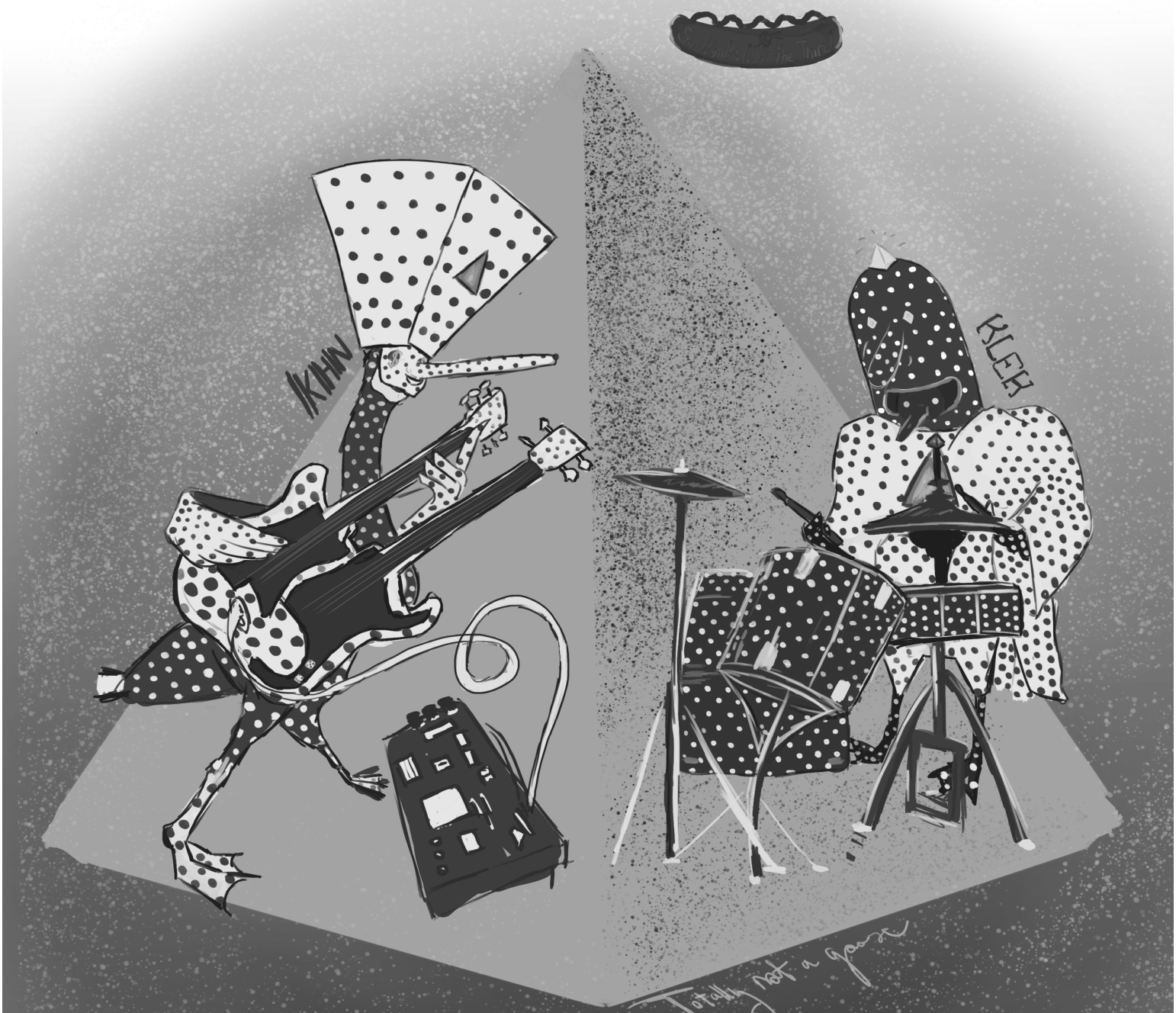
mathNEWS
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ANGINE DE POIETRINE



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mastHEAD

"HOW WILL YOU BE DEFENDING NOVEMBER AGAINST THE ENCROACHMENT OF CHRISTMAS?"

Sun and Mercury retrograde in Scorpio, what a time to be alive! (As a Scorpio: OH THE HORRORS!$%^*)

It might not seem like winter yet, due to the upcoming new and improved Mass Extinction, but trusttrusttrust, it's about to get quite chillay. For my international friends, please acquire a winter jacket, gloves, hat, scarf, and toe garments immediately. Otherwise you'll end up like first-year me who layered up seven hoodies and had varying centers of gravity until my jacket came in the mail.

If you're like, "Hey, I don't have a gold nugget and could really do with a Winter Warm-Up Event: Free Essentials for Everyone", look no further than the upcoming WUSA event "The Winter Warm-Up Event: Free Essentials for Everyone" on November 12th and December 5th from 12 to 5 pm in SLC! (If you'd like to help keep your fellow warriors warm, I encourage you to donate winter gear you have in the back of your closet… doomed to never see the snowy chasms of woe ever again… Jackets and boots are probably the most useful. For more information on how, what and where to donate, please visit: https://wusa.ca/event/winter-warm-up/)

I recently decided to pick up knitting again and was reminded of why I dropped it (little stitch joke for u there). Undoing rows is called "frogging" and I did not know why until my physics advisor told me it's because you "ripIT! riBbIT!". Undoing a single stitch is referred to as "tinking" because… tink is knit written backwards :).

Outside the confines of home, I have started seeking pumpkin spice beverages as an alternative to chai. It's like replacing cheese on pizza with milk. But such is the life of a **mathNEWS** editor, horribly bent over an ancient desk rearranging your wonderful submissions so that you may eat this issue and feel satiated. This issue is quite tasteful, from games you should play to games our writers have not played. Of course, the facts and fictions pair well with a fruity juice of your choosing.

loafED
Editor, **mathNEWS**

FarFromHome	Month long birthday festivities. November is basically mine anyway
Waffle	I will not be. Let the snow fall upon the many multifaceted surfaces of our campus and let Christmastime take the world (Waterloo).
MrBllueSky	I already lost, there are two nutcrackers that were put up in October in my house
SeasonedSlacker	Drone strikes on Santa's toy factory, best defense is a good offense or something
snowdozer	Blasting Mariah Carey's ice block into space
PlatypusGod	Defrosting Mariah Ca- wait, defending?
fingersinsockets	extended seasonal depression
	October time loop
writing123	Move Halloween to November 31.
floweryyy_	I'm Filipino. I have a senior position in Christmas' encroachment of the -ber months >:)
Cazber Clint	Continuing to wear my October shirts, keeping my Scooby-Doo phone wallpaper, and refusing to listen to Christmas music
Lars Nootbaar	Install a leap month between November and December
normalparameters	new holiday every day in november so you have to wait until they're done to get christmas-y
BeesKnees	Don't. It's time.
axon_terminal	honestly I think the fact that we still have september weather most days should do the trick
Dollar Store Person	remain the bewitched demonic zombie demogorgon idiot chud loser that i am year-round
smallmouthbasshater	remembering the edmund fitzgerald
contentED	the mood is right… one might even say the spirits are up…

ARTICLE OF THE ISSUE

This issue's AOTI is… *TotallyNotAGoose*'s cover! Surprise! We the Editors were charmed by the creativity and execution. Who knows, maybe Klek de Poitrine truly *is* a goose under that costume? Please come pick up your prize in MC 3030.

barkED
Editor, **mathNEWS**

Cover art for this issue provided by TotallyNotAGoose.

I neeeeeeeed to eat some gypsum.

NOAH NAZARETH, mathNEWS EDITOR FOR FALL 2026
ALONG WITH AUBRIE CHAN, ARIEL CHEN, MADIHA MANSOOR,
SARA NAYAR, ALEXANDER NOVIKOV, AND AWAB QURESHI

mathASKS 162.4

FEATURING CORINA MCDONALD, THE UNIVERSITY OF WATERLOO'S SCIENCE MUSEUM CURATOR

AURELIO: WHAT IS YOUR FAVOURITE ROCK?

Goethite — $Fe^{3+}O(OH)$. It's an iron oxide mineral and I love its earthy and often metallic lustre. Sometimes it can be found in botryoidal form which I find fun to look at and examine.

WAFFLE: WHAT IS THE MOST INTERESTING ITEM YOU'VE CURATED AT EITHER THE MUSEUM OR THE GALLERIES?

One of the most interesting items in the Earth Sciences Museum is a slice of copper pipe that came from the City of Waterloo's water supply lines. The pipe slice is about eight inches wide but has been filled with calcium carbonate, so the inner diameter is only now one inch wide. Water in the Waterloo Region flows through limestone (calcium carbonate) bedrock and becomes rich in calcium. After the groundwater is pumped up from the ground, it is moved through the copper pipes distributing water to people at home, school or work. As the drinking water moves through the copper pipes, calcium carbonate is deposited along the walls. Over time calcium carbonate fills in the pipe restricting water movement and requiring the pipe to be replaced. The pipe slice shows this calcium carbonate buildup.

MRBLLUESKY: WHAT IS THE LEGACY YOU WANT TO LEAVE BEHIND?

This is a moving target for me. Right now, I want to ensure that the museums (the Earth Sciences Museum and the Science Museums & Galleries) have the right scaffolding to ensure they continue to inspire and awe the public at the University of Waterloo. This means building a museum management system that includes community, collections, programs, exhibits, maintenance, and financial sustainability.

LARS NOOTBAAR: ANY UPCOMING PLANS FOR THE EARTH SCIENCES MUSEUM EXHIBITS?

Currently I'm working with co-op students, UWaterloo staff, faculty, and volunteers on a number of projects. A few of them include:

- Working with UWaterloo staff to finish the Reimer Gallery spaces, including the Laboratory of Life exhibit.
- Guiding volunteers and co-op students working on updating posters and displays that are out-of-date or damaged.
- Collaborating with faculty, co-op students and a master's student who are working on a Geohike for the GeoTime Trail and an Urban GeoWalk in the Peter Russell Rock Garden.



FINGERSINSOCKETS: ONE MUST-SEE EXHIBIT OF THE MUSEUM?

If you haven't seen it already, you must check out the Cobalt Mine Tunnel. It's a blast!

SMALLMOUTHBASSHATER: FAVOURITE FISH?

I love to eat fresh Lake Trout — preferably from the Kinniwabi Pines Restaurant in my home town of Wawa, Ontario. My favourite fossil fish is Priscacara from Fossil Syncline Lake in Wyoming, U.S.A. But the most beautiful fish I've ever seen in my life is a flying fish known as Bangsi in the Philippines — I spent a year living there as a teenager and watched them fly beside me as my group travelled from Puerto Princesa to El Nido in a banca boat.

BEESKNEES: WHAT'S THE BEST MUSEUM YOU'VE EVER BEEN TO?

I really need to go to more museums! But so far, the Tyrrell Museum in Drumheller, Alberta with their amazing dinosaur displays and visible fossil preparation lab… Wow. And then the Museum of Science and Technology in Ottawa with all of their hands-on displays about natural resources and energy… so wonderfully interactive.

IS.ALL.ON: WHAT IS THE BEST ARTIFACT YOU'VE SEEN?

Not to get nerdy, but an artifact is different from a specimen in the museum world because an artifact is (generally) something that is made by humans. But if you are asking what the coolest thing I've seen is, it's best to use the word object. With that said, the coolest object I've seen… Sheesh… That is a very hard question. Extinct passenger pigeon, smallest fossil tetrapod footprints in the world, actual mosquito in amber — not the fake one in Jurassic Park. Nope, I can't answer that question. I'm just sure I'll see something cooler!

AXON_TERMINAL: WHICH ROCK IS THE MOST EDIBLE (NOT SALT)?

I wouldn't advise anyone to eat a particular rock. Minerals, on the other hand, are often eaten or added to various processed food. Other than halite (otherwise known as rock salt), I would guess that gypsum is the most edible mineral. It is in bread, ice cream, beer, AND it's used to make drywall to build our homes. If you had to eat a rock (which, by definition, is a combination of two or more minerals) you could consume bits of rock made primarily of quartz, such as quartzite or sandstone. Quartz is made of silica and oxygen, so it is inert and won't harm your digestive system, but I'm not sure if your teeth would survive. Quartz has a hardness of 7 on the Mohs scale of hardness and would likely break your teeth if you tried to take a bite.

FLOWERYYY_: BEST NATURE PHOTOGRAPHY SPOTS IN WATERLOO?

Even though Waterloo is comparatively flat, there are some lovely green spaces to explore with some great topography. The Claire Hills trails, including the GeoTime trail, are very beautiful, especially in the Fall or Spring seasons. And then Schneider's Bush is wonderful to visit in the summer or winter months—if you like cross-country skiing, it is a must-visit on a snowy winter day.

AXON_TERMINAL: YOUR NEWEST PUBLICATION SEEMS INTERESTING. CAN YOU GIVE US A SHORT RUNDOWN IN LAYPERSON TERMS?

I haven't published anything since I was a grad student! My Masters of Science work focused on using enzymes as an indicator for the productivity of sulphate-reducing bacteria (SRB). SRB are commonly used in permeable reactive barriers (PRB) placed in the ground which then intercept metal contaminated groundwater—usually from mine waste. The SRB help clean the water by consuming the metals and removing them from the groundwater as it moves through the PRB.

DOLLAR STORE PERSON: HOW'S WAWA?

I was in Wawa back in June and it was heartwarming as always. The people in the community are so kind and welcoming and the nature which surrounds the town is beautiful.

BIRDED: MOST REWARDING PART OF MUSEUM CURATION?

The best part of being a museum curator is when visitors say how much they enjoyed visiting the museum or tell me about a part they really love. The people always make my day. ☺

GAMES I DIDN'T PLAY AS A CHILD

IT'S NEVER TOO LATE TO START, THOUGH!

ANGRY LIBS

This game is the same as *Mad Libs*, with the following rule changes:

1. You must be very angry.
2. Take any form of vent text that you just recently wrote as a result of that anger. This could be an email, a text message, a journal entry, etc.
3. Replace the important words with blanks.
4. Get a friend to fill in the words.
5. Physically replace the email, text message, or journal entry with what was filled in, and send it.

Here's an example. Instead of texting your friend, "I just failed my biology exam. I need a 95 to pass this course, and I'm completely fucked," you text them, "I just married my toxic exam. I need a 67 to pass this baby, and I'm completely lost."

HIDE

This game is similar to Hide and Seek, with the following rule changes.

1. All players agree to hide.
2. If anyone not playing finds you, you lose; i.e., everyone is a seeker. If a hider is caught, they do not become a seeker.
3. No one who is not playing the game is told about the game.
4. The last person hiding wins.

REVERSE JENGA

In this cooperative game of dexterity, you start with a fallen pile of *Jenga* blocks. Each player, in order, takes one block from the pile and puts it on the tower.

Players can put the *Jenga* block on the tower with the following rules:

1. The orientation of the block must be as flat as possible horizontally, like a normal *Jenga* tower.
2. There are a maximum of three blocks per vertical level. If a level does not have three blocks, a block must be placed on it.
3. Every alternating vertical level must have the *Jenga* block rotated 90 degrees around its vertical axis relative to its consecutive levels.
4. If a player takes the last block and puts it successfully on the tower, they win.

104001 CARD PICKUP

2000 decks of playing cards. One Joker. Can you find it? *104001 Card Pickup* is a co-op game for up to six players about doing exactly what the name suggests.

There's a Joker hidden somewhere among thousands of playing cards. You know it's there. You've brought your friends to help. This should be manageable.

Dig together, spread out, or spend far too long arguing about which part of the pile looks promising. There's plenty of work to share, although bringing more people doesn't necessarily mean anyone is being particularly helpful.

It's a game you can settle into while talking with friends, right up until somebody does something that needs explaining.[1]

NO RISK

This game is similar to *Risk*, with the following changes.

1. The starting board position and troop count are predefined in the rulebook.
2. A tile with more troops will always win, and it will always lose the same number of troops. I.E, if I have 4 troops attack 2 troops, then my 4 troops will win, and turn into 2 troops. Then, only one troop will move to the new tile, splitting it 1–1 between the two tiles. In the case of a tie, the battle will always tie. A tile with 2 troops cannot attack a tile with 1 troop.
3. When you capture a tile after a turn, the card you draw will always be artillery, and the tile relating to the +2 ownership troop bonus is turned into +1 bonus for any tile of your choice.

NO DIPLOMACY

This game is similar to *Diplomacy*, with the following changes.

1. You cannot support any troops that are not your own.
2. You cannot talk to other players.
3. The game cannot draw.

HONOURABLE MENTIONS

THE SAT

is a standardized test widely used for college admissions in the United States.

MAZE: PROOF BY CONTRADICTION EDITION

Take a booklet of mazes that are not solvable. To solve each maze, color in all spaces in the maze accessible from the starting point with a writing implement. When you do this, you win!

WORDLE

It wasn't out yet.

writing123

1. Adapted from the AI slop description of https://store.steam-powered.com/app/5085740/Needle_In_A_Haystack/



THEY REBRANDED HAKKA YESS!!!?!

