

math NEWS



Volume 151, Issue 3

'93-'02

Friday, March 3, 2023



☒ '23 after Hewitt '94
(aka Cix)

lookAHEAD

A glance at upcoming events

University Deadlines
March 8 Cycle 2 interview period ends
March 9 Cycle 2 employer rankings available
March 10 Cycle 2 student rankings due
March 14 Continuous postings begin
Calendar Holidays
March 8 International Women's Day
March 12 Daylight Savings Time (spring forward)
March 14 Pi Day 🥧
March 15 Ides of March
March 17 St. Patrick's Day
MathSoc and Club Events
March 5 MEF Funding Council applications due
March 9 PMAMC&OC C&O Prof Talk
March 10 Party With Profs
March 13 MEF project funding proposals due
March 14 CSC Alt-Tab
mathNEWS Important Dates
March 13 Production Night
March 17 Next mathNEWS hits the streets

Math Endowment Fund Funding Council: last call for applications!

...and project funding submissions are open!

Funding Council

Once again, I'm calling on all *mathNEWS* readers (well, those that are Math Faculty undergrads, anyway) to apply to sit on the Math Endowment Funding Council!

As mentioned last issue, the responsibilities of Funding Council members are to:

- attend three meetings, each 2–3 hours in length, around mid-March
- carefully listen to *and vote on* funding proposals for projects worth thousands, or even tens of thousands, of dollars (over \$100,000 is up to be granted this term!), allowing you to have your say in improving the math undergrad experience
- eat food (!) provided at every meeting 😊

The deadline is approaching quickly — applications close on Sunday (the 5th)! Apply today: <https://uwaterloo.ca/math-endowment-fund/funding-council-0>.

Project Funding

In other news, the project funding form is open for submissions! The deadline for submission is Monday, March 13, so make sure you get your proposals in! (Please note that you cannot sit on Funding Council if you are presenting a proposal.) The form can be found here: <https://uwaterloo.ca/math-endowment-fund/funding-grants/project-funding>.

Any questions? E-mail the MEF Executive Director at mefcom@uwaterloo.ca.

Daniel Matlin
MEF Executive Director, W23

Call for March Break Open House Volunteers

The Faculty of Mathematics is taking part in the University's March Break Open House on Saturday, March 18th! Fill out this form for the opportunity to share your valuable insight and experience with high school students and their parents and tell everyone why you love Waterloo Math! Applications are due **March 10th** with mandatory training on the week of 13th: <https://forms.office.com/r/NEEtjCdpE5>.

Article of the Issue

One of the most ancient human urges to build. It's what separates us from the animal kingdom (except for beavers, and ants). It's in that spirit that we award this issue's Article of The Issue to *Cathedral Beams* by molasses.

Your article is a reminder to us writers that art is not always confined to a page, but can exist in three-dimensional form, taking up space and giving people splinters. I'm already making plans to head down myself, pick out some two-by-fours, and start building the bed frame/dresser/log cabin of my dreams.

Come by the office (MC 3030) to collect your prize, a \$25 Conestoga Mall gift card. Unfortunately, there's no Lowe's or Home Depot there. Maybe they'll have lumber at Cinnabon or something.

Calling all first-years and graduate-years!

In 2020, you asked for a better social environment. We've added more fitness classes, climbing wall times, clubs and programming, changed our model to allow broader access, extended fitness hours during exam times, and expanded the number of women-only recreation programs, to better serve students.

Keep the conversation going! Tell us about your UWaterloo experience and get \$5 on your WatCard and the chance to win one of six \$100 Amazon.ca gift cards! On March 1st, if you're in your first or final year of your undergrad program, you'll be invited to **participate in NSSE**, the 2023 National Survey of Engagement.

Every three years, hundreds of universities across Canada and the US take part in NSSE asking first and graduating year undergraduate students about their academic and personal development experiences while at university. The information we gain from the experiences, ideas, and opinions that you share through NSSE helps Waterloo connect student needs with university actions. The result being positive change to policy and practice that will **enhance the student experience** for you and future Warriors!

So, on **March 1st**, check your email or log into LEARN and collect your **\$5 WatCard balance** by submitting the survey before April 10th. It's time to share your feedback; **we want to hear what you have to say!**

Questions about NSSE? Visit the 2023 NSSE website: <https://uwaterloo.ca/iap/nsse2023>

UW Institutional Analysis and Planning

N things twins are tired of hearing

I, peacelovemath, have a twin brother, which is awesome and fun 99% of the time, but when I first tell people this, this is how they always react:

- “Are you identical?” — I'm just surprised at how common this one is since twins of different genders assigned at birth can't be identical
- “Oh my god! How did I never know that?” — if people only find out I'm a twin later in friendship, they sometimes act like it was a terrible betrayal to have not disclosed my twin status earlier

People always ask comparison-style questions which are also difficult to endure sometimes, like:

- “Who's smarter?”
- “Who's better at (insert activity/sport/etc we both do)?”

They also sometimes forget that you and your twin are two separate entities, and say things like:

- “Wow, I can't believe you're so (insert trait here) when your twin is so (insert opposite trait here)” — Yeah, it's almost like we're not the same person

All in all though, I love having a twin, it's an automatic ice-breaker fun fact, it's a built-in best friend, it's the elite form of sibling. If you're reading this, [redacted], you're awesome :)
peacelovemath

Blotto!

Blotto! Despite mid-semester woes, there were still 6 submissions this round!

1. Awedish: 8 (+4)
. 3 7 43 43 3 1 0 0 0 0
2. Mathieu: 6 (+3)
. 3 3 47 47 0 0 0 0 0 0
2. nwoeanhinnogaehr: 6 (+3)
. 0 0 0 1 26 26 23 23 1 0
2. tendstoblottotoo: 6 (+4)
. 0 0 0 28 27 26 19 0 0 0
5. Jacob: 4 (+0)
. 1 1 1 39 27 26 1 1 2 1
5. Nat: 4 (+1)
. 10 10 10 10 10 10 10 10 10 10
7. trud: 2 (--)
. no submission

Awedish has strengthened their lead, now beating second place by 2 Blotts. But the most impressive submission by far is Nat's 10 * 10, and the fact that it managed to gain a Blott... Good job! (?)

As a quick reminder of the original rules, each player submits an allocation of 100 soldiers to 10 castles. Then to award Blotts (the main number next to each player's name above), every submission is put head-to-head against every other submission. To find the winner of a 1v1, the castles are each evaluated: if player A has more soldiers on castle x than player B, player A will win x points. Whoever has the most points after all 10 castles are evaluated wins one Blott (or each win 0.5 in the case of a tie).

The next two rounds will follow the original rules with one small twist: each player has 300 soldiers to allocate across both rounds. For example, say a player uses 190 soldiers in the first round. Then they are left with 110 to use in the second round.

If you'd like to participate, please submit your soldier allocation and preferred name to sherpnews@gmail.com by March 13 at 6 PM. Note that you don't have to have participated in any of the previous rounds to participate now — new players are welcome!

sherp

mathASKS 151.3 — Part One

Featuring Mike “Hammer” Hammond, mathNEWS editor, 1995–1996

The following interview with Mike “Hammer” Hammond was condensed from a rambling voicemail left in an overflowing inbox, and edited to introduce a clarity sadly lacking in both his responses and his life in general.

“What program were you in?”

I was in Computer Science Honours Co-op.

“What involvement did you have with mathNEWS?”

I contributed to mathNEWS (how we styled it at the time) the entire time I was at Waterloo, including grad school, from 1991 through 1997. I served as co-editor for three terms: W95, F95, and W96.

“What drew you to mathNEWS?”

I first wanted to start writing for mathNEWS when I received my Waterloo acceptance package in the mail in 1991 at my home in British Columbia. Included in with the brochures and guides was a copy of the frosh edition of mathNEWS, and I was immediately entranced. It actually influenced my decision as to whether or not to attend Waterloo. When I saw the first posters asking for volunteers for the first production night, I knew how I’d be wasting — er, *spending* — my time.

“Were you involved in any other clubs at Waterloo?”

I volunteered for MathSoc for many of the terms I was there. Apart from that, mathNEWS was my extracurricular activity.

“Was there much intersection between mathNEWS and any particular clubs?”

We had a friendly rivalry with the CSC (Computer Science Club), which was the biggest math student club at the time, and the only one which was consistent about contributing an article to mathNEWS. I and other writers would sometimes use the CSC as the butt of our (gentle) jokes. (At least, I *hope* they understood it was all friendly and gentle!)

“How did you feel about *Imprint*, *Iron Warrior*, and other newspapers on campus around your time?”

We liked to poke fun at them, and always referred to *Imprint* as *Imp’tint*. (We even had a special LaTeX macro for it.) Many campus publications received page- or full-length parodies (e.g. *Misprint*, *The I•Earn More-A-Year*, *mathBRUISE*). In particular, I had an ongoing back-and-forth with Chris Redmond, the editor of the official UW non-student publication, the *Gazette*. After we published a parody I wrote (the University of the Waterlogged *GetzWet*), he complimented us, but insisted

on styling our name as “*MathNews*,” no matter how many times I requested they refer to us as “mathNEWS”. Eventually, I started referring to them as the gazETTE, and they started referring to us as “that publication that doesn’t like how we capitalize their name”.

I was quite surprised to learn that the *Gazette* appears to have stopped publishing in 2004. They started in 1960, for a total of 44 years. I never expected mathNEWS to be around for more years!

“Describe your average production night.”

While I was contributing to mathNEWS, everything was written in text, using LaTeX as the markup language. We allowed submissions to be e-mailed to us, which were then formatted in LaTeX, but most articles would be written the night of. We would all try to collect in a single computer lab and write articles on the assorted X terminals (https://en.wikipedia.org/wiki/X_terminal) available in the lab; when an article was completed, it would get sent to the mathNEWS e-mail address for editing.

When a sufficient amount of time had elapsed, an editor would order pizza. We had an arrangement with Gino’s every term, where they would provide us two large pizzas every production night, in exchange for free advertising in mathNEWS. (That was the only ad we’d run, in fact.) When the pizza arrived, everyone would gather in the MathSoc office and eat it; we’d also sign the production night sheet, along with the humorous answer to a silly question (e.g. “What is your favourite lubricant?”); the list of names and answers would be run in the masthead.

There were two distinct technological waves between the time I started and the time I finished. In the first wave, everything would be printed individually, and then literally cut out (with a pair of scissors) and taped to special graph paper (whose lines wouldn’t be reproduced by Graphics Services). “Everything” meant **everything**: logos, page numbers, volume and issue number, filler content, illustrations, and so on. This was fast but messy, because many hands were contributing, but some people were more, shall we say, *meticulous* than others. (If you look through these issues, you’ll see the wonkiness of many of the elements.)

The second technological wave occurred when a couple of CS undergrads created, from scratch, a system they called “Plat4mN” (literally, “platform for mathNEWS”). This would process some instructions to slice-and-dice the articles into page-length sizes and autogenerate the format, so the output was clean and well-laid-out. Unfortunately, it was also slower, and required some trial-and-error to get a particular issue right.

The mid-90s saw the advent of the World Wide Web, and so a different CS undergrad created a system to turn the articles into webpages. This was Web 1.0, but it meant that mathNEWS had a presence on the Internet pretty much right from the get-go. (Looking at the site now, I’m not sure where all the old content went, which is kinda sad. Glad there’s still the Internet Archive Wayback Machine: <https://web.archive>.

org/web/20130714234248/http://mathnews.uwaterloo.ca/archives.php.)

“What kind of articles did you write for mathNEWS?”

I always thought of *mathNEWS* as a humour publication first, and a newsletter for math students second. So I would concentrate my efforts on writing humorous articles. (There were some terms where I wrote the ongoing trivia quiz (the ‘Squiz) and the occasional crossword, but those were comparatively rare.) Depending on the term, I would draw and/or write cartoons (“Mathtoons”), 90’s song parodies (“Building of Misery”, “Mathie Girl”, etc.), serialized stories (“The Y₀ Files”, pronounced “Y-nought”), and/or random stuff that I thought was funny. One term I did Waterloo-specific versions of Magic: The Gathering cards (called, appropriately enough, “Mathies: The Gathering”).

“What’s the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

On three occasions I was around for, we put out a special version of *mathNEWS* on newsprint. One was a takeoff on *Imprint* (titled *Misprint*), and included parodies of many of their regular features as well as fake news stories. The others were a pair of takeoffs on the *National Post* (one titled the *Irrational Toast*, and the other the result of a hypothetical merger with the *Globe and Mail*, *Daglobenpost*) and were more in the style of *The Onion* (which was print-only at the time, I believe). They had some full-colour content, and were assembled by Chad Severn. (I think I was off-campus at the time, but he asked if I was interested in contributing content, which I was more than happy to!) Chad might have some interesting stories about these special issues.

As for what I was personally proud of, we did a pair of articles that were irreverent trivia quizzes in the style of the then-popular video game *You Don’t Know Jack* (called *You Don’t Know Math*, of course!). The second incarnation got turned into an actual HTML quiz in our fledgling *mathNEWS* website.

“What was mathBOOZE? What was its relationship with mathNEWS? Any stories?”

mathBOOZE was a parody version of *mathNEWS*, put out by people who were disaffected with *mathNEWS*, for whatever reason. Up to the mid-90’s, *mathNEWS* articles were pseudonymous, as appears to be the case now; I myself wrote under a variety of bylines, each using the word “Hammer” in some form. Due to some controversy I can no longer remember, our editor at the time decided that articles would need to have a real name attached to them, though an alias could be included. (From then on, I went by Mike “Hammer” Hammond.)

mathBOOZE, however, remained pseudonymous. To this day, I have no idea who the actual people behind it were. (The pseudonyms were Speedy, Speedy, Swimmer, and Scribe. Yes, two Speedys.) Their main complaint seemed to be that

mathNEWS was no longer funny, so they wrote their own (rather profane) publication. (Instead submitting their own content to *mathNEWS*, naturally. We probably would have printed their content; I don’t think I rejected a single article the entire time I was editing.)

Once I tried to turn the tables on them, and devoted a back page of one issue to a parody of *mathBOOZE*, called “*mathBRUISE*” (tagline: “Giving the Faculty of Mathematics a black eye is our business”). After that, I never saw another issue of *mathBOOZE* again.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it’s like now?”

It does appear to have changed from how I’ve known it, though honestly I haven’t done more than skim a couple of issues. But when you have a publication driven by its contributors like *mathNEWS* has always been, its content naturally evolves over time.

“Do you have any interesting stories, photos, or memorabilia from your time in mathNEWS?”

Memorabilia: the *mathNEWS* T-shirt, with the *profQUOTE* to end all *profQUOTES*: “I see that I was quoted in your student newsletter. If the student who submitted it would step forward, I’ll give you your F right now.”

“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

I met my wife at Waterloo; she was the roommate of my *mathNEWS* co-editor. We just celebrated our 25th anniversary. It’s a bit of a stretch to say “I wouldn’t have met her were it not for *mathNEWS*,” but it’s not completely inaccurate either.

“How do you look back on your time in mathNEWS?”

I personally use binoculars.

“In retrospect, do you think past-you would have imagined that mathNEWS would live to see its 50th anniversary? Do you think it will live to see its 100th?”

As you know, *mathNEWS* lives or dies on its volunteers. All it would take to stop it from publishing for a term would be for nobody to take on the role of editor. So yes, I did not think *mathNEWS* would live to its 50th anniversary, given how hard it’s been sometimes to wrangle volunteers. (My first term as co-editor came about precisely because nobody else seemed to be doing it.)

I’m glad to see I was wrong.

“Would you want to be contacted for mathNEWS’ 100th anniversary?”

Sure, but you should expect far more “kids these days,” “back in my day,” and “my grandkids never text” content.

“Do you think you can convince the next generation to write for mathNEWS?”

My daughter Stephanie happens to be attending UW this very term! (Both of my parents-in-law attended UW in the mid-70’s, which makes my daughter a third-generation Waterlooer!) She is pursuing a degree in Medicinal Chemistry in the Faculty of Science, so sadly, she is unlikely to contribute to mathNEWS. But Hope springs eternal!

(Poor Hope. She’s getting pretty tired of all that springing.)

“Were there so many @#\$\$%&! geese around when you were here?”

No, there weren’t! Geese weren’t much of a presence at Waterloo while I was there, let alone enough to warrant becoming the school’s unofficial mascot. There was zero goose merch when I was there as a student!

“What else has changed?”

Well, there’s weren’t *nearly* as many buildings... hmmm, I wonder if the new buildings are where all those geese came from...

Oh, and back in *my* day, the East Side Mario’s was open!

The Student Life Centre, though, smells *exactly* the same. It’s kinda eerie, actually.

“Do you often put words in the mouth of your interviewers, and answer questions that were never actually asked by us?”

No, that is something I would never do. [Editor’s note: we didn’t ask him those last four questions.]

Good luck with the next 50 years!

Mike “Hammer” Hammond

A Farewell Message

To reading week, I bid you goodbye. I bid you a wonderful time that we have spent together. Our journey together was short, but it was a memorable one. We have spent much time together doing all our favourite things, and that is nothing. We have laughed, and wasted our days away. But alas as all good things it must come to and. Thus I bid you goodbye with a heart full of sorrow as I must return to study against my will. I die to return to you once more and that shall hopefully happen at a future term. Till then my best wishes to you, a wonderful week never forgotten.

Kermit

Cathedral Beams

And an atheist’s approximation of God

Surviving through Waterloo can be a lonely, isolating experience. The endless flywheel of lectures, tutorials, assignments, and midterms leaves too many of us drained entirely, bereft of the joys that once filled our lives. There exists a haven where we can find these joys again.

It’s a place far from the pull of Waterloo. Students’ boots are unfamiliar to its grounds; its doors revolve with the steps of our elders. A student is unlikely to have any material call to it; no assignment, no chore, no hobby nor responsibility will ensnare you in its grasp. The call may reach you nonetheless; if you hear, answer. See. Walk into the temple and look into its depths. Fill your lungs with its ancient dust, the aroma of home, warmth, earth, and the smell of the dry morning sun. See the walls rise into the distance, its rows of rough-hewn beams climbing into the sky not to reach it, only to touch. Hear the preacher at its depths, his outstretched hands calloused by his familiarity, his sermons not in instructions but example. Feel the pull of your heart as it follows this temple’s soul to the sky. The temple is to no god and all of them; to no individual but all human empathy. It is a place of help, of education; asking fathers to be our guide, to teach us the ancient craft of toil and love. It is a monument to creation, to all that we may make of its materials. To boats for our travels, to houses for our families; to cribs for our children, and gifts for our friends. It is empathy, love, and the tight-held embrace.

It is the lumber aisle of a hardware store. It is a cathedral to a loving god.

molasses

how to integrate

please help i have a math 148 midterm today at 7 pm

$$\int_0^{\frac{\pi}{2}} \sqrt{2 \tan x}$$

starts with

$$u = \sqrt{2 \tan x}$$

what??

$$\int_0^1 \frac{\ln(x+1)}{x^2+1}$$

starts with

$$u = \frac{1-x}{1+x}$$

why is this a practice problem??
how are we supposed to see that??
weierstrass my ass

profQUOTES

- “This claim about everything being easy falls apart when you look at the last question of the assignment.”
Eric Blais, CS 365
- “Any questions?” [silence] “Any other questions?”
Eric Blais, CS 365
- “I have to make sure I’m not *too* clever.”
Eric Blais, CS 365
- “I never want to write an infinite number of blank symbols.”
Eric Blais, CS 365
- “That’s not the answer you want to hear and I’m going to make things even worse before the end of this lecture.”
Eric Blais, CS 365
- “This was our lecture on Turing machines and why we’ll be ignoring them a lot of the time.”
Eric Blais, CS 365
- “Don’t wanna do buffer overflows with my Turing machine.”
Eric Blais, CS 365
- “At least one of them has to be right — that’s the value of having multiple solutions.”
Eric Blais, CS 365
- “Instead of proving this, we will do something more straightforward: we will use an example.”
Gladimir Baranoski, CS 488
- “Good news! Today, instead of monochromatic... [pulls out yellow chalk] we have color.”
Gladimir Baranoski, CS 488
- “How many of you have played hide-and-seek? Do you still play? You’ll play a lot when you have kids.”
Gladimir Baranoski, CS 488
- [Pulls up medieval artwork] All these people seem to be worried about something. Is it graphics? We may never know.”
Gladimir Baranoski, CS 488
- “You know my drawing ability is quite limited. That is why I study computer graphics.”
Gladimir Baranoski, CS 488
- “We are the masters of this universe, we can choose these parameters however we want. But there are consequences.”
Gladimir Baranoski, CS 488
- [Points at student] “David? What’s your name?” [student says Andy] “Agh! Very close.”
Gladimir Baranoski, CS 488
- “Tau: it’s a T with an attitude.”
Gladimir Baranoski, CS 488
- “One day you’re going to thank me — now you may hate for me for it, and that’s fine.”
Gladimir Baranoski, CS 488
- “I’m going to put a formula here, just to make you hate me even more.”
Gladimir Baranoski, CS 488
- “It’s not because I’m a nice guy, all the rumors are false, I just try to be fair and consistent.”
Gladimir Baranoski, CS 488
- Student: “When you write $\dim V < \infty$, isn’t that an abuse of notation?”
Prof: “Yes. I am an abuser.”
Ross Willard, MATH 146
- “You put the pigeons in the holes; you don’t put the holes in the pigeons.”
Matthew Harris, ECE 108
- “As they say on YouTube, ‘Let’s get started!’... I hate that.”
David Wagner, CO 444
- “I resort to one of my favourite techniques: proof by picture.”
David Wagner, CO 444
- “This is horrible notation, never do this... Actually, it’s not that bad.”
David Wagner, CO 444
- “...and then you humpty dumpty it back together again.”
Michael Rubenstein, PMATH 352
- “If this feels unintuitive, don’t worry about that. All of us feel the same thing.”
Chao Zhang, CS 348

N Ways to Quickly Leave Waterloo on a Budget

- Book a last minute plane ticket to Paris with only \$570 in your bank account and just hope for the best.
- Walk to Montreal (133 hours) (or really anywhere in Quebec) and drink away your sorrows in a French bar.
- Buy a \$329 plane ticket to Vancouver and restart your degree at the University of British Columbia.
- Book an Uber to Toronto and disappear.

