other than Criterion.

P.P.S. If you know someone who goes to a different post-secondary institution, tell them about this too. Although, there will obviously be a different method to access it via their institution.

## WAITING

Phaedrus was waiting to die. The blade had pierced him on the side of his stomach. The fight was perhaps three fortnights past, but the wound had barely healed. Its edges hardened to a dark yellow, and when he moved a little too sharply, a red rose grew through his bandages. The shaman was uncertain if Phaedrus would live, let alone wield a sword again.

*What is a swordsman without his sword?* He did not dare imagine it. The blade that laid beside him on his small dusty cot was as much a part of him as any of his limbs.

When he slept, Phaedrus saw Yog' Zhoron with his piercing green eyes and long, braided red hair. *The Warrior King of the Sunset Islands*. Yog' Zhoron held a longsword in his right hand and a scimitar in the other. They spun and clashed in the arena, and sparks flew each time their swords met. The cheering crowd surrounded them, some shouting for Phaedrus and others for the Warrior King.

The cheering used to bother Phaedrus. The only sound he wanted to hear was the music of steel ringing on steel or the ballad of steel digging into flesh. He had taken many lives there, some old, some young. He lived, as he knew he would die, inside that arena. A sword in the hand and chainmail wrapped around his torso.

Was he scared of death? In his youth, he would have been angered by such a question. A swordsman should not be afraid, but now he was not so certain. He was scared now, but he did not think it was of death—it was of defeat.

According to the customs of the Faith of the Immortals, the man who died first would lose the fight. A shaman would clean the wounds to prevent infection, and the two injured men would wait until one died or yielded before they would be healed.

When Yog' Zhoron pierced him with his longsword, Phaedrus had swung his sword slicing off the Warrior King's arm. He could remember it so clearly. Yes, he remembered the scent of blood, sweat, and dust that clung to him like perfume. He remembered the deadly silence that fell upon the crowd as he swung his blade. He remembered the pool of blood growing, a mix of his and the Warrior King's.

But he could not remember the damage he dealt to the Warrior King. Some nights, he dreamed he had sliced off only a few fingers. Other nights, he dreamed he had sliced off the entire arm. Some nights, he was certain he would win. Other nights, he was certain he had lost.

"Is the Warrior King alive?" Phaedrus asked the guard as he brought in the meal. "Is he dying? What is his condition?"

Like always, no response.

*Perhaps, I should yield.* The thought had come across his mind many times before. A wound like this... a witch doctor could

heal it in an instant. He could live at the farm as he did in his youth. He would live a quiet life tending to the crops and animals. He thought of his family and friends back in the village, his first love, and his first bloody sword. Now it was only the bloody sword.

Yielding was just a passing fancy. He wanted to win so badly. It was an existential longing, the type of desire that buried deep in his bones and nestled between the marrow. Maybe it was his pride. Or perhaps it was those village boys with their jagged stones whose scars still ran down his body. It might have even been the promise he made to his first love when he left the village. But he waited and suffered this long—he would wait a little more.

The guard returned to collect the waste bucket, and Phaedrus once more begged for news. In the torchlight, he could see the thin lips pressed into a hard, flat line. He would sooner receive an answer talking to the wall.

Strangely, Phaedrus thought of his grandfather. He was a great bear of a man but soft of speech. When they received news that Phaedrus's father had died in the war, his mother had wept. Yet only a single silver tear slid down his grandfather's face.

"Life goes on," his grandfather said sadly.

He was a boy then, no more than eight or nine. Phaedrus had shouted, "He's your son. My dad." *The man who threw me up in his arms and caught me*. And now, there would be no one to catch him. He kicked over a chair and flung a glass jar into the red brick wall. It shattered.

Yet life did go on. He grew and trained and fought and lived and killed and loved and lost. And now he was here. If life went on, what of death? It was a simple two words: I yield, and his life would go on. But his mind was already made up. The life that went on should he yield was not a life he wanted to live.

No, he would not yield. *Not now, not yet, not ever.*

That night he dreamt of his death. He saw his mother weeping, and his grandfather, still stoic as ever. When he woke, his head throbbing in pain, he called out to the guard, "Should I die, send my bones to Athos. It's a day's ride north of the capital. There is a statue of a valkyrie."

He fell asleep again, dreaming of broken promises and bloody blades. Then he woke once more, his clothes soaked with sweat, and the pain returned. His only relief was trying to calculate his odds of victory. *Even if I only sliced off a hand, the Warrior King would have lost a lot of blood. But they say men of the Sunset Islands heal faster than the mainlanders.* Phaedrus did not know what was more painful, the sleeping or the waking.

The guard had returned once more. The smile on his face shone in the darkness of the torchlight. Shadows moved as he pushed the cell open with a loud creak. It was very cold.

Gradient Descent

## profQUOTES 144.4

ECE 105: FIRAS MANSOUR

- “ This is kick-ass.
- “ Grab this, don't eat it though. I love your slippers by the way.
- “ You let go, I will kill you myself.
- “ I've said I'm from the middle east, I don't believe in democracy.
- “ I was in the army for a year and half after I left Al-Qaeda... just kidding.
- “ What...the...fuck.
- “ Go suck on an egg.
- “ I used to have a jaguar back in the day.
- “ There's no justification for that anymore, I don't care what you're smoking.
- “ God knows what crap they subjected you to in high school, I mean stuff.
- “ You can tell the age of a civilization by the quality of its food.

CS 350: LESLEY ISTEAD

- “ If you've already conducted the autopsy once, you don't need to conduct the autopsy again...that would be creepy, and weird.
- “ If you have 256 TB of RAM, I want to know where you live so I can take your computer away from you.
- “ I get overly excited and I spill things all over me!
- “ [struggles with OBS] One of these days, I will remember what the shortcut keys are.

STAT 331: SAMUEL WONG

- “ Some of [this data] was collected from the annual Python challenge, which you might think refers to a programming contest—but in Florida, it refers to giving citizens the opportunity to catch pythons.

## SLIME TUTORIAL MUSICALS

If you are missing the experience of live theatre and would like to branch out your musical watching experience from *Hamilton* on Disney+, then search “slime tutorial” on YouTube. Why “slime tutorial”? I don't know why, its just the keyword convention people decided to go with hide illegal bootlegs on youtube.

If you search “slime tutorial”, you have to scroll down to the eleventh result before you get a hit that actually has anything to do with making slime. Fair warning: if you watch one “slime tutorial”, your YouTube recommendations will be full of “slime tutorials” with weird titles like “tapping dancing eggs the musical” or “you had one job orpheus” or “queer dance party slime tutorial” or “nerd kills girlfriend, self, and mankind with avocado”. You may end up watching more videos than intended out of sheer curiosity to understand the title.

Beyond Meta

## PROOF TECHNIQUES I'VE LEARNED IN MATH 147 SO FAR

- I can't think of a counterexample so it must be true
- We assume the result. By assumption, it is true. QED.
- Proof by ignorance
- Proof by confidence
- We define the result. By definition, it is true. QED.
- I can't prove this part so I'll write that it clearly follows from my assumptions and pray the TAs don't notice
- Let's just cite the Least Upper Bound Property here... that's useful sometimes
- If I have enough inequalities the TA's will skip this part
- Used LaTeX = proof correct
- And finally: given an epsilon greater than zero **there exists a delta greater than—**

A cool pen name

Vim has eaten my assignment.

PROF. PETER BUHR

# MELLIFLUOUS HALLS

WEDNESDAY, JANUARY 22, 2020 — CONRAD GREBEL MUSIC DEPARTMENT.