HAKKA NOO!!! 🙀

I'd never eaten at HAKKA YESS!!!, but I had jogged past it every day in my morning run. I would quietly mouth the words HAKKA YESS!!! under my breath, procuring a fresh intake of HAKKA MOTIVATIONN!!! But now they are Masala & Tandoor Indian Grill and Bar, which no longer HAKKA ROLLL!!!s off the HAKKA TONGUEE!!! Ever since, every morning has been a little more weary, and my heart has felt a little more HAKKA EMPTYY!!!

snowdozer

I MADE SOUP AND THEN I FOUND OUT I WAS ALLERGIC TO THE SOUP

AND NOW I HAVE SOUP I CAN'T EAT

I don't like raw celery but I put it in the soup because I thought it would mollify the flavour. It turns out that is true if you are a normal person who can eat celery, but alas, I am not. I ate a spoonful of soup and my mouth immediately went numb. Now I know that celery is not supposed to taste like the feeling of getting an injection of local anaesthetic.

At least now I am justified in my dislike of celery.

[Editor's note: You are probably allergic to celery.]

aurelio

EMBRACE THE GRANDMA LIFESTYLE

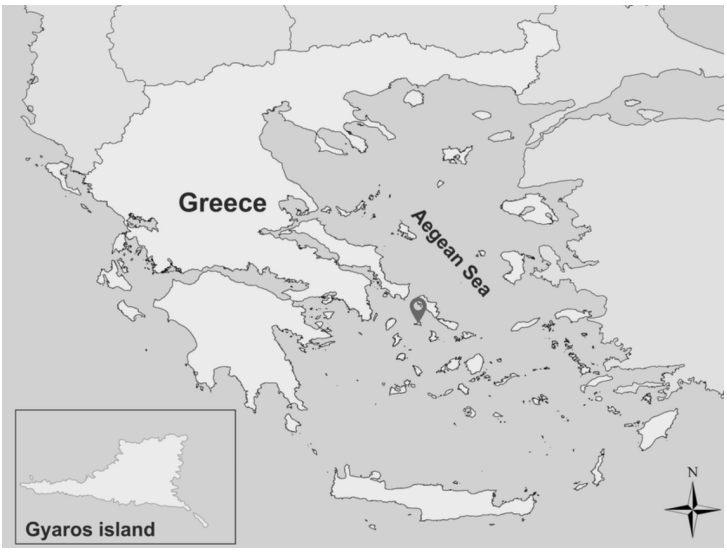
Over this past Halloweekend I participated in staying up late, standing in the cold, listening to loud music, going to public places FILLED with people and overall living the youngster lifestyle.

What I have learned is that I am not meant for this lifestyle, I am meant for the grandma lifestyle!!!!!!!! I am meant to be showered, in bed, 9pm, with my peach ginger tea, watching something or reading my book, with the big light off, my pjs on, and my Snoopy CD playing. Take this as your sign to follow your heart and embrace the Grandma Lifestyle!

papasmurf

N ISLAND FACTS — GYAROS ISLAND

I just watched the Odyssey so all my Google-Maps-ing for the past week has been centered on the Aegean. There are far too many good islands to cover there (very hard to pick) but I think this is one of the better ones. I present to you: Gyaros Island



- A smallish Greek island in the Aegean Sea (roughly 8,276 km ENE of **mathNEWS**)
- In ancient times Gyaros hosted small fishing communities, but these were intermittent and very poor (like having to beg Julius Caesar for tax exemptions poor)
- The island was considered the epitome of a barren and remote place, to the point of it being sort of a proverb (think of how we'd say a place is "as remote as Timbuktu")
- According to Pliny the Elder, the villagers were eventually run off the island by a plague of mice (some ancient sources claim the mice on Gyaros could eat iron?)
- After, this the island was mainly used as a place to send criminals, though some Emperors thought it was too remote for even this, calling it 'harsh and devoid of human culture' and allowing prisoners exiled elsewhere
- In the Odyssey, Ajax the Lesser (not the cool one) was sunk and drowned by Poseidon near Gyaros, for his desecration of Athena's temple in the sacking of Troy
- Throughout the 1940s and 50s the island was once again used to keep prisoners, this time political prisoners from the Greek Civil War. Some 10,000 prisoners lived on the island and worked to build a large brick prison. Almost as soon as the prison was completed it was shut down, due to appalling conditions and international condemnation. The ruins are now slowly crumbling on the Eastern tip of the island
- The island is now off limits to the public, and is only visited for yearly ceremonies held by survivors of the prison
- Gyaros currently hosts one of the largest populations of Mediterranean monk seals, one of the rarest mammals in the world

That's all on this island, let me know if you have an island you want me to cover! (fatcullen2@gmail.com)

FATCullen

HOW TALL WOULD THE WOMAN CUBE TOWER BE?

So, let us begin by compressing a woman into a cube. I think it reasonable to first dehydrate the woman. If water makes up 60% of the body, we are left with 40% of the mass. Considering that the density of a human is around $0.98\ \mathrm{g/cm^3}$ we set up $1 * 0.6 + x * 0.4 = 0.98$ to find that density of the remaining tissue is $0.95\ \mathrm{g/cm^3}$.

The average woman weighs 77.9 kg. Removing the water we are left with 31.16 kg. Dividing the mass by the density, we get that the woman cube will have a volume of $(31.16 * 1000/0.95) = 32,800\ \mathrm{cm^3}$. The side length of this cube will then be 32 cm.

As of writing, I realized that the world population is rapidly increasing. I've already witnessed nearly 200 births. Anyway, let's say there's about 8,325,986,000 people, of which 49.7% are women (likely due to gendercide). This gives 4,138,015,042 women. I am realizing at this point that I did not account for the fact that some women are not adults and therefore will be smaller, but nobody is perfect (as in me for the mistake, not the smaller women). This correction is left as an exercise to the reader.

$$32\ \mathrm{cm} * 4138015042 = 1324165\ \mathrm{km}$$

To aid visualization, note that the moon is 384,400 km above the Earth's surface. This puts the women cube tower around 3.4x past the moon.

I feel this process is largely unfeasible, but not impossible. And you can do anything you set your mind to. I feel it is important to pursue anything you feel strongly passionate about. As an alleged woman, I think I'd like to be 42% of the way to the top.

Goodnight, sleep well, and study for your vegetables and eat your classes.



arrow

MY BEEF WITH LEGO MARVEL

DON'T ASK HOW MUCH I'VE SPENT...

With *Avengers: Doomsday* around the corner, the *WandaVision* trilogy wrapping up, and my Marvel fixation returning after six years lying dormant, the one thing on my mind is the LEGO sets. I got my first LEGO Marvel set in 2014, Captain America vs the Hydra Tank. Since then I've acquired a concerning amount of LEGO Marvel things, especially around *Avengers: Endgame*. But this article isn't about my poor financial choices as a child/adolescent/adult, this is about a change LEGO has made in more recent sets that I disagree with. Spoilers ahead for *Captain America: Civil War*.

I want to compare two sets, both based on the Airport Battle from *Captain America: Civil War*: one from 2016, and the other from 2025. While there are multiple changes that can be seen, a clear one is the way Giant Man is built in each version. In the 2016 version of the set, Giant Man's build is based off a normal minifigure, with a cylindrical head, and square body and limbs. The giant man feels like a minifigure scaled up, which I think is how it should be designed. Giant Man is just Ant Man when he goes big instead of small.

Compare this to the 2025 set, exact same premise, but now instead of Giant Man being a scaled up human figure, it goes more into realism of actual humans. For those who know it reminds me of BIONICLE or the LEGENDS OF CHIMA bigfigs. Now I can understand that it may be more movie-realistic with the new design, but it is just so basic. The 2016 set feels like a LEGO set that knows and loves the fact it's a LEGO set. The 2025 set feels like a LEGO set that begrudgingly accepts it's a LEGO set.



2025 VS 2016

Anyways I would like to wrap it up with some highlights from a r/visionquest Reddit post. All the below comments are referring to Ultron.

- you don't understand, tony NEEDS to absolutely give the robot an ass 😱
- He's cute asf 🥹
- SANTA!!!!!!!
- The people lust for Marx
- He does look hot? James Spader is a very sexy man

MrLegoMarvelSky

SCP SURVEY RESULTS COULD BE HEARD HIGHER UP, BUT ONLY IF YOU HELP

If you've ever exited a Student Course Perception (SCP) survey unfilled, you're not alone. These days, the response rate at UWaterloo is around 34% and dropping. Many students feel SCPs are useless because the feedback only goes to the instructors of each course. Good professors care about the feedback and use it to improve their teaching, but we've all had professors who needed it the most and were the exact ones to ignore it.

WUSA has been advocating for SCP results to be shared beyond the instructor (for example, with department heads) so the feedback can lead more more accountability in teaching quality, as well as inform how courses and programs are designed. The idea is finally gaining steam, but the biggest barrier is that many professors worry low response rates lead to unrepresentative results. More students filling out the surveys really matters now for improving the way the university assesses and improves teaching.

Before SCPs were online, student representatives sometimes helped hand out the paper forms in class. This term, the Teaching Assessment Processes (TAP) office and WUSA are piloting a version of that in the online era, where students sign up to speak to classes about why SCPs matter. TAP will help you contact the instructor and provide a script. For every class you sign up for, you get an entry into a draw for one of ten $25 gift cards from WUSA.

Find out more and sign up at https://uwaterloo.ca/associate-vice-president-academic/student-representatives-classroom by November 18th, 2026.

RapidEyeMovement



WHAT IS YOUR FAVOURITE SHORT STORY?

- "The Tell-Tale Heart" (Edgar Allen Poe) x2
- "The Cask of Amontillado" (Edgar Allen Poe) x2
- "Story of Your Life"
- "To Build a Fire"
- "The Jaunt" x2
- "The Haunt"
- "The Egg" x2
- "For sale: baby shoes, never worn." x2
- "The Parable of the Fire-Builder"
- "The Princess and the Pea"
- "The Dead" (James Joyce)
- "The Hungry Hungry Caterpillar"
- "Battleground" (Stephen King)
- "I Have No Mouth and I Must Scream" x3
- anything yuri that **mathNEWS** puts out
- "Ghost Days"
- "The Lottery"
- "The Paper Menagerie"
- The Bridge Smut (first published in **mathNEWS** 158.1 by *Dollar Store Person*)
- "The Dead Girl" by Guy de Maupassant
- "The Lady with the Dog"
- "A Sound of Thunder"
- "Omphalos" (Ted Chiang)
- "Self-Portrait at 28" (David Berman)
- I can't find the title but it was about a radio station during an apocalypse
- "The Wife of Bath's Tale"

mathgeek

SEEING YOU.

WRITING THIS MADE ME FEEL BETTER AND I THINK* mathNEWS *WOULD APPRECIATE THAT SO HERE WE ARE

last week, i saw you

walking in your blue

before that i pretended you didn't exist.

i cursed myself for going out,

not avoiding your usual whereabouts

and went back to the time of you and i.

i say this like i idealize it, when i abhor who i was

that was the worst of me we've ever seen.

and there were issues, many issues

that both of us failed to shove away

despite knowing it's for the best,

my mind still cannot rest

all it wants is to think of you.

how are you doing? how have you been since we last talked?

do you think of me as a regret, a memory worth forgetting

or is there a bit of hope and fondness in your heart?

do they tell you how i've been? am i fodder for your gossip?

do you lie to yourself how i must be doing better?

or did they ever tell you how much despair, how much loneliness grew when you left?

and i still do, not that you left a hole with your departure

but then you poked and pulled and prodded what was there til it gaped

into a void with nothing that could replace

not even you, i admit.

you're but a mere fantasy in my mind.

what if i feel the belongingness that was always there, let go, feel the breeze blow in my hair and maybe enjoy something in my fucking life?

what if i don't let the pain fester into falling into traps, scarring people's backs and instead looking at sun rays?

what if i just let you be in my mind? stop attaching you to what could have been and move on?

but can i move on?

the hole still breathes, my tether to reality is floating and my air is filled with memories of us that shaped me

i still think about how you'd judge me now. i worry at the sight of your eyes on me. your whole being just rots in my mind and i want to be free.

but until i fill my void, you'll be hiding in the depths

and i hope to never see you come out of that shadow.

i love you, but never come into the light. please.

Dollar Store Person

AO3 IS DOWN

AND IT'S KILLING ME

As the title says, popular fanfic website Archive of Our Own (AO3) is down FOR TWO TO FOUR WEEKS STARTING OCTOBER 29TH allegedly due to a security breach.

Now, for those that do not know, AO3 is an archive for fanworks of all kinds. The Organization for Transformative Works (OTW) is the nonprofit organization behind the website, and are sustained purely by donations.

Recently, they've announced that the site will be down for two to four weeks, and at the time of writing this article it has been… five days. I have picked up piano again. I drew some more. I've been… STUDYING!!! Shocker. Now, I've never thought of myself as a chronic AO3 user. Never appreciated the site truly. But at night when I'm snuggled up in my blankets and the books I'm halfway through don't seem appealing enough and I just want to read a short & sweet oneshot… Well, needless to say, I've never been more disappointed to remember the site is down.

This is not the first time AO3 has been down. The site often goes down for maintenance for a couple of hours every few months, and the internet's reactions have always been of the more dramatic type. However, this is the first time it'll be down for SO LONG. Wattpad has been trying to take advantage of the situation, going as far as to turn off advertisements for the weekend of Halloween, but the internet is NOT buying it. Saying things like, and I quote, "it's like a text from that toxic ex at 2am," and "I'm not that desperate." Brand names are tweeting about the situation; the effects of this outage can be compared to the Shibuya incident or the KFC breakup from JJK.

This is the apocalypse for fanfic readers and writers alike. Someone on TikTok made a whole folder on Google Drive containing peoples' downloaded fics and it filled out fast. This sparked a new controversy of whether or not fanfic authors "own" the fics enough to sue for copyright on these downloaded fics. A rift has formed between those that think it is unethical to download fics without permission while others point out the obvious download button at the top of fics that has been present forever. One side argues that the fics are still their ideas and their work, and the opposition mentions that as an archive, AO3 has the right to preserve all these works indefinitely. And remember guys, everything you put on the internet is there forever! Some people are going as far as to claim things like "This situation is really revealing who writes for themselves and who just writes for validation" and now THAT'S a bold claim but I can't find myself disagreeing completely. I definitely believe the authors' wishes should be respected but… *taps the sign* What's put on the internet stays on the internet. Let's leave it as a thought exercise.

Still, while the situation persists, there are people going onto the Wayback Machine to find fics to read, BUT MY FANDOM IS SMALL ENOUGH THAT THE FICS I WANT TO READ WERE NEVER SNAPSHOTTED. I am sustaining myself with ONE (1) oneshot and the long ass half-a-million-words fic I read and am rereading because the author so kindly posted the EPUB of the whole thing on discord.

Nonetheless, if you've made it this far into the rant, I wish you a wonderful day and hope your week has been better than mine. Hopefully, when the website is back, the sudden, inevitable influx of new works will not crash it again.

PossiblyAnAO3Addict

GOOD MORNING PENCIL, PENCIL, AND PENCIL ONLY

YEAH THAT'S RIGHT, NOTHING FOR THE REST OF YOU.

PENCIL PENCIL PENCIL — Silveny, probably

I am ECSTATIC to see that the fandom is slightly bigger than the school bus I had envisioned. It's amazing to finally meet another Keeper fan IN THE FLESH (well, in **mathNEWS** ink I suppose).

Keeper of the Lost Cities (KOTLC) was a turning point in my life. I remember reading KOTLC for the first time. 2019. Random Saturday. Around the same time I was obsessed with Divergent (a story for another article) and Harry Potter. I read KOTLC, Exile, Everblaze. That's all that was available on my Kindle at the time.

It wasn't until Quarantine that I ~~discovered the joys of the seven seas (Unlocked had just dropped and I~~ *really really really* ~~wanted to read the entire series for my birthday)~~ Unlocked *(see what I did there?)* the joys of fanfiction. You definitely shouldn't drop the title to the one you wrote ;)

From the moment Sokeefe meet, from that very first *"You must be lost"*, I was a Sokeefe shipper. I canNOT wait to see what more you have to say in the subsequent parts of All About Project Enhancer (and maybe discuss the entire series comprehensively with you someday). You're my new favourite person now.

I don't want to ramble endlessly about my theories and opinions, so I'm afraid I must end this here. Goodbye <3

FarFromHome

(KeefeRealSister) okay maybe the rest of you can have a letter. K.

SHIPWRECK SEASON

IT'S THAT TIME OF YEAR

Every November 10th, we remember the story and lives of the *Edmund Fitzgerald*. For those of you who haven't heard of the *Edmund Fitzgerald*, (LOCK. THE. F-CK. IN.) it was an American steel freighter that mysteriously sunk in Lake Superior on November 10th, 1975 during a terrible winter storm, taking her 29 crew members with her. The incident was memorialised in Gordon Lightfoot's ballad "The Wreck of the *Edmund Fitzgerald"* and is now remembered by towns around Lake Superior, especially on November 10th, where a bell is rung 29 times to commemorate the lives of the crew lost. (If you want to know more, I wrote of this last year in **mathNEWS** 159.5, please look there. Or, Google is also free).

Despite being the best-known shipwreck on Lake Superior, it was not the most deadly. That title goes to the *SS Algoma,* which took an estimated 40–50 lives on November 6th, 1885, 90 years earlier.



