

math

NEWS

Volume 130, Issue 3

Friday, February 12th, 2016



lookAHEAD**mathNEWS**

February 12	Issue 3 gets chocolate
February 22	Production Night 4 gets diabetes
February 26	Issue 4 gets chocolate again

MathSoc

February 12	Candy Sale
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University

February 15–19	Reading Week
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Miscellaneous

February 13	Get a Different Name Day
February 14	Valentine's Day
February 15	Singles' Awareness Day
February 17	Random Acts of Kindness Day
February 20	Love Your Pet Day
February 22	Walking the Dog Day
February 24	National Tortilla Chip Day
Now–February 24	Mew distribution at EB games

Article of the Issue

This issue's article of the issue is *On the Topic of Fighting Game Matchups* by Zethar, which is an interesting look at fighting game matchups and the "statistics" behind them for none competitive players, although the article says itself that in the end matchups and tier lists are mostly subjective and subject to change. I have a bias toward the article. I love fighting games even though I suck at them.

Come by the office for your reward assuming we have it in the future.

The Editors VS Writers is a 7-3 matchup, for those wondering about my professional opinion.

Top Tier Editors

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mathNEWS is normally a fortnightly publication funded by and responsible to the undergraduate math students of the University of Waterloo, as represented by the Mathematics Society of the University of Waterloo, hereafter referred to as MathSoc. *mathNEWS* is editorially independent of MathSoc. Content is the responsibility of the *mathNEWS* editors; however, any opinions expressed herein are those of the authors and not necessarily those of MathSoc or *mathNEWS*. Current and back issues of *mathNEWS* will eventually be available electronically via the World Wide Web at <http://www.mathNEWS.uwaterloo.ca/>. *[I said so humourously; your inference is not my implication.—ConvolutED]* Any normal person would have interpreted that as a request for change! What do you think, everyone? ...Anyone? Send your correspondence to: *mathNEWS*, MC3030, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1 or to mathNEWS@gmail.com on the Internet. This work is licensed under the Creative Commons Attribution-NonCommercial-No Derivative Works 2.5 Canada License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/2.5/ca/> or send a letter to Creative Commons, 559 Nathan Abbott Way, Stanford, California 94305, USA. Terms may be renegotiated by contacting the editor(s).

Amy Li (Snow), Elizabeth Liu (Snowstorm), Katherine Tu (Thunder Snow), Jose-Miguel Velasco (Yellow Snow)

mastHEAD

It's the time of year again, when we sense the faintest prick of light enter the air, perhaps from the white of snowflakes adrift or from the subtle joy of Valentine's. Or perhaps it's just your eyes doing something weird from studying too long.

Valentines and midterm season is synonymous to one another. There's a bit of pain and suffering yet sometimes a hint of pleasure.

Speaking of pleasure and things totally unrelated, we actually lost the previous *mastHEAD* from last production issue. Big sorry on our part there. However, this gave us inspiration for this production night. We asked our writers this week's *mastHEAD* question: "What to do when lose a *mastHEAD*?"

Zethar ("Infiltrate the Editors who are trying to fill the space by using time-travel clones of themselves and give an answer there."); wibbled ("draw a picture of a flower"); Me (" :("); Theodore Bear ("Kill Everyone. None shall know of this error."); Pizza Freeloader Kid ("Forge answers for a new question: 'What would you do if someone drugged the pizza of mathNEWS production night?'"); $s, t \in \{2K, K \in \mathbb{Z}\}$, 144 ("Create a simulation of the universe and recreate the question"); bluecat ("Science!"); Diminutive Rex ("When in trouble, when in doubt, run in circles, scream and shout"); HatOfChocolate ("Claim the mastHEAD was lost in a catastrophic email collision while delivering the issue to the publisher; no byte survived."); Shay Blair ("Use the space to announce and enact my new dictatorship"); Beyond Meta ("You do your best queen of hearts impression"); Dusk Eagle ("Make up incriminating answers for the writers."); Pockets ("Re-print an old one"); Hadrön ("Just give up on the issue. It's not worth it anymore"); Depressimist ("Hadrön, I like your style, but one thing you should know: it was NEVER worth it."); TheUndecided ("Re-write all the answers because I have all the best ideas anyway :("); Soviet Canadian ("leave it blank, no one reads these anyway"); Element ("Meh. The question was worse than this one.");

SketchED ("Remember it then immediately forget.").

((Finally) Actual) Games Sez

Our termly Games Night with Profs is happening right after reading week! Invite your profs for a night of card and board games in the Math C&D on Thursday, February 25th, starting at 18:30 and ending when people decide to leave. Anyone is free to drop in and leave whenever they want; there's no obligation to stay for the entire night.

... So, in short, it'll be like a regular Games Night, except we try to get more profs to show up! Oh, and actual food will be provided in addition to the regular snacks and drinks.

Make sure to invite all your profs, and come to the event yourself!

Your (current) Games Director,
a crafty player

VPO Sez

Hey cats,

- Elections have happened, and your President is officially Alice Zhou! And, as you know, Sean Harrap is your VPA.
- A Novelties Sale began this past Wednesday, and ends today. All T-shirts sell for be \$10 (reg. \$15), sweatpants \$20 (reg. \$25), and hoodies \$25 (reg. \$30). There will be another sale around Pi Day, the second week of March.
- The microwaves have shuffled around, and two of them are now in the C&D. The third new one is in the MathSoc office. We will be discussing having electrical work done in the Comfy Lounge to accommodate microwaves.
- Happy belated new year! I hope you enjoyed the lucky candy and white rabbit chews we've had this week and last week.
- According to amazon.ca, the new iPhone charger we ordered has been shipped. I ordered it several weeks ago, so hopefully this means it will be here soon.

Katherine Tu
Vice President, Operations

mathNEWS Sez: "Write More Sezzes"

Council of Ontario Universities

Seeking Participants for a Criminology Research Study

This article has been sent on behalf of a UW-led research team in collaboration with researchers from Pennsylvania State University.

My name is Dr. Owen Gallupe and I am an Assistant Professor in the Department of Sociology and Legal Studies at the University of Waterloo. I am leading a study examining the effect of the sight of rewards on task performance and I am looking for undergraduate students to participate in a one time 35 minute experiment. This study has implications for incentive programs to promote good behaviour in prison settings. All participants will be provided with a \$20 gift card to local businesses for their participation in this research.

Participation will include a simple mental task followed by a short questionnaire. You must be an undergraduate student at least 18 years of age to participate in this study. The experiment will be conducted in the Psychology, Anthropology, and Sociology (PAS) building, room 2061. Your identity will remain strictly confidential. All information you provide will be treated as anonymous.

If you are a student currently on a co-op semester off campus, please note that you will likely be unable to participate this semester given the majority of sessions occur between the hours of 9:00am and 5:00pm. Please consider this before responding to participate.

Innovative Designs for Accessibility (IDeA) Undergraduate Student Competition

IDeA 2016 is an opportunity for university undergraduate students from across Ontario to submit their IDeAs for solutions to barriers to accessibility.

Featuring **\$3000** in prizes, the competition is an excellent way to start to think about accessibility in design.

A BONUS prize of **\$1500** for the IDeA that best addresses a barrier to accessibility in *Business* will also be awarded.

Check out the IDeA website for more details: www.accessiblecampus.ca/IDeA.

The IDeA team will also be traveling across the province to visit classrooms and spread the word about accessible design throughout February and March. If you or someone you know would like to host the IDeA team in your classroom, on campus, or at an event, please send us an email at idea@cou.on.ca.

If you would like to participate, have additional questions, or would like additional information to assist you in reaching a decision about participation, please contact **Pat Lalonde by email at p21alond@uwaterloo.ca**. You can also contact me at ogallupe@uwaterloo.ca or 519-888-4567 ext. 33361.

If you choose to participate, Pat Lalonde (p21alond@uwaterloo.ca) will work with you to find a suitable time. Please exercise patience as the scheduling process can take some time to complete.

If you participated in our previous study in 2013/2014, or if you already signed up for and participated in this study during the Fall 2015 or Winter 2016 semesters, you cannot participate in this study. This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. However, the final decision about participation is yours. Thank you for your consideration and we look forward to hearing from you.

Sincerely,

Owen Gallupe
Department of Sociology and Legal Studies
University of Waterloo
519-888-4567 ext. 33361
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RE: Math Undergraduate Office Terrorizes Student

Dear readers,

It has come to our attention that some Faculty members are very understandably upset with an article published in v130i2, *Math Undergraduate Office Terrorizes Student* by bluecat.

Firstly, wow! Faculty members read *mathNEWS*? That brings our readership to *at least* a grand total of four!^[1]

On a more serious note, the article by bluecat was submitted with a memo to the Editors explaining that some things, such as the insults hurled at the MUO, were intentionally hyperbolic in an attempt to be facetious. All of the Editors that read the article prior to publication did so with this in mind, and it did not occur to us that it could be read a different way. It was our responsibility to ensure that the article would not offend in the way that it did, but it completely escaped our notice, and for that, we are very sorry.

The author does not actually believe the MUO to be a “bureaucratic cesspool”, nor that the staff members there are “incompetent peons” or “lying scum”. Moreover, you cannot override into *literally* any course.^[2] Having said that, the events described are ones that bluecat believes to be true, and we will not apologize for publishing a student’s point of view. *mathNEWS* is intended to serve as a creative outlet for students. If it helps a student to vent through our publication, then we are happy to host their work, but we have no more power than this. True administrative change, for students, cannot happen through complaints disguised as satire. Steven Furino, the Associate Dean, happily takes criticism and suggestions from students. Your own bunniED has marched into his office with a brigade of unhappy students on several occasions. There are no repercussions, academic or otherwise, for voicing your opinion—and having it heard by someone who can do something with it.

Sincerely,
The Editors

[1] Three are editors. Our fourth editor doesn’t read *mathNEWS* either.

[2] You cannot, in fact, override into a graduate French course. Those are reserved for graduate students in French only, and no amount of begging the MUO will let you get away with that one.

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(*mathNEWS*)
or in person (MC 3030)!**

Why I Declined My Vote in the Sever Ties Referendum

The conflict between Israel and Palestine is undeniably a complicated one, filled with genuine human concern. Not too long ago, when UWaterloo got the chance to vote on the question, “Do you think the University of Waterloo should sever ties with the following institutions due to their complicity in violations of the human rights of Palestinians: University of Haifa, Hebrew University of Jerusalem, Technion – Israel Institute of Technology, Tel Aviv University, and the Weizmann Institute of Science?”, I initially thought about voting ‘yes’ for this question because the way it is worded implies that those who vote ‘no’ are against human rights. In the end however, I chose to decline my vote and hope this can provide an insight into that decision to a broader audience.

Recent history has shown the conflict between Palestine and Israel to be heavily biased and favoured towards Israel. In the summer of 2014 when a major escalation of fighting broke out, over 2000 Palestinians (the majority of them civilians, though exact numbers are undetermined) were killed as opposed to over 60 Israeli soldiers and a handful of civilians (including one Thai national).* It is clear that Israel has the firepower and the strength to potentially quash Palestine as it likes and it definitely has major political allies to back it up should any conflict *truly* threaten them. Israel does believe Palestine is a threat, but their actions seem to impact and harm civilians more than their perceived enemy. At the end of the day however, is severing ties with Israeli institutions that UW does not seem to really collaborate with going to help Palestinian human rights violations in the long run? I personally do not think so.