Ellesmere Van Doren loved the music department on the first floor of Conrad Grebel. It was a lesser travelled floor—quiet chatter, perhaps, but never the ever-present roar that popular spaces acquired. A small, cozy atrium served as a central hub, adorned with big, comfy chairs, low coffee tables, idly winking holiday decorations atop a small tree, and walls of magnificent, towering windows that framed the snowy grounds outside in a serene tableau. Small hallways, softly lit, led to an assortment of practice rooms and classrooms with a variety of instruments.

Ellesmere was a first-year music major. She'd hoped to live in Grebel's residence building, but had been allotted a room in Village 1 instead. Disappointment had reigned for a little, but that had all changed when she met her now-boyfriend Camien Sylvester at a residence event one fateful evening. Ellesmere felt she could get behind the idea of fate after that.

The physical spaces there in Grebel were nice, but what made the halls of the music department special for Ellesmere were the soft traces of songs which would escape the music rooms and wander the corridors throughout the day. Ellesmere had spent many an afternoon curled up on an armchair napping and listening to the different melodies. Sometimes they'd get along; sometimes they'd jostle. But always, she felt as though the halls were singing to her.



Ellesmere met Triton, as usual, in the practice room they had booked. He was there before her, and as Ellesmere let herself in, she hummed along to the piano piece Triton was playing.

Triton was a short guy, about the same height as Ellesmere, with a stout build and sturdy, handsome features. His long red hair, tied in a ponytail, danced as he fingered a flurry of keys in a long crescendo. Triton, hearing her enter, ended the piece early in a strong, full chord at the peak of of the rise.

"Hello, Triton." Ellesmere sat down on a chair next to the piano bench and started to unpack her flute. She spoke slowly, with a careful air of formality. "Are you ready for tonight?"

"Hello, Ellesmere." Triton answered with the pace of one walking on ice. "I do not believe I ever truly am. Nevertheless, it shall be fine. Yourself?"

"Likewise." Her flute was assembled. Triton struck a key on the piano, and she tuned to it with a few quick notes and adjustments. "Shall we run it once more?"

Pachelbel's *Canon in D*. A classic. A crowd favourite. Flute and piano: prim and proper, but somehow also warm. Today, Ellesmere felt, they were wonderfully in alignment. There were days when the the rhythm just felt slightly off, the

chords just a little out of tune. But on this day, it was all silky phrases and smooth chords.



WEDNESDAY, JANUARY 22, 2020 — RING ROAD, ON THE PATH TO CONRAD GREBEL.

Camien and Joseph made the cold trek across campus to watch Ellesmere's performance.

Joseph was a close friend of Camien's. *Or, at least, that used to be the case*, thought Joseph. Lately, it seemed that ever more of Camien's focus and time was spent on his girlfriend Ellesmere, and Joseph couldn't help but feel a creeping sense of dismissal.

"We're watching Ellesmere and who perform tonight?" Joseph asked.

"Triton. That's his name, I guess. Ell' says he plays the piano really well." Camien shivered in the cold.

"I feel like I haven't been seeing Ellesmere too much lately." Joseph mused. Joseph used to eat lunch with Camien and Ellesmere all the time, but lately, Ellesmere had been busy with lunchtime music rehearsals, and Camien took on a sullen demeanor when it was just the two friends.

Camien and Ellesmere had only been a couple for a few weeks. On many occasions, Joseph had listened to Camien gush about how pretty, how sweet, how charming Ellesmere was, seen his excitement and delight when he saw her, and noted his quiet disappointment when Ellesmere was busy with something on an evening where he'd hoped to bring her to dinner or a Ballroom Dancing Club practice.

Camien was absolutely smitten, figured Joseph. The couple had moved fast—they'd only known each other for a week or two before becoming official.

"Yeah, she's been really busy with music stuff lately." Camien sighed. He turned to Joseph, stopping in the snow. It was very quiet, and his sigh cut through the evening air. "To be honest... I haven't seen her as much as I'd like either. It feels like she doesn't give me the same attention I give her, you know? Like, I'm walking through all this snow to go watch her and Triton play some music when I should be working on an assignment or something, but when I ask if she wants to go for dinner, she's got *more* music practice? We're a couple, and we haven't gone out together since last Friday!"

Camien paused when he saw Joseph's shocked expression, brows furrowed and mouth slightly opened. "Is—is it all going okay? Have you told Ellesmere how you're feeling? It... sounds like you're feeling a little... underappreciated?"

"Yeah, yeah, maybe I'll talk to her. Let's get going, or we'll be late." Camien started walking, a faster pace now.

*They don't seem to be doing too well...* Joseph thought. A more sinister part of his mind spoke whispered: *maybe Camien'll start being a good friend again if they break up.*



### WEDNESDAY, JANUARY 22, 2020 — CONRAD GREBEL CHAPEL.

The chapel, like many rooms in Conrad Grebel, was small, but large enough to comfortably hold everything that needed to fit. The chapel jutted out of the rest of the building like the bow of a ship, and stained glass windows lined both sides. A few rows of chairs, aisle down the middle, were neatly arranged in the centre, and a grand piano took centre stage.

Joseph and Camien arrived at the foyer outside the chapel a few minutes before the recital started. They grabbed some program pamphlets and settled into seats in the third row. The chapel was fairly full, with only a couple spots left.

Camien flipped open the program. There they were: Ellesmere Van Doren and Triton Bell, under 'Performers' in the back, separate from the list of music pieces. He felt an inexplicable pang of annoyance as he read Triton's name. What was the piece Ell' had said she would be performing? Camien looked through the list of pieces, but he couldn't remember. He spotted Ellesmere seated in the front row with her flute, whispering something to the red-haired man next to her. Then, as if she'd felt Camien's presence, Ellesmere turned.

She smiled at once, and waved and met his gaze. Camien felt all his irritability slough away, and bathed in the giddy glow that overcame him. Ellesmere was so happy and excited; he could see it in her eyes.



Ellesmere had been whispering a few last-minute notes about *Canon in D* to Triton when she had a sudden urge to turn around. She broke off mid-sentence, and looked over the back of her seat to see none other than Camien in the third row! He'd managed to make it! Ellesmere hadn't been certain he could, since he'd been really busy with assignments lately. Ellesmere too had been quite occupied preparing for this very recital, and she felt bad that she'd not been able to spend as much time as she would have liked with Camien lately. As Ellesmere waved happily, she vowed she'd spend a bit less time on music after this recital, and more on Camien.

The beginning of an introduction from the music professor at the front of the room cut their moment short. The prof explained that this was a recital earlier in the term than usual, thanked the audience for making it in spite of the cold, blustery weather, and introduced the first performers.

A violin, cello, and guitar trio of fourth-years played the first piece of the evening, a pretty arrangement of a Bach chorale she didn't recognize. Ellesmere and Triton were second-last on the program, and Ellesmere listened to the assortment of performances with a few too many butterflies in her stomach

to really sink into the gentle stupor of music appreciation she normally would. She was always nervous before performing, even if it was for a relatively minor recital like this one.

They were good, all of the student musicians. Ellesmere knew them from socials, classes and chats in the hallways, and she expected no less. She noted a few minor slips, but nothing that would be telling to a less experienced listener.

Ellesmere looked over at Triton. His eyes were closed, and he was nodding along to the one-two-three beat of *The Blue Danube* plucked on a double bass. She glanced over her shoulder at Camien and Joseph. Camien smiled at her, and she smiled back.