THE SS ALGOMA WRECK

The *Algoma* was one of three steel-hulled sister ships built in Glasgow in 1883 for the Canadian Pacific Railway's upper lakes service, measuring 262m long. It supported both a steam engine and masts. Too long to originally travel into the Great Lakes, they were cut in half and reassembled in Lake Erie in 1884 (great idea guys), with new upgrades including the first electric lighting for ships on the Great Lakes. They could accommodate 740 passengers each.

On November 6th, 1885, the ship was carrying an estimated 37 passengers from Owen Sound to Port Arthur (now Thunder Bay), when it lost course in a storm, and blew south into Mott Island at 4:40am, near Isle Royale (which is a HUGE island in basically the middle of Lake Superior). In the early morning, the ship broke in two. An estimated 40–50 people died (numbers were lost with the manifest and the ship). There were only 14 survivors.

The accounts of survivors were terrifying. Those that weren't killed in the original wreck, or swept away by waves, survived 36 hours on a freezing island with only fishermen. Passengers were swept away by frigid waves as they knelt on the deck to pray. A crew member remembered taking two little girls by the hand, only for them to be swept away by the lake. Only two passengers survived, along with eleven crew members and the captain. Few bodies were recovered, and those that were were destroyed by waves battering against rocks.

Similarily to the *Edmund Fitzgerald,* a ballad was written by one Thomas Hughes:

THE WRECK OF THE ALGOMA

On the sev'nth day of November, our Dominion on look'd with pride
On [garble] boat which spread her reputation far and wide
The world's two mighty oceans were join'd by iron band,
And great work so accomplish'd was the pride of our fair land.

But no one thought that ere the dawn of that glad triumphant day,
A sad and fearful accident would take that joy away.
The Noble ship Algoma with some sixty souls set sail,
And only fifteen of them all were left to tell the tale.

Chorus:
Hear the cry of us poor sinners
Cast up on the friendless wave
And protect us, we implore Thee,
Thou alone have the power to save.

On the show of Isle Royale that morn,
The vessel struck upon the shoals
And 'mid tempest, storm and blind snow sank forty five poor souls.
The captain of the gallant ship with courage few would dare,
Oft risked his life to save the loves of those placed in his care.

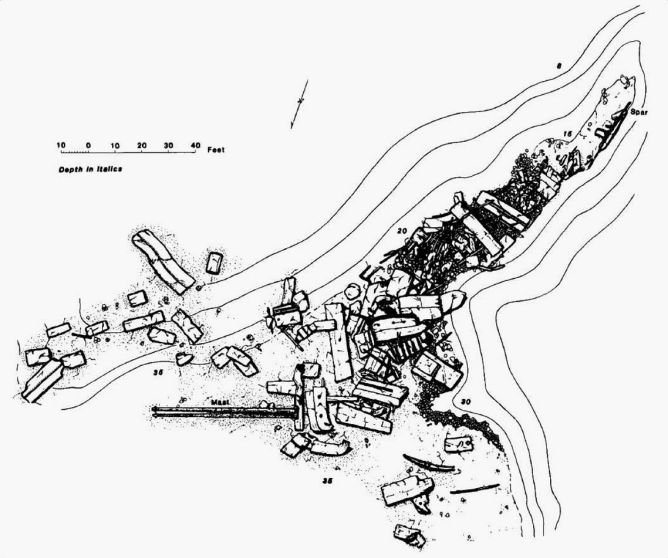
(Chorus)

Full thirty hours they lay exposed to the fierce relentless wave,
Uniting in their prayers to Him Who only now can save.
On Sunday morn, that morn on which Christ burst the bonds of death,
He heard the prayers poured forth to Him, with supplicating breath.

(Chorus)

Their wounded helpless captain now they fastened on a slender raft,
And with what feeble strength remains they leave the ill-fated craft,
And reaching shore on bended knees they joined to praise the One,
Who saved them; but for those who're lost, whispered
"Thy will be done…"

The ballad was much more religious and patriotic than Gordon Lightfoot's song, and not nearly as popular.



ALGOMA WRECK SITE MAP

The vessel was later salvaged and parts were reused in the vessel *Manitoba* (not sure if I'm ok with this), but a lot of the ship, including the entire bow, was scattered and not found. The *SS Algoma* remains the deadliest shipwreck on Lake Superior to this day.

smallmouthbasshater

https://www.nps.gov/isro/learn/historyculture/ss-algoma.htm
https://www.superiortrips.com/Algoma_Shipwreck.htm

mathNEWS TIP

*THE PRE-*mathNEWS *SNACK*

Banking on **mathNEWS prodNIGHT** dinner for pizza, but cursed with a 5:30pm dinner habit?

Life can be very challenging for us folk.

Your choices are waiting until 9ish and suffering, or buying food at 7 and ruining your free dinner.

Luckily, in my three-ish years as a **mathNEWS** contributor, I have devised a solution. Pack a strategic snack, such as a few granola bars, to eat around 4:30pm. This way, you maintain your hunger for the **prodNIGHT** pizza, but don't die in the process.

It is a common phrase in the environmental world that there's "no such thing as a free lunch." And as I buy my granola bars for $5.99 at Zehrs it becomes truer everyday.

Lars Nootbaar

THIS MESSAGE WAS RECALLED

gingham – 07:08
the dream was surprising, i think
idk why bc i didn't really notice anything
like
out of the ordinary

gingham – 07:10
but now that i think about it
i think my voice was a little deeper
and i always have my nails done
but here they were kinda stubby
cuz usually i have to use my knuckle to press buttons to avoid breaking my nails
but in my dream
i didn't have to do that
and it was all like.

gingham – 07:18
normal
idk

gingham – 07:21
and nick was there
we were on a date or something
can't remember where ngl it's already escaping me
and i dream about nick regularly obviously he's my bf
that's not the weird part
but

gingham – 07:30
fhfjjfjfkdj
fuck this is so stupid
he called me
like
he called me his BOYFRIEND

gingham – 07:52
and like i've never thought about it like that bc i've always been fine being called his gf and i'm fine with being a woman but i'd be lying if i said i never thought about it. like if i could press a button and instantly turn into a boy would i do it? can't say. but it made me wake up because

gingham – 07:53
like

gingham – 07:55
i was so upset that it wasn't real
that's so dumb, right?

gingham – 08:01
lol
forget about it

mars

TWO REASONS TO WATCH UMAMUSUME: PRETTY DERBY — BEGINNING OF A NEW ERA

PLEASE. IT'S SO GOOD YOU JUST HAVE TO GIVE A CHANCE PLEASE

okay after rewatching this movie for the third time i decided that i needed to promote this peak. here are two reasons why you should give this a shot:

1. THE ANIMATION IS AMAZING

cygames put their Unlimited Gacha Money to good use



HAVE YOU EVER RACED HORSE GIRLS... WITH YOUR LIFE ON THE LINE?!!

the race scenes are so masterfully put together: the camera is so dynamic, the scenes of the umamusume locking in are SOOOO cool spfjasdofjs just watch T.M. Opera O's arima kinen win on youtube (it's not majorly important to the plot and it's so auraful). even in interactions outside of races, the lighting contributes so much to the scene, and the characters are so expressive!! (i can't provide examples because of spoilers :/ but just watch it :D)

2. THE WRITING IS PRETTY GOOD (IN MY HUMBLE OPINION)

w-why's the writing good???

okay i can understand if you think the game doesn't make the characters super compelling (i agree somewhat, i've only fallen for characters in an umamusume anime/manga), but this is different i promise. without spoiling it too much, we get a nice look into the main characters (Jungle Pocket, Agnes Tachyon) that feels deeper than the game's campaigns. there are quite a few scenes that make me tear up every time i rewatch them (and i don't usually cry to movies)!

anonymous Cinderella Gray reader

okay now go watch the movie

WEIRD NICHE CARTOONS I LOVE PART 1: DRACK PACK

****PLEASE NOTE: I AM DEFINING NICHE (VERY SUBJECTIVELY) AS ANY SHOW I HAVE VIRTUALLY NEVER HEARD OR SEEN REFERENCED BY PEOPLE OTHER THAN MY UNCLE ROB***

I figured I would begin with the show that got me started on this weird and fabulous journey, even though it already violates my definition because I technically found out about it from a meme.

You might know it, you might love it, you might hate it: it's Hanna-Barbera's *Drack Pack*.

This scented marker trip of a show lasted for sixteen episodes in 1980, probably for a reason, maybe for tax benefits.

It revolves around three teenage monsters defending the world from an evil (and very queer-coded) scientist named Dr. Dred, in an effort to change public opinion of monsters after all the bad stuff their forefathers did. Like murder.

The three mains are Frankie (son of Frankenstein, or Frankenstein's monster, if it bothers you that much), Howler (son of the wolfman), and Drack Jr. (*nephew* of Dracula). They have human forms and monster forms, between which they switch using a magical three person high-five called the Drack Wack. No, I am not making this up.

I have feelings, I have thoughts, and I have headcanons about this show. I am so very normal about the nuances of the relationship between Drake Jr. and his uncle, and how it influences his behavior. I highly doubt any of my interpretations jibe with the authorial intent of the show, but I'm a grown man and I can do what I want.

Their power sets are hilarious. In classic vintage-cartoon fashion, their powers are just kind of whatever is plot-convenient, but there are some consistencies: Frankie has your average super strength and sometimes he can do "stuff" with electricity. Drack Jr's powers are inspired by the original *Dracula* novel, so he can turn into a bat, or a cloud of mist, or a power drill. As for Howler, I guess they had trouble thinking of non-violent werewolf powers, so they gave him big-bad-wolf powers. He has very strong lungs and he can blow things away with his breath. It is way more useful than you'd think.

This show is utter crack sometimes, and I love it. It's wacky, it's nonsensical, it's like a big stupid dog you can't help but love. The plots have a very distinct pattern until about episode 11 and then they try to mix it up, but if you like cartoons I would recommend watching at least one episode. It is available on YouTube.

Cazber Clint

"INSIDE JOB" YOU WERE EVERYTHING TO ME OH MY GOD I MISS YOU COME BACK

LET ME RANT ABOUT THIS ABSOLUTE GEM OF ADULT ANIMATION

There's a profound sadness you can't explain when a piece of media you genuinely connected with and enjoyed is ripped away from you.

As dramatic as this is, coming from someone who didn't really watch adult animation prior to this series, I wanted to share my love for it.

Inside Job is a 2021 adult animation workplace comedy where conspiracy theories are real. The show centers around Reagan Ridley, an ingenious and socially inept head roboticist working for Cognito Inc. Cognito is one of the six American shadow organizations that secretly control the entire planet. Reagan, and her new partner and best friend Brett Hand, lead a team responsible for making sure the Deep State's secrets aren't exposed to the outside world.

I'm not so much focused on writing a summary for this show as I am explaining why it resonated deeply with me. So you're getting a list about everything I adored in this show. Spoilers ahead for Inside Job.

1. SUCH A COOL CONCEPT

As someone who binge-watches commentary videos about American politics, which can often devolve into talking about conspiracy theories, I'm definitely biased here when I say I really enjoy the concept. It's very creative in that you can look to real life for inspiration about what wacky plot line you can write next, but at the same time put your own spin on it.

The show doesn't limit itself to the conspiracy theories either, taking the time to delve into unique concepts and fleshing out their characters.

2. REAGAN AND BRETT'S FRIENDSHIP

The pilot episode revolves around Reagan, who's been working at Cognito Inc. her entire professional career, finally receiving a very well-deserved promotion to lead the team. Much to her dismay, she is made co-lead, with newcomer Brett Hand being hired as her partner. For the first half of the episode Reagan finds a way to prove that the team can't trust Brett, and the other half involves them working together to stop the evil robot president she created from nuking the planet (watch the show!).

Throughout the first part of the show, I suspected that the writers would eventually make them romantically involved and thankfully it never happens. Rather, we watch them develop a sibling-like relationship with a foundation in mutual respect and understanding in each others' trauma and familial issues.

3. THE WRITING BEHIND ABUSIVE PARENTAL RELATIONSHIPS AND EMOTIONAL GROOMING

As cynical and sarcastic Reagan can be, it's clear that she has a deep desire to change the world for the better from the inside of Cognito Inc. A big reason why leading Cognito is so ingrained in her identity is because her father, Rand Ridley, groomed her into making it so that she would have never imagined dedicating her life's work towards anything else, even going so far as to erase the memory of her first ever friend. Rand was the co-founder of Cognito Inc, but after one too many wild experiments that threatened the organization's secrecy, he was fired, ended up moving in with Reagan, and is focused on getting revenge on the other co-founder and Reagan's boss J.R Scheimpough.

The show makes a point to show that Reagan's ambitions for Cognito is a classic nature vs. nurture dilemma. On one hand, Reagan is a genius robotics engineer who has a deep desire to make the world a better place. On the other hand, we observe how draining the job is on her, constantly risking both her life and mental health for the dangers the team faces. Her job can be very thankless and strenuous on her, but since it's still a workplace comedy, the show does a good job of playing her fatigue for laughs while also showing her dedication to her work as an admirable trait as the show's protagonist.

4. RONALD REAGAN (THE MAIN SHIP'S NAME, NOT THE PRESIDENT), YOU WERE DESTINED FOR SO MUCH MORE

You're getting a part two to this because I had 4 hours of sleep and this ship deserves so much more than my sleep-deprived rambling. For now, just appreciate how the main couple's ship name in a show about conspiracy theories is Ronald Reagan.

floweryyy_

LIMERICK FOR MATHCND PEACH RINGS

THIS IS MY SUGAR INTAKE.

oh man this pset is so dumb

alas! i must leave this dang slump

but some hope from mc!

a sugary treat!

peach rings in mathcnd, yum!

crimson

CAN SOFTWARE LICENSES DO BETTER?

Richard Stallman is one of the most prominent figureheads for the Free Software movement. He is best known for developing gcc, gdb, and Emacs, among other things. It is troubling that there have been many allegations of him harassing women and that he has written many blogs over the years defending sexual misconduct and even exploitation of minors, but I want to write more about the GNU Public License (GPL) authored by him, and all its surrounding ethics.

Copyleft licenses grant users of a software the ability to freely copy, modify, and distribute the software, provided that a condition is *carried forward*; for example, GPL requires the source code to always be distributed alongside all copy and modifications of the software. Cute idea in theory, right? Google has a policy for AGPL (the stronger version of the GPL) that no AGPL-licensed software should be used at Google at all! But as far as impact goes, companies can just choose not to comply with the GPL. It took an entire lawsuit (*Software Freedom Conservancy, Inc. v. Vizio, Inc. et al*) for Vizio, the Smart TV company to release the source code for the GPL components they use. The lawsuit, first filed during Fall 2021, is still ongoing, with a trial scheduled for "late 2026." Because licenses like the GPL make it harder to incorporate and distribute the software by requiring additional things someone has to do, it is my opinion that such licenses trade away accessibility to uphold their ethics.

Companies nowadays can just "write from scratch" any GPL software they want to use by using stochastic word predictors with their datasets containing such GPL software. There is, therefore, not much difference between licensing a piece of software under a copyleft license like the GPL or under a permissive license like the MIT license (essentially, you can do anything with something under a permissive license as long as you maintain attribution), except that the latter makes it easier for other people or companies to use your software. But the idea of open source is finding strength in interdependence. If fewer people use your software, then fewer people are willing to help you maintain it. Whether it is actually a good thing for companies to help maintain your software is up to debate too.

There's a lot more to unpack, but I believe I captured the conundrum: for a license to help encourage and perpetuate its ethics, it needs to make the software maximally accessible and easy to use/distribute/modify for people that agree with its ethics, make the software reasonably accessible for regular users that don't think about these things very often, and make the software less accessible for users (e.g. companies) that actively work against its ethics. GPL doesn't do that, because large companies can afford to hire software license lawyers (it is quite rare for a lawyer to be familiar with GPL), can afford litigation, and are otherwise incentivized (by capitalism) to profit off of others' works as much as possible. But large companies are precisely the largest perpetrators against the software freedoms the GPL intended to promote.

Another interesting example is the "Anti 996" License developed by Chinese programmers in protest of the 996 working hours system (9 AM to 9 PM, 6 days per week). The license says legal entities who use the software must comply with labor laws and must not induce its employees to relinquish their rights under labor laws. This is, unfortunately, not a Free Software nor Open Source license, as it "restricts the freedoms" of its users by placing restrictions on who can use the software. It is therefore not a popular license in the software world.

I think we've really got that backwards. If we disregarded the costs of litigation and assumed that everyone will always comply with all terms of a license, then licenses should definitely be designed to be hostile to uses they consider unethical. Perhaps that *does* introduce additional barriers to collaboration, but we've already got enough of those already. Trust was eroded between the sides of the LLM schism, and figurehead Linus Torvalds continues to make claims that demonstrate how valuable he believes corporate influences are to the Linux kernel. Maybe better software licenses are needed to address what problems we believe are the most pertinent. But whatever Free and Open Source Software may look like in the future, it definitely cannot exist without capitalism.

beef

MY TOP TEN FAVOURITE WAYS TO CHECKMATE

I have played quite a bit of chess in my years and have checkmated others (and been checkmated) over a thousand times. But not all checkmates are made the same, so let me share my ($n = 10$) favourite checkmating patterns in chess.

