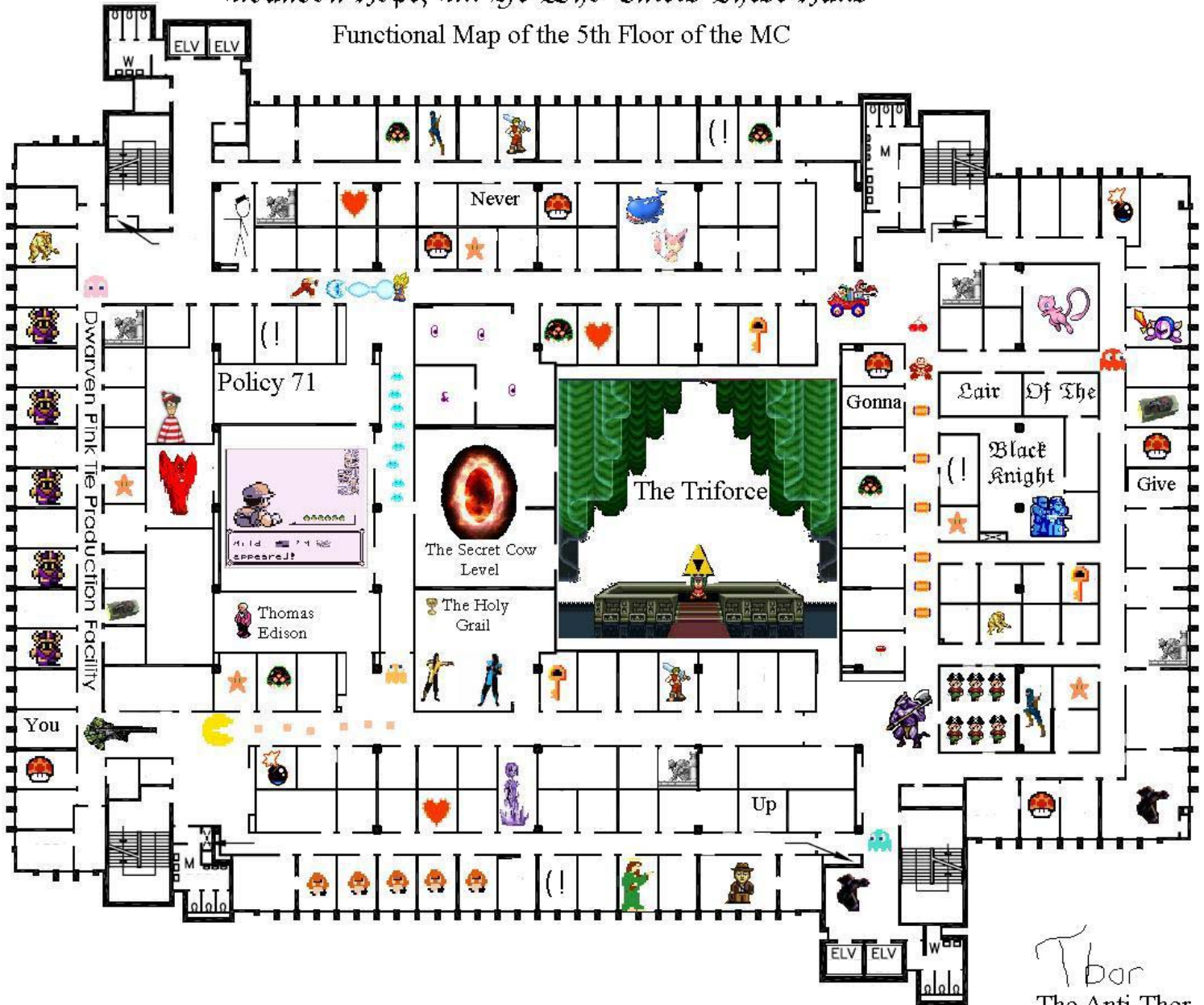


math NEWS

Volume 108, Issue 6

Friday, November 28th, 2008

Abandon Hope, All Ye Who Enter These Halls
Functional Map of the 5th Floor of the MC



Tbar
The Anti-Thor



9 770705 041004

lookAHEAD**mathNEWS**

November 28 Issue #6 will keep you up all night

MathSoc

Wednesdays Games Night
 Thursdays Movie Night
 December 2 Math Soc EOT party

Math Faculty

Questions about some of these? See an academic advisor!
 December 1 Lectures End
 December 4 Last Day to Drop a Course w/o Petition
 December 4 ELPE (because you have to write it again!)
 December 5-19 Exams (or death in a box)
 December 24-31 University Closes (and we all go home)

CECS

December Continuous Phase Ongoing

Student Awards & Financial Aid

December 19 Last day to submit Continuation of Interest Free Form for fall term
 December 19 Last day to pick up loans

Miscellaneous

November 30 Official End of Hurricane Season
 December 3 International Day of Disabled Persons
 December 7 Pearl Harbor Day (US)

Prez Sez

Hello everyone and welcome to the end of term. As of today, there are only 2 more days of classes, so now it's all down hill 'til exams and then we can all have a holiday.