*math*ASKS 151.3 — Part Two

Featuring Kivi Shapiro, mathNEWS editor, 1992

“What program were you in? Why?”

I was a co-op C&O student who worked at the C&D and hung out at the CSC and lived at the co-op and, looking back, obviously had an unnatural fixation on the letter C. My favourite food at the C&D was its huge chocolate chip cookies. Coincidence?

Why did I love C&O? Graph theory. I’m a visual learner, and I’ve always loved maps, and puzzles like the Traveling Salesman Problem meant something to me in a way that manifolds, matrix math, big-O notation, and differential equations didn’t. (Especially partial differential equations. I had to take 2A calculus three times before I squeaked through.) There were some one-off courses I really enjoyed as well — game theory, geometry, and probably other things that start with G. Hm. Goincidence?

“What kind of articles did you write for mathNEWS? What are some things you did as editor?”

There are three main things that stand out in my memory: logic puzzles, the Zone, and my interview with Ralph Stanton, the originator of the pink tie.

I love logic puzzles. One of the reasons I went into Math was because so much of it is really just puzzle solving. So after a while, I thought I’d try my hand at writing them. It was the readers of *mathNEWS* who had to live with the results. I say that because the awful truth is that my logic puzzles never actually worked. Try as I might, I couldn’t create one that was solvable — there were always inconsistencies somewhere, which I inevitably discovered only after publication. People tried to solve them anyway, and we gave them prizes for the attempt, but if you happen to find even one of those puzzles that had a real solution then it would be a pleasant surprise. If anyone is reading this who tried those *mathNEWS* logic puzzles of the early ‘90s, please accept my apologies. And as a special bonus I’ll throw in zero of those vexing puzzles.

The Zone was a regular column I did, as a way to bring openness — glasnost, as the Soviets of the time might have called it — into the student political process. I was a year rep at MathSoc at the time, and it was important to me that the Math student body have visibility into the operations of their representative government. At the same time, I didn’t want to lose access to the juicy stories that were happening, so I wrote the column anonymously. But now the truth may be known.

I very much appreciate the efforts of the off-stream editor to maintain the anonymity of the column’s author by finding someone to continue it while I was away on work terms. I don’t know if anyone was fooled, but if they were then good on you, off-stream editor and fellow anonymous contributor, and thank you.

Dr. Ralph Stanton! A legend even then. The originator of the Pink Tie, and... um... well, I guess that’s about all we undergraduates really knew about him. So at one point I happened to be in Winnipeg where he was working, and I stopped by his office

for an impromptu interview. I felt a bit like a real journalist, but a few minutes into the conversation I realised that real journalists tend to do some background research on their subjects before heading out to talk to them. It turned out his relationship with the University of Waterloo had been, well, complicated, and he didn’t seem entirely delighted to know that his major legacy had been an article of clothing. Nevertheless, I’m very glad to have had the honour of meeting him.

“Were you involved in any other clubs at Waterloo?”

So besides *mathNEWS*, I was involved with the CSC, which put on these great lectures; with MathSoc, where I learned everything about Roberts’ Rules of Order; and with a variety of outside groups including FASS, the Federation of Students, and the Jewish Students’ Union. In hindsight, the challenge posed by partial differential equations may not have been the only reason I had to take 2A calculus three times.

“Describe your average production night.”

I started at Waterloo in 1988 and graduated (just barely! but don’t tell anyone) in 1994. There was a lot that happened during that time! For one, the *mathNEWS* production process went fully digital. When I started, production night involved literal paste-ups, with tape, Letraset lettering, the whole shebang. And pizza of course, since this process could last well into the night. Partway through, I believe it was Ian Goldberg’s innovation, we moved to LaTeX and digital layout that could be printed in its final form. I’m pretty sure Ian was also the one who started referring to our production schedule as “fortnightly”, owing to the fundamental ambiguity in referring to a process as biweekly — or is it semiweekly?

In the outside world, the Soviet Union was opening up, the Berlin Wall was coming down, and democracy was thriving in Beijing’s Tiananmen Square until it wasn’t. That one hit me. But math, and *mathNEWS*, provided a welcome escape: a safe haven, where we could focus on jokes and puzzles and be more or less protected from general goings-on.

“Is what you’re doing today what you expected back in your undergraduate days?”

One of the prepared questions asks if the me of thirty years ago could have anticipated where I’m at today. The answer is categorically no. The world is different now. The World Wide Web was only just getting started then, and you can forget about smartphones. Climate change was not on our radar, and if you were LGBTQ or Black or indigenous or disabled then things were even worse for you then than they are now. Many of the jobs of today didn’t exist then. It’s tempting to say that the only constant is change, but that’s not true; there are a few other constants. The power of relationships, for one. The importance of trust. And the necessity of being able to laugh, especially at

oneself. Dame Edna Everage puts it the best I've heard: "Never be afraid to laugh at yourself. After all, you could be missing out on the joke of the century."

"Anything else you'd like to say?"

I want to give a shout-out to Steve "Flipper" Shaw, who helmed the paper for at least a couple of terms. He didn't mind pushing the envelope, and he was called on the carpet by the administration more than once. The *mathBOOZE* episode was controversial, but even more so was the infamous cover graphic of a male student choking a chicken, with the chicken's neck located near the student's pelvic area. He was a fine leader and a good friend.

"Would you want to be contacted for mathNEWS' 100th anniversary?"

Yes please! And congratulations on hitting the 50-year mark, that's a terrific milestone. It's great to see that old standards like *profQUOTES* and *gridWORD* (with that same Scott Kim-inspired ambigram as its logo!) are still going strong, and on the same fortnightly schedule as ever.

Kivi Shapiro

It's Snowing

The snow falls down, one flake at a time. What could these flakes even do, you wonder. They can't hurt. They even feel kinda nice, sometimes. They're nothing, especially compared to the raindrops, which'll sting your skin, wet your clothes and hair, and rapidly form puddles which can splash up and drench you.

No, in comparison to the cold shock of a raindrop, a snowflake is nothing.

But the rain washes away, streaming always downhill, finding a way out of its puddles and streams down the drains, out of the way, evaporating into the air, out of mind. Sometimes a puddle will remain stagnant between storms, but all it usually takes is one sunny day and it's gone, only a mere memory remaining in its place, a dry spot on the pavement, before that, too, disappears.

Snow's different, though. It has a huge volume due to the low density of the flakes, which really makes it cumbersome to deal with. One snowflake is nothing, but millions are a force to be reckoned with, a force that must be fought with, shovelled out of the way and removed before life can go on. Rain can be stepped over, but snow is simply too bulky to allow that, spilling its way in front of doors and covering paths up to the shin.

Even when it's been removed, snow is frustrating. Its constant presence in its piles just out of the way, blinding in its whiteness, just waiting for another snowfall, when the pile will grow even greater. The piles can persist for months, all through winter, reminding you of its power, of the way it can take over society on its whims, forcing everybody to spend time and energy removing its influence, to just make life worth living.

Rain is acute; except for the rare superstorm, one day and then it's over with. It can hurt, but there's always the knowledge that bright days lie ahead.

But snow is chronic. It doesn't truly disappear, and its weight will blanket communities for weeks on end, along with its nasty cousins slush, ice, and frost. It doesn't let you forget its presence; it is winter, and you will submit.

You can learn to live with it, but you will never overcome it; even an umbrella's no respite to its sheer weight and presence.

I've almost portrayed it as malevolent here, but it's not. It's just water, obeying the laws of physics that govern everything around us. Changing state, being blown by the winds and buffeted into a new form. It's nobody's fault; it just happens, sometimes.

It can even be good; a snowfall can be a beautiful thing. It lets people go sledding, skiing, snowboarding, all that fun stuff. It's given a lot of people their livelihoods.

But it's always a change, whenever the first snowfall of a year hits. And change can be expected or prepared for, but that doesn't make it easy. The cold starts creeping in over the course of the fall, and then the snow starts coming and you know it won't go away for ages, and no matter what you do, you won't be able to change that.

It's a trauma, laden upon all of us. And accepting it isn't always easy, but really, there's nothing else to do with it because getting mad at it would be getting mad at the stars, and that doesn't help your case.

So find some people you care about, gather around over a game or a meal or a *mathNEWS* issue, and watch the snow fall lightly to the ground.

Find the beauty in it, and accept it for what it is. It's just part of being here, and I wouldn't have it any other way.

Predap

Academic grading in Japan

Apparently along with the F, D, C, B, A grades there is an S grade in Japan corresponding to 90–100. Imagine S ranking your midterms.

warrior1rules

Episode 50: The Observer Pattern

Enjoy Episode 50 of the MathSoc Cartoons series — *CS 246: The Observer Pattern!*

Want to see the next comic when it's released? Follow @mathsoccartoons on Facebook and Instagram! Want to see the next comic BEFORE it's released and provide feedback to help us out? Sign up to be a reviewer at [https://bit.ly/mathsoc-cartoons-reviewer-signup!](https://bit.ly/mathsoc-cartoons-reviewer-signup)

As always, feedback, suggestions, and fan art can be left at cartoons@mathsoc.uwaterloo.ca.

MathSoc Cartoons

CS 246: THE OBSERVER PATTERN

STORY BY: GRACE FENG | ART BY: MICHELLE ZHOU

YOU'RE PROBABLY WONDERING WHY I'VE GATHERED YOU ALL HERE TODAY...

THEA'S BIRTHDAY IS COMING UP, AND I NEED YOU TO PREPARE FOR THE PARTY WHILE I DISTRACT HER!

I'M GOING TO GIVE YOU THESE RADIOS...

...WHICH I'LL USE TO GIVE YOU INSTRUCTIONS.

JUST FOLLOW THEM AND WE'LL HAVE THE PERFECT PARTY!

I NEED HELP!

I CAN HELP!

I'LL **BROADCAST** TO EVERYONE WHEN I NEED SOMETHING, AND IF YOU'RE FREE, YOU CAN **RADIO ME BACK** ASKING FOR THE INSTRUCTION!

EVIL PIXIE, I KNOW YOU HAVE TO LEAVE EARLY FOR THE EVIL PIXIES' BALL. I'LL **DISCONNECT** YOUR RADIO FROM MINE WHEN YOU HAVE TO LEAVE.

VECTORIA, I KNOW YOU'LL BE LATE BECAUSE OF THE VIDEO GAME TOURNAMENT. I'LL **CONNECT** YOUR RADIO TO MINE WHEN YOU ARRIVE.

THIS WHOLE SET UP FOR THEA'S PARTY SOUNDS LIKE THE **OBSERVER PATTERN**...

...

ARE YOU TRYING TO SAY MY PLAN IS **BAD**, LEM?

OF COURSE NOT! THE **OBSERVER PATTERN** IS ONE OF MANY **DESIGN PATTERNS**—WAYS TO ARRANGE **CLASSES**!

AND **CLASSES** ARE A KIND OF **STRUCTURE**—A COLLECTION OF **FUNCTIONS** AND **VARIABLES**!

THE **OBSERVER PATTERN** INVOLVES TWO TYPES OF **CLASSES**: THE **SUBJECT** AND THE **OBSERVER**.

EACH HAS THEIR OWN **FUNCTIONS** AND **VARIABLES** ASSOCIATED WITH IT.

THE **SUBJECT PRODUCES INFORMATION**. THERE'S USUALLY ONLY ONE **SUBJECT**.

I NEED HELP!

HIDE THE CAKE!

SO... THIS IS ME, BECAUSE I'M THE ONE GIVING INSTRUCTIONS.

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CS 246: THE OBSERVER PATTERN

STORY BY: GRACE FENG | ART BY: MICHELLE ZHOU

THERE ARE ONE OR MORE **OBSERVERS**. THEY ACT BASED ON THE INFORMATION GIVEN TO THEM BY THE SUBJECT.

SO THAT'S THE REST OF YOU, WHO RESPOND TO MY INSTRUCTIONS! ...IF YOU CHOOSE TO.

WHAT'S UP, CORAL?

ALRIGHT!

I NEED HELP!!

THE SUBJECT CLASS HAS FOUR FUNCTIONS ASSOCIATED WITH IT.

- 1. ATTACH:** ADD AN OBSERVER TO THE SUBJECT'S LIST OF OBSERVERS. LIKE CONNECTING VICTORIA'S RADIO.
- 2. DETACH:** REMOVE AN OBSERVER FROM THE SUBJECT'S LIST OF OBSERVERS. LIKE REMOVING THE PIXIE'S RADIO.
- 3. NOTIFY OBSERVERS:** FOR EVERY OBSERVER ATTACHED TO THE SUBJECT, IT CALLS THEIR **NOTIFY** FUNCTION. THIS IS WHEN CORAL'S RADIO CALLS ALL OF OUR RADIOS ASKING FOR HELP.
- 4. GET STATE:** GETS THE STATE OF THE SUBJECT. THIS IS CORAL'S NEXT INSTRUCTION.

I NEED HELP!

I'M THINKING ABOUT HIDING THE CAKE!

THE OBSERVER CLASS HAS ONE FUNCTION ASSOCIATED WITH IT.

NOTIFY: WHEN IT'S CALLED, THE OBSERVER NOW KNOWS THE SUBJECT HAS CHANGED STATE. HOWEVER, THEY DON'T KNOW WHAT THE NEW STATE IS.

A NEW INSTRUCTION?

WHAT IS IT, CORAL?

IT'S UP TO EACH OBSERVER TO CALL THE SUBJECT'S **GET STATE** FUNCTION TO FIND OUT THE NEW STATE - BUT ONLY IF THEY'RE INTERESTED IN KNOWING IT.

HERE'S HOW IT WORKS.

FIRST, THE SUBJECT CHANGES STATE. CORAL HAS A NEW INSTRUCTION THAT SHE WANTS TO GIVE.

NEXT, THE SUBJECT NOTIFIES THEIR OBSERVERS BY CALLING ITS **NOTIFY OBSERVERS** FUNCTION. CORAL TELLS US SHE HAS A NEW INSTRUCTION.

I NEED HELP!

THE OBSERVERS ARE NOTIFIED THAT THE SUBJECT HAS A NEW STATE. **NOTIFY** IS CALLED. WE HEAR CORAL ASK FOR HELP ON THE RADIO.

IT'S UP TO EACH OBSERVER IF THEY'RE INTERESTED IN GETTING THE NEW STATE... IF WE'RE EACH INTERESTED IN KNOWING THE NEW INSTRUCTION.

WHAT'S UP?

INTERESTED OBSERVERS CALL THE SUBJECT'S **GET STATE** FUNCTION, GET THE NEW INFORMATION FROM THE SUBJECT, AND RESPOND TO IT!

"HIDE CAKE"

SEE, I WASN'T TRYING TO MAKE FUN OF YOUR PLAN...

OKAY, FINE. BUT I BETTER **OBSERVE** YOU PREPARING FOR THEA'S PARTY, OR ELSE YOU'LL BE **SUBJECTED** TO NO CAKE!

Reviewing every movie sampled in the Avalanches' 2016 album Wildflower (part 3)

VII. *Puberty Blues* (1981)

I wasn't super into this one. The movies I've been watching about teenagers in the 80s are all fine, but somehow a movie about Australian teenagers in the 80s seems to cross the non-relatability threshold. It didn't help that the only copy I could find was a low-quality VCR rip with audio in only one ear.

Puberty Blues is about a couple girls who try to start going out with the clique of cool surfer boys and eventually get mad when they realize they don't care about anything except surfing. The highlight of the film is when a group of five kids, playing cards, are handed an entire uncut cake and proceed to all grab onto it and rip it apart and consume the entire thing in about 2 seconds. The only other highlight is the theme song. I wish they still made movies with theme songs that are as good as this one.

The sample here isn't that interesting either. In a scene that seems to have been cut out from the copy I was watching for some reason, one of the girls points out a surfer while lying on the beach and remarks to her friend, "Isn't he great? Far out."

This is thrown in at the end of the song "If I Was A Folkstar" from *Wildflower*, but it's far from the most interesting bit of that song. "Folkstar" features an evocative vocal performance from Toro y Moi, one of my favourite singers, singing about himself and his wife tripping on LSD on a beach, and the instrumental is a masterfully chopped up sample of a synth cover of a classic movie song called "Love Is A Many-Splendored Thing." If you're a fan of the way songs like Daft Punk's "Face to Face" use sampling to create unusual rhythms by transforming melodies, you'll love "If I Was A Folkstar." *Puberty Blues*, however, is harder to recommend.

Maybe this movie made more sense to the Avalanches, seeing as how they're Australian and I'm not. Anyway I'm starting to get sick of these movies about high school kids in the 80s. Are there any more movies sampled in *Wildflower* that aren't about high school kids in the 80s?

IX. *Star Wars: Episode 1 — The Phantom Menace* (1999)

Ah.

You know, I do like the Star Wars prequels. I've never really been much of a prequel hater. And I hope you're not either, because... well...

The Phantom Menace is sampled in a song called "Livin' Underwater (Is Something Wild)," an underwater-themed song about, well, living underwater. Anyone remember who lives underwater in *Star Wars*? That's right...



This fucking guy. The part that's sampled is... well, he's making that noise he makes with his mouth. It's hard to describe. The caption describes it as [**Loud Blubbering**]. You'll have to listen for yourself. (It's at the timestamp 16:55.) It does sound very underwater, I'll give it that.

I suppose I should review the actual movie. I'm not usually one to watch a movie more than once, but I have seen *The Phantom Menace* more times than I can count, owing to a slightly *Star Wars*-obsessed family and an assignment or two in high school. For completeness' sake, I watched it yet again.

It hasn't changed since the last time I saw it. Idk what else to say. I guess now I'm wishing we got more Gungan City content. The Avalanches sort of have a way of making me want to live underwater.

Intermission

science teaching complex? idk seems pretty simple, i mean, i sure hope it, i mean, uh,, yeah? that sounds accurate? i would expect science teaching to be, complex,

Oh by the way if you haven't been reading this series but you're reading this intermission for some reason, I have good news: if you want to start now, you can read these reviews in whatever order you want! Also you don't have to have heard *Wildflower* or anything (but you should totally listen to it, it's good). Or you can keep ignoring these and move onto the next article. I'm sure it's good, though I don't know what other people wrote about because I was sick on prod night :(

X. *De La Soul — 3 Feet High and Rising* *Electronic Press Kit* (1989)

Here's something else that definitely isn't a movie about high school kids in the 80s. It's also not really... a movie. It's a press kit for an album release. How do I review this?

I suppose I'm supposed to know what to do with a press kit, being a legitimate journalist for established publication *mathNEWS*, but I'm not totally sure what the purpose of this is. It does do a good job of selling the album to me though.

How's the album, you ask? Well, it's not technically the thing I'm supposed to be reviewing here, but it's actually really good. *3 Feet High and Rising* is an energetic old-school hip hop record filled with samples of its own, silly skits, and optimistic stories. It's clear that the Avalanches took inspiration from this album: *3 Feet High and Rising* and *Since I Left You* (The Avalanches' first album) are two of only eight albums mentioned by name on the Wikipedia page for "sampledelia," a style distinct to these two albums (as well as *Wildflower*) involving collaging audio samples together to create psychedelic soundscapes. One track that I wouldn't have expected to remind me so strongly of the Avalanches was "De La Orgee," a sonic depiction of an orgy created by layering, well, sex noises. The Avalanches don't quite have any orgy songs (yet, at least), but this method of creating an atmosphere reminds me of the backdrops the Avalanches put

in their songs: the crowded bar in “The Leaves Were Falling,”¹ the payphone at the end of “Going Home,”¹ the dream world in “Zap!,”² and many more in this album as well as their others.

Okay, back to the press kit, which is the important thing here for some reason. It’s only 7 minutes long, but it covers all the important stuff: the three members of De La Soul — Posdnuos, Mase, and Trugoy the Dove — introduce themselves and talk about their intentions with the album, producer Prince Paul (a later Avalanches collaborator!) shows off some of his cool sampling tricks, and a couple endorsements are given from some fellow artists. This includes DMC (of Run-DMC), who gives the album particularly high praise:

...And the music that they’re making is serious from the heart. It’s brand new. It ain’t the same old same old like all the stories go.

This testimonial was sampled in the Avalanches’ “Over the Turnstiles.” I’ll be honest, I’ve talked about many of the songs on *Wildflower* at length but I’m having trouble finding much to say about “Over the Turnstiles.” That’s not to say I don’t like it (of course, there isn’t a single song on this album I don’t like) but “Over the Turnstiles” is the second-shortest song on *Wildflower* at 42 seconds, and is really just a transition that sort of ramps up the tempo right before “Sunshine.” It’s best to just let it serve its purpose. I will say, however, that “Over the Turnstiles” is a great name for a song.

Okay well my final verdict on this press kit is that it’s a good press kit. It’s easily among the top 10 press kits I’ve ever seen. I would recommend this press kit okay go away now

__init__

1. See part 2 of this series, published in *mathNEWS* 151.2.
2. See part 1 of this series, published in *mathNEWS* 151.1.