10. SCHOLAR'S MATE

Starting off, we have the infamous four-move checkmate involving the bishop and queen ganging up on the poor f7 (or f2) pawn. Back when I first started playing chess, this used to happen surprisingly often, especially in bullet games. Unfortunately, this is not reliable at all as it depends entirely on your opponent's ignorance, not to mention your queen will get harassed when brought out early.

9. EPAULETTE MATE

This pattern involves the enemy king being trapped between two of its own pieces, typically pawns or rooks, while the queen delivers the checkmate. It is very satisfying seeing the opponent king trapped between its own pieces. Unfortunately, this pattern is also ridiculously difficult to set up. Both rooks need to survive long enough to become liabilities, and the king must somehow end up perfectly sandwiched between

them. Admittedly, I think I have been checkmated this way more often than I have delivered it.

8. MORPHY'S MATE

This pattern involves a bishop delivering a checkmate while a rook controls the king's escape squares, often with the help of the opponent's own pieces. What I personally love about this combination is how closely it resembles the windmill, one of my favourite chess tactics for the amount of material it wins. Just like the windmill, however, this pattern is excruciatingly difficult to set up, and I've only managed to pull it off a few times.

7. ARABIAN MATE

A rook and knight working together to trap the enemy king in the corner, with the knight protecting the rook and covering key escape squares. I find this quite resourceful and efficient, but it is quite difficult to get both pieces deep enough into enemy territory without being traded off or forced back.

6. ANATASIA'S MATE

Another checkmate performed by a rook and knight, except this time the enemy king is trapped against the edge of the board. The knight covers escape squares, while the rook delivers checkmate along an open file, usually with one of the king's own pawns blocking its last escape square. Unlike Arabian Mate, I find this pattern relatively easy to set up, especially when the h-file is open.

5. DOVETAIL MATE

This is one of the most common mating patterns I actually manage to deliver. It involves a defended queen checking the enemy king while two of its adjacent escape squares are conveniently blocked by its own pieces. This pattern is simple, elegant, and satisfying, only requiring one well-placed queen and a few enemy pieces that have become obstacles to their own king.

4. LADDER MATE

The classic. Two rooks, or a rook and queen, working together to slowly push the enemy king toward the edge of the board. This is the most reliable and straightforward checkmating strategy I know, and it is my go-to whenever I reach an endgame with overwhelming material or find the opponent's king very vulnerable.

3. BACK-RANK MATE

This used to be my biggest nightmare when I first started playing chess. I was so terrified of getting back-rank mated that I would often play a3 or h3 for no reason other than to give my king an escape square. Over time, I eventually learned how to avoid these mates, and started threatening them myself. It is a very simple yet satisfying checkmating pattern to find and execute.

2. BODEN'S MATE

With only two bishops worth six points of material, we get an elegant and resourceful way to cover the enemy king's escape squares along the edge of the board, provided a few other pieces help restrict its movement. This mating pattern is one of the main reasons I try to preserve my bishop pair whenever possible.

HONOURABLE MENTIONS

KNIGHT AND BISHOP

If you can do this, you have my utmost respect. I have never been put into a position where I've needed to do this, nor would I be able to even if I were.

MONA LISA CHECKMATE

This checkmate is so beautiful, but I have yet to pull it off in any of my games. Unfortunately, none of my opponents have been kind enough to let me walk their king around with a 31-point material advantage without resigning first.

FOOL'S MATE

It would be incredibly cool to pull this off, but I have not met anyone who has fallen for this. Unlike Scholar's Mate, where one might simply overlook a threat, Fool's Mate genuinely requires you to go out of your way to lose.

1. SMOTHERED MATE

This is the chess equivalent to winning the lottery. Not only is the setup incredibly rare, often involving a double check and a king forced into confinement by its own pieces, but the chances of your opponent spotting the threat are also very high. Although just about every other puzzle tests you, I have done it less than ten times across thousands of games. Every time it happens, however, it makes the rest of the day significantly better.

AppleTree

AO3 😢 IS 😢 DOWN

How am I 😢 supposed 😭 to survive 😨 the next 😢 few weeks without 😢 my fanfics (no one 🥀 cares 🥀 about ff.net 💀 or Wattpad 💀 💀 💀)

I didn't even 😨 download any fics 😭, because who 😢 expects AO3 to be 😢 down 💀 for weeks 🥀



ALL ABOUT PROJECT ENHANCER (PART 2)

CONTINUED FROM PAGES 6–7 IN mathNEWS *162.3. CHECK THERE FOR MORE DETAILS.*

chill by comparison. He doesn't have a major temper. He's remarkably good at trusting that Sophie knows what's best for herself and the people around her. Plus, there's this whole thing about how Fitz is a Telepath so he knows Sophie's mind, but Keefe is an Empath (another Elf Special Ability) so he knows Sophie's heart.

Now, this is not to say that Fitz is super duper toxic and Keefe has no problematic behaviours at all. Quite the contrary.

For example, Keefe is very prone to secret keeping, such as when he was squatting in the old apartment of a known terrorist because he had left home and didn't want to move back in with his dad and didn't tell anyone until he got stabbed and needed to be on bed rest for a week.

Keefe is also prone to running away when things get too intense. Not going to give specific examples for this one in case someone actually reads this article and then really wants to read the KOTLC series. But it's happened at least twice over the course of the series, and he ended up away from home for months each time.

There's also some other concerning incidents, such as the time he exploded a glass office with Sophie inside.

Honestly, thinking about all of this stuff gives the impression that maybe Sophie should just be with Fitz after all. I think the main reason why me (and most of the rest of the fandom) don't really believe that is the presentation.

You see, when Fitz starts yelling at Sophie, she tends to shut down. She has a pretty negative self-image, so when someone whose opinion she values says bad things about her, she believes them. And Fitz will eventually apologize for his behaviour, but it tends to take a while and/or needs prodding from Keefe to actually do it. You also never finish those scenes with the impression that this won't happen again. You leave them more with the sense that Fitz knows he hurt Sophie, but that he doesn't understand why his conduct was so bad.

Keefe gets almost the polar opposite treatment. If he starts keeping secrets from Sophie, or trying to running away, she'll push and pull at him to get him back. She'll chase after him when he runs, and carefully convince him to share his secrets. And if he does leave or she finds out some major secret he was keeping from her, she doesn't shut down. She's furious at him, but in a loving way. She doesn't want him to run away because she values having him around and safe. And she doesn't want him keeping secrets because she wants him to trust her.

Another major difference is that Keefe and Sophie's concerning behaviours match each others,' but Fitz and Sophie's do not. Like I said, Sophie shuts down a little bit when Fitz yells at her. She doesn't normally respond with anger. But Sophie is generally keeping even more secrets than Keefe is. And even though she's not so prone to running away, and I can't even think of a time where she got close to leaving everyone behind, she always seems to understand exactly what Keefe was thinking and feeling when he left.

Anyway, most of that is an analysis that I'm doing as a young adult instead of as a young teenager. I wasn't noticing most of that on my first read through. But here are some quick highlights of things that started becoming clearer in Book 7 for why Sophie would end with Keefe:

- Elf couples pick which last name to take after marriage, instead of it being tied to gender. Fitz and Sophie both want to keep theirs, but Keefe's relationship with his parents is so bad that he actively wants to ditch it as soon as he can.
- Fitz is certainly capable of making Sophie feel fluttery and happy, but her most extreme emotional responses are usually to Keefe.
- Shannon Messenger (the author of KOTLC) wouldn't make things so easy as just keeping Sophie and Fitz together before Keefe has even confessed his feelings.
- The ending of Book 7 strongly indicates that Sophie and Fitz may not work out.

"Huh? *pencil*, I thought you said in Part 1 that Book 7 ends with Sophie and Fitz together." Well my friend, not quite. And here's where I actually need to talk about a bit of plot stuff. And I'm going to try to do so without going on ridiculously long tangents.

So, I mentioned in Part 1 that elves have an indefinite lifespan and that supposedly no one has died of old age yet. This idea is actually really weird to think about now that I'm older, but I'll talk more about that when I circle around to KOTLC and same-sex couples in a while. Which I am going to wait to do. I will. No matter how much I want to talk about it now.

Anyway, due to elves having an indefinite lifespan and having very limited physical markers of old age (they seem to mostly stop aging in their twenties, except for their ears, which gradually get pointy over millennia), they decided to implement a matchmaking system. The basic idea is supposedly to keep people from accidentally marrying their relatives. Very reasonable, especially since it seems like the entire elf population is pretty small (I'd estimate something in the millions). And I will stay on topic. I will. I will not do my giant rant about this yet.

Anyway, in order to do this whole "verify that I'm not related to my potential spouse" thing, the matchmakers need your genetic information. The problem is that Sophie doesn't have hers. Due to plot stuff, she doesn't know who her biological parents are. This is extremely abnormal in their world. But as Book 7 tells you at the end for a cliffhanger, this means that Sophie is Unmatchable.

This is a huge deal. The matchmaking system is *very* important in

pencil

DWTS DISNEY NIGHT LIVE REACTIONS

SPOILERS AHEAD

Live from Waterloo, it's Dancing with the Stars (*DwtS*) x **mathNEWS**. This is a monumental crossover for me, so I had to give you all my live thoughts.

OPENING NUMBER

- As a theatre kid I was obsessed
- Loved The Lion King costumes
- Slay The Greatest Showman (I love Jan)

AMBER & PASHA — QUICKSTEP TO "A STAR IS BORN" FROM HERCULES

- SO CUTE
- Loved that they both played Hercules and the outfits slayed
- Slay that they alternated who was leading (Carrie Ann said this was the first time a woman was leading a man on the show and I think that's iconic)
- My score: 9

MAURA & MARK — JIVE TO "YOU CAN FLY! YOU CAN FLY! YOU CAN FLY!" FROM PETER PAN

- Seemed stiff
- Costumes are cute ("Mark has to be a pirate once a season or he dies" - *BeesKnees*)
- My score: 7

TATYANA & JAN- CONTEMPORARY TO "EASY AS LIFE" FROM AIDA

- Very pretty
- Jan a great choreographer, such amazing story-telling, he always eats up a contemporary
- Tatyana's best dance fr
- My score: 10

I interrupt my reviews to note that Cynthia Erivo is a SPECTACULAR guest judge. She actually gives good feedback. Obsessed with her and Bruno together.

HARRY & JENNA — JAZZ TO "SUPERCALIFRAGILISTICEXPI-ALIDOCIOUS" FROM MARY POPPINS

- Very well done
- Loved the visuals on the screen at the beginning of the dance
- My score: 9

EZRA & DANIELLA — SAMBA TO "UNDER THE SEA" FROM THE LITTLE MERMAID

- Ezra is literally so talented
- Slaying Samba Rolls
- Love them sm rn I want them to win
- My score: 10

JULIA & EZRA — PASO DOBLE TO "SATISFIED" FROM HAMILTON

- It was just okay to me but I lowkey think it may have just been weird song choice and costuming
- My score: 7

JENNA & VAL — QUICKSTEP TO "BE OUR GUEST" FROM BEAUTY AND THE BEAST

- I really like this
- Great choreography from Val
- I think Jenna's best performance so far
- My score: 9

CONNOR & RYLEE — WALTZ TO "I SEE THE LIGHT" FROM TANGLED

- Very Pretty
- Love Rylee's dress
- Love me a good Waltz
- My score: 9

TEAM SLAYTOPIA (TATYANA, AMBER, JULIA, & MAURA) — "ZOO" FROM ZOOTOPIA 2

- I want a pair of fringe pants
- Loved the part with Alfonso and the celebs
- Slay Amber and Pasha!!!
- My score: 8

TEAM WILDCATS (CONNOR, HARRY, EZRA, & JENNA) — "WE'RE ALL IN THIS TOGETHER" FROM HIGH SCHOOL MUSICAL

- I love HSM
- SLAYYYYYYYYYYYYY
- Goated team dance fr
- My score: 10

ELIMINATION: JULIA

Sad because I love Julia and Ezra together, but I low-key understand the elimination. Excited to see the matching tattoos.

So yeah that was Disney night on *DwtS*. Hopefully if you have never watched, this inspires you to watch next Tuesday!

is.all.on

SI PT. 1

Pain shoots through his arm as the syringe injects, spreading coldness. It crawls up his neck, and upon reaching his head, the world brightens, sharpens, and the pain fades away. The figure with the syringe helps him off the table, and a familiar face steps in. He now realizes this is the grad student working on this project.

"Great job, Michael! How do you feel?"

He feels dizzy and isn't quite sure… "Fine," he says.

They go through a checklist of basic questions, the student reading off their clipboard with barely concealed excitement. After finishing, Michael is walked to a room where he's told he'll be staying for the rest of the evaluation.

"In the morning, I'll stop by to give you a paper like this," the grad student says while handing him a handwritten page full of questions. "All you have to do is write out a response using the stationery at the desk, and drop it into the slot in the wall. Once you do, you're free to head to the cafeteria for dinner!"

"Will Robbie be there?" Michael asks, feeling uncertain.

"Of course! If he's finished his tasks as well, that is."

Michael finds the problems straightforward and finishes quickly. Pushing his paper into the slot, he's welcomed with green light above the door, which clicks ajar. He jumps up and follows colourful signs down the short hallway.

Michael quickly locks eyes with Robbie, his friend from before.

How did they meet again? Everything feels blurry—but neither of them dwells on it. The room is boring, the food is boring, and he finds himself slowing down a lot so Robbie can keep up. Despite this, their friendship is a spark of joy in the otherwise bleak lab. They share laughs about nothing in particular, and hum tunes they both somehow know. After not long enough, Robbie excuses himself early to rest his throbbing head.

"Have a good night, I'll see you tomorrow!" Michael calls to Robbie, who walks slowly back to his room.

Lingering a bit longer, Michael glances around. Thinking analytically, he's worried about Robbie's health and is uncomfortable with not knowing how long they'll be stuck here solving problems. Probing his memory yields very little: he can't recall why he came here, just vague excitement. He can't recall his life before, only an image of the green outdoors.

The next day, he wakes up to a knock at the door, which is quickly opened by the grad student.

"Today's problems will be harder. Good luck, Michael!" They drop a pamphlet on the desk with twenty-something papers inside.

"Quick question?" Michael asks. "How many of these will there be?"

The grad student replies that it isn't up to them, and smiles with a hint of a frown before closing the door.

Over time, the problems get longer and require more research. The pamphlets enclose reference material like encyclopedia pages, meeting transcripts, or plaintext code thousands of lines long. Michael doesn't mind too much; he feels very smart, and looks forward to spending time out in the lunchroom each day. As the problems grow, so too does his concern for Robbie. His friend isn't keeping up with the problems so well. Their discussion avoids the boring details of their work, but he can tell it's taking a toll.

After a week of being woken up by the gentle knocking of the grad student, Michael jolts awake to the mechanical whir of the printer on the desk booting up. He lies in bed counting. After 204 pages, it goes quiet. First he feels annoyed, then frustrated, and finally terrified. The realization settles in that release wasn't part of the lab's plan. He knows Robbie has been solving problems for longer… but how much longer?

He thinks it through while working through this day's task (a novel summary and theme analysis). The quality of his solution is never evaluated. The door is somehow connected to the response slot. He never sees the cafeteria cleaned, but occasionally new patients are brought in through the black door at the back. The grad student carries a keycard that unlocks that door. Robbie always sits near the back, where it's usually quieter.

As he writes the last paragraph and shoves his coherent but uninspired essay into the slot, he is filled with energy. Rushing out, he settles next to Robbie, silent and grinning.

Before long, the grad student walks into the room holding the hand of a patient, still in their hospital gown. The grad student avoids eye contact, visibly unsettled. This allows Michael to silently pinch their shiny keycard without being noticed. Grabbing Robbie, Michael slinks out that black door and starts running. Quickly lost, hearts pounding, they slam face-first into a wall.

The wall says, "How'd you get here?" and draws a crackling baton.

Jolting awake as quickly as he was knocked out, Michael awakes underneath dim lights. The room he's in is small, much like his own, but with a small dumbwaiter where the door used to be. Two days of problems lay stacked on the desk, and his stomach growls angrily.

Eventually, he gets up and starts working as he did before, running what happened through his head over and over. He couldn't have done any better. Soft taps on the wall behind him startle him, and he immediately recognizes it as his friend. Excited, he jumps up to tap the rest of the tune onto the smooth metal wall.

Days blend together as he writes to eat and lives to tap. Robbie doesn't understand Morse code, so they communicate with music.

Michael wakes with the beginning of a song at his fingertips, and taps the wall without so much as glancing towards the printer. Putting his ear to the cold metal, he waits. Sometimes Robbie takes a minute to think of a continuation, so he waits longer.

No response ever arrives.

blather

NO CELEBRITY DEATH HAS IMPACTED ME AS MUCH AS THAT OF GRANT IMAHARA'S

There's been a lot of high-profile celebrity deaths this year. Tim Curry, Peter Cullen, Bonnie Tyler, Patrick Stewart — people who were, for better or for worse, big figures for a lot of people in their formative years. When Dolly Parton died in late August, it seemed like the whole Internet was full of an outpouring of love and mourning and appreciation (understandably so). When my partner learned of the death of one of his favourite artists, Duncan Sheik, it hit him real hard. Seeing people both online and off expressing so much emotion over these public figures has gotten me thinking. I absolutely do engage deeply with media in ways similar to how many of the parasocially bereaved shared in their expressions of grief — many a song has gotten me through a difficult time, and I do have favourite public figures whose acts I greatly respect. For me, though, there's only ever really been one time I've been so affected by a public figure's death: Grant Imahara.