Anyways, on to the real news. Mathsoc Elections happened this week on Monday and Tuesday, I hope you voted. By this time MathSoc will officially have a new President for the coming winter term. *[Our new president is Chris Neal — perkiEd.]*

I wish you all good luck with your exams and much success in your future terms.

Matthew Woolman
 President Fall 2008

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mathNEWS is normally a fortnightly publication funded by and responsible to the undergraduate math students of the University of Waterloo, as represented by the Mathematics Society of the University of Waterloo, hereafter referred to as MathSoc. *mathNEWS* is editorially independent of MathSoc. Content is the responsibility of the *mathNEWS* editors; however, any opinions expressed herein are those of the authors and not necessarily those of MathSoc or *mathNEWS*. Current and back issues of *mathNEWS* are available electronically via the World Wide Web at <http://www.mathnews.uwaterloo.ca/>. Send your correspondence to: *mathNEWS*, MC3046, University of Waterloo, 200 University Ave. W., Waterloo, Ontario, Canada, N2L 3G1, or to userid@mathnews@student.math.uwaterloo.ca on the Internet.

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Michael: Michael Perkins
 Behemoth, Leviathon, Ziz: John Stevenson, John Baxter and Rami Finkelshtein

mastHEAD

After four fruitless hours of travelling through the fifth floor of the MC, searching for the key to Abbadon, essential to becoming supreme Lord and Ruler of *mathNEWS*, I have decided that resorting to Machiavellian tactics is far more realistic than resorting to ancient magics.

Needless to say, my attempt to remove Static IP from the running was thwarted by a mob of hungry *mathNEWS* writers demanding pizza. Personally, I blame Thor. In the spirit of blaming Thor I ask "Would you trade Thor's soul for prime real estate?" and our productionists answered, along with their real names and programs: Jeff "Sector Corrupt" Bain (SE, Thor has a soul? Blasphemy!), The Hee Ho (No. I would for composite real estate), Robert "42" Burke (CS, Yes. If it means better housing...), John "Static IP" Stevenson (SE, Only if his damnation was finite.), Joyce "cuppypcake" Karel (CM, Sure if only there's B-A-N-A-N-A-S in the prime estate), Chester "Megaton Panda" Yang (MATHSCI, By "prime", which part of his body are we talking about here?), Michael "Apocrypha" Hartog (CS, With real estate markets as they are I'd rather invest in soul), Trevor "Tbor" Fairey (SE, Of course. Soulless Thor couldn't take down my castle in the Swiss Alps), Rami "DaFink" Finkelshtein (MATH, No, I would trade his soul instead for 4 magic beans.), Derek "Thor" Thurn (SE, How prime are we talking here?), Michaelangelo "Angelo" Finistauri (STAT, I'd give it away for a shiny nickel.), Ajnu Jacob (OR, No. Because I think he has something to do with Malcolm McDowell), Sarah "snippet" Pidcock (CS, Yes. As long as it's closer to campus.), Jonathan "Jonny" Ng (CS, Would I be able to get more on the black market?), Nicole "pink.tie.girl" LeBlanc (MATH CA, Only if there are no adverse tax consequences.)

J. "Impulse Vector" Baxter
 Editor-in-training
 (SE, Only for prime estate in Hell)

Winners

After what seemed to be long hours of careful consideration (a.k.a a ten minute shouting contest) the editor team (yes, we are now a team!) decided the winners of the "Best Article This Edition Award" and whatever prize-like thing we could find in the desk.

Honourable mentions go to Rob for bringing music into *mathNEWS* and to Nadia for shattering our childhood memories of the Magic Schoolbus.

And the winners are:

- Diana for the first Horrorscopes of the term.
- Thor for teaching us how to live mouselessly in issue 2.
- Edgar for showing us why romance and set theory don't mix in issue 3.
- Dan Goc for defeating James Bond in issue 4.
- Orange Crush for his random thoughts in issue 5.
- Angelo for letting the Grinch steal statistics in issue 6.

The Editors

The InsideReport

The News. As I See It.

Santa Claus rang the opening bell at the New York Stock Exchange this morning. I kid you not. [And no, the pun was not intended.] But he brought presents to all investors today (well, except the bears, but we don't care about them) in the form of great gains in the stock markets.

Unfortunately, he also sent us ("us" being off-stream co-ops) a nice letter from CECS, for reasons you on-streamers probably appreciate. It said, in big bold all-caps, to return to our current employers if possible because of this economic downturn. Job prospects are grim, my friends, and competition is fierce everywhere. My advice: go for big and established right now, because...

Never mind. Strike that thought. Even the big and established auto makers are dying. I had the chance to go to Washington last weekend, and I saw a line of people trying to get into the Capitol, many looking for a bailout. Economy's through the tubes, folks.

At least we didn't get 75 cm of snow down here. Perfect timing to introduce laws that will make Ontario roads safer. While there are some portions of this bill that I consider kinda silly (how's two passengers more of a distraction than one in mid-afternoon?), I do appreciate their efforts.

