mathNEWS

Volume 113, Issue 6 *Friday, July 23rd, 2010*

mathNEWS congratulates the new Dean and Governer General!

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*look*AHEAD

***math*NEWS**	
July 23	Issue 6 melts your face with awesome!
July 30	mathNEWS End of Term. Writers, expect an email soon
MathSoc	
July 23	24 Hour Games & Movies Day
July 23	MathSoc Council Meeting in MC 4020 at 5:30 P.M.
July 27	MathSoc EOT BBQ in DC Quad. Free Hamburgers!
July 28	Pints with Profs
CECS	
July 26	Last day to apply for CANEU Co-op positions in Austria & Germany for Winter 2011
August 27	Co-op term ends
Faculty of Math	
July 28	Lectures end.
August 2	Last day to drop a course without a petition
August 3- August 14	Final Exams
Miscellaneous	
July 31	Birthday of our Lord and Saviour Harry Potter

Retraction

[I resent this article and everything it stands for. — GroovyED] I wrote somewhere in some public forum that *math*NEWS was in good hands after my editorial resignation. I have since been informed that this is not the case, and I therefore retract this statement and apologize to those who were either insulted or reassured.

InsideR

VPAS Sez

Hi dearest loyal mathNEWS readers!

Sadly, this will be the last time I'm writing as VPAS for mathNEWS. Okay, so I'll just get to my point.

First, I'd like to thank the Dean of Math for attending our Pi Approximation Day, and also the people who attended the event.

Second, Student Life 101 will be happening tomorrow, Saturday, July 24th. If you still want to help out, please email vpas@mathsoc.uwaterloo.ca right away.

Third, we'll be having our EOT BBQ on Tuesday, July 27th from 11:30 - 3:00 pm. It's free for all Math students and Professors. Drinks are $1 for everyone and Burgers are $1 for Non-Math students.

Fourth, we'll be having Pints with Profs on Wednesday, July 28th from 5:00 - 8:00 pm at the Bomber. Bring your professors so you can mingle and talk to them about anything.

Lastly, I want to thank everyone who has been coming to all of our events, or even some of them. I'd also like to thank our volunteers for our events. It's been a great term serving and working with you all!

Joycelin I. Karel
Vice President of Activities and Services
Mathematics Society
vpas@mathsoc.uwaterloo.ca

*mast*HEAD

So this week the Editors had an interesting exercise in frustration. Due to accidental misplacement of the BLACK BOX's key we were unable to get into the BLACK BOX by the normal means. This meant we had to get creative and bust out our not as editorly skills. It is with this mission of getting into the BLACK BOX that I, CorruptED, spent a good half hour attempting to pick the lock on the box, since I happened to have my lockpicking set handy and I occasionally like to unlock things. Unfortunately, due to either the fact it only works when I'm drunk or that the BLACK BOX's lock is a force to contend with I was unable to get the bastard open.

So we ended up just getting the bolt cutters and using the ol' brute force method. Elegant solutions are for suckers!

However, in honour of the amount of effort I put in attempting to wield one of my more random special skills, this week's *mast*HEAD question is:

What is your super special secret skill?

perki ("Remembering to get the *mast*HEAD answer when I was editor"), Thor ("I can do this one thing with my tongue, some ice cubes, and two lines of perl that your mom just loves"), InsideR ("**NOT** completely sending *math*NEWS down the tubes as editor. (Completely being the key word here)"), Unnatural Historian("To see into a time that may not and will not be") GroovyED ("Screwing up *math*NEWS and meeting girls over the internet."), FuzzyED ("Taking over *math*NEWS from the shadows (No one seems to want it anyway)")

CorruptED ("Lockpicking while drunk, configuring linux systems while drunk, coding while drunk, and apparently being incompetent while sober.")

CSC Refuses Free Pizza

Members of the Computer Science Club utterly rejected a pizza that was offered to them by the *math*NEWS editors.

For some reason, the editors decided to order pizza with many green things on it. It turns out that the members of the CSC there at the time did not approve of green things on pizza, and literally threw it in the *math*NEWS office where it landed upside-down.

The pizza never got eaten.

That guy in the CSC when the pizza was delivered

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Luke, Han, and Chewbacca: Will, Jeff, and Harrison

CECS Considers Various Matching Algorithms

In the last issue of *math*NEWS, we reported that the Cooperative Education department was considering a new algorithm for co-op job matching. We understood at the time that part of the new algorithm may involve students not knowing how they were ranked by employers going into the ranking phase.

Since the issue went to print, we spoke with Rocco Fondacaro, the Director of Student and Faculty Relations at CECS. He told me that there are two goals with the new algorithm. The first is to optimize the number of students employed in the first round of offers and the second to remove the randomness currently used in the job matching process. They are currently still investigating the best way of moving forward with that.

There are three options being considered when it comes to how students will be ranked, according to Dr. Fonacaro. The first is to hide all ranking information from students, though he says that option is very unlikely.

The remaining options involve how many top rankings an employer may make relative to the number of positions are open. Currently, employers may not rank more students with a '1' than they have available positions. He says that allowing employers to rank more students with a '1' would increase the odds of an employer getting a student they'll be happy with, as well as possibly giving them an incentive to interview more students.

A number of scenarios are being run with each of these options to determine which will be selected.

Whichever of these choices are taken, another part of the plan is to remove the randomization that takes place during the match process. Currently, after adding up employer and student rankings, ties are broken at random. The new algorithm would take into account other students' and employers' rankings in an attempt to optimize the number of students being matched with jobs in the first round. Details are not available as the algorithm has not been finalized yet.

The new algorithm is scheduled to be released with Waterloo Works, which is reportedly being beta-tested by Architecture students, in the spring of 2011.

InsideR
Twitter: @mN_InsideR

Pints with Profs

How are you doing? Want to go out tonight? Let's go this Wednesday instead. Invite your professors and come join us at the Bomber for Pints with Profs from 5 pm to 8 pm. Free food will be served and it will be lots of fun. This is your chance to mingle with your Profs outside of class. On a side note, there will be an End of Term event treat for everyone in Math. The event will occur this coming Tuesday in front of DC from 11:30 to 3:00. There will be barbequed food and drinks served. The food will be free for Math students and professors. Drinks will cost a dollar for everyone and a dollar per burger for non-math students.

Social Directors
Daniel Gao and Hannah Pizana

MathSoc Reports Spike in Refund Rejections

MathSoc VP Finance Kumar Patel reported a sharp increase in the number of Math Society refunds rejected this term after executives were better able to track the use of their online services.

"I was disappointed to see the number of people reneging on their refund agreements," Patel told me after processing the refund requests. "Math students are paying to use these services, and for people to use them without paying for them is just unfair to everyone else."

Full-time math students can request that their $12.50 Mathematics Society fee be refunded at the start of term, with cheques being issued close to final exams. To receive their refund, however, they must agree not to use any society-funded service, including the online exam bank, student lockers, or this publication.

Patel reported that approximately 38% of the 57 refund requests this term were rejected, nearly all of them from students accessing the exam bank. Before the tracking system was implemented, less than 5% of refunds would be denied, if any at all.

"I'm surprised that it didn't exist before, because this stuff is so easy to track," said Website Director Joe Collins, who was responsible for the implementation of the system. "Sadly, I can't say I'm overly surprised that there are this many people who aren't keeping their end of the refund agreement."