I grew up on torrented TV shows. We didn't have cable television, which was somewhat rare at the time in our suburban community, but my dad knew how to get ahold of most episodes of most shows anyone in the household wanted to watch. He'd pull up a file on his computer and we'd watch together — sometimes it was my dad and I, sometimes it was the two of us and my brother, and sometimes my mum would join as well. We watched a lot of shows over the years, mostly non-narrative popular science-related programs, but the two main standouts were *BattleBots* and *MythBusters*. Present on both shows, but more heavily featured on the latter, was robot-builder and electrical engineer Grant (Masaru) Imahara. Imahara worked for Lucasfilm on robots and animatronics used in the *Star Wars* and *Jurassic Park* series, among many others. He basically got an engineering degree and used it to make what seemed like magic out of science, and for me, that was the coolest thing ever. He was a model-maker when I loved detailed scale models, and was into live-action roleplay many years before I myself got into it. On *MythBusters*, he worked with colleagues Kari Byron and Tory Bellici as the build team, and while all of them seemed to have fun working on the show, I remember Imahara having this just delightful zest for life and exploring and learning. Looking back at clips now as a person who finds meaning in whimsy, it makes perfect sense to me that his sense of wonderment with the world around him resonated with me. Some of his most iconic clips from the series show him whooping or jumping in delight at a creation completing a task or an explosion going off. He was brilliant and creative and charismatic, and while I don't remember a lot from my childhood, I know I looked up to him.

By 2020, we'd run out of *MythBusters* episodes to watch (the revivals don't count), the Netflix series featuring Imahara and colleagues only lasted one season, and Imahara hadn't appeared on *BattleBots* in nearly twenty years other than as a guest judge, so I didn't have any regular exposure to the man. I don't remember how, exactly, my dad and I found out, or how either of us reacted, but I remember how hard it hit me. I think I was used to a sense of distance from the celebrity figures who lived far away and would never encounter us, and while absolutely Imahara wasn't any different in that regard, his death hit closer to home. It was very sudden and I remember reading that the people around him were just as surprised as we were when they found out. He wasn't much older than my dad. I mean, I was a deeply anxious and considerably depressed teenager, so this was hardly the first time I'd been made to think about the thankfully only hypothetical deaths of my parents — especially considering that the reported worldwide COVID-19 deaths were well into the hundreds of thousands by this point — but the fact that he was so close in age to my dad and that I associated with him a powerful whimsy and curiosity that seemed more important to youth than actual age made it seem so real.

Come to think of it, I think this was the point at which I started to develop the grim concept that all of my childhood heroes either died young or turned out to be terrible people, which is a pretty bleak outlook to have. I know that's not completely true, because we still have Chris Hadfield. As long as we still have Chris Hadfield, there is still hope for some childhood heroes.

I guess I don't have any particular point to all this, as usual. I'm just thinking onto the page. If nothing else, it's given me a nice excuse to go back and rewatch some Grant Imahara clips.

axon_terminal

I SIMPLY DON'T WANT TO: A REBUTTAL TO LYSSAV33'S DEFAMATION OF THE SOCIAL BATTERY

Personally, I do not enjoy lunch meat. I am not a sandwich person. That does not, however, give me the right (or the nerve) to insult the millions of people who line up at Subway every day. In **mathNEWS** 162.2, LyssaV33 extended no such courtesy to the social battery, taking aim not only at the concept but at the people who use it to skip social events, going so far as to call them, with tremendous aggression, "little bitches".

I'd like to respond to LyssaV33's uneducated and frankly bigoted claims by taking her article apart, section by section, with some peer-reviewed science, some first-hand storytelling, and, of course, a generous serving of gay snark.

"I currently reside in a hell of my own creation…"

You open by framing yourself as the ever-busy, ever-social student, presumably to claim the moral high ground before kicking the social battery off of it. Unfortunately, this sentence kills your entire argument. If your social hell is of your own creation, then you built it, you chose it, and you clearly enjoy living in it. Congratulations. Not everyone wants to be you, Ms. Anthrope. You then imply that you've been a social butterfly your whole life and give a heartfelt shoutout to your caring parents, which is sweet, and also, my next point.

Twin studies show that sociability is substantially inherited: in a study of 12,898 twin pairs, the heritability of extraversion was 0.54 for men and 0.66 for women, meaning roughly half of the differences between people trace back to genes (Floderus-Myrhed et al., 1980, Behavior Genetics). Across many twin and adoption studies, estimates consistently land between 34% and 57% (Vinkhuyzen et al., 2012, Translational Psychiatry). So yes, thank your parents: your extraversion is largely a hand-me-down. Empathy is also largely inherited by your parents; clearly something went wrong there. And unless you're a raging eugenicist (gene racist), or equivalently, Sydney Sweeney, having some set genes doesn't entitle you to lecture everyone else about theirs.

"A 'social battery' is not a real organ (duh); it is a pseudo-psychological internet word used to explain a variety of feelings ranging from mild irritation to violent exhaustion with humanity."

Incorrect, and also, stop reaching. Nobody who mentions their social battery believes there's a fucking triple-A lithium battery in their chest. "Battery" is a metaphor, the same way "hunger" isn't a fuel gauge in your stomach and "horniness" isn't a switch in your vagina and/or penis. What the metaphor describes is measurable. Tracking people several times a day shows that sociable behavior predicates feeling more tired 2-3 hours later, scaling with how many people they met (Leikas & Ilmarinen, 2017, Journal of Personality; replicated in Leikas, 2020, Heliyon). The recharge side shows up in the lab too: 8 hours of social isolation lowered energy and raised fatigue about as much as eight hours without food, most of all in sociable people (Stijovic et al., 2023, Psychological Science).

In other words, social energy behaves like a battery: interaction drains it, isolation leaves it sluggish, and the capacity differs from person to person. "Social battery" isn't pseudo-psychology; it's an everyday name for a pattern researchers have measured, replicated and published. The only pseudo-psychology in your article is the clinical diagnosis of "little bitch."

But forget the science. Let me tell you, from personal experience, that you're simply wrong. I, too, have been sociable my entire life. I was constantly in trouble in elementary school for talking too much, and I've never had much trouble making friends. But like most people on this planet, I have a LIMIT. If I've been socializing all day, or the day before, or I've just survived an interactive class, a presentation, or any other form of mandatory human contact, there's a very good chance that the last thing I want when I finally get home is a room full of strangers.

That doesn't mean I go mute. The battery doesn't drain equally for every interaction: a 10-day study of 120 students found that conversations with familiar people used less energy than conversations with strangers, and people felt less tired when they felt connected to and interested in who they were with (Hall et al., 2023, Journal of Social and Personal Relationships). The researchers concluded that while we invest the most energy in the people we care about, being around familiar people takes less work in the long run.

So yes, when my battery is low, I don't roam the halls in eerie silence like Michael Myers. I will happily talk to (and genuinely enjoy) my closest friends, my family, and the people I love. What I will not do is go to a party to make small talk with forty people I will never speak to again. That's not weakness; that's resource management. You'd think someone who's in "five engineering classes" would be able to identify and respect an optimization problem.

"Sometimes existing as a person means toughing it out."

Sometimes, sure. Exams. Co-op interviews. Goddamn AWFUL professors. A party is not one of those times. Toughing it out is for obligations, not for optional fun that has stopped being fun.

Now, if I invited someone to my birthday and they cancelled last-minute, maybe I'd be a little upset. But I recently threw a Halloween party, and plenty of people couldn't make it. I'm sure some of those were dead social batteries, and I could not have cared less. I had a great time with the people who came, and the people who stayed home presumably had a great time too. Everybody won. If people being tired genuinely bothers you, maybe that's a self-esteem issue, or maybe you're just not

tired ENOUGH. Lay off the caffeine and take a nap in silence.

"TL;DR: Come to the party, dickwad."

TL;DR: LyssaV33 is wrong, I'm tired, and I can stay home if I want, bitch.

OatmealCookie666

STATS CLUB DASHBOARD :0

UNIRONICALLY WE HAVE COOL STUFF IN THE WORKS SO LIKE YOU SHOULD COME

i've been telling you to come attend, but not what, where, or when, so this is the part where I do that. efficiently and mostly professionally, of course, because it's a dashboard.

EVENTS:

- Curious about grad research in stats? Come out to our Research Night on Nov 12th from 7–9pm in MC4063 and hear from doctoral students about their work! Did I mention free dinner?
  - lowkey this was why i made this article so you should flock like geese and learn (like a school of fish? i guess)
- Our midterm review session for STAT 230 MT2 is happening on Nov 17th from 5–6:30pm in MC4064, Subway included! Come get a crash course on probability concepts and finally figure out why we care about Markov's inequality! (no but why do we care i don't get it)

SOCIAL MEDIA:

- Follow us on Instagram @uwaterloosc and join our Discord at https://discord.gg/EggAQ2UAFz for updates on other events! We also post fun stuff I swear we're silly goofy and worth a follow :D

OTHER:

- Come visit us at our office (M3 1004) Mon–Wed 2:30–4:30 or Thurs–Fri 12–1 to chat with our execs, get some resume help and pick up some candy or pop! I've been decorating it too, cute place to study at while open or just to pop in and sign the whiteboard :0
  - please i'm lonely

that's all that's happening really, but don't miss out! in conclusion, you should come. come like geese or fish or markov's inequality or something idk

UW Stats Club

REALLY HARD WORD SEARCH & SUDOKU

H	E	A	Y	D	W	M	E	U	E	B	P	D	Y	A
A	D	E	T	E	E	M	U	K	O	E	B	E	F	S
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GOOGOLPLEX	NATURAL LOG	VINCULUM	PINKY
PYTHAGORAS	MATHSOC	LOVELACE	EULER
IMAGINARY	UPSILON	ABCISSA	LAMBDA
FIBONACCI	LAPLACE	APOTHEM	CLOPEN

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Cardboardboaters

YOUR LANDLORD VOTED. DID YOU?

A LOOK AT THE DISASTROUS VOTING RATE THAT IS FUCKING US ALL

Over the past three weeks it's been hard trying to feel good about the politics in Canada. Despite successes in the municipal elections, with progressive parties taking control of Vancouver and Brad Bradford being held off in Toronto, you can't say much of the same for B.C.

On October 24th, I watched as B.C. Premier David Eby's snap election gamble failed, and the B.C. Conservative Party got elected to a supermajority. With this majority, the Conservatives will make attacks on minorities and the cost of living which are unprecedented in the province, maybe even in the country. B.C. has elected a right-wing government on par with Alberta, if not worse.[1] As big of an issue this is, it was entirely preventable. An abysmal voting rate of 48% created this result, and with a similar 48% of voters going Conservative, this resulted in a horrifying 23% of eligible voters giving the Conservatives 100% of the power. Every major party except the B.C. Greens lost voters, and as a result, Ontario has become a safer place than home for me as a trans woman, a sentence that should never be uttered. For at least the next four years, B.C. will be run by the worst major choice of the election. They will open insurance up to the private sector, a decision that you just need to look across the border into Alberta to see how shit a decision that is. They will run a deficit worse than Eby's government ever did. Indigenous rights, queer rights, and human rights altogether are fucked in the hands of a caucus where residential school denial and homophobia are normal.

Voter turnout in this country has always been horrifying. Municipal elections almost never come close to 50% and provincial election turnout has always been lower than federal elections, which haven't touched 70% since the '80s. This treatment of more local government as less important hurts when daily life is heavily affected by local government. Municipal elections matter so much and yet people face them with so much apathy. For example, Olivia Chow in the recent Toronto municipal election got the most votes of any Toronto mayoral candidate in history with just over half a million, and yet turnout was just under 46%, a far cry from anything substantial. None of this is healthy.

So what can we do about voting? I feel that there are three main reasons why people don't vote; being uninformed on what the other governments do, apathy on voting, and frustration with the system.

Being uninformed on the responsibilities and abilities of each government feels like an issue that should have been solved with learning about it in a civics class in elementary, middle, or secondary school, and yet it is still a massive issue. Parties are running on policies outside their roles and criticism is thrown towards governments that can't make the changes. These issues feel like such an easy thing to solve and yet they're still massively perpetuated. So let's recap.[2]

THE FEDERAL GOVERNMENT CONTROLS:

- Citizenship/passports
- Criminal law
- Currency
- Federal taxes
- Fisheries
- Foreign affairs/international trade
- Indigenous lands/rights
- National defense
- Official languages
- Parks Canada
- Postal service (Canada Post)
- Telecommunications policy
- Veteran affairs

THE PROVINCIAL GOVERNMENT CONTROLS:

- Colleges/universities
- Education
- **Health care**
- Natural resources
  - Includes discussion on old growth logging
- Property and civil rights
- Provincial/territorial law and courts
- Provincial/territorial parks
- Provincial/territorial road maintenance
  - Not city streets, more so provincial highways, bridges between cities, etc.
- Provincial/territorial taxes
- Social services
  - Includes student aid like OSAP

THE MUNICIPAL GOVERNMENT CONTROLS:

- Animal control
- Community centres
  - includes swimming pools, ice rinks, etc.
- Fire protection
- Land use planning (zoning)
- Municipal/local parks
- Municipal/local police
- Municipal/local road maintenance
  - These are the roads you use on a daily basis
- Property taxes
- Public transit
- Recreation/community facilities
- Waste management
- Water supply/treatment

As clearly shown, there's so much of your daily life affected by the municipal government and yet you can never find people caring enough about it. Waterloo's voter turnout was about 30%, and I bet you didn't even know that you could've voted.[3] They are given so much power in daily life and yet very few people actually care to vote about it because they don't seem important enough.

Apathy on voting is something that I find genuinely frustrating. People who talk about how they "don't really do politics" genuinely piss me off to no end. There is no way someone is so unaffected to not vote. To represent this, I have created this helpful yes/no questionnaire:

- Are you anything that isn't a white, upper-class, cisgender, heterosexual boomer man?
- Do you have friends/family/acquaintances that aren't white, upper-class, cisgender, heterosexual boomer men?
- What about their friends/family/acquaintances?
- And their friends/family/acquaintances?
- And what about those people?
- And their friends/family/acquaintances?
- And what about them?

If you answered yes to any of those questions, who is in power affects you enough to vote. If you answered no to all of them, you are fucking lying. Everyone is connected by six degrees of separation. Go vote.

You don't even need to vote for a specific candidate. As much as I would prefer people caring about civil rights and supporting the working class, sometimes every candidate sucks. In that case, go and spoil your vote. It's a whole lot better to show that you are willing to take the time to vote rather than remove your voice entirely. If you didn't show up to vote when you were able to, you need to seriously reflect on why. If you know someone who didn't vote and could've, hold them accountable. No one has the privilege to be apathetic.

Finally, dissatisfaction with the system. Many voters in B.C. stayed out feeling that while the Conservatives suck, the B.C. NDP couldn't be rewarded for calling an election whilst having a majority. People also felt trapped by the first-past-the-post system, feeling that their vote did not matter. This often materializes when voters feel that voting for a minor party is wasting their vote, even if they represent their views the best. This is so easily fixed with proportional representation, but for the time being, we can't allow this to keep happening when the lack of voting is allowing the major parties to perpetuate this shit voting system.

Does politics in Canada suck? Always. Voting outside of the main center-left and right-wing party always feels like a gamble, but change isn't made by skipping the polls. Vote in every election. Change is needed and that can't happen if those working on it are alone.

fingersinsockets

1. minus the separatism, of course, but plus more blatant residential school denialism and homophobia. You can't believe just how right-wing rural B.C. voters can be
2. https://electionsanddemocracy.ca/which-election/station-2-which-level-government
3. https://www.waterloo.ca/council-and-committees/municipal-elections/vote-in-the-municipal-election/#Universityandcollegestudents

TO ALL THE THERAPISTS I SAW BEFORE

I'm sorry I wasn't autistic enough
You said it was "like a thread in my life"
I spent time to weave it into my fabric
But I just couldn't shoehorn it in

Sorry I wasn't docile enough
You said doubts were just "imposter syndrome"
When I asked you to reconsider
You blamed my struggles on autism

I'm sorry I wasn't wary enough
I thought you would be there to guide me
When I saw Carter and spilled my mind
I thought you should have calmed my feelings

I wrote to the Board but the damage is done
How am I ever to trust you again

Ryan Cikoja

QR CODE TO THIS ISSUE

IN CASE YOU CAN'T FIND IT

Doublewhip

If this doesn't work you'll have to find it some other way. It's probably around here somewhere.

GYM SIMULATOR

Ever thought about going to the gym but are worried about getting started? Here's a collection of random observations from my time going to PAC (and occasionally CIF) as someone who previously couldn't imagine himself going to the gym.

I'm going to try to limit this article specifically to a description of the gym experience, so that you don't have to hear about how exercise is great and solves all your problems for the thousandth time.