Finally this week, we saw dozens of high schoolers across the country suspended and the 14-year-old owner of a Facebook group could face charges after last week's "Kick A Ginger Day". Inspired by an episode of South Park, redheads were attacked multiple times. There are no words to describe the degree of shame. If it were up to me, I would sentence these monsters to revenge as deemed fit by the victims.

I'm going to try writing a different type of column when I get back. In the meantime, email me! mathNEWS_InsideR@hotmail.com, and I will read it while eating my turkey leftovers. Happy Thanksgiving, everyone!

InsideR

VPF sez

Friends, mathies and countrymen, listen to what the VPF needs to say

We are finally coming to the end of this term, and I can't wait to be done VPF-ing; no wait, I am returning as VPF in January as well, so I better get used to this position of mine. Now, if everyone could claim their expenses by the end this week, especially the club executives, I would greatly appreciate it. So, gather your receipts and fill out the Expense Claim Form, which are available right outside the MathSoc office, and drop it off in my mail-box no later than the 1st of December. Remember, I also need to study for the finals, and it's always best to settle all financial transactions within the specified term. This would also make things a little less bothersome for the VPF for the next calendar year. However, in this case, that would still be me. And as for those who have requested for a mathSOC fee refund, the cheques will be available for pick-up starting the 1st of December; I will be holding extra office hours for students to collect their cheques. The schedule for my new office hours would be posted outside MC3039, the exec office.

My job as VPF aside, I wish you all the very best for your finals. And remember not to get entirely worn out by your egg-sams, because the holidays follow right after and we all know what that means - time to shop and buy gifts for everyone! yey! So, Happy Shopping Festival! But looking at the current state of the economy, the way the media is portraying it as, retailers fear the shopper's slightly less enthusiastic shopping spree. At this note, I leave my readers with my modified version of "Let It Snow"

Oh the economy right now is frightful,
But the deals are so delightful,
And since, we've no money this year,
Let it go! Let it go! Let it go!

Ajnu Jacob
Vice President, Finance

Subscriptions!

It's mathNEWS, the home game

Yes, really, we have subscriptions. If you aren't going to be around campus to get issues of *mathNEWS*, then why not have them delivered to you? You can take them to work and read them during meetings. Or you can read them during those long commutes. Or during meetings!

Of course there is the webpage, but there's a lot less glare off bond paper, and you get to see our wacky filler and comics! And *mathNEWS* can travel almost everywhere, unlike those clunky computers with their cables and such. Unless you have a laptop, but what are the odds of that? One in fifteen?

And, let's not forget, they're pretty cheap too! In Canada, it's \$7.50 a term, twenty bucks for three terms. For the States, it's \$10 a term, and twenty-five for three. The rest of the world pays \$15 a term or \$35 for three.

A term's subscription gets you all six exciting issues, plus any bonus issues that happen to come out. But what are the odds of that? Two out of three?

The three-term option means you can get *mathNEWS* every summer you're away, or, for those co-ops out there, you can have your subscriptions every time you go off to a faraway job. Any three terms are do-able.

To subscribe, just drop by the *mathNEWS* Office (MC 3046) with your requested term(s) and some cash, or drop it in our mail slot in the MathSoc Office (MC 3038), or put it in the **BLACK BOX**, or email mathnews@student.math.uwaterloo.ca, or give your money to a mathie in the hopes he or she is an editor. But what are the odds of that? One in one thousand five hundred?

Here's a handy-dandy form to make your requesting process even easier:

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Dear mathNEWS

Re: 10 ways for a guy to get slapped

I'm in the freaking hospital!

Here's what happened: for the past 2 weeks, I've been slapped by girls. Lots of girls. Random girls I don't even know. Even some girl in a chicken suit, who said she's in Other. I've got no idea what's happening. I wasn't even talking to them, I was just standing there, or walking home, or baking muffins, when out of the blue, a girl comes up and slaps me.

(By the way, where did the expression "out of the blue" come from? Does it have anything to do with the Smurfs?)

Anyway, Thursday, I got slapped by a pretty big girl. Much bigger than me anyway, which isn't difficult, but that's not the point. I found myself half-conscious, lying on the ground. I was awake for just long enough to find out she's about to sue me for sexual harassment just because I was lying in front of her without her explicit permission. Then I passed out.

I woke up here, in the Grand River Hospital, with a concussion. Now I'm attended to by what's probably the only male nurse in the entire hospital, thinking to myself, what the hell?

And then I remembered...

That article in the last issue of *mathNEWS*, by Guy-Slapping Girl. A disgusting, sexist (yeah, sexist) article encouraging girls to physically abuse guys for no reason. Well, it's time we respond. Guys, unite!

So first of all, I'll quote you- "Men. Guys. Boys... We, girls, just never got them... they just reply to you in codes. Why men... why???"