Monday February 27

- CnD closes early
- MATH 148 midterm
- MATH 148 midterm directly during prod night
- MATH 148 midterm
- MATH 148 midterm
- :(

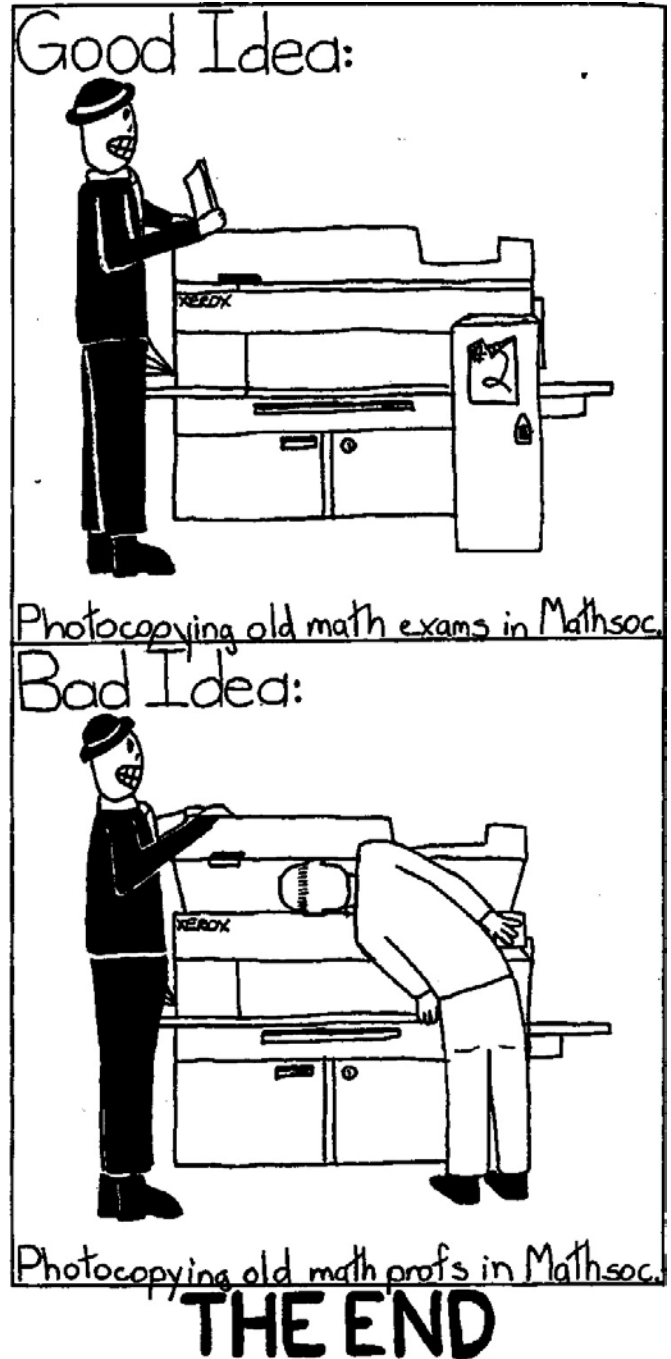
50% < n < 0% :(

N Songs To Listen To While Breaking Double DES Encryption

- The Middle by Zedd, Grey (ft Maren Morris)
tendstofortytwo

It’s time for another

Good Idea/Bad Idea



While we’re in the retro mood, we thought we’d reprint an old comic from Volume 65, Issue 4. This piece dates from June 1994, and as you can see, it clearly shows that two things never change:

- There are never any recent exams in the exam bank.
- It’s a bad idea to stick your prof’s head in a printer, no matter how hard the practice questions are.

god ⚡ peED
Reprinted with thanks to Mike Hammond

Trying to Explain Mahjong

Part 3: Yaku

Before we win, we need to learn more Japanese. When in tenpai, you can make two special calls called **agari**「和がり」if a tile that completes your hand shows up:

- **Ron**, if any player discards a winning tile (note that ron lets you complete a sequence on *any* discard, unlike chii)
- **Tsumo**, if you draw a winning tile

Either call is a win, but there are scoring differences I won't talk about for now. Also, "the tile that completes a hand" is too long, so I'm going to say **agaripai** instead.

Recall our tenpai from last time: **345p111m444s 2255z**. Our agaripai are 2z and 5z, so if either of them show up as a discard or self-draw, we claim ron or tsumo and win the hand.

Right?

...right?

Hahahahahahahahano.

For 5z, it actually does work like that. If you claimed agari with 2z, though, you would most likely be slapped upside the head. Here are some cases where you'd actually be fine:

- You're in the latter half of a renchan game, so the round wind is South
- Your seat wind is South
- You draw the very last tile from the wall and it happens to be 2z
- Someone else draws the last tile and then discards 2z

You see, a completed hand isn't good enough. To win, you actually need a **yaku**「役」(some special hand pattern). There are approximately way too many yaku, they're worth a different amount of points, sometimes they can combine with other yaku, and some only work with closed hands. Some of them feel like shitposts tacked onto the rules for fun.

The reason 5z above lets you win no matter what is that the completed hand will achieve **yakuhai**「役牌」(an "honour" meld). Dragons always count for yakuhai, whereas winds only count if they're **jikaze**「自風」(seat wind) or **bakaze**「場風」(round wind).

The other two scenarios where 2z grants yaku are:

- **haitei raoyue**「海底撈月」(under the sea), granted for completing a hand by tsumo with the haiteihai
- **houtei raoyui**「河底撈魚」(under the river), the analogous situation with ron and the houteihai

Seems shitposty. And they are! If your strategy is to bank on haitei for your only yaku, then you deserve to lose.

When drawing and discarding, you make decisions based on how you want to develop towards a (practical) yaku. Yakuhai is super common, and **tanyao**「断么九」(all simples) is, too. This is a completed hand without any terminals or honours. An example tenpai is 234666m567p4688s with 5s as the agaripai.

The most common yaku is the game's namesake: riichi. If at any point you achieve a **closed tenpai** (i.e. tenpai having never

called chii, pon, or open kan), you can declare riichi. In doing so, you forfeit yourself to agari waiting room. All self-draws must be discarded, so you cannot change your agaripai once you commit. You simply pray for ron or tsumo, but you get to invoke uradora if you win. Remember those things from forever ago? They are revealed and act the same as dora when a hand is won with riichi.

To drive the point home: yaku is the only condition to win. You can be in tenpai without a yaku, but then you might as well not be in tenpai. Furthermore, a completed hand with four melds and a pair ends up being the most common pattern for a winning hand, but there are two exceptions.

Chiitoitsu「七対子」(seven pairs) is the one you'll see pretty often. The hand composition is as it seems: you need seven pairs. An example tenpai:

3399m44p117s3377z with 7s as the agaripai.

Kokushi musou「国士無双」(thirteen orphans) is the other one. It's in the class of gigachad yaku called **yakuman**「役満」that are so difficult to achieve they're worth a metric fuckton of points. Kokushi musou is a hand comprised of one copy of each terminal and honour tile, plus any terminal/honour. An example tenpai is 19m19p119s123456z with 7z as the agaripai.

Chiitoitsu and kokushi happen to be yaku that are closed only. That should make sense: if you made a call to open your hand, you would have a meld and lock yourself out of either. Unfortunately for most closed yaku, you just have to memorize when they're permitted.

Iipeikou「一盃口」(two identical sequences) is a closed only yaku. An example tenpai: 112233m555p5566z with 5z and 6z as agaripai. This is also an instance of compatible yaku: we would win with iipeikou *and* yakuhai with either agaripai.

Ryanpeikou「二盃口」is a separate yaku, also closed only, but it's just two iipeikou. An example tenpai: 112233m55667p22s with 7p as agaripai. If you stare really hard at this, you'll notice it also qualifies for chiitoitsu. Except it doesn't. They aren't considered compatible, and the hand is only counted for ryanpeikou. Them's the rules. Don't worry, ryanpeikou is worth more than chiitoitsu anyways.

I've thrown around terms like "value," "points," and "worth" enough times by now, so next time we'll actually quantify those. As a parting gift, I leave you with the most based yaku: **nagashi mangan**「流し満貫」grants yaku at the end of a hand (after all tiles have been drawn and no one has claimed agari) so long as your *discard pile* contains only terminals/honours, and you've never had someone call one of your discards. Hand composition doesn't even matter. Truly incredible stuff.

ptkyr

Pain

When you said you were going to leave, I did not expect heaven to be the destination. I hope you're doing alright. I'll see you when I'm two steps from hell.

AHpache

You're not doing fine

And I really, really need you to tell me about it

If you ask most people how they feel about lying, they'll say something to the effect of "Lying is Bad." Not everyone is the reincarnation of Kant, so very few people say *any lie* is morally impermissible, but they will generally live consistent with the principle that lying all the time is Not Good.

If you ask most of those same people "How are you?", they'll say "good, thanks, and how are you?" regardless of their actual emotional state. This is, by definition, a lie; you're saying something you don't believe to be true, and unlike most lies, this one doesn't have intentionality behind it! If you lie to protect yourself, get out of trouble, or keep a friend's secret, you at *least* did your audience the courtesy of deciding they didn't deserve to know the truth. With white lies, you're leaving the decision up to social convention! Individual white lies don't actually matter that much, but they both stem from and perpetuate a culture of isolation.

People are encouraged to bottle up the shitty parts of their existence. I know this happens to guys with language like "man up" and "real men don't cry," but it's a prevalent and pervasive phenomenon regardless of gender. People don't sit down and say "I'm depressed" nearly as often as they are, and *any* mental health disorder is stigmatized and shamed. If you get too excited or passionate about an issue, you're dismissed as overly emotional. The classic picture of propriety and politeness places reservation and control above all else. There are countless people who don't communicate their needs because they're too embarrassed to inconvenience others. This culture genuinely makes opening up hard — I am an unbelievably open person, and it took years of *scary* work to get here. I would love to say "just ask for help, just tell people how you're doing, just be open," but I *know* that it's harder than that, because I've been on both sides of this.

One of the best ways to move towards opening up is to slowly increase the amount of yourself that you share. Enter the question "how are you?!" This is usually used as a greeting, interchangeable with "hello," but it has a very important distinguishing feature; it is a *question*. The person asking it is using it as a greeting, but they're picking a greeting that specifically shows some interest your life. The way I recommend answering this is with a pair; (emotion, event), where both are significant things going on. Here are some examples, in increasing levels of personal.

"I'm good! I just went to *mathNEWS* and ate some free pizza, plus I got to catch up with some friends who I didn't see over reading week."

"I'm not great — I'm pretty stressed by an assignment right now, and I'm sort of generally falling behind on schoolwork. This always happens during school terms, you know?"

"I'm not great and I honestly don't know why."

"I'm awful — my grandpa passed away, and I haven't seen him in a while. My personal life has been pretty good, but you know, the whole 'dead grandpa' overshadows that a little"

Don't feel comfortable saying that last one? Just say "I'm awful because of some family stuff," or even "I'm awful, but right now I'd rather not talk about it — just kind of trying to distract myself. How are you?". You can adjust the level of openness to

what suits you — but the point is to include a supporting story to let people into your life, and to actually answer "how are you" with *how you are*.

The beauty of this approach is that it serves three purposes! On a personal level, it's just *more interesting*. You get to tell a cute story or event that happened to you lately. Generally, there's something relatively low-stakes that's affecting your mood that you can talk about, and this can be a springboard for conversation. You can invite your acquaintance to join you at *mathNEWS*, lament about the horrors of school terms together, or genuinely share a touching moment about the tragedy of losing a loved one. The fundamental understanding here is that most *things* that affect your mood have happened to other people before, and they will have some understanding of the situation. Common ground is the best starting point for connection and conversation, and even if you don't want a longer conversation, giving someone a little snapshot of your life makes you a tiny bit closer.

The second is that it forces you to be honest with yourself. It's really, *really* easy to convince yourself that everything is fine when it isn't. If you tell everyone that everything is okay, if you tell the lie often enough, you start to believe it — but thinking things are okay is not the same as things being okay. Most people don't take time to be aware of their own emotions, and by answering this question with honesty, it forces you to understand at least a piece of what you're feeling. You owe yourself clarity and understanding about what's going on

Beyond all of that, we, as a collective, have lost trust in each other. People have fewer close friends than they used to, people have fewer confidants, people believe worse of the world around them. The game "The Evolution of Trust" by Nicky Case (available at <https://ncase.me/trust/>) is a beautiful and brilliant exploration of this phenomenon. Every time you tell someone how you're doing — how you're *really* doing — you show them a little trust. Every time they respond with kindness and care, with joy and wonder, with understanding and empathy, it nurtures that trust, and helps it grow into something stable.

This answer may feel small and meaningless, but incremental change is the best tool we have. I can't destigmatize mental illness by myself; but I can tell someone how I am. I can't make the change I want, and so I will make the change *I can make*.

Will you?

Golden

Try this!

Everyone should try at least once to get Section 11.1 of the current Pure Math Club constitution to be applied to them by asking one of the executives or "triumvirs" as they are referred to in the constitution.

You don't even need to look up what Section 11.1 even is. Just do it! It's easy! It's fun! You won't regret a thing!

boldblazer

mathASKS 151.3 — Part Three*Featuring Steve “Flipper” Shaw, mathNEWS editor, 1994**“What program were you in? Why?”*

CS. I had started out on the actuarial science track but it quickly became apparent that actuarial science is hard. My first couple of co-op placements were in software development and they were a good fit for me.

“What involvement did you have with mathNEWS? When? What drew you in?”

I met Kivi Shapiro on my first work term, and he was already involved in MathSoc/*mathNEWS* and encouraged me to get involved. I contributed for the rest of my time at Waterloo, primarily as a writer, but I did take on a couple of terms on the editorial team.

“Were you involved in any other clubs?”

The only other student activity I took part in was MathSoc, and that didn't go beyond taking the (very occasional) office hour and hanging around the 3rd floor of the MC. There was a fair amount of overlap between the CSC and the *mathNEWS* people but otherwise not a lot of intersection.

“Thoughts on Feds, MathSoc, and student government generally?”

Then or now? Looking back on it, it feels like we had a pretty good relationship with MathSoc and generally ignored/were ignored by the larger campus scene. It's possible that there's a degree of rose-colour tinting going on and I was likely harder on the good people of MathSoc than I should have been.

“How did you feel about Imprint, Iron Warrior, and other newspapers on campus?”

We had a fair-to-good relationship with the Iron Warrior in those years. Any ribbing was largely good-natured and there was an amount of mutual respect and understanding on both sides — all of us knew how much work went into the various publications. And the Iron Warrior, at least at that time, was leaps and bounds ahead of *mathNEWS* in terms of presentation and professionalism.

My memory of the Imprint is that they largely ignored us, not out of malice but rather lack of anything notable that we were doing. And for our part, we stuck with the then-traditional opinion that they took themselves too seriously. In hindsight it's obvious that they were doing good, necessary work.

“Describe your average production night.”

Honestly, the actual nose-to-the-grindstone work of production nights has become hazy to me; it's like trying to recall specific lab assignments that I did thirty years ago. I do remember that at least some of the layout was done by hand.

“What kind of articles did you write for mathNEWS?”

Most of the stuff I wrote was for a half-assed column-type thing I grandly called “Math, the Universe, and Everything” which were basically one-and-done Dave Barry-esque columns about whatever idiotic topic I could come up with. Clearly I was also a bad Douglas Adams impersonator and tried to adapt his tone whenever I could. I guess it could charitably be called humour writing.

“What's the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

We got called into the dean's office a couple of times, but I can't remember the actual triggers for it. The faculty admin had a good relationship with us and put up with a tremendous amount of our shit. I didn't appreciate it at the time, but the patience shown to us by the faculty and administration was nothing short of miraculous.

One thing that I was personally associated with was a tabloid-sized Imprint spoof (named, of course, the Impotent). It took a lot of work and although my name appeared as editor of the paper that term, I was out of town on job interviews when that production night happened. So I was really proud of the technical accomplishment of the team in putting together a differently-formatted issue although I didn't have much to do with it.

Unfortunately a lot of the “scandalous” moments in my time are the things I'm least proud of (and there was some content in the Imprint spoof that fits in that category). There was some stuff included in various issues and in my columns that showed poor judgment and would not fly today. At the time we honestly thought we were “speaking truth to power” but really we sometimes punched down instead of up. It would literally take me decades to realize that though.

“What was mathBOOZE? What was its relationship with mathNEWS? Any stories?”

Ah, *mathBOOZE*. I'd forgotten all about that.

Ok, summary as distorted by 30 years of history: *mathBOOZE* was a pirate newsletter/zine type thing, maybe one or two double-sided pages, that set out to make all the jokes that *mathNEWS* was “too scared/too politically correct/whatever to print”. I don't think it lasted more than a couple of terms and a few issues. The creators remained completely anonymous, although I did have contact with them via a third party.

If some of our content in *mathNEWS* was questionable, the stuff in *mathBOOZE* was over-the-top offensive. A lot of it fit into the casual homophobia and sexism of the day and it was called out by the Imprint and various student organizations.

And eventually it just fizzled out. I think they started off with a lot of easy jokes that they could make, put out a couple

of issues that got a lot of attention, and then people got used to it and they just went away.

“What effect did mathNEWS have on your life as an undergrad and beyond, if any?”

While I was an undergraduate, my columns provided a certain level of infamy, but I don't think there was much impact beyond that.

On rare occasions I'm still recognized as “that mathNEWS guy” by UW Math grads of that era when I meet them in professional situations. That's more embarrassing than anything else, and I usually brush it off with “that was a long time ago”.

“Have you kept track of mathNEWS at all since graduating?”

Not in the past 25 years or so. A couple of editors reached out in years shortly after my graduation to get my thoughts on stuff, but there's been nothing beyond that.

“How has life been for you since graduating? Is what you're doing today what you expected back then?”

Life's been great. Professionally, I'm slouching towards retirement after a career in software development. I've worked for consultancy shops, ran an engineering team at a startup that eventually got bought, and started my own single shingle consultancy as a partial CTO. Personally, I live a few hours north of Toronto with my wife and dog.

There are aspects of my life now that I wouldn't have predicted — living in the country and working fully remotely in IT is not something I envisioned for myself, or really anyone, but the last few years have really been game-changing.

“Did you imagine mathNEWS would live for 50 years? Why? Do you think it will live to see 100?”

I am surprised that mathNEWS is still around in a printed format. It's weird, right? Is it because people still like reading something on Friday morning instead of paying attention to whatever lecture they're in? Another 50 years in a printed format is probably too much to hope for, but there will likely be some vestige of it in the MindWeb or whatever in 50 years.

“Would you be want to be contacted for mathNEWS' 100th anniversary?”

Fuck no, I'll be long dead or so far out of it that it will make these answers seem reasonable.

“Anything else you'd like to say?”

I always over-think open-ended questions like this, so I'll just say that I still enjoy drinking beer.

Steve Shaw

Operating System Review: On Hold For Issue 3

Good morning, operating system enthusiasts! In honor of mathNEWS' 50th anniversary, The Editors are styling each issue of mathNEWS roughly in line with one decade that mathNEWS has been in existence. This article is intended to be published in the third issue, corresponding to the years [1993, 2003).

Unfortunately, I have come down with a terrible case of the midterms [*Editor's note: haven't we all?*] and am unable to provide a fresh review in time for publication. Fortunately, that does not mean that we are out of luck! In volume 143 issue 1, I wrote the article *Installing and Using Windows 98 in 2020*. That is, in fact, an operating system from [1993, 2003], so it should suffice nicely.¹

I will try to write two operating system reviews for next issue if my laziness does not get in the way. Until then, enjoy!

tendstofortytwo

1. <https://mathnews.uwaterloo.ca/wp-content/uploads/2020/05/mathNEWS-143-1.pdf>

Not this time

You know, sometimes something happens in my life, and I think about how I'm gonna write about it in a mathNEWS article. And usually there's some like, nuance involved or analysis I can perform which makes it a bit less straightforward, and more interesting, and potentially less negative if it was something bad. But this time around, after thinking about it for a while, I'm still not really sure what to say other than: shit sucks.

cutlet

Hoping this doesn't worry anyone; I'm mostly alright.

A small display of the scientific method

Problem: I don't have a girlfriend.

Observation: I have hair

Hypothesis: The hair is the problem

Solution?: I am going to shave my head.

(already have but could not come to prod night because of the fucking 148 midterm)

Updates will be posted at the end of term...

0.423



Song of the Issue: G.L.O.R.I.A

Or a brief history of Punk

First version: Gloria in excelsis Deo

We're not talking about that one here. Not Directly. See the third version.

Second version: Van Morrison, 1964, Baby, Please don't go B-Side

The important thing about this song is that it's simple, musically and instrumentally. It's a three-chord song about the relatable subject of teenage lust and sex (Gloria is the girl's name). The vocals are a mixture of Van singing and screaming. It's a great song.

So Gloria was a simple, energetic, raw song. It became a hit. It was the right song at the right time, released in the peak years of Garage rock (1964–68). It got covered by numerous bands, which brings us to Patti Smith in 1974.

Third version: Patti Smith, 1974, Horses.

Patti Smith was a poet who had friends in the New York punk scene of the early seventies. Except at the time it wasn't called Punk or anything. There were a few bands at the time in NYC that were playing this energetic, raw, weirdly poetic version of Rock and Roll inspired by the music of Iggy and the Stooges and the Velvet Underground and the poetry of Arthur Rimbaud (I don't think they actually liked his poetry, it was more about the vibes he gives off. Google him). A big part of what they were doing was how they performed their music. I mean, Iggy Pop would smear peanut butter on his body and watch as people threw broken glass at him while he was performing, and that was one of the things that made his music his.

