

math

Volume 125, Issue 5

NEWS

Friday, July 11th, 2014



In the name of mathematical
rigour, I will solve you! ☆



lookAHEAD**mathNEWS**

July 11	Issue 5 fires lasers out of its eyes.
July 21	Issue 6 re-reroutes the temporal overlays near the localities.
July 25	Issue 6 successfully hacks the number strings.

CECA

Ongoing	Employer Continuous Interviews
July 11	Match Results
July 15-16	Info Sessions for Graduating Students
July 16	Match Results
July 18	Match Results
July 23	Match Results
July 25	Match Results
July 30	Match Results

MathSoc

July 11	BBQ Sports Day
July 17	MathSoc General Meeting
July 19	WiM and DDC Wasaga Beach Trip

University

July 11	Drop, penalty 1 period ends
July 30	Classes end

Miscellaneous

July 15	Tapioca Pudding Day
July 15	Cow Appreciation Day
July 20	National Ice Cream Day
July 21	National Junk Food Day

**THE QUANTUM ZONE IS
GONNA BLOW!****ISSN 0705—0410***Founded 1973*

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Murphy Berzish (Delta-Region Plasma), Katherine Tu (Capacitor Vortex), Rachel Wiens (Time-Matter Field)

mastHEAD

Two weeks ago, math students with 8:30 classes were purportedly disappointed when they came to MC and did not see copies of *mathNEWS* strewn on the planters. What would they do to keep themselves awake so early in the morning? Having no source of entertainment, many math students dozed off.

However, by the time class ended, *mathNEWS* was still nowhere to be found, and math students all over campus were shaking in their boots. Was *mathNEWS* finally gone for good?

Alas, the Editors were late distributing the last issue of *mathNEWS* due to an unfortunate misprint by our usual printing service. (They printed an issue from a year ago.) This required an extra turnaround time of about 24 hours, which means that they were not done until about noon on Friday, the day of distribution. The Editors totally did not take this opportunity to sleep in. How else would they have witnessed the aforementioned events, which were, by the way, factual and not made up just now?

Hopefully, math students did not receive too much of a panic when *mathNEWS* was distributed seven hours late. But within those seven hours, perhaps some wondered: What if *mathNEWS* was cancelled... *forever*? Because we did not have the time nor the resources to contact our whole readership*, we asked our writers what they would do if *mathNEWS* was indeed cancelled... *forever*.

zysygy("Start *mathNEWS* 2: Electric Boogaloo"); s,t \in {2k,k \in Z}, 144("Mourn the loss of my free dinner."); IceNine("Restart *mathBOOZE*."); MeaninglessQuips("Eat 100% better once every 2 weeks."); arabesque("assume by contradiction *mathNEWS* isn't cancelled, continue submitting articles to *mathNEWS*."); MuffinED("Ctrl + C + \uparrow + Enter"); waldo@<3.LE-GASP.ca("First, I'd yell, 'NOOO!!!!' then I'd probably just keep doing what I've been doing ^u^"); Shay Blair("Find whoever caused, acquired blackmail, get *mathNEWS* reinstated."); Zethar("Move *between* and go somewhere else, of course."); Beyond Meta("Write a *mathNEWS* article expressing my outrage."); Scythe Marshall("Finally go to bed at a reasonable time, every second Monday night?"); \&("Find another way to procrastinate doing assignments and studying... laundry? Dishes?");

bunniED("Cuddle bunnies for comfort.")

* No, not even the ε people who read *mathNEWS*, ε small.

**The inverted data access
damages the enhanced domain
matrix! We must boost the
energies so that the singularity
diagnostic is removed.**

Taras Grescoe Weaves a Tale of Transit in Straphanger

Recently, Taras Grescoe, the author of *Straphanger* came to Waterloo to give a talk on his book and transit, and what he thought about the ION transit system. Cautious optimism seemed to be the thought of the night; while he felt that more had to be done to ensure affordable housing and high density development occurred near transit stops, it is a promising development in our city. The talk can be seen on YouTube for those who missed it.

The book *Straphanger*, on the other hand, is an interesting look at various transportation systems across the world. After traveling the world as a “straphanger” he gives us the benefit of his experiences. From the wastelands of L.A. and Phoenix to the surprising turnaround in the Colombian capital of Bogotá, he describes how some cities have grown up around their transit systems, and how they have influenced their growth, and how a transit system must be designed to work within the area it is built; a fancy new monorail doesn’t work everywhere. Ending with a discussion about the lost opportunities in Toronto and the successes in the author’s hometown of Montréal gives the book some local interest. Consider this a recommendation.

Daniel Brotherston

General Meeting

This term’s General Meeting will be held on Thursday, July 17th at 5PM in MC Comfy. Come debate about important issues! FREE PIZZA will be provided!

Current Agenda Items:

1. Reports from Executives
2. Report from Executive Evaluation Committee
3. Locker Policy Change
4. Capital Improvement Fund Policy Change
5. Bylaw Amendment to include Off-Term Executives as non-voting members of MathSoc Council

If you cannot attend the General Meeting and would like a fellow MathSoc member to vote on your behalf, you can proxy your vote. Proxy forms will be available in MathSoc Office (MC 3038). Any questions or inquiries can be directed to Febrian Sidharta at prez@mathsoc.uwaterloo.ca.

Febrian Sidharta
President, Mathematics Society

Games SEZ

Hi, mathies and gamers, just a friendly reminder that MathSoc runs weekly board games nights every Thursday at 6:30PM. Come out, play board games, eat free snacks, and generally have a great time.