Both Patel and Collins hope that this improved tracking system will discourage people from continuing to use MathSoc's services after having requested a fee refund, but neither seem overly optimistic that this will be the case.

"If you're not going to use our services, by all means get your money back," Patel said. "But if you request your refund and then use our services, don't expect me to sign your cheque."

InsideR
Twitter: @mN_InsideR

VPF Sez

Greetings Magnificent Mathies,

VPF Patel here with your last bi-weekly update. It has been a great and productive term, and I definitely look forward to working with MathSoc again; censured or not.

The CnD is still in the process of updating its POS systems. Unfortunately, due to the HST update, credit cards will not be accepted until further notice. We hope to have all methods of payments up and running by the first week of August.

Mathletics and MathSoc Refunds will be ready to pick up on the 29th of July. If you are reading this paper, you do not qualify for a MathSoc Refund, since *math*NEWS is a MathSoc affiliate.

There are a lot of things that are going to be happening soon including capital improvements to the third floor, digital signage, balcony renovations and more. Also, be sure to check us out on the third floor this Saturday during Student Life 101, even if you aren't a first year. All of our clubs have a hip new look to them with new signage, brochures and more!

Love,

Prashant "Kumar" Patel
Vice Presiden of Finance
Mathematics Society
vpf@mathsoc.uwaterloo.ca

CSCFyi

Here's what I hope is a fairly simple quiz to remind you what CS computing resources you have access to.

1. Who can use the general access CS Student Computing Environment?
a) All Math Faculty students.
b) Anyone taking a CS course.
c) All of the above

2. What general access Computing environments are provided by CS?
a) Mac OS
b) Sun Solaris
c) Ubuntu Linux
d) Windows Terminal Server
e) All of the above

3. How do I remotely access those environments?
a) Duh it's a Mac, it's not remote access friendly.
b) ssh -Y cpu-solaris.student.cs.uwaterloo.ca
c) ssh -Y linux.student.cs.uwaterloo.ca
d) rdesktop windows.student.cs.uwaterloo.ca
e) All of the above

4. Where's the newer software?
a) On linux.student.cs systems
b) Not likely on Solaris systems.
c) OK so maybe in /opt/csw (`www.blastwave.org packages`) is present.
d) Don't know about newer however /xhbin is a UW standard for scripting languages.
e) All of the above

5. Where can I get Ubuntu Linux and many other open source software?
a) `mirror.cs.uwaterloo.ca`
b) `mirror.csclub.cs.uwaterloo.ca` (An official Ubuntu Canadian Mirror, also supported by your MEF funding and the School of Computer Science.)
c) All of the above (since there are currently the same hardware).

6. How much home disk space with a spiffy online backup service do all accounts in the CS Student Computing Environment get?

a) Thanks to MEF funding, at least 500 MB as of mid-July 2008.
b) Even during Co-op work terms, at least 500 MB as of mid-July 2008.
c) Nothing if the user gets caught misusing it. (Repeat after me, "I will not share copyrighted material without permission nor run a commercial web service from my student account.")
d) Not as much space as a personal USB datakey that you can use in the Mac and Thin-Client labs.
e) All of the above

7. Where can somebody get help?
a) Math Faculty Help Centre: MC 3017
b) Use the uw.cscf.* and uw.mfcf.* news groups.
c) Local Pubs.
d) Your friends, TA's, Prof's, …
f) All of the above except 'c)', although 'c)' might work sometimes.

Dave
CSCF

(Sources for) answers to the above questions and others?
1. `http://www.student.cs.uwaterloo.ca`
2. `http://www.cs.uwaterloo.ca/cscf/student/hosts`
3. Look at `http://www.ubuntu.com/getubuntu/download` and ask your Housing RCC.
4. Use "diskquota" on a CS Solaris host and see "`http://www.cs.uwaterloo.ca/cscf/howto/snap`" regarding backups and "`http://www.cs.uwaterloo.ca/cscf/howto/thin/eon_guide`" as well as "need URL here regarding USB key usage on Macs" regarding USB datakeys.
5. No right answer, just personal choice.
6. No question seven, you just need to know to also look at: `http://www.cs.uwaterloo.ca/cscf/student/#Bulletinshttp://www.cs.uwaterloo.ca/cscf/#Bulletins`

Powering On

>>Coversation Intiated
>>Identifying targets
>>Target Identified: Significant Other (SO)
>>Loading SO habits
>>……Success
>>Loading SO annoyances
>>……Success
>>Intalling behavioral filters
>>……Caution: traces of sarcasm have been detected in the system
>>Activating pillow talk functions
>>……Success
>>Warning relationship questions detected.
>>Reserve answers database activated
>>Warning database is corrupt. Transferring to controls to manual
>>… CAUTION large quantities of emotion detected, breakdown is 45% probable
>>Activating hug protocols
>>…Failure! hug was rejected by receiving party
>>CAUTION! ....Auditory components detect increased volume
>>Activate backup calming procedures use 100% remaining brain power
>>WARNING! Auditory levels shattering procedures.
>>System is corrupted.
>>Shutting down

Thor's CS Problem of the Fortnight

Scaling the peaks of Computer Science

Last Fortnight's Question: In the game Risk, I often find myself needing to move my armies around a world map in order to attack my enemy. Recently, I found myself with a large army in Alaska, needing to get it to a territory in Africa where my one remaining opponent was. I had two options: I could go west and attack through Russia, or I could go east through Europe. Suppose that I know the number of armies stationed on each territory on the map. How can I determine which direction I should take my forces? If you're not familiar with Risk, all you really need to know is that I can only move my forces through adjacent territories, and fighting more armies is bad.

Its Answer: Consider the world map as a directed graph. The vertices of this graph represent the various territories on the Risk board, and the edges of the map represent connections between adjacent territories. Each edge can be weighted with the number of armies in the destination territory. With this formulation, it's easy to see that this is our old friend, the shortest path problem on a graph. I start in a certain node (Alaska), and I want to know the lowest-cost path to my goal node in Africa.

As usual, Dijkstra's algorithm is our first instinct. Every nascent computer scientist should be familiar with this algorithm, since searching a weighted graph is about as fundamental to algorithm design as you can get. The general idea is to label all of the vertices with the length of a path to that vertex (in this application, we say "length" when we mean cumulative weight). The source vertex starts at distance 0, and all other vertices start at distance infinity. The algorithm is then to inspect all of the neighbours of the source vertex and update their distances from the source according to the edge weight leading to them. These distances are tentative, though, because we might find a shorter way of getting there. We then pick the lowest-distance vertex whose neighbours we haven't visited and mark it as confirmed instead of tentative. Rinse and repeat the specifying of tentative weights, using the lowest value when you are updating a vertex's distance. The repeated application of this process will eventually get you the distance of every vertex in the graph from the source vertex, and you're done!

This Fortnight's Question: I have a lot of different friends, and like most people, my friends form into different groups. Some of them are friends from different jobs, some from different classes, some from different campus activities, etc. Of course, there's plenty of intersection among these groups too; some of my work friends can also be considered school friends. There are lots of other ways of grouping my friends, of course, such as by degree or by home town.

Let's suppose I'm organizing my wedding, so I'm trying to come up with a seating plan for all of my friends. Basically, I want to make sure that all of my friends sit in their respective groups. The trouble is, I don't want to have any more tables than necessary. How can I select groupings of my friends to sit together (from a list of all of the groupings available) such that the number of tables (number of selected groups) is minimized?