Patti saw a future for poetry in this:

"I started getting successful writing these long, almost rock & roll poems. And I liked to perform them, but I realized that, though they were great performed, they weren't such hot shit written down."

So she put together a band and started mixing her poetry with these simple, three chord songs as a sort of background. And this is how Gloria was born. At first, it was Patti reciting an older poem over Van's classic:

*Jesus died for Somebody's sins but not mine
Melting in a pot of thieves, wild card up my sleeve
Thick, heart of stone, my sins, my own
They belong to me
Me*

The original Latin/religious meaning of Gloria is not lost on her. These lines caused a lot of controversy back then, they asked Patti if she even believes in Jesus.

"When I say that bad stuff about God or Christ, I don't mean that stuff. I don't know what I mean; it's just it gives somebody a new view, a new way to look at something. I like to look at things from ten or fifteen different angles, you know. So it gives people a chance to be blasphemous through me."

And later she said that she believed in him, but didn't want Jesus to worry about her.

"I was 20 years old when I wrote that, and it was sort of my youthful manifesto. In other words I didn't want to be good, y'know, but I didn't want him to have to worry about me, or I didn't want him taking responsibility for my wrongdoings, or my youthful explorations. I wanted to be free. So it's really a statement about freedom."

Patti Smith's Gloria is not really a cover, it's a re-imagining. It's a riff on the old Van Morrison tune but most of the words in the song belong to her. She inherits a tune and makes it her own. And the energy, the way the song carries itself is just different. It is more expressive. You really get the feeling that Patti and her friends at CBGB were trying to express themselves as poets, as kinds of people you haven't seen before. And no wonder the music also sounds nothing like you've heard before.

Patti's first album, *Horses* was released a year later. Together with some other albums coming out of the New York scene at the time, most notably the Ramones' self-titled album, it made the Punk explosion happen. And I think the energy Patti carries in Gloria and the re-imagining of old Rock and Roll with the musician's own sense of freedom and individuality, together with the raw power of performance, makes it the standard Punk song.

curdish

Some early Punk albums that were alluded to in this article:

The Velvet Underground, self titled, 1967

The Stooges, self titled, 1969.

Patti Smith, *Horses*, 1975

Richard Hell and the voidoids, *Blank Generation*, 1977

Local Dragon spotted in 7th Floor of MC

if you see him say hi he is lonely



Omg yall a ~~seal~~ real dragon

andoiii

The Most Ridiculous Plane Crash

Aeroflot is probably one of the most infamous airlines in the world. The state-owned air carrier of the former Soviet Union, and the current flag carrier of Russia, it has a storied history, founded in 1923. At one point, it was the largest airline in the world (in terms of planes owned). With so many planes spread all over the Soviet Union, with varied piloting and maintenance, there were so many accidents and crashes, most of which never really were news beyond the Iron Curtain (and probably not news within it either). With that many accidents, there are bound to be ones so ridiculous that it's unbelievable that they even happened.

One of the Aeroflot accidents that is infamous happened after the USSR fell, when, in 1994, the captain allowed his kids to sit in the captain seat, and, as the story goes, "allowed them to fly the plane", causing it to crash. Now that isn't exactly what happened, but that might be your guess for the most ridiculous plane crash. What if I were to tell you that that crash is not the most ridiculous crash in the airline, let alone ever? Impossible, right? How can you beat having your kids crash the plane?

Let me bring you to October 20th, 1986. Aeroflot flight 6502, flying from Sverdlovsk (now Yekaterinburg) to Grozny, via a stopover in Kuibyshev (now Samara). The plane is on final approach into Kuibyshev. Nothing remotely wrong with this plane. 87 passengers waiting for landing, none the wiser.

Then, Captain Alexander Kliuyev starts the chain that results in the most ridiculous crash ever. He bets his first officer, Gennady Zhirnov, that he could land this plane with only instruments. That in itself is not exactly out of the ordinary, but he adds one more element: he curtains the window on his side. During the landing calculations, the captain makes an error. This error makes it so that the plane is landing too fast both horizontally *and* vertically. He ignores the warnings that the ground is coming up too fast, and does not go around as is required when that warning pops up. He can't confirm the warnings with his eyes, because his curtains are up. The co-pilot can actually see from his windows, but he doesn't intervene. One second before landing, the captain gets the flight engineer to open the curtain, and he does. The captain then tries to abort the landing, but it's too late.

The plane lands hard on the runway. It's so forceful that the plane breaks apart. It rolls upside down. Fire erupts. When the damage is done, 70 of the 94 people on board are dead, including the co-pilot. The captain is one of the 24 survivors. He is later tried, and sentenced to 15 years in prison. He only serves 6 years before being released.

The absolute disregard for safety just for a bet makes this the most ridiculous crash. 70 needless deaths, just because he wanted to show off, and let's not forget the co-pilot, or the flight engineer, or the navigator (who I haven't mentioned before now), who could've put a stop to this at any point. Total failure on the crew.

The Soviets only revealed this accident to their newspapers in the summer of 1987, when the captain's 15-year sentence was given.

In almost all accidents, the industry can take lessons, and improve the safety of aviation all over the world with the recommendations given by the accident report. However, what can we

learn from this accident? Listen to the warnings? Don't make stupid bets? Don't intentionally try to make your landing harder for no reason? Not really much to learn. It takes a special kind of stupid to make an accident not have any meaningful recommendations, and yet that's what Alexander Kliuyev did.

If you do want a positive side, you could say that the fact that this crash is so far from the norm that it's the most ridiculous means that flying is in good hands. Pilots don't do this, and usually, the people that could even think of doing these types of actions are weeded out before they get their hands on a yoke or sidestick. Flying can be fun, but it's serious business, especially when you are flying passengers that trust you to get them from point A to point B.

lwo

Note: I am not a pilot, nor am I in anyway involved in aviation. I am just interested in plane crashes, and I thought this was an interesting story to tell. There are probably factual errors in the article, but I tried my best.

Reading Week Wall

It is easy to run headfirst into the solid brick emotional wall that is reading week. As reading week, begins, I can feel myself going through all the same motions again. I've been working so much over the last two weeks, what the hell am I supposed to do now that I have a break?

As per usual I try to meet up with my hometown friends. As per usual, half cancel at the last minute and our conversation consists of the same nostalgia-fuelled conversations we've had for the last 3 years despite the fact that we're only 20. They have work to do so they go home at 11.

Then, two days in, I watch a rom-com with my parents and realize (again) that I have just been coasting through my life and have an identity crisis like a very Mature Adult™. Am I complacent? Am I happy? Am I supposed to be? Am I just tired? Should I even be complaining?

Usually, I would stress myself out about this for the week, complain about it (like I just did), and then forget about it once the comforting anxiety of schoolwork returns, only to relive a similar experience again on the next extended break.

However, this time, instead of continuing to dwell on every negative thought without resolution, I am going to appreciate reading week. I am going to try to run through the wall of free time instead of being knocked back and disoriented by it.

This break could be a gift, not a curse, to reassess the things I have not had the time to think about while busy. I have not had the time yet to appreciate all the great times and people I've met this term in Waterloo. I can live in the present and enjoy spending time with my family. Instead of worrying about all of the things I have not done, I can take the extra free time I have to plan ahead to try to fill those holes when I return.

Maybe these anxieties will return again when the term ends, but for now I have hope that I can start to move forwards again, and that is the best anyone can do.

Lars Nootbaar

who let him cook?!: ratatouille edition

“WHO LET HIM COOK?!” they say. certainly no one. but do you ever wonder how many people have actually tried ratatouille? like two weeks ago a friend of mine got really hung up on trying ratatouille—and i mean *really* hung up. like hung up hung up. hung up hung up hung up. yeah, that kind of hung up. the funny thing though was that he wanted to try the ratatouille that was served at rev on a blue moon in the middle of a winter where the sun was shining and it was 20 degrees outside. which is just to say, why on earth would you want to eat at rev?

i offered to cook ratatouille for him but i have yet to do that. so here’s an explanation of how i would have cooked the ratatouille if i cooked the ratatouille, but i didn’t cook the ratatouille so this is how i’d imagine i would have cooked it. which i haven’t done yet, but you can see where i’m going.

disclaimer: the extent of my knowledge on cooking ratatouille is limited to the first website i skimmed when i googled “ratatouille”

first, prep your vegetables. from my extensive research, ratatouille tends to have zucchini, tomato, eggplant and bell peppers. i don’t like bell peppers, however, so i’m leaving them out of this recipe. it’s important that you use zucchinis of all colours so your dish actually looks appetizing! so buy every colour of zucchini you can get. i would expect there to be green and yellow zucchinis, but if you manage to find blue ones then why not?

a big part of ratatouille is the tomato sauce, which is what you’ll be using some of the tomatoes for. i haven’t thought far ahead enough to figure out how i would go about making the sauce. you can always buy tomato sauce, however. in theory, using fresh tomatoes to make your sauce would improve the quality of your dish by a significant amount, but when you’re tired from studying during midterms tomato sauce is probably the least of your concerns. just buy the sauce instead. but if you do end up making the sauce from scratch, i would recommend adding a lot of sugar to it. trust me. cooking with tomato needs a surprising amount of sugar.

now back to the zucchini and eggplant. you’ll want to cut it into thin slices. i don’t know how to put in a nice transition into here, but you’ll want to do the same to the tomato too. i once watched a friend (not the same one who really really wants to try ratatouille) cut up her veggies into large cubes. it was the most miserable experience of my life. you can cut your zucchini and eggplant into large cubes i guess, but i would find that very miserable.

the good news is that ratatouille is very easy to make! the bad news is that it’s pretty time consuming. you’ll want to put all the tomato sauce into a pan, and then layer all of the thinly sliced (they better be thinly and sliced) on top. put some seasoning on it too, like salt and whatever other plants and rocks people like to put on their food. and then you put it into the oven and bake for some amount of time that i’m not too sure about. probably over an hour later, your ratatouille is ready!

i hate spending more than 20 minutes cooking though, so personally i would have just stir-fried everything in a pan. put the sauce in, throw in the veggies, add seasoning, turn up the heat and make sure nothing burns. i think the cooler term for this would be *sauté*, so i’m going to amend what i said earlier

and say i would have just sauté everything in a pan instead. now *not* over an hour later, your ratatouille is ready!

hopefully you had a fun time making ratatouille. or, you had a fun time imagining yourself making ratatouille from this guide i wrote about imagining myself making ratatouille. i don’t think it made much sense, but when did anything ever make sense. certainly not writing guides on imagining yourself cooking something that you have never cooked before.

/ˈaeren/˘2

Mel

I have a friend called Mel.

Mel thinks of her less-than-perfect family as a big contributor to her could-be-better personality. She is never uncomfortable to announce that her father is “out of the picture”, which she hopes have made others like her more from sympathy, but Mel is usually hesitant to discuss the other issues within her family.

Mel lives in a four-people household. Her mother, a very capable 1st generation immigrant who is incapable of expressing love and gratitude, took good care of her nice-and-old grandparents. They appeared to be a problematic yet happy quartet on my occasional visits to her house. Mel would beg to differ a few years prior, around the time her mother told her that she is at fault for her parents’ divorce and her grandparents found her depressive episodes a laughing matter. Mel came into acceptance, however, that perhaps this is just the family’s twisted love language: after all, she did grow up spoiled as the favorite grandchild, and on his deathbed, Mel’s grandpa made her promise to be as a good of a daughter to her mother as her mother was to him. They did love each other, in a mean, weird way.

Mel told me she can’t wrap her head around the idea that her grandpa has passed away, dead, gone. Mel’s mind has yet to register the sudden deterioration of his condition during Christmas. Neither the gradual collapse of his health over the recent years nor his diagnosis of shingles, a few years ago, make sense for her. She knew that the 92-year-old man would never get better: heck, she can barely recall an image of her grandpa back in full health. His death was not a surprise — it was actually very much anticipated — but it was still startling. Yet Mel felt nothing.

Back in the summers of her childhood, Mel liked to visit her mother’s hometown of Changchun. There was one particular sunny afternoon — lazy, still, and nostalgic — that remained memorable with Mel, when she spent hours against the windowsill in the family’s old study room, savouring the warm scenery of the suburban community. Her grandpa, joining beside her after some time, would quiz her to describe the countryside landscape that sprawled in front of them in English. He told Mel that “the bushes are dark green”, she would agree, and the two of them would sit in silence for a long while. It’s as if a part of her forever remains in that moment, Mel said.

Mel lives in a three-people household.

my mother asks me why i don't write about her.

when i was born i left a hole
in my mother's ventricular wall,
and stole one wave from her pulse.
the doctors said she'd need surgery, but she knew better.
she says all her dreams came true that day.
she says i'm a part of her heart
that up and left her.

my mother asks me why i don't write about her.

i start a three-car pileup rushing to work
(i broke my promise and left late)
and i call everyone but my mom
(i know she'll drive dangerously if she knows i am hurt)
but she passes by the wreckage on her way home from work
(and sees what was left of our van)
and the hole in her heart gets bigger, i'm sure
(she leaves her car down the street and runs)
she almost folds in half when she sees me safe.

my mother asks me why i don't write about her.

we get along mostly.
she tells me she hopes i have a daughter one day
a daughter who i love half as much as she loves me
so i might know the joy of it.

when we don't, we fight loud,
and she tells me she hopes i have a daughter one day
a daughter who i love half as much as she loves me
so i might know the hurt of it.

my mother asks me why i don't write about her.

she calls me into her room one night.
she has read my diary.
she does not know who i am, or trust me,
she will not look at me, and
asks me if i want to ever have a daughter.
but still she holds me, and lets me say i am sorry.

the next morning, she says
she is still proud of me.
she asks me if i'd like her purse:
she says it's too big for her,
but just the right size for
gym clothes, a water bottle, and my diary.

my mother asks me why i don't write about her.

as if she is not failed by me and metaphor,
like it wouldn't mostly be apologies,
like there is anything clever to be said
about a love like hers.

if i vivisected her from my
skin, guts, and white matter
and pinned her out onto a page
(maybe i am cruel enough)
i wouldn't be able to endure myself.

my mother asks me why i don't write about her,
and i tell her i will try.

hotfemoid

kWh

A couple weeks ago, my family got an electric car, and the inevitable has occurred: confusion between kilowatts and kilowatt-hours.

Here's an exchange I had with my dad regarding a 50-kilowatt charger:

Dad: "So this charger puts 50 kilowatts per hour into the battery?"
Me: "No, it puts 50 kilowatt-hours per hour into the battery."

This is clearly ridiculous. First of all, having both of these as commonplace units of energy and power is definitely going to lead to confusion. It's already bad enough that it's not immediately obvious which of energy or power is a measurement of the other per unit time just from their names. This also easily leads to awkward phrasing, such as the "kilowatt-hours per hour" from before. These terms also invite the misinterpretation of kilowatt-hours as meaning kilowatts per hour. One might argue that this is pretty clear if you compare it to "man-hours", but it's not completely unambiguous like miles per hour or similar units.

In an ideal world, we wouldn't have to deal with this nonsense. But just like trying to get the US to switch to Celsius or using tau instead of pi, we probably won't ever be rid of kilowatt-hours. The most we can do is try to get everyone to understand the difference between the two units.

That being said, it's fun to imagine what a better pair of units would be like. I think an ideal system would use megajoules (MJ), which are equal to about 0.28 kWh each, and megajoules per hour (MJ/h), which are equal to about 0.28 kW each. Since we usually think of rates in terms of how much of something they go through per unit time, this makes more sense intuitively, especially when compared to units like kilometres per hour. It also means we wouldn't have to deal with awkward phrasing, and it's completely unambiguous that MJ/h refers to a rate. By using MJ, we would also stay within SI units and as a bonus, the numbers we use don't change all that much because the conversion factor is close to 1.

Feel free to use these units if you want to create even more confusion than there is already.

hyperlynx



Every Time I Munch

The smell from the oven is fresh and sublime
I lick my lips, it's almost time
The miracle of food comes down on my plate
The best thing that I've ever ate

'Cause when I taste the sauce
I get this feeling
And when I taste the cheese
I swear I could fly
Can't you feel that crust go crunch
I just wanna munch
Pizza 'till I die

I put on all the toppings
I can think of
And by that I mean
The ones that I like
Can't you taste the flavours of
The food that I love
Pizza completes my life

The red pepperoni
The green of fresh herbs
The sight of this dish is superb
Its beauty is more than
The prettiest flower
A shame it will soon be devoured

'Cause when I taste the sauce
I get this feeling
And when I taste the cheese
I swear I could fly
Can't you feel that crust go crunch
I just wanna munch
Pizza 'till I die

I put on all the toppings
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'Cause when I taste the sauce
I get this feeling
And when I taste the cheese
I swear I could fly
Can't you feel that crust go crunch
I just wanna munch
Pizza 'till I die

someBODY

N Positive Things About peacelovemath

- Lived in Norway (ask her about it)
- Excellent writer name
- Undefeated at euchre in the past year
- Excellent real estate negotiator
- Exercises good judgment (would never go into weird holes in basements)
- Was willing to coach me to a national championship in Synchronized Swimming
- Had the wisdom to realize how bad of an idea that was two hours later
- Makes borscht of the uppermost quality
- Okay so in Innertube Waterpolo sometimes someone will throw a complete bomb and the ball will end up in the middle of everyone at which point it becomes a mad scramble between the nearest 3 or 4 players to reach the ball. It gets very hectic, people splashing and flipping over everywhere. Anyways, peacelovemath does extremely well in those situations, even when against multiple people with longer reach
- Chose the best month to be born in
- Introduced me to *You*, a show which I am pretty sure I thought was better than she did
- Her cat has the coolest litter box
- -1 for not being okay with me using the cat litter box though
- Is half of the reasons I have friends

aphf

N Positive Things About Not a N*rd

- Is absolutely a nerd
- Fosters cats (ask her about it)
- Put up with me learning "You're Gonna Go Far Kid" by The Offspring on the accordion for hours through our paper thin walls
- Put up with me learning "Still Alive" from *Portal* on the accordion for hours through our paper thin walls
- Is about to put up with me learning the riff from "Revenge" by CaptainSparklez on the accordion for hours through our paper thin walls
- Gets the good salt
- Insane at dodgeball (hasn't lost a game)
- Offers a youthful and naive perspective on the world
- Climbed the PAC roof in the most entertaining way
- Introduced me to *Terraria*
- Introduced me to the song "Cult of Dionysus" which I found pretty catchy so I listened to it too much until it basically became background noise so that one counts as half a point I guess
- Good drawer (the art kind not the storage kind)
- Sat on a couch for 17 hours
- Is half of the reasons I have friends

aphf

Math is Haram

Guys, it would be really funny if we like started a rumour that math was haram hahaha and then it would be even funnier if the rumour became big enough that AccessAbility heard about it hahaha and it would be fucking hilarious if AccessAbility thought it was totally serious! And it would be absolutely fucking uproariously hysterical if that led to them letting me get an accommodation for all my math courses, but just letting me pass all of them by default hahaha.

That would be funny right! hahahahahahahahahahaha

(Guys I'm struggling please help me i don know what tod o)
:sob:

aaqsr

burger burger burger burger

Grad courses are better — fight me

I see grad courses as the most optimal form of learning. Yes, graduate courses are often seen as more challenging and demanding than undergraduate courses, but they're actually more lenient—and you'll be having fun dying in the process as well.

Graduate courses are flexible. Tests are replaced with projects—which is a good thing since I don't need to worry about my midterm or final scores. I grind the homework for seven hours per problem and don't even progress, but I feel like I learn way more doing the homework, asking instructors

questions, than cramming for exams. (Yes, exams are good, but they're just not the optimal way for me to learn things, okay?)

They're also smaller in size—look at my class: six people. Professors are much more accommodating and responsive to our preferences and needs. Heck, even our professor recognizes our names by like the third session. Hints are much more constructive as you get to know your professor personally and that's just the best thing ever, to find more connections—and learn more cool math.

toxicsbridge

Chicken Parmesan (A Recipe)

I didn't have time to write something original because of the MATH 148 midterm

Chicken Parmesan is one of several dishes widely thought of as Italian, but which are characterized more accurately as Italian-American. Much like Fettucine Alfredo (which I also have a recipe here for), chicken parmesan does not and has never existed in Italy, but rather was adapted by Italian immigrants to North America, possible originating from Parmigiana di Melanzane, a similar eggplant dish. While this version is served with pasta, it can also be made into a sandwich or eaten alone.

Ingredients:

- 2–4 Boneless chicken breasts
- Marinara Sauce (can be made from scratch if desired)
- 1–2 cups grated mozzarella cheese
- 1 1/2 cups grated parmesan cheese
- 3–4 cups canola or vegetable oil
- Dried italian herbs (rosemary, thyme, and oregano)
- Salt and pepper
- 1 1/2 cups flour
- 2 eggs, beaten
- 1 1/2 cups panko or regular breadcrumbs
- Pasta

Directions:

1. Prepare the sauce in a pot, and set up three plates or bowls to contain the flour, eggs, and breadcrumbs. Add salt and pepper to the flour, and italian herbs and parmesan to the breadcrumbs. Reserve some of the parmesan for topping.
2. “Butterfly” each chicken breast by cutting it in half lengthwise almost to the other side, then stopping and unfolding it.
3. Pound each piece flat with a meat mallet or heavy glass, then bread with the flour, egg, and breadcrumbs in that order.
4. Combine the mozzarella and parmesan into a bowl, and boil some water to cook the pasta.
5. While the pasta cooks, heat the oil in a large pan, then fry the chicken for 5–6 minutes on each side. Times may vary depending on how thin the chicken breasts are, but it should be fully cooked once the breading is browned. Place on a wire rack once done.
6. Top each chicken breast with sauce, cheese, and dried herbs, then broil in an oven for 1–2 minutes to melt the cheese.
7. Serve hot with pasta.

editorTHOUGHTS 151.3

Featuring Chadwick “CasEd” Severn, *mathNEWS* editor, 1997–2000

When I was young, my father got an IBM PC XT. That clicky keyboard, a text-only green and black screen, and a luxurious 10 MB hard drive. The day we also got a CGA card and hooked it up to the television to play Microsoft Decathlon was a turning point for me. I started learning BASIC and have loved programming ever since. I dreamed of getting my software printed in COMPUTE! magazine.