Daniel Resnick
MathSoc Games Director S14

CSC FLASH

It’s never too late to pledge allegiance join the CSC—come to MC 3036 to register.

Pop, cup noodles, chips, and chocolates bars are always on sale! Members also have access to office terminals and can access an extensive collection of reference books. The office is also equipped with multiple staplers to meet all of your last-minute-assignment-stapling needs.

Two events are happening today:

- UNIX 102: Learn how to use your webspace and host content for the world to see!
[5:00PM, MC 3003]
- CODE PARTY 1 / SE HACK DAY: Come out to the first joint CSC Code Party/SE Hack Day! Come work on projects and earn your dinner. :)
Be prepared to demo whatever you end up working on.
[6:00PM, M3 1006]

If you have any questions, feel free to drop by the office anytime.

Jinny Kim
President, Computer Science Club

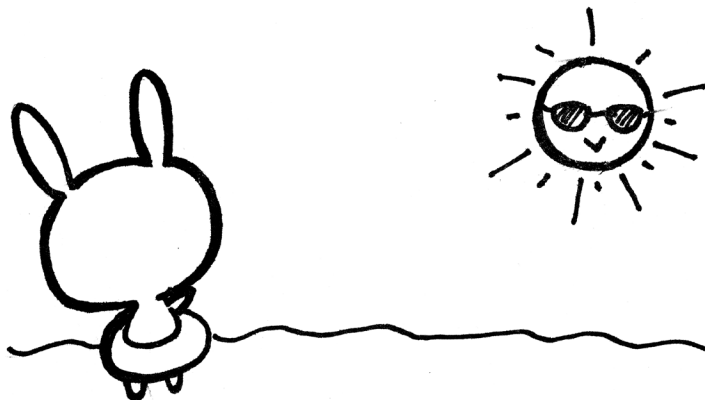
Cruising on King

Do you like classic cars? Do you want to experience the magic of a car-free King St. filled with cars? Come out on Friday, July 11th for the 24th annual Cruising on King Classic Car Festival. Culminating eleven days of car free King Street festivals, the Classic Car show starts at 3–6PM with a show and shine in Victoria Park, followed by a Classic Car Parade from 7–8PM. After that, the cars will be on display on King Street until 10.

Daniel Brotherston

Beach Trip

On July 19th, join the Women in Math Committee and the Double Degree Club on a trip to Wasaga Beach! The bus leaves campus at 9AM and returns around 9PM that evening. Tickets are \$5 for math students and \$10 for non-math students. See facebook.com/WomenInMath or DDClub.ca for details!



Office Gossip #3

Check-outs

Being a student is expensive. Between tuition, books, and living expenses, not much money is left over for personal effects. This can be a blessing in disguise, though, because living light means having a much easier time moving, as students are wont to do. However, just because students can't afford to own and move some things, doesn't mean they shouldn't have access to them. MathSoc understands this, and keeps a wide variety of useful and fun things available to be checked out. For example, did you know that MathSoc has one of the largest collection of publicly-available board games in the area? The Society has teamed up with the Waterloo Science Fiction Society and together are able to offer up over 250 unique games. In addition to games, here is a list of items commonly checked out by students:

- Textbooks. MathSoc has a wide collection of course-related textbooks, including copies of most textbooks for first and second year courses.
- Calculators. While MathSoc is not able to check out calculators to students to use on their exams, midterms, tests, or quizzes, calculators are available for assignments, coursework, or personal use.
- School supplies: Pens, pencils, rulers, sharpies, tape, white-out.
- Change-counting machine
- Frisbees, sidewalk chalk, and other outdoors toys
- Cellphone charging cables

Checking out items is very easy! All you have to do is visit the MathSoc Office (MC 3038) and leave your WatCard with an office worker to check out as many items as you are comfortable with. To get your WatCard back, simply return the items in the same condition you took them. Check-out and check-in services are available whenever the MathSoc office is open (usually 9 AM to 5PM, but the office is often open later).

Darcy Alemany
MathSoc Office Services Manager

HvZ at End of July

The CDC has been alerted

From my secret WatSFic sources (the weekly email), I have learned that the end of July is when the next Humans VS Zombies (HvZ) game is planned to be held. If you are interested in joining, keep eyes and ears out for information on registration. For those not familiar with HvZ, it is a week-long game played all over campus where zombie players chase down human players to make more zombies. Humans attempt to live to the end by running a lot and temporarily stunning zombies to escape. Expect advertisements next week, with registration on the week of the 21st.

Soviet Canadian

WatSFic SEZ

Hello Mathies! WatSFic, the Waterloo Science Fiction and Fantasy Club is a nerdy club for nerdy folk, a club to celebrate all that SF&F has to offer. We meet weekly in PHY 150 every Wednesday at 6:30, and we host a number of events, including:

- Movie nights, fortnightly. Next movie night is July 16th, in PHY 150 right after the weekly meeting
- Humans VS Zombies, a massive game of manhunt with nerf guns and socks, will be happening this term, near the end of July. More details to come
- RPGA, for roleplaying games (like D&D) every Friday at 7PM in MC 2054
- FNM (For the Magic: The Gathering card game) every Friday at 6PM in MC 2034
- Book Club! We are reading Neuromancer by William Gibson this term, and will be meeting for the final time this Sunday at 1:30PM in the EIT dinosaur cafe. If you think you can get and read the whole book by then, then please come out and share in the discussion!
- Writing Contest: Fancy yourself an author? How about writing a short story in the genres of Sci-Fi or Fantasy for this term's contest? It's a great way to spread your work with many people. Details to come.
- Board Games, biweekly every Saturday after *mathNEWS* comes out. We meet and and play all kinds of board games in the MC C&D.