Voting ‘yes’ in this referendum would have been superficial to me as it does *not* immediately do anything to help those people on the ground who *are* suffering. In all likelihood, many of the people who did vote ‘yes’ will likely not bother to donate money to organizations that *do* help people on the ground (like the United Nations Relief and Works Agency for Palestine Refugees, <http://www.unrwa.org/>). Universities and institutions of higher education honestly do not hold much power to influence decision makers one way or the other when it comes to the political arena and conflict, nor will they likely help the very people that need it. If I had voted ‘yes’, I would have wanted my vote to actually *mean* something and to truly reflect supporting those human rights. I wanted my vote to *truly* have an impact, but it would not have done so due to UWaterloo’s (lack of) involvement. Declining was the right choice for me because now I can take this opportunity to put my money where my mouth is and truly help those in need.

Anonymous

*Source:

<http://www.bbc.com/news/world-middle-east-28252155>

On The Subject of Mental Health (or, You are not Alone)

I would like to share with my readers a story. Way back when I was in high school, I would never have expected to have a mental health problem. I dated someone who had ADHD and ridiculed them for being reliant on meds. I thought it was a manifestation of mental weakness to have to use medication to get through the day.

You see, I've always had symptoms of ADHD as well, but I prided myself on being able to get by without meds. School was easy enough that it didn't matter if I zoned out for 30 minutes of a 40 minute class. My attendance was horrific: one year I managed to be late or absent for 60/183 school days, my work ethic non-existent — the teacher pity-passed me for grade 9 English because I couldn't be bothered to complete the busywork, and I couldn't sit down and study even if I tried.

But high school was easy, and I didn't try to study. The first time I tried to study was when I was studying for the AP Biology exam. I realized I had a problem with distractions and forced myself to sit in the park, without any electronics, with only the Campbell-Reese textbook to keep me company. I forced myself to sit and read until it was too cold. It was excruciating, but somehow I passed the exam.

I was more daring the next year. I attempted AP Calculus, Chemistry, Physics, and English. My ambition made up for what I lacked in knowledge, and I ended up getting a 4 in English and 5s in everything else. I applied to university with these AP scores (but mediocre grades in my regular courses), and to this day, I believe this is why Waterloo accepted me.

I started university in engineering. In first year, my courses were a repeat of the AP courses I had so hastily learned, and my grades were decent. But I got destroyed in second year, when we were introduced to all new material. Somehow, my brain couldn't stay alert for the 4 hours of classes we had every morning, and I would fall asleep without fail. It didn't matter how much sleep I got the previous night, I'd have trouble staying awake as the prof droned on about some unfamiliar concept. I was at the end of my rope.

Dear readers, it wasn't as if I didn't put up a fight. On the contrary, I tried everything. I changed my schedule, I studied with friends to keep me focused, I studied by myself to avoid distractions, I changed study spots. I wanted to learn the material but I simply couldn't. Somewhere in the back of my mind, I realized my ADHD was catching up to me.

It was excruciating to fail the calculus midterm. A year prior, I had been one of the handful of students to receive a perfect score on the calculus midterm. I couldn't stop my mind from wandering during the lectures, so I fell further and further behind. The other students who were falling behind caught up by focusing for a few study sessions, but I was way too distracted to catch up. I was in tears by the end of the semester, and I was pretty sure the professor pity-passed me with the same grade I got in grade 9 English.

I got help. I went to health services and told the first doctor I saw and she didn't believe me, but she scheduled some tests anyway. I was put on a wait-list. I went to mental health services and talked to the psychologist, who referred me to a psychiatrist who did ADHD testing. I registered with Accessibility Services (which was known as OPD at the time).

Not everyone was supportive of my decision. My aunt insists that everyone has ADHD sometimes, and that I am taking the easy way out. A few of my close friends justified that I can't possibly have ADHD if I was smart enough to get into UWaterloo (fact: ADHD is not dependent on intelligence). My own mother didn't want to believe that I'm not neurotypical.

But you know what? I am glad I made that decision. I did terribly that semester and in the ensuing co-op term, but following that, I got into a routine of medication, talking to the psychiatrist and my OPD advisor (shoutout to Michelle Ashburner, who is also a math lecturer), and scheduling my life and school. It did get better.

arabesque

This Reading Week

Things I Will Not Be Doing:

- Going on vacation to a tropical place
- Going on vacation anywhere
- Posting a million Instagram pictures of said vacation
- Tagging my location on Facebook "at Pearson Airport"
- Tagging my huge group of friends in pictures of our vacation
- Going on a road trip, to a concert/festival, anything "fun and wild"
- Be featured in a Girls (or Boys) Gone Wild Video

What I Will Be Doing:

- Sitting at home for a week straight
- Seeing how long I can go without showering before someone notices
- Thinking about all my midterms and assignments coming up and proceeding to avoid doing anything about it
- Hoping my family doesn't realize I have a week off
- Wearing the same pyjamas and nothing else for a week straight
- Binge-watching everything on Netflix
- Coming out of my daze Saturday night, regretting everything, and trying to find a ride back to Waterloo

Can't wait!

G-UNIT

My Personal Experiences With Waterloo Mental Health Services

University is hard, stressful, and the perfect incubator for any latent mental health issues to rear their ugly heads. I am an average student with a family history of mental health problems. Sure enough, partway through my second term, I started sinking into depression. We can examine my interactions throughout the years, with Mental Health Services, to see if UWaterloo is really “a caring community and a safe place to ask for help.”

So halfway through 1B I dragged my sad carcass over to mental health services, and was matched with a frankly terrible counselor. Instead of helping me through my health issues, he blamed them on my relationship with my parents. I hardly needed a mental health counselor that made me feel worse about myself, but because I was not informed I could ask for someone I better connected with, I bailed and tried to figure it out on my own. I did not manage to meet up with a different counselor until my second fall here at UWaterloo. By the calendar, this is over eight months since I started realizing I had problems.

Well, I say I met up with someone. I finally worked up my courage to make another appointment, when it became clear I still desperately needed help. The soonest they could fit me in was just over four weeks, so I accepted my appointment card, and turned up when they told me to...

...only to find out that they had not actually booked my appointment. The waiting time was now another four weeks. This was right at a make-or-break period in my term, and frankly, in my academic career. How did Mental Health Services leave me feeling? Like I was absolutely worthless, and my problems were not important enough to deserve support.

Now, as I am still here, clearly I managed to adequately weather that personal storm. But as I was sitting in the waiting area for the rescheduled appointment, over a month down the line, I earned the privilege of hearing the receptionist snark about how ‘if students aren’t suicidal, they really shouldn’t be claiming to be in a crisis’, and how the other receptionists should not be trying to help some kid meet a counselor faster if he is not even suicidal. Which is actually, genuinely an awful perspective.

Finally, I meet with a proper counsellor. He tells me I cannot get a VIF for my illness, because I did not meet with them when

I was going through the worst part. But I was unable do that, because they cancelled my appointment. And I was also told that ‘a VIF is not really for mental health issues, it’s more for physical illness like strep throat’. I thought that this attitude, that mental health issues aren’t ‘real issues’, was one that Health Services is meant to combat? Is this not exactly the attitude Mental Health Wellness Day is intended to combat? I found out later this was a lie, by the way, that VIFs are not for mental health problems, but I learned it far too late to save my transcript from that term.

And then, well. They took me, someone who had been experiencing regular, periodic depression, who had a rich family history of bipolar disorder, and they put me on antidepressants. If you know anything about bipolar disorder, you know that putting someone who you suspect has bipolar disorder on antidepressants invariably sparks off a major manic episode. But I guess that is a great way to find out if someone actually has bipolar or not, right? Right?

So, directly thanks to that, there is a two week period in second year that I... don’t... really... remember? I had to call my best friend to pick me up at 2AM because apparently I had gotten in a car accident with a racist furry, and one of my roommates claimed that I drank four energy drinks and stayed up for two days in a row. I believe him, because that sounds like something I could do. But I don’t remember it at all.

I got off the antidepressants, and was understandably terrified by the experience. It took me over a year to work up the courage to return to mental health services. That is a year of periodic depression, a year of basically turning off for three weeks every two months where I would have to scramble to pick up the pieces when I finally snapped out of it. Does that sound like the results of a solid trustworthy mental health services program to you?

There is a happier ending, sort of. I finally got a proper diagnosis last May, over two years after I initially began experiencing symptoms. But I have not been able to meet with my psychiatrist regularly enough to have found out a medication that works for me—I have currently been unmedicated for a month because I switched medications, the new one had crippling side effects, and I am unable to get an appointment with my psychiatrist until next week. Counselling Services, meanwhile, decided

N Things Imprint Should Probably be Paying Attention To

1. Feds Elections. There was a 5% voter turnout last year, maybe it would be better if we could get some advertising about the candidates, maybe an interview of all the candidates, instead of talking about how little people cared about elections once they’re all over.
2. Tuition increases. I doubt I need to elaborate on this; they should be reporting on what’s happening with this ridiculous injustice we’re seeing.
3. Feds Student Council. How are there only 6 students on a council that should have thirty? Why are councilors being

acclaimed? How can councilors be held accountable for representing students when they just needed 25 signatures from their friends to have this role?

4. Moving into the MC. A temporary move into the MC could be an unfavourable thing for Imprint. The fact that this student newspaper is obviously superior and is the paper for math students, we might get a little more obnoxious than usual with you guys parading our sacred halls.

A Quick Introduction to Getting a Free Server (While You Are a Student)

AKA: Get you a free Cloud for Great Good, in the style of Learn You a Haskell for Great Good.

to sell all of my counselor's appointments to a faculty that I'm not in, and I have only been able to regularly meet with them through endless waiting lists and judicious application of crying to sway receptionists to my side. I am unsure what would happen if I was not doing alright enough to be able to beg, borrow, and steal my way into getting the appointments I need. I guess I am lucky that I don't have to find out.

I am not a stupid person, and I am not 'visibly crazy'. You would not know that I am mentally ill, if I didn't tell you. Despite all these struggles, I have still earned over half the credits that I will need to graduate. I am doing okay. But if I had proper support from the start, I know I could be doing so much better. If, when I walked in first year, I had been listened to, and been able to meet with someone regularly, and given the support I needed to get back on my feet, I would surely not be two terms behind right now.

If they made it less intimidating and labyrinthine to get help, that would be better. If all the employees—not just most of the employees, but all—treated the students with compassion and respect, that would be better. If they were not so overworked that they could actually meet with you in a timely manner—that would be better.

I am not an isolated case. Many of my close friends have experienced mental health issues in university, and many of those have reported being severely let down by the university-provided help provided. UWaterloo is a punishing school. We work hard. We balance co-op, classes, assignments, clubs, side projects, social life, and it is really not surprising when some of us find ourselves needing support.

If you find yourself needing mental health support in university, remember, that does not mean you are a bad person. You are not weak. You just need a little help. And I wish you luck dealing with the support systems they have in place.

I hate to say it, but you are probably going to need it.



Treading Water

If you have not heard, the university just launched Open CS courseware at opencs.uwaterloo.ca. A brief look through the classes shows that it is not as fancy as other online courses, but the content seems pretty decent.