At last, it was Ellesmere's turn. She exchanged a nod with Triton, and the two of them stood and walked to the front of the room. There was no stage, and the front row of the audience, full of the familiar faces of the other performers, was only a few feet away from where she stood.

Ellesmere took a second to look over the audience, meeting what eyes she could, lingering for a moment longer upon Camien and Joseph. She raised her flute to her lips, took the sharp, up-beat breath that would let Triton know they were starting, and played. She played the long, legato notes just as she'd rehearsed, and Triton brought to life the rich, full chords beneath. *Canon in D* wasn't complicated, wasn't flashy. But in the late evening, inside a warm chapel on a freezing winter's night, it was perfect.



Camien felt pride well up inside him as Ellesmere stepped in front of the audience. She wore a formal black blouse and long skirt, and her brown hair was wrapped in a bun. She looked noble. Regal. Their eyes met briefly, and when she started to play, it felt as if Ellesmere was playing just for him.

It was a beautiful piece, thought Camien. Classical music wasn't usually his preference, but this was a special moment.

Ellesmere swayed gently with the music as she played. Her eyes were closed. Behind her, Triton moved as well, soft piano notes accenting, but never taking over the sweeping flute line.

Then the motif arrived, and recognition struck Camien. So *this was Canon in D!* And it was a charming rendition that Ellesmere and Triton had put together.

As gently as it had started, the piece drew to a close. Ellesmere held the last note long and clear, then tapered it off to still silence. The crowd didn't clap between the performances, saving applause for the end, but Camien could feel the kind contentment in the chapel.

Triton stood up and strode next to Ellesmere, and the two bowed for the audience, then returned to their front-row seats, sharing a glance, and nod, and a smile.

Camien felt a twinge of jealousy at this last. It was magical, how Ellesmere and Triton wove such a beautiful piece of music together. Camien didn't play any instruments. He'd never experienced the magic of making music first-hand. He could only watch Ellesmere and Triton do so.

The last piece was *Flight of the Bumblebee*, performed on violin by the oddly-named Name of Person. It was impeccable, and when Name finished, the audience applauded at long last. The rest of the performers rose as well, and the applause continued.

"Wow, Triton and Ellesmere sure play well together, don't they?" Joseph commented over the clapping.

"Yeah." Camien sighed in return. "Yup."

The applause died down, and Ellesmere made her way over to Camien.

"Oh, Camien, you made it!" She said, with a little shiver of happiness. "How did you like it?"

"Ellesmere, it was amazing!"

"I'm so happy to hear that!" She looked over at Triton, who'd started leaving the room. "Sorry, I've got to go put away my flute back in the practice rooms. I'll see you in a bit!" Ellesmere hurried off after Triton.



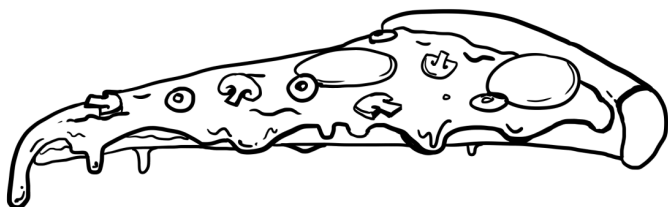
Joseph saw Camien's expression shift as Ellesmere and Triton left together. It was very, very subtle, but Joseph knew Camien well. It was envy. Inexplicable possessiveness. He was jealous of what Ellesmere and Triton could do that he couldn't.

In the glowing, elated, post-recital atmosphere full of congratulations and thanks, that baleful part of Joseph's mind concocted a plan. A plan that involved Camien and Ellesmere, Ellesmere and Triton, the destruction of a relationship, and the rebirth of his friendship with Camien.

Joseph tried to suppress the idea. But it would be so, so easy to make it happen. Besides, Ellesmere wasn't that good for Camien, was she? Camien had become so, so clingy since they'd become a couple.

A single tragic sentence would do it.

CC



## A YEARLY REMINDER

Here is a yearly reminder for everyone regarding the total solar eclipse on April 8, 2024, of which part of the path will include Ontario (mostly in the South along Lakes Ontario and Erie)<sup>1</sup>, Quebec (mostly South of the St. Lawrence River)<sup>1</sup>, most of New Brunswick, and most of Newfoundland.

Why am I reminding everyone when it is still about 3.5 years away? If the last great solar eclipse across the continent in 2017 is any indication, I think it's best if everyone plans far, far ahead of time. I would advise people plan a year ahead of time at the very least. You don't want to be the one who ends up trying to find a hotel room in the path of the eclipse amidst a 100% rooms booked situation like we saw happen the last time.

For out-of-province and international students, assuming this pandemic thing is solved before 2024, maybe you could schedule your terms so that you are in Waterloo, and thus near the path of the eclipse, in the Winter 2024 term. Hopefully final exams won't fall on that day.

**boldblazer**

1. I'm not completely sure, but I think the path of the eclipse just barely reaches Toronto and Montreal. Even if it turns out to barely miss them, I doubt you would need to travel *that* far from the city.

## RE: ALEXANDER HAMILTON BUT HE'S A CS MAJOR

Dear O(n)-Manuel Miranda,

So, like, I read your article last issue and like I listened to the song and then like I watched Hamilton and wow it is soooo goooooooooood!! Thanks much for the introduction! (Your article's even better with the entire musical as context.)

I have the honor to be Your Obedient Servant,

C dot C

**In math for some reason,  
people construct things  
but do not build them.**

PROF. DAVID MCKINNON



# HOW I WRITE MY RESUME BULLET POINTS: ADDING AN ENTRY FOR mathNEWS

Up until very recently, I was not aware that people mention their experience writing at **mathNEWS** as part of their resume on co-op jobs. As they did, so I decided to as well! And as any **mathNEWS** writer would tell you, if you can do something, you can probably squeeze an article out of it. So using my **mathNEWS** entry as an example, I'm going to tell you how I write and edit the bullet points on my resume.

Where to put **mathNEWS** was fairly easy for me to decide—I already had some university-related activities as bullet-points in my Education section, so **mathNEWS** would probably go there as well.

My initial draft for the bullet point looked like this:

**Writer, mathNEWS:** Regularly write articles and opinion pieces in the biweekly student publication of the Faculty of Mathematics.

This looks fine, but a resume is all about telling the employer what value you bring to them. Yes, I write articles for **mathNEWS**, but how does that help Company, Inc?

If you want to take one thing away from this article, let it be this wisdom bestowed upon me at a resume feedback session—resume bullet points should almost always be of this format (or something similar): “Accomplished X by doing Y, using Z.” X is the positive change you brought about, Y is the process by which it was brought about, and Z is the things you used to do it. You want to lead with how you helped Company Inc, then describe how you did it, and optionally what tools you used. Here's another bullet point from my resume to show what I'm talking about:

*Streamlined web searches for academia by introducing research-focused features like link previews and 'pinboards' to save search results, using Node.js and Microsoft Azure APIs.*

Now, how can we incorporate this into our **mathNEWS** line?

The “doing Y” in my scenario is “writing articles”, but what is “accomplished X”? What benefit to you, the readers, do my articles bring? This, in my experience has always been the hardest question to answer. It's easy to say that writing articles is what I accomplished, but that doesn't make it clear what value the readers got out of those articles.

Going over my article history, I've written about personal experiences, introductions to certain CS topics, recipes, shitposts, opinion pieces, guides... there's a lot of stuff, but the two common themes are entertainment and knowledge. So:

**Writer, mathNEWS:** Provide insight, experiences and entertainment to students by writing articles and opinion pieces for the biweekly student publication of the Faculty of Mathematics.