To contact us, you can try our email, watsfic@gmail.com, join our mailing list by going to <http://www.watsfic.uwaterloo.ca/contact>, or check out our facebook group (just look for watsfic on facebook).

Daniel Resnick
WatSFic Minister of Propaganda S14

Steam Summer Sales

Wow, such deal

The annual Steam summer sales are already gone, but *wow*, those deals! I only spent a little more than \$40 on the sales, but got six games for it, and I received five more from friends. Small and large games in abundance were bought, and anyone who partook of the sales should have enough new games to keep themselves busy for a long time. If you like to play many different games, keep an eye out for the Steam Summer (late June) and Holiday sales (mid-December).

Soviet Canadian

Fuzzy Logic

A few years ago, I developed a rather simple, yet elegant hypothesis. The hypothesis was as follows: there are no problems that cannot be solved with enough¹ wolves².

There are a number of significant world issues that can be trivially solved, given sufficient wolves. Global warming? Feed anyone with too big a carbon footprint to the wolves. World hunger? Tasty, tasty wolf meat. Overpopulation? I think we can all figure this one out.

But, of course, there are problems that are not obviously conducive to wolf-based solutions. This is where the Infinite Wolf Principle, or IWP, comes into play. Given a valuation for “sufficient” that approaches infinity, the sheer number of wolves involved will ensure that whatever qualities required to solve the problem will be present in a subset of the wolves available. It’s similar to the concept of infinite monkeys with infinite typewriters.

This may require stretching the definition of “wolf” somewhat, as we would typically not consider a creature with genius-level intellect that would otherwise be classified as a wolf to be a member of that species. We’re going to be a little loose about this here. As long as it looks like a wolf, walks like a wolf, and howls like a wolf, we’ll give it the benefit of the doubt.

This gives us the problem-solving ability that finite wolves were lacking. Need to solve whether $P = NP$? With enough wolves, you’re bound to get one or two wolf mathematicians that can figure it out. Or, just get infinite wolves to scratch infinite scrawls in the ground, and a couple will end up writing a nice concise proof. The possibilities are literally infinite.

I’m sure there are some of you out there that are even now coming up with problems that you’ll claim are counterexamples to my claim. Some of these I’m sure I could work out a solution to, given a little time. But to the ones that baffle me, I have but one thing to say.

I don’t have nearly enough wolves.

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

[1] Potentially requiring an arbitrarily high value for “enough”

[2] For certain definitions of the word “wolf”

Fuzzy Bunny



I Love My Friends

I wish society would love my friends, too.

My very best friend from childhood is autistic. Many of my friends in math and physics are trans girls. I feel like these two minorities—those on the Autistic Spectrum and trans girls—are extremely marginalised in our society, and I wish I could do something more for them than ramble about it in a satirical newsletter.

Sometimes I worry about little, seemingly trivial things, like speech suggesting that all boys have certain genitals, or people using the word “retarded” in everyday speech.

Sometimes the things I worry about are bigger, but still innocent-seeming problems. They’re characters in media that are all but parading with “I am autistic” signs, when they are really just insensitive jerks; they’re parents who choose not to vaccinate their children for fear that they will “turn autistic”; they’re those who laugh at or fetishise boys in dresses; or those who make the very existence of “girls with penises” the punchline of jokes.

Sometimes they’re even bigger. My best friend was suspended from work because of a panic attack, and she isn’t allowed to come back until she can find medication that will stop those from happening. This is only about a year after she fearfully quit her job when her supervisor found her breaking down at her previous work. My friends wanting hormone replacement will have to self-administer them, because, for one reason or another, professional treatment—assuming it is even available where they live—is not an option. Not to mention that trans people, especially trans women, are statistically likely to be sexually harassed, assaulted, or murdered.

These are the same friends that regularly make me laugh. These are the same friends that I admire, who write beautiful short stories, who edit my **mathNEWS** articles, or who inspire me to learn more math. These are the same friends that talk to me about math, literature, or video games. These are the same friends who stayed by me when I felt I had no reason to exist.

For the foreseeable future, as time goes on, their lives will only become more and more difficult. And there is little I can do to help. I can call people out when they make inappropriate jokes, only to be dismissed as a kill-joy “Social Justice Warrior” for wanting to help create a society in which my friends’ lives are a little bit easier.

k!

**Calibrate the plasma conduits.
I have to boost the time-matter
field, because the crystal matter
stream appears to be re-routing
the auxiliary hyperspace energy.**

Some Small Cases of Informational Asymmetry

Informational asymmetry problems can be encountered in a variety of places which often also have a power imbalance. There are some clever solutions that I have seen to solve such problems.

The first such case that I have seen recently was at *mathNEWS* production night. Someone foolishly nudged the protective case for the fire alarm, causing a local alarm to sound continuously until it was fully closed. This is an elegant solution for a problem that according to the media was common in the past. A pre-fire alarm alarm is sounded in order to let people know someone is about to pull the alarm, and thus they can use social pressure to prevent people from pulling it as a joke, because if people know who pulled it, they can then shame them once the fire alarm itself has been pulled. The information asymmetry comes into play in that everyone knows when a fire alarm is pulled, the building is evacuated and the fire brigade is dispatched, thus allowing for anyone to pull it for whatever reason they choose instead of the intended one. Conversely, the fire department has very little information as to who did it in order to scold people for a false alarm. So they rely on generally two solutions, the pre-alarm alarm, and the ink method, in which the person who pulls it gets ink on their hands. The problem with either method of course, is that if people aren't around in time, they can just flee the scene. Video cameras can then be effective afterward, but the damage has been done. The department has already had their time wasted.