This is but the first step on your project to create the next great social media app! You have to get it out to the public! And what does that require? Unless you are willing to sacrifice the use of your laptop (since it needs to be permanently plugged in) or risk the wrath of IT services (by hosting it on the CS servers), you are going to need a server.

There are a remarkable number of tutorials about setting up a server, but nothing oriented towards getting the most bang for your nonexistent dollars.

1. If you are a student, congrats! You are eligible for the GitHub Education Pack (education.github.com/pack), which gives you \$65 of free hosting credit! \$50 comes from Digital Ocean, and \$15 comes from Amazon, both in the form of codes you need to provide when you sign up for the respective accounts. Sign up now to lock in the codes—Digital Ocean has already dropped the amount of credit offered from \$100 to \$50.
2. Sign up for AWS to get a free year of hosting (aws.amazon.com/free/)! Just remember—after a year you are going to get charged. That is, if you do not proceed to Step 3.
3. Apply to the AWS Educate program (aws.amazon.com/education/awseducate) to get \$35 of credit. Remember to use the code from Step 1 to claim an extra \$15 of credit for a total of \$50! Based on Amazon's cheapest offering, that is approximately 9 months of free server, on top of the free year.
4. Eventually the AWS credit will run out. But that is fine, you can move to Digital Ocean before you get charged! \$50 will give you 10 months of the cheapest server.
5. At this point, you should have had at least 2 and a half years of free hosting. But we can go deeper! We can pad it out another 3 months—Google has a free trial of its cloud offering (cloud.google.com) with \$300 of credit, which expires 60 days after you sign up. Similarly, Microsoft Azure offers \$250 in credit (azure.microsoft.com/en-us/free/), which expires after 1 month.
6. Ultimately, there is no free lunch, and you are going to have to start paying someone. However, with judicious use of resources, you can test your idea for free and possibly grow it into something big.

(Or use it as a free personal VPN to the US for \$BIG_STREAMING_SERVICE. I won't judge.)

HatOfChocolate

The Inaccessibility of AccessAbility Services

I am a student with a learning disability, which I have had from a young age. When I came to the University of Waterloo in 2012, I registered with the Office for Persons with Disabilities and they assisted me with the transition to university as well as providing me accommodations related to my learning disability. If you were a student and had any disability issues at all, they were the ones to go to, whether it was a chronic condition or even something as simple as an injury, or anything that impacts your ability to do your schoolwork. They were available to listen and almost always assisted or at least pointed you in the right direction so you could started talking to the people who could. It was all run by a man named Hank who was the biggest fucking boss in the school. Exam accommodations, scheduling conflicts, or anything else—he would help solve the problem so you could get on with your life (and out of his hair). Sadly, Hank has retired and we have ushered in the new rebranding of the OPD as “AccessAbility Services.” Holy shit.

If you have recently had the misfortune of having any interaction with AccessAbility Services at all, you know exactly what I am talking about. What was a decent small office of advisers, which helped people, has ballooned into an uncontrollable leviathan of bureaucratic bullshit and complete incompetence. This is the process by which people with disabilities go about registering for accommodations.

The first thing students must do every semester is to register every class they are in and request accommodations for those courses, because “you can grow out of your disability and may not need accommodations anymore.” If you have just turned 21 then congratulations you get the extra fun of needing to register for a private psychiatric evaluation (more expensive from the school clinic—and at your expense, of course) to verify that you actually need the accommodations before anyone in the office will even talk to you. Can’t immediately fork over the thousands of dollars required to prove it and need some extra time? Tough luck buddy, they won’t even start processing your application without a signed assessment from a registered psychologist, never mind that it takes 1–2 weeks to “process” once your application has been accepted. Once they magically determine

that you need the same accommodations that you have been receiving since you started university, they give you a form for each course that must be signed by the professor to verify they know about your disability... because email doesn’t exist. After getting all the forms signed make sure to bring back your forms at least a week before your exams so they can start working. In an ideal scenario, this arduous process should take between 2 and 4 weeks.

Now, there are many issues with this process and most of them can be boiled down to bureaucratic red tape. Yes. I realize it takes time to schedule exam accommodations, but seeing as I registered at the start of the term and at the start of EVERY TERM BEFORE, it should be pretty easy to start scheduling early instead of waiting until I get my forms signed by these particular professors. Why not just make the forms before the semester instead of waiting for us to re-register? Our course information is readily available on Quest and fully automating the process would be almost trivial. But no.

I can now count myself among the rapidly growing number of people who have written exams without proper accommodations this term because AccessAbility Services failed to process the application in time. After 15+ visits to the office I still have not found anyone in charge and apparently nobody actually works in the office. Lunch breaks, conferences, sick leave and meetings are all perfectly acceptable reasons to not be able to meet with someone and, ultimately, a staff of 9 people was completely unavailable for 2 weeks straight.

Whether it’s university policy or just these particular staff, AccessAbility has become so hamstrung by bureaucracy and regulations that they are unable to help the students that need it. This is an issue that must be addressed so that students with disabilities can perform to their full potential. If you are a student with disabilities experiencing the same frustrations as I am please speak to your faculty advisor as soon as possible and they can help you find other resources to assist you.

2manydegrees

N Things to Find Out About A (Potential) Employer

- **Tasks:** What are typical projects and kinds of work.
- **Work environment:** Will you have coworkers, and therefore not be alone in the office.
- **Reviews:** Use Glassdoor, ask upper years, and Google them to find out about their reputation. When CECA finally gets WaterlooWorks out, check the reviews there.
- **Coop history:** Has this company had coops before?
- **Food:** Ask them about how often they have free food!
- **Work-life balance:** Do you get vacation days? Is overtime expected? If so, it must be paid. Is there flex time?
- **Benefits:** As a coop, having no benefits is not a dealbreaker, but if one company has benefits and another does not, that can be a factor.
- **Management:** Check if your boss lives in the country.
- **Location:** Check if there are lunch places nearby (or a cafeteria in the building) and things related to transportation, such as buses or parking.
- **Funding:** If possible, check that they have enough money. Especially important with start ups.
- **Housing:** Is housing nearby or provided? If provided, is it full price, subsidized, or free?
- **Pay:** Yes, it’s awkward to ask about. But you do not want to end up being paid \$14/hour as a fourth year.
- **Policies:** Discrimination/sexual harassment policy. For example, in Ontario, the provincial and federal governments mandate these.

SkyBlue

How to Protect Yourself in Co-op

Sometimes, you end up in a bad situation as part of the coop process. This could be a match with an undesirable employer, an employer backing out on promises, or several other situations outlined in “When Things Go Wrong in Coop”. There is, unfortunately, no way to back out of a match or sign off on an interview unless it is the day of and you have a very good argument. There is also no way to look up the coop reputation or history of the company through JobMine.

Unfortunately, CECA cannot always help and advisors are people, meaning they vary, as you might expect. Here are some things you can do yourself in order to protect yourself.

1. Look up the companies. Ask anyone you know who is in or has been in coop. Google companies. Use Glassdoor, it has reviews for a huge number of companies. “N Things to Find Out About A (Potential) Employer” lists other important things to look for. This can save you from a bad company before getting an interview or match.
2. You get a full work week before you have to tell Waterloo you got hired if you get a job outside of JobMine, and you can turn down unwanted jobs if you go outside of JobMine.

- Please note: if you are applying to jobs through JobMine as well as searching outside of it, there are strict rules about when you are and are not allowed to back out of jobs you have applied to on JobMine.
3. Educate yourself on labour laws. Know what is typical in terms of pay and how you should be treated. You should know if an employer is taking advantage of you.
 4. Keep things documented. If there are issues, do your best to have a paper trail. If you speak to your boss or your CECA advisor about a problem, try to do so over email. If the issue does not get resolved, you now have a paper trail of your attempts to fix it. Make note of anything that happens.
 5. If you are unsure, get advice. Ask friends, family, and professors. Look for resources online; CECA may also be useful.
 6. If your boss/coworker/advisor (whoever you are trying to ask for assistance) is not helping, make your case elsewhere (e.g. your boss’s boss).
 7. Do not be afraid to stand up for yourself.
 8. I cannot stress this enough: DO YOUR RESEARCH.

SkyBlue

When Things Go Wrong in Co-op

Co-op is great. I came here for co-op, as did many of my friends. I would recommend co-op to all students. But things can go wrong, and you may not easily get help. Here are some cautionary tales about past issues. Some of them were resolved and some were not. The two articles *How to Protect Yourself in Co-op* and *N Things to Find Out About A (Potential) Employer* explain how to best avoid these situations altogether.

All names have been changed to preserve anonymity.

Mary applied to a couple of jobs at a company. They emailed her with three other potential jobs, asking if she would be interested in them. She was interested in only one of the three. She ended up with an interview in JobMine for one of the two she said she did not want, and had never applied to. She emailed the person who initially contacted her, explaining the situation, and the interview was removed.

Andrew was working at a company for most of the term, until he and another co-op were fired without being given a reason with only a week left of term. They were failed for the term and threatened with being kicked out of co-op. While all of this was happening, neither Andrew or his coworker were ever made aware of why they were fired.

Melissa had two interviews scheduled at the same time. She went to CECA to get this fixed. She arrived five minutes after business hours ended and it was therefore too late to contact them. CECA later informed her that they had both been rescheduled for 9AM next day. She showed up early and managed to switch one of them back to the original time.

Sarah was matched with a company in the first round. One month before the coop term started, the company cancelled the job due to lack of funding. Sarah had to scramble to find a job, and there was little to no consequence for the company that cancelled the job.

Garrett was informed at 3PM of an interview at 11AM earlier that same day. His slot had been switched with another student’s without warning. He emailed the appropriate people at the company explaining the situation and got another timeslot. He ended up working for them.

Lily was having trouble at work because her supervisor was not giving her any work to do. When she contacted her advisor she was told to be glad she had no work to do. She spent the rest of term doing nothing.

Several co-op students worked at Company. The first group will be A, the second Group B. All coops in each group worked there in the same term. Company broke labour laws and lied about training being provided, as well as lying about what the job actually entailed. Group A was allowed to quit after they complained as a group, and were told that Company was on probation and if the company did not improve they would no longer be allowed to hire co-ops. Group B worked there over a year later. Conditions had not improved, and Group B was told there had never been complaints about Company. Group B was finally given permission to quit at week 12 after continually updating their advisor on what was happening and asking for advice. Company is still allowed to hire co-op students despite allegations of labour and ethics violations.

SkyBlue

profQUOTES

“Let’s write down the theorem correctly. It’s always a good idea to write down the theorem correctly.”

Buss, CS365

“If you had your heart set on writing infinite loops, you’d be disappointed.”

Lushman, CS442

“Would someone whose name I know ask a question?”

Buss, CS365

“I don’t know how to raise the screen. [...] I just remove the key and it will deauthorise everything. That will eventually raise the screen—oh look, there it goes.”

Lushman, CS442

“This I just call the ‘sum’ but mathematicians call it the ‘Minkowski sum’ to sound intelligent.”

Cook, CO255

“I must admit, this question was meant to induce failure.”

Lushman, CS442

“But don’t worry, the class is almost over and I only have one piece of chalk.”