The only reasonable comment is WTF!!!!????!!! It's US that don't get YOU! YOU speak in codes! YOU make no sense! Guys are the simplest thing in the world- we want exactly one thing (yeah, you guessed it. Starts with "s" [*Smiles... (?)* — *RamEd.*][... **facepalm**... — *StaticEd.*][*STOP ADDING EDITOR COMMENTS!* — *ImpulsEd.*]). Girls are complicated! Who knows what they want?

And to the more pressing issue: why the physical abuse? Swear

mathNEWS

*I'm once again ripping off the "Bad Horse Chorus",
sorry Joss*

*mathNEWS, mathNEWS,
mathNEWS, mathNEWS!*

You're still here on a Monday, it's after 6pm,
Come on down to *mathNEWS*, to watch the fun begin!
It's time to start some writing, columns to get in,
So spend some time, and make a joke,
(I'm sure there's pros that you could quote)

*mathNEWS, mathNEWS,
mathNEWS, You'll laugh!*

Your peers will be your readers, so please mind what you say,
Or give yourself a pseudonym, so it's OK
It's better if it's funny, we'll print it anyway!
So come out soon, you cannot lose,
We eat pizza!
Signed: *mathNEWS*

at us, mess with our heads, we don't care, you've done it for years. But what's with the slapping? You know that saying, "guys are stronger than girls"? It's a myth. I'm personally weaker than any girl I know. So there's no excuse. Nobody should hit anybody, ever (unless it's foxy-boxing).

Seriously, girls, stop castrating us. You want equality? Fine, take equality. But equality means we're equal, not that girls are better than guys. Maybe that's why there aren't that many girls in advanced math (which isn't our fault by the way, you're more than welcome to come in).

In conclusion, you can take away our testicles, but you will never take away our freedom! (But please, don't take away our testicles).

P.S. Guy-Slapping Girl, would you like to go out some time?

Orange Crush, for the males.

Quotes from the Editor

Well, I'm an editor-in-training!

Some of my friends, my bastion of morality, have told me that I should warn the general math populace before I try taking over *mathNEWS*. So here it is, a collection of things I have said this year with only minimal censorship!

- "Don't touch Hempy, you perv!"
- "Blessed are the patient, for they shall see heaven. Blessed are the impatient, for they shall see it first!"
- Me: "Welcome to MathSoc, how may I help you?"
Girl: "Can I get change for 10 dollars?"
Me: "Sorry ma'am, I don't actually work here!"
- "Let's just pretend this plus is a minus, so we get some nice answers for once."
- "Are you trying to be witty, or do you seriously think Hillary's last name is Bush?"
- "Yoda, why hast thou forsaken me?"
- "So how do we find E... other than ask the dealers?"
- Computer: "1 + 1 = :)"
Me: "I think we've got a bug."
- "Who created the porcupine, the prickly ickly porcupine? (pause) SATAN!"
- "Same ultimatum as last week, we're getting Hawaiian pizza or I quit."
- "Would you mind if I stare at my reflection in the back of your computer?"
- "I think I might become a religious zealot this year."
- "Sorry, I started talking again."

Things To Do Before You Graduate

An Undergraduate Bucket List of Sorts

Now that I officially intend to graduate, I am wondering if I have accomplished everything I wanted to or should have in my undergrad career. It is an interesting feeling knowing that my 4B term is almost over. I feel joyful approaching this milestone in my academic career, but it also brings about a certain level of sadness. When I eventually leave Waterloo, I'll be leaving behind a lot of really great friends. All in all, an undergrad career here at UW has been one of the best experiences of my life and I wouldn't trade it in for having gone elsewhere.

So, here goes:

- Write for *mathNEWS*. *Check, as I am typing!*
- Be involved with MathSoc. *I think that being Office Manager twice, VPF twice, and other things counts here!*
- Join a club. *Check, AFA.*
- Start a club. *Check, AFA.*
- Be on the Dean's list. *Check, though as of late this has been not happening.*
- Go to Charity Ball. *Check, three times!*
- Run for ASA Exec. *Oops — I seemed to have not done this.*
- Drink at Bomber. *Check.*
- Drink at every bar/pub in the plaza. *Unfortunately I have not accomplished this yet, but at the time of writing, there exists another 3 weeks for me to accomplish this!*
- Go to Bomber Wednesday. *Nope, didn't do this one.*
- Pull an all-nighter. *Check, back in the day when we ran office marathons before finals!*
- Sleep in the comfy. *Nope, can't say that I have done this.*
- Go into GradHouse. *Haven't done this one yet, but I'm sure I'll make the trek in there at least once as a grad student.*
- Withdraw from a class due to laziness. *FR 197*
- Go to a professor's office hours just to say hello. *I did this, but he wasn't my professor anymore — I think it still counts.*
- Realize that 2% of your final grade is not worth it and do something fun instead of doing an assignment! *This is so true! Enjoy yourself while you are here!*
- Make lots of new friends. *Done and done!*
- Volunteer for Orientation Week! *Twice.*
- Visit Tie Guard and Boar Tribe during Orientation week! They are pretty awesome people! *Check!*
- Enjoy Pi day. (and perhaps buy a Pi day shirt from MathSoc) *Unfortunately as a Math /CA student, I have only had the opportunity to enjoy Pi day on campus once. But I'll get to enjoy it next term as a grad student!*
- Submit a profQUOTE. *Although my profs have said some pretty funny things over the years, I haven't actually done this one. Don't follow my example. Submit lots of profQUOTES - I like reading them, they are funny!*
- Go to Oktoberfest. **whine* But I don't like beer.*
- Participate in engScunt. *I should have done this, but it seems to happen during horrible weekends for me.*
- Volunteer for Canada Day! *Check — on the planning side. Hopefully this summer I will actually be around to enjoy the fireworks!*
- Watch movies in POETS... wait... watch movies at MathSoc movie nights! *I have totally been to MathSoc movie nights! But I think that watching movies in POETS might still be an interesting experience — I still have this week to try it.*
- Find an engineer to lend you their hardhat and never give it back. *Unfortunately, this is hard to accomplish. I wouldn't lend out my pink tie, so I guess I can't blame them for not lending out their hardhats.*
- Study on each floor of DP. *Nope.*
- Volunteer for MGC (so your yearbook doesn't suck and maybe you can bring back pizza days!) *You should definitely make time in your final year to volunteer for MGC! If you help bring back pizza days, MGC will have money to run fun events that you can participate in with all your friends!*
- Last, but definitely not least, FILL OUT YOUR INTENT TO GRADUATE FORM!! *Did that today! It feels good to officially intend to graduate!*

Wow, I don't think that list is complete, but it is pretty long. I never realized how much fun and awesome stuff there could be do while trying to graduate. I wonder how I have fared... 19 out of 29... that's only 65%. Hopefully I don't have any regrets for the things I didn't get to do. I shall be around campus for my graduate studies, so I can carryforward the items I have not yet completed and try to get them done before September! Wish me luck! Best of luck to any of you who are trying to accomplish a list that might be similar to mine before you graduate!

pink.tie.girl
a.k.a. nifty nikky,
a soon to be graduated Math/CA student

How the Grinch Stole Statistics

Every H_0 down in Math-ville liked Mathmas a lot
But the Grinch, who lived $(x-100, y+20, z+1300)$ from Math-ville, did not!

The Grinch hated Mathmas! The whole Mathmas season!
Now, please don't ask why, it's too vulgar a reason.
It could be his tie wasn't tied up just right.
It could be his solar calculator never got enough light.
But I think that the reason with the largest probability
Was he failed STAT231 and suffered humility.
But, whatever the reason, represented by a histogram plot
He stood there on Mathmas Eve, hating all the H_0 's.
"They are studying for their exams", he snarled with a sneer
"Tomorrow is Mathmas, man I need a beer!"
Then he growled, his fingers drumming fastest ever seen,
"Oh great, I drank it all during last Mathowe'en..."
For, tomorrow, he knew all the H_{Girls} and H_{Boys}
Would wake with a hangover and they'd rush for their toys!
Then the H_0 's, failed and passed, would sit to feast.
And they'd feast! And they'd feast! And they'd... well... uh... feast...

They would feast on Poisson-Fish and Weierstrauss M-Beast
Which was something the Grinch couldn't stand in the least!
And then they'd do something he liked least of all!
Every H_0 in Math-ville, the tall and the small,
Would stand ϵ away from each other with Mathmas bells ringing.

They'd stand connected, an n -cycle of aleph naught singing.
"They'd sing! And they'd sing! ... And they'd... sing.
It's weird how I only know one word to describe most things..."
And as the Grinch thought of this H_0 -Mathmas-Sing,
He was approached by a salesman who was travelling.
The Grinch wanted silence and the salesman gone
"Damn you kid! Get the hell out off of my ln!
That was bad..." Although, his pun was lamented
He thought of an idea which was quite demented.
"I know just what to do!" The Grinch laughed with no pants
And he quickly ordered an lolcat fur coat and danced.
And he chuckled, and lol'd, and got on the roflercopter.
"Hold the lmao, I'll need a TA that can proctor."
The Grinch looked around. But, since TA's are rare
"To hell with it, no one ever notices they're there."
On a ramshackle sleigh at the top of the hill
The Grinch saw the incline and felt his blood chill.
The Grinch reconsidered while his sleigh remain stuck
Then a slight breeze pushed it foward and the Grinch said
"Oh, fuck."

The sleigh sped towards Math-ville with sinister glee
And came to stop when it smashed into a tree.
The H_0 's windows were dark. Quiet snow did abound
And blood from the Grinch's head had spilt on the ground.
"I've had better ideas" The Grinch sharply said.
"Alright, can we stop rhyming? It's a little contrived." Bread.
All the H_0 's were all dreaming sweet dreams without care
When he came to the first little house on the square.
"This is stop number one, with an index of zero."
And he lept to the roof not unlike a superhero.
Then he slid down the chimney, feeling ever so keen
Not realizing that it was a chute for the latrine.