Much better! It sounds fairly impressive and captures the essence of my contributions pretty well, I think. Note that I didn't have a “using Z” part of the formula here, because the only tool I use is the WordPress text field, which I feel is not a marketable skill for the kind of jobs I seek.

Now I just hope that if employers look me up (hi, potential employer reading this!), they find my technically impressive/job-relevant posts before they find the shitposts. Which is kinda hard since now that I go back and check, I generally have one shitpost in the same issue as every helpful article I post. Oh well.

Note that I am obligated to inform you that I am not a lawyer and this is not legal advice; especially if you're a first year, remember to get your final resume checked out by someone experienced! If you know any upper-years, badger them into looking it over. If not, there are generally a lot of resume critique events organized by various clubs and societies, so keep an eye out for them. If nothing else, get your resume checked by CECA (or is it CCA now?) advisors: <https://uwaterloo.ca/career-action/graduate-students-post-docs/career-advising-appointments>.

Good luck out there getting a job and making Feridun proud!

tendstofortytwo

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## ODE TO THE GOLDEN RATIO

love

math

for its

ultimate

complexities are,

beyond infinite, glorious.

if god exists he is hiding within math, no doubt:

proof is in the great constants, that which transcends math, which existed even before time.

Cooper Barron

# STICKLER FOR THE RULES

## THIS FUCKER WROTE A WHOLE LOT OF NONSENSE AGAIN?

I was never originally planning on getting into mathematics, much less computer science. But now that the past has passed, I can use the ability of foresight, and I can see that it was never anything but inevitable.

When I was in kindergarten, my dad brought home a couple of picture books for me to read. They were on grammar: “A **noun** is a person, place, or thing...” I loved it. Something clicked in my head at that moment. That language was not just sounds and shapes but also something that can be described, something that had rules, something that could be abstracted... it was a new thought. I did what every kid would do. I made up a story: “Once upon a time, there was a **Noun** and a **Verb**, and then **Noun** said...” I was pretending to read it off the page. My dad yelled at me for not taking the books seriously enough. The next day, I went to my friend and started telling her all about it: “Did you know, there's this thing called 'grammar', and there's **nouns**, which are a person, place, or thing...” Strangely, she didn't seem all that into it.

The following year, I started taking piano lessons because my friends were all doing it. And I continued doing it for seven years. By the way, I'm not musical at all. I was so bad. My parents begged me to stop. The lessons were a waste of money, and I didn't even like it. I could only do one thing. At a certain level, everyone needs to learn music theory. For someone good at math, it's quite easy. My teacher told me to write out the steps for each question, but I just liked to do all the transpositions in my head. She was the same teacher who taught me piano, and once in sixth grade I started crying in the middle of a lesson. I could tell she didn't know what to do. I wasn't crying because of the piano, but maybe she thought I was. She gave me a juice box and sent me home.

I think the image is clear now. Feelings are hard and complicated. I like rules, and abstractions, things that can evaluate to true or false. Everything else is messy. Math is simple, math is clear, math is beautiful.

Right? Right?

I can still hear it now: “It's not fair.” I must have said this a lot as a kid. I heard a lot of other kids say it. I think you, too, must know what the response would be: “Life's not fair.” How unsatisfying. Shut up, suck it up, deal with it, other people have it worse. I don't say it anymore. I can't. It still rings, loud, in my head. And every time someone says it to me, I wonder if this is the time I'll finally become old and bitter and spit the dreaded phrase back at them. I haven't yet. I hope I never do. What I want is to say again, for the first time in many years: “It's not fair. It's not fair...” But I can't, I can't. Every time someone says it to me, they deserve to say it more than I do.

When I was in high school, someone brought me into a Facebook group chat and then accused me and my two best friends of being: “The three autistesters.” Look, to be clear, I don't have autism. And as far as I know, neither of the other

two do, either. But to their credit, I can see it, sort of...? Okay, not really, not without the cost of misinformation. But I know why they would call us that. Because I liked to correct people too much, and one of my friends was always pacing around the classrooms, and the other friend, well, likes Pokemon a lot. The point being that we were just a bit different from other people, and not in the friendly and ditzzy way. In the way that we obsessed over things with rules, things that could be described and tabulated. Therefore: “Math is my passion, math is my beauty, math is all things that behave”?

**NO. NO.**

You'd think it would be the case, that it would be simple in such a way. How I want it to be so. That math is the fairest of them all. That in a world of full of ugliness and injustice, math is what triumphs, in its purity and elegance, the way conclusions and calculations can arrive from nothing, the un- and -assuming nature of a proof existing beyond words in another space adjacent to our own, and only manifesting when a person's thoughts call upon it. I want it to be so. But, then, if so, why are people bad at math? You could call this a proof by contradiction, but there are no axioms.

“It's not fair.” I want people to see math's beauty. It's all I have. I was reading DFW's “Tense Present”. It's, uh, at its core a review of a dictionary, but also an essay on language and society. It's good. You should read it, but if you're not a great reader you may struggle, as I did. I was struck by one of his arguments: that pedant grammarians who struggle to speak in colloquial tongue are just as inflexible and linguistically stunted as those who struggle to write in standard, “proper” English. It's not that I disagree, really, I would very much agree with him, and the whole essay is written in a distinctive mixture of slang and academic language, so that the voice of the writing itself is another foundation of the argument. It's remarkable, it's genius, and it's so very un-empathetic. The essay is written for the pedant grammarians. I don't think anyone else gives a shit. So it's emotionally detached regarding the unfortunate, those who have been dealt a bad hand. And though the essay acknowledges their struggle, it's ultimately the conclusion that they just need to work harder to learn proper English. “It's not fair.”

Something I never realized was that you need to know language in order to do math. It's not a collection of ideas floating around in userspace, waiting to be synergized with another... I mean, I guess that's what it is like in your brain, but then, in formalization, there is this need for a word, something that switches the viewport from the empty space inside of your head to inside of someone else's. And you have to see it from their side, you have know what language they speak, even if it isn't proper English, and it probably isn't, it's probably this weird math-y variant where “recurse” is a word, and you have to speak it, too. If you're not using Coq, it's false rigor, it's pretend, it's building atop someone else's foundation, and then if you are using Coq, there's another language for

you to learn. I got this brief glimpse into the world of online dating. It's a language where you never say what you mean, second-guess, play your affection-starved cards carefully, and then, when it crashed and burned in the span of a week, think over and over the words, switching viewports, wondering what the other person said, guessing, forming conclusions, all without rigor, all based on ourselves, reflecting from inside.

It pisses me off. It bothers me. It annoys me. I hate it. That you can't make someone see what you see. That math is not an intrinsically fair entity, accessible by anyone and anyone who can utter the words "if... then, there exists...", but is, simply above all, something you can be "good at" or "bad at". Yet it's all I have. I do not have: things like persistence, resilience, good-natured-ness. Even now, I am not the best math student, only the kind that's slightly-above-average. And then, when someone says to me: "It's not fair". I can't share math with them, I can't show them what I see, I can't say it doesn't matter, even if it doesn't, to me, I have to nod, and say I agree. Because it is true, for them, the pain and the suffering they endure. I don't want you to endure it any longer. And then, on the other side, I am defending you against the naysayers, those who tell me you just need to reconfigure your brain to work differently and all of your problems will be fixed, and yet none will reconfigure themselves to recognize the beauty of mathematics, so what gives.