Cook, CO255

“Depending on how well you know the Greek alphabet, you can continue.”

Lushman, CS442

“The good thing about being a professor is that if the assignment is one day late, it’s fine.”

Jao, CO487

“I need people to know how often I trim my nosehairs.”

West, MATH237

“I just realised I’m using md5sum, which is broken, so I might want to use something like sha256sum.”

Jao, CO487

“This time he didn’t do finger-painting with his feces on the wall.”

West, MATH237

“I don’t remember the whole hash, but it looks something like this, so it must be correct.”

Jao, CO487

“I don’t think you’ll use it ever, but since I have you as a captive audience I thought that I’d inflict it on you...”

Willard, PMATH432

“Users sometimes — okay, let’s be real. Users *_always_* use the same password in multiple places.”

Lhoták, CS444

“Forget all that stuff I said about Germans, this text is great.”

Willard, PMATH432

“What are the advantages? Almost none. What are the disadvantages? Many. But let’s be fair, I saved a semicolon and a newline.”

Lushman, CS145

“This example is dumb, I don’t like the Germans anymore.”

Willard, PMATH432

“It’s like you’re at a restaurant and you see another table and you say ‘You know what, I’ll have what they’re having’ and the waiter picks it up and gives it to you.”

Lushman, CS146

“Alright, well, this lecture has imploded.”

Willard, PMATH432

“Our alphabet is already infinite. It has infinitely many symbols here, and then a few more here. I don’t know, I could count them, but... I’m paid too much.”

Willard, PMATH432

“If that was nice, then this is twice as nice. If that was ugly, then this is twice as ugly.”

Lushman, CS146

“So that’s the Replacement Lemma. I don’t think we’ll ever use it, but since I had you as a captive audience I figured I’d inflict it on you.”

Willard, PMATH432

“I can write down something like this, which should offend everybody.”

Lushman, CS442

“I’m gonna call this one **W**, because my name is Ross Willard and we’ve already used **R**.”

Willard, PMATH432

“[After someone tries to describe a formula symbolically.] You can say it in English—I’m bilingual, so I can translate.”

Willard, PMATH432

“Sometimes I don’t even know what I’m gonna do in a lecture until the spirit moves me.”

Vrscay, PMATH370

“I used to know about 1000 phone numbers. I don’t have that ability any more.”

Wolkowicz, MATH235

“I shouldn’t call it a midterm... a Tremendously Awesome Student-Centred Test.”

Vrscay, PMATH370

“Now that I’m done lecturing you... like a father...”

Wolkowicz, MATH235

“Now I should talk about academic integrity. Academics are integrable.”

Vrscay, PMATH370

“Prerequisites... okay, but I’ll sign you in if your hair is combed or whatever.”

Vrscay, PMATH370

“But I suppose you left your calipers at home.”

Vrscay, PMATH370

Finite Simple Group (of Order Two)

Where Mathematics Meets Valentine’s Day

First thing’s first: <https://www.youtube.com/watch?v=BipvGD-LCjU>

Okay, now that (hopefully) you’ve watched the video (which is conveniently titled exactly the same way as this article, for the purposes of Google searching), we can get started on the article.

This Sunday is Valentine’s Day! For those of us who are in relationships, it is that absolutely fabulous time when you have to show your significant other that you love them more than absolutely anything else in the world and that if you do anything less than that, you are a horrible failure who is not committed to the relationship. For those of us who are still single, it is that wonderful time where no one gives a damn about you and you want to go hide in a beaver dam but you cannot (I am not sorry at all for this). So all in all, rainbows and unicorns for everyone! We do not even get a day off; that is reserved for “Family Day”. Right; we only celebrate people who have successfully started families. Too bad.

Thankfully, you can change this! Fight the commercialization of Valentine’s Day by treating it as a vehicle for mathematics. There are all sorts of ways to do this.

First, you could use your favourite graphing tool to draw some really cool curves. For example, ever heard of a cardioid? Of course you have, you’ve taken Math 138 and had to parametrize curves with equations given in polar coordinate curves, right? Try graphing the equation $r = 1 - \sin(\theta)$. If you don’t think that looks enough like a heart, try $(x^2 + y^2 - 1)^3 - x^2 y^3 = 0$. (Thanks, Wolfram MathWorld.)

Another fun thing to do, if you and your partner like to do modelling (ahem), is to try to model various aspects of your relationship using mathematics. This might include dynamical systems, to model certain physical systems (cough); graph theory, to see what your past dating history or friend circles

say about you; or Bayesian statistics, to see how likely it is that you will still be together in ten years given a reasonable prior distribution. Actually, do not do that last one. Also, if you are not in a relationship but have a crush on someone, don’t come up with models about that. Just... don’t. It does not end well.

Perhaps, however, the best way to use Valentine’s Day as a vehicle for mathematics is to go back to the Youtube link above. The song is “Finite Simple Group (of Order Two)”, by the Klein Four Group. It is an a capella math love song. Yes, you read that correctly. It is full of mathy jokes and witticisms, drawing material from all corners of mathematics. The plan, then, becomes this: learn enough about mathematics to understand all of the references, so that you could define things on the spot and explain why the joke is funny. (Don’t actually do that unless someone asks, of course.) This, incidentally, is a very good motivator for doing a Pure Math degree. How else can you understand all of this stuff without spending all of your time reading textbooks?

There is, however, one drawback. While the song title is catchy and hilarious, it is also horrifically redundant. Every group of order two (meaning there are two elements in the group) is finite, and isomorphic as groups to the cyclic group of order two. All proper subgroups of this group have one element and are therefore trivial, hence the normal subgroups are also; thus this group is simple. The song could have just been titled “Group of Order Two” and it would have been just as descriptive; of course, it is significantly more amusing to delay the punchline until the end of the line.

In any case, it is easy to get down about Valentine’s Day; instead, you can treat it as an excuse to talk or learn about mathematics. And that, well, that is something to love.

Happy Valentine’s Day,
Scythe Marshall

Gullible Business and Distorted Arts

"The trouble with school is, they always try to teach the wrong lesson." -Fiyero, Wicked

The GBDA program in the Arts Faculty is approaching the graduation of its first cohort. It is a testament to the perseverance and dedication of these students that they have stuck around this long. That, or that they have an over-developed sensitivity to sunk costs. (The program costs as much as an Engineering degree at the University of Waterloo.)

These students have been with the program since the first day of its offering to students. In other words, they are the guinea pigs. Unlike many programs, GBDA decided that they needed everything to be new, and the guinea pigs suffered for this. The Stratford Campus was built expressly for the purpose of the GBDA and MDEI programs, and these are the only programs that have ever – or will ever be there. The GBDA program consists of 85% GBDA specific and developed courses. These courses are regularly undeveloped until weeks or even days before the course begins. Professors are often not hired or assigned until days before the course begins either. As a result of this just-in-time course development, students receive substandard educational content delivered (or not) by professors working outside of their specialization.

Some prime examples of the problems with just-in-time course development were the first offerings of GBDA 204, GBDA 301 and GBDA 401. In GBDA 204, GBDA students were divided into two sections. These sections were taught by two different professors, had two different syllabi, had two different evaluation structures and two different overall goals. One of the sections had a business oriented lecture/case study based course, the other had a nebulous, feel good, leadership course.

In GBDA 301, students were told they would be developing games. However, the games were supposed to be built using GameSalad, an amateur game building software à la high school level drop down menus. This tool failed to be accompanied by any lecture relating to Game Design, best practices, game development, or even the psychology behind effective game design. On top of that, GBDA 301 had been expressed to GBDA students as a chance to work with industry partners. This most definitely did not happen – the project was based around the food guides of different countries, instead of something remotely useful.

Most recently, GBDA 401 progressed from merely badly designed to a hot mess of sadness. Yet again, GBDA students had been promised an industry partner but were presented instead, with a whole class project to create a submission to a competition from the United States State Department of Education through a

third party of some sort. In the infinite wisdom of GBDA admin however, the course was divided into two stages. Stage 1- groups of 6 to come up with a pitch for the actual project, Stage 2 – the whole class works together on the winning pitch from Stage 1. In other words, the course was set up to pit groups against each other in stage 1, only to require all students to work together in Stage 2. The course was ostensibly taught by two professors, yet the professors didn't speak to each other and taught a total of 4 actual lectures between the two – not to mention both were 'teaching' outside of their specialty.

These are only three examples of ways in which the GBDA courses have completely disregarded course descriptions or delivered useless (or no) lectures. There are still others where the course description is not reflected in the syllabus, or the syllabus is changed halfway through the semester for undefined and mysterious reasons. There are other places where the program has insisted on program specific courses despite UWaterloo offering an equivalent and fully developed course on the main campus (such as ECON 101, Stats, Marketing and Business). In choosing to create GBDA Specific courses for each of the listed subjects, the GBDA program not only made more work for themselves, but also reduced the quality of instruction for students.

As the cherry on top of this hot mess, the GBDA program is offered only in Stratford. Though students are based in Waterloo for their first two years, year 3 and 4 have all courses offered only in Stratford. While the facilities are new and built with group projects in mind, and the equipment is of high quality and plentiful, there is much left to be desired. The Stratford campus is cut off from such essential University services as Health Services, Accessibility offices, the Student Success Office, PAC and all Feds and Main Campus events. There is no regular, affordable public transit from Stratford to Waterloo other than the busses used by GBDA to ferry first and second years to Stratford on their respective "Stratford days". Students are stranded in Stratford with limited access to those services that students on main campus take for granted. While they understand that this is a hazard of being on a Satellite campus, there are few if any plans (articulated by the Stratford Campus admin) which will bring these services to Stratford or establish viable alternatives.

The GBDA students have learned a lot. Just not what they were promised when they stepped off that "GBDA Bus" that first day, with a spring in their step and optimism in their eyes.

GBAD

A Grammar Lesson

much versus many

When deciding if 'much' or 'many' is the appropriate determiner, pronoun, or adjective; there is one major consideration: countability. Countable nouns should be described with 'many' while uncountable nouns should be described with 'much'.

e.g.: Much wow, many doge.

The Editors

**bunniED can't wait until
Reading Week so that she can do
homework again**

On the Topic of Fighting Game Matchups

To start, I wanted to make sure that it is abundantly clear that I don't actually play fighting games very well—I get mixed up about my mix-ups and most certainly don't have the technical prowess to execute any of it should I understand what is going on. However, I do want to remark about something more mathematical, something which I can more confidently comment on.

It had recently come to my attention that when someone quotes that, for example, the Rachel vs Eliza matchup is 5.5-4.5, it's not usually the result of a statistical aggregation of data; in many games the number quoted in a matchup is merely an opinion adopted by a panel of "pro players" in that game. Furthermore, it is with this "data" things like tier lists for game characters are created (although the more "authoritative" ones tend to also consult tourney results).

As a statistician, this bothers me greatly for several reasons. The foremost objection I have with such a method is that the number obtained could be of very little ultimate practical use.

Many pro players are playing at a level which the common player probably will not ever reach, and understands the characters involved better to leverage each difference against the opponent, making the number not useful for determining who is better for most people. If one cares not about the casual level of play, it doesn't reflect reality either since it is a consensus on what the pros think the matchup under ideal conditions, which never occur in this mere shadow of existence we call reality.