The Grinch traded stealth so that he could be 1337
And just kicked down the door to the first house on the street.
He ran to the fridge to eat all of their food
He found family pictures and drew things that were crude.
"Ah, my coup de grace", as he laughs and he gloats
"I am going to go and steal their STAT231 course notes!
When he heard a small sound like the call of an emu.
He turned around fast and then he saw who.
Little Mathy-Lou H_0
Who was not more than hot.
The Grinch had been caught by this tiny H_0 daughter
Who'd got out of bed for her hand was dipped in warm water.
"Whoever you are, why? Why are you taking away my course notes? Why?"

That old Grinch thought a lie but she said "You know what, nevermind. I don't care why."
Then out the front door he went, himself, a would-be-liar.
And the last thing he did was set the H_0 's house on fire.
It was a quarter part dawn, all the H_0 's still a-bed,
All their houses on fire, when he packed up his sled.
He wanted to dump all the goods off of Mt. Crumpit.
"I have no way to get up there and that's totally horseshit."
When suddenly a sound came from the town's fiery glow.
It started in low. Then it started to grow...
But the sound wasn't sad! Why, this sound sounded merry!
It couldn't be so! But it was merry! "Balls..." Very merry!
Every H_0 down in Math-ville, who was not on fire, was singing!
"This is so many different levels of suck that my ears are actually ringing..."

They sing without means, with standard deviators...
They sing without distributions or least squared estimators..."
And what happened then? Well... in Math-ville they say
That the Grinch's small heart grew an order of magnitude that day.
The H_0 's were glad with stats, the Grinch flummoxed at best.
With his brand new heart size, he suffered from cardiac arrest.
There was no more statistics and all the H_0 's celebrated
And starved to death since the Grinch ate their food. Except the ones that were incinerated.

Angelo



profQUOTES

Prof: How many seconds are there in a year?

Student: A lot.

Prof: Who let the engineer in?

Eden MATH 137

It looks like the red and blue curve are mating.

McLiesh STAT 230

Okay, now let's try to prove it. If we can prove it, it's probably right.

Forrest MATH 147

Isn't it amazing how it all works out? It's like it was bloody-well planned!

Forrest MATH 147

Okay, now let's do something to make this less mathematical and more Schemy.

Becker CS 135

So you try a path and if you reach a dead end, you backtrack and try another path. If you don't find any paths, then I guess you just starve."

Becker CS 135

Everyone of you is basking in the infrared radiation of your neighbour. Don't worry, it's not as disgusting as it sounds.

Bissonette CHEM 120

All of our molecules would then mix together in a big orgy of interaction.

Bissonette CHEM 120

Okay, now let's get back to the DNA striptease.

Bols BIOL 130

I'm not dividing zero by zero. I'm just saying that zero divides zero.

Menezes MATH 145

If they didn't use this proof, they used something exactly the same.

Menezes MATH 145

This is serious, maybe mathematics is collapsing as we speak.

Menezes MATH 145

I've taught you wrong things for 2 weeks. I might lose my job! Quick, I need someone to save my job!

Menezes MATH 145

A lot of work later, you get a contradiction. So there's no point in proving it since it's wrong.

Menezes MATH 145

I love counting in Z_2 , it's just 0,1,0,1.

Menezes MATH 145

Shoot! I wanted to prove that it's greater or equal to 1, but we've only proven that it's positive. I just wasted an hour of your time.

Menezes MATH 145

Many of you may not know this, but every course in the university is either a comedy or a tragedy. Because tragedies end in death, math 239 is a comedy.

Purbhoo, MATH 239

It's not really a wedding, but in theory, it has the word marriage, which is as close as we get in math class.

Purbhoo, MATH 239

Somebody on the internet has had too much Finnish Vodka...

Lhotak, CS 241

Yes, all normal, upper triangular one-by-one matrices are diagonal.

Purbhoo, MATH 245

I was thinking, since it's prof evaluation day, I should write out all the solutions to the exam on the back of \$100 bills...

Purbhoo, MATH 245

I am not familiar with this topic, so we will learn together!

Wu, PMATH 334

I was talking to a prostitute, but I didn't have my sociology shirt on...

Prus, SOC 234

I have to put you to sleep at this point... University rules.

Metzger, STAT 372

If you press E [on your clicker], you must be sleeping.

Matzger, STAT 372

If you try to go something in mathematics and you don't succeed, hide all the evidence that you tried!

Andre, A/PMATH 331

Thor's CS Problem of the Fortnight

Getting you ready for Google, since 1822.

This Fortnight's Question: Describe a simple way to tell if a computer uses big-endian or little-endian byte ordering.

Last Fortnight's Question: What is the best way of generating all integer permutations of a given length?

Its Answer: Generating permutations (orderings of elements) is something that is useful to know, but brute-force searches on problems involving permutations get slow fast. That's because a given integer n has $n!$ permutations - so the problem becomes computationally intractable around the 14 or 15 element mark. The Standard Template Library has a `next_permutation` function that you can use to permute a container, so that's a good place to look. In terms of actual algorithms, the standard one for generating permutations is called Heap's Algorithm (named after a guy *named* Heap, not after the heap data structure). It's fairly simple to implement, so this is probably a good place to look. It is, of course, $O(n!)$.