Thor

Scandalous comment from the Dean of Math shocks MathSoc representatives

On Monday July 19th, Ian Goulding ,the new Dean of Mathematics, made a startling revelation to the MathSoc Council. It seems that he would no longer be following the previous Dean's tradition of insulting the engineers in his opening speech, in the same **AWESOME** joke each year.

A representative for general math, Aaron Ma Themat, had this to say: "It's outrageous. If the Dean doesn't let the Mathies know that Engineers are their inferior servants, how will they know? We know there is no social cohesion in the faculty."

Tom Coleman, the previous Dean, had this to say for himself, "SUCK IT ENGINEERING HAHAHAHAHA!" When the rest of the Dean's Office staff heard this, they simply shook their heads and went back to work.

GroovyED

Orange Crush at Production Night

AKA the MathSOC Office is the scariest place in the MC

So, for the first time, I decided to actually come to the *math*NEWS Production Night.

So I found out a few interesting things... everyone in *math*NEWS meets at the MathSOC office. It's a very scary place full of stuff. When I was there, waiting with one of the editors for other writers to show up so we could go to a computer lab, a lot of people came in and out and talked about stuff like a table that used to be in the office but disappeared or the fact that somebody lost the key to the BLACK BOX. At some point somebody raised a big metal lock-removal thingy in a menacing manner. There were just a lot of people around talking and scaring the hell out of me.

And I wasn't alone. At some point a few innocent people came in looking to borrow a board-game from the MathSOC office. They were so freaked they were afraid to even come in until somebody invited (shoved) them inside to look at the games. They chose one and ran away as fast as possible.

Then the *math*NEWS writers moved to a computer lab and my laptop wouldn't connect to the web. But several writers (who may or may not be in Software Eng) jumped at me and shoved a plug up my laptop's ass, and then I had access to the internet and could write this thing.

While I'm writing people are still talking about stuff around me. I don't know any of them by name. Words that I'm hearing include 'engineer', 'math', 'mathSOC', 'BLACK BOX', 'Joe', 'incompetent editor', 'system'... it's all very intimidating to a person who's never been to a Production Night before. Maybe I should've sent in my articles by email as usual...

So in conclusion, *the* math*NEWS writing team is amazing, the MathSOC Office is the happiest brightest and funnest place in the MC and everyone who says otherwise will be eliminated eliminated eliminated system errorrrrrrrr...*

System-Integrated Orange Crush

Interesting Math

Axiom of Choice

It was about three years ago that I wrote the first "Interesting Math". After nine terms worth of columns, it has come to this — the final article. I hope you have enjoyed reading these as much as I have writing them, and I hope you learned a lot (I know *I* sure have).

In this article, we will be discussing one of the key concepts used in analysis and set theory: the Axiom of Choice. There are numerous ways of stating the axiom which are equivalent, one of the most basic ways is as follows. Suppose X is a non-empty set of nonempty sets. Then there exists a function f defined on X such that for each set S in X, $f(S)$ is an element of S. Intuitively, f is a function that "chooses" an element from each set. It should come as no surprise that we call such an f a *choice function*. This version of the axiom "is obviously true" (as the mathematician Bona once said); it makes sense that if a set is non-empty, then we can get an element from it, and we (somehow) repeat the argument as much as we would like. Of course, the difficulties lie in repeating this argument an uncountable number of times, where we can get some weird things happening.

Here's a riddle for you: What's an anagram of Banach-Tarski? Answer: Banach-Tarksi Banach Tarski. If you understand the joke, then the next paragraph is going to be redundant for you. The Banach-Tarski paradox is a theorem which states that a solid ball in 3-space can be decomposed into a finite number of pieces, which can then be put back together to produce two identical copies of the original ball, where valid moves are simply translation and rotation. Woah, $1 = 2$? Thus why it is called a paradox. The more general theorem is even stranger: given any two bounded subsets of 3-space which have non-empty interior, there exists a way of decomposing one set and reforming it into the other. A proof of this peculiar theorem lies in the Axiom of Choice (to be precise, it only requires a weaker version known as the ultrafiler lemma, but we won't have time to discuss it here).

We're going to ostensibly switch gears for now, and talk about prisoners and hats. I'm sure most of you have heard of the following riddle. There is a prison in some far off land where the warden enjoys logic puzzles. Strangely, the prisoners consist soley of mathematicians who have impeccable logic themselves, and care only about optimal solutions which benefit the group as a whole. One day, the warden decides to play a "game" with the prisoners. 100 prisoners are selected for this "game", and the warden explains to them how it works. They will be lined up in a row, wearing either a black hat or a white hat, and facing in one direction, so that the prisoner at the back can see all 99 hats in front of him, the second prisoner can see the remaining 98 hats in front of him, and so forth. Each prisoner will be given a chance to guess the color of their own hat; guesses begin with the prisoner at the back and continues forward one by one. If the prisoner is correct, they get to live another day (presumably the warden will use him in a future game). If they are incorrect, they will die. Each prisoner will hear the guess of the prisoners before him, but will not know if they are correct or incorrect. Suppose every prisoner has the same goal in terms of the outcome, be it living or dying (perhaps they're quite sick of the warden's games); for our perposes we'll suppose they all want to live. Once told of this game, the prisoners are allowed to convene and develop a strategy. Any thoughts to their optimal strategy? By strategy, we of course mean a way for as many prisoners to survive the game as possible, without resorting to luck. The answer is in the next paragraph, so stop reading now if you want to try it out for yourself.

One possibility comes quickly: if every other prisoner "guesses" the colour of the hat directly in front of him, then those prisoners will know their own hat colour. However, this only gives a guaranteed surivial of 50 of them. Being remarkable logicians, the prisoners are able to devise a plan that allows for all but one prisoner to survive for sure, and in the best case, all the prisoners will survive. The solutions comes down to a parity argument. The prisoners agree before-hand that the first prisoner will count the number of black hats. If there is an even number, the first prisoner will say "black", and otherwise he will say "white". Now, the second prisoner will know how many black hats are remaining by counting, and he knows if it's supposed to be even or odd based on the first prisoner's answer. Then he can determine his own hat's colour. Similarly, every prisoner after the first can determine their own hat colour. Then at worst, 99 of them will survive, and at best, the parity of the hats will match up with what the first prisoner is wearing, and he will also survive.

Being mathematicians, let's try to generalize this. The warden was impressed by the clever solution of the prisoners, and he decides to make it more difficult. He now takes countably infinitely many prisoners (a *very* large prison indeed) and explains how the new game will proceed. They will be lined up in a row, wearing either a black hat or a white hat, and facing in one direction, so that the prisoner at the back can see all hats except his own, the second prisoner can see all hats except his own and that of the first prisoner's, and so forth. Unlike the previous case, the prisoners will not be taking turns guessing the colour of their hat. This time, they must all guess at the same time! As before, if the prisoner is correct, they get to live another day, and If they are incorrect, they will die. Again, the prisoners are assumed to wish to live. Once told of this game, the prisoners are allowed to convene and develop a strategy.

This is rather perplexing — it would seem as though no new information is given to a prisoner. He can see the hats in front of him, but there is no way that this information gives him an inkling about what colour hat he is wearing himself. Without the extra information he could have received from a previous prisoner's guess, it doesn't look like the prisoners can do any better than randomly guessing. Or can they?