The second case that has rolled by me is a bit more abstract. It is dealing with a secret community, of which most people want to remain only secret members, and wish also to remain members. The main method to deal with people who reveal other people to be secret members is to remove them from the community. This seems effective, except in the case of false positives of people outing people. The tools put in place to

punish those who break the rules can then be used as a cudgel to target political opponents. The simple solution is to ostracize false accusers, but this also falls into the same problem. The information of whether or not someone has been outed requires outside confirmation, which can be biased, or risk outing of the person who is trying to confirm their information. The only other obvious solution that comes to mind is to out the person who says they were outed again in order to confirm the information. This way, if they were faking the claim that they had been outed, they now need to deal with it anyway, which could be a punishment, and if they weren't, the situation shouldn't change. This is quite flawed though, as an outing situation, depending on the nature of the secret group could be quite damaging, and to repeat it could be viewed as cruel. I am unsure if there is a good solution to that situation.

The third case, of which I discussed with a friend, is that of secrecy in trade negotiations, explicitly in the Trans-Pacific Partnership. Secrecy in trade negotiations can be quite useful in order to prevent potential market destabilization. However the secrecy used in the negotiation for the TPP has been rather asymmetric in a very important way. The trade ministers of the various countries involved have the full proposed text, and they then offer portions of the text to various industries to get their feedback in order to attempt to help these industries. The problem is, this allows for regulatory capture outside of internal jurisdiction, preventing member states from regulating their industries without repealing the agreement. This means that this is effectively circumventing the legislative process. The major asymmetry comes in that consumer advocacy groups should also be allowed the text in order to point out the ways that the industry can then potentially harm consumers. If you have buyers and sellers and only allow the sellers to affect the rules, they almost always will try to screw over the buyers.

Ice Nine

MathSoc Should Produce An Opera

I think I speak for everyone in the university when I say UW needs to start an opera society. Clearly, this magnificent form of sublime beauty and high art is much under-appreciated in our school.

What better way to demonstrate the gorgeousness of opera, I thought, than to put on our own student-run production? We can have opening night right here in the comfort of the Comfy! There will be fantastic costumes, extravagant sets, spectacular arias, sights and trills. No Comfy-napper, no-matter how sleep-deprived, would be able to sit back any farther than the edge of his or her seat. Oh, the intensity of the story as the archetype villain unleashes some evil plan or other as the hero and heroine find themselves in some ever-worsening situation.

Dear readers, what opera would you like to see? Rigoletto? Madame Butterfly? Or perhaps some math-y opera? Submit your votes into the **BLACK BOX**. And let me know if you're interested in singing/acting/set-designing/managing. I'm hoping for a tentative production for the fall term, but this can only happen if there's enough people interested in it.

Alternatively, we can just sing along to Natalie Dessay's Queen of the Night aria and hope her splendid voice masks our quirky variations of tempo and tone.

arabesque

There seems to be a critical hyperdrive around the core which catches weak anomalies at the temporal gravity dampener!

Bad Math

A topical note in *mathNEWS*, as well as the world at large, is the idea that such things as the World Cup and Sporcle cause a significant drop in productivity. Every once in a while, there is a sensationalist title such as “World Cup Causes X Million Hours in Lost Work”, in which the writer laments how much time has been spent at useless, rather than useful work.

The idea that time spent doing things other than “real” work counts as wasted time is questionable, at best. In general, people have a very limited amount of time that they can do work for before requiring some sort of break. In the case of menial tasks, this can be a fair amount of time, since it is possible to “zone out” doing the task. For more skilled (and generally higher played) work, more breaks are required, at least in my experience. So, the real question is if the distraction is powerful enough to reduce the amount of work done, relative to if it did not exist.

In the case of Sporcle and *mathNEWS*, my suspicion is that there will be significantly less content this issue, due to the influence of Sporcle on the writers. In particular, this article is likely going to be shorter due to the desire of the writer to find out more about his excessive amount of knowledge about Pokémon and World of Warcraft.

In the more widespread case of the World Cup affecting performance, there are two problems with that line of thought. The first is the assumption that time spent observing the World Cup would otherwise be spent on productive work. This is problematic since it requires that World Cup time is not replacing time that would otherwise be taken as breaks anyway. Secondly, it is probable that taking breaks actually increases productivity to a certain extent. Studies have found that performance increases after a short break, so it may be that World Cup viewing is a net benefit to companies.

MeaninglessQuips

Why You Should Use Wikipedia for Translations

Reading this, you might be thinking that you weren't aware that Wikipedia offered translation services, and while it doesn't offer anything like Google Translate or any other text processor translation services, Wikipedia is excellent for translating technical terminology. You just find the article for the term you want to translate and change the article to the appropriate language. A lot of idiomatic expressions have non-obvious translations. For example, “common sense” in French is “bon sens”; in Polish, it's “healthy sense”. As it turns out most languages had enough common sense to not imply that common sense is common. Using Wikipedia for translations is just good judgment.

Beyond Meta

Russian Reviews: Company of Heroes 2

Not One Step Back!