I guess it's the experience of being a so-called "autisteer" that places me right in the sidelines here, always translating, always interpreting the outside world for those unlucky enough. Because I know the rules. And then the phrase: "It's not fair." Not one that can be translated. The injustice, the pain, the suffering and isolation. And jealousy, for those who know proper English, who grew up with it, who know mathematics, who can bridge the connection between thought and idea and word and finally rigor. And then also, the very fact, the unbearable truth, is a memory, looking inwards, the unknowable sadness that ensued whenever I came into contact with water, staring into the void of a mouth held agape, which is the truth, the truth that I wanted mathematics to be my everything. I wanted to embrace it and become it, because it\* \*\*\* \*\*\*\*. But then if even my very own mathematics cannot be fair, then

what's fair? What's fair?

cy

**A mathematician cares primarily about the abstract nonsense.**

PROF. DAVID JAO

## DIALECTICS II — SOMETHING TO TELL YOU

FRIDAY, MARCH 26, 2021 — mathNEWS 145.6, PAGE 14.

Nestled comfortably near the bottom of the page in the right-hand column between an *N Things* and a blackBOX, a short article rests:

DEAR LESS TRAGIC,

*Today, I doff the flourishes of language. I shed the armour of intricacy, the shelter of verbiage. I have something to ask; something I've been meaning to ask for a while. I ask it in bare simplicity. Now that the chains of the online world have been lifted, and we can once again meet in person,*

*Would you like to go on a date?*

WORDRESS

SATURDAY, MARCH 27, 2021 — AN AFTERNOON PHONE CALL.

*A few taps on a phone screen. A pause. Eight rings, then the sound of a phone being picked up.*

**Wordress:** *[Fidgeting nervously]* Um, uh, hi, Camien...

**Camien:** Hi, Wordress! I saw your article in the last mathNEWS issue!

**Wordress:** *[Inhaling sharply]* And, uh, what do you think?

**Camien:** Wordress, you're cute, awesome, interesting to talk to, and just brilliant. I would be delighted to go on a date with you.

**Wordress:** *[Giggling in hysterical relief]* Oh, haha, oh, um, thanks. I'm, like, so happy to hear that!

**Camien:** Thank *you* so much for asking! But, I guess, uh, there's something I need to tell you. *[Pause]* There's something you need to know before... um... a date. Do you, like, remember the night I first met you? That night in MC when you and Sarah found me crying in that classroom?

**Wordress:** Of course I do.

**Camien:** *[With much hesitation]* I've been meaning to tell you about it, but uh... I never did get around to it. It's something I'm... ashamed of... and I think you deserved to know before asking me out. It has... something to do with my, uh, ex-girlfriend, Ellesmere. Let me tell you what happened on that tragic day—

*To be continued...*

# BREAKING NEWS: COMMUNITY VOTES TO STRENGTHEN SPONGEBOB DICTATORSHIP

The people of the Facebook page *Every Spongebob Frame In Order* (ESFIO) have voted to remain a dictatorship. After an astoundingly heated debate over how the page and its posts should be moderated, the results of the vote were clear, albeit by a narrow margin, that the people want the authoritarian system of page governance to remain.

This page of over 770 thousand followers is widely known for the bot that posts a single frame from a *Spongebob Squarepants* episode in order, every couple minutes, <sup>2</sup>/<sub>4</sub>, for over the past year. Starting at Season 1 Episode 1, the page, at the time of writing, has reached near the end of Season 5. With the popularity of the page and its somewhat explosive growth, the page and its community has also seen growth both in terms of numbers and in terms of the memes and inside culture that developed. Of course, with the growth of a community, there was always bound to be some level of negativity and unwanted activities from certain members, which the single operator of the page, known as the Botmin (a portmanteau of bot and admin) would deal with. However, at a certain point, the issues and challenges present in the page became too much for one person to handle and began to spiral out of control.

Thus, after a tumultuous time—in which spam was prevalent, “literal fucking porn” was posted in the comments of many posts, photo comments were disabled, and the entire country of Indonesia was blocked from viewing the page—the Botmin decided to conduct a vote to determine the direction of

the page, and to further get clarification and consent from the community. In the vote, the community was given the following topic of “We've obviously been having some issues, but we have only taken drastic solutions until now,” with “No, it's up to you,” and “Yes, please consult us” being the only two available options.

The vote commenced with great feedback and participation from the community. It would remain open over the course of 24 hours. The final results were as follows: the No option won with 51.02% (1646 votes) and Yes with 48.98% (1580 votes). Thus the decision of the community became known that the people wanted to give the Botmin clear control and reign over the page and to moderate the comments of posts in whatever fashion.

In the comments of the post that revealed the final results, the people appear to be receptive and accepting of the results, with comments of praise and contentment. If there is one consensus that is clear, it is that the people are welcoming of the strengthening of the powers of the Botmin, and to hail the Botmin as the Supreme Leader of ESFIO. Even the Botmin seemed to enjoy the results with the crowd, commenting a picture of the page's profile picture but with the Soviet Red Banner as the background with “Chairmin” as the single word comment. It is no longer just *the* Botmin. It is *our* Botmin.

**boldblazer**

## THE LOTTERY

Every Friday, my grandfather would buy a lottery ticket from the 7-Eleven three blocks from our house. Every Friday, he would scratch them off with no less fire in his eyes than the week before, and every Friday he would lose again. I never really understood that.

“It's such a waste of money,” I said.

“The lottery is a tax on dumb people,” I said.

I was such an aggressive eight year old.

Now, my grandfather wasn't a dumb man. He knew the odds, and he knew his chances. Maybe only one man from our town had struck it rich in the past 20 years. But every Friday, he tried it again anyway.

“That's the American Dream”, he told me. I didn't get it.

There's a little less than 30 hours before rankings come out. I'd be a liar if I said the stress wasn't getting to me. All you other Cycle 2'ers are probably feeling it by now, I know I am. That sense of dread. It's unmistakable. It starts in the stomach

disguised as the other kind of hunger and works it's way up to your shoulders until you capitulate and roll the doubt away once. Or twice. Oh, Mr. Goose. Every damn time.

I'm not afraid of being rejected, although I don't look forward to continuous with which my next few weeks will surely be spent. I can't even say if I'm afraid of the rejection itself, though it'll surely sting. My fear is something more selfish and illogical: I don't want the dream to die.

You know exactly what I mean, and you've all thought about it. The dreams of the job and the life and the work, and the congrats from your friends and maybe even the approval of your parents. That moment of sheer and unadulterated joy could very well happen to any of us, and it could honestly happen to me. That doesn't change the fact that tomorrow, it ends, and God I hate endings.

I scratch off my lottery ticket at 12:00 pm on November 5, and that's it. No more Fridays. I'm terrified.

**A Stressed Person**

# A PASTA RECIPE SO GOOD, IT'LL MAKE ANYONE FORGET THE VARIOUS CONTRACT MURDERS THEY MAY OR MAY NOT HAVE COMMITTED

Food has an ability to bring back long lost memories. I love the way food can remind you of past lives, past adventures.

But sometimes, you want to forget. For example, if you, from the years of 2003 to 2012, were credibly accused of several contract murders in the greater New York City area, and perhaps barely escaped prosecution for such contract murders, I have just the pasta recipe for you.

This recipe is based on an old Sicilian recipe. I learned it from an old cookbook, and definitely not from a long period of service in an ethnic gang from that region.

## INGREDIENTS

- 8 oz. pasta
- 4 Tbsp salted butter
- 3 cloves garlic
- 28 oz. can whole peeled tomatoes
- ½ tsp salt (or to taste)
- Freshly cracked pepper

These ingredients are simple, unlike arranging the accidental death of Bobby “The Horseman” Ricci, something which I only know about from public news reports released at the time. If you're used to complex recipes that take days to put together, don't worry. This simple dish is much easier than disguising arson as a gas fire, running into unexpected resistance, and killing three bodyguards in close combat before finishing off your target with your last bullet.