This brings us back to the Axiom of Choice. If we represent black by 0 and white by 1, then any possible sequence of hat colours will be associated to a sequence consisting of 0's and 1's. We will define an equivalence relation on the $\{0, 1\}$-strings by saying two strings are equivalent if and only if they are the same after finitely many indices. Informally, two strings are equivalent if they are "eventually" the same. It is clear that this is a true equivalence relation, and so partitions the space of $\{0, 1\}$-strings into equivalence classes. Then by the Axiom of Choice, there is a choice function that specifies a particular representative for each class. At this stage, I should mention that the prisoners somehow got their hands on such a choice function (how they did it is beyond me). They apply the choice function and memorize the representative for each class, seeing as how they have exceptional memory. Then whatever the distribution of hat col-

Interesting Math cont.

Axiom of Choice ... some more

ours they see, it must lie in some equivalence class, and so is the same as the sequence the prisoners "choose" after finitely many spots. These are the unlucky prisoners, but the rest survive!

Perhaps even more mind-boggling is that we may extend this example even further. Back in the case of 100 prisoners and allowing a turn-by-turn guessing process, we could change the number of colours of hats from 2 to any finite number, and a similar strategy would work by employing examining the "sum" of the hat colours rather than the parity. In the countably infinite case, the result astoundingly holds if we change the number of hat colours to uncountably infinite! This is analogous to the situation where each prisoner is given a real number, and they need to guess their own number. Whereas in the previous case, a random guess gave a 50% chance of success (assuming a "random" distribution), this generalization means a random guess will have a probability of 0 of being correct. Of course, the answer lies again in the Axiom of Choice, and I will leave it as an exercise to determine precisely how.

There are further bizarre implications of the axiom, and I encourage you to read up on them if it interests you. A particularly bewildering result is covered in the paper "A Peculiar Connection Between the Axiom of Choice and Predicting the Future" by Hardin and Taylor. I think the subject of the paper is evident by the title. Let the blowing of minds commence.

Vince's problem of the issue

Construct an ellipse of eccentricity strictly between 0 and 1. Draw a circle inside the ellipse centered at one of the foci so that it is tangent with the ellipse. It should be clear that there are either 1 or 2 points of tangency. Here is the question: What is the relationship between the eccentricity and the number of tangent points?

Vince Chan
v2chan@math.uwaterloo.ca

24 Hours of Board Games and Movies!

Conquer lands with mighty dice rolls! Fight zombies for survival! Peacefully cooperate! Observe an endless screening of movies! It is only on the rarest of occasions that all these things are available together. Lucky for you, today is such an occasion! Come to the 3rd floor MC Comfy for:

24 HOUR GAMES AND MOVIES NIGHT!

From 3 PM Friday July 23 (today!) to 3 PM Saturday July 24, people will be rolling dice, roaring with victory, and watching movies! Join us for an awesome time! Free popcorn and other snacks provided!

Disclaimer: I lied about the endless movies. There's only 24 hours worth of movies, which is pretty much near endless anyway. =)

Llama

Unnatural Future

Mathematics 3

OR

The David Belanger Centre for Mathematics

Walk around the campus now, right behind DC
Excellence is abound, for there will be M3!
As you may be aware, the faculty is out of new space
Professors and grad students are in need of new places
Or they cannot attack problems from novel vectors
Looking to students, we add some spare factors
Our clubs want locations for them alone
Getting it though, may need political pwn.
Is this really what we want, in the best of all cases?
Such decisions are made on a most firm basis.
Explosion combinatorial, of decision tree races.
Fortunately, for you, the chances are good
Other smart people, will have understood
Ramifications of a new neighbourhood
The new building of Math will be quite shiny
Harbouring ActSci and Stats departments whiney!
Even some grad students, who are oft neglected, will be gifted with labs unaffected
Inquisitive minds, might wonder at that
'Nothing wrong with this building', I hear you spat!
Contrary to what you may surmise
Other things from beyond, will catch people like flies
Netherbeings from the worlds up quite afar
Villainous creatures whose needs are bizarre
Eigenvectors and values, integrals and differentials!
Nutritional necessities, for their brain potentials.
In theory of course this is less worrying
Even engineers would not be sent scurrying
Nevermind that, our required abstraction
Crucial devices that give us our traction
Even now, those beings say to us, hence…

The Unnatural Futurist

Inception: Spoiler-Free Recap

In Inception, there's this guy who apparently discovered a way to do this thing that no one thought was possible. However, he also has this secret that impedes his attempts at doing this thing because every good hero must carry some sort of baggage. The hero then is tasked with doing this very difficult version of this secret thing that he's been doing, where the reward would be him finding happiness once again.

In order to complete this difficult task, he finds his own team of helpers each with a special purpose in order to make it happen. Of course, something goes wrong along the way, throwing wrenches into the plan. Modifying the plan eventually forces the hero to come to terms with his secret. The end!

How Math Stopped the Oil Spill

Part 2 in an N-part Series

You may be wondering where I have been the past 6 weeks, and why *math*NEWS has become a series of bad Orange Crush jokes strung together by funny Orange Crush jokes and math. You will also be wondering why the oil spill suddenly stopped pouring into the Gulf of Mexico. I'll give you a hint: Kevin Costner was not involved (directly). It all started when CorruptED requested I do an investigative report into the G20 protests in Toronto. I naturally took a team of all the elite specialists who I could find on the third floor of MC.

We entered downtown Toronto, and wandered around to the sounds of the results of ruined childhoods. It wasn't long until we found a large group of black bloc protesters (and some pink bloc protesters who were upset about the lack of prime numbers in world governance). After hours listening to them complain about their lack of involvement in politics, we began to leave, but found ourselves surrounded by anti-mathematics protesters. Mere moments before we were set on fire, the stats major came to the front of the group and recited that one in eighty protesters were arrested in the Battle in Seattle. Confused by the statistic, the protesters fled, but left behind a DVD.

Once we got back to our hotel, we placed the DVD into our laptop. There on the screen appeared Milo, the artificial intelligence created by Peter Molyneux, screaming "Help! Help! Trapped in Pyongyang! Help!". We knew the only people who could get us into North Korea were the Illuminati. Leaving that section of the story for further sequels, and possible franchisement of the story with the lead role portrayed by Zach Galifianakis, we crossed the northern border of North Korea, and saw A BEAUTIFUL COUNTRISIDE. It was clear that THE GLORIOUS LEADER HAD BROUGT THE DPRK INTO A GOLDEN AGE. The football team had just returned from South Africa, where they were GLORIOUS IN THEIR VICTORY OVER SOUTH KOREA, and they were assailed with HUGS AND KISSES when they landed. We scoured the landscape, successfully blending in with THE BEAUTIFUL KOREAN PEPLE. Eventually, we found Milo standing outside a factory.

"Milo!" we yelled, but we could tell he couldn't recognize us. We passed him after he said something in German, as we neared the factory. There, inside the building we saw what we knew was true. North Korea was cloning Milo and simply placing clones in front of webcams. Clone after clone was interacting with faraway people. A large furnace was set up in the corner of the building where older clones were simply standing in a line. We needed to find the original Milo, to see who was behind this insane setup. Luckily, this time I brought along an Operations Research student. As most OR students know, the fastest way to get to the start of the assembly line setup is to use a little bit of graph theory. After passing a kindergarten and nursery, we found our way to what looked like a large enamelled door. A much older version of Milo walked out wearing only a towel and smoking a cigarette. Only later did we realize that the entire production stemmed off of his sex with high powered Japanese sex robots. No wonder it's taking so long to release!