- I didn't really want to go through the experience of standing next to the machines looking up exercise tutorials or otherwise coming in not knowing what the hell I'm doing, so I signed up for some personal training sessions. If you have some co-op money to throw around (and even then, it's relatively cheap for personal training, doubly so if you sign up in a group), overall, I would recommend it.
  - Here's how that process works, briefly: you fill out some forms indicating your goals and preferences, get matched with a trainer, and then you coordinate lesson scheduling with them over email. You can also schedule a conversation with one of the trainers in person to get some more information about the program, which I did.
    - That trainer was a really chill guy. I don't think "head trainer" is the right title for him but I'm gonna call him that from here on out to distinguish him (especially since he handled trainer matching). This interaction also came in handy for the story in the next second-level bullet point.
  - However, you do have to be ready to advocate for yourself a tiny bit. The first trainer I was matched with stood me up on our first training session, and I just kinda sat in the trainers' office for 20 minutes in my gym shorts like a sad little lost child before giving up and leaving (the lateness limit stipulated in the contract had passed and he had not replied to the email I sent). Afterwards, I sent an email to the head trainer explaining the situation, and I got matched with another trainer who was a much better fit.
    - I was a little hesitant to send that email because I considered giving my trainer another chance, but that is not the right attitude in this situation. He could have another chance with someone else, and when you're picking your trainer you should definitely prioritize your comfort.
      - Also I'm just hating at this point but I did *not* like how that guy wrote emails. Ultimately, changing was the best course of action in the long run.
- Once I was all set with a trainer that worked for me, things went pretty smoothly and I got a collection of exercises and some basic exercise principles figured out with a sufficient level of confidence. The next important step to take was starting to go to the gym by myself, which I lucked into due to my trainer departing for a two-week trip in between sessions, thus forcing me to get a jump start on independence.
  - I am not normally this disciplined. I'm gonna chalk the smooth transition mostly up to increased confidence and from not wanting to disappoint my trainer.
- Once I started going independently, I started to feel more like part of the gym community, which is a pretty nice community to be in all things considered:
  - For one thing, I've found that people at PAC are quite good at minding their own business. That doesn't mean that people won't *notice* you, because they definitely will (see next point). It'll just be clear that much like you, their number one priority is getting through their workout.
  - The being noticed aspect isn't too bad though. You'll find that with time, you'll encounter a consistent roster of other people who go to the gym on some of the same days that you do. You probably won't talk to most of them, but you will occasionally glance at each other and it'll be clear that they recognize you right back.
  - When you do have to talk to people, you'll find that they'll tend to be pretty nice and courteous. You should reciprocate. Follow good gym etiquette by cleaning up after yourself and being kind to others.
  - During your first few days of independent gymming, you will hit the following social milestones. They are simple in the grand scheme of things, but will hit like crack the first time (doubly so if it's coming from someone who's jacked).
    - Someone will ask you how many sets you have left.
    - Someone will ask to work in (share a machine, using it while you rest) with you.
    - *You* will ask someone else the above questions.
  - Even awkward encounters tend to be ok. I once saw someone ask someone else out while I was doing pull-ups nearby, and that conversation was a little embarrassing but it was over quickly and respectfully. For a personal story, one guy I was working in with suddenly started asking me about Jesus, but after seeing that I was not enthusiastic about being proselytized to he relented.
    - The one example I've encountered of actual rudeness at the gym was a conversation I overheard between two people sharing shitty misogynistic takes with each other. If you

encounter such cases and are feeling uncomfortable or being harassed directly, get a trainer's attention and they'll be able to step in.

- I have more to say but in consideration of the word limit and my sleep schedule, this will be the final note: the exercise bikes and treadmills have screens that you can do all sorts of bullshit on. I tend to only use these machines for warm-up so I tend to go for quick activities (like the Solitaire app) or time-independent ones (like the track visualizer), but you can also watch shows, read the news, and look at reels to your heart's desire.

That's all for your preview. If the above sounds acceptable to you, you know where to go next.

the government's only spy

WRITERTHOUGHTS #6

QUESTION: WHAT DID YOU DRESS UP AS FOR HALLOWEEN AND WHAT CRAZY THING DID YOU SEE THIS YEAR FOR HALLOWEEN?

It's been one week since Halloween. The shots, pumpkin guts, and sexy derivative costume you wore are now sadly behind you. While November may feel cold, and you may fear the coming winter, why not look back? See the fun that happened this Halloween weekend. In honour of Halloween, today's questions are: **what did you dress up as for Halloween**, and **what crazy thing did you see this year for Halloween?**

WAFFLE:

I dressed up as a politician (Senator Armstrong from Metal Gear Rising: Revengeance), and the craziest thing I saw Uber prices on Halloween night.

ANNOAYMUS:

The craziest costume was definitely the ION

AURELIO:

White-collared blackbird :)

ANNOAYMUS:

Butters/Professor Chaos, and I saw a shirtless minion in broad daylight!

FINGERSINSOCKETS:

Dual costume of Heather McNamara (*Heathers*) and JUICE (*17776*), and I saw Princess Lego Batman

AXON_TERMINAL:

I didn't have a real costume, so I wore my 3XL Dashcon 2 volunteer shirt because I absolutely would not wear that in public on a normal day. I also didn't see anything that crazy, but there was an ambulance call to the building across the street from mine.

DOLLAR STORE PERSON:

I dressed up as a vampire countess (up late counting vampire numbers and stealing yo girl ofc), and I didn't really see anything crazy, but I did see the alternate reality of me as a drug dealer. That shit is NOT for me man

FLOWERYYY_:

I dressed up as Spider-Man AND the AO3 shutdown message. I saw someone dressed up as HTML code

writerTHOUGHTS

THE EM-DASH (—)

OH MY BELOVED!

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FarFromHome

AI will have to pry you from my cold dead arms.

SONG ANALYSIS OF THE ISSUE

:3

So. We recently (like three? days ago) got a new update for the *Destiny 2* roadmap in terms of new updates coming out. Like, it's awesome, don't get me wrong. I love updates, I love the old stuff that I miss coming back, and plans for new things. I even get the theory between having to wait until February for development to start. I EVEN understand that it should take about a year or two for the first wave. I don't even have anything "but"-wise to say to this. Like just check the picture of the proposed roadmap below:



OFFICIAL DESTINY 2 UNVAULTING ROADMAP FROM JOSH DEANE

IT'S SO NICE LIKE IT LOOKS SO AESTHETIC AND IT GETS THE IDEA ACROSS AND AAAAAAAAAAAAAAA I LOVE THE *DESTINY* TRICORN.

Putting the *Destiny* Divulge™ aside, I suppose it's time to look at our song of the issue. Today's issue will be focusing on the track ✨✨"Keep of Voices" from *Destiny 2: Forsaken*! ✨✨

This song has three separate parts, and is designed for many encounters in the game, but is most infamously seen in the "Vault" encounter in the Last Wish raid. The sections ramp up in intensity between each one. All in all, the entire track spans 5:00 exactly. This article will be split into three sections: The first part of the track, the second, and then the third, all having their own analyses. Feel free to follow along here: https://www.youtube.com/watch?v=P5v0TIJLbKs&list=RDP5v0TIJLbKs&start_radio=1

THE FIRST SECTION

This section is not mechanically complex, although it does have some very nice aspects. It is very subdued compared to the other two, although it has an amazing ambiance and buildup. It opens with nice brass melodies and beautiful, winding strings. The voices which rise slowly within the first minute or two add so much to the track overall, and really tie everything together. All in all, this section does wonderfully in setting the tone for the track and ramping up towards the second section.

THE SECOND SECTION

This section follows a similar suit to the first one, and it is kind of hard to tell when it begins, although my best guess puts the start around 1:35 into the song. This part starts off with a simple refrain following a similar melody to what was near the start, although this time it keeps repeating it, introducing new voices, strings, and general instruments. Afterwards, it crescendos into a beautiful melodic portion focusing on the chorus. This pattern continues, building up towards approximately 2:45 into the song, where drums kick in and the general pathing of the song becomes fully apparent. This section with the drums is more of an encore of previous sections, acting as a bridge between section two and section three, while also allowing the building of further atmosphere.

THE THIRD SECTION

The third section begins around 3:25. This section kicks everything into high gear. Where this section would normally play, high octane gameplay and chaos run rampant. This section of the song has a few unnatural cuts due to the nature of how it would actually be played, with each "cut" being used in a different part of an encounter (this section is also reused and built upon in Riven's theme later in the raid). This section is categorized with much less voice work, at least at the start, and a much greater focus on instrumentality. Around 4:15, the song kicks up **again**, introducing an angelic choir texture and heavier drums, speeding up the pace of the song, eventually crescendoing until the end, where it goes out with a bang.

This section is very snippity snippity since much of it is used in the Riven encounter, and the parts that are used for the Vault encounter are short enough where they can simply be used. If this third section intrigues you, I urge you listen to Riven of a Thousand Voices' theme.

SECRET SECTION — RIVEN PHASE ONE

(follow along: https://www.youtube.com/watch?v=xVq_RRU9LeI&list=RDxVq_RRU9LeI&start_radio=1 — phase one)

This section directly builds off of where "Keep of Voices" left off, this time with even more intense drumming patterns and background instrumentality. It keeps the pace up for a bit as in-game you come face-to-face with the final boss of the raid. About a minute in, it switches gears similarly to how the third section does in "Keep of Voices," but this time does it with a much more natural cut. It expands on this part as well, adding more swells and heroic theming, although instead of going anywhere, it loops back into the original pattern. From here, it builds on the original pattern with a quick arpeggiated melody. I quite like this melody, it feels chaotic, mirroring the gameplay at the moment. It then adapts a similar pattern to the start. Finally, it restarts again. For the second phase analysis, I will take that up next issue.

Anyways, analysis and deconstruction aside, this article was a lot of fun. Both the combination of working with "Keep of Voices" and ***DESTINY 2* UNVAULTING ROADMAP** were a treat for me. Starting with this issue, I will now be taking recommendations for Track of the Issue. The requirements for the track are as follows:

- It cannot be too long, as I only have 1000 words with which to analyze the song (and require 100 at the start for the issuely *Destiny* divulge)
  - Exceptions to this are songs looped over twice or more to make the song longer
- It should in theory be from a game or piece of digital media, although the most important part is that it is largely instrumental in nature, and that it has some sort of underlying lore I can look into (if songs fit this requirement feel free to submit them)

With all of that said, have a good two weeks **mathNEWS** readers, and until next time, O reader mine.

Waffle

ONION ON MY BELT #2

SUMMER 1991

In the summer of 1991, I moved into a house on Erb Street, two doors down from the mosque near Westmount. I was not a particularly perceptive ~~guy~~ girl,[1] so a lot was going on around me that I wasn't aware of, that took me a long time to understand.

This column, then, has a mystery. See if you can figure it out.

My landlord was a prof in my department. He didn't live with us. I did have a course with him later, though, and he talked about Jesus a lot. After a particularly brutal midterm one of my classmates wailed, "I need this class! I have a job when I graduate!" To which my prof replied, "Had." You can see his picture in Hagey Hall among the Distinguished Teaching Awards.

My roommates included:

- *Two Egyptian students*. They always wore *jubbas* and were very serious and studious. They were, I believe, instrumental in getting the mosque up and running.
- *Two girls living in the attic illegally*. The Egyptian guys didn't like them, and vice versa.
- *One former Imprint editor*. He liked drugs.
- *One guy who was completely and utterly normal*. I think his name was Rob.

On my first visit to check the place out, my father identified the odor in the kitchen as coming from the sheep's brains on the counter. They had been left there by the Egyptian students. I would recognize that scent instantly: after all, it's only been 35 years.

The two girls had about thirty pairs of shoes each. There wasn't room for them all in the hall, so they stretched up the stairs. Upon learning I was to be their new roommate, the younger one asked me a little too eagerly, "Do you take messages?" Of course I did: every good roommate, did in 1991.

My room was the best of all: it faced the back yard, and so was shielded from the street noise. It was quiet, except for the phone. The two girls were getting two to four calls *an hour* from guys wanting to know if they'd be out tonight. The guys never gave their names.

Rob went to Laurier, and owned a basketball. I remember nothing else about him.

The girls slept all day and got a ride to clubs every night: chiefly Phil's and Lulu's Roadhouse. Lulu's had the distinction of having the world's longest bar, and absolutely no others. Phil's was a hole. (No one ever described it any other way.) My landlord refused to go up the stairs to the attic where they slept, or even acknowledge their existence. Both of them smoked a lot, were extremely cynical, and had a world-weariness deep as the sea. They never talked about their folks. The older one's face looked a little puffy. Later on, I found out that's a sign of alcoholism.

One day I was washing my whites when I found out she had left her hunter green silk babydoll in the bottom of the washing machine. My whites were now teals, and so remained until the end of their days. The babydoll was unharmed.

The Imprint editor condescended to me when I played video games, but taught me interesting things like "morning glory seeds, when the poisonous coating is washed off, are hallucinogenic" and "LSD never killed anyone who took it in moderation." He was, in short, a burnout, and of the worst sort: he still had his ambition and a sense of what he could do. He was Going Through Some Stuff, and his world-weariness you could see from space.

The girls eventually figured out that my naïveté wasn't feigned—indeed, it was so strong as to actually be blithering—and after that they warmed up to me. They blamed the Egyptian students when I left my alarm on one morning. I confessed to it and I think that they respected that. They also liked that I loaned the house a microwave, which didn't get cleaned for four months.

I thought I was clever by figuring out they were probably lesbians, but it took me 35 more years to figure out exactly how they could afford to go out every night. If you've guessed already, or know what a FSSW[2] is, consider yourself much smarter than I am.

So Imprint burnout guy was not the only one Going Through Some Stuff. If you don't see it, it doesn't make you a bad person; you have your own Stuff To Go Through. Be gentle on yourself, and others.

megan_carless

1. I didn't transition until 2024. As I said: not quick on the uptake.
2. https://www.urbandictionary.com/define.php?term=fssw

profQUOTES

AMATH 271: FRANCIS POULIN

❝ After sweeping all of the details under the rug.

AMATH 333: FRANCIS POULIN

❝ To show, because 'prove' is a scary word…

❝ I fixed something from last lecture! I often say I'll post them , but then I don't…

❝ *[drops chalk]* Aah! Valuable chalk!

AMATH 463: BARBARA ZEMSKOVA

❝ So if I do my arithmetic correctly, which is a questionable statement.

❝ Questions? Thoughts? Disappointment?

AMATH 473: GRAEME SMITH

❝ I don't push my kids to do science. Honestly, I'd be happy if they found a more respectable thing to do.

❝ I think anyone who chooses to live in Waterloo is a nerd.

❝ If I understand correctly, this is called aurafarming. He's just sitting here, farming aura.

CO 342: OLIVER PECHENIK

❝ Now that you're all grown up, you have to learn about minors.

CO 431/631: OLIVER PECHENIK

❝ Every nonnegative integer should be counting something. You shouldn't get to be a nonnegative integer if you aren't counting something.

CO 442: LUKE POSTLE

❝ Prof: Any questions about the midterm?
Student: Will we get A1 back before the midterm?
Prof: Uhhh… irrelevant! Next!

CO 485: SAM JAQUES

❝ Well, in some cases yes, but probably no.

CS 136: CURTIS BRIGHT

❝ How do you spell steering?

CS 245E: STEPHEN WATT

❝ Penguins are not very good at logic.

❝ We intuitively know penguins are not television shows.

❝ Do not go find a baby and ask it to manage a crocodile.

HLTH 290: JOHN MIELKE

❝ This is the universal interpretative dance move for feedback inhibition.

MATH 235: RYAN TRELFORD

❝ *[Student points out a mistake]* Yeah, I'm sorry, I shouldn't drink before class. I'm just kidding… I wouldn't drink before class… not since I was a TA.

MATH 235: JERRY WANG

❝ Life is not complete without seeing the proof of Cayley-Hamilton.

❝ Recall, in elementary school, you learned the law of cosine.

❝ I left my pen at home, so I had to borrow a student's. Ten points to Gryffindor, I guess!

❝ *[referring to the pen]* Oh, this feels so nice.

MATH 245: JERRY WANG

❝ We take v_1 = x-naught, y-naught, because why not.

MATH 247: SPIRO KARIGIANNIS

❝ I'm morally obligated to mention everything in MATH 237 at least in passing.

❝ No one wants to see me take partial derivatives in public.

MATH 559 (MCGILL): DAVID STEPHENS

❝ This algorithm was invented in the 1950s to study "statistical physics problems." Which is of course the most euphemistic way to describe the atom bomb.

PMATH 347: FAISAL AL-FAISAL

❝ I found the paper, started reading it, and almost died.

PMATH 367: TY GHASWALA

❝ …which, by some set theory nonsense…

❝ I'd rather than you use an LLM, you call your friends, at 11:55 PM, and say, "Quick, I have four minutes, tell me how to do this problem!" and your friend says "Shut up, I'm at the pub!"

❝ At this point in the term I encourage you to make an extra effort to show up and engage in class! For my sake (so I feel needed), for your sake (so you're actually getting something out of your UW degree), and for the sake of humanity (so you don't replace every human interaction you have with an LLM).

STAT 333: STEVE DREKIC

❝ So we can pick any state we want. So I'm gonna pick state 2525! Just kidding, I'm gonna pick state 0.

❝ Positive recurrent, aperiodic states are referred to as "ergodic" states. It sounds so sophisticated! It sounds so mystical!

SYDE 750: CHRIS ELIASMITH

❝ Now I am a fish and can swim in every direction.