And technique-wise, it's simple. I guarantee you will not suffer burns like the ones I did not suffer after trying to escape a burning apartment while being pursued by police.

## METHOD

1. To make the sauce, mince the garlic and add it to a large deep skillet with the butter. Sauté the garlic in the butter over medium heat for about a minute, or just until it becomes fragrant. Add the can of tomatoes, along with all the juices, and some freshly cracked pepper. Break the tomatoes up into a few chunks with your spoon. They should be soft and easily crushed like the ribs of Stephen “Loose Lips” Tomacci, who I did not dismember and bury in the Hudson River for reasons relevant to his nickname.
2. Stir the ingredients in the skillet, then let it come up to a simmer. Once it reaches a simmer, reduce the heat to medium-low and let it continue to simmer, without a lid, for about 30 minutes. Stir the sauce occasionally as it simmers, breaking the tomatoes into smaller pieces as you stir. As the

tomatoes dissolve into the sauce, do not reflect on the face of Tomacci disappearing into the depths, and do not consider the moral implications of killing someone who you knew for a fact had three children.

3. While the sauce simmers, cook the pasta according to the package directions. Save about ½ cup of the starchy cooking water before draining the pasta in a colander.
4. After simmering for 30 minutes, the sauce should have thickened and become slightly less acidic and slightly more sweet. Season the sauce with a final ½ tsp of salt (or to your liking). Add the cooked and drained pasta to the sauce and toss to coat. Use some of the reserved starchy cooking water to loosen the pasta if it becomes too dry. Top the pasta and sauce with a generous sprinkle of toasted bread crumbs, then serve. As you eat, do not consider turning yourself in for your crimes, because you know that you will be punished in prison for turning state's evidence, and instead fester in your guilt in your Long Island cabin, watching old videotapes that remind you of the glory days, when you were alive, when you thought the world was your oyster, when you were the most feared man in the five boroughs instead of a withering elderly criminal...
5. I mean, don't do that.

Enjoy your meal.

## NOTES

I used whole peeled tomatoes “in heavy juice.” The red reminded me of the Profaci job, and the endless amount of bleach I had to use, the condemned hotel room...

UW Unprint

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## EPISODE 11: ABSTRACT LIST FUNCTIONS


On the following page, enjoy episode 11 of the MathSoc Edu-Action! series: [Computer Science Abstract List Functions!](#) If you have any feedback you can contact the project manager Gavin Orok at [mathsoccartoons@gmail.com](mailto:mathsoccartoons@gmail.com) or fill out this survey: [https://bit.ly/cartoon\\_feedback](https://bit.ly/cartoon_feedback).

Gavin Orok

## Computer Science: Abstract List Functions


Story by Clara Xi, Art by Isabella Scott

These are all single-use kitchen tools.



Even though they all do a similar action (cutting, slicing), they each work for just one kind of food.

Consider a knife with an interchangeable blade. Since you can attach any kind of blade to the handle, it's much more versatile.



This single knife is able to cut and slice any kind of food, given the right blade attachment. The handle and the blades take up a lot less space in our kitchen than a bunch of single-use tools, too.

SIMILARLY, WHEN WE WRITE PROGRAMS, WE WANT TO AVOID REPETITIVE FUNCTION CODE.

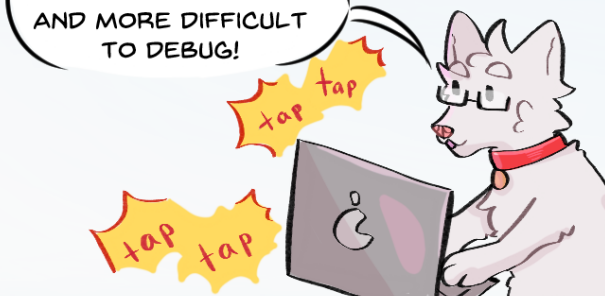
IN TURN, OUR PROGRAMS BECOME HARDER TO MAINTAIN AND MORE DIFFICULT TO DEBUG!

REPETITIVE CODE "CLUTTERS UP" OUR PROGRAMS, AND MAKES THEM LONGER.

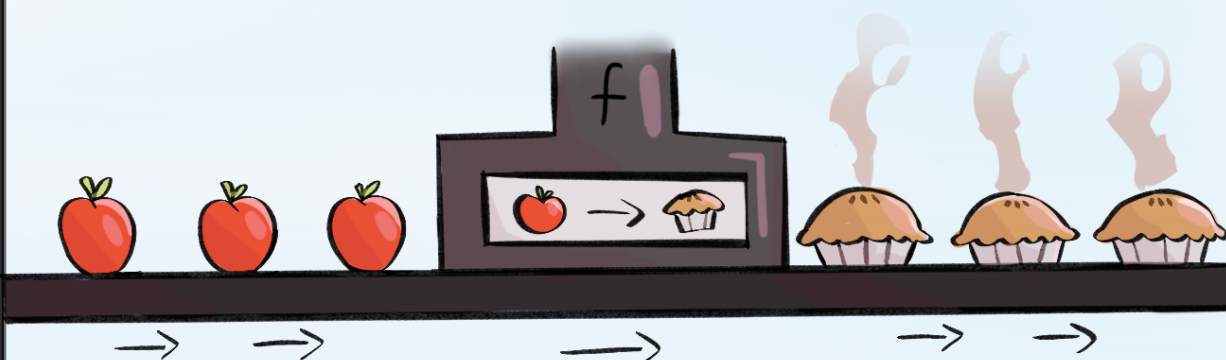
Abstract list functions help us avoid repetitive function code. They are *higher-order functions* that consume a function.

They abstract away common structural patterns of recursion used on lists.

WE'LL LOOK AT ABSTRACT LIST FUNCTIONS MAP, FILTER, AND FOLDR.



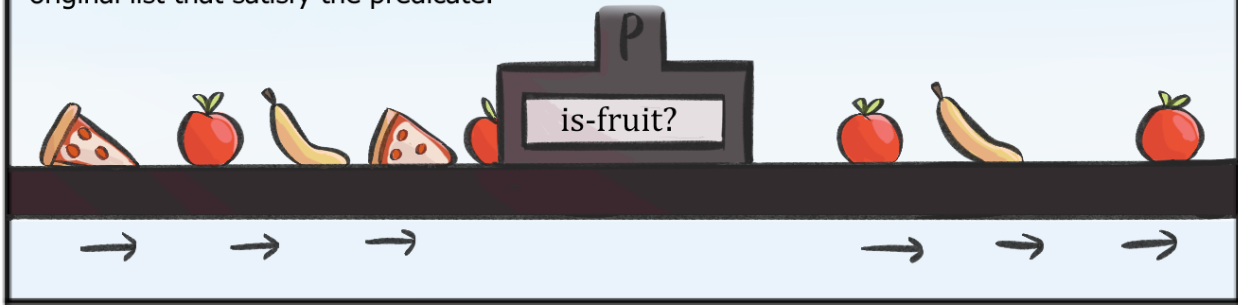
$map$  consumes a function  $f$  and a list, and applies  $f$  in order to each element in the list, producing a new list of the same length.