"Who set you up with this sweet gig?" we asked.

"It was my buddy, Cliff Bleszinski, the Gears of War guy." He replied. "Have you guys seen these robots? You wouldn't.." Before he could finish, we had all made a mad dash at the door, only to be stopped by what looked like clones of us with darker hair colour and red-tinted eyes.

"I see you have met the one obstacle. These are your characters if you had made the evil decisions throughout life," Milo added. This was a real pickle. One that only our actuarial science student friend could get us past.

"But you see, the insurance costs on you guys is far more, as you lose the actual price of choice from your life insurance policy, making it impossible for you to essentially insure yourself. And if we consider the choice of.." Within seconds, the clones had powered down and disappeared, knowing that there was always something better to do. Because we worried that there would be even more sinister booby traps within, we decided to leave (After finding the location of the sex robot factory, yet another franchising point, perhaps perfect for a gritty reboot). We decided to take a dramatic escape out of North Korea, being chased by a submarine on a speedboat, and escaped to a South Korean warship where the North Koreans decided it might be best not to reopen that can of worms.

When we made it back to North America, we headed south to Cary, North Carolina to visit the Unreal Prophet. We made it to his mansion, and were invited inside. Looking around, we saw knee-high objects everywhere. In fact, this looked like a maze for midgets. Before we knew what was happening, we heard the rev of a chainsaw. Luckily, the computer scientist knew the best way to stop a linked chain, so after a few null pointers were thrown at our attackers, we were free to continue to Cliff's office.

"We found Milo in North Korea. We want to know where we can get a sick job like his." We said, before he had a chance to say hello.

"Well, we do have a post opening up in South Africa, so if you can withstand Vuvuzelas..."

"Anything else?"

"My my, aren't we picky for people who just strolled into my office. Well, I do have one more job, but you're going to do something for me." Naturally, we knew there was more to overcome, as the story was barely worth being written in Imprint at this point. "I don't know if you've noticed, but there's an oil spill going on, and it's almost reached my underwater stronghold in Cuba. I need you to stop that oil spill, and I will have a role ten times better than Milo's waiting for you."

There was only one place to start. We found Kevin Costner. The applied mathematician in our group told him that there were 10 of us and one of him, and Costner was easily convinced to give his pass into the Gulf Zone. As we neared the Gulf, we could see a pattern emerging from the Spill. It acted exactly like Conway's game of life. Between the math/sci student, the computer science student, and the pure math student, we constructed three more oil spills in strategic locations to create Glider Guns of oil. After 374 iterations, the glider guns had halted the generation of oil.

When we returned to Cliff Bleszinski in his underwater stronghold, we told him of our accomplishments. He said, "Gentlemen*, I am in your debt. Therefore, I bestow upon you the virtual universe of Starcraft: Ghost that I purchased off of Blizzard. I found out why it was never released. Nova was the biggest slut this side of Tallon IV."

*Note 1: Yes, the entire group was men. Women weren't allowed to come into contact with the Illuminati.

Note 2: The Applied Mathematician did more than the above. He, unlike the rest of us had enough money to bribe the North Koreans. We're students remember.

Note 3: Japanese Sex Robots are expensive. Spend the time/money finding/hiring a real girl.

Tbor

Zombie Orange Crush- The Final?

Yeah… that's pretty much it

If you hate this story as much as I do, you'll be glad to hear this is the final part, and it's very short: Orange Crush woke up and realized the entire thing was just a dream, and that's it.

No, I'm joking. Seriously, how cheap would that be of me to throw something like that at you? Come on. So now for the real thing. You'll recall Zombie Orange Crush was just bit by Dracubot. Dracubot fled the fight scene. Just like me when I bit… you know what, I should shut up now.

So slowly but surely Zombie Orange Crush woke up, and... surprise surprise! (I'm so spoiling the tension here), he wasn't a mindless zombie anymore! The algorithms embedded in Dracubot's amazing biting powers turned Orange Crush into MetaCyborg-Vampire-Zombie Orange Crush. Also he was now a werewolf for absolutely no conceivable reason. The important part was, he now had a perfectly normally functioning brain to control his actions.

So after walking around the MC at dusk (dusk is the time right before sunrise, right? No wait, that's dawn, dusk is before sunset… okay, scratch everything, he was walking around the MC at 5 A.M.), MetaCyborg-Vampire-Zombie Orange Crush realized the horrible truth- being a combination of so many crazy monsters made him totally irresistible to any idiotic *Twilight* fangirls. Damn. And since it was summer the entire campus was infected with kids and totally random people who don't belong here… So he decided to get the hell out of the MC and hide at the one place *Twilight* fans will never enter- the bookshelves at the DC library. Seriously, have you ever seen anyone check any books at the freaky bottom floor over there? There's always people doing work and nobody touches the books… or maybe I don't spend enough time at the DC.

Yeah, anyway, as soon as MetaCyborg-Vampire-Zombie Orange Crush stepped outside the MC and into that grassy part between the MC and the DC, the sun began to rise, and once one tiny sunbeam reached him, MetaCyborg-Vampire-Zombie Orange Crush evaporated into the air. That's what you get for being a vampire, and a zombie… and I'm sure being a cyborg and a werewolf doesn't help either. MetaCyborg-Vampire-Zombie Orange Crush just yelled "I'm melting!" (even though he wasn't melting, he was evaporating into thin air), and then he died right then and there and nobody ever heard anything from him ever again.

The End.

Bet you didn't see that coming, did you?

Zombie Orange Crush

profQUOTES

"When the strontium gets increasingly larger, we have continental weathering. Who cares?!"

Orfon, EARTH 221

"...but you get different results. Maybe you choose to ignore the second one, or you use your gut feeling to pick one, or just go with whatever the octopus picks!"

Orfon, EARTH 221

"Economics is easily forgotten."

Cuenca, ECON 201

"of course, this world only exists in the minds of economists."

Cuenca, ECON 201

"Inefficient people should go down the drain."

Cuenca, ECON 201

"Look at the notes, and while you're looking at them, look at me."

Cuenca, ECON 201

"Basically, the theory is wrong, and we're trying to fix it. Well, other people are trying to fix it."

Cuenca, ECON 201

"We start off assuming the firms are stupid."

Cuenca, ECON 201

"Draw this graph big. Don't be stingy. You have lot of paper in this country; I mean, we have paper pretty much coming out of our ears!"

Cuenca, ECON 201

"...only $6 for a football ticket!? People pay much more to see soccer matches, even though most of the time nothing really happens in them."

Cuenca, ECON 201

"...It's the same for all matter for that... matter."

Orfan, EARTH 221

"The chances of me getting it right are not to impressive either."

Godsil, MATH 239

"What's impressive is that this is actually useful in a wide range of cases."

Godsil, MATH 239

"I have some good and some bad news: I will be away next week but I have found someone to fill in - you can decide which is the good and which is the bad. "

Godsil, MATH 239

"Asking questions never works. I have been teaching for 6 to 7 years and that's the only thing I can conclude."

Martin, PHYS 256

"The first step to becoming a great theoretical physicist is making a better telescope."