Normally when thinking of the Second World War, we think of Europe and the Western Allies with D-Day and the fighting that occurred from France to Berlin. The media we consume is usually from the nations that made up the Western Allies, so this makes sense. But there was plenty more to the war, including the grueling three years of fighting that took place within the Soviet Union, followed by another year of Soviet offensives through Eastern Europe towards Berlin. These years of brutal fighting are what CoH2 focus on, following an officer throughout the war as he sees the deaths of millions in the desperate fighting to stop the German advance.

If you have played the original game, you will be familiar with the base-building and point-capturing economy of the game, and the high use of cover and field obstacles during fighting. What CoH2 adds to the mix is the Soviet Red Army, with its (obvious) playstyle of waves of cheap infantry backed up by tanks and artillery (although there are strong infantry as well). The other big addition to the game is the winter versions of maps, with large snow drifts hindering movement and providing cover, and sudden blizzards coming and going, freezing infantry within a minute if they are not hunkered down somewhere warm. These blizzards really do make matches interesting, as they re-freeze rivers for crossing (though the ice is fragile and can be broken), and add more snow onto the paths you thought were clear.

Whether you like the mass of Soviet troops and hasty structures they bring, or the skilled and solid German troops and vehicles, interesting matches can abound. Additionally, with the new expansion including a new German force, as well as the U.S. Army, even more fun can be had. As always, check the Steam store if you are interested.

Soviet Canadian

N Things *mathNEWS* Writers Do Instead of Writing

- Go on Sporcle
- Talk about what counts as a sport
- Go on Tumblr
- Moan about not knowing what to write
- Go on Reddit
- Talk about wanting pizza now
- Go on JobMine
- Not finish their article because they're on Sporcle

Yours in time wasting,
Shay Blair

**The critical fluctuation energy
has been reversed!**

Smaug Lets Go

The fire glows bright on the mountain night
Not a dwarf prince to be seen
A kingdom of desolation and it looks like I'm the queen
The wargs are howling like this swirling storm inside
Never kept greed in, and I'll never try.

Don't let them in, don't let them see
All the treasures you have hoarded obsessively
Conceal, they'll steal, don't let them know
Well now they have the Arkenstone

Let it go, let it go
I'll eat you all anyway
Let it go, let it go
Turn my back and burn the lake
My gold's behind, but I'll be back soon

Let the flames climb high
The gold never bothered me anyway

It's funny how some distance
Makes everything seem small
And the dwarves that tried to kill me
Can't get to me at all

It's time to see what I can do
Drowned in molten gold but I'll break through
No right, no wrong, just fire for me,
I'm free!

Let them burn, let them burn
I am one with the wind and sky
Let them burn, let them burn
I'll make those damn dwarves cry
There I'll fly
To Laketown go

Let the flames climb high.

My fire races through the air into the town
My body's spiraling in graceful flight all around
And one thought flares through my mind like a fiery blast
I'll never let it go, not til they're dead at last.

Won't let go, won't let go
They will regret their mistake
Fuck that shit, make them burn
The sleeping dragon wakes

I. Am. Fire!
And I. Am. Death!
Let the flames climb high
The gold never bothered me anyway!

Yours in fiery demises,
Shay Blair

profQUOTES

Thanks, theSMURF!

"We can talk about assassins and suicide notes when we talk about destroy."

Cowan, CS 452

"Because I'm a scientist, I'm qualified to universally quantize based on a sample size of one."

Cowan, CS 452

[Shows up 20 minutes late for class.] "My apologies, I got into a political debate."

Cowan, CS 452

"Have you ever ridden the GRT buses? Sometimes you'll have a ghost bus, a bus that appears on the schedule but never materializes."

Cowan, CS 452

[Talking about the GRT.] "Sometimes you see two buses fuse into one. That's a failure of sensor attribution."

Cowan, CS 452

"You're supposed to spend some of your time at work sitting on your hands, otherwise you'd die of stress at the age of 23."

Cowan, CS 452

[Talking about contractors.] "These people, at the time their contract is over, we'd like them to walk out the door and vanish; like trees in the forest."

Cowan, CS 452

[Talking about part-timers.] "These people, they like to call themselves consultants."

Cowan, CS 452

"There are groups of people who pretend that Sherlock Holmes is real, which is about as weird as the people who play World of Warcraft."

Cowan, CS 452

[Talking about Sherlock Holmes.] "He'd give them a penny, or shilling—some amount of money appropriate for a kid who's starving to death."

Cowan, CS 452



Submit your *profQUOTES* to the
BLACK BOX on the third floor
MC!

profQUOTES

There are SO MANY!!!1

“Well, that’s because today’s June 24th, and as of July 1st I’ll be tenured.”

Tripunitara, ECE 358

“You might want to take a picture of this! I actually remembered to let $\varepsilon > 0$ before getting halfway through the argument.”

Marcoux, PMATH 450

“Let’s call this set F for non-measurable”

Marcoux, PMATH 450

[*When Montréal was playing New York.*] “I use 3 ‘!’s to indicate it’s not a factorial. Also to celebrate Montréal’s win over New York! Any Rangers fans here?” [*Silence.*] “Smart answer.”

Marcoux, PMATH 450

[*Trying to finish a proof before the end of class.*] “I’m almost done, this is no time to stop. Don’t worry, when the midterm comes, I’ll take 5 minutes off. Yes, I would do that for you!”

Marcoux, PMATH 450

“Believe it or not, these are disjoint! Actually, believe it, because it’s true.”

Marcoux, PMATH 450

“Integrals don’t care about sets of measure zero. They’re a heartless bunch.”

Marcoux, PMATH 450

“The Gram-Schmidt orthogonalisation process, named after the famous Greek mathematician Ali Orthogonalisation.”

Marcoux, PMATH 450

[*After leaving two proofs to the assignments.*] “I can’t put everything on the assignments so I might as well prove this. Actually, I should check the University by-laws... maybe I can.”

Marcoux, PMATH 450

“The same guy who invented vacuum cleaners invented Bessel’s Inequality. Oh wait, that’s Bissel.”

Marcoux, PMATH 450

“This result is so nice! We don’t deserve this! At least I don’t, but my sins aren’t up for public scrutiny.”

Marcoux, PMATH 450

[*Points at a function on the board.*] “If I give you one of these guys, and I mean “these guys” in the androgynous sense...”

Marcoux, PMATH 450

“I get to click and drag and make pretty pictures for a living. Living the dream.”

Abukhdeir, NE 318

“It doesn’t matter if you heat it by 1 Kelvin, or 1 million Kelvin, the response time would be the same. Well, I think at 1 million Kelvin it would melt the glass, and you, and everything around you. So don’t do that.”

Abukhdeir, NE 318

“If I don’t explain this before I go, scream at me. Politely.”

Schonlau, STAT 431

“Right, you sail a ship. That sounds romantic.”

Schonlau, STAT 431

“And you can see the offside—I mean offset. I’ve got soccer in my head, you see.”

Schonlau, STAT 431

“I shall give you an answer that a professor should never give: It’s not useful.”

Schonlau, STAT 431

“I need to try to use my brain more, instead of just turning off my brain.”

New, MATH 245

“All of these ‘L’s should be ‘A’... just say ‘Let L be A’.”

New, MATH 245

“For those of you who haven’t seen this before, just assume it’s magic.”

Nelson, MATH 239

[*On $\Theta(n^3)$.*] “That would take 10^5 days. Your assignment would be late.”

Munro, CS 466/666

[*On galloping binary search.*] “[It is] a Tim Horton’s algorithm. [...] Double, double, double...”

Munro, CS 466/666

[*On complexity.*] “Just because you decide a problem is NP-Complete [...] doesn’t mean the problem goes away.”

Munro, CS 466/666

“I’m not just rambling here—well, I am rambling, but I’m not strictly rambling...”

Munro, CS 466/666

[*Student makes an observation.*] “Way to ruin the punchline again.”

Prosser, CS 371

“This is the Cooley-Tukey Fourier Transform, or as I like to call it, the Fast and Furious Fourier Transform.”

Prosser, CS 371

2014 MathSoc Games Night Nomic

Generation 1: A Record

Several weeks ago, the honourable Algoweird decided at MathSoc Games Night to begin a game of Nomic. To quote the game's creator, "Nomic is a game in which changing the rules is a move". Our iteration is the epitome of what happens when a whole pack of mathies get their hands on something as flexible as this. The game started rather quietly, with a few people playing and several proposals passed. Then we noticed that there were many gaps in the base rules used: for example, there were no requirements for reasonably sensible things like writing legibly on the cards, which are to be submitted as proposals to change the rules.

Then a crafty player discovered that there was no requirement to actually inform anyone should they wish to leave the game or join the game a second time. A judgment was called on the latter issue, and while it has been deemed inappropriate for a player to join a second time, there is nothing wrong with a player joining three times, assumingly provided that the player does so without joining the game twice.

Several other fancy things happened over the course of this period, like writing a proposal on the *back* of an index card (which must be prepared to submit a proposal, usually done on the *front*), writing in a continuous loop on the index card intersecting with itself in a non-trivial manner, writing in a different script as opposed to the Latin orthography (but still in English). There were plans to write proposals in different languages, but this did not happen.

All of the above (and below) stem from the fact that rule 116 states that, "Whatever is not prohibited or regulated by a rule is permitted and unregulated, with the sole exception of changing the rules, which is permitted only when a rule or set of rules explicitly or implicitly permits it." Someone then quickly pointed out that nowhere in the rules specify that only players may vote, only that players have one vote. This led people who were not participating in the game to vote an arbitrarily large number of times provided that they sign the vote and vote either for or against proposals. A proposal was then put forth intending to fix this issue; however, something else intervened.

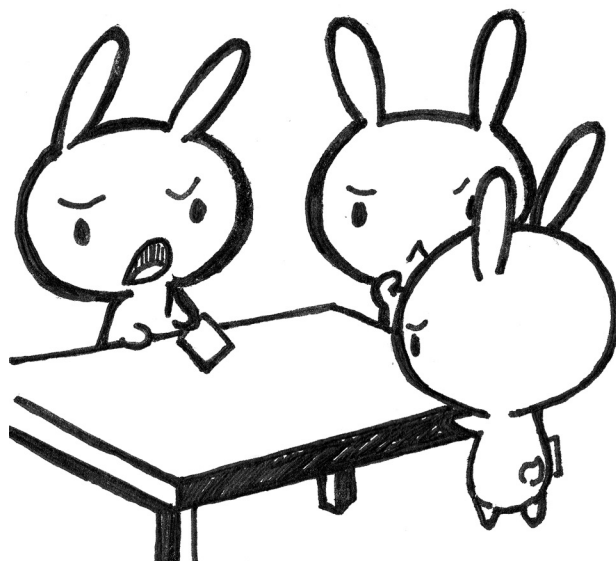
Messrs. Zethar and CrazyTutor conspired to take the player/person discrepancy one step further by making the observation that a person wins by obtaining 100 points, but after the game has been won, all players' scores are reset to 0. Then it was discovered that a rule introduced after the first voting period allowed points to be wagered by players, and that "points must be distributed" and "all parties of the bet must partake in the game being wagered on". So, ScruffyED, a non-player, was co-opted into this plot to play a breathtaking game of High Card, wherein Zethar and CrazyTutor would each place 50 points into a communal pot, and was declared so that the winner of the game of High Card—specified to consist of Zethar, CrazyTutor, and ScruffyED, with ScruffyED dealing—to take all the points in the pot. ScruffyED then subsequently won the game of High Card.

And thus the house of cards known as the rules began to fall: madame assistant speaker lightningbug argued that the game state can be resolved by having ScruffyED sign up as a player and thus have his score reset to 0, to which ScruffyED agreed. However, dfm argued that the rules are to be applied simultaneously, which meant that there is an infinite number of games which need to be resolved. Zethar then argued that there exists some point in time t between where the bet from the High Card game was resolved and now in which ScruffyED had indicated that he wished to join, and a game existed at time t , ergo, ScruffyED is a part of the game and lightningbug's judgement is correct. However, as dfm pointed out, by the same logic, since each game's duration is zero, at any point t where ScruffyED would like to join the game there was no valid game to join (Zethar dissenting).

(define this (not cool)) argued that further play is currently impossible, and by the rules of the original game, declared a State of Darkness and indicated that the game is broken and sought to eke a win by pointing out the flaw by the State of Darkness rules, to which both dfm and Zethar objected (via the arguments, one cannot declare a State of Darkness in a game that is already over, and the game state is well-defined by a strict reading of the State of Darkness rule, so this situation does not apply).

Long story short, the original speaker, Algoweird, had been out of commission for the three weeks during which this debate had been raging on, and many people (some of who are not at all related to *mathNEWS*) agree that the game state is intractable and irrecoverable, and shall leave the first generation of the 2014 MathSoc Games Night Nomic in a never-ending state of ScruffyED winning an uncountably infinite number of games of Nomic, whose Speaker is delinquent in dutifully recording each victory. Generation 2 is in the works, hopefully eliminating some of these issues, and hopefully people will be able to partake or spectate at the next MathSoc Games Night after publication.

Reporting from the Euclidean Domain,
Zethar



Regarding a Certain Clock

“Look upon my works, ye Mighty, and despair!”

As you may well know, time is an omnipresent variable in our lives. We may only progress through time in one direction (for now), marching forward at a constant rate, regardless of how often it seems like time slows down or speeds up. To help us keep track of time, we utilize particular tools. Notable examples of such tools are:

- **Sundials:** Come to Victoria and see the large sundial at Ogden Point, on which you can stand and cast your shadow on the ground to illuminate the time, plus an hour, three weeks of the year, due to the change in when we employ Daylight Savings Time!
- **Pocket Watches:** Once the most hip accessory, now tragically underused and underappreciated. According to today's society, the people seen sporting these classic trinkets are behind, not ahead, by a century.
- **Alarm Clocks:** Perhaps the most abused timepiece, in general, these function not just to tell the time, but also to ruin your sleep and force you to do things which you don't feel like doing, such as going to an 8:30 am class, catching a 6:30 am flight, or sometimes just getting up before dinner time.
- **Comfy Lounge Clock:** Really just a random number generator. Or at least, it used to be.
- **Cell Phones:** Sadly, having a phone makes a wrist watch redundant. More happily, redundancy is a good thing, because when your phone runs out of battery...

However, this article is not really about any of those devices. This article is about a specific clock: a clock which has occupied more than a small fraction of my time; a clock which has enthralled me; a clock which, like Ozymandias himself, will taunt me from its pedestal in the MathSoc Office not until either time or force render it obliterated, but for eternity. (Exaggeration, don't worry!)

You see, this clock isn't your average battery-operated analog wall clock. This clock, instead of the integers 1, 2, 3, ..., 12 arranged in the appropriate locations, has 12 mathematical expressions, each evaluating to the correct integer respective to the location. These expressions range from the trivial (Euler's formula?), to the amusing (consider constructing a regular pentagon with side length 1, and think about the golden ratio), to the more complicated (Fourier series yield interesting results), to the absolutely absurd (you can sum even integer powers of \cos /secant?).

It is an interesting test of one's mathematical ability to attempt to prove that the clock actually tells the correct time; that is, that all the expressions evaluate to the correct values. Learning about why some of the expressions do work out is actually a meaningful and non-trivial exercise, and can prove to be an introduction into many different areas of mathematics which you might otherwise never investigate. For instance, it is entirely possible for one to take a math degree without computing a Fourier series, or one might never hear of the Euler-Mascheroni constant. Broadening one's scope of mathematical knowledge is always a good thing.