In high school, I think we had QNX machines, and as a CS project, I wrote a multiplayer cribbage game that used the QNX networking so that you could play with multiple computers. The floppy disk that held my source code got corrupted, so I had to present the project with a week-old version of the executable which I found on another floppy. An early lesson in source control. I also greatly enjoyed being on the yearbook team, and how much fun playing with Macintoshes and Adobe could be.

Naturally, that lead to me attending U(W) getting a Computer Science degree from the Math Faculty. I also tried to add on a Journalism minor, which was offered through Conestoga College in those days. I did all 12 months of the Journalism courses, but Conestoga refused to give me their diploma when I skipped the 8-week unpaid internship at a community newspaper and I instead did a co-op term designing web sites for a software company for real money. I told them that the Internet was the future of journalism, but Conestoga, who still had students developing their own black and white photos in a darkroom, didn't accept my rationale. U(W) didn't care about Conestoga's intransigence and gave me the credit for the Journalism work so that I could still get my CS degree. Strangely enough, later in life, I actually had a job where I rewrote the support software used by Conestoga College, and when I went onto the production server, I could see my account and the missing credit for the internship. It would have been so simple for me to alter it to get me the credit. I didn't touch it though.

My love of computers and journalism and humour naturally lead me straight into joining the *mathNEWS* team during my second term, after admiring the publication during my first. We would take over a room full of workstations and the 8 or so of us would all try to come up with stuff that would make us laugh. My first editor was Mala Krishnan, a very funny girl who showed me all the ropes, and the next term my editor was Brian Fox, a cool guy who took me under his wing to be co-editor the term after that.

When Mala and Brian left, it was left to the next generation of mN people to learn how to get this thing out every two weeks. Mike Hammond, Greg Taylor, Matt Walsh, Mike Thorsley, Richard Bilson, and many others I wish I could remember their names. The end of term board game pizza parties were some of my favourite days at U(W).

My entire goal with mN was to try to make people laugh. It started with columns where I tried to start a no-broccoli club or adding a ridiculous number of editor interjections to a rather boring piece. It then grew to whole-page parodies of You Don't Know Jack or Pop Up Video. Pretty soon, we started doing entire themed issues, like the tribute to Square One (the TV show, not the mall). And then we decided to go full The Onion and make newsprint editions that were entirely full of jokes and had no *profQUOTES* or MathSoc updates. Playing off the names of newspapers, we titled them The Toronto Numb, The Irrational Toast and Daglobenpost. That last one, pretending to merge the two national newspapers, seemed funnier to me at the time all smushed together with a Da at the start. But I think I should've just gone with The Globe and Post. Is it too late to tweak it?

Each of those issues were herculean efforts of many people, including a very nice chap at the newsprint printers out in Hamilton who fixed up some of our logo graphics. These issues were ridiculous. It's so easy to just show up on Monday and put out a 10-page 8.5x11 photocopied black and white pamphlet. Why put ourselves through that? It's not twice as hard to put out a 20 page broadsheet newspaper, it's like 10 times, and you need to drive out to freaking Hamilton. But the payoff is the reaction of my fellow students. To sit in the C&D and watch other people reading and laughing at what I helped create is a drug I've chased my entire life.

I really hoped that mN would continue to be funny and creative and to shoot for the moon after I graduated in 2000. In the mN office, I left behind a red couch and a bottle of Orbitz that I found at a convenience store and thought was the most ridiculous drink ever. I've been delighted to see mN still going and still being creative and funny. I think it's a shame that so many contributors over the last little while use nicknames instead of their real names. Years later after you graduate and start forgetting things, you'll appreciate being able to see actual names on things from your past.

I had always thought that if I hit it big and made millions, that I would send U(W) a big chunk of money to construct a new building attached to the Davis Centre. Inside would be squash courts, beautiful lecture halls with comfy chairs and glass windows showing the outside world, and on the top floor, an expansive newsroom with all the latest and greatest computers and printers for a newly relocated mN office. And of course the building would be called *mathNEWS* Hall.

Chadwick Severn
mathNEWS Editor (1997–2000)
 Bachelor of Math, Computer Science (2002)
 Diploma, Journalism (Still Pending)

horrorSCOPES

ActSci

Your global investment portfolio fails to rise in time for the Quarterly Stakeholder Audit. Furious, you slam your fist into the \$24,000 Bloomberg Terminal. Michael Bloomberg lunges out of the screen with a 12-gauge pump-action shotgun.

Your unlucky number is: 16 holes in your chest.

Sci

You're studying for the BIOL 130 quiz tomorrow. After finally packing those cell diagrams into your head, you start to feel a little funny. You look up from your textbook. It's me. Look who has all of your organelles now.

Your unlucky number is: 13 organelles per cell.

AMath

Be cautious, for science awaits those who accidentally apply math too hard.

Your unlucky number is: 3 mL of mercury.

Arts

The world is your canvas. The ripe artist you are, you will come into a generous windfall of beautiful paints, the bright colors with which you shall make the world see God. Help us see your divine vision.

Your unlucky number is: 40 gallons of Dutch Boy lead paint.

C&O

Yes, I know you have a Tesla. Your fancy Model 3's autopilot optimizes its way into hitting as many kids as possible as you warp through the slow zone. No gas, baby!

Your unlucky number is: 23 hit-and-runs and 1 shoot-on-sight order.

CS

Fuck your React app bitch. I'm going to kill you! That's right—come by the office. It's free! Over in a minute. Death. The long sleep.

Your unlucky number is: 37 hours left.

CFM

Computing? Fuck you! I'm coming for you too!

Your unlucky number is: 37 hours left, plus 10% interest.

Double Degree

Haha yea, this party is sick bro. No yeah bro you should have some more. Have some more alcohol bro. Drink some more bro. More.

Your unlucky number is: 26 liters of overproof rum and coke and 1 untreated liver failure.

Eng

You think you're just *soooo* good at building things, don't you!? A surprise is waiting in RCH.

Your unlucky number is: 863 kilograms of C4.

Env

To know a plant is to taste a plant. Eager to get ahead in class, it's time to chow down on your newest specimen.

Your unlucky number is: 8 delicious servings of hemlock.

PMath

Slamming shut your complex analysis textbook, frustrated with modern industrialized society, you look to your forefathers for inspiration to go on.

Your unlucky number is: 1 premature detonation.

Stats

The newly-revived Stats Club is looking for new executives! Come swing by the Stats Club office to learn more about this exciting opportunity.

Your unlucky number is: 4 ~~trap doors~~ floor tiles.

Teaching

You get your dream co-op, finally able to directly apply your talents in helping to teach an honest-to-god classroom of children with a thirst for knowledge. It was a rough path here, but you made it.

Your unlucky number is: 15 school children that were strategically infected with polio because I guess they don't get vaccinated for that anymore.

Undeclared

Pick something so I can pick something, alright?! What do you want from me? Fuck you!

Your unlucky number is: N choices and N+1 threats.

Rating different meals at the Grand River Hospital psych ward

For non-disclosable reasons, I stayed at the psych ward at Grand River Hospital for eight days. If you plan on finding yourself in this psych ward at any point in the future, this review may (or may not) help you.

Breakfast

Every breakfast is some combination of:

- Coffee. I have a friend who *really* loves coffee, and watching her attempt to choke down the hospital coffee was the funniest thing.
- Orange juice or apple juice. Not the best juice I've had in my life, but we can't have everything.
- (Wrapped) cheese or yogurt. Neither of these tasted *good*, but they were acceptable and I needed the calories.
- Milk (1%, partly skimmed, 125mL) and cereal (Kelloggs).
- A muffin, whose main ingredient is probably sugar by a wide margin.

At some point, my low appetite and the lack of appetizing foods meant that I was straight up not eating breakfast, outside of drinking some juice and eating the prepackaged cheese/yogurt. Imported foods became my saviour here.

Day 4 (Feb. 19) lunch: 2/10

The main was a sausage (?) omelette with boiled carrots, with a side of whole wheat bread, a salad with greens and two pieces of onions; orange pekoe tea; what was probably cream of broccoli soup; and chocolate pudding. Unfortunately, this was probably one of the hospital's worse endeavours—the omelette was hard and unpalatable, and the carrots were a colour that was almost as depressed as I was. The saving grace was the 25mL of Kraft Italian dressing that we were given for the salad. I didn't even know that Kraft made salad dressing.

Day 4 dinner: 7/10

The main was rice and chicken in some sort of curry sauce. This was fascinating, as I was not aware that they were capable of using spices in their food. This was unfortunately complemented by boiled, seemingly unseasoned zucchini, which sounds about as good as it actually was. Dessert was a lemon-ey pastry, and it actually tasted quite delicious. As with the rest of our dinners, we had decaf orange pekoe tea and the same dry, bland whole wheat bun.

Day 5 lunch: 2/10

The same whole wheat bun, a small garden salad, lemon pudding, mac and cheese, broccoli, vegetable and rice soup. I didn't know that you could mess up mac and cheese, but whatever they did certainly came close. The ingredients in the garden salad were probably of the same quality as those in my fridge currently—the ones that I had bought before my stay here. The vegetable and rice soup would've been okay, but unfortunately, the absentee nurses meant that I had to

personally comfort a friend through a crisis, and alas, it did not hold its heat. The lemon pudding had a disgusting texture, but amazing flavour.

Day 5 dinner: 4/10

Orange pekoe tea again, prepackaged applesauce, a cakelike dessert, mashed potatoes, boiled vegetables, mystery meat (two of my friends had a sample and still could not come to a conclusion).

Day 6 lunch: 2/10

Sad sausage omelette with boiled zucchinis. I had had these individual foods before, but never combined like this—a new level of unfortunate. A mystery vegetable soup with no chunky bits to identify its ingredients. I usually love soup, but this one just hit different in a bad way. Garden salad—whose ingredients were very far from fresh—milk, and some gooey chocolate dessert—not in the “melts in your mouth” kind, but the “asphalt drying in the hot summer sun” kind.

Day 6 dinner: 5/10

Flaccid, dry, and rubbery chicken; sickly soft orange and yellow carrots; and savoury rice with the wrong texture. The side was the same dry, bland whole wheat bun, and more of the unfortunate orange pekoe tea. Dessert was a chocolate chip-oatmeal cookie which contained no more than the titular singular chocolate chip.

Day 7 lunch: 4/10

Whole wheat bun, sad garden salad, decaf orange tea—you know the drill. Some cherry jello that tasted like medicine, milk, and a whole-wheat egg sandwich that made me question if I had COVID or not. At least the chicken noodle soup was good.

Day 7 dinner: 6.5/10

Same old. Whole wheat bun, orange pekoe decaf. A soggy breaded chicken in some sort of gravy—they put pepper in it, so it actually tasted good. Served with instant potatoes and boiled broccoli, unfortunately. An oatmeal raisin cookie. I'm starting to lose it.

Day 8 dinner: 7.5/10

Coleslaw, uncharacteristically bland sweet and sour chicken with rice, Italian wedding soup, bun, tea, vanilla pudding with a similar consistency to yogurt. Even despite the lack of salt, this tasted like heaven, because I was finally going to leave.

Imported food

- Crepes: 9/10. Served with a rich and flavourful leek and zucchini (seasoned and not boiled!) filling. They suffer slightly from being a couple days old, which dried them out

a little bit, and they were served at room temperature due to a lack of microwave in the hospital. They were still the best meal I ate by an enormous margin.

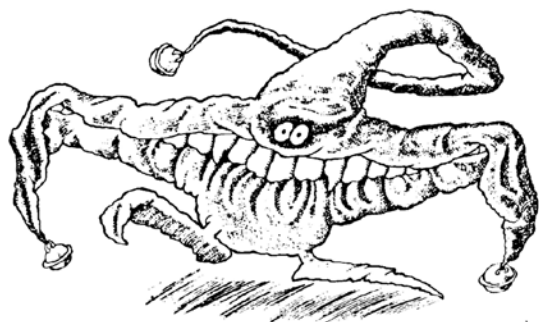
- Spicy noodles: 8/10. The first bit of flavour I had since my hospitalization. It took me two days to finish them, thanks to my medication-induced loss of appetite, but goddamn they were good.
- Shrimp Crackers: 10/10. Shrimp. Cracker. What more could you want?
- Dried Spicy Tofu Snacks: 9/10. Spicy, tofu-y and snack-y. What more could you want? Shrimp crackers. You could want shrimp crackers
- T&T Chocolate Crepe Sticks: 9/10. Crispy, chocolate, crepe-y. What more could you want? Shrimp crackers. I still want more shrimp crackers.
- T&T Pork floss, right out of the jar: 10/10.

CrownFire Fire Protection & Life Safety

N thoughts

- Saving money all the time is exhausting and I want to splurge right now
- MC is too dusty
- I would like to blow my nose and pee at the same time
- I would like to ride every bus in Waterloo in one day but it also seems like a waste of time
- Phenomenal things seem a lot more exciting in my head than when they end up happening
- I'm worried that I'll spend all my money on bubble tea because I bought bubble tea for the first time last week
- I haven't done shit today because my coworker and I were having a deep discussion about the Christian mafia in Brazil
- People have genitalia hanging off of their body every second of every day, even if they're clothed and polite
- People should sit with straighter backs
- I don't have many thoughts
- What if I got pregnant today?
- How do you notice when someone is Jewish?
- I want to go bald today, but then not have that be a problem later
- I don't think I've changed much in the last year, except for the people I miss
- Will you be my co-author? Jk... unless?
- She 9 on my 11 till I never forget

A cool pen name



Humans vs ChatGPT Part 1

Can mathNEWS Writers Pass the Turing Test?

I want to start my article by actually talking about some relevant math news. One of the biggest sci-fi magazines, *Clarkesworld*, has recently closed its submissions temporarily in response to receiving a deluge of computer-generated stories. This has prompted many discussion about the repercussions of ChatGPT, including whether AI will ever get good enough at writing to replace humans in creating artistic prose.

Personally, I have strong feelings about this. In short my answer is NO. But instead of waxing philosophically on the merits of human creativity I decided it would be more fun to put it to the test.

I gave several writers and ChatGPT the following prompt: *In 100 words or less, tell the story of a human trying to pass the Turing test.*

By following this link or scanning the QR code you be given a short survey with the stories written by humans and ChatGPT in response to the prompt. You will be asked to identify which is written by ChatGPT and which story is your most and least favourite. Can you sus out the imposter?

I would really appreciate if you took the time to respond and enjoy all the wonderful stories that people wrote. I will be sharing the results in the next issue of *mathNEWS*. I have a lot more to say on this topic but I don't want to bias the results.

Link to the survey: bit.ly/3mczTd1.



Thank you to all these writers for contributing to this experiment: Pockets, Meaningless Quips, tendstofortytwo, a decaying skeleton, Velvet Duke, and Morgan Anderson. And an extra special thanks to my friend Neigh for their assistance in creating the survey. Creating the survey ended up being so much more annoying than it really had to be.

BeyondMeta

That Time I Flushed the Toilet and Everything Went to Shit: Part 1

The great beast before me smiled, then laughed—a growling, wicked laugh which shook the whole cave and sent the stalactites around us crashing down. The ground beneath me wobbled, but I remained as steadfast as I could, steeling my nerves. In the dim, wet light I could see the prone body of Satie—drenched and unmoving underneath his heavy grey coat.

“You took everything from me,” I heard myself speak. “My Sachertorte, my dignity, and now even my own roommate. You’ll pay for this!”

“Go on. Do your worst.” The ugly, booming laughter resumed.

Clenching the rod in my hands, I mustered my fiercest battle cry, sprinted towards the beast, and leapt in the air. For what else was I supposed to do?



The day had begun like any other. I was in my apartment’s kitchen, preparing the chocolate icing for my cake which was already heating up in the oven, when Satie burst in.

A word about Satie: we’d been roommates for a few years. Although we both went to the same high school, we never formally met until we had both moved into our current unit. He had a reputation for being a bit of an oddball—a reputation which I would eventually be able to corroborate, given my first-hand witness to his strange reclusiveness, strange mannerisms, and strange penchant for loudly banging on the piano in his room in the middle of the night. Despite his quirks, we managed to eke out a comfortable, congenial coexistence.

Or so I had thought.

“Robin!”

I jumped in surprise. “Satie? Is something wrong? I’m a little busy making Sachertorte here,” I said, making a gesture towards my baking supplies on the countertop.

Although his expression was as inscrutable as always behind those coke-bottle glasses of his. I could tell he was not a happy camper. “You will come *avec moi*, Robin. Now.”

Before I could protest, he grabbed my arm and pulled me towards our bathroom. He pointed to the toilet, which looked as normal as it had ever been.

“*C’est bouché*,” he said.

“You tried flushing it? It’s clogged? Well, okay,” I said. “So what?”

He stomped his foot. “You have not been doing your job. It’s your job to clean the toilet. And you have not been doing it. *Maintenant c’est bouché*.”

I let out a sigh of exasperation. “I’ve just been really busy lately, Satie, can you blame me?”

“I noticed you have been neglecting to clean the shower as well.”

I nearly rolled my eyes. “Come on, you seriously can’t expect me to scrub it *every* week. And it’s a shower—doesn’t it clean itself when you turn it on?”

He huffed. “And yet you have so much time for your practice of making pretty little *petits gâteaux*,” he said, fluttering his pale fingers in the direction of the kitchen.

I was indignant. “Like you don’t enjoy eating what I make? It’s called *pâtisserie* by the way, and it’s a culinary art. I thought you’d know that word, you know, with you being *you*.”

I saw something that might’ve been the microscopic twitch of an eye. “*Et puis quoi encore!* You fail to do your chores. You disrespect and slander me in front of the reader. *I’m* not the oddball, *you* are, you pesky patissier.”

“I don’t know what you’re talking about, but that’s it. I’m not making you any cream puffs tomorrow.”

“I don’t care. I’m lactose intolerant.”

A dead silence hung over the air for a while, as we locked stares with each other in a standstill. It was broken with the sound of a groaning stomach, coming from Satie’s direction. He put a hand over his abdomen, clutching it.

“My God,” I said. “Did you forget to take a Lactaid earlier?”

“*La toilette*,” he said weakly. “Fix it.”

I walked over to the toilet and pushed down hard on the handle. The sound of water flowing into the bowl could be heard, but not the sound of it draining out.

“Do it properly,” I heard Satie say. I tried flushing the toilet again. The sounds emanating from the toilet grew louder, but the water still refused to drain.

“Stop being so stubborn,” he said. “Plunge it.”

“Come on, Satie,” I said. “We can just flush out whatever’s blocking the pipe. Trust.” I pushed down on the handle for the third time. The sounds grew louder and angrier still.

“Robin, please be serious.”

“I am being serious. Trust me.” I flushed the toilet again. The air around us started to howl as the vortex within the bowl spun ever more violently.

He grabbed my sleeve in desperation. “Why don’t you listen to me? Use the plunger,” he yelled, picking up and thrusting the plunger into my hand.

I tried to shrug him off. “One more flush. This is gonna be it, Satie,” I yelled back. “TRUST. ME.”

He might’ve shouted something then, a warning or a plea. But I couldn’t hear it over the roar of the growing vortex within the toilet bowl. I reached for the handle and pushed it down for the last time.

“Non!”

The air around us screamed as it began to be sucked into the vortex. Objects in the bathroom shook in place before they too were pulled into the dank and wet depths of our porcelain throne. Soon I could feel myself getting pulled towards the maelstrom, and after some flailing about in the chaos, I grabbed onto the rod of a towel rack attached to the wall with my free hand.

“Satie!” I called out, waving the plunger about. “Where are you?”

I felt his weight as he grabbed onto the end of the plunger. “This is all your fault, *connard!*”

“What did you say? I can’t hear you!”

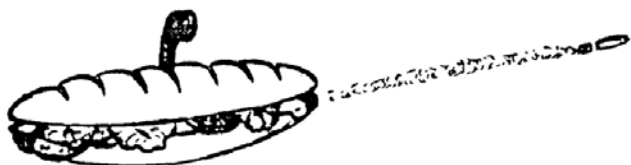
At that moment the bathroom door was violently wrenched off its hinges by the maelstrom and, narrowly avoiding us, was sent tumbling into its midst. The rest of the apartment began to be drawn into the vortex. In the flurry, I spotted a flash of brown—my precious Sachertorte, which had been ripped so prematurely from the warm caress of the oven. Behind it followed a mysterious-looking spiral-bound notebook, whose pages flapped sharply in the howling winds. Both were quickly swallowed into the depths of that terrible vortex.

“My manuscript!” Satie cried out. Instinctively, he reached for the notebook, loosening his grip on the plunger ever so slightly. Before I realized what had happened, he was gone from the end of the plunger, snatched away and sent to his watery end.