Martin, PHYS 256

Dating (blank) that rhymes with (another blank)

Final Dating Advice, containing real, actual questions!

Hello fans of my incredibly awesome dating column! How've you been? Dating much? Studying a lot? Waiting anxiously for my final and awesome column? I'm sure you have! Now, are you ready for a shocking revelation that will go down in the history of everything as the most shocking shock ever?

I have something to admit. It's a dark secret, but... okay, I've never actually gotten any real letters for my dating column. Up to this issue, I sort of, kind of... made everything up. But this all changes TODAY! I actually got a couple of letters through the BLACK BOX, so I'm super excited, and I will answer them. If you've written me, thank you so much! You're super! I really hope that with my advice you'll find true love or date like 50 guys at once, whichever one's your true goal. Beats me. So now, for real, honest, actual dating queries! How awesome is that?

Dear Dateless, How's it Going? There's this hot guy who shares a lab with a friend of mine. He's a computer engineer of some description (for the record I'm not). If you're wondering what the hell I'm doing there, my friend has offered me the space to study with her. So I set a quiet study space with a welcome distraction. Great, right?... well... The man's eyes are constantly glued to his computer. I swear to God, the only time he has ever looked up is when I slammed the door too hard. Short of deafening all the lab users, how the hell am I supposed to get his attenton, let alone talk to him? Or am I just fighting a losing battle here?

Advice: So, dear real and actual person who actually took the effort to submit a query (thanks very much, by the way), I feel your pain, and I'll try my best to help. Since you're not in computer engineering, I guess you don't have any classes together, so you probably can't use the old 'help me with my assignment and I'll let you give me a shoulder-rub' line (it works every time, believe me). The best way of getting the attention of a guy who's glued to a computer is by using instant chat. It sounds stupid, espicially if you're sitting right next to him, but if you use a computer he's very likely to respond to communications. If you talk to him... not so much. Guys never listen. So, instant chat. Also, cleavage can help. And if those fail you too, cut your losses and declare him gay.

Dateless, how long should a girl wait for a guy's call after she gave her number at a party/the bar/three hour random conversation to decide if he's not interested?

Advice: Excellent question. Many girls (and guys) have pondered the 'wait-call-time' problem. There's a simple algorithm that can help, it goes like this- add up the amount of time you've talked + your estimate of how well the conversation went (on a 1-10 scale) + the amount of times you caught the guy sneaking a look at your boobs*2. Multiply this by 5 and that should be the amount of reasonable time for you to wait (in hours). Note that this formula works within a standard deviation of 24 hours, so it's not great. My system is simpler- just wait. If he ever calls, he might be interested. You should date him. If he never calls, he's most likely not interested. Don't date him. There you go.

Those are the final (real) 2 queries I will answer this term, and possibly ever. But I would like to finish with one piece of advice for everyone that can change your dating-life forever. Date. Seriously, it sounds stupid, but you can't imagine the number of complaints I've heard about 'people never getting guys/girls' just because they never try. So try, people. Keep an open mind. Don't reject someone based on the fact that they're mathies and they like comic books and are a little crazy and they wear an orange coat in summer and... you get the picture. If you don't date, you'll never find anyone. So do it, ask that pretty girl/guy out, say yes to someone. Hey, the term's almost over, so worst case scenario you'll just avoid them during exam time and that's mostly it. Go for it, you have nothing to lose (other than your dignity, and trust me, you don't have as much dignity as you might think).

Of course, this final advice is coming from a guy who didn't go in one date this entire term. So yeah.

A final thank you to all my loyal readers, and that's all. So once and for all, maintain healthy relationships, practice safe sex, and spread the love (not necessarily in that order, if you know what I mean). Date people! Date!

The Date-less Dating Advice Guy

Rejected Burger Names

Inspired by the Harvey's Name the Burger Contest

1. Ian Vanderburger - nobody outside UW Math would want it.
2. Burgertron 3000 - Harvey's isn't cool enough to accept it.
3. First Date Burger - it's messy but memorable.
4. Ice Burger - it went down with the Titanic.
5. iBurger - Apple threatened to sue.
6. Divorce Burger - it's only half a burger.
7. Under Consent Burger - you know it's wrong but it's just so good.
8. C&D Burger - buy it now before it's out of stock.
9. Imprint Burger - not that good, but if you complain about it they will sue you.
10. *math*NEWS Burger - absolutely tasteless.

mooshoo

*prof*QUOTES 2:

Electric Boogaloo

"It's like my wife. I know she reacts to certain things in a certain way. I may not know why, but I know she does."

Godsil, MATH 239

"We call that topology and I don't want to deal with it."

Godsil, MATH 239

"I have some midterms to give back at the end and if you don't behave you won't get them back."

Lapin, CS 246 Tut

" I couldn't actually give you any information about the tests because you'd figure it out from there."

Lapin, CS 246 Tut

"OK, I need someone who can blow really hard..."

Mansour, ECE 106

profQUOTES Again

"You can check out the books we use for the course - well, apparently the books that we use for the course. I would never buy one of them, but that's just me."

Lapin, CS 246 Tut

"...and it goes on forever so it takes a while to write down."

Wormald, MATH 239

"That's true whenever it makes sense."

Wormald, MATH 239

"So that last step, the only one I didn't cheat on, is unneeded."

Wormald, MATH 239

"Proof by niceness."

Wormald, MATH 239

"One's 1-x^2 and one is (1-x^2) !! and if you think that's ambiguous then you need to learn about unique creation."

Wormald, MATH 239

"In mathematics we like making things equal to 0."

Wormald, MATH 239

"E stands for characteristic polynomial."

Wormald, MATH 239

"A weak point [of the theorem] is you go to apply it..."

Wormald, MATH 239

"I don't understand why people don't understand abstract mathematics. 7 is abstract, you can understand 7. So anyone can be a mathematician... Unless you don't understand 7."

Wormald, MATH 239

[5 minutes into the proof] "So the theorem... Oh I haven't even written it down."

Wormald, MATH 239

"You'd have to be a great optimist to believe if you start with B [as opposed to A on a odd-numbered cycle] it'll be bipartite."

Wormald, MATH 239

"There's one little wrinkle of faces, if a face is small it has no wrinkles."

Wormald, MATH 239

"I was at a party an someone came up and said 'hey you're a graph theorist, I have this question about biogeological bird colonization' and I had just done my PHD on it. Not every day this happens at a neighborhood party, it wasn't even a math party."

Wormald, MATH 239

"A lemma is when you're walking down the street and approach someone and tell them something and they tell you that's not very useful. But, if you tell them a theorem, they will say that's good to know."

Wormald, MATH 239

"Next time you go down the street you can say every planar graph has a vertex of degree 5!"

Wormald, MATH 239

"We don't want to get excited about this so let's call it a proposition."

Wormald, MATH 239

"Every year someone asks me this, and someone can ask me again." Student raises his hand, he looks at the student, shocked "Really?!"

Wormald, MATH 239

"Sorry I spelt something American."

Wormald, MATH 239

"Sometimes contractions are a lot of labour, but here it makes it easy."

Wormald, MATH 239

"And now we apply the face-shaking theorem..."

Wormald, MATH 239

"You're lucky I figured out how to draw two shapes." He drew a fish and a comet.

La Croix, STAT 230

"Let's calculate the probability of something less depressing, like the expectation of happy fun time!"