Fundamentally, when we say a matchup is 5.5-4.5, we are claiming that under certain circumstances and assumptions, we think that character A shall defeat character B with probability 0.55. Generally, one looks up this figure, or to quote it, and wishes to invoke an argument of logos which is applicable to the situation at hand. However, the invocation is flawed should the aforementioned circumstances or assumptions do not apply—thus, the statistic should not be thus invoked. As mentioned above, the general method of procuring such datum applies to so little as to not be applicable; and even if one subscribes to the logic of the pros, the everyman is not skilled enough for the statistic to be relevant barring some extreme matchup like 9-1 (and at that point, people would start to question the balance of the characters, and that's a completely different other can of worms).

Through my reading on this topic, I have found a claim that statistical data aggregation methods in the past have not been accurate, to which I am very bewildered and flummoxed at such a claim; to a frequentest statistician the most important is the real world data, and all but are an abstraction which holds no meaning beholden to the a posteriori world. Setting that aside for a moment, how would one know—provided that the method of

data aggregation is appropriate and unbiased—that the method churned out from the statistical machine is "incorrect"? What is the metric used to determine this discrepancy, and should a reasonable metric be used, is it significant? I feel that, given Occam's razor, the more likely explanation is that the data wasn't aggregated correctly, and confounding factors such as sampling bias or not accounting for the prevailing meta muddled the data to make it unusable.

That being said, as a marginal tangent, how does the panel of pros determine that the meta of the game has shifted and the matchup number needs to be revised? Is it worth having the politics of who is considered a pro player to be included on the panel to tarnish something which could be passed off as science? How does the individual biases get accounted for? What about the groupthink or the hegemonic philosophy?

It's worthy to note that the meta shifting is a very real phenomenon, even in the absence of developer patches. As more time elapses, the player base gets better at the game, and is better able to take advantage of smaller edges more easily. However, as is very usual in the landscape, someone might discover a counter to the dominant strategy hidden in the toolkit of someone who might not be considered "top-tier" and thus are usually excluded from consideration. Under the current system it can form a feedback cycle—let's say that X is countered by Y, but the pros say that X is top tier and Y is bottom tier. Nobody is going to play Y, so it appears that X is undefeated. Owing to the large number of matches to return a statistically significant result, this is less likely to happen, but this can also happen to a carefully statistical model if the meta shifts after it has been developed (although the model can be updated more easily by only considering the most recent year's play, for example).

Granted, the opinion is not useless, and can serve as a very strong starting point for further investigation. If, for example, a group of pros think that a specific matchup is unacceptably lopsided, it could serve as the pilot study to base some of the more intricate iterative statistical studies from. After all, collecting the data properly and getting it analyzed is difficult, and in a game with, say, 30 characters there are 435 matchups, so it could be difficult to determine where to start.

Nobody promised that a statistical method will be fast, easy to do, or even powerful, but in a logical, scientific world it ought to be preferred over an opinion of several people deemed experts who arrive at the opinion via compromise as opposed to any rigorously reproducible method. After all, in part statistics is about finding the truth in the noise of data, and that is what it promises.

Zethar

**Submit your articles, *prof*QUOTES, &c. to mathNEWS@gmail.com
or the **BLACK BOX** near the MC Comfy Lounge.**

MisPrint

Last week's Imprint appeared rather thinner than usual. Perhaps they were prioritizing quality over quantity, perhaps not.

Headlining this fine paper was full-frontal exposé... of a Facebook argument? The article eventually moved past its summary of the comments to talk about a current issue (regarding WPIRG, you can read more in: Imprint Publishes Unbiased Article on Opt-in WPIRG Debacle). This has to be the most ludicrous headline Imprint has ever published: a direct quote from someone's personal Facebook comments.

The second page does a little better—a summary of the academic boycott of Israel referendum. Okay, I lied, it's only half a summary. The entire second half is a theoretical description of what would have happened if the vote had passed, a plethora of quotes from the "Yes" side, and what McMaster has done, since a similar vote passed there.

The real secret is that hidden on the second page beneath this monolithic article is a little info-graphic about the SLC/PAC extension. Five little icons in blue and green with text boxes attached. It is very informative thanks to the much smaller font size used to fit all the text into the boxes. I honestly like the balance they struck with this one.

Page three is real dry news: SLC renovations and where to find Imprint. As a reader of a newspaper, the most important issue is where to find their physical offices, right?

Starting at page four is actual new news. One of the articles is about our Aboriginal Studies program. You may not know, but this issue is actually related to last week's referendum. Canada's biggest shame: the Canadian Indian residential school system

(we would say 'Aboriginal' instead of 'Indian' now). Here is a short, very incomplete, list of facts that: it was funded federally for over 100 years, removed children from families, resulted in sexual abuse, forced sterilization, and denied aboriginal children from learning their culture or language.

Page five is an opinion piece and it is very well written. The topic of an opinion piece is not to be judged. The writing is clear, the paragraphs are actually paragraphs (up till now every article had 1-3 sentences per paragraph), and excellent diction. Great job, Marisa! It was enjoyable to read and a refreshing break from the articles consisting mainly of quotes. I am going to be frank here: articles consisting primarily of quotes are just summaries of opinions. While I believe they should be labeled as such, I do not want to detract from a good writer's reputation by grouping them in like that.

The remainder of Imprint is similar to page four: decent articles interspersed with articles that are over 50% quotations.

Sometimes I wonder who selects and edits the headline article because it never fails to entertain in all the wrong ways. My personal favourite is: "Students stress over access van service" published on September 23rd, 2015. It consists entirely of one and two sentence paragraphs where three begin with "however" and one with "but." I could advise reading it, but I withhold such burdens.

ProofReader [QED]

Disclaimer: *mathNEWS* makes no claim of being a quality publication or having a competent editing staff, so I do not hold it to the same standard.

Why Facebook Conversation Nicknames Are Unfair

In case you didn't know, Facebook conversations have a feature where you can give participants 'nicknames'. These are essentially replacement names and every message by the nicknamed person will have their nickname next to it instead of their actual name.

For some reason, Facebook thought it would be a good idea to allow any person to nickname any other person without their consent. This in itself has caused many a ruckus in busy group chats, but the really ridiculous part is that the nicknaming feature is only available through Facebook's messenger app. This means that unfortunate souls who don't have this app (such as myself) are at the mercy of any rambunctious friends in their group chats who feel the slightest flight of whimsy, and can get stuck with absurd names with no chance of retribution.

How to Make a Point

There have been a lot of heated topics around campus the last while, and I have noticed that a lot of people do not know how to make their point without attacking people. Some of the issues have been rather important, some have involved mistakes or legitimate problems, and others are minor by any measure. This does not seem to change how people behave about them though.

In the fight to make a point or get noticed in the crowd, people resort to tactics that take away from the topic. Being loud or angry does not make anyone more correct, and there are real people on all sides of an issue. It is possible to be passionate without being disrespectful, insulting people you barely know or have only minor interactions with is outside the structure of any debate. Expecting rational scholarly debate is unrealistic in almost every setting, but if things break down to personal attacks no one wins. Remember that there are real people reading what you write regardless of where it is, it is possible to disagree while still showing respect.

Registrar's Office is Probably Planning to Terrorize Students

After barely escaping from the Math Undergrad Office with my life and my override form, I went to Needles Hall in the hopes of a better future. But my optimism was unfounded; what waited for me was way, way worse than my worst nightmares, the MUO, or my MUO-induced nightmares.^[1]

The Registrar's Office's professional and friendly attitude and behavior is just a mask that the sinister forces in Needles Hall use to distract the brainwashed public from the mountains of skeletons that are probably in their closets.^[2]

All this perfectly explains my experiences with them. When I walked in into their office, some friendly-looking guy was immediately able to help me (or rather, lull me into a false sense of security). I asked him about the oral agreement not to process my form here which I had hastily made in the MUO, and he said, "You're probably OK." To the untrained eye, this may seem like he came to the completely reasonable conclusion that this agreement probably wasn't worth the paper it was not written on, but I think that he expected me and rehearsed the answer as a means to lure me out of the protecting hands of the relatively non-diabolic MUO.

Then, I quickly got to the appropriate desk to process my form. This might seem good, but it should actually be raising eyebrows: Where are all the people who are supposed to form a giant queue? Are they dead? Are they locked away somewhere?

Then, another friendly and competent-seeming guy processed my form. But this is where the Registrar's Office finally reared its ugly head. The guy told me that the class is full. Telling me that the class is full, when in reality, *the class was full?* How DARE he!!!

When I asked him what to do, he told me that I should probably ask the prof to sign a second override, while checking the "Course Full" box (and if possible the "Instructor or Department

Consent one", just to be sure^[3]). You probably think this is a reasonable and helpful thing to tell me. Ha! Just kidding! I knew you were smarter than that!

Uhhhh, w-w-waiiiit, you actually think it is? Can I have a smarter readership please?

Aaaaaanyways, I have seen the truth, so I can offer the following advice:

1. Don't go to Needles Hall. Go to the MUO (or your faculty's undergrad office, but I'm not sure about that).
2. Even if your friends tell you you should go to Needles Hall, don't listen to them. They probably are paid agents of the Registrar's Office.
3. Even if your friends tell you that Needles Hall is "more consistent", or "more reliable" than the MUO (or your faculty's undergrad office, but again, I barely know those exist), disregard them. Did you know who was consistent and reliable?? [*The rest of this paragraph has been removed by the Internet Police. You think the Internet Police only operates on the internet? Naw, apparently our jurisdiction also includes mathNEWS. Stay safe!—The Internet Police*]
4. If, by some unfortunate accident, you find yourself recommending the Registrar's Office, ask a trustworthy friend^[4] to perform an exorcism on you, just in case.

And lastly, WAKE UP, SHEEPLE!

undankbar

[1] To be fair, what happened was a little bit better than all my later nightmares about the Registrar's Office.

[2] If you look at a map of Needles Hall, you will notice that it doesn't tell you the locations of all the closets. Coincidence? I think not.

[3] There is probably a nefarious plan behind this, but I can't figure it out right now.

[4] How do you check if they're trustworthy? Ask them if they recommend the Registrar's Office, of course!

Imprint Publishes Unbiased Article on Opt-in WPIRG Debacle

Recently, Imprint published an article entitled, "You. Are. A. Vocal. Minority. That needs to check their privilege", based off of a Reddit post based off of a Facebook post by Math Councillor Deanna Darby Barton and reposted by Kush Patel. As the most trust-worthy paper on campus, Imprint receives its information from only the most infallible of sources for its news, like screenshots of Reddit or Facebook.

Feds suggested making the WPIRG fee an opt-in fee rather than an opt-out fee, sparking debate among councillors like Deanna Barton. As a vocal proponent for the status quo, Deanna Barton has received backlash and harassment, some in the form of news articles published in campus papers. It is undeniable that organizations, such as Imprint itself, would enjoy the same amount of success if fees were made opt-in, especially from its rising number of opt-out students.

Until recently, Imprint's reputation for poorly-researched and opinionated articles, despite being the official paper of the University, led to a decrease in membership. However, news reports of the same calibre as the article in question could improve its numbers.