“Satie!” I cried to no avail. The toilet’s tumult was relentless. It was all-consuming. And it wasn’t long before the towel rack gave out and I, too, would find myself unwillingly delivered into the eye of that evil storm.

To be continued next issue.

Finchey



*mast*HEAD

Hey, they used to put subtitles on these

Alright, distractED here. This time around we have for you the ‘93-‘02 issue of the anniversary volume. Now this one is meaningful to the writership because this decade covers all of our birth years— wait, what? It doesn’t? ... huh, I feel old.

During this decade the *mast*HEAD became more often typed rather than written, so I get the wonderful job of filling perhaps more space with denser text. Type type type, aren’t I doing such a good job?

Anyway, in this issue we have for you many articles and two styles, representing a slight change that happened during the 90s. (If you haven’t noticed, this half of the issue has a slightly different look from the first.) In terms of articles, we have four(!) former editor *math*ASKS and an editor THOUGHTS, six(!) N things articles (I’m a big fan of *N things twins are tired of hearing*) and the first horror SCOPES in a term. It seems like this all fits with perhaps fewer review articles than usual, and “only” one page of *prof*QUOTES. (Look at how many *lower*UPPER-named articles that is!)

Readers informed? Space filled? Great! The question we gave to our writers to answer this time, considering a good amount of us were born in the decade represented, was *What’s one of your earliest memories?*, and our writers and their answers were aphf (Falling down the stairs this morning), skit (i was in a 1995 nissan quest that my parents were driving. we were right across from north york general.), someBODY (Honestly I can’t remember shit rn), Golden (My earliest happy(ish) memory is walking in the woods, wondering why people didn’t just draw compasses on paper.), curdish (I was 2, really into Q-tips. One day I was building a house out of them and then I got sick and vomited all over it. Tragic.), lwo (shitting in a bathtub), jeff (Lost and writing about poor teachers), hotfemoid (Setting up all my stuffed animals in little plastic chairs to watch The Wizard of Oz with me (longtime daily ritual).), Shahabee (Trying desperately to deliberately forget something), Finchey (The howl of an alpha she-wolf in the middle of a winter Yukon night... Mamma mia!), molasses (taking a picture beside a MASSIVE stuffed animal cow (he was barely a foot tall)), creature_f (i remember a gecko fell on my face one time. i think i cried maybe.), Not a N*rd (This morning), warrior1rules (Among Us), boldblazer (Getting chased by a giant dog at the playground, creating a fear of dogs that lasted until I became much taller than even the big dogs), cutlet (Feverish at night; I called out for my mom, and my dad brought me downstairs and gave me Motrin.), Xx_420SonicFan69_xX (Eating cotton candy for the first time at St. John’s annual regatta), Melon Expert (ODing on melons), and hv (Watched a guy OD on melons).

Clara “clarifiED” Xi (Riding the bus around town with my mom)
 Daniel “distractED” Matlin (Opening the *math*NEWS office door)
 Evan “evaluatED” Girardin (Losing my grip on reality via InDesign)
 Kevin “god ⚡ peED” Trieu (The pink carpet in my condo)
 Ryan “uknightED” Chow ()

Advice On How To Write Articles From Expert *mathNEWS* Writers

Molasses' Advice:

Take a terrible idea and play it really seriously. Also a good dnd character philosophy. Write about how beautiful MC is or something except as a sonnet. Anything can be poetic if you try hard enough. Source: The article I'm writing now is a serious article about this holy place that exists in Waterloo; it is the atheist's approximation of God, the Lowe's hardware store.

Director Michael Alexander's Advice:

Find a topic you like to write about and don't stop talking about it. Source: I'm gonna talk about astronomy for the next 5 articles and nobody can stop me.

Hotfemoid's advice:

Most people consider *mathNEWS* to be for everyone, and people even think the school newspaper is pretty much *mathNEWS*. So, you can pretty much write whatever you want, which for me is poetry and personal essays. In fact I go to a writing workshop before *mathNEWS* and submit whatever I write there to *mathNEWS*. Source: I wrote an article about not knowing what I was doing in my life and changes I was gonna make, and now looking back and rereading it and knowing people around the school have read it makes me happy. A lot of people reached out and gave advice too, so you can use *mathNEWS* as a way to connect with people who have similar ideas.

Curdish's advice:

There are a few things I do. Let me just collect my thoughts. Maybe circle back around.

Kermit's advice:

We are not good writers, we are good critics. Take a good idea. Keep shitting on your ideas until something good comes up. And that, kids, is how shitposts are made. Source: Everything I have ever written.

Pixel's advice:

I think about lots of random shit when I go for a walk, and pick things that I know a lot of things about. Source: I'm writing an article about the history of punk music, anchoring around a specific song and doing my research about it. I think it's something I know about that people would enjoy. I also try not to write about technical stuff cause it seems like everyone knows it anyway in *mathNEWS* (*Not a N*rd*: Hi *jeff*). I guess what I really look for is a thing or experience I know about that is shareable.

someBODY's advice:

Come up with your own ideas. Don't do what you're doing right now. Stop. Don't do that.

creature_f's advice:

Have trauma.

Source: *The Axe Forgets* (great article).

peacelovemath's advice:

Write a really shitty article so you can get pizza.

Source: N things twins are tired of hearing. (*Not a N*rd*: I thought it was a legit article but they promise it's not)

aphf's advice:

Write part two of N positive things about aphf.

Source: you missed some things last time.

Minamete's advice

Just be good at drawing.

Source: 


Golden's advice:

I wait until I hear or think of a profound sentence and turn that into the starting point of an article. Source: I wrote an article around the sentence "...when I look in the mirror, someone beautiful is looking back" I also start with a point I want to make and a structure I find interesting. For example, the first article I wrote was an article disagreeing about Waterloo being a supportive university. Short stories of people being kind to me and my experiences with depression were woven together into one cohesive idea that felt effective.

Not a N*rd's advice:












Just outsource it.

Source: *Golden*

Disclaimer: I paraphrased everything here because people talk faster than I type. I might've completely gotten the wrong message. Sorry 

Not a N*rd

My Friend is Telling Me About Strawberry Jam

I was hanging out  with my friend watching her try out some new strawberry  jam  she found!! Apparently her strawberry  jam  has lots of bunny  hops in it and is sort of difficult to eat . It's too much for her to finish but it still looks like she's enjoying  what she's having and sometimes having fun  is the most important  part even if you don't finish 

enamour

You Are Not Too Cool To Call A Zombie A Zombie

Look, I *really* like the The Last Of Us show. Besides just being a expertly acted, written, and shot story with excellent characters and worldbuilding, it's also so refreshing to see a video game adaptation that doesn't feel the need to screw with the fundamentals of what made the original story compelling in a misguided attempt to appeal to some mythical "broader audience" (like, say, the Halo show, which broke my heart and gave me game adaptation trust issues).

But there's something there—a tiny piece of world-building—that drives me absolutely *crazy*. The zombies in the show aren't called zombies. They're called *The Infected*.

I hate this. Just call them zombies. Why don't you want to call them zombies? I don't understand at all. In The Last Of Us, the apocalypse happened in 2003. They knew what zombies were in 2003. There's no reason that people wouldn't be using "zombie" to refer to reanimated dead bodies that want to spread an infection to other people.

Is it to give your world a sense of unique identity? I can see the logic, but it backfires for me. Zombie movies/TV shows tend to start in our own world before devolving into chaos, and implying that everyone in the world would suddenly get amnesia about the cultural idea of zombies is ridiculous. The only reason they'd invent a brand new word is if everyone on earth got a note from a writer at Naughty Dog saying that it was important for branding purposes. It completely takes me out of the otherwise excellent worldbuilding.

Is it because the word "zombie" sounds silly and you don't like the cultural connotations it has? Well, maybe you should have thought of that before making a zombie show!

I'm picking on The Last Of Us here, but other pieces of zombie media do this too. The Walking Dead has their zombies known as Walkers, which is a *much* dumber name. Isn't every animal with legs a Walker? If I was in the Walking Dead universe I would absolutely be the kind of obnoxious dipshit who would say "Look! A Walker!" and then I point to a cow or a horse ambling down the empty streets, then my fellow raiders would shoot me and tell our camp of survivors that the Walkers got me.

Or maybe I'd use my wicked sense of humor, which the post-apocalypse has not dulled, to come up with even dumber names for the zombies. I'd propose calling them The Rotters, or The Ugliers, or The Average CS Students. This one would probably result in me actually getting fed by my friends to a bunch of CS students, but I think it would be worth it.

As an aside, I think it's very funny how the COVID pandemic has proved that if a zombie apocalypse ever did happen, there's at least a solid 20% of the population who would immediately try to find the nearest zombie to open mouth kiss in order to prove something to someone, somewhere. No government goon is going to tell me I can't let my own brains get eaten!

If I wanted to tie this article into a larger point, I could say something about how this is emblematic of how a lot of genre fiction or adaptational work feel ashamed of the thing they're based on, and thus feel compelled to sand off the silly parts in order to make something "adults can enjoy now!" I could tell you how, to me, this doesn't prove maturity- it instead demonstrates a deeply juvenile fear of "looking silly", and how the truest sign of maturity is being able to grow beyond this anxiety and understand we can embrace goofiness without becoming less sophisticated or having our stories be any less meaningful.

But I respect you too much, dear reader, to lie to you. And the truth is I have no deeper point to make. I just really, really, *really* hate calling zombies anything but zombies. And in my little corner of this fine publication, I wanted to rant about it. And no one's stopped me yet.

Dick Smithers

Changing my *mathNEWS* name *goodbye wewlad, hello lwo*

Yeah, I've now found the name "wewlad" tired and overused. It was funny the first few times when I wrote it everywhere I could during quizbowl, but now it's just nonsense. Saying it all the time must be getting people not as familiar with the meme more annoyed than amused.

All articles from me will be under the name "lwo". Why? It's backwards for owl, and owls are cool. It's also a typo of Leo, my name :)

lwo

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mathASKS 151.3 — Part Four*Featuring Matt “So-Krates/ΣEd” Walsh, mathNEWS editor, 1996–1999**“What program were you in? What drew you to it?”*

I graduated with a Pure Math/C&O double major; I’d started out intending on PM/CS but realized around 1B that (a) I really wasn’t enjoying coding, (b) the C&O 230 course I was taking at the time was much more interesting. So I made the switch and never really looked back. (And it’s the C&O side that I’ve largely pursued since, so that was lucky for me.)

“What involvement did you have with mathNEWS? What drew you in?”

I was editor-trainee during W96 and then spent six terms as either editor or (usually) co-editor from F96 to S99. My first two terms were co-editing with Brian Fox aka Latrell aka the Calculus Cowboy; W98 was solo, then F98, W99, and S99 were with various combinations of other editors. I was around during S98 but can’t remember at this point whether I was officially an editor or just sort of hanging about.

I got started in 1B—I was friends with Stu Pollock, one of the editors of the time, and he brought me in to help with maybe trying to modernize the production system (which at the time meant moving it off of pLaT4mN, the LaTeX/PostScript-based homebrewed system we used at the time, and towards a more user-friendly desktop publishing system). I’d worked with Aldus PageMaker during high school, but the system we tried to use was Corel Ventura, which... was not very intuitive either.

“Were you involved in any other clubs at Waterloo?”

Several: MathSoc, PMC, Math Orientation, MGC, MEF, FASS, the UW Bridge Club... probably others, plus I was one of the Comfy Loungers of my generation. There was a bit of overlap between *mathNEWS* and the Society, and with the PMC, but not so that you’d remark on it.

“Thoughts on Feds/WUSA, MathSoc, and student government generally?”

It’s fine? Honestly when I went to the States for grad school and saw how they handled student government there, I realized how good we had it. MathSoc in particular tried to be useful to the student body, as I remember it.

“How did you feel about Imprint, Iron Warrior, and other newspapers on campus?”

To be honest, I didn’t spend a lot of time thinking about them. I never saw *mathNEWS* as being in competition with the other publications—we weren’t trying to be journalists for the most part, we were a humour magazine that also printed MathSoc and math club publicity pieces.

“Describe your average production night.”

People would congregate between 6:30 and 7:00. We’d have a quick discussion of any items people particularly wanted to write about beyond the standard columns, then everyone went to the XTerms; the editors would dump email submissions into pLaT4mN and people would write, proofread, and format. Pizza usually arrived around 8:30, maybe? We switched to New Orleans Pizza during my era, I think it was Gino’s before that.

“What kind of articles did you write for mathNEWS?”

I started with a regular-ish column of light flights of fancy called “The Philosopher’s Stoned” (my *mathNEWS* nickname was “So-Krates”, for reasons too recondite to get into here). Later I wrote whatever needed writing, mostly—being involved with various clubs meant that I was often writing the publicity bits for them in mN. Maybe my proudest moment was writing a theatre review: UW Drama was putting on “Salt-Water Moon” by David French and they comped me a preview ticket so I could write about it.

“What’s the most memorable and/or scandalous article published in your time at mathNEWS? Anything you were personally proud of?”

So during my solo term, a few old hands (who were former and occasionally future editors) put together a special feature called “You Don’t Know Math”; this was a take-off on the “You Don’t Know Jack” line of trivia games—computerized game shows laden with sarcasm and irreverence. I didn’t have much involvement with it; they put it together and we just kind of dropped it into place. So far, so good.

Thing is, though, one of the aspects that they used was that when you’d finished a game and the computer waited for you to hit the “quit” or “play again” buttons, the games would play fake ads in the background audio. The high concept they used for one of the ads was: what if a sex line, but it’s for a MathSoc meeting? (Cue innuendos on “second my motion”, etc.) And that would have been just fine, if the name they’d chosen for the speaker in that ad wasn’t the name of one of the current MathSoc execs.

“In mathNEWS, we see a huge mix of serious and silly articles, with articles ranging the gamut of humour, depression, bodily fluids, trauma, and some math now and again. Does this wide breadth of content match mathNEWS when you were most active? Are you surprised by what it’s like now?”

No, that sounds about right. We had a lot of jokes and fluff, but also a fair number of personal essays and occasionally actual news.

“Tell us about a mathNEWS meme/inside joke from your time.”

There was a somewhat infamous cover from... Winter 95, I think? “What students should be doing before the next election” vs. “What they will be doing” and “What the editors should be doing on production night” vs. “What they will be doing”. The illustrations for the “will be doing” both involved intercourse between a human and a canine.

Anyhow, so one production night—winter or spring 1999, I think—the editorial collective is sitting around and drawing a blank for what to put on the cover. One of my cohorts was doing the UW/Conestoga journalism option and had his portfolio from his photography class... and one of the images was a German Shepherd running in a field towards the camera. So we ran the photo with the caption “It’s Election Time Again!” for the cover and gave no further explanation.

For something a little more printable... so there was an end-of-term party where several of us ended up back at someone’s apartment, watching television. And the program that we stumbled upon was a fishing show, but one that was trying way too hard to be intense: weird camera angles and movements (and random switches into sepia tones), supremely dude-like hosts who were so excited about everything, with high-fives and “that’s so EXTREME!” It was ridiculous. So Brian Fox and I started mocking this, pointing out when things were SO EXTREME and then launching high-fives at each other that inevitably missed. This continued to be a thing for some time thereafter.

“Do you have any interesting stories, photos, or memorabilia from your time in mathNEWS?”

I’ve never been someone who keeps photos very well. I’ve probably got a stack of old *mathNEWS* issues somewhere, likely in my old bedroom at my parents’ house. It’s entirely possible there are some obscure relics still on the *mathNEWS* shelves that date back to my era, though. Such as...

“mathNEWS’ constitution stipulates that, if mathNEWS is to dissolve, the final editors are to drink the bottle of Orbitz in the office as their final reward. Why didn’t you drink the Orbitz?????”

OK, so a couple of things here. First of all, I was one of the editors when the Orbitz bottle came into the office: it was this new drink being offered at the C&D, and someone (probably Brian, but possibly another volunteer) came into the office with it and put it down on the desk. And we all stared at it for a while, and then it went up on the shelf, and we never opened it ever.

(The other odd thing about this question is that *mathNEWS* had nothing even approximating a written constitution at the time. When did that happen?) [Editor’s note: 1989.]

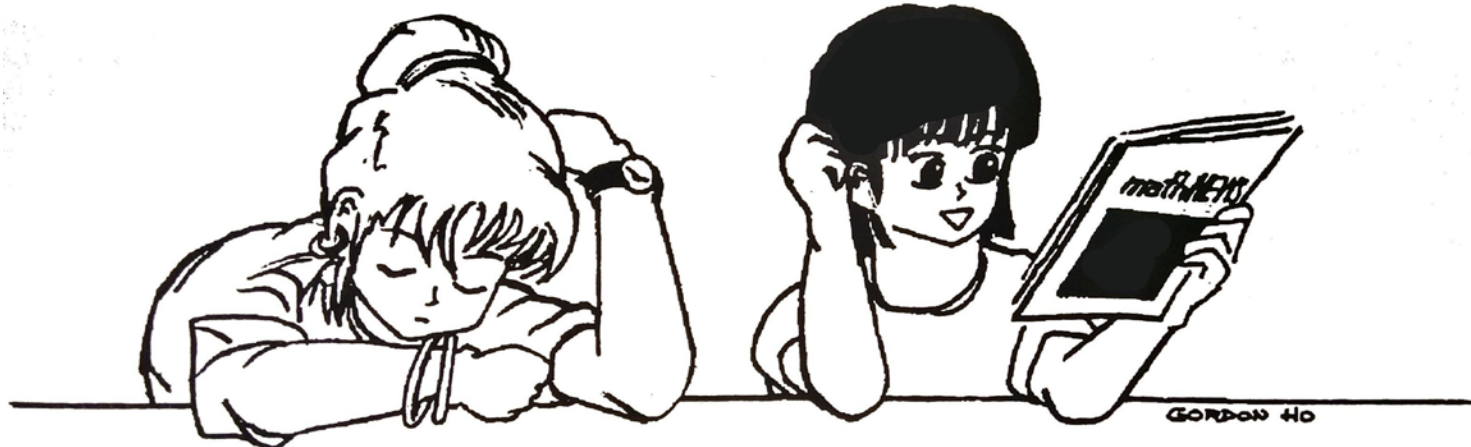
“What effect did mathNEWS have on your life as an undergraduate and beyond, if any?”

I’m not sure it’s had a lot of direct effect. I’m still in touch with some of the folks I knew through *mathNEWS*, so there’s that. And having the practice writing was definitely helpful. In my subsequent career teaching in universities, I think knowing about *profQUOTES* has certainly informed my lecturing style—in that way of the profs who would lean into it.

“Have you kept track of mathNEWS at all since graduating?”

I received the free issues—when I graduated it was one year of mail subscription for every term you were an editor, so they followed me through graduate school and to my tenure-track position. After that I didn’t track it very closely, though I’ll usually flip through the current issue when I’m back on campus.

(In case any of your readers have observed the phenomenon of random 40-somethings suddenly flooding the lounge on Good Friday, BTW, that’s largely made up of lounge denizens from the late ‘90s who’ve made a practice of returning to play games once per year thereafter.)



WHO SAYS THERE'S NOTHING TO DO IN CLASS?

“Is what you’re doing what you expected when you graduated?”

Yes and no? My life took a bit of a turn when I moved back to Canada; I’ve been teaching online ever since, which wasn’t really a clearly-defined career path at the time.

“How do you look back on your time in mathNEWS?”

It was good, to have a place to be creative. And to have an office to keep my stuff in. Also stressful, but usually good stressful.

“How has life been for you since graduating?”

Fine, thanks for asking. Ph.D, married, one kid, minor award for mathematical research.

“Why do you think mathNEWS lasted so long?”

It serves a niche. Students need something to read at the end of the week when their brains are otherwise sizzled by their classes. And math nerds have diverse interests, and there’s always going to be enough of them interested in writing and the mechanics of publishing to keep things going.

“In retrospect, do you think past-you would have imagined that mathNEWS would live to see its 50th anniversary? Do you think it will live to see its 100th?”

I’m not surprised it’s lasted this long. Whether it gets to 100 might depend on whether printing is still economical at that point, but even then there’s always the online edition.

“Would you want to be contacted for mathNEWS’ 100th anniversary?”

I’ll be about 97 when that happens, but if I’m still kicking around—sure!

Matt Walsh

when the emoji is sus

Who would win? EmotiBattle edition

EmotiClops v.s. EmotiHeart



Cultured EmotiGuy Enjoyer

How did John Argyropoulos die?

“supposedly” of consuming too much watermelon



It’s a long story, but I wanted to find out how John Argyropoulos died. Wikipedia said “He died on 26 June 1487 in Florence, supposedly of consuming too much watermelon.”

That’s a ridiculous way to die. How could that be true? It couldn’t *possibly* be true. My friends and I decided to investigate during production night.

The source for that didn’t include a date (only a year), so I edited the Wikipedia article and now it says “He died on 26 June^[citation needed] 1487 in Florence, supposedly of consuming too much watermelon.” Also other sources don’t agree on that year but oh well.

We started with the source on Wikipedia, which cites several other sources, but they didn’t lead to anywhere where we could find copies of the sources on the Internet.

↳ took this path (not including detours to various Latin books, among other things)

1. Wikisource, 1911 Encyclopædia Britannica article on John Argyropoulos
2. *Dictionary of Greek and Roman Biography and Mythology* by William Smith
3. *Dictionnaire historique et critique*, which is a French book published in 1697
4. *The Life of Lorenzo De’ Medici: Called the Magnificent* by William Roscoe and Thomas Roscoe

As I write this, I am trying to OCR the French book from 1697 to search for information about John in it. The book is over 2000 pages. All 8 of my laptop’s CPU core’s are at 100%.