La Croix, STAT 230

"It's not actually a miracle, I told Basil the answer."

La Croix, STAT 230

"Somethings gone horribly wrong with physics... And time."

La Croix, STAT 230

"There this is what I meant to write — NO! This is just plain wrong."

La Croix, STAT 230

"If your favourite method of picking a a random number is 'ALWAYS PICK 3/4!!!' then your average will be 3/4."

La Croix, STAT 230

"The frequency is wrong... I just scribbled it."

Forrester, PHYS 112

"The acceleration is the some value over the thing."

Forrester, PHYS 112

"4 people believe this... That's enough to start a religion."

Forrester, PHYS 112

[Whip in hand] "I can't beat my children, I can't beat my students... I can beat this desk."

Forrester, PHYS 112

"Daddy I can't get it to fit in here [trying to plug something into an electrical outlet]." "Honey, leave me alone, daddy's drinking."

Forrester, PHYS 112

"Who's gonna beat that guy up?" Student: "He's got a power tool." Forrester: "So get a power tool..."

Forrester, PHYS 112

profQUOTES one last time

We're making up for last week apparently.

"Friction is like kids, they just suck up energy, then at 9 when you feel you should do some work but instead you just sit on your couch and drink."

Forrester, PHYS 112

"It's just my way of killing 14 minutes without telling dirty jokes and getting fired."

Forrester, PHYS 112

"Just because I beat a student to death last year..."

Forrester, PHYS 112

"All the girls bring lemons and all the guys bring pennies, we'll have a lemon penny party. I'll probably be fired."

Forrester, PHYS 112

"And they just keep putting more voltage on it 'til it blows up!"

Forrester, PHYS 112

"I don't know anybody here, but don't feel bad, I don't even know my kids. Well I know some of the ones I live with."

Forrester, PHYS 112

"Tell me what you can tell about V and B using the word perpendicular or elephant... That's right they're perpendicular because they're not elephant."

Forrester, PHYS 112

"I know nobody really listens to me... I accept that."

Forrester, PHYS 112

"And then you this thing called a stripper foil; and again let's keep this clean."

Forrester, PHYS 112

"I think we should just stop here because I feel like it. It's hot, it's humid, we should all have a beer."

Forrester, PHYS 112

"I dunno if you're like me, but I'm colossal-ly cheap."

Forrester, PHYS 112

"and I'm gonna be rich, see you lata', sucka's. I'm not rich, I'm going to be here next year doing the same thing."

Forrester, PHYS 112

"Straw roofs, a lot of current..."

Forrester, PHYS 112

"Sometimes it [lightning] just cooks you from the inside, then you're pretty well dead."

Forrester, PHYS 112

"I don't know why they wanted to type 3 extra letters in Java, but it's bool not boolean."

Kierstead, CS 246

Ridiculous code example "No one writes code like that. You'd be shot."

Kierstead, CS 246

"Intuitively, for some value of intuitive, this makes sense."

Kierstead, CS 246

"Programmers are essentially lazy; we'd like to keep it that way."

Kierstead, CS 246

"I don't like deconstructor; You're destroying not destructing."

Kierstead, CS 246

"I can have something that's neither virtual nor pure... That doesn't sound good."

Kierstead, CS 246

"Committed? Committal? What would the appropriate verb be? committal? Sure we'll go with committal, it sounds english-y like."

Kierstead, CS 246

[With a glare that could kill a donkey] "Is your phone texting that much more important?"

Kierstead, CS 246

"I shouldn't use the word stupid; it's judgmental."

Kierstead, CS 246

"Anyone taking BIOL 303 next term? 303 is a good course. At least it was when I taught it."

Pickard, BIOL 130

"If you could float through walls you wouldn't need doors."

Pickard, BIOL 130

"Don't mess with me man, because I am the man."

Smith, ECON 102

"I want this car, can I have it?! I'm going to have the best sex in the backseat of this car!!"

Smith, ECON 102

"My friends and I, or me and my friends as you teenagers would say."

Smith, ECON 102

"Let's assume Coca-Cola has a monopoly in the market, even though there are many close substitutes available..."

Entezarkheir, ECON 201

"It's the males that show symptoms and that get upset about weird things coming out of their penis and end up going to the doctor."

Butler, BIOL 140

"The rest of the proof involves drawing a picture and staring at it."

Wormald, MATH 239

Thanks for the profQUOTES everyone who sent them in this week!

GAMES AND PUZZLES

WORDARC

The scrambled words overlap by two letters

itz, eimt, bdeem,
bdeeil, abeilns, aeelnopt,
eejprru, eemorv, emnov, emno, den,

http://euri.ca/puzzles

And so ends another term...

Well, that was fun.

Hello everyone! Once again another term comes to a close and hopefully most of us have suvived it. Yeah, you've got exams to worry about, but you'll do fine! We at *math*NEWS are both happy and sad to see the term end, as with term's end comes a month of no *math*NEWS. Well, we're hard at work on the Frosh issue as soon as this hits campus, but that's a whole other issue entirely.

So, with that it's time to do our customary end of term things. First off, we'd like to thank people. First and foremost, thank you to all of our readers who stuck with us all term. Without you we'd just be a bunch of mathies printing off a great deal of paper for no particular reason. You're the best!

Secondly, we'd like to thank all of our writers. You're as important to us as our readers, since without you we'd have nothing to give said readers except whatever poorly written rambling the editors can come up with. This is why we bribe you with pizza every fortnight.

We'd also like to thank Graphics for printing all of our stuff all the time. It beats using our own printer and a bunch of photocopy machines (Poor Chevron and its lack of legitimacy). May you continue to print our stuff for many years to come.

Finally, I'd like to thank all of my fellow editors. GroovyED, FuzzyED, and the now retired InsidED, you guys did a lot of hard work that is many times invisible to the general public. *math*NEWS appreciates the sacrifice of your free time that occurs when you take the badly thought out step of becoming an editor.

Sorry, done with all the thanking now. I know it's not that interesting to read for most, but we have to show our gratitude somehow and we're not very good at massages. Plus we don't want to get sued for sexual harassment.

Anyway, this fall *math*NEWS will once again be run by StaticED, ImpulseED, and RamED. GroovyED and I will also be around, though I'll probably just be a normal writer since we don't need editor overload. So goodbye for now, but we'll be back soon!

If you want to get in touch with us, you can reach us at mathnews@student.math.uwaterloo.ca. We always welcome suggestions, feedback, random ranting, and anything else you want. We can't wait to hear from you!

CorruptED

One more thing...

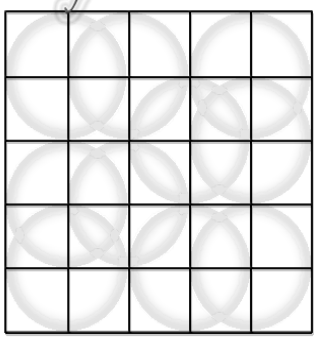
Before I forget to mention this, article of the issue time! As always, it was very difficult to decide on an article of the issue. We had many a submission this week, and we argued endlessly over who should win. In the end it took a sword fight and a couple well placed munitions to decide the argument, but this week's winner is ... Vince Chan! You've supplied us with 9 terms worth of Interesting math, you deserve some accolades.

You can collect your gift certificate in the mathSOC office. Thanks to everyone who submitted something this week, and better luck next time!