WHAT I WOULD DO FOR mathNEWS MERCH

PLEASE

Merchandise, you own it, even if you don't think you do. That Goose plush from the W Store, the plushie from your favorite show, the LEGO set based off of the new Avengers movie, all merch. I am guilty of this, I have a plush of Usagi from *Chiikawa* staring at me as I write this, but my heart craves more merch. The merch I want, though, is **mathNEWS** merch. Sadly there hasn't been any available for years now. That being said, I am willing to come to the bargaining table. Below are things I am willing to do for **mathNEWS** merch to be released.

- Sell all my Lego
- Sacrifice my good friend Anna (love you twin <3)
- Make a deal with the devil
- Stop causing WaterlooWorks Outages in order to be the only one to apply
- My Left Arm
- Actually study for my midterm tomorrow
- Start a lemonade stand
- burn down the data center Charlie Kirk is haunting us from
- Get a job
- Touch grass
- Stop forging emails saying people are born in 2007
- Stop LinkedIn Larping

*[Editor's note: We have **some** merch! We have shirts and hoodies (and maybe more??). You should come to the office to find out more. Cash only.]*

MrLeftArmSky

THE CREATURE

This strange little bear

Who lives in my friends' house

Was a gift from me

Because I didn't want him.

He's kind of scary

His eyes are unsettling

So we named him the creature

And on their windowsill he sits.

This strange little bear

Is watching me now

He thinks I'm unsettling

He knows what I did.

BeesKnees

ISSN 0705-0410

UW'S BASTION OF ERUDITE THOUGHT SINCE 1973

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SLAVIC MONTH NAMES AND CLASSICAL CHINESE DAYS OF THE WEEK ARE REALLY COOL

There's something that's been bothering me, and it's an obscure enough detail that I don't think anyone else around me would care, but that's what **mathNEWS** is all about anyway, so why not write an article about it.

I find it a historical tragedy that the Russian language, at least since the time of Peter the Great, ended up dropping the traditional Slavic month names in favour of the Roman/Byzantine month names. Let's go through both:

Roman/Byzantine names (in the usual order of months):

- январь (janvar')
- февраль (fevral')
- март (mart)
- апрель (aprel')
- май (maj)
- июнь (ijun')
- июль (ijul')
- август (avgust)
- сентябрь (sentjabr')
- октябрь (oktjabr')
- ноябрь (nojabr')
- декабрь (dekabr)

Meanwhile, the Slavic month names (in the same order):

- сечень (sečen')
- лютень (ljuten')
- березозол (berezozol)
- цветень (cveten')
- травень (traven')
- червень (červen')
- липец (lipec)
- серпень (serpen')
- вересень (veresen')
- листопад (listopad)
- грудень (gruden')
- студень (studen')

Why are these names known as the "Slavic" month names? Because these are the traditional, archaic, folk names of the months in the Slavic languages; in fact, these Slavic month names, although no longer in common use in Russian, live on in its two most immediate linguistic cousins, Ukrainian and Belarusian. These are roughly common vocabulary in the Slavic languages, up to a few differences in names due to geographical differences (for example, цветень meaning April, yet its Czech cognate květen meaning May).

What makes these month names so interesting? Let's look at their definitions:

- January (сечень) comes from the word сечь, meaning "to cut," making January "the month of cutting wood."
- February (лютень) comes from the word лютый, meaning "harsh" or "cruel," making February "the month of harsh/cruel winters."
- March (березозол) comes from the word берёза, meaning "birch," and the word зелёный, meaning "green," making March "the month when the birches leaf out."
- April (цветень) comes from the word цвет, meaning "flower" or "colour," making April "the month of flower blooming."
- May (травень) comes from the word трава, meaning "grass," making May "the month of the grass."
- June (червень) comes from the word червь, meaning "worm," and its related word червлёный, meaning "dark red" or "crimson," making June "the month of insect larvae" (which are harvested to make red dye at this time of year).
- July (липец) comes from the word липа, meaning "linden," making July "the month when the linden trees bloom."
- August (серпень) comes from the word серп, meaning "sickle," making August "the month of the sickle," the month of the harvest.
- September (вересень) comes from the word вереск, meaning "heather," making September "the month of the heather."
- October (листопад) comes from the word лист, meaning "leaf," and the word пад, meaning "to fall," making October "the month of the leaves falling."
- November (грудень) comes from the word груда, meaning "clod" (i.e. a lump of earth or clay), making November "the month of earth clods."
- December (студень) comes from the word студёный, стужа, meaning "cold" or "frost," making December "the month of the cold."

If you ask me, these nature-based names are a lot more poetic than the Roman names, all of which are named after a Roman emperor, a Roman god, or are just numbers. And, speaking of numbers, my next complaint is about the days of the week in modern Chinese. Anyone familiar with Chinese will know the following days of the week:

- 星期日 (Sunday)
- 星期一 (Monday)
- 星期二 (Tuesday)
- 星期三 (Wednesday)
- 星期四 (Thursday)
- 星期五 (Friday)
- 星期六 (Saturday)

Here, 星期, the word meaning "week" (or in this context, "day of the week"), translates roughly to "star period," while the days Monday through Saturday are numbered 1 through 6, while Sunday continues to bear the word "sun" (日). In some

other dialects, the word 禮拜, which translates to "worship" or "religious service," may be used instead, representing a Christian lexical origin.

Now, let us examine the Classical Chinese days of the week:

- 日曜日 (Sunday; translates to "day of the Sun")
- 月曜日 (Monday; translates to "day of the Moon")
- 火曜日 (Tuesday; translates to "day of Mars")
- 水曜日 (Wednesday; translates to "day of Mercury")
- 木曜日 (Thursday; translates to "day of Jupiter")
- 金曜日 (Friday; translates to "day of Venus")
- 土曜日 (Saturday; translates to "day of Saturn")

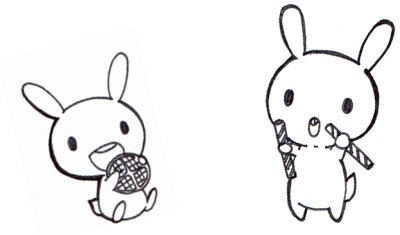
Ironically, in contrast to the earlier example of Slavic month names, these days of the week which bear the names of the celestial bodies, were brought into China directly from the Romans (Byzantines), who brought it to Persia and then to China. The astute among you will notice that these names remain in use in Japanese and Korean; it is only in Chinese and Vietnamese that the celestial, Classical Chinese days-of-the-week names were dropped for numbered days. (Some others may ask whether the names originate from the celestial bodies or the classical elements—火 translates to fire, 水 translates to water, 木 translates to wood, 金 translates to gold/metal, and 土 translates to earth/soil—and while it is a good question, it is actually in fact the celestial bodies who received the names of the elements.)

So, should we change it? In my world, yeah, we would. But I don't have infinite power. So, sorry to the one person out there who ends up agreeing with me. But who knows? If you speak Russian or Chinese, try slipping some of these into your speech. Maybe your parents will raise an eyebrow. Maybe on the streets of Moscow you'll be mistaken for a Ukrainian, or on a similar street in Beijing you'll be mistaken for Japanese. And when your colleague asks you to repeat yourself, or even why you're using a "foreign" word, you can correct them and tell them, "I'm returning to my ancestral heritage, and using the words my ancestors spoke!"

java.lang.String

TOP 5 BASIC FLAVOURS (NOT ORDERED)

- Sweet
- Salty
- Bitter
- Umami
- Sour



papayabird

EVERY SPORT I'VE GOTTEN INTO IN THE LAST 3 YEARS

AND YOU SHOULD TOO

- Baseball
- Hockey
- Rowing
- Road cycling
- Synchronized diving but only during the olympics
- Figure skating but only during the olympics
- Swimming but only during the olympics
- Track cycling but only during the olympics
- Speed skating but only during the olympics
- That one CFL game I went to
- And also why does baseball play literally every night I've lost all my summer evenings and somehow I'm happy about it
- Who have I become I was never like this I swear

normalparameters

RATING EVERY LUNCHABLES COMBINATION BY JUICE FROM 17776

NEEDED A LUNCHABLES FOR A JUICE HALLOWEEN COSTUME MIGHT AS WELL EFFECTIVELY MAKE USE OF IT

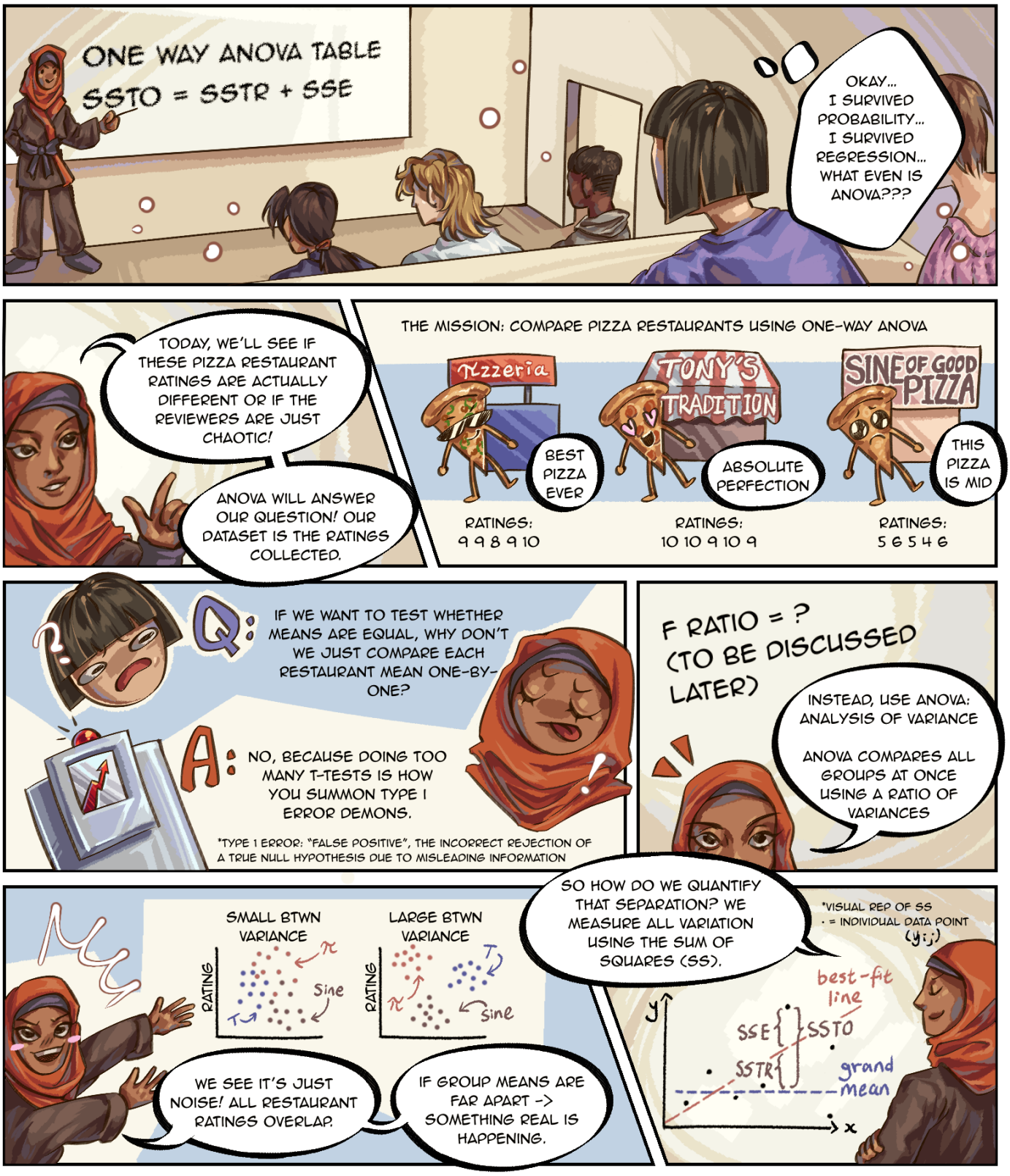
> *"ham cheese. ham cracker. cheese cracker. ham and cheese cracker. ham and cheese*
>
> *could even do it like a little big mac so it's like cracker ham cheese cracker ham cheese cracker*
>
> *shit there's nobody says you can't go like ham ham ham ham ham ham ham ham. great big ol hampuck just for me."*
>
> JUICE, *17776* Chapter 3, "What is this?" (Video)

ham cheese: **B**
ham cracker: **C**
cheese cracker: **D**
ham and cheese cracker: **A**
ham and cheese: **see above**
cracker ham cheese cracker ham cheese cracker (little big mac): **S**
ham times eight (hampuck): **B**

fingersinsockets

STAT332: ONE-WAY ANOVA TABLE

STORY BY ZUNAIRAH | ART BY JIAMIAO



MATHSOC
MATHSOC CARTOONS
@mathsoccartoons
MEF
Mathematics Endowment Fund

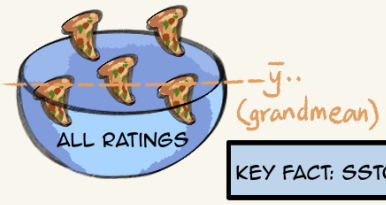
BREAKING DOWN THE VARIATION (AKA THE MATH!)

1) TOTAL SUM OF THE SQUARES

TOTAL VARIATION IN ALL RATINGS AROUND THE OVERALL MEAN Y

$$SSTO = \sum_{i=1}^{I}\sum_{j=1}^{n_i}(y_{ij} - \bar{y}_{..})^2$$

HOW SCATTERED ARE ALL THE RATINGS FROM THE GRAND MEAN?

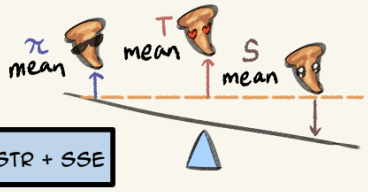


2) TREATMENT SUM OF THE SQUARES

VARIATION EXPLAINED BY DIFFERENCES BETWEEN RESTAURANT MEANS

$$SSTR = \sum_{i=1}^{I} n_i(\bar{y}_{i.} - \bar{y}_{..})^2$$

HOW FAR ARE EACH RESTAURANT MEAN FROM THE OVERALL MEAN?



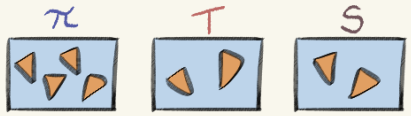
KEY FACT: SSTO = SSTR + SSE

2) ERROR SUM OF THE SQUARES

VARIATION LEFT OVERNIGHT RESTAURANTS AFTER ACCOUNTING FOR THEIR MEANS

$$SSE = \sum_{i=1}^{I}\sum_{j=1}^{n_i}(y_{ij} - y_{i.})^2$$

HOW SCATTERED ARE RATINGS WITHIN EACH RESTAURANT?



*THIS IS THE NOISE – REVIEWERS BEING ALL OVER THE PLACE!

THE ONE-WAY ANOVA TABLE

I IS THE # OF GROUPS. IT'S HOW MANY CATEGORIES YOU'RE COMPARING.

SOURCE	D.F	SS	MS	WHAT IT MEANS
TREATMENT (BTWN RESTAURANTS)	I - 1	SSTR (BTWN MEANS)	MSTR = SSTR / I - 1	VARIATION EXPLAINED BY DIFFERENCE BTWN RESTAURANTS MEANS
ERROR (WITHIN RESTAURANT)	N - I	SSE (WITHIN GROUPS)	MSE = SSE / N - 1	UNEXPLAINED LEFTOVER VARIATIONS INSIDE EACH RESTAURANT
TOTAL (OVERALL)	N - 1	SSTO (TOTAL VARIATION)	-	TOTAL VARIATION IN ALL RATINGS

* N = TOTAL # OF OBSERVATIONS ACROSS EVERY GROUP

DEGREES OF FREEDOM (D.F) TELLS US HOW MANY PIECES OF INFORMATION ARE FREE TO VARY.

WAIT... WHAT IS MS?

$$MSTR = \frac{STR}{I - 1}$$

$$MSE = \frac{SSE}{N - 1}$$

MS STANDS FOR MEAN SQUARES. IT REPRESENTS THE AVERAGE VARIATION. WE SIMPLY DIVIDE SS BY D.F TO STANDARDIZE VARIANCE.

SO TO SUMMARIZE:

-> BREAK VARIATION
-> COMPARE
-> DECIDE
...!

MSTR VS MSE...