Time is running out here at production night, so this article will be continued in the next issue.

Melon Expert, ↳, and UW Unprint

CO 380 Review

I believe that instead of going for only fall-winter terms with a break in the summer (for all you non-co-op people), I think it is better to have study terms during the spring term too. Screw fall-winter! Try sprinkling in a couple study terms in your summers, and switch up your breaks to be perhaps in winter when it is too cold. Now, there are many reasons behind this, weather sure being a big plus, but one small yet significant reason is the course CO 380, which I took in S22. Don't let the CO designation fool you. It could be given the name MATH 380 and still work. There's probably a reason it doesn't count towards specific CO requirements.

CO 380 and CO 480 are a pair of courses that are only offered in the spring term, CO 380 on even years, CO 480 on odd years. I have not taken CO 480 before so I can't speak much for it, but it is about the history of mathematics, and it being a math course, you may not expect it but it turns out that it does involve writing essays, which I had been told by my CO 380 professor.

On the other hand, CO 380 is nowhere near CO 480. I have heard CO 380 described as "Math Contests: the Course" but I wouldn't necessarily just give it that description. When I took the course, we ended up going through 111 problems, but not everything were from actual math contests. Math contests problems were not the main focus. The main focus is different problem-solving methods that could be used for any kind of math problem one may come across, not just math contest types of problems. There was a wide range of problems from just about every area of math: splitting the problem into cases, parities and invariants, iterated function definitions, geometry, arithmetic and geometric series, HM-GM-AM-QM inequality, triangle inequality shenanigans, absolute value shenanigans, polynomial stuff, vectors, some amount of number theory, and yes actual CO topics like combinatorics and graph theory too.

I think it is always the case, but a CO professor was the one who taught my CO380 so there was a slightly higher proportion CO related problems in class but overall the spread of content was good enough.



I think everyone could take this course, but what kind of specific people would benefit more from taking this course?

If you are someone that perhaps isn't the best at writing proofs, this class is an excellent opportunity to be able to work on writing proofs for questions that are more familiar, instead of on brand new never-before-seen content like in other courses. There will be plenty of assignment questions that need induction, and you do plenty of that. There will also be plenty where you need to split your proof based on different cases (get used to writing WLOG and WMA). There will be plenty of opportunities to turn all the stuff in assignment questions into mathematical objects and to organize an argument based on what you have created.

Do you lack "happy chemicals" in your brain? In regards to classes, I've had some of the most fun and excitement working

on the CO 380 assignment questions. Every assignment ended up having at least one "ah-ha" moment, and it is such a satisfying moment.

Another thing I should mention is the grading scheme. Sure, it isn't guaranteed to be the same grading scheme every time, but it was about the best grading scheme I could have asked for at that time. It was 70% for 6 assignments and 30% for 6 in-class quizzes, and no final exam! If you hate final exams, perhaps when you take it, you will be lucky too and end up with this grading scheme.



If I had total control and power over this university, I would probably find a way to turn CO 380 into a course that is able to be taken earlier than the 3A requirement, maybe even in first or second year. Of course, this would mean making it so that this course is offered more frequently than once every two years in the summer. Honestly, I think they should just increase the offering right now regardless. If that can't be done in the near future, then unfortunately the only thing that can be done is just better advertising to more people about the existence of this great course.¹

Take CO 380! Don't miss your chance! The next time it is offered is for the summer of 2024. Don't forget!

boldblazer

1. Now you know why I wrote this article.

Stool Scores

If you know me, you know that I love talking about stool scores. I think it's important to check in with your friends and talk about your physical and mental health, and within that, it's important to talk about your poop! It makes good conversation as well, especially if you just had a really satisfying poop and want to celebrate.

You can find stool charts online, but it can be summarized as follows: it's a 1-7 integer scale, with 1 being the most dehydrated poops (highly constipated), and 7 being the most hydrated (highly runny diarrhea); most people should aim for 4. Personally, I consistently score a 3, which points to me always being a bit dehydrated; I can tell you from my personal water drinking habits that that rings true!

Of course, if you see anything concerning long-term, like consistent 1s or 7s, or other concerning things like non-brown poop or blood in your stool, you should go to a doctor (preferably a GI doctor). But just because you have to be concerned about your lows, doesn't mean you shouldn't celebrate your highs! Pooping is a marvel, and dare I say fun? So go out, rate your stool, and share it with your friends!

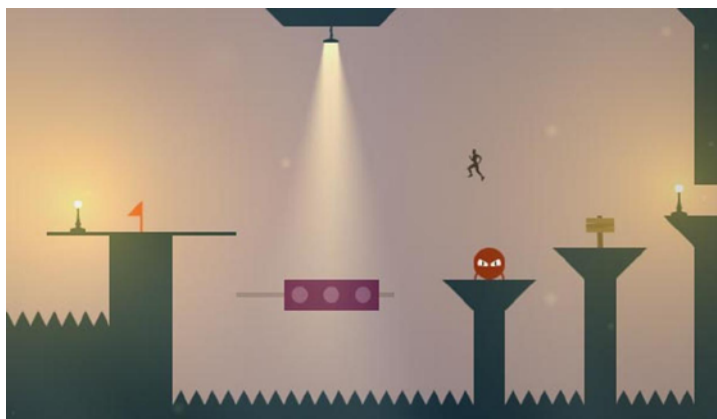
The Best Platformers on Coolmath Games

In No Particular Order

Over my time in the Canadian educational system, I've spent many hours on coolmathgames.com. I've probably played half the site's catalogue by now by sheer force of procrastination, thanks to which I've experienced some of the best and worst it has to offer. Using this experience, I have compiled the following list of what I believe are some of the best platformers on Coolmath Games, perfect for choosing a game to play during a boring lecture, when you don't feel like working on assignments or side projects, or if you just want to play a quality browser game.

Note: This list is restricted to the platformer genre because I've noticed that I'm heavily biased towards platformer games so it would look awkward if I tried making a cross-genre list which is just 80% platformers. Which is a shame, because some of my favourites on the site aren't even platformers, but maybe I'll get around to recommending those in another article. Also, this list doesn't contain any Flash games since most browsers don't support those anymore :(

Jumphobia

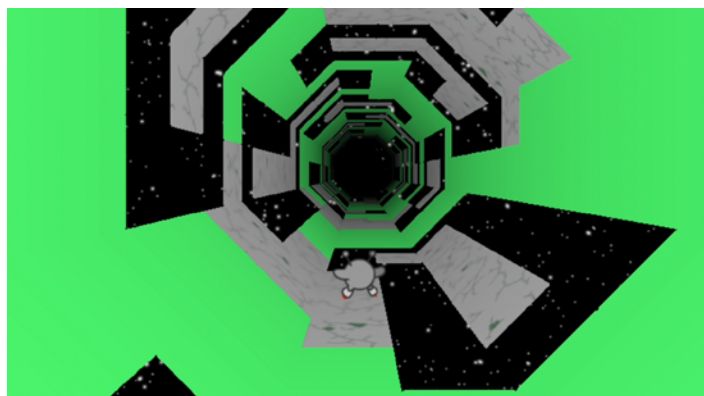


The idea of this game is really simple, but its execution is so good that it puts the game in a league of its own. In Jumphobia, you can only control your character's horizontal movement, with your character autojumping upon walking off of a ledge. Building off of this simple mechanic, the game then slowly

introduces more gimmicks to give the levels more variety, which makes for a fantastic gameplay experience thanks to the genuinely great level design throughout. There are also plenty of levels to play, so the fun won't run out for a good while.

Note: In the late-game level Fork In the Road, there is a screen where the level splits into three paths. The rightmost path is impossible to go down, but interestingly enough there is a way to access the other side of it if you go up backwards through the exit of third path on the screen where all the paths converge again. If you can pull this off and continue climbing up, you will eventually find the unfinished screen where the entrance to the third path leads to. The first person who can email a screenshot of this screen to throwawaygiveaway-email@gmail.com will win \$20.

The Run Series



Everyone knows by now that the Run games are certified 4th grade computer lab classics, but I'd like to give a special shoutout to Run 3 for improving on Run and Run 2 in nearly every way possible. Unlike the other games, Run 3 has an actual story, which is surprisingly compelling. It also extends the gameplay of Run to hallways with more variation in shape, introduces a much better infinite mode, achievements, more characters, more levels, more gimmicks, and even has some advanced movement techniques (for example, you can fling yourself sideways into

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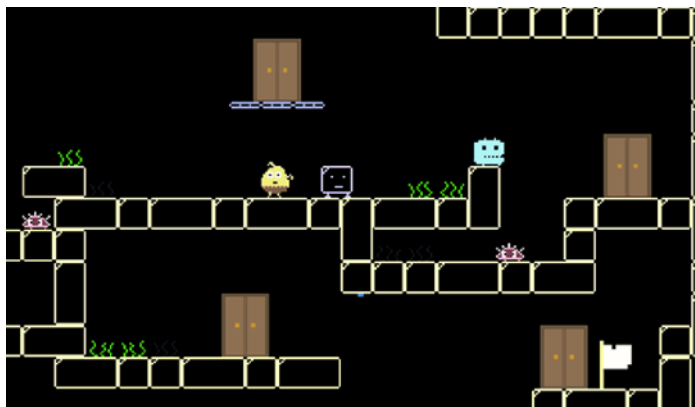
The continued existence of the Most Important University Publication Ever is at stake.

Interested? Email at mathNEWS@gmail.com

Gmail hasn't been invented yet? Don't worry about it.

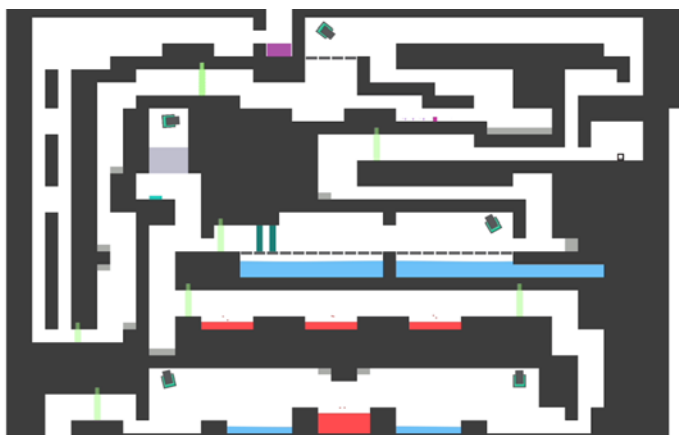
the void and then reenter the tunnel at a later point to make some really far jumps).

Detective GUI



If you like Baba is You, this game will be right up your alley. Detective GUI is an RPG/platformer/puzzle game where you use the game interface to progress through levels and solve the game's overarching mystery. This game gets pretty creative with its mechanics, leading to many "oh shit you can do that??" moments, and as such it becomes very fun to solve the puzzles and find the bonus areas along the way. My only major criticism of this game is that a few of the puzzles are a bit tedious to do, with some of the levels in Worlds 2 and 3 being the most notable offenders, but aside from those the game is a thoroughly enjoyable experience.

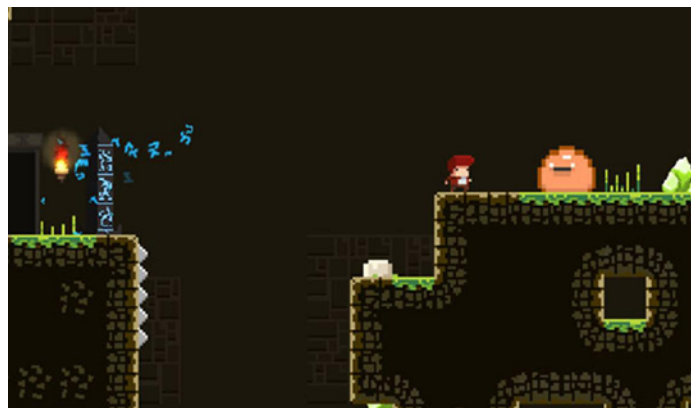
The Big Tower Tiny Square Series



Despite the humour in this series not exactly being timeless (you can still find PPAP jokes in the first game), and your square being so tiny in the first two games that it can be hard to spot at first, the Big Tower Tiny Square games are well-designed, challenging classic style platformers with a cool series signature gimmick. Each instalment also has a unique style and its own new mechanic, which adds a fun change of pace to each game that keeps the series fresh while maintaining the things that made the games great in the first place.

Note: Confusingly enough, Big Tower Tiny Square 2 isn't the second game in the series. The actual order is currently Big Tower Tiny Square, Big Ice Tower Tiny Square, Big Neon Tower vs Tiny Square, Big Flappy Tower vs Tiny Square, and finally Big Tower Tiny Square 2.

Blightborne

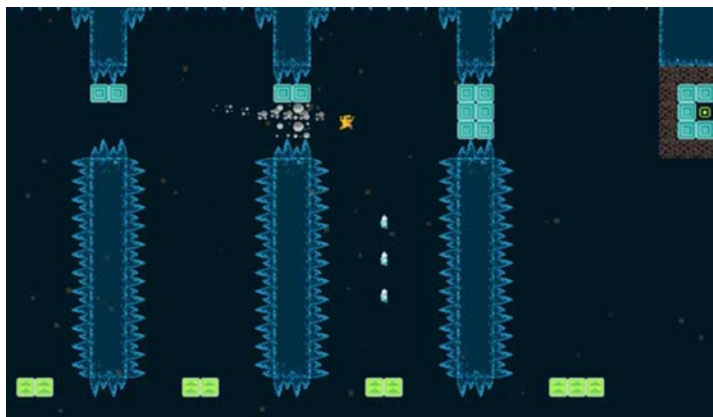


This game is a real hidden gem. When I first played it, I was surprised that I had never heard of it earlier despite how much fun it was. Although many of Blightborne's assets are very clearly ripped from all over the place, making the game's style less cohesive, it is otherwise a really neat platformer RPG. Packed with lots of content, the game has several large levels, fun bosses, and game mechanics that are more elaborate than most other Coolmath games. In a way, it kind of reminds me of a dollar store version of Noita.

Amidst the Sky



Amidst the Sky is an adventure platformer where you parkour across sky islands looking for temples where you'll find new abilities, which, once unlocked, show you that paths to new areas were under your nose the whole time. The game has a charming art style, good level design, and fun game mechanics, as well as a secret ending unlocked by completing all of the secret obstacle course levels under a certain time limit. The game also has a pretty large map, so it's a great way to kill at least half an hour.

Honorable Mentions

Here are some more games that I wanted to shout out that are all great, but just not quite on the same level as the ones above. Be sure to check them out because this list is very much based on my own opinion, so you might like some of the games here more than the ones listed above.

- Another Gentleman's Adventure
- Le Chat Foncé Series
- The CircoO Series
- Deep Down
- The Illusory Wall
- MetroCubeVania
- Minor Miner
- O-Well
- Pip!
- Relic Splatter
- Rock Hopper
- Rotate
- Scuba Bear
- Self
- Star Hunt
- Super Blue Boy Planet
- Tricky Keys
- Use Boxmen
- Worlds Within Worlds

Happy procrastinating!

the government's only spy

Holy fucking bingle

rem references twitter instead of tumblr this time

we did it

We survived the MATH 148 midterm

Congress is now investigating my horrible integration techniques but we stay silly :3

RapidEyeMovement

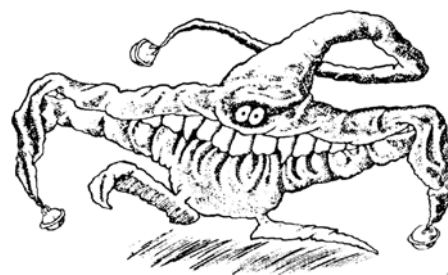
mathNEWS Tightens the Metaphorical Belt

Mark my words as I type this out on February 25, a week before this issue comes out—this issue's gonna be in the ballpark of forty to fifty pages. Hopefully closer to forty, for the trees of the world, *mathNEWS*'s budget, and the editors' sanity (after four years of close proximity with them, you sort of start to care; what's this "Stockholm syndrome" you speak of?). What is pretty much the largest issue of *mathNEWS* in all its history is the one released at the end of last term, 150.6, which is fifty-six pages long. My arrival was in 139.2, in February 2019—the editors made an *enormous* fuss about how long the issue was. (In the extant words of our recently, most dearly departed terrifiED, it was an "*absolute unit*.") 139.2 was thirty-six pages, and was the record-holder in size until 147.6 came along at the tail end of 2021. (That's the one with the Grace Jones cover, if you need help remembering it.)

Maybe you've seen it mentioned offhand here and there by another *mathNEWS* writer; last term, *mathNEWS* officially underwent austerity measures. A hierarchy of articles was introduced—there were "primaries" which enjoyed guarantees of inclusion not afforded to word-limited "secondaries." Then this term, to accommodate the 50th-anniversary interviews, the editors decreed a limit of 1250 words on the previously privileged primaries. No more poorly thought-out multi-page flash fiction spanners about going to Molly Blooms on St. Patrick's Day. (To be transparent here, I did get quite the flak for it from itorED in 139.4—I seem to recall some complaints about it "fucking up" the layout "by virtue of length alone." I also proudly remember how Sandwich Expert, License2Derive, and I made up a third of that whole issue. I haven't seen those names in *mathNEWS* in a long while.)

I'm about 300 words through the tyrannical 450-word allotment for a secondary. Do you know how the editors decide what secondaries make it in? Secondaries are *literal* filler, picked by hand to fill in the gaps left in space in between behemoth primaries. Filler and *mathNEWS* have been hand-in-hand ever since the publication was born. Just read any random 50th-anniversary interview and you'll probably find a mention of some need to pad out the pages back in the day. By the by, this is my very first secondary article. I sure hope it gets in—I'm trying to reach a certain article count milestone...

Of course, while the world around it continues to change, so much of *mathNEWS* remains ever the same. Like, as I've said earlier, its special relationship with filler... And the astonishing ability of its writers to write so much of little consequence; of absolutely nothing at all.



Finchey

Having Fun Isn't Hard When You've Got A Library Card

I love libraries. My mother made a point to take me to the local public library a lot as a kid, whether for books, events, or just to play at the park out back. I really appreciate that she did that, as now I have a great love for libraries and all they provide for people, families, and communities. Going to the library was definitely a habit for several years, but that fizzled out due to covid, and I never really went back.

Recently, I was inspired to rediscover the wonder of a library. And so, this past weekend I got a library card for the Waterloo Public Library. As I was not a resident of Waterloo before last year, I had never had one before.

I went to the main branch, which is in Uptown Waterloo, but there are also three other branches throughout the city that may be more convenient for you.

The person who helped me get a card said that they didn't usually work at this branch, and so didn't know where the regular blank library cards were. Instead, I got one with a detachable key tag, which normally cost \$1, for free! How fun! Now I have my library card barcode on my keys as well as in my wallet, which is very nice since I personally love having extra-jingly keys.

You should sign up for a library card too! I promise it's great. Not just books, but also CDs, vinyl, DVDs, audiobooks, and other things for rent that you wouldn't expect, like ice skates, and board games, and museum passes. Not to mention the events. All for free!

All you need is some ID (I used a driver's license, you can also use a student card, passport, or bus pass?) and something that shows your Waterloo address (I used a lease, you can also use a driver's license if you bothered to update it to your new Waterloo address that may or may not change every four months [or if you live here for real, I suppose that works too]).

Waterloo Public Library is also fine-free! Which I didn't know until just now as I was perusing their website. No late fees! This is an amazing way to remove financial barriers to the library, and many libraries have begun to adopt it in the hopes of better serving their communities. We love to see it!

I didn't check out anything this visit because I still have way too many books on the go or in a pile on my floor. "I'll just check out the bookstore for fun! I won't buy anything!" I say, like a liar. But now I can feel better about that, because the books are free! And here's hoping having to return them gives me the motivation I need to finish a book for once this year.

All in all, I had a great experience getting a library card and I highly recommend it. It's a great way to try new books without the financial commitment, or to spend some time inside on a cold winter day, or just to get out and explore the city.

Finding places of community in a new city has been really important for me as I continue settle into Waterloo. I don't want to be one of those people who lives here for university but constantly complains about it being a boring city (nothing against those people, honestly—everyone has a different ideal place to live and Waterloo can't be all of them at once). But for me, seeing as I've committed to live here for the next few years, I'm going to try to make the most of it. And a great way to do that is to get out and participate in the city, whatever that might mean to you.

normalparameters

N quick jams

This year, one of my resolutions was to diversify my music instead of beating the dead horses which are my beloved songs to which I have now developed a disgust, comparable to that of a spoonful of buttercream shoved in the mouth. So here I present my five line pitches of some jams from my cupboard. Take some home with you yeah?

Tomcat Disposables by Will Wood

pov you are rat!

The melody is sweet and simple with the instrumentation really carrying the storytelling factor, from the adrenaline of percussive turmoil to dying woodwinds and strings in bowed-out sorrow! Anyway, take from this song what you will, "do I belong in right and wrong" and all, but as a bonus now you've acquired a newfound empathy for rats, if you didn't have that already in your toolbelt of creatures to carry empathy for. Like the energy? Try "That's Enough, Let's Get You Home." from the same album! The last few stanzas have me feeling some unknown emotions if you know what I mean!

boy by Isaac Dunbar

I fell in love with this song because of the slow dragging feeling of the drums, and some tasteful non-tonic resolutions (and ofc those lushy maj 7's !) Dunbar's delivery is longing for reminiscence and desperately hopeful, together boiling down to a fermented feeling type of homogeny. The second half of his album "isaac's insects" has a similar feel so take a listen next time the moon's out!