CorruptED

umbrellas

Place the following 10 squares on the 10 circles so that the overlapping numbers match up.



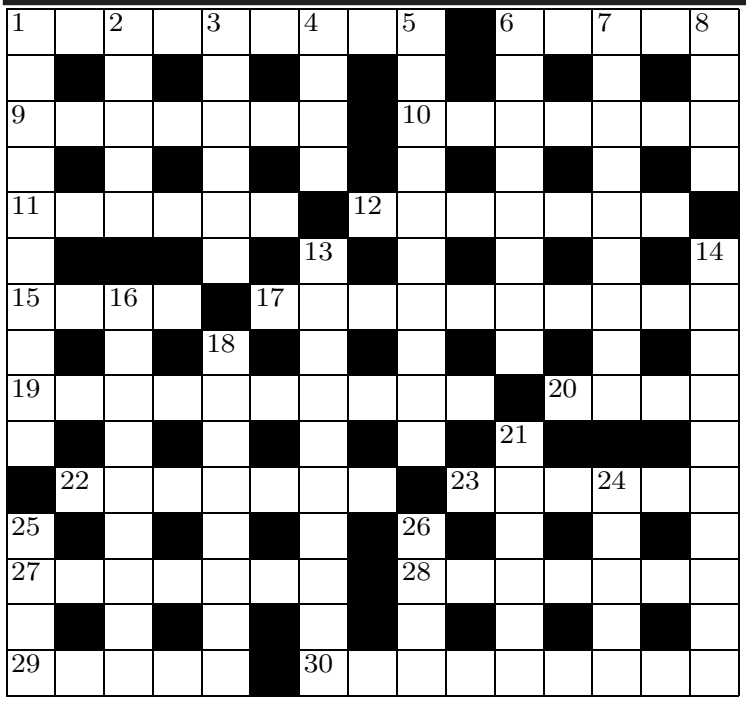
5	5	1	5	4	7	6	9		
7	0	5	3	8	0	9	0		
1	7	5	3	1	4	9	2		
6	4	0	5	5	8	6	9		
7	6	2	7						
4	5	9	1						

Drywaller

"Listen up. Our client isn't picky, as long as each square has the right number of walls surrounding it. Sounds a little tricky, but we didn't get to be the #3 drywall outfit in town by being lazy." Also:

- There's a wall around the outside
- They want exactly 11 rooms

3	2	1	1	1	2	3	3	3	2
3	1	0	0	0	1	3	2	3	3
3	1	0	0	0	1	2	1	1	2
2	1	0	1	1	2	2	1	1	1
2	2	2	2	1	1	1	1	2	2
1	1	2	1	0	0	0	0	1	2
1	0	1	1	0	0	0	0	1	3
2	1	2	1	0	0	0	0	1	4
2	1	2	1	0	0	0	0	1	3
2	1	2	2	1	1	1	1	2	3



Cryptic Clues

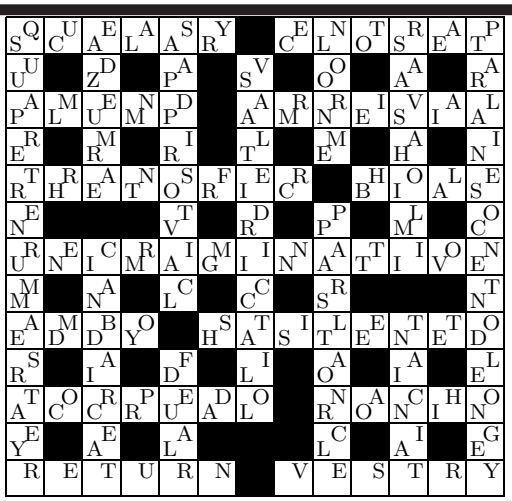
Across

1. Endless jug placed before ten operating systems in tape together for contrast (9)
6. Strong Apple product when land approaches (5)
9. Unit of hereditary not quite rich referring to many (7)
10. To aspire trimmed young male in part of blood (7)
11. Group of nine English faculty heads shaken without end (6)
12. Dictionary not beginning to bend picture (7)
15. Necessity reformed biblical garden (4)
17. Nacho dip without small man derives tailed amphibian (10)
19. Not distressed confusing run surrounding start of the twice bizarre (10)
20. Male deer unaccompanied by women (4)
22. Beg to shortly implement native metal (7)
23. Taking place in mishap penalty box (6)
27. Excites a head of unicorn in roses (7)
28. Lighter without growth hormone guts anvil with close meaning (7)
29. Latter page to view mangled campus pest (5)
30. Subordinate mixing can sicken wild beam of light (9)

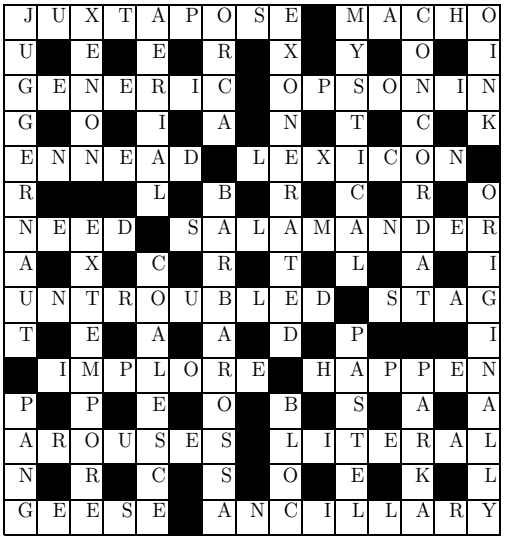
Down

1. Drunkard foolish fish requires blind faith (10)
2. Endless alien prefix on noble gas (5)
3. Sounds like mermaid frequenting the air (6)
4. Whale or California (4)
5. Cleared of accusation without ending noble gas scrambled evenly graded (10)
6. My endless tree branch trimmed ball: mysterious (8)
7. New Hampshire capital at agreement (9)
8. Pig sound in plan to ink evidence (4)
13. Two alcoholic establishments confuse baseball player's German code (10)
14. Orion gravity in alley without end in the first place (10)
16. Former short-term worker or employee headed without notice (9)
18. Combustible carbon evens out expected to grow together (8)

Solution to Last Week's gridWORD



Solution to this Week's gridWORD - No Peeking!



21. Soft-coloured glue starts lasting (6)
24. To leave a fur coat (5)
25. Sudden sensation in pan going wild (4)
26. Quebec party to obstruct, by the sound of it (4)

*grid*COMMENTS

It's that time of the term again, when the final grid is printed. As a treat, I have chosen not to create any quick clues for this last grid so it will just be an opportunity to practice your cryptic solving skills. For once, I will not exhort you to submit as there is no prize available for the final grid of the term.

This also marks the last grid that I will be creating as my time here is over. I hope that they have provided you with some enjoyment despite the horrible quick clues. I don't know exactly who my successor will be, but check back next term to see who takes my place.

Remarkably, in addition to a completely indecipherable solution submitted by the usual suspect, two complete solutions were submitted for each of the quick and cryptic grids. The winners are Ian for the cryptic and Lamar Eterman for the quick. Prizes can be picked up in the MathSoc office. Last issue's *grid*QUESTION was, "What is the bain[*sic*] of your existence?" The answers of the winners were, respectively, "The One Ring of Power Series over $\mathbb{Z}$ " and "grammer[*ill*]".

perki