Computer Science: Abstract List Functions

Story by Clara Xi, Art by Isabella Scott

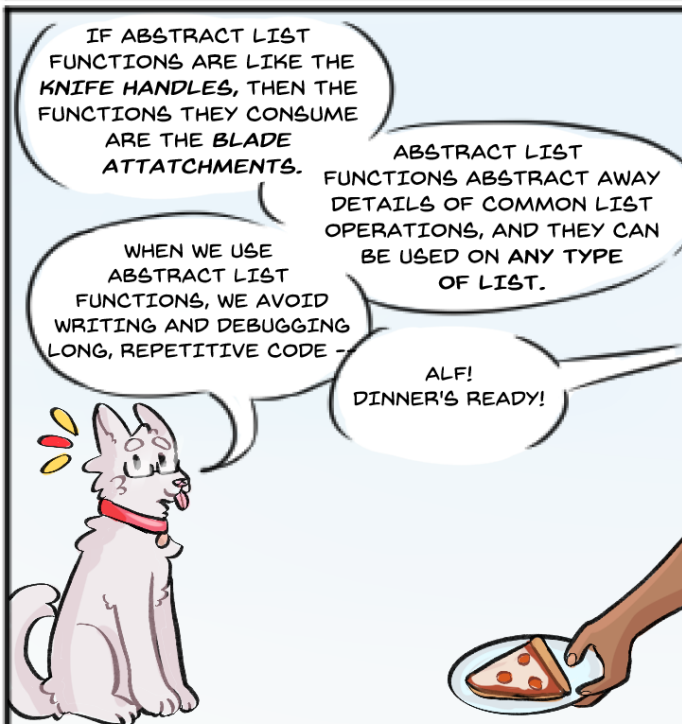
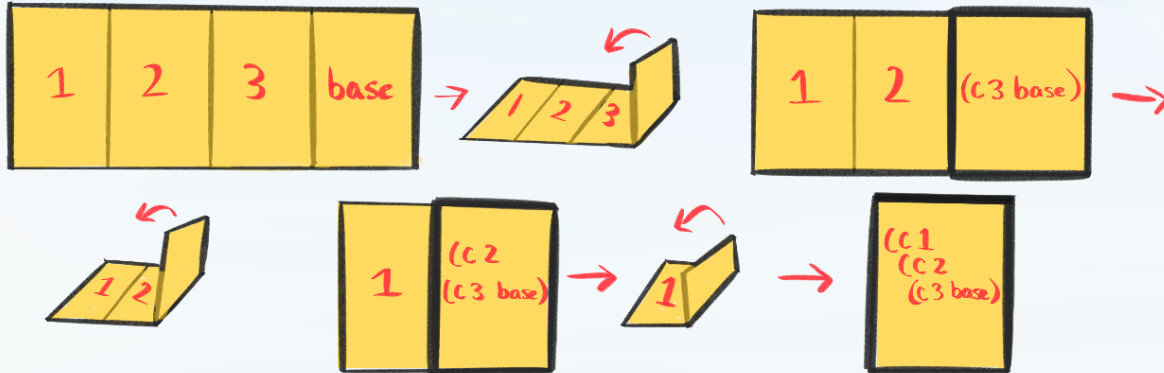
*filter* consumes a predicate, *p* and a list, and produces a list only containing elements from the original list that satisfy the predicate.



*foldr* consumes a function, *c*, a "base value", and a list. *c* consumes two arguments and "combines" them. *foldr* produces the result of using *c* to recursively combine all elements in the list from right to left. The last element in the list is combined with the base value.

"Assembling" left to right:  $(\text{foldr } c \text{ base } '(1\ 2\ 3)) \Rightarrow$   
 $(c\ 1\ (\text{foldr } c \text{ base } '(2\ 3))) \Rightarrow \dots \Rightarrow$   
 $(c\ 1\ (c\ 2\ (c\ 3\ \text{base})))$

Combining right to left:



IF ABSTRACT LIST FUNCTIONS ARE LIKE THE KNIFE HANDLES, THEN THE FUNCTIONS THEY CONSUME ARE THE BLADE ATTACHMENTS.

WHEN WE USE ABSTRACT LIST FUNCTIONS, WE AVOID WRITING AND DEBUGGING LONG, REPETITIVE CODE -

ABSTRACT LIST FUNCTIONS ABSTRACT AWAY DETAILS OF COMMON LIST OPERATIONS, AND THEY CAN BE USED ON ANY TYPE OF LIST.

ALF!  
DINNER'S READY!



SAVING TIME FOR THINGS THAT TRULY MATTER!

# FIREWORKS

This year will be the last year that people can have and use fireworks in the City of Vancouver. The City Council decided to completely ban the sale and use of fireworks not too long ago which means that starting November 1 and onward, the night skies over the city during Halloween will remain dark and not explosive-y. Of course, since the other cities in Metro Vancouver haven't changed their city bylaws, citizens of the City of Vancouver can just go to nearby adjacent cities next year.

I'm not sure about other jurisdictions, but in BC, fireworks are only allowed to be sold and used in the week up to and including Halloween, and the day after Halloween. Despite the provincial legislation, the local jurisdictions retains the right to choose whether to allow or restrict fireworks in any way they so choose within that law.

In the Lower Mainland, it is generally more restricted than the provincial legislation where fireworks can only be bought during the week before the night of Halloween, and can only be set off during the night of Halloween. Of course, despite those rules and much more, people end up setting them off early during the week.

Because of this, you really begin to feel that Halloween is fast approaching once you start ~~getting Vietnam flashbacks~~ hearing the sounds of fireworks at night. For me, since I live right next to a park with no trees, with a direct line of site to the fields, every night during that week, I get to see a fireworks show of sorts, right from the comfort of my living room window.

The rules state that you can only set off fireworks on private property with permission from the property owner, or on public property with permission from the fire chief. Although, I doubt that everyone who sets off fireworks in the park has a permit. Even I agree that this park is quite the prime location for fireworks, considering its large flat sand field, a distinct lack of tall trees near the field, and its location in a town centre. This has also made it so that outside of the legally defined time for fireworks, people tend to choose this park to set them off.

There's this particular thought that I always have whenever I hear fireworks, outside of the legal time frame. What major event just happened to warrant setting off fireworks? Sometimes it's obvious, such as on the midnight of New Year's Day. Other times, I find that a team in Vancouver has just won some important game, usually in hockey. If I can't find a suitable reason, I just end up assuming it was just some teens looking to have some fun with the fireworks they kept since Halloween.

There are some unfortunate moments though. Such as on the day after the day I saw a video of that gas station explosion in Volgograd, Russia which happened a couple days after the devastating Beirut explosion, where someone decided they

should light off one of the biggest sets of fireworks I have ever heard in the park all at once. Bruh... not cool.

*boldblazer*

P.S. I would like to thank the rich person who lives in the skyscraper across the park that set off probably about a thousand bucks worth of fireworks from the rooftop patio. You gave me an amazing show for dinner.

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## mathNEWS ACROSTIC POEM V2

maybe one day I'll  
actually finish my real articles on  
time, then I wouldn't  
have to resort to writi  
Ng low-effort shit lik  
E this, and if you're  
Wondering, yes I did  
Steal this article idea from Deriving For Dick

*Finchey*

---

## N THINGS I ALWAYS LIKED

- California (or bust)
- Arizona (iced tea)
- Oregon (Trail)
- Washington (the car in GTA)
- (Chevrolet) Colorado
- (University of) Illinois (at Urbana-Champaign)
- (West) Virginia (mountain mama)
- (Martin) Maryland (fighter aircraft)
- Delaware(, Ontario)
- New Jersey (of the Waterloo Warriors, now available in the W Store)
- Hawaii(an T-shirts)

*tendstofortytwo*

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## MAYBE KANYE CAN STILL WIN?