The article is incredibly non-partisan in its coverage, citing only numbers and quotations from students of opt-in preference. When approached about the article, the Editor-in-Chief said, "I like (sic) literally (sic) love quoting teenagers on facebook (sic) for the Imprint (sic). I especially love it when their stuff totally (sic) gets blown out of proportion. It's my second favourite hobby next to front-paging unbiased articles."

WPIRG is an organization that aims to help the environment and the disadvantaged, and gains no benefit from student fees.

Why Racket is Awesome

Demonstrated By A Code Snippet I Wrote A Year Ago

```
#lang racket
```

```
(define (cowsort loa)
  (sort loa
        ; cowsort: now with lambda
        (lambda (x y)
          (or (equal? x 'cow)
              ; being inclusive with our string cow brethren
              (equal? x "cow")))))

(define-struct cow (cow))          ;; a cow!
(define-struct wow (make-cow wow)) ;; wow, a cow!

;;*****
;; Demonstrating the awesome power of cowsort:
;; - without cowsort :(
(equal? 'cow
        (first (cow-cow
                 (wow-make-cow
                  (make-wow
                   (make-cow
                    '(horse bear cow notcow))
                    'wow))))))

;; - with cowsort! (guaranteed 100x more awesome)
(equal? 'cow
        (first (cow-cow
                 (wow-make-cow
                  (make-wow
                   (make-cow
                    (cowsort '(horse bear cow notcow))
                    'wow))))))
;;*****
;; cowsort cowsort cowsort!
```

Yes, a possible alternative title is: “What Exactly Was aPlayerofGames Thinking a Year Ago?”

aPlayerofGames



Hooray for New Year's Loot!

Man Enters Lifetime of Servitude

Earlier this month, a man signed a contract for long-term servitude in exchange for resources so that he could afford food and shelter. This man is no stranger to voluntary labour, having just recently escaped from academia and the MC. There, he laboured for five years, spending long hours in the only room with sunlight, hoping that one day he might be able to go outside.

Finally, he got his piece of paper and was free to venture where he wished. He got to experience one month of freedom before responsibility ensnared him. His new jailers do permit him to leave, but only when the sun has set, and darkness once more envelops the world. He is forced to wait for dusk so that he may soar, an apt metaphor for someone who no longer has any hope for what the future may bring.

When asked how he felt about this new change in situation he responded quite politely by saying, “Fuck you.” Now, and until his body becomes old and weary, he works. Occasionally, when he has a brief moment of freedom, he goes and sees his friend. He mentions jokingly of how he would like to be kidnapped. He desperately hopes that they will understand and rescue him from his prison.

Beyond Meta

Desire to Unlearn

D2L, as it is officially branded now, is the company behind our online education system, Learn, and one of the largest software companies in the Waterloo Region.

Recent antics by D2L have left employees riled and prospective co-op students significantly less prospective.

In a move that was widely hailed as a great idea, the company relocated its Christmas party to the end of January, as most people take vacations around the holidays. To get a head count for the reservation, steeply discounted tickets were sold weeks in advance of the event. Now, an important detail here is that these tickets were for the venue and could be purchased by employees for non-employees. In other words, the ticket was the only requirement for entry.

Then, a week before the company Christmas party, management at D2L decided it would be a great time to do layoffs in order to time the decreased spending with the next quarter. Evidently, the next quarter is so important for D2L that it is worth taking a double hit to company morale. Refunds were issued to the now former employees, but this did not stop them from attending as guests with their former co-worker’s spare tickets. Definitely an awkward situation and not a very promising one for employees.

DoneCoop

Countdown Funk

This is the nerdiest song I have ever had the pleasure of singing on a stage. It was one of the songs in the FASS 2016 production Who's Afraid of the FASS?. To the tune of "Uptown Funk".

Big nerd I've been called
But my mind is n-fold
Numbers are my apex
It ain't complex, it's my master's thesis
Addin', dividin', hidin' out in the MC
Got my geek on, up until dawn
Special numbers are all I see

I love pi (hot damn)
Makes me wanna draw a big diagram
I love tau (hot damn)
Got the answers to pass my exam
I love e (hot damn)
You're too slow, gotta use Wolfram
I love primes (hot damn)
And I'm pretty good at juggling

Act Sci ain't my scene (one)
Pure Math ain't my scene (two)
Comp Sci ain't my scene (three)
With numbers real and unseen (count it down)

With numbers, lots of caffeine
With number, don't need hygiene
With countable and finite sets
Gotta be C&O

Gotta be C&O
Gotta be C&O
Gotta be C&O
Gotta be C&O
One, two, three, four!

Lyrics by cynic2.0 and DaFinkel

El Jengibre

David McKinnon's Fanpage Finally Gets the Recognition it Deserves!

Recently, a good friend of mine received the following email from their dearest former MATH 147 professor:

A few evenings ago, I showed my kids the fan page that you host, with all the pictures of me and quotations and such. They loved it! I don't think I've heard my eldest daughter laugh that much in three years, in fact. All three of my kids thought it was the greatest thing ever, and I figured I should pass that on. Please do share this information with any other students who were involved in the creation or maintenance of the page, if it's not too much trouble. Thanks!

Regards,
David McKinnon

Ted Cruz For The Next Prime Minister of Canada

Donald John Trump, the one and only person who will make the American dream greater than ever before, has come up a great suggestion. In the case of some miracle common sense, if Ted Cruz, won the election for the White House, he should also run as the Prime Minister of Canada, because he is also a Canadian.

Ted Cruz might be the first ever to hold office simultaneously as the President of United States of America and Prime Minister of Canada. He will fulfill the lifelong dream of dozens of Canadian (dozens!), especially those of them who are too much of a bum to enter the United States, mostly because they are too poor for health insurance. Therefore these degenerates are stuck in Canada instead of chasing the American dream. Which might or might not include me. (Please, Cruz, I want be part of American dream too.)

Ted will indeed be the enabler of the merging of the two countries. American will gain one red state which will help the GOP to win every election for the next two hundred years. Except Quebec. By the way, how are they even in the same continent with us?

Many people adore Ted Cruz. He is a person that has a proven conservative record. Perfect for an ultra-conservative nationalistic country like Canada. Ted will never back down from anybody; he would even shut down the government to save money and conserve energy. He will fight (for) everybody. Thus, this makes him a perfect anti-establishment candidate. Except to the Koch brothers. He needs to replay the loans, after all.

Ted Cruz will start a movement for the silent majority in Canada. He is the best candidate to replace and remove the Trudeau weed. He will defeat the social justice warriors that are the Liberal party.

And when people ask Cruz how can a person born in a dirt-poor country run for a most powerful office in the world, Cruz will answer, "It's 2016."

me

My good friend was delighted: the website they created was finally recognized to be as awesome as it totally is!

I finally convinced my friend (who, sadly, is too shy to publish it himself) to let me publish this email in *mathNEWS*, because even if you, dear reader, were not personally involved in the creation of this page, you still help maintaining it by providing it with all those sweet, sweet clicks!

<http://csclub.uwaterloo.ca/~fbauckho/>

Thank you, good friend, for making that website! Thank you everybody else for appreciating it!

Dank

Proof-Reading: It's Not Just for Essays

π^2 is rational! ... Wait, what?

In math, sometimes it feels like you can write an entire assignment in symbols and get away with it. At UWaterloo, this is perhaps less true, because we insist that you do at least *some* proofs (for which you really should be writing full sentences down), but it often happens that an entire assignment is “compute these quantities” or “solve these DEs”, and not “compare and contrast the constructivist philosophy of Kronecker with the modern approach to model and set theory as initiated by Cantor and others”. So you write some symbols down on the page, push the symbols around (otherwise known as “manipulating”, for the more devious of us), and end up with an answer; sometimes we're told what the answer is, and sometimes we just have to take it on faith that we got it right.

Or do we?

There are often a number of ways you can sanity-check your work. Some of them involve some auxiliary computations, while others involve thinking critically about what you've done and why it makes any sense whatsoever. This, of course, is a form of proof-reading; while you may not be focusing as much on grammar, spelling, and punctuation (i.e. copy-editing), checking your work for logical missteps, mathematical typos, and factual errors are very important things to do (not to say anything about mathematical style, but we will not cover that here). Here are some ways to do so.

- **Take a derivative.** If you are computing an antiderivative, don't forget that you can always take a derivative, and you should get back the function with which you started. Be careful—you might have to use an identity to make your answer look the same. This can help save some hassle while doing multi-step computations, because you'll catch your error if you mentally do the differentiation immediately after you write down the answer. This does take time, occasionally, so on a test it might not be the most useful thing to do. There is no reason not to do this for assignments though.

The Meme Value Theorem

There's this recently developed math thingy to deal with induction on circle inversions and such (I know Dani found it quite useful). The technique goes like this:

1. Take any edge of the triangle and construct the right bisector in preparation for induction.
2. Apply the Riemann Zeta function such that $Zeta(69) = 420$;
3. $1337 + Zeta(69) = 3$.
4. Illuminati.
5. Go to csclub.uwaterloo.ca/~d223chen.

Daaank.

Asian

- **Plug your answer back in.** This can refer to, at least, substituting a solution to a differential equation back into the DE to see if it is actually a solution. This can also be time-consuming, especially for more complicated DEs, but taking derivatives is most of the time easier than solving DEs, so it's a good way to check that you got a valid answer.
- **Estimate the quantity you're computing.** This is often useful for infinite series or strange-looking integrals. Can you make a decent estimate as to the resulting quantity? For example, if you are doing a double summation of positive quantities, it surely must be larger than if you fixed one of the variables and summed over the other, since you are only including a portion of the summands. Do you have a positive quantity equalling a negative quantity? Maybe there's an issue.
- **Check if your answer contradicts known mathematical facts.** For instance, I recently “proved” on an assignment that π^2 was rational, which implies that pi is algebraic; we know (admittedly via high-powered machinery) that pi is transcendental, so clearly this was not true. While it took me a while to find my error, I did indeed find it: the empty product is assumed to be equal to 1, and assigning it a value not equal to 1 is kind of a problem. Other times, it may be a more subtle contradiction. Of course, be careful if you happen to be doing a proof by contradiction: this is what you want, in that case!

To conclude, we may return to the age-old concept of taking care with your work. To do well, it never suffices just to have one pass at an assignment; go over it, edit it, fix your mistakes, and then write/type up a final good copy. It's hard to do when you have five courses, I agree, but your marks will be happier, and so will you.

Happy proof-reading!
Scythe Marshall

N Reasons to Celebrate Imprint Recycling Day

How to 'enjoy' the new editions of Imprint

- Hilariously incorrect graphics more often than not!
- Poorly researched articles that make great research projects.
- Being environmentally conscious is a good thing!
- See what some people call news and then immediately proceed elsewhere to get the news you were actually looking for.
- Free and easily accessible paper towels for those nasty spills!
- More art supplies are now available to you!

Proud Imprint Recycle-er

Complex Relationships

This time of the year is often associated with reflections about relationships. For many single people, the thought that floats around is why can't they get a relationship. I believe their problem's lies in the fact that they are too fixated in getting a real relationship. Real relationships are hard to get. As it requires finding someone that you deem suitable that also deems you suitable. This is why here at *mathNEWS*, we suggest to get a complex relationship instead.

What is a complex relationship? It's a relationship which is described with a two parts: a real and imaginary one. Complex relationships can have a zero real part. Sometimes finding what you want in real life can be difficult; imagining it on the other hand is very easy.

Real relationships can be super stressful. There are all sorts of expectations: you should get them gifts, and spend time with them. In complex relationship, you do not have to get them real gifts or spend time with them.

The so called real relationships tend to be quite complex. Both people have a bunch of expectations in their heads that they do not always communicate and then they just get mad when the partners do not meet them.

Cut the real part of the relationship. You do not need the other person's awareness to have an imaginary relationship with them. Just because they do not think you're in a relationship, does not mean that feelings you have for them do not exist and do not matter.

We should stress it is important to realize and acknowledge what parts of your relationship are imaginary. Expecting for your relationship to become purely real is surefire way to become dissatisfied. The person you are pursuing in your head does not owe you a relationship in real life. Do not try to square your complex relationship; it is just going to end negatively.

A complex relationship is one that is first and foremost a relationship to yourself. You are the only person who is responsible for your happiness and well being. While other people may have an impact, you are the one who is accountable.

The one downside to a complex relationship is that it is not one you can really share with other people without running a severe risk of being called crazy.

Falling in love is one heck of a feeling. It fills you with energy and motivation. It is what most opioids try to mimick. Do not let reality get in the way of falling in love.

Beyond Meta

Soylent Update

A while ago, I started eating Soylent, a powdered meal replacement that you mix with water and then drink instead of eating regular food. I had two main reasons for this. One was that it seemed like a weird hack of my body, and that was exciting. The other, bigger, reason was that I am incredibly lazy when it comes to making food and this seemed like a really nice way to avoid spending time preparing meals day after day.

I wrote an article about this in *mathNEWS* when I was first starting out. Now, I feel it is time for an update. Unfortunately, I fear this update makes me look even worse than my original decision to start eating Soylent in the first place.

My normal routine when I was starting out was to prepare Soylent the day before and let it cool in my refrigerator overnight. I would then carry it around the next day in two plastic bottles within my backpack, drinking it as I felt hungry. Sticking to this plan proved far more difficult than it should have.

First, I would start craving junk food partway throughout the next day, so I would purchase a bag of chips. Then, the chips would make me less hungry, so I would drink less Soylent than I anticipated. By the end of the day, the Soylent started to taste warm and disgusting, so I would not finish it. I would then go home, be really lazy, and fall asleep without preparing a fresh batch for the following day. Then, since I spent most of the next day at school without any fresh Soylent to drink, I would be really hungry and often end up purchasing a meal from the Plaza.

My problems did not end there though, as at the end of the day I would be carrying around around warm, two-day-old, in my backpack. At this point, the responsible thing to do would have been to clean it out and make a fresh batch. Instead, I removed the Soylent bottles from my backpack and left them around to wash later. This went about as well as you would expect. After another day of letting the Soylent fester in unwashed bottles, I would become averse to even opening the containers to clean them. This only served to further spur the cycle downward.

In conclusion, I purchased Soylent because I was too lazy to make food, only to find that I was too lazy to make Soylent.

Nowadays, I have a job that provides lunches for me, which means I no longer have to be responsible for preparing that meal daily. I wake up too late every morning to eat breakfast, save for the times I reach into a cereal box and stuff a handful into my mouth before leaving to catch the bus. That leaves only dinner, which I am still too lazy to cook for myself. Thankfully, *mathNEWS* provides free pizza every other Monday, which is a start. Once I figure out how to avoid making dinner the rest of my nights, I will be set for life.

Dusk Eagle

Please, No more. Release bunnIED from this editorial heck. How many bunnies must I draw? How many edits must I do?

The Search for the Ancient Stone Pt. 3

The following passages were directly transcribed from the journals of Theodore Bear.

Day 48

The damp streets of London glistened in the light of the streetlamps. It was getting late; the sun, having spent most of the day behind the dark gray clouds, had finally been swallowed up by the horizon. I was staring out of the parlour window into the street below, when a voice caught my attention.

“It’s been a jolly good day for the both of us, sir. Perhaps we should retire for the evening.”

It was Reginald Brimley, my incredibly British sidekick.

“I don’t think so, Reginald. This case, it’s been keeping me up for the past few nights. If you wish to sleep, then do so; but I’ll be staying up tonight. Who knows, the murderer may strike again.”

Reginald tipped the brim of his bowler hat to me. “Of course, sir, I understand. Shall you be joining Mrs. Walterford for brandy then?”

I nodded my head. “I feel obligated to partake in any generosity offered by our host, Reginald. We wouldn’t be good guest if we didn’t.”

“Quite, sir. But I’m afraid that my fatigue shall prevent me attending,” was his response. I heard his footsteps as he clambered up the stairs.

I turned away from the window, examining my surroundings. The entire parlour shone in the soft, warm yellow light coming from the fireplace. Above the mantle hung the portrait of the recently-deceased Henry Walterford, gazing out upon the entire room. I decided to check the kitchen. Brandy wouldn’t be served in another thirty minutes.

The kitchen looked like it had come straight out of the nineteenth century, which, to be fair, it had. There, the two servants, Charles Thompson the butler and Mary Alberts the cook, were talking together.

“Inspector Bear, would you like some refreshments?” Mary asked when she noticed me.

“I’m fine,” I told her. “I am simply waiting to take brandy with your lady.”

“Of course, Inspector,” she said, her thick Cockney cutting her words. “Charles and me—”

“Charles and I,” I corrected her.

“Pardon my mistake, Inspector, but Charles and me were just wondering when you’d find the murderer.”

“In good time, Mary, in good time,” I told her.

“Sir,” Charles spoke up, “if you wish, I could serve brandy now. The lady is doing nothing, and I’m sure she will appreciate your company.”

“If it is the desire of your lady, then I shall.”

Charles exited the room, before coming back a few minutes later, informing me that Mrs. Walterford was ready for drinks. When I reentered the parlour, she was waiting for me. Mrs. Walterford was almost sixty. Her grey hair, the drink she held in one hand, and the long cigarette she held in the other; she was the stereotypical old British lady. I took my seat across from her and picked up my glass, already filled.

“Do you think you know who killed my husband, Inspector Bear?” she asked me.

“I believe I have all the evidence I need to make my judgement, Mrs. Walterford. As is common in such scenarios, we shall bring everyone here tomorrow morning and I shall all the secrets everyone has been hiding from me these past few days.”

She turned her nose up at me. “Does that include me, Inspector? What if I do not wish for my secrets to come out?”

“If you didn’t wish for that, you should not have hired me to find your husband’s killer.”

“But I didn’t hire you. You snuck in to one of our dinner parties, and since you were an outsider, that means you couldn’t have been the murderer.”

“Still, you accepted my help.” I finished my drink. “Tomorrow, Mrs. Walterford, shall be the day of truth.”

Day 49

After everyone had gathered in the parlour, I began with my summation of the events of the past few days. When I got through all of that, and after going through all the evidence I found during that time, I began unravelling the mystery in front of everyone.

“Now, it has come to my attention that all of you here have been keeping secrets. These secrets could give us insight into why Henry Walterford was murdered. I shall expose your lies here, in this room.”

“Can you simply tell us who the murderer is?” Mrs. Walterford asked.

“Very well, the murderer is Mary.”

“What?” the cook said. “I didn’t kill anyone.”

“That’s right, but your accent, it’s fake. You’re actually from Sheffield. You may not be a murderer, but I hate when people fake accents. It just annoys me.”

Hitchhiker's Guide for Getting Through Midterms

"All right," she said, dropping her Cockney façade. "Then who is the actual murderer?"

"It's Charles," I said. "I know because the butler always does it."

Charles looked at me in horror. "Sir, if I may object, I didn't do it this time. I admit that I poisoned Mr. Walterford's two brothers, but I would never do such a thing to my lord."

"All right, Charles, you're off the hook for now. I just have a predisposition towards blaming the butler you see." I rubbed my chin. "Mrs. Walterford..."

"Are you planning on accusing me, Inspector Bear? Of this ghastly crime?"

I shook my head. "No, Mrs. Walterford, you are guilty of a far greater crime than that. For the past two nights, you have served me what was in your words '50' year old brandy. In fact, the brandy was 49 years old. That is your grave crime."

The policemen who had gathered around me gasped in shock. When they calmed down, they arrested Mrs. Walterford, and put her in the back of the station wagon, before filing out of the home. Once all of them had left, Mary spoke up, using her Sheffield accent.

"But then, who killed Mr. Walterford?" she asked aloud.

I knew the answer. "Why it's the gardener, because he's the only one I haven't mentioned in this narration so far."

"Drats," the gardener said. He shook his fist at me, and yelled, "This isn't over... BEAR!!!" before he jumped through the nearest window.

I smiled. Justice had been served today. Another case had been closed, and everything seemed to be right in this world.



CINNAMON HEARTS!

As midterm season is beginning and assignments are being posted, I recall a quote from the great satirist Douglas Adams, "I love deadlines. I love the whooshing noise they make as they go by."

In this spirit, I recommend finding a new focus, not on your studies but in the writings of this great man. His works primarily consist of science fiction with a humorous slant, the most famous of which is the Hitchhiker's Guide to the Galaxy trilogy. The series is composed of five novels that he wrote and a sixth published posthumously in 2001, finished by Eoin Colfer (famous for his Artemis Fowl series). The series developed a devoted following from its humble beginnings as a radio series and has since spawned worldwide events, mostly featuring towels and the number 42. For those unfamiliar with the series, it follows the mishaps of a British Earthling named Arthur Dent whose misfortunes continually put him in the path of marauding Vogons (a bureaucratic race that has a love of awful poetry), Zaphod Beeblebrox (the self-indulgent, kleptomaniac President of the Galaxy), and Mr. Prosser (the ancestor of Genghis Khan whose conquering skills are somewhat lacking). The books also have a well-developed cast of supporting characters including Ford Prefect (a humanoid alien trying to blend in as a car), Marvin the depressed android (with a "brain the size of a planet"), and Slartibartfast (an award-winning coastline designer with a funny name). Douglas Adams also developed a text-based adventure game that follows the events of the first novel and is another delightful distraction from school. If you are interested, the game can be found on the BBC website, but be warned that it will kill you often.

For those who may have already read these books, Adams also wrote two novels following the adventures of Dirk Gently, a private investigator concerned with the "fundamental interconnectedness of all things." This allows Dirk to charge his clients fees for investigating at a beach in the Bahamas when they have hired him to find the cat that ran away in London. These two novels are mostly stand-alone, but may require background knowledge of English poetry, practical experience in Norse mythology, and a PhD in something related to, but not actually, quantum physics.

Douglas Adams has a unique and quirky writing style that often uses parapradoskians, where a sentence has an unexpected twist in its ending. He informs readers that anyone can fly, you just have to "throw yourself at the ground and miss."

If you are interested in Douglas' work, many of his novels can be found in the new Clubs Library (second floor of SLC beside Campus Response Team room).

At this point in the term, getting through midterm season, it is important to remember the most important part of The Hitchhiker's Guide, the cover: "Don't Panic."

Tiny Stripecy Jerks

Apiphobia, the fear of bees, is one of the most common phobias in the world. People hate and fear these tiny creatures for their nasty stings. I am not one of those people. I am not fond of being stung, but bees will not sting you on a whim. They need to sacrifice their lives to do it, so they will save that sting for when their people are in danger. And besides, honey is pretty dope. That is why this article is not about bees.

It is about their useless hate-filled cousins, wasps.

Bees serve a useful purpose in our world; they are the most iconic pollinator. A world without bees could literally be a world without flowers. Plus, as mentioned before, honey is pretty dope. Wasps lack the friendly fuzziness of a bee, and are thus next to useless at pollination. And wasps are a net negative on the world's honey supply, as they will happily consume it without making any of their own. Slackers.

You may be getting the impression that I consider wasps to be the worthless layabouts of the animal kingdom. That is not my opinion. With nothing productive to do with their lives, wasps have plenty of time to be spiteful wretches. Unlike their useful kin, wasps can sting people to their tiny blackened hearts' content. And do they ever. The majority of the stings contributing to the widespread fear of bees? Wasps.

The only use we have for these tiny bundles of spite is getting them to be jerks to other insects we dislike. Literally the only redeeming quality that wasps have is that they are mean to other pests as well. And there is all sorts of better sources of pest control. Wasps lay their eggs in the eggs of other insects, and generally bully a few of them when they feel like it. Bats, on the other hand, eat several hundred insects in the span of an hour. And plenty of bats are cute and fuzzy!

Long story short, wasps are jerks, and I hate them.

$s, t \in \{2K, K \in \mathbb{Z}\}$, 144

The Elusive Well-Rounded UW Student

You may not be aware but they do exist. Maybe you do not know them personally but you have heard of them, seen them from afar, heard whispers of this magical creature – The Well-Rounded UW Student.

They walk around campus stopping constantly with a smile and wave to everyone they pass. By day, they take a full, challenging course load; by night, they are out with multiple groups of friends, judging by how great they look, they are also getting a full night's sleep and hitting the gym regularly. They walk around with their head held high. They eat their gourmet, home-made, nutritionally balanced meals. They are involved

A Precise Definition

This is an article about bathrooms. Sorry, let me make that more clear. This is an article about bathrooms.

Not washrooms. Not restrooms. Bathrooms. You know, that room in your house that has a bath in it. Or at least a shower. There is probably a sink and a toilet in there too, but that is not important. That is not what gives it the bathroom essence. If it is just a lonely sink and toilet sitting in a little side room, it is a washroom, not a bathroom. Nothing friendly about one of those, you come in, you use it, you leave.

Bathrooms, on the other hand, are nice places. Roomy, well-lit, comfortable to sit in. Associated, in your mind, with dousing yourself in relaxing warm water. But wait! Put too much comfort into the room, and it loses its bathroom status once again. If you think of this place as somewhere to go and read a magazine, or if you never spend less than twenty minutes in it, it's no longer a bathroom; it is a restroom. Not that there is anything wrong with restrooms, but they are not really the image I am going for here.

In fact, let me just get all the other so-called synonyms for bathroom out of the way, so that we really know what we are dealing with here. Lavatory? Only if it is reserved for fancy British ladies who bring their tea in with them. Outhouse? Obviously is located outdoor and is probably a lot less comfortable, except maybe in the summer. Powder room? Should really be used for gunpowder storage vaults in a military base. Or maybe a room full of garlic powder, I do not know.

Now that we are rid of all these other silly terms, we can keep talking about bathrooms. Like I said, they are nice places. You probably spend about 1% of your life in them. Learn to appreciate them, and do not burden them with those other words.

I forgot where I was going with this.

Cowabunga

in clubs on campus, probably saving the world from disease and poverty. They have so many interviews that the employers have to fight to the death to compete for their employment. They could bring a seal back to life with their smile. They probably would have proved Fermat's Last Theorem if that darn Fermat didn't get there first.

If I didn't know better, I would think they were a superhero. Thankfully, I surround myself with mediocre individuals who reinforce my own mediocrity. The last thing I would want is an inferiority complex.

G-UNIT

Submit your articles in the BLACK BOX outside the MC Comfy or email them to mathNEWS@gmail.com!

horrorSCOPES

ActSci: You calculate the expected length of a relationship and decide it is not worth your time.

Your unlucky number is: 46 more years of life expectancy, spent alone.

AHS: All of your friends have dates for Valentine's Day but you do not. You show up outside of Victoria's Secret in nothing but a pair of shorts.

Your unlucky number is: 1 date with twins.

AMATH: You try and model your love life with your potential dates in a Matlab array.

Your unlucky number is: Matlab arrays don't start at 0.

ARTS: You discover a study with 36 questions that were designed to make a person fall in love with you. You try these on your crush.

Your unlucky number is: You knew it was over at question 18, "What is your most terrible memory?" as your crush responds "Right now."

C&O: The Perfect Marriage Theorem finally prevails! You draw up the bipartite graph of your heterosexual friends and perform the matching algorithm.

Your unlucky number is: 5 trespassing violations.

CM: You get asked by parents during March Break Open house what program you're in. When you answer, they say that it's no longer in the guide. Good thing that St Patrick's day is near...

Your unlucky number is: Zero vertices in the other partition, thus the maximum matching is of size zero.

CS: You post your Github to Reddit in hopes of attracting a date.

Your unlucky number is: 5 interviews with various Microsoft departments.

Double Degree: The benefit of being in two schools means you get two Valentines. Both have asked you out for Saturday night.

Your unlucky number is: one restaurant, two dates is considered double timing.

ENG: Due to the flurry of romantic paraphernalia, you suddenly have the urge to use your FYDP funds to build a robot as your date.

Your unlucky number is: 2 minutes of battery life, so you gotta be fast.

ENV: You protest commercialized chocolate for destroying the rainforest. You reject any potential dates who send you non-fair-trade products.

Your unlucky number is: 4 dates and 6 figs.

Math Phys: You decide to apply the properties of physics to relationships. You conduct several social experiments and obtain surprising findings, many of which demonstrate the exciton-like behavior of a meta-stable relationship. You write up your findings and publish it in a peer-reviewed journal.

Your unlucky number is: 15 manuscript rejections.

PMATH: You have no time for frivolous things like dates when there are sill unproved Clay Institute Problems.

Your unlucky number is: 24 hours well spent on Navier-Stokes.

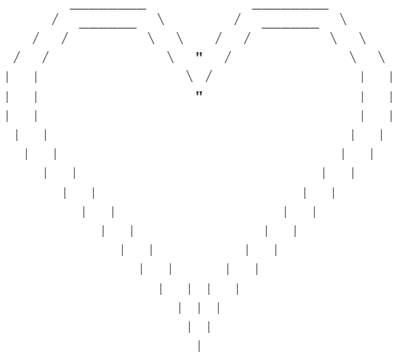
Soft Eng: In response to your friends' complaints of not being able to acquire dates, you decide to build an AI to help them develop social skills.

Your unlucky number is: 364 days until your testing cycle is complete.

Stats: You decide to apply the process of hypothesis testing to improve your ability to find dates. You assume the null hypothesis is "the person is open to date me" and let $\alpha = 0.005$.

Your unlucky number is: 14/14 potential dates reject the null hypothesis.

arabesque



**bunniED's living a lie
(There's nothing inside)**





gridCOMMENTS

Hey cats,

We received a whole four submissions this time, all of which were perfect! The winner of the v130i2 *gridWORD*, however, is anonymous (possibly 2A or ∂A?) for pointing out that the v130i1 *gridWORD* was missing eight of the clues. Yikes! Maybe Tubbs ate them all? You can pick up your \$5 C&D gift card from MC 3030 if you can recall what you scribbled over Tubbs' face (or anywhere else on your submission). Thank you to another anonymous submitter for pointing out the missing clues as well.

Okay, okay, so many it wasn't Tubbs. Maybe it was just me. Maybe I was tired that day. Because, heck, I sure am tired right now. Why did I decide to take up executive work, editing, bunny-drawing, *and gridWORD*? Oh, right, because no one else wants to do it. If you don't want me to exclude clues again, maybe you could volunteer to be the new *gridMASTER*. Maybe I'll hold clues hostage until I get volunteers to email me at mathnews@gmail.com. Or maybe ConvolutED will return from the dead and make grids again. (Please, ConvolutED, end my suffering.)

In case of a tie, this week's *gridQUESTION* is: how else can bunnIED's suffering be put to an end?

bunnIED

gridCLUES

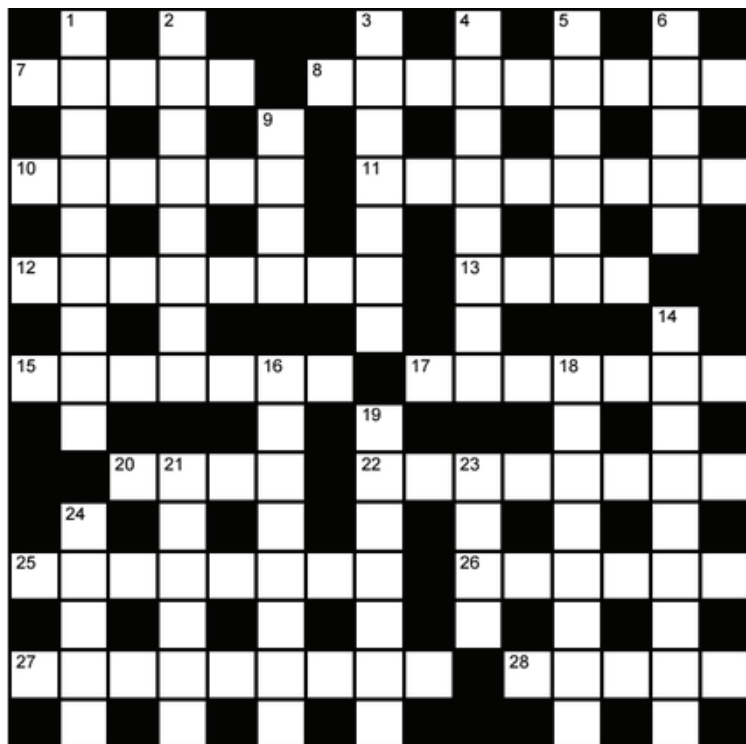
Across

- 7 Middle-in-first-out is an uncommon variation
- 8 Gaussian eliminate
- 10 Popular city in Ukraine (for a date?)
- 11 Ben Stein's vocal secret to getting dates, adj.?
- 12 These types of lines don't exist on the projective plane
- 13 Like x
- 15 What a third wheel does to relationships
- 17 Technically, an antirequisite of a love triangle
- 20 Norlund's valentine for over half a century
- 22 Beverage type (not to be served on a first date)
- 25 Oscillates between different flavours in flight
- 26 Analyse
- 27 Delivers web pages to clients
- 28 A cupid owns at least one

Down

- 1 Worst-case run-time of quicksort
- 2 A type of vector space
- 3 Love or math, e.g.
- 4 Wild
- 5 SketchED, e.g.
- 6 A bad thing to make on Valentine's Day?
- 9 The shape of a Lindor
- 14 The rank-nullity theorem makes a statement about the kernel's
- 16 Like a third wheel?
- 18 A cousin of squaresort?
- 19 Requires a proof
- 21 Annoyingly insensitive
- 23 Average
- 24 First clue across?

This Issue's Grid:



Last Issue's Grid:

