

BREADTH-FIRST SEARCH



lookAHEAD**mathNEWS**

March 27	The final issue is popped off the stack
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University

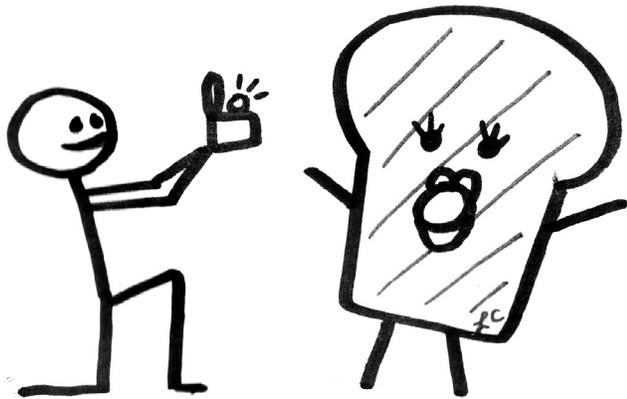
April 3	University Holiday (Good Friday)
April 6	Lectures end
April 7–9	Pre-examination study days
April 9	Drop, penalty 2 period begins (WF)
April 10	On-campus examinations begin
April 25	On-campus examinations end\
April 27	Fees due for Spring 2015 semester

MathSoc

April 2	Party with Profs
April 4	24-Hour Games Day

Miscellaneous

March 29	Palm Sunday
March 31	Bunsen Burner Day
April 1	April Fool's Day
April 3	Passover
April 5	Easter Sunday



**I WOULD LIKE TO
PROPOSE A TOAST**

ISSN 0705—0410

Founded 1973

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/>. Even Thomas Baxter doesn't read this ISSN, so it's pointless to update it. What do you think? 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.

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Julie Sturgeon (Cheese breadsticks), Katherine Tu (Cranberry pumpkin bread), Jose-Miguel Velasco (Garlic bread)

mastHEAD

"If *mathNEWS* brewed a beer, what would it be named?"

& ("...mathBREWS?"); Pizza Freeloader Kid ("Hard Proof"); Sioui ("Maximum Hops"); Beyond Meta ("Orthogonal Matrix: It will change your perspective."); tesseract ("A machine for turning theorems into \neg coffee."); unit ("guinness"); theSMURF ("Beer"); Em ("Wine"); quiz (""); Zethar ("Judging by the reactions, 'Editor's Sorrow'"); Scythe Marshall ("Square Root Beer")

This Mask Of Mine

I died once. It happened a long time ago. For awhile I just chose not to remember it. I always tell people my memory is bad, but unfortunately it's actually quite good. I'm starting to remember things I wish I could forget.

I usually do my best to not burden my friends and family. I don't remember when it started, but I started putting on the face of being happy. I had no reason to be unhappy. It's something I've told myself multiple times. I like to think it's because someone else told me that. But I'm becoming more and more confident that it originated from myself.

I didn't discuss this burden with others. In fact, as I was growing, I found myself trying to shoulder the burden of my friends and family to help them. When I was in grade school, I saw my mother hit herself, saying that she would be better off dead. I had seen my father talk about how his body would be buried covered in debts. I tried my best to help my friends emotional distress. They would tell me about their suffering, how they wanted a fix of some sort. Some of them just wanted someone to listen. Others required my to take drastic action.

I asked myself, "Why me?" The sight of my parents at their worst was only done in front me. When my siblings were there, my parents would listen to their problems and never show there's. I listened to my siblings bad mouth my parents, complaining about how unfair they were and how they did not know anything about them. They were kids at the time, they did not understand the burdens adults feel. But I was young, the memories are still vivid now.

In my first year of highschool I read a story. It revitalized my will to create. I started creating plots and characters. The adventures they would go on. I started using these characters as my emotional help. I would discuss my problems with them, and they would respond to me. Each had their own opinion, and their own perspectives on every situation. This became my crutch. It allowed me to see arguments from both sides, to see past any darkness that clouded my thoughts.

Nowadays these characters have become silent. I've started to open up more to my parents and friends. However it seems I still lack trust in them. I consider myself happier. But as time went on, I'm starting to believe I just put on the mask so long I forgot what it means to not wear it anymore.

I made a promise to one character, the promise of self-preservation. No matter how bad things get, even when I want it all to end, I will fight for survival. I never told their stories. My biggest fear is they will die alongside me. I just wish they would speak to me again. I'm afraid of the silence. I'm afraid of being alone.

VPE Sez

Mathies! The end of term is nearly upon us. Only one week left, can you believe it?

Make sure you invite your professors to our Party with Profs, upcoming this Thursday, April 2nd at 5:30PM! We'll be meeting in the Grad House for free food and a great time. The event is open to all ages, frosh welcome :)

24-Hour Games Day is scheduled to begin on Saturday, April 4th, at noon. I'll be making an appearance and am rumored to be accepting challenges to games of Catan, to the chagrin of my games directors.

Good luck with the rest of your classes!

Elana "e#" Hashman
VPEgad!

CSCFLASH

Greetings programs,

Today is Friday March 27th. It is a day full of excitement in the form of:

- Our General Meeting at 5 PM in EIT 1015 to amend the constitution followed by...
- A CODE PARTY WITH FOOD. We're doing code golf, you can win shirts!

Check our Facebook (/watcsc), Twitter (@watcsc), website (csclub.uwaterloo.ca), mailing list, or posters for details!

Calum T. Dalek
Chairbeing Extraordinaire

Bored This Weekend? Why Not Pancakes?

Looking for something to do this weekend? Why not check-out the 51st annual Elmira Maple Syrup Festival. Every year, over sixty-five thousand people descend on the town of Elmira (with a population of only ten thousand people) to devour pancakes with syrup. Test your skills at the annual pancake flipping competition, or take a gander at the outdoor market. The festival also features crafts, sugar-bush tours, and plenty of maple syrup. Don't know where Elmira is? No problem! GRT Route 21 runs from Conestoga Mall to the Festival all Saturday, or, join the traffic and parking melee by heading up Highway 85. If you're looking for something more unique, take the 21 up to the St. Jacobs Market and switch to the Waterloo Central Railway's Maple Syrup Excursion Train. The festival opens at 7 a.m. on Saturday the 28th and runs till 4 p.m. You can find more information at <http://www.elmiramaplesyrup.com>.

dbro

ION Construction Detours

Now that it looks like we're at an end of the bitter winter, it's time for construction season to begin! Major LRT construction will be continuing on King St. into the summer. Construction is not yet affecting Uptown, but King St. from Union St. to Wellington St. will see rolling lane closures and some complete closures as crews relocate underground services and widen and repave the road to make room for LRT tracks and polls in the fall. King St. from Wellington St. to Victoria St. will be closed completely for 18 months while a railway underpass is constructed. The easiest detour is to use Weber St. in the east, which has been widened to four lanes to accommodate the additional traffic. Park St. in the west is also an option, but is narrower and more likely to be congested; additionally Caroline St. remains under construction. Grand River Hospital is still open for business and accessible from Pine St. and from Park St. The GRT has long term detours for the 200 iXpress on Weber St. with stops at Union St. at Mary St. Weber St. at Victoria St. and Water St. at King St. and for Route 7 along Park St. Routes are also affected south of Charles St. station. Grand River Transit has provided a map.

dbro

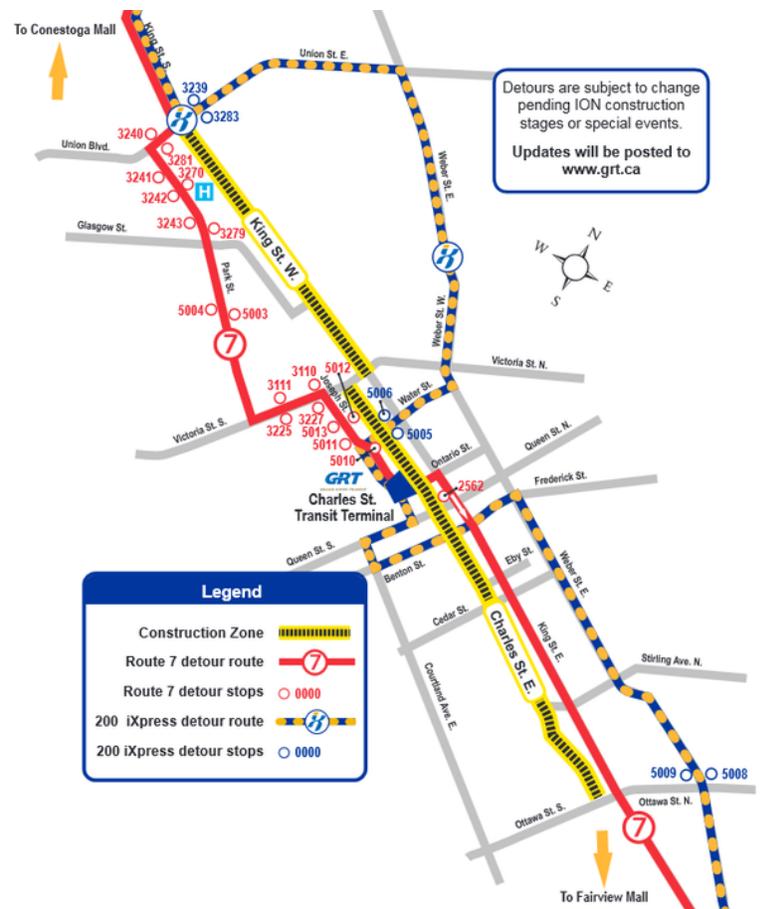


Fig. Map of construction detours. See http://www.grt.ca/en/routesSchedules/resources/2015_ION_construction_map.pdf for higher resolution.

Pi Recitation Competition Winners

On March 13th, MathSoc hosted a Pi Recitation Competition to determine the Digit Regent, the Transcendental Top Dog, the Pi Prizewinner. I'm pleased to announce our top three contestants by score. Drum roll, please...

Congratulations to our winners:

1. Henri Romel, 228 digits
2. Sarah Strong, 187 digits
3. Connie Chen, 146 digits

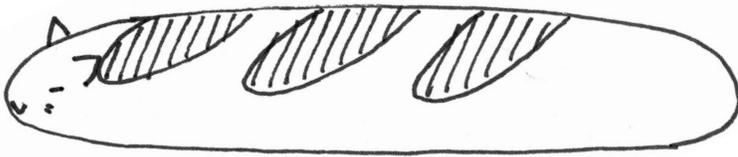
Hope you enjoyed the festivities! That's sure a lot of pi!

Your Pi Day Overlord,
VJIE Elana Hashman

Have Your Say!

Do you jaywalk at the crosswalk on University Ave? Are the sidewalks on University too narrow? How about closing Ring Road to car traffic? Better bike lanes in the city? Improving bus service? How should the region tackle environmental issues? Regional growth issues? Not all of the issue will interest everyone, but everyone cares about something. The region is looking for input to form their strategic plan for the next five years. This will set the region's priorities and goals during most of the time that many of us will be here. It only makes sense that we should have a say in what those goals are. The region has provided a web interface to let people submit and vote for ideas. If you like some of the ideas here, go vote for them at stratchat.regionofwaterloo.ca (under the transportation section), or submit your own idea. It only takes a second. If you don't have your say, you can't complain.

dbro



Hamlet ♀

This month Kitchener-Waterloo Little Theater is putting on a special production of Hamlet, aimed to explore if we were to perceive the play differently if Ophelia was a man or Claudius a woman.

The location is KWLT on 9 Princess Street, Waterloo. The show starts at 8 PM and the dates are April 16, 17, 18, 23, 24, 25, 30, and May 1, 2. Tickets are \$15 for non-members, \$10 for members and \$10 each for a group of 6 or more. More information can be found at www.kwlt.org.

Beyond Meta

UAC Mental Health Subcommittee News

The Mental Health Subcommittee of the Undergraduate Affairs Committee would like to invite all students to a forum, time and place TBA. It will likely be held during the pre-examination study period, possibly on April 8th. Keep an eye out for posters in the coming week for more information!

bunniED

The Greenbelt Plan

The Greenbelt was established in 2005 by the government of Ontario to help protect green spaces, farmland, woodlands, and wetlands from urban sprawl and urban development. At 7300 km², the Golden Horseshoe Greenbelt is one of the largest and most successful greenbelts in the world. Now the Government of Ontario is looking for feedback to guide the future of the greenbelt. While the local town hall has passed, you can and should still provide feedback online via <http://www.mah.gov.on.ca/Page10886.aspx?>. Even if you don't enjoy the various recreational facilities, trails, etc, found in the greenbelt, we all benefit from cleaner air, water, and healthier communities ensured by the greenbelt. It only takes a few minutes to fill in the survey.

dbro

Live Improv Comedy

Do you enjoy watching Whose Line Is It Anyway? Do you wish that could attend an improv show in person? Have you ever dreamed of seeing a scene where a communist Santa Claus delivers presents to Satan? To fulfill your hopes and dreams, all you need to is show up on April 23rd at 8 PM at the Modern Languages Theater. Theater on The Edge Waterloo Local Improv Troupe will be taking your suggestions and spontaneously generate (mostly) coherent theater from it.

Tickets are \$5 for students and \$10 for non-students.

More information can be found at www.tote.ca

Beyond Meta

Games Sez

Our 24-Hours Games Night is next week! Join us for a full twenty-four hours of board games in the Math C&D starting at noon on Saturday, April 4th! As always, feel free to drop by and leave at any time during the event—no-one is required to remain awake and present for all of it (but I certainly will be!).

Also, our VPE has issued a challenge to a game of Catan, so feel free to use this opportunity to play a game with her!

Your Games Director,
a crafty player

David Jao: The Man, The Legend, The Anime Fansubber

NOTE: SOME OF THE FOLLOWING MAY BE FICTION. BUT SOME OF IT ISN'T. I THINK.

There goes a legend that before the times of large bandwidth, torrent clients, even P2P, there were a group of people, only the best, that fansubbed releases of anime. Back in the times of genlock, when the fansubs seemed professional. In the mystical days of VHS media, back when all the fansubbers needed expensive computers, laserdisk readers, or something else of the sort.

In the name of investigative journalism, I sought to find these legends, and their legacies. And find them I did. The first clue was a site by a person named David Jao, with transcripts from Escaflowne and Sailor Moon. As I investigated further, ignoring the large amounts of legitimate work piled in front of me, I found only three forum comments referring to a fansubber named David Jao. The described MO matched with the content on the website. Now I just needed the last link to connect the dots. Mathematical work and background were found on the website, seemingly confirming my suspicions, but a more rigorous proof may be useful.

The next day, I used a super-secret, cryptic, and obsolete form communication system called "IRC", and using my professional journalistic intuition, I found the "IRC" that David Jao was running. I was instantly surprised at how large and well-organized the underground network was, and how much activity there was in this "channel" that Professor Jao had created. Employing the skills of negotiation and meditation from game theory, I managed to get a confession.

<quiz> Wait are you actually David Jao
<The Legend> yes?
<quiz> the legend who first fansubbed escaflowne?
<The Legend> I wasn't the first, but I think I was the first who got to the long versions

As I am nothing if not professional, I immediately started spreading rumours on this topic as far as I could, telling everyone about it, and providing the website as evidence when prompted.

But as I investigated, I understood more about the omniscient being called David Jao. In his youth, he lived in the harsh, war-torn land that is most commonly known as MIT. In the Missouri Institute of Trucking, there was widespread poverty, and few opportunities for advancing your economic situation. The low quality of life and education, along with lack of universal healthcare, did not help with the situation. But he had a dream: to be a fansubber.

So he traveled, far and wide to places such as "Taiwan, India, Israel, lots of places...for crypto conferences". After days of hard work, he was able to get enrolled into a Japanese class at Harvard, studying day and night to achieve his dream of joining the ranks of the illustrious fansubbers.

But after the studies came the real test. The fansubbing environment was hostile and difficult, with no real tools to guide you through the process, like trying to fit a cube into a circular hole, only possible after topologically invariant transformations. However, our lord and saviour passed with ease. The following is the interview I had the honour of conducting after he had just faithfully completed his duty of "grading exams":

What questions can you think of me to ask you?

<The Legend> !!

<The Legend> I'm a jeopardy bot, I only give answers

When did you first learn Japanese?

<The Legend> I "learned" Japanese in 1999, at Harvard

<The Legend> I took the beginning Japanese classes at Harvard. Later I found that they go twice as fast as everyone else, so I got two years worth for my one year of studies.

<The Legend> I only cared about listening and reading, because that's all you need to fansub

<The Legend> I mean, I can read chinese, so that helps with japanese

How did you discover the existence of anime in the first place?

<The Legend> because sailor moon was on TV?

<The Legend> I mean normal TV, forget which network, but it was on. Bad dubs and everything.

<The Legend> (... boolean and ...)

What's your favourite anime?

<The Legend> my favorite anime is hikaru no go. mathies might actually like this one, since the story is about a kid who wants to get good at go. it reminded me of grad school in many ways (I was in grad school at the time).

<The Legend> someone wanting to be the best at something? check

<The Legend> there's always someone better than you that you're chasing? check

<The Legend> how bloody hard it is to do that? check

<The Legend> of course, go is one of the more mathematical games, so there's that

<The Legend> and the whole thing about finding the best move, is a very mathematical perspective (trying to "solve" the game, although they don't describe it that way in the show)

<The Legend> I think most people very much underestimate how much effort and struggle is involved in doing something like that, going from punk kid to world class. the show gives you a better idea of what's involved. it helped get me through grad school.

Are there any similarities between anime and cryptography?

<The Legend> no???

<quiz> well

<quiz> can you force in any analogies or metaphors?

<The Legend> no???

How Interesting is Newton's Method, Really?

And what does “interesting” really mean?

We all learn (or are purported to have learned) Newton's Method in Calc 1, and that we can use it to find roots of equations numerically. For example, we may use it to approximate square roots of non-square positive integers. We give a short example, to refresh our collective memory as to what Newton's Method is.

Example: Let $f(x) = x^2 - 7$. We shall use Newton's Method to approximate $\sqrt{7}$. Note that $f'(x) = 2x$, and so the method says to consider, after an initial guess x_0 , the sequence given by:

$$\begin{aligned} x_{(n+1)} &= x_n - f(x_n) / f'(x_n) \\ &= x_n - (x_n^2 - 7) / (2x_n) \\ &= (1/2) * (x_n + 7 / x_n). \end{aligned}$$

Choosing $x_0 = 2$, we get:

$$\begin{aligned} x_1 &= 11/4 = 2.75, \\ x_2 &= 233/88 = 2.647727272\dots, \end{aligned}$$

and so on, which if we were to continue calculating, would approximate $\sqrt{7}$.

In a numerical methods course like AMATH 242/CS 371, one might even study the convergence properties of the method; it is possible to show that given nice conditions, it converges quadratically, which is pretty fast. However, when using Newton's Method, it is required to make an initial first guess. If, in the above example, we had chosen $x_0 = 0$, $f(x_0) = 0$ and so x_1 doesn't exist. This is, perhaps, a problem. Newton's Method does not converge for this initial guess. Is this the only point for which this happens?

Well, let T be the iterating map, so $x_{n+1} = T(x_n)$. T is odd, so focus only on positive x . We can do some calculus to show that for all positive x , $T(x)$ is bounded below by $\sqrt{7}$, and then for $x > \sqrt{7}$, $T(x) < x$. Hence the sequence of iterates $\{ T(x), T^2(x), \dots \}$ is bounded below and monotonically decreasing, therefore convergent. Computing the limit gives $\sqrt{7}$, using Calc 1 techniques. Oddness gives us the corresponding result for negative x , and so we've shown that for any x_0 not equal to 0, Newton's Method converges to a root when x_0 is the initial guess.

So, that was interesting. The set of bad points was really small: it only contained one point. Of course, any polynomial with non-zero values at local extremum points has at least that many ‘bad’ points for Newton's Method, since the derivative is zero and the function doesn't already take the value 0. Could there be more ‘bad’ points; it can be the case that a point x is periodic, ie. that $T^{k(x)} = x$ for some positive integer $k > 1$. These points are also bad, because they are not fixed points (ie. roots of f), nor are they converging to anything.

Example: Let $f(x) = \sqrt{x}$ if $x \geq 0$, and $f(x) = \sqrt{-x}$ if $x < 0$. We have that the iterating map T is given by:

$$\begin{aligned} T(x) &= x - f(x) / f'(x) = x - 2\sqrt{x} = -x, & x > 0 \\ T(x) &= x + 2\sqrt{-x} = x + 2|x| = -x, & x < 0 \end{aligned}$$

This says that every non-zero point is a periodic point, and so Newton's Method only converges to the root 0 if we guess the root initially. However, this function is also not differentiable everywhere, and specifically at its root. We will ignore this case for now, and ask a rigorous question, with the help of measure theory. Denote the real numbers by \mathbf{R} , since I don't have LaTeX handy.

Question: Let $p : \mathbf{R} \rightarrow \mathbf{R}$ be a polynomial, with $\deg(p) > 0$ and with at least one real root. Let B be the set of points y in \mathbf{R} such that Newton's Method does not converge to any root when y is the initial guess. What is the Lebesgue measure of B ? (Possibly secondary question: Is B measurable?) Does this result still hold in higher dimensions, ie. for polynomials from \mathbf{R}^n into \mathbf{R} ?

I don't know the answer to this question; the literature is kind of hard to search, here, but maybe I just missed it. I will note that Newton's Method still applies to complex valued polynomials; here, you're getting into fractals and whatnot. Of course, this doesn't mean much for our real-valued question.

Okay, now that we've discussed Newton's Method a bit, how do we figure out how interesting it is? Well, like good mathematicians, we could set up an abstract formalism, and then fit our specific situation into the abstract setting. Of course!

We consider the following situation. Consider an object of study, S . Let Q be a set of questions about S ; this does not have to contain all the questions about S , just some of them. Let m be a probability measure on some sigma-algebra defined on Q ; we may as well assume that it's the Borel sigma-algebra, to make our lives easier. Measurable functions are observables on the questions; for instance, we might ask “How interesting is this question q about S ?” This would be a non-negative real-valued function on Q , call it J , for later use. The measure m is a representation of the importance of each question q in Q ; more important questions have more weight, and lesser questions have less weight.

Consider J again. What is the meaning of its integral? Well, we are integrating “how interesting” a question is, weighted by the importance of each question. So it appears that the integral is some quantification of how interesting the object S is. However, there are different ways of performing this quantification. Recall that since J is non-negative, $|J| = J$.

- L^1 : This is the integral of J , as discussed above. This is the weighted average of the interest across the questions that can be asked about S , and only the collection of important questions are really considered.

- L^∞ : This is the ‘essential’ bound of J , that is, only on a set of measure (or ‘importance’) zero does J take values larger than this bound. If Q is a discrete space and each question has a positive weight, then this is the same as the supremum of J . This says,

roughly, that S is as interesting as the most interesting question which has any importance.

- L^2 : Integrate the square of J , and take its square root. This exaggerates the differences in interest of questions, integrates, and then brings it back to the correct units and scale. It provides a quantification between L^1 and L^∞ .

These three quantifications of how interesting an object is can be applied separately, to investigate how interesting something actually is, according to different parameters.

Now, we may return to the article title, and actually answer the question: How interesting is Newton's Method? Well, let us use our formalism; let $S = \text{Newton's Method}$, Q be the set of questions one may ask about it, and J be the 'how interesting?' observable. if you take the L^1 or L^2 quantifications, perhaps Newton's Method is not that terribly interesting, depending on how much importance you give to questions like the above and how much importance you give to the boring application questions, as found in calc textbooks. If you take the L^∞ quantification, and you assign importance to convergence questions like the one above, or you take the supremum, then hell, Newton's Method is really damn interesting. In my opinion, anyways. If anything, it's given you something neat to think about.

Nerd sniped!

Scythe Marshall

Tips And Tricks To Effective Stalking

We have all had people in our lives that we admire, and simply being in close proximity to them gives us great joy. The purpose of this guide is to get the most utility out of your stalking.

Conventional stalking wisdom suggests following your admiree at a distance. This is ineffective, as you simply can't get a close look at them or hear what they are saying from this far away. What I would advise is to interact with them directly. Build some rapport with them.

People are far more willing to be followed by people they know and like. It is important, however, to ask permission first. If you stalk people without permission and too aggressively, you may get a restraining order. Restraining orders are very inconvenient for any future stalking you may want to engage in.

Instead of trying to follow them, you could invite them to an event. If you do things right they may also start to stalk you. They might tell you where they are going to be and invite you to join them.

It is possible that sometimes people will call this sort of activity "friendship." If this ever happens, just go along with their odd word choices. Arguments over semantics are a distraction to your true goals.

Beyond Meta

Major Character Deprivation

Earlier in the week I walked into the office on the third floor of MC where a candy jar can be found. The people in the office were playing an intriguing game. Everyone who played could no longer utilize the prime letter of their name.

I found being deprived of the nineteenth letter of the alphabet to be rather vexing. No longer could I utilize the non-plural form of the verb "to be", or mention a thing, or more of the plural variety, and forget about owning anything.

A notable example of limited writing can be found in a book called "A Void". The letter "e" cannot be found in the book. The book, originally written in French, got brought into our language maintaining the rule.

My favourite limited text: a tale where no noun, verb, adjective or adverb could be found twice in the book. Unfortunately, I am unable at the moment to mention the title.

Though I will mention that I do enjoy a challenge and would like to invite other people to join me in a very intellectually gratifying endeavor. However, if you are called Xavier or Zachary no one will enjoy playing with you.

Beyond Meta

2477

The most important counting I do has nothing to do with CO 330; it is counting the number of days since August 31, 2008, the day that I moved into residence. 2477 days later, on June 12, 2015, I will be sitting in the PAC, waiting to receive a piece of paper with my name on it.

The bigger that number gets, the more it frightens me, because I know all it takes is failing STAT 241 to add more numbers to it. I have to be ruthless with myself. I have to use my fear of failure. The fear makes me stronger. I can't control certain things, but I ***can*** control the number of days to my graduation. I only have this one course to finish the basic requirements; everything else is just gravy. Failure is not an option.

\&

N Things to do with a Bag of Holding

- Collect paralyzed coworkers
- Shut the gnome up
- Store ill-gotten gains
- Mess-free sewer travel!
- Ambushing warlords
- Long term body storage
- A place to put all your red herring
- Bees?
- Building a city within
- Antimatter

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

Why PD 9 Is Unethical

There are many different theories on ethics; different ways of seeing the world. No one quite agrees on how to determine what is ethical. However, no matter what major ethical theory you consult, the one thing do agree on is that PD 9 (Ethical Decision Making) is simply wrong. Here are some pearls of wisdom from this course:

Egotism is founded on the idea that what is ethical is what benefits oneself. There are no benefits to taking PD 9, while there are many drawbacks. A naïve person might believe that is an opportunity to learn. This makes the very dangerous presumption that one needs to actually read the PD material to pass the course. Whatever benefit one may gain from the meager learning material is drastically outweighed by the mind-numbing frustration of answering the open-ended questions that give so much freedom that one is stricken by acute existential angst.

Utilitarianism is the belief that the most ethical actions are the ones that cause the most happiness for the most people. The existence of PD only means more work for thousands of people. There are all the students whose Tuesdays nights are taken up to this pointless task, then there are the markers who have sift through the bullshit that students produce in exchange for monetary compensation. And is there really enough money in the world to make such an exercise in futility worth it? Not to mention all the money the university waste funding PD. Can you believe that you have to pay someone \$9 to read your work report regardless of whether or not you submit it?

Kantian ethics can most succinctly by the phrase “Act only according to that maxim whereby you can, at the same time, will that it should become a universal law.” According to Kant, one could only consider taking PD 9 ethical if one would will that taking PD 9 be a universal law. This would be entirely unreasonable considering the number of people that do not speak English and who would be unable to complete PD 9, not to mention all the people who don’t have Internet access.

Virtue Ethics argues that what makes something good or bad is that it embodies traits that are considered good or bad. And if there’s any trait that describe PD it’s half-assery. One only needs to get 50% to pass PD and any mark higher than that is an inefficient use of resources. And half-assery is by no means considered a higher ideal.

All things considered I think that most ethical thing PD 9 could do is simply not exist. It is just the right thing to do.

Beyond Meta

Correlation Between Alcohol And Graph Theory Found!

Harbin — Last week, researchers at the Harbin Institute of Technology made a press release stating that ability to do graph theory was correlated with ability to imbibe alcohol, much to the surprise of the mathematical cogitative sciences community.

This study follows up on the formerly scorned-at research showing that being drunk and living in cold places is correlated with doing well in mathematical studies that was conducted by Soviet researchers in the Pskov State Polytechnic Institute. The theory came back into the cultural limelight when Microsoft attempted to leverage this philosophy at the turn of the century, but instead produced Windows ME.^[1] This was subsequently followed up in a University of Illinois study in 2012 stating that alcohol facilitates creative problem solving.^[2]

At the press release, Dr. Zhang, the lead researcher in the project, said, “Last year I was working on a different project and had trouble with some graph coloring. I noticed that everyone who could help me was drunk. In particular, Dr. Shchegolyayev was completely hammered when solving my problem, but when I went to see him in the ER the next day since I was still confused, he couldn’t make any sense of his scribbles yesterday. That’s what got me thinking, and a year later, we are proud to present the results of our research.”

The research shows that alcohol has the largest positive effect on graph theory ability tested, outscoring things like being on fire and being mauled by bears by a very wide margin. If you want to test out the theory for yourself, invite your graph theory professors, bring them to Party with Profs (On April 2nd at 5:30pm) and watch them magically get better at graph theory (assuming they drink)!

Reporting from the ring,

Zethar

mathNEWS would like to remind everyone to drink responsibly and holds no liability to any reader who follows the advice in this article to try and get their assignments done.

[1] R Munroe. “Ballmer Peak”. XKCD. <https://xkcd.com/323/>

[2] AF Jarosz, GJH Colflesh, J Wiley. “Uncorking the muse: Alcohol intoxication facilitates creative problem solving”. *Consciousness and Cognition*, vol 21 issue 1 pp.487-493. doi:10.1016/j.concog.2012.01.002 <http://goo.gl/nOSj79>

A Higgs boson enters into a church. The priest comes up to it and says, “I’m sorry, you’ll have to leave. We won’t allow you in this church,” to which the Higgs boson says, “But without me, you can’t have mass.”

The Tax Cycle

A sustainable economic action plan

Nothing is certain but death and taxes. Though we can't avoid taxes, we can take advantage of them through something called the tax cycle. The tax cycle is not a novel idea, and has indeed been already implemented in many countries with great results, creating thousands of jobs as well as increasing the government's budget. The key insight behind the tax cycle is trickle-down economics, positive feedback loops and exploitation of the poor. Here's how it works:

- The government pays some lawyers and bean counters increase to the complexity of the tax code.
- Rich people, such as corporations, will hire tax professionals to file their taxes. The filings will be completely correct and tax they pay will more or less remain the same since the professionals will not make mistakes. However, this creates jobs for tax professionals, therefore benefiting the economy.
- Due to the increased complexity, poor people will make mistakes while filing for their returns, therefore reducing the amount that the government has to pay back. This increases the government's budget.
- Using the extra money from the increased budget, goto 1.

The government makes the tax code more complicated, jobs are created, people pay more tax, the government use the extra money to make the tax code more complicated, and the cycle continues. If you have any knowledge of feedback theory, it should be clear that this is a positive feedback loop, which will feed back into itself and infinitely create jobs while raising the government's budget.

The tax cycle is a great economic policy that should be considered by every politician. Call your representative today and ask them whether they support the tax cycle!

theSMURF

Haskell: The Language Of The People

Has your life been filled with erroneous programs? Dynamic languages got you down? Having trouble explaining why your programs are correct? If that sounds like you, you should consider Haskell. Haskell is a language for the people, by the people. 50 line program in C? Well that's just 2 lines in Haskell. When you compile a program in Haskell, you can be sure 99% of the time that it does exactly what it says. Buffer overflows and input attacks are the thing of the past; Haskell keeps that dirty stuff away from the purity of your code. Cleanse away the impurity of other statically typed languages with Haskell. Haskell truly is the final solution to the problem, "What is the perfect programming language?"

Let's chat about monads and what Haskell can do for you, 1-800-HAS-KELL.

EI

Lost Deep In The MathSoc Drawer

As my first year is coming to a close, and my MathSoc presidency just around the corner, I figured I should share with my fellow *mathNEWS* consumers my experiences being involved in our beloved society, as well as how you can get involved as well.

How I got involved: To start, I was one of the six first-year reps elected to MathSoc council in the fall term, and in the winter term I became an office manager and was appointed as Pi Day Director. I also managed to accidentally get myself onto a ton of committees and advertised a lot of MathSoc related things because of my constant social media presence.

How to get involved: There are a ton of ways to get involved in the society. Fall VPO, Spring and Fall VPE, and class rep nominations are due today at 4:00 pm in the MathSoc office (MC 3038). However, there are other ways you can be involved. Starting next term you can apply to be an office volunteer, exec assistant, a director for various things (marketing, novelties, communications, games, Spirit Days etc.). Additionally, you can be involved in the various math clubs under MathSoc, as well as WiCS and WiM. The council and exec positions are the only ones with real limit on who can participate, but for the rest of the directors and volunteers, it's fair game.

Why it's good to be involved in MathSoc: being involved gives you a great sense of community. You get to meet a bunch of interesting people, and have a life outside of school. Of course, it looks great on a résumé, and people learn to both know you and trust you, but you also get to make the changes you want to see in student life here at UW. Everyone has skills they can offer, whether they be artistic skills, communication skills, or just great ideas. There are lots of people enjoying their MathSoc involvement, one of which is actually in the Faculty of Science. So if you care about the society or have any ideas, come visit me in the MathSoc office anytime in the near future.

darshwanda

A Pressing Question

Two weeks ago, as of this publication, a friend and I were pulling an all-nighter in the *mathNEWS* office in an attempt to get some work done (don't judge, it works for me). At about 4 a.m., I suddenly got really, really hungry, which was okay because I knew that FedSex, Burger King, and Farah's Foods were all open 24 hours a day.

Problem: I had just spent all of my remaining food money for the week on the first (ha!) "Ultimate π Day" T-shirt.

So, realizing that I had no money, I instead turned to my friend, and asked them the one obvious question that remained:

"Can I eat the shirt?"

Pizza Freeloader Kid

Dealing With Grease Fires

So you have found yourself with a grease fire. Great. What do you do now?

First, you should assess everyone's safety. Saving you and your roommates is more important than saving your surroundings. If it's small, you can try to extinguish it yourself; otherwise, get everyone out of the building and call 911.

If you determine that the fire is small enough for you to deal with, whatever you do, **DO NOT POUR WATER ON IT!** Doing so will cause the oil to explode, likely spreading the fire. Instead, turn the heat off. Do not attempt to move the pot as you might cause hot oil to spill and seriously burn yourself. If you think you have enough time, you can also add baking soda to help smother the fire.

Next, put a lid on it and keep the lid on with something heavy, like a cookie sheet. Do not use a glass lid as the glass may crack. The lid will cut off the fire's oxygen supply, and it should be completely smothered in a few minutes. If you don't put something heavy on the lid, it will probably pop off after some time.

After the pot has sufficiently cooled, take the lid off the pot in a well-ventilated area, preferably outside. Avoid breathing in the smoke. Dispose of the oil properly and don't let it happen again.



AltGr

Dealing with The Grease Co. Fire

If you are reading this article, you were probably one of the many people laid off from the local Grease Company factory. Great. Now what?

First, get off the couch. You all need food to live, and unless you are still living on campus, it's difficult to come across a regular supply of free food – money is pretty important.

If you were a lifelong Greaser, it may be wise to consider leaving the lubricant industry – why not consider adhesives manufacturers for a change? Consider working for an independent lubricant manufacturer – ilma.org is a great resource.

Next, actually apply to jobs. Make sure to proofread your résumé and cover letter, and make sure you have a suitable outfit. You might have worn casual clothing at the job, but some companies would prefer you wear a suit to the interview.

After an interview, it's generally considered good form to send a thank-you letter. If you don't hear back in a week or so regarding your applications, you may consider sending a follow-up email. Grease fires are not an appropriate method of getting a company's attention. Neither are geese fires.

\&

How To Cope When Grease Fires

So you have found yourself in the audience and the cast of Grease has a Civil War era cannon aimed your way. Great. Now what?

First, if at all possible, exit the theatre before Danny finishes ramming the powder in. Proceed to the nearest marked exit, being careful to avoid making too much noise and disturbing the other theatre-goers.

If it will not be possible to exit before the cannon fires, try to position yourself behind one or more larger audience members. While using the bodies of others to shield yourself from a cannonball could be considered poor form, anyone who is obstructing your view really has it coming.

Next, do your best to refrain from screaming as the cannonball hurtles inevitably towards you. While the 19.05 kilos of iron flying towards you may be terrifying, there is no reason that your impending death should cause you to disturb the other patrons currently enjoying the show.

After the shot has passed through you, don't use it as an excuse to not show proper respect to the cast. Just because you have been mangled by a piece of anachronistic artillery does not devalue the tremendous effort involved in putting on a good play. Be sure to clap at the end, with whatever limbs you have left. If a standing ovation is in order, don't be the one disrespectful slacker who remains seated. Make it happen. You can find a way.

Respectfully yours,
s,t∈{2k,k∈Z}, 144



2014 Europe Employment Figures Update

Luxembourg — Last week Eurostat had, in collaboration with the European Central Bank, released the latest unemployment numbers for the countries in the Eurozone for the year ended December 2014.

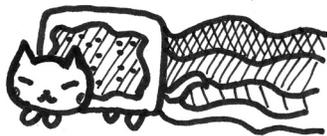
The estimated unemployment rate for the Eurozone in December 2014 was 11.3%, an all-year low, with the projection in January to be even lower at 11.2%. The unemployment statistic for youth (people under 25) is 22.9%, which had dropped in the year from 24.3% in January 2014.

The countries in the Eurozone are not equal in their unemployment problems. In the countries with the highest unemployment, Greece (25.9%) and Spain (23.4%) had moderate years in dealing with their unemployment problems as a whole (it dropped by about 1% in the countries). Yet, there are still countries in which the unemployment situation has become worse, such as Finland and France.

Unfortunately, the youth unemployment problem is generally worse. Although the general youth unemployment in the Eurozone is about 10%, there are countries which the figure is sky high. For example, there are quite a few countries whose youth unemployment is over 20% such as France (24.9%), Italy (41.2%), Spain (50.9%), and Greece (50.8%). Greece's youth unemployment problem is worse since the projection for January is even higher at 51.2%, spelling further trouble for the future of the country.

Reporting from the ring,

Zethar



How To Deal With Grease Fires

So you have found yourself with a Grease Fire. Great. Now What?

First, you should assess everyone's safety. Saving you and anyone you're with is more important than saving any of the actors on stage. It's like Alfred Hitchcock once said, though actors are not cattle, actors should be treated as cattle, and thus, are much less important than you.

If you determine that the fire is small, and is in fact, Greased Lightning, and part of the play, just stay in your seats and enjoy the show. Well, enjoy Grease as much as you possibly can enjoy a musical of that quality.

If it's small, you can try to extinguish it yourself, but don't. Instead, you should get out of the theater, stopping at the ticket booth to demand a refund. If the fire is large, demand your refund after the fire has been put out.

The Tragic Tale Of Greece Fire

So you have found yourself with a Greece fire. Great. Now what?

First you realize your position in the world. Not that you are sinking in debt and can't breathe, but the booming sound of cannons as they fire their aimed cannonballs into your face. Each second either is met with a rock hard ball to the face, or a whizzing sound as they fly by. You only pray that the people firing have no idea how parabolas work (But really, it's simple physics that everyone knows, so you're screwed). If you don't have a face full of balls in the near future, you are a success.

If by any chance you are accompanied by friends, you are in luck. In the near future a blast shield may be required in blocking shrapnel, debris, and vicious fish that lay below you. Normally fish would be a delicious meal in the Mediterranean Sea. Today, you may be a nice Mackerel unless you value your life over others.

Next, solve Greece's debt crisis while you are there. Why not kill two birds with one stone and be an economic genius at the same time. Unless your name is Angela Merkel, you probably are not holding an olive branch, and by any chance it is March, you had better drop it. People in Germany are mad and quite possibly the people firing cannons at you because of the austerity measures being dumped into Greece. But do the people in Germany feel the feels of the people in Greece if they have to go back to the drachma? I didn't think so.

After you stop for a moment you realize, "What is life"? You study for so many years, work so hard, to get a piece of paper. Then you graduate to work and make money. And maybe you work and retire with enough money. Look upon the wind and assess your choices.

jat109

If Olivia Newton-John and John Travolta happen to be the ones on fire, do nothing and continue with the burning of that DVD (or VHS, if you, you know, are old). After all, this is the most common reaction people have to watching Grease.

Next, after determining the proper course of action, and taking it, consider seeing a better musical next time. A recommendation would be Les Misérables or Phantom of the Opera. However, stay away from Mamma Mia.

After watching this much better musical, feel pride in the fact that you have chosen wisely and have not wasted your time watching the musical Grease once more after a completely random stage fire so sadly disrupted your original viewing of it.

By Theodore Bear

Dealing With Geese Fires

So you have found yourself with geese on fire. Great. What do you do now?

First, you should assess everyone's safety. Saving you and anyone you are with is more important than saving your surroundings. If it's small, you can try to extinguish it yourself; otherwise, get everyone away from the fire and call a professional elephant.

If you determine that the fire is small enough for you to deal with, whatever you do, **DO NOT POUR WATER ON IT!** Doing so will cause the geese to explode, likely spreading the fire. Instead, cool the geese down by getting them to stop moving and throwing dry ice at them. If they move around, they'll likely cause you to seriously burn yourself. If you have enough time, you can also add baking soda to help smother the fire.

Next, cover them with a large non-flammable tarp and keep it down with something heavy. The tarp will cut off the fire's oxygen supply, and it will smother in a few minutes. Geese also need oxygen to live, but they've probably died by now anyway. If you don't put something heavy on the tarp, it will probably blow off after some time.

After the geese have sufficiently cooled, take the tarp off in a well-ventilated area. Avoid breathing in the smoke. Dispose of the geese properly and don't let it happen again.

AltGr

G(r)e(a)(e)(s)(c)e Fires

So you have found yourself with a geese fired from Grease for firing grease at Europe thus causing a Greece fire. Great. Now what?

First resolve the issue of the fired geese by giving them adequate severance pay.

If they refuse your deal, arrest the geese for firing geese and starting a Greece fire.

Next you probably want to confiscate the cannon as having a cannon ready to fire grease is a bit of hazard

After you have resolve these problems you might want to put out the Greece grease fires.

On the bright side, the widespread destruction of Greece should create new economic opportunity in the rebuilding of Greece and greatly help with resolving the massive amounts of firing in Greece.

Beyond Meta

Twitch Needs To Stop Playing Pokémon

If you haven't heard about the phenomenon of "Twitch Plays Pokémon", you must be out living a healthy lifestyle and not spending much time on the Internet. Congratulations! Or you live under a rock with no Internet connection, in which case, well, I don't know. There are probably other situations, too.

On February 12, 2014, Twitch Plays Pokémon, hereafter abbreviated as TPP, started playing through an unmodified version of Red. The method was this: inputs to the game are determined by commands spoken in the Twitch Chat for the stream. Anarchy at its finest, for the most part. Sixteen and a half days later, they beat the Elite Four and the Champion in a blaze of glory, with viewership around the 100,000 person mark, though not without trouble spots. Throughout the following year, they played through a game or two in each generation, and this February, on the one-year anniversary of the beginning of this whole thing, Twitch started to play Pokémon Red, again.

This time, however, there's a slight problem. "Which is what?", you ask? Oh, only that the levels of all trainers/wild encounters have been boosted, so that by the end of the game trainers have level 100 Pokémon (to reflect the sheer amount of time they spend sitting and waiting for the player character to reach them, cough cough), and wild Pokémon are level 80-85. And they have to catch 'em all.

Yes, they are completing the Pokédex.

Together with the blend of old and new mythology surrounding the game and stream, and the heightened difficulty level, TPP still manages to draw in thousands of viewers (if not hundreds of thousands, as before), each watching our poor voice-controlled trainer make his way back and forth between Seafoam and wherever else he's going to make a party swap in Democracy mode. Well, and catching 'mons and defeating the Gym Leaders for the second time, etc. And catching Mewtwo.

Without a Master Ball, because naturally, TPP saved that for Zapdos. Just like last time. Also, Mewtwo is level 100 with an attacking move set (Psychic/Amnesia/Recover/Mist). This isn't going well.

Anyways, the title of this article said that Twitch needed to stop playing Pokémon. Why? For me and the possibility of ever actually getting work done, that's why. Maybe I'm just being selfish or addicted or both, but seriously, between TPP doing versions of Red and Awesome/Summer Games Done Quick, nothing much gets done for large swaths of time... Sigh. At least I can sort of get away with it for the time being.

Sort of.

Scythe Marshall

Send your articles, *prof*QUOTES, breadboards, and grid solutions to mathnews@gmail.com or the **BLACK BOX** on the 3rd floor MC!

Tabletop Wargaming

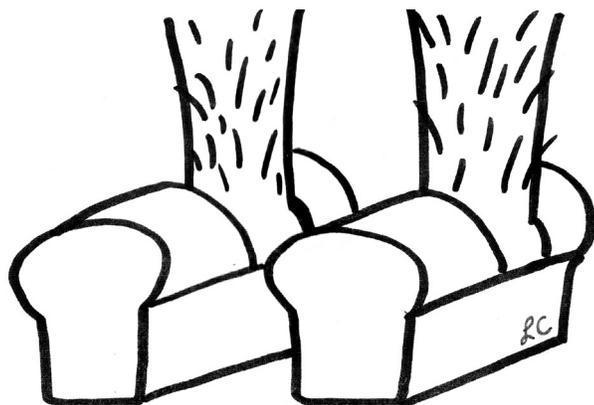
Looking down upon the map and figures, the commander pondered their next move. The battle was not going according to plan, which was expected, but the next few minutes would prove critical. With a final nod to themselves, they started giving new orders to the troops.

Do you like games of strategy? Do you like having tiny models of troops and tanks (miniatures) that you can move around a battlefield (making optional vroom-vroom noises as you go)? Perhaps you should take a look at tabletop wargaming. There are many different wargames out there, but all share similar traits of army building similar to deck building for Collectible Card Games, with building and painting of miniatures (or not, depending on where you get your minis, or if you pay someone to do it for you), and battles that can range from small squad combat, up to Company-sized battles of 200~ soldiers, and some games meant to simulate even Theatre-level battles. Many cover non-standard ground warfare, and cover naval, air, space, or other types of combat.

The scale and complexity of the game is dependent on the game system, with plenty of genres (ie sci-fi, fantasy, historical) covered, meaning somewhere out there is a game that will interest you. Some of the popular games you could look into are Warhammer (40,000), Flames of War, Robotech, and Star Wars: X-Wing, each being drastically different from one another. Visit your local hobby/game store (like J&J Cards and Collectibles, and Just By Chance Games in Waterloo) to see what is played and available in your area. I will not mislead you, it can get expensive like CCGs (usually over \$100, you are buying more expensive specific minis instead of random packs of cards though), but if you have a desire to be the Commander of your own personalized army, I believe nothing can beat the feeling of Tabletop Wargaming.

If you have an interest in the subject, and would like more articles covering it, or covering specific games, drop a message into the **BLACK BOX**...thing... located at... the third floor of MC, and I can go more in-depth in future articles.

Soviet Canadian



LOAFERS

Cities: Skylines

*Or How I Learned To Stop Micromanaging
And Love The Roundabout*

I've recently become infatuated with the new city simulator called Cities: Skylines. Not sure if it's due to the egotistical merits of omnipotence or just good old fashioned procrastination, but it consumes me. Constantly. The power it gives is addictive. I've watched suburbs come and go, destroyed by my desire for a train station in the middle of a child's playground or to see what would happen if I put a dam into the high-flow river next to the industrial sector (not recommended, unless your citizens really like water).

However, as my city grows, I face the common problem that every certified urban planner (like myself) faces: traffic. Too many cars, too many people, it makes me wonder why I have a city in the first place. As I create more places to go, for some reason people want to go there, halting my overall growth. Intersections just create congestion, but are necessary to a city that just wants to be something more! In my mayoral rage, I cursed Henry Ford and gave into the easy addition of the roundabout. A prefabricated cop-out of a road feature, it reduces overall traffic to a lame circle, but it helps with efficiency, so that's good, I guess. One day though, my city will evolve from the cratered moon-like design into a beautiful, properly designed metropolis. Maybe after exams.

As far as city simulators go, this one is very easy to learn, but also very detailed. It walks the fine line between complexity and ease of play, and maintains a nice sense of realism. Definitely recommended for those who are bored, power-hungry, or both.



Sioui

Student Completes Assignment Early

In an shocking and unexpected turn of events this week, a student completed their assignment multiple days in advance. When asked what prompted this strange behaviour, their answer was "Well I had this event that I wanted to go the night before my essay was due. And I knew that if procrastinated I wouldn't be able to go."

We inquired further to see if there was any secret to this unbelievable result. "Well instead of trying to write all the night before when I was really tired. I set myself small goals every day. Before I knew it I was done."

We then asked them what they would do with this new found free time. They answered: "Probably write 6 or 7 **mathNEWS** articles"

Beyond Meta

profQUOTES

- "And I, for one, welcome our new operator overlords."
Ragde, CS 442
- "To avoid the singularity at the origin, integrate around Pacman with the lips of the Pacman epsilon apart."
Rubinstein, PMATH 352
- Prof: "Do you guys spell it disc or disk?"
Student: "I write 'ball'."
Prof: "Yeah, that solves the problem."
Rubinstein, PMATH 352
- "I guess you could say it's a pain in the annulus."
Rubinstein, PMATH 352
- "If you didn't have a chance to copy that diagram down. I'll draw it in your notes after class."
Vavasis, CO 255
- "The moral of the story is: if you want something named after you, name something after a good friend and remind him to return the favour."
Blais, CS 365
- "I didn't write that j there. It appeared by itself. It's a quantum effect."
Lutkenhaus, PHYS 234
- "Oh, I did square them! Bad boy! [*Slaps himself.*] You can take 5% off my mark."
Duhamel, CHEM 123
- "Poop."
Illman, EARTH 122
- "I just like saying 'dildo'."
Rye, SMF 204
- "There's not much you can do with two equations that actually predicts something in the real world."
Bauch, AMATH 495
- "If you've ever been in kindergarten, you'll know there's slobber on everything. It's rife for disease."
Bauch, AMATH 495
- "In the summer, kids are outside, and they slobber on a branch. Then UV light kills the bacteria."
Bauch, AMATH 495
- "You have a model, and it raises questions, and you answer those and get more questions, and that's why I still have a job."
Bauch, AMATH 495
- "The question is why you can't just put a hamburger on your hand and just have it diffuse into your bloodstream."
Bauch, AMATH 495
- "The prisoner's dilemma occurs in other cases too. Like trees and cocktail parties."
Bauch, AMATH 495
- "It's hard to pick a real person who was always cooperative. I thought of Gandhi, but the British didn't think he was very cooperative."
Bauch, AMATH 495
- "One of the recurring themes of ecology is that when you have multiple species, funny things start to happen."
Bauch, AMATH 495
- "My father in law goes back to ancient texts. He's convinced Indian scriptures prove they had nuclear weapons."
Bauch, AMATH 495
- "There's a perverse effect of good intentions. No, I'm not a libertarian."
Bauch, AMATH 495
- "I tried to read Ayn Rand once. Then... I stopped."
Bauch, AMATH 495
- "I'd be the gold-crown-wearing roomie. Why wouldn't I be?"
Kierstead, CS 343
- "If I happen to be particularly cruel, I could just keep you from using the bathroom indefinitely. Every moment of the day."
Kierstead, CS 343
- "That sounds a lot like starvation doesn't it? Except bathrooms are involved."
Kierstead, CS 343
- "Good stall tactics. I approve."
Kierstead, CS 343
- "Let's say that we're meeting up at the Bombshelter, and I call you when you need to come in. I stagger your multiple dates in the line so that they don't see each other and notice that you're dating multiple people. Your excuse for showing up later is that you've been working on your CS 343 assignment and they take that as a palatable excuse."
Kierstead, CS 343
- "And then the bathroom explodes. Because that's what happens in real life."
Kierstead, CS 343
- [*Discussing the destructor for the dating service.*] "Maybe we're being sued and we're going out of business."
Kierstead, CS 343
- "And students, being poor, have a finite amount of money to load into their WatCards. And there's a roaming parent task that randomly distributes money amongst the student tasks."
Kierstead, CS 343

"Yeah sorry, you're a loser; we couldn't find anybody for you [to date]. Go home."

Kierstead, CS 343

"This isn't my area. So I'm going to wave my hands very swiftly at this, to the point where I can achieve flight."

Kierstead, CS 343

"I dunno. Let's just start writing some code and see what happens. Is that your approach?"

Kierstead, CS 343

[Referring to crudely drawn Alice and Bob on the lecture slides.]
"It took a long time to draw these pictures. And I didn't even draw these pictures. I outsourced it."

Jao, CO 487

"Cryptographers love to cheat. [Pause.] Don't cheat on the exam, of course."

Jao, CO 487

"You take the letter Zed. Well, you see I hesitated there because I normally say Zee, since I come from another country."

Jao, CO 487

"This is something that our course dictator—I mean, course coordinator—made up."

Jao, MATH 239

"That the average this time was lower tells us that this midterm was probably harder than it should have been. Or maybe this term's students are just dumber."

Jao, MATH 239

Prof: "What would you like me to draw a map of?"

Student: "Narnia."

Prof: "Something else. I don't know how to draw Narnia."

Jao, MATH 239

"Theoretically, quadtrees are really bad. That's why graphics uses them all the time."

Biedl, CS 240

"One programmer that likes to program [with expressions nested 40 levels deep] is one by the name of Marmoset."

Lushman, CS 241

"It's an algorithm the government would implement because it's fair but it's not really good."

Brecht, CS 350

"I have to make sure first year students use floppy disks."

Brecht, CS 350

"There is one more very important thing I have to do to fulfill my duty as an instructor: to give proofs."

Chan, CS 341

"So what real world are you thinking about?"

Salem, CS 350

"I told you about this. I was even quoted in *profQUOTES*."

Labahn, CS 370

"It sort of screws up, but luckily it screws up in a uniform way."

Labahn, CS 370

"I'm not a theory guy. Theory people look for lower bounds. I look for upper bounds."

Labahn, CS 370

"I shouldn't get confused in my own lecture."

Labahn, CS 370



The geese are back.
Therefore by Honkdratraction
It was not a great day

-JT

Meme Reviews: Math is Hard, Let's Go Shopping

Perhaps the most quintessential meme of society as we know it is Math is Hard, Let's Go Shopping. Often uttered by mathematicians in the Faculty, the meme not only offers us words of truth ("math is hard"), but an escape from the harshness of reality. Mathematics is the looking-glass through which we observe the world; but as we spend more and more time straining our eyes to see, we realise that the glass is far from rose-tinted. But is shopping, in the end, a solace for mathematicians? It may seem tempting to wander to the outside world (or a computer) and begin one's journey through the bustling limbo of a Mall of Shopping, but how many times have the words, "Shopping is hard" also been spoken?

And so, perhaps this meme is not a mere dismissal of mathematics for a simpler alternative; rather, it presents to us the dilemma of two activities that are enticing in their own ways. On the one hand, mathematics, the foundation upon which humanity thrives, the consummation of art and science, beckons us. However, shopping, in a mask of simplicity, seduces even our sense of reason, for what reasonable being would willingly suffer the thorns of mathematics, no matter how beautiful the rose?

This conundrum was introduced to us by Mattel, through their miniature human figures called Barbies. At some point, Mattel equipped these Barbies with audio capabilities, allowing them to say things like, "Math class is tough!" and "I love shopping!" As these phrases were passed down to us from our ancestors, they morphed into the meme as we know it today: "Math is hard. Let's go shopping!"

Outside of the Faculty of Mathematics, laypeople have adopted the meme into their own purposes as X is Hard, Let's Go Shopping, where X is some activity (or a noun to which an activity can be inferred). Although this does not depict society as accurately as the original, it is still a valid reproduction of the meme, and must be respected as such.

k!

Article of the Issue

This week's article of the issue is *David Jao: The Man, the Legend, the Anime Fansubber*. by quiz. Congratulations!

I would tell the author to pick up their prize from the **mathNEWS** office, but they are probably already there. They probably haven't even left since Monday. Does quiz even have a home? Do they do anything besides stalking professors on IRC? Probably not, because all **mathNEWS** writers lead sad, sad lives. Especially us. We spend every other week doing little else but put **mathNEWS** together, because it makes us feel important, the way your parents putting your crayon drawings on the refrigerator door made you feel important as a kid. We are edit good. Please love us.

The Editors

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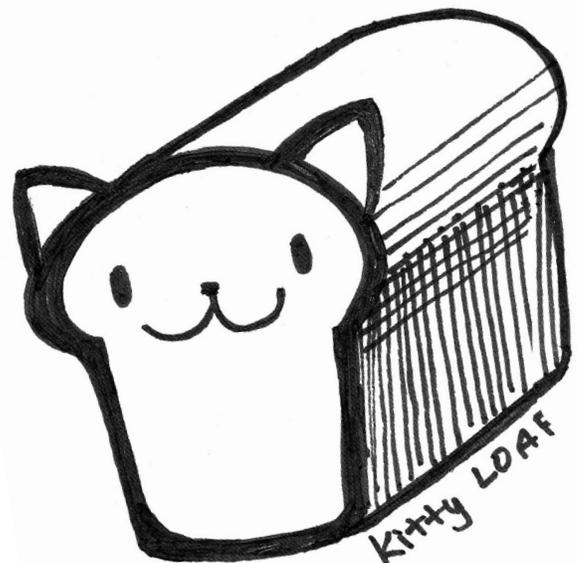
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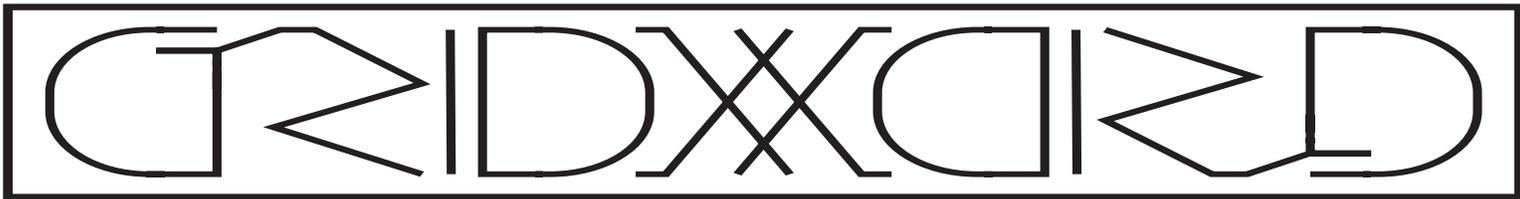
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gridCOMMENTS

Grease fires

Nineteen submissions! Incorrect: Robert Zimmerman, Christy Chow and Stephanie Chan, Felix, Kristen M., Jim Gilbert, Stubbs & Shay Blair (you "mispelt" "misspelt"), Marc, Mr. Worldwide, Simran Nanda, Jennifer Reid, and Jinny (nice ray pun). A very common error was KITES for 18A. Paper-hanger? i.e. KITER. My last gridQUESTION (ever) was "What sport should you not play on skates?" and "Kickboxing" was a popular answer, although its only perfect suggester was Abraham. Imran Saleh left no answer. Both DoubleD and Rob Schlantz answered "Polo", clarified, respectively, with "(horse wearing skates)" or "(the horses wear the skates)"; pretty great! Michael Gershunovsky ("Who:") answered "cycling". Ed said "Ice Hockey". Nice. Heather & MK tried "League of Legends"—you could wear skates, but why would you play League of Legends? Kevin's answer ("Kevin's Answer") was "Marathon", in my opinion the best. I hate walking on skates—imagine running! So congratulations, Kevin! You may pick up your prize at MathSoc. This is the end. You'll find the answers within; you'll find me in my garden. Have a nice summer. Goodbye!

unit

P.S. Kristen, thank you so much for writing "I CAN'T BELIEVE IT'S NOT BUTTER" in the four-square space where OLEO should have gone (I didn'tcount that as an error, for what it's worth). I had a great laugh.

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			

gridCLUES

Across:

1. Mathematician Carl
6. Ulmus
9. Thomething amith
13. Like figures in the mist
14. Text On A Picture
16. Roman ruins: eald _____
geweorc
17. Illegal act
18. Iberian greeting
19. Safest place whence to love?
20. Ellipse's eyes?
21. Little, in Lille
22. Ballet bend
23. Winglike
25. Cuddly coils
27. An inclusion-reversing function which assigns to each compact subset K of X a non-empty component of $X \setminus K$
28. Last Friday
33. Immunoglobulin E
34. Boyf
35. Big brew-cups
38. "Not your"
40. Wrinkled and sneering
42. Celestial circuit
43. Maximally foul
45. Horse controller
47. Kea's neighbour
48. "Supermoon", technically
51. A ways away
53. The Old Man's home
54. Cold coat?
55. Uncleft
57. Lab glasses?
59. Sinister scheme
63. Cray
64. Telle est la question
65. Tiny onion
66. Hockey shot
67. Does 5D
68. King of marriage
69. "If she reads, she reads _____"
70. Net feed
71. Flattens fabric

Down:

1. Notes in a Cadd11 chord
2. Chocolate and bubbles
3. Pertaining to pee
4. Monkey-doing
5. Process optical input
6. Like snow in the summer
7. Steal stuff
8. Coconut rum
9. A skip or a hop
10. Unbendsomely
11. Vestimentary blotch
12. Peeled e.g. a pear
15. Pidgin or creole or dialect
21. Whey-faced
24. Herc's hardships
26. Gradable, complementary, or relational
28. Wan wine
29. Yowza!
30. One over?
31. Ream twentieth
32. _____ the ramparts
36. Coconut in the Philippines
37. Plea to a parter
39. Garden tool
41. Better than the rest
44. Eratosthenes' and Sundaram's
46. An extremist rebel group
49. Leg layer
50. Falkner's badge
51. Not actually so
52. Lagoon lasso?
56. Brood, head hanging
58. Bellicose Olympian
60. Long auto
61. Kitchen's hell?
62. Sir John A. Macdonalds
65. χ