Microwave by Ricky Jamaraz

They're putting SOMETHING in the voices of British boys because they're BUILT for this type of guitary nonsense lyric type music. Anyway, apart from the verses, what I'm HERE for is the reverb-land guitar and dizzily spoken word intermission. This song might only feel like a playlist garnish but nevertheless offers a soft and youthful burst of energy!

it sounded better in my head

The 100,000,000,000,000th Digit of π is 0

Who asked?

In 2020, I wrote the *Stairway Constants* series that covered all the numbers in the northeast stairwell of MC. In it, I reported that the record for most decimal (base 10) digits of π ever computed was 50 trillion.

Last year, leading up to Pi Day 2022, I decided to check again and found out that a team at the University of Applied Sciences of Eastern Switzerland had beaten the record with $\lfloor 2\pi \times 10^{13} \rfloor = 62,831,853,071,796$ digits. I really liked how they chose such a cute stopping point—if having more digits than there are fish in the ocean can be called “cute”.

This is the last *mathNEWS* issue that will be published before Pi Day 2023 coming up on March 14th, so here we are checking up again on the most iconic stairway constant. In June 2022, Emma Haruka Iwao (who had previously held the record at $\lfloor \pi \times 10^{13} \rfloor = 31,415,926,535,897$ digits) returned to take back her crown. After spinning the fans of Google Cloud servers for nearly 158 days, her team stopped at 100 trillion digits.¹

I'm a bit disappointed Iwao didn't find a more π -themed number to stop at like $\lfloor 3\pi \times 10^{13} \rfloor = 94,247,779,607,693$. Anyways, it doesn't really matter because I'm sure the record will be broken again by next year. The thing about computing π nowadays is that we've pretty much been using the same software called y-cruncher² by Alexander Yee since 2010. In turn, y-cruncher uses an extremely specialized algorithm published by the Chudnovsky brothers in 1988. Thus, the latest record is less a feat of mathematics or computer science than it is a feat of computer engineering, money, and patience. As computers continue to get faster, breaking records is as inevitable as Moore's law.

And inevitably, someday we'll have multiple teams attempt to break the record at the same time, and at least one of them will find all their work wasted. So, after finding the idea really cool for the last few years, I'm now rolling my eyes at this foolish and wasteful challenge. Heck, even if you do get the record, what is it really worth?

For Google, the stunt lets them show off how reliable and fast their cloud platform is for serious computing. People see computers as these perfectly deterministic reliable beasts, but they make errors too, just extremely rarely. One of the main engineering challenges when you spin a server for 158 days is that those errors become nearly inevitable. You constantly have to back up and double check your work. Google also boasts that it took *only* 158 days; they used automated techniques to find the best computer configuration, and without that insight, the crunching apparently could've taken twice as long. These solutions (among many others) are legitimately impressive, but I wonder if Google is now kicking themselves that they didn't spend that computer time training their ChatGPT competitor instead.

While we're on the topic of computing needlessly many digits, let's check in on some other stairway constants whose records have been broken:

- the $\lfloor \pi \times 10^{13} \rfloor = 31,415,926,535,897$ th digit of Napier's constant (Euler's number) e is 7 (David Christle, 2020–12–05)
- the $10^{13} + 10^3 = 10,000,000,001,000$ th digit of $\sqrt{2}$ is 8 (Tizian Hanselmann, 2022–01–05)
- the $10^{13} = 10,000,000,000,000$ th digit of the golden ratio ϕ is 2 (Clifford Spielman, 2021–02–14)
- the $6 \times 10^{11} + 10^2 = 600,000,000,100$ th digit of the Euler-Mascheroni constant γ is 5 (Seungmin Kim & Ian Cutress, 2020–05–28)

Together with π , humanity has spent over a year grinding away the world's fastest processors to get these digits that will never get used except to verify the leading digits of the next record-breaking computation. Since even the verification process is automated, most of the digits will likely never be seen by a human, ever.

Then again, humanity also spends decades of computer time running League of Legends every day. Maybe calculating π isn't so wasteful after all...

Exercise: give your computer a break and go to the gym.

water

1. <https://cloud.google.com/blog/products/compute/calculating-100-trillion-digits-of-pi-on-google-cloud/>
2. <http://www.numberworld.org/y-cruncher/>

You're Telling Me This *must* Gave Me HEAD

bottom text

creature_f

He's a
10 but

he only

writes two

word sentences

starNEWS 3

The Zodiac Part 1

Someday a long, long time ago, somebody got really high and decided to ask the stars what their future would be. In fact, quite a few people have: almost every ancient culture seemed downright obsessed with astrology in some form. Today, horoscopes are a massive business, yet few people know where they actually came from. Well, today I'd like to give a bit of background on the history and problems with horoscopes.



The Zodiac

Let's start simple: the Earth moves around the Sun, and compared to that, the movement of all the stars relative to each other is very small. So, while the constellations stay pretty fixed, the Sun appears to make a path across the sky throughout the seasons. Just about forever ago, humans noticed this and started to give special attention to the stars that came close to the Sun. In fact, some clever Greeks decided to split the Sun's path up into 12 30-degree sections, all of which had some sort of distinct pattern. Then, they would predict things about the future based on where the Sun was when somebody was born. These predictions would come to be known as horoscopes, and the band of constellations would be called the Zodiac.

Now, if you don't care about astrology, why should you care about the Zodiac? The simple answer is planets! Because the planets (except poor Pluto) all have orbits that are relatively in the same plane as the Sun's orbit, the whole gang really loves this narrow band of the sky. One of the easiest ways to find whichever ones are out and about is to locate the Sun's path, then trace through it and squint really hard at the first bright thing you can find. Also, the Moon follows the Zodiac as well, which is why it's relatively common for it to eclipse the planets. The last time this happened was with Mars on January 30th, and Jupiter is next on the 22nd of February.



The Problems

Those Greeks may have been clever, but they made a few tiny little absolutely critical mistakes. So, whenever you see horoscope dates online, you can get all smart and correct people for the following reasons:

1. They measured wrong. The sections of the sky they saw patterns in are not of the same size, at least by current astronomical standards. Sometimes, the size differences are hilariously massive: Virgo is the second-largest of all the constellations¹ at 1294.43 square degrees, while Capricornus feels a little cramped in his 413.95 square degrees. The Sun spends unequal time in each constellation, so the roughly equidistant dates you see for horoscopes are misleading.

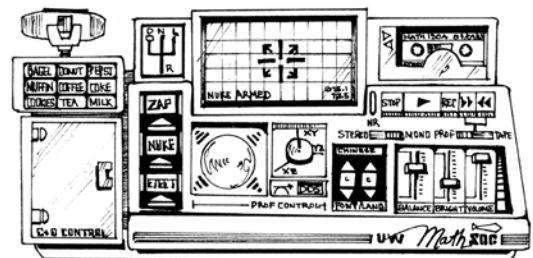
2. They forgot the funny snake man. I feel bad for the constellation Ophiuchus. Not only does he have the undesirable job of holding a snake (the constellation Serpens) for all of time, but he got left out of the list of Zodiac constellations, despite the Sun spending almost half a month in his hospitality. So, if you were born sometime in the first half of December, give this man some love, because he's technically your zodiac symbol.
3. The Earth's tilt axis is changing. Because of the Earth's unequal mass distribution, the Sun exerts a torque on the Earth, like a big ol' cosmic wrench. We don't have anything to be especially worried about, though, because it doesn't change the angle of our rotation axis, it just makes it point in a different direction. After about 26 thousand years, it returns to where it started. However, it does mean that the way the sky moves today is different from a few thousand years ago. In fact, I made a big deal about Polaris last time, but in ancient times it was nowhere near the North Pole, and you navigated with the star Vega instead. It was such an important star that Greek astronomer Hipparchus based his star brightness scale (which is still used today) on it. We later discovered it's a variable star that changes brightness over time (oops). Anyways, to end a big tangent, the changing axis means that while the Zodiac doesn't change, the timing of the constellations does. We, however, ignore this fact and continue to use the dates that the Greeks came up with, despite them being absolutely wrong.



By the way, I have nothing against people who like astrology, to each their own. I only really care about the astronomy part, which is arguably as silly sometimes. Anyways, that about wraps up the history and general facts for the Zodiac. Next time, I'm going to go a bit deeper into the constellations themselves, and especially how you can find them.

1. Note: The term *constellation* technically means a section of the sky. The sky is partitioned into 88 constellations, from the giant Hydra to the teeny tiny Crux. The word astronomy uses for a recognizable pattern in the sky is *asterism*.

Shahabee



Product Mismanagement

The Backpackery

Let's try a new (probably not recurring) segment: Product Mismanagement, where I try to think through the consequences of a product idea that I've thought of on production night.

Today's idea comes courtesy of a discussion I had with jeff. My laptop and phone were both out of battery, but I didn't want to get up and go to the outlet. (We were in one of those MC classrooms that was built before electricity, so there were two outlets in the room, located next to the garbage can).

What if, we surmised, you could just wear batteries on your back, so your devices could always be charged. For efficiency, we'd probably want to fill up the whole bag, and so the final idea was something like this:



Simple. But, let's clarify some of the details.

- How many batteries?
- How much would it weigh?
- How long would your phone last?
- How long would it take to charge?
- How much would it cost?
- What would happen if that exploded while you were wearing it?

Let's address these crucial questions one by one.

How many batteries?

The first result on Best Buy for "portable charger" is the *Anker PowerCore III*, so we'll use that. The specs tell me that it is 8.23 by 18.35 by 2.39 cm, for a total volume of around 361 cubic centimetres.

The first result on Amazon for "backpack" is the *Tzowla Business Laptop Backpack Anti-Theft College Backpack with USB Charging Port and Lock 15.6 Inch Computer Backpacks for Women Men, Casual Hiking Travel Daypack*. I fall into one or more of these categories, so let's use that.

Amazon's dimensions for this backpack are 14 by 30 by 47 cm, or 19,740 cubic centimetres.

The batteries are rectangles so I'll assume they tile pretty well. Some division tells us our backpack can fit 54 batteries. (My image was off by an order of magnitude, oops).

How much would it weigh?

One PowerCore III is 60 grams, so that's 3.240 kg of batteries. The bag itself weighs 830 grams, so that's about 4 kg total. Wolfram Alpha tells me this is equivalent to wearing 9.3 FIFA soccer balls on your back.

How long would your phone last?

I use a Pixel 6 so let's assume that's the phone in question. One battery is 26,000 mAh, so that's 1.4 million mAh total. The Pixel 6 has a capacity of 4,614 mAh, so you'd get around 304 charges. My phone lasts pretty much a whole day, so this gets you 304 days, or almost a year of phone usage.

How long would it take to charge?

I'm going to dig out some hopefully correct high school physics for this. The Anker charges at 4.35 amps, or 4,350 milliamps. If you want 26,000 milliamp hours, then you'd need 26,000 mAh divided by 4,350 A, or around 5.9 hours. That times 54 batteries makes 318.6 hours, or about 13 days.

Of course, you could just plug them into 54 outlets on a really big power bar and get it done in the original six hours.

How much would it cost?

Best Buy sells the Anker PowerCore III for \$149.99 each, which makes for \$8099.46 of batteries. On the bright side, Best Buy offers free shipping for most orders above \$35.

Oh yeah, the backpack costs \$49.99. I have Prime, so shipping on that is free too.

Total: \$8,149.45 (\$9,208.88 after HST)

What would happen if that exploded while you were wearing it?

You would die.

gridWORDROWdirg

gridCOMMENT 151.3

Hello everyone! I hope you all had a great reading week, whether that be sleeping, working, or gridWORDing!!! :oook We have a new *gridWORD* for you all to enjoy, and it is definitely, most certainly, 100% **not** sus amogus!! Last issue I asked, “What is the best CnD item?”, and those who solved the *gridWORD* said:

- Jason Cannon: “samosa (goose flavor)”
- ☞: “they tell me it’s the chili”
- eternallypuzzled: “a coffee with half Vanilla Hazelnut roast and half Colombian dark roast”
- cuofee: “samosa + Monster energy drink”
- spaghettiinhalers: “poinsettias (if theyre still selling those idk i havent been there in a while”

I think Jason Cannon is worthy of the prize this week, for the very cute frog drawing they had sent along with their solution. Please come to MC3030 sometime for your prize!! >:oook

Always great to see everyone trying their best, and I wish you all well for this one as well. Do your best as always everyone! This time, I ask you, “Mirror, mirror on the wall, who is the sussiest of them all?” Send your answer, solution and pseudonym to mathnews@gmail.com by March 13th at 6 PM!

Bye bye!!!! :000000000

Wink wonk

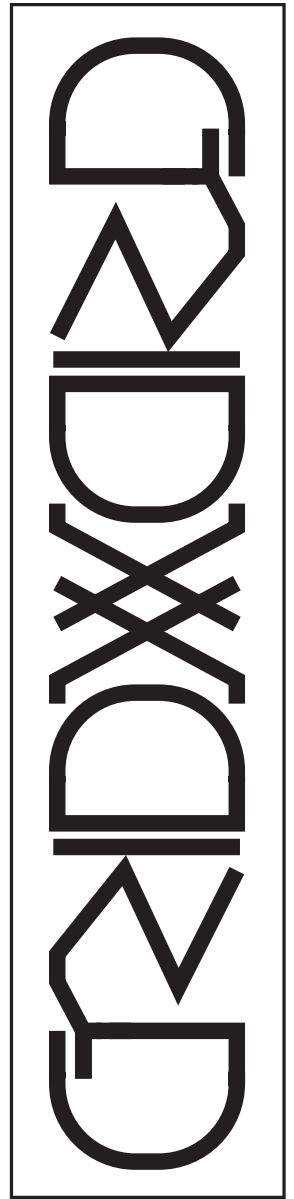
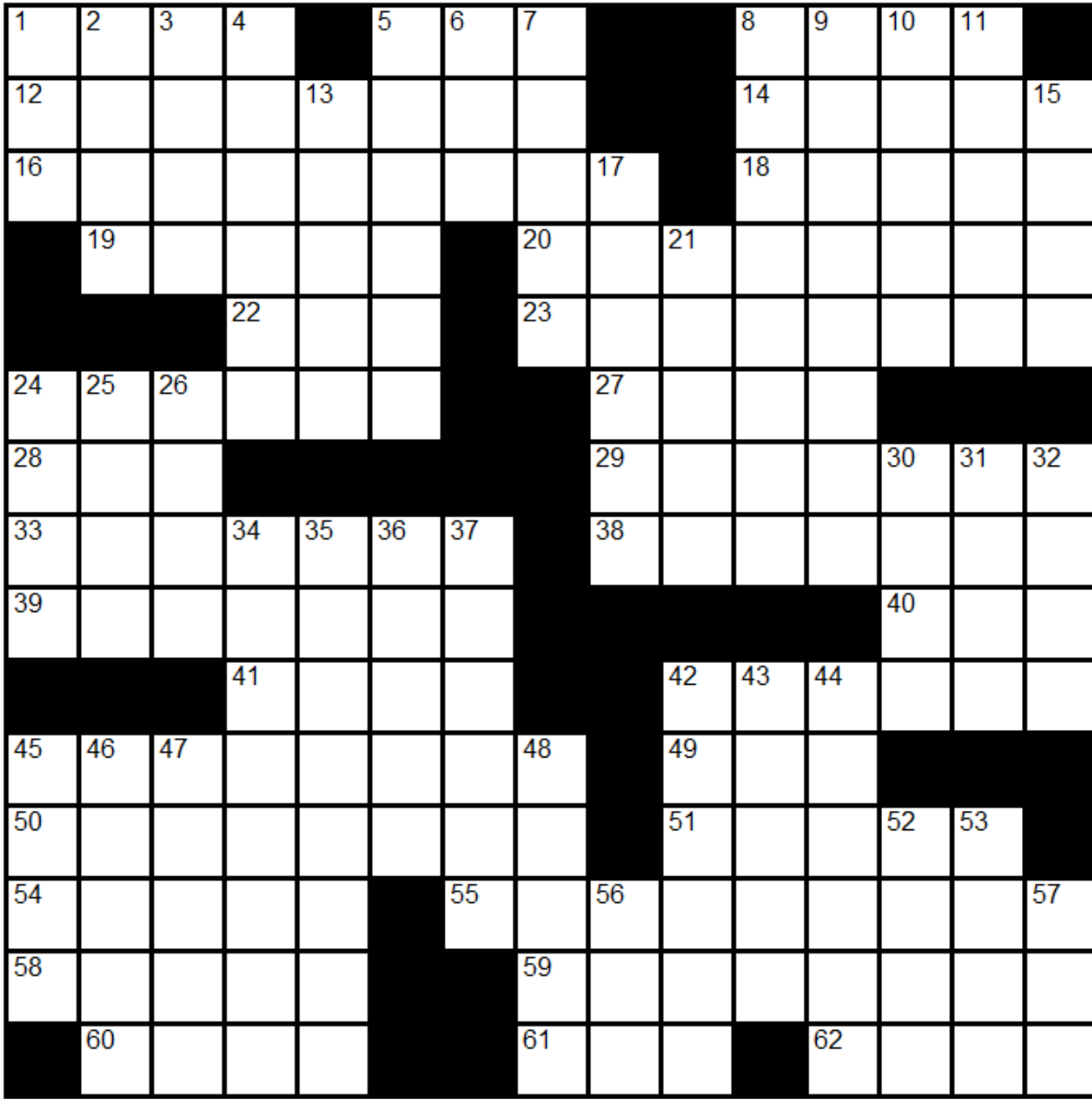
Grid Clues

Across:

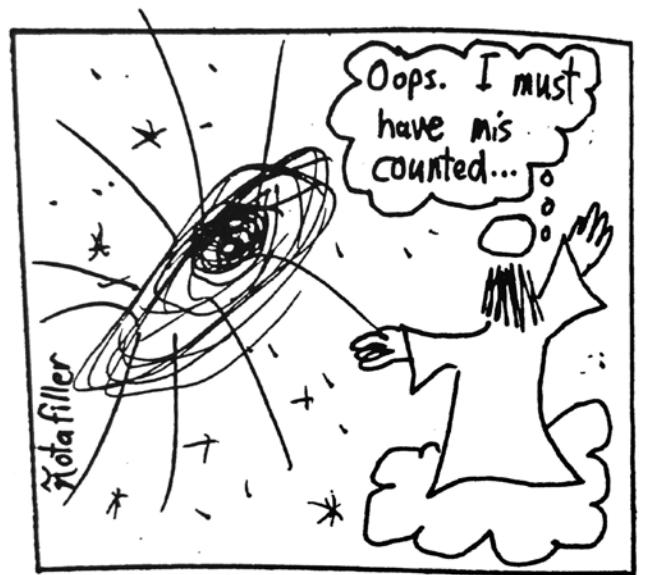
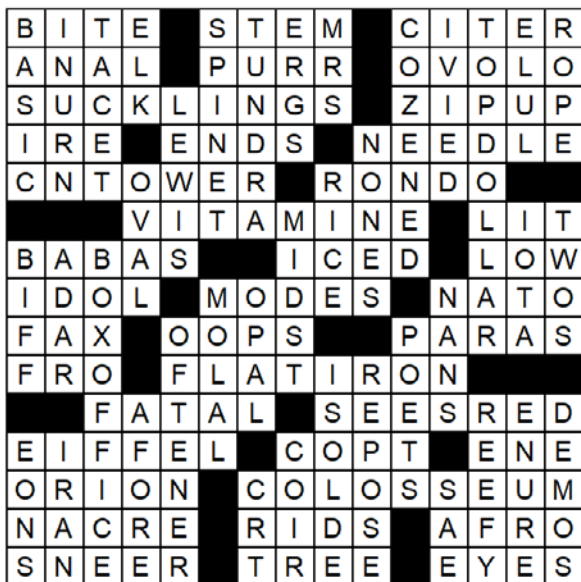
1. Pale
5. Tie the knot
8. Air force heroes
12. The people of Guyana
14. Graduated glass tube used by chemists
16. Like roads
18. Australian wild dog
19. 1988 Olympics site
20. A large imposter*
22. Can you dig it?
23. Religious recluses
24. Fight an imposter*
27. Not odd
28. Boiling blood
29. Library extension
33. Foreboding atmospheres
38. Attached by the base, botanically
39. Eden dweller.
40. Ford Explorer, e.g.
41. Animal house?
42. Bronchial woe
45. Imposters fighting styles*
49. Expected
50. Greedy
51. Geopolitical org. that includes Southeast Asian countries
54. Fencing action
55. Clearly outlined
58. Shoestrings
59. One who is affectedly artistic
60. At sea
61. “Indubitably”
62. Alum

Down

1. Near Eastern honorific
2. Determine who is the imposter (with out)*
3. Hoopla
4. Crazyies
5. “Citizen Kane” director
6. “C’__ la vie!”
7. Prepare for winter takeoff
8. Midsections
9. “Iron Chef” assortment
10. Pioneer in Surrealism
11. Smooth transition
13. Tiny Pacific nation in Micronesia
15. Yeet
17. Kitchen gadgets, for apples
21. Flood embankment
24. The answer is vims (:0)
25. Lake near Niagara Falls
26. Back
30. Desire
31. Grad
32. Bulgarian coins
34. Goes on a spree
35. Most substantial
36. Biscotti flavoring
37. Made a racket?
42. Adjusts to fit
43. An impostor’s favourite meal*
44. Preparing to drive
45. Come together
46. Bar order, with “the”
47. American finch
48. Like some cats
52. Like some laptops from Taiwan
53. Astronaut’s insignia
56. “__ you nuts?”
57. “Acid”



Last Issue's *grid*SOLUTION



"The end of the universe will be an off by 1 error." -PG