Thor
uwthor@gmail.com

Confessions of a Hopeless Romantic

I wish I could show this to others

“All the world’s a stage,” so said Shakespeare. We are all actors in the play of life, and as such, we put up appearances in front of others to hide our true selves. I, too, subscribe to this practice, so there are aspects of myself that I don’t show to others. Below are some of my confessions...

- Every time I see a pretty girl, I fall head over heels for her almost immediately. It usually goes away soon enough, but I can’t help this feeling.
- Lately, I have not been crying myself to sleep anymore. At one point, I did, and I really missed her. I’m over it, I swear.
- Whenever I have a lot on my mind, I cook. It helps me cope.
- When feelings don’t go away immediately, I don’t do anything to get rid of it. It makes me miserable, but I feel that getting rid of it will make me more miserable. Sometimes just hanging out with friends will slowly help me forget it.
- This will sound weird, but if I was taking a girl out, I’d prefer a quiet peaceful walk with her at night and just look at the night sky. Maybe a lake too, it’d be tranquil and we’d be able to talk about anything that comes to mind. Oh, you know what’d be nice? Boating on the lake at night. We could bask in the glow of the moon reflecting on the surface of the lake. My heart’s fluttering already.
- I cannot stand to see a girl sad. If I see a girl being sad, I feel an incredible urge to hug her and comfort her. Maybe I could make it go away? I’d do anything to make her smile again. (Well, there are limits... But not all that many of them)
- My greatest fear in this game of love is not finding my soulmate. I know it’s silly, but I’m sure she’s out there somewhere. I don’t subscribe to the theory of “close enough,” so I won’t stop until I find her.
- One of my greatest regrets is never finding out if she was the one. I should have asked, but maybe that was just not meant to be. I still wonder about it, but I should be moving on.
- The happiest moment I’ve had so far was she said yes. I will never forget that moment for as long as I live. It’s unfortunate where that led us, but that moment still brought me unmatched bliss.
- I want happiness. I want a family, I want kids. I want a fairy tale ending, where we all live happily ever after.

I don’t know how to conclude this, but I do feel that those who know me now know me better. I leave you with this thought: I cry during chick flicks.

Hopeless

Random Thoughts

Like a normal approximation of the Cauchy!

- Did anyone ever figure out what (in the name of Gauss) is up with that work of art thingy at the main MC entrance?
- Is it just me, or are the chalkboards in every class impossible to read during these final weeks of class? How about they get cleaned more than once a term, huh?
- Hey, it’s winter! And just when you thought the MC couldn’t get any uglier, it got covered with snow.
- Here’s one for the stats people - on average, how many people a year die by slipping on wet stairs in the MC during winter? I know it has to be at least one. Poor Slippery Pit.
- When it’s snowing heavily, that’s the only time of year when being outside the MC is more depressing than being inside.
- Whatever. In my world, even this ugly weather is ok. Of course, my world is imaginary, so it may not count for much...
- My world is so imaginary, even if I multiplied it by its conjugate it would still be imaginary. That’s how imaginary it is.
- If you think math profs really love math, you should see how much Laurier business profs love ethics. Makes you get the feeling it’s harder to get into the Laurier faculty than it is to get into heaven.
- If Laurier profs love ethics so much, why don’t they marry it? Oh yeah, because that would be immoral.
- In case you wanted to make sure, it’s true. The system that schedules final exams works on the basis of exactly 2 criteria- they maximize the amount of time during which you have to stay here, while making sure your toughest exams are at most a day apart.
- I think it’s a safe bet that exam time is the only time of year when you’ll find math students in the PAC. I’m not sure whether math students or the PAC should be more offended by that point.
- One extra point - You’d think I’d run out of random thoughts by now, wouldn’t you? Well, now you know - my mind is about as random as your final marks compared to everything else you got during the term. Admit it, it’s got nothing to do with anything.

Orange Crush

Friedrich Nietzsche voted world’s funniest moustache.

Sometimes being nice isn't a bad thing

with a short reply to orange crush

Last issue, apparently there were a lot of responses to my article, "10 ways to for a guy to get slapped". Oh men.. why do you have to be so confusing. You make me go crazy. I'll tell you what I want, what I really really want. WORLD PEACE?

From last week, while reading my article and Casanova Jonny's article, I found a few more points to write about on how to deal with guys. It should be interesting and guaranteed to make your man scared of you.

10. If you find out that he is talking behind your back, go up to him. He's probably going to do stage 9 (from 10 tips for dealing with women), and you say "What the hell!" and sucker punch him.
9. If you are starting to get annoyed with him, slap him twice. One on the right, one on the left and start yelling.
8. If he says "you are pretty on the inside", say "I know. and the outside!". If he says "What about the outside?", start hitting him on the hands and gradually moving to the face and give him a slap. If he says nothing, he's thinking about saying it but scared of getting slapped, sweet talk him and once he thinks that he's not in danger, hit him.
7. If a guy's "bro" is there to defend him, slap both of them at the same time. Try to get another girl friend to help you with holding them still. If they try to run away or hurt both of you, make sure there is a group of girls waiting somewhere near to back you up or prepare a baseball bat nearby and a boomerang if you can get a hold of one. Do not hesitate to throw the boomerang to knock them down and when they are down, start hitting them with the bat. If there is no boomerang, throw the bat directly. Make sure you don't forget to slap them.
6. If they forgot your anniversary or special events, go ahead and give a big smack on their face. If they try to buy you back for apologies with mushy/pouting face, tell them "doesn't work! It takes more than that" and slap them for being stupid.
5. If he starts bugging you about something, pretend to put on a sharp pointy hair clip on the hair and give him a "hug" with the pointy part pointing to their head. That way, you're hurting them. I believe it is more painful than a slap.
4. If your guy happens to just get home, sees you and his face is red and/or his eyes are red and watery, shout at his face "What the hell!" and slap him x times, assuming x is how many hand prints are on his face. If you can't see hand prints, judge by the redness of his face. Special note: if he just came back from the gym, just give him a hug. Give him a special reward of some sort. Cut him some slack.
3. If his face is red and tries to pick you up but he doesn't realize that his face is red, tell him "do you have a mirror?" or "have you looked at your face on the mirror lately?" Again, special note: check if he has a gym bag, but if this happens too often, start stalking him. This is only for girls with boy-friends.

Apparently, orange crush replied to my article before. Okay, I'll be nice to you then, just for you. "Could you look me in the eye, and tell me that you're happy now?" Although you can't

look me in the eye.. I'll give you a virtual eye to look at. And to answer your question, "sure?"

2. After some time giving them slaps, I think we should take a break from being mean. Make him a special dinner. A candle light dinner if you can. Tell him that he can talk in codes again, but only for some period of time. Bake him cookies or cupcakes or brownies or whatever dessert he likes. Try making him bake it with you so he doesn't go suspicious. Plus, you're spending quality time with him and getting to know him better.
1. Rent his favorite movie and get his favorite food. Invite him to your place and just watch that movie until both of you fall asleep. Tadaaa... happy ending

guy-slapping girl

Why Wikipedia is the Evil Incarnate

A.K.A. why my assignments are done in the 20 minutes before class

Fellow mathies, I come to you with a warning of the most sinister plot on our work today. I warn you of... **Wikipedia**. Now, many of you may be wondering why I would accuse such a seemingly useful website of such insidiousness. After all, how many times has it saved you personally when you needed to quickly look up something? Surely it's the new replacement for googling, right? WRONG. No, it's not because some won't take it as a reference, because honestly, if you need to source something, they've pointed you to the information.

No, wikipedia is evil because of the many links found in the articles. Every page is exponential, leading to an increasing number of articles slowly taking over your browser. Take a simple example. You're in the middle of coding a sort and you blank on how exactly to do... say... quicksort. So you go to Wikipedia, rescuer of your code... **or so you thought!** fast forward half an hour, and you're reading about binary search trees. Sure, that's not that off topic, right? How about 3 hours later, when your code still lies abandoned, but you know more about Bat man villians than anyone who leaves their basement should ever know. I'm not even going to pretend that it happened only once. I have read those articles at least 5 times. As time on Wikipedia goes to infinity, the probability that I am reading about Batman approaches 1. Your mileage on this may vary. I will just tell you that I have never read a Batman comic, and yet I know that the reason the Riddler leaves clues is because he's obsessive compulsive. Therefore, this scourge must be stopped.

How many bright minds are wasting away, unable to leave Wikipedia until they've clicked all those interesting looking links, doomed to never finish their precious precious math homework. really, Laugh now, but who will be laughing when us poor Wikipedia addicts are unable to study until they finish reading all about the fascinating history of David, King of the Scots circa the 12th century!? **CURSE YOU WIKIPEDIA!**

Sector_Corrupt, new pseudonym of Jeff the 3.14159-rate

MSDN FAIL...

msdn

.NET Framework Developer Center

Library

- SearchResult Members
- SearchResult Methods
- SearchResult Properties
- SearchResultCollection Cl
- SearchScope Enumeration
- ...
- ...

SearchResult Members ←

updated: ...
The SearchResult encapsulates ...

The SearchResult type exposes the following members:

- Methods

Name	Description

←

MIND GOES FOR A WALK BY THE GUTTER

MIND GETS MURDERED + DUMPED IN THE GUTTER

DON'T EVEN ASK WHAT MY MIND FILLED IN HERE...

Snippet

Use Regular Expressions, Losers!

Hello. As a matter of policy, I try and avoid the “angry rant” style of *mathNEWS* based journalism. So I’m going to try and keep this as a friendly discussion. In fact, let me apologize for calling you a loser. I’m sure you’re a very successful individual. Now, take a moment and read the following block of gibberish: `s/