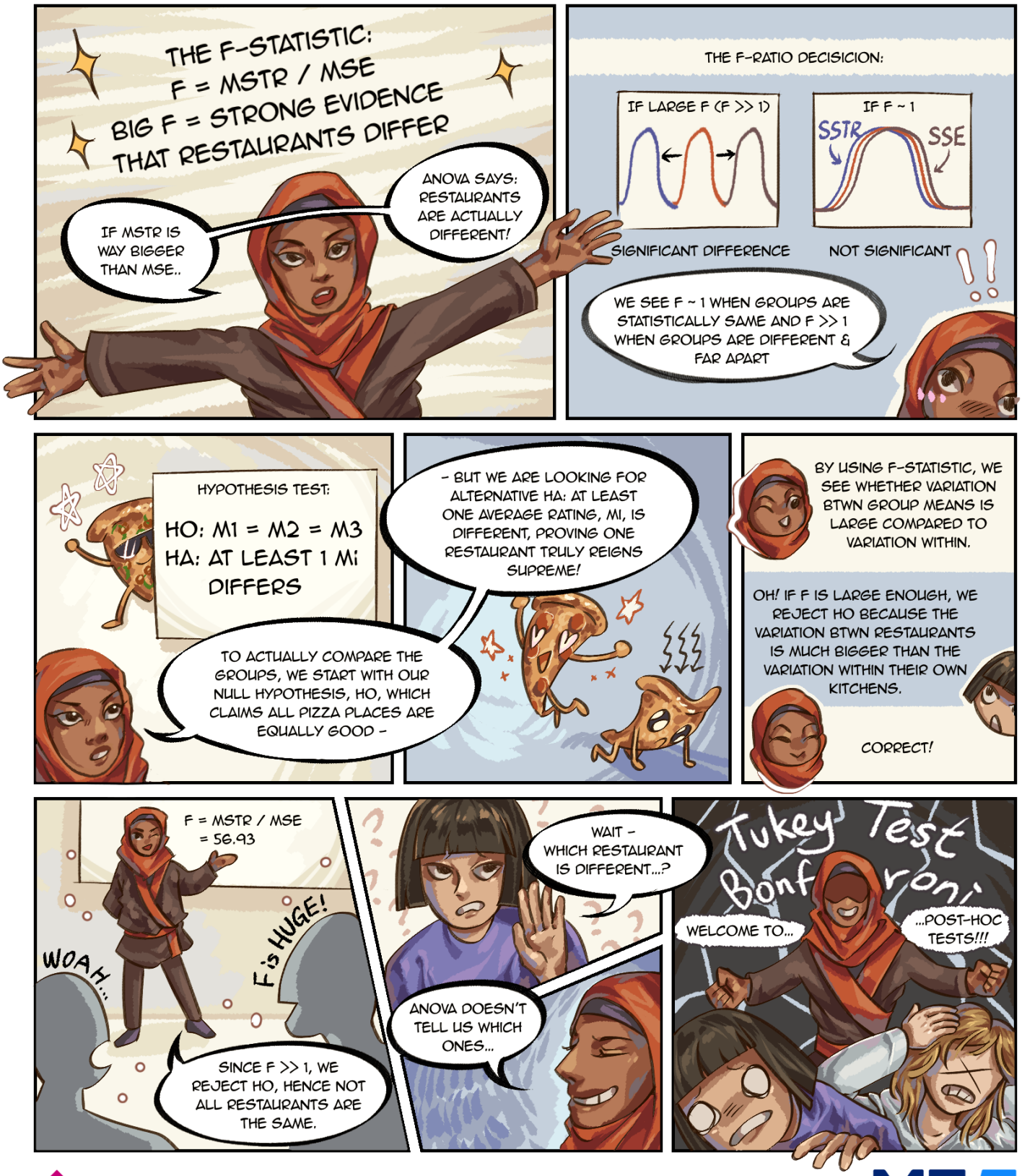
...INDEED...

NOW, WE COMPARE THEM...

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THE F-STATISTIC:
F = MSTR / MSE
BIG F = STRONG EVIDENCE THAT RESTAURANTS DIFFER
IF MSTR IS WAY BIGGER THAN MSE..
ANOVA SAYS: RESTAURANTS ARE ACTUALLY DIFFERENT!
THE F-RATIO DECISICION:
IF LARGE F (F >> 1)
IF F ~ 1
SSTR
SSE
SIGNIFICANT DIFFERENCE
NOT SIGNIFICANT
WE SEE F ~ 1 WHEN GROUPS ARE STATISTICALLY SAME AND F >> 1 WHEN GROUPS ARE DIFFERENT & FAR APART
HYPOTHESIS TEST:
HO: M1 = M2 = M3
HA: AT LEAST 1 Mi DIFFERS
TO ACTUALLY COMPARE THE GROUPS, WE START WITH OUR NULL HYPOTHESIS, HO, WHICH CLAIMS ALL PIZZA PLACES ARE EQUALLY GOOD –
– BUT WE ARE LOOKING FOR ALTERNATIVE HA: AT LEAST ONE AVERAGE RATING, Mi, IS DIFFERENT, PROVING ONE RESTAURANT TRULY REIGNS SUPREME!
BY USING F-STATISTIC, WE SEE WHETHER VARIATION BTWN GROUP MEANS IS LARGE COMPARED TO VARIATION WITHIN.
OH! IF F IS LARGE ENOUGH, WE REJECT HO BECAUSE THE VARIATION BTWN RESTAURANTS IS MUCH BIGGER THAN THE VARIATION WITHIN THEIR OWN KITCHENS.
CORRECT!
F = MSTR / MSE = 56.93
WOAH...
F is HUGE!
SINCE F >> 1, WE REJECT HO, HENCE NOT ALL RESTAURANTS ARE THE SAME.
WAIT – WHICH RESTAURANT IS DIFFERENT...?
ANOVA DOESN'T TELL US WHICH ONES...
Tukey Test
Bonferroni
WELCOME TO...
...POST-HOC TESTS!!!

E APPLICATIONS OF THE VIETA FORMULAS

The Vieta formulas make me very mad very often. Their main purpose when invented by John Vieta in 1643 was to be used for making competition slop problems. In spite of this however, I must acknowledge they have managed to contribute to real math in a very limited number of ways:

1. The sum of the eigenvalues of a linear operator, counted with multiplicity, is its trace. Their product is its determinant.
2. The sum of the quadratic residues mod a prime is always 0 for $p \geq 5$. (Euler's criterion my love 🫶)
3. Vieta Jumping 👎
4. The roots of the derivative of a polynomial in $\mathbb{C}[x]$ are contained in the convex hull of the original roots.
5. The Fundamental Theorem of Symmetric Polynomials.

John Vieta

OF TIMES ME AND MY FRIEND HAVE LOCKED EYES THROUGH MY SCREEN BECAUSE HE'S A NOSY LITTLE BITCH WHO CANNOT MIND HIS OWN BUSINESS

32. STOP LOOKING AT MY SCREEN

planet b612



AO3 SUCKS STOP GIVING THEM MONEY

Literally the last thing AO3 needs right now is more money. Time and time again their board of directors have proven that they are incredibly irresponsible with allocating the funding they receive. The website gets more money than it needs and still has to go down for a month for maintenance. Not a good sign.

Their codebase is a genuine mess. You can look online for testimonies from people who have worked for them or looked through their Jira instance, and it's like they have no experience at all in database management. (If you are familiar with SQL, they do not use foreign keys at all and the website does something like twelve queries for every search.) Their data storage and cleaning algorithm often loses markdown and they need to use an equally-hacked-together algorithm to try and restore it. There have been multiple people who attempted to write patches for these things or volunteered to help fix the site and have been turned away because of the egotism of the team.

One of the potential concerns requiring the shutdown is related to security. I myself know less about this topic than DB management, but the lack of shits given in that area doesn't exactly fill me with confidence when it comes to security. This should especially worry you if you gave them your payment information when donating.

Please use your disposable income in a better way. I suggest you give instead to humanitarian aid orgs doing work in Gaza. They still very much need the help in providing relief for the ongoing genocide. If you want to donate to an archiving nonprofit, I would suggest the Internet Archive. I've seen a bunch of fanfic authors complaining about reuploads and promoting copyright law as if it has ever helped anyone other than massive corporations (incredibly silly considering the legal gray area fanfiction itself is in). Meanwhile, the Internet Archive does arguably more important work than AO3, and yet is threatened every day by said corporations who leverage copyright law to do so.

I don't think it's morally wrong to use AO3 or to have donated to it in the past, but it is just not a good idea. Use your money wisely.

melange_de_orange



HAPPY HOLIDAYS

gridCOMMENT *162.4*

happy holidays to my gridWORDers,

i hope everyone had a fantastic halloweekend and are settling well into the holiday spirit that is unfortunately accompanied by an egregious rewind of the clock. the days may be shorter and the sun may leave earlier but there is much to look forward to in the coming months

i am proud to admit that i am in fact a sheep who partakes in holiday activities and shares in the collective human joy brought about by various traditions, and so this **gridWORD** will be about holidays and customs, but specifically weird fun facts about them because weird fun facts are also my jam, and the sky going dark at 5 pm is already hitting me

last week, i asked you all: what is your least favourite city that you've been to, and why? and you all said:

chrysanthemum: waterloo, no explanation needed

this is entirely true, i don't know what i was expecting when i put that **gridQUESTION** up. for people NOT to say waterloo? man what was i thinking. congrats on winning, please pick up your prize at the **mathNEWS** office!! this week's **gridQUESTION**: what is the maximum amount of time you would be willing to spend lining up for heytea, and what would you get? please submit your completed **gridWORD**, a **gridQUESTION** answer, and a pseudonym to **mathNEWS**@gmail.com or mc 3030 (**mathNEWS** office) by nov 16 at 6 pm

à bientôt,

spaghettiinhalers

ACROSS

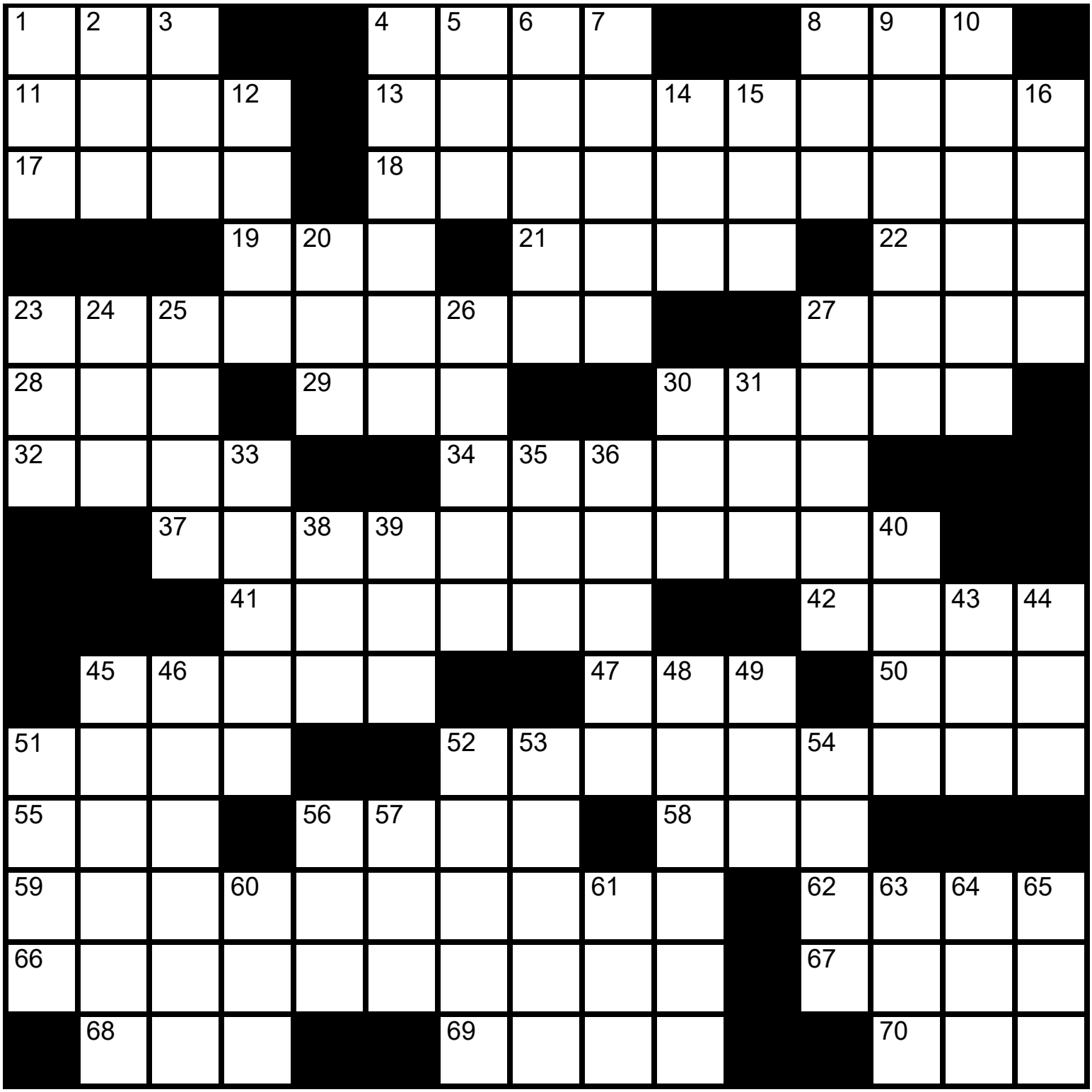
1. Cpl.'s superior
4. Decree
8. Electronics giant
11. Aware of
13. Holiday celebrated by sticking paper fish onto people's backs in France*
17. Girls' love
18. Harmonize
19. Charge
21. Soften
22. Number of digits in our number system
23. Holiday celebrated with KFC in Japan*
27. Egghead
28. By way of
29. Letter after chi
30. Sanctify
32. Mix
34. Volleyball position
37. Holiday celebrated with 12 lucky grapes in Spain*
41. Code word for "S"
42. Disney ice princess
45. Parenting challenges
47. Organization governing competitive poker between college students, abbr.
50. Lighter?
51. Dinghy or dory
52. Holiday once associated with matchmaking in Scotland and Ireland*
55. Music collectibles
56. Pith
58. ___ Baba
59. Positive
62. ___/them
66. Small citrus hybrid
67. Own
68. Generation
69. Play parts
70. Follow

DOWN

1. Pie in the ___
2. Unix-like OS
3. Free overlay network for anonymous communication
4. Diamond sides
5. Wall St. debut
6. Scent
7. Bores
8. Harry Potter's best friend
9. "Between the World and Me" author Ta-Nehisi
10. Modifies
12. Hotspot service
14. "Bad" cholesterol
15. Toned
16. Dispatch
20. Sixth sense, abbr.
23. Drugstore chain
24. Best seller
25. Shower
26. Scrooge, for one
27. Audacity
30. "Dynamite" K-pop group
31. "To Kill a Mockingbird" author Harper
33. Right, in a way
35. Ring bearer, maybe
36. Hiker's path
38. Victory
39. Agreement
40. If not
43. Seek damages
44. ___ Arbor
45. Knock over
46. Holiday celebrated with chocolate marsupials in Australia*
48. Cry to stage performers
49. MSN competitor
51. Voting group
52. "___ la vista!"
53. Storage room
54. Plus
56. Fr. title
57. "Ich bin ___ Berliner"
60. "___ Believer"
61. Bad result for a QB
63. Witch
64. Apple eater
65. Nevertheless



GRIDXWORD



Drop your gridWORD solutions off at MC 3030, or over email to mathnews@gmail.com. Correctness optional.

A mathNEWS EDITOR WHO ENJOYS CREATIVITY

lookAHEAD

SUN NOV 8	MON NOV 9	TUE NOV 10	WED NOV 11	THU NOV 12	FRI NOV 13	SAT NOV 14
	Chaos Never Dies Day		Rememberance Day Cycle 2 employer rankings available at 2pm	Nat'l Chicken Soup for the Soul day	Cycle 2 student rankings due at 2pm Cycle 2 match results available by end of day	Fall Open House

SUN NOV 15	MON NOV 16	TUE NOV 17	WED NOV 18	THU NOV 19	FRI NOV 20	SAT NOV 21
Nat'l Raisin Bran Day	**mathNEWS** 162.5 production night, QNC 2501, 6:30pm	Cycle 3 interviews begin	Winter 2027 schedule & drop/add appointments available		**mathNEWS** 162.5 released	

LAST ISSUE'S gridSOLUTION

1 T	2 A	3 R	4 T	5 S	■	6 B	7 E	8 D	9 E	■	10 R	11 A	12 H	■
13 O	D	E	O	N	■	14 A	V	O	G	15 A	D	R	O	■
16 O	R	A	T	E	■	17 R	E	M	I	S	S	I	O	18 N
19 T	I	L	■	20 A	21 P	T	■	22 A	S	T	■	23 A	F	C
24 R	A	T	■	25 D	E	L	26 H	I	■	27 H	28 A	N	O	I
29 O	T	I	30 S	■	31 L	E	A	N	■	32 M	E	A	L	S
33 L	I	M	O	■	34 O	T	T	■	35 M	A	R	■	■	■
■	36 C	E	O	■	37 S	T	E	38 N	O	■	39 A	40 S	41 P	■
■	■	■	42 X	43 I	I	■	44 F	O	O	■	45 T	H	A	46 W
47 E	48 T	49 H	O	S	■	50 N	U	N	S	■	51 A	E	R	O
52 N	E	I	L	L	■	53 O	L	S	O	54 N	■	55 T	A	O
56 C	N	N	■	57 A	58 N	O	■	59 E	L	A	■	60 L	S	T
61 E	D	D	62 I	N	G	T	63 O	N	■	64 F	65 L	A	I	R
■	66 O	U	T	D	O	O	R	S	■	67 T	O	N	T	O
■	68 N	S	A	■	69 S	L	O	E	■	70 A	B	D	E	L

JOURNEY OF HOPE



[OCT 31, 2026 15:59]



eralogos

Want to advertise *your* campus club or event in mathNEWS? Email us an article, or come to our next production night!

We'll do anything for more filler content.

THE EDITOR DOOMSCROLLING
mathNEWS@GMAIL.COM