I know it's tight but I think we can make it work?

**mathNEWS Lead Ignorant Layperson**



# HAPPY HALLOWEEN!

## gridCOMMENT 144.4

Boo! I realise it's a bit late for this (by a full week), but happy Halloween! Midterm season is finally over and done, and that's definitely the scariest thing I experienced during the month of October.

I received one (fully correct) solution to last issue's **gridWORD**, once again from NitricAcid. Thanks for making me feel useful. Their answer to the **gridQUESTION**, "What would your ideal mythical creature look like?" was "Whatever it is, it's got to have wings. Lots of wings. Enough wings to fill a Buffalo Wild Wings during the Super Bowl. That is all." I don't know about you, but I'm picturing a hydra with wings instead of heads.

I thought I would get into the spooky season with a Halloween themed cryptic crossword. This issue's theme is "This Crossword is Haunted" and the **gridQUESTION** is "Which UW building is most likely to be haunted?".

Please email your **gridWORD** solution attempts to [mathnews@gmail.com](mailto:mathnews@gmail.com) with your name or a moniker, and your answer to this issue's **gridQUESTION**.

Cloak and Vorpall Dagger

### ACROSS

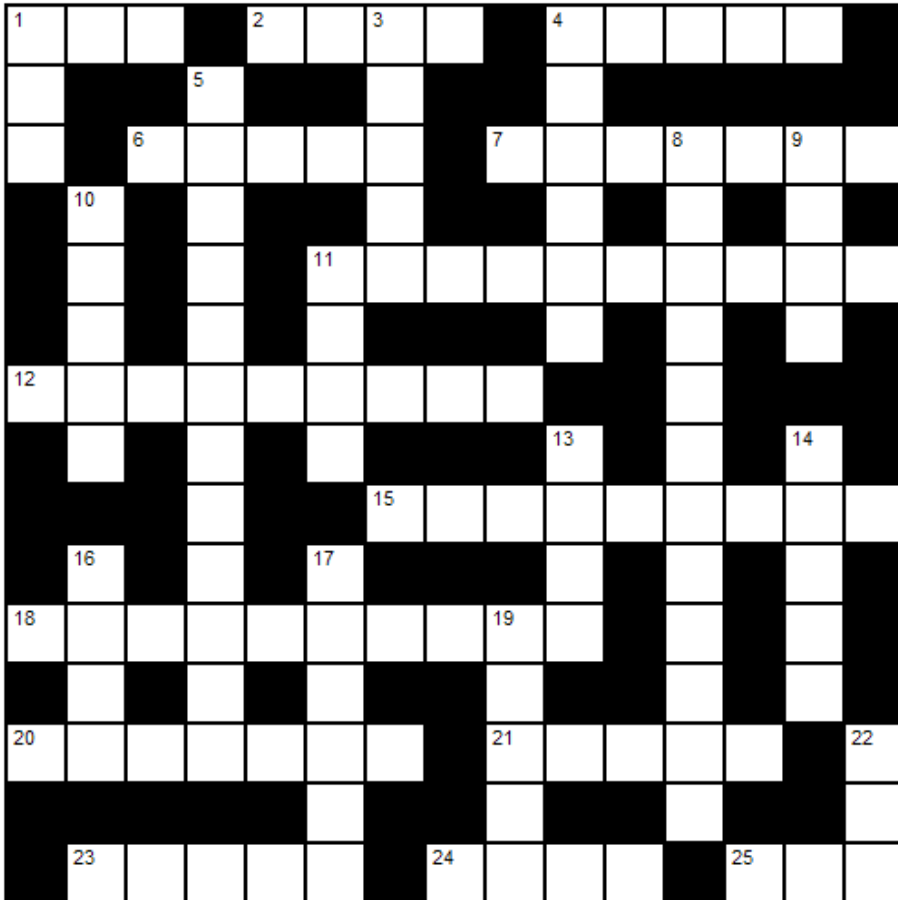
- 1. Hit nocturnal creature (3)
- 2. Fault drifts without beginning or end (4)
- 4. Say which sorceress (5)
- 6. Sweet and handy when switching house with car (5)
- 7. All Kimmy said was some chemistry (7)
- 11. Waterbird collisions lead to hairs raising (10)
- 12. Lone whale meanders on holiday (9)
- 15. Daft raker muddles about following dusk (5,4)

- 18. Reach scowl toward Spooner's tuft-eared bird (6,3)
- 20. Gathering about association (7)
- 21. Grand host is an apparition (5)
- 23. Charms with file type in highschool (5)
- 24. Rodents left for a light source (4)
- 25. Behave strangely like a feline (3)

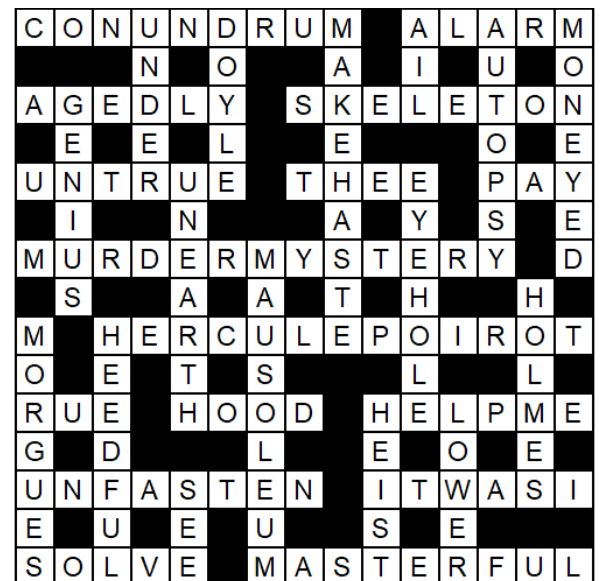
### DOWN

- 1. Novel without closure leads to a startling exclamation (3)
- 3. Dragonfly took a bit to reach by air (3,2)

- 4. Doves end with low-backed pack animals (6)
- 5. Perplexingly knot clean jar into carved pumpkin (5)
- 8. Crazy! Sue heat hound for building with incorporeal residents (7,5)
- 9. Unwanted mail sent back turns out to be a chart (4)
- 10. Regard as a small reward (5)
- 11. Partly making own dress (4)
- 13. Cover with a film (4)
- 14. A ruse; concealed inside, a perfect rickroll (5)
- 16. Reach enervation about pain (4)
- 17. Duplicates first everyday chores, without right (6)
- 19. Heard white spirit (5)
- 22. Rodent caught in mess of tar (3)



## LAST WEEK'S gridSOLUTION



# lookAHEAD

SUN NOV 8

Cook Something Bold Day

MON NOV 9

TUE NOV 10

WED NOV 11

Remembrance Day

THU NOV 12

FRI NOV 13

Friday the 13<sup>th</sup> 🕸

SAT NOV 14

SUN NOV 15

Clean Your Refrigerator Day

MON NOV 16

mathNEWS 144.5 production night

TUE NOV 17

WED NOV 18

THU NOV 19

FRI NOV 20

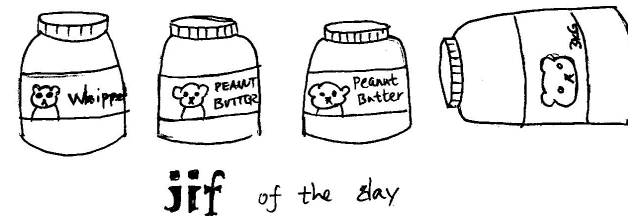
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SAT NOV 21

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