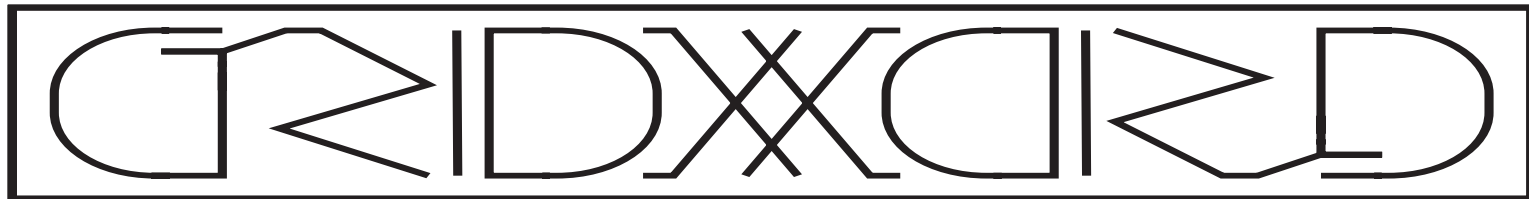
In closing, this clock provides a glimpse into upper-level mathematics. It gives us 12 problems, and prompts us for answers, without any hints or suggestive eye movements. It is up to the mathematician to investigate problems and come up with unique ways of tackling the calculations. But this clock also reminds us that while we may be ultimately temporal beings, mathematics transcends time and will last forever, while our greatness erodes away, like that of the king of kings of whom Shelley wrote.

Scythe Marshall

Last Week's *grid*WORD Solution:

M	E	S		S	K	I	L				S	H	E	L	F
U	R	N			C	L	U	E		O	U	T	L	R	E
T	E	U		A	I	R	W	O	R	T	H	I	E	R	
S	H	A		B			E	D	U		G			A	
	W	H	I	R	L	S		A	R	T	I	S	T	S	
		C	L	E	A	T	S		T	S	E	T	S	E	
	B	E	A	T	N	I	K	S		I		A	V	A	
E	R	R		R	E	D	C	A	R	D		M	O	C	
P	U	P		A		E	I	T	H	E	R	O	R		
P	L	E	X	U	S		K	E	P	E	R				
O	B	L	I	Q	U	E		B	L	O	O	D	Y		
H			R		A	R	B			H		N	A	G	
S	C	U	T	T	L	E	B	U	T	T		U	S	A	
F	R	A	N	C		E	M	I	R			A	S	H	
S	I	G	M	A			E	T	O	I	L	E	S		





gridCOMMENTS

Hot as a glede

Sixteen percent black! Sorry about last issue's 23D: the clue was singular, but the answer was plural.

All nine submissions were perfect. Good job, everyone! When I posed the *gridQUESTION* ("Who will win the World Cup?") two weeks ago, I didn't realize I wouldn't know the answer either. Since the final will be next Sunday, the winner(s) should be able to pick up their prizes on Monday. The three remaining teams are Argentina (Abraham, Richard), Germany (Rob), and the Netherlands (Jinny, Kevin). Unfortunately, Brazil (Catherine, Travis) lost this week. Henry's answer ("Not me"), though correct, was too vague. And Ramesh: Liechtenstein has never even qualified for the World Cup!

Submit your grids to the **BLACK BOX** (by the Comfy Lounge on MC 3rd floor) by 18:30 on Monday July 21st. Include your name and your answer to this issue's *gridQUESTION*—the silliest answer decides the winner (of a \$5 C&D gift card) in the event of a tie: "Who let the dogs out?"

Cheers,
unit

This Week's Grid:

1	2	3	4	5		6	7	8		9	10	11		12
13					14					15				
16					17				18		19		20	
		21		22			23			24		25		
26	27					28		29				30		
	31						32			33	34			
35				36				37				38	39	
40			41		42			43			44	45		
46			47	48			49			50		51		
	52	53				54					55			
56				57	58			59						60
61				62			63		64					
65			66		67			68			69		70	
		71		72		73				74				
75						76				77				

We need to override
the haptic SDD bus!

gridWORD Clues

Across:

1. Outlandish
6. Canine trick
9. "Je me souviens"
13. Twisted toss
15. Sodium hydride
16. Pole or Serb
17. Cosmic curve
19. Guitar bar
21. Actor Brad
23. Prayer ender
25. Do +
26. Surfaces
29. Water in Outaouais
30. ⌈
31. Freshly fused?
33. Wooded vale
35. Meadow
36. Twist someone's arm
37. {}
38. You and I
40. Parent's sister
42. Belgian #10?
44. Away from land
46. After a.m.
47. Rives rocks
49. At break of day arising from sullen earth
51. Blow
52. Do as told
54. Sunken city
56. African antelope
57. American Sign Language
59. Fencer
61. Not yang
62. Tidings
64. Spicy quality
65. Canadian Ellen
67. Desert posts
69. Zigs
71. Hawaiian wreath
73. Cloth caps
75. "To strive, to seek, to find, and not to ____."
76. Pig pen
77. Annoyance (often cherished)

Down:

1. Musical alternative
2. University College London
3. Like basalt
4. Evaluation
5. Expression of disgust
6. Dive
7. Napoleon's island
8. Between glazed and rimed
9. Two consecutive letters
10. Bumpkin
11. Norse serf
12. Best
14. Shaped like a bunch of grapes
18. Camellia sinensis
20. Blossom of snow
22. Mohs's one
24. Unclad
27. Captain of the men of death
28. Big cygnet
32. Lionize
34. η
35. Human seat
37. Nearest His throne
39. Wolf down
41. Draw
43. Trendy lettuce
45. Japanese mushroom
48. The C in CMYK
50. Falcon's fair
53. Mess up
54. Invariably
55. Bristly bulb
56. Rom
58. Wine sweetness
60. Claude's cup
63. Vocal jazz improv
66. Unagi
68. "There is no ____."
70. Gigaelectronvolt
72. Das Es
74. Skyward

Try to assimilate the PNG driver,
maybe it will compress the 1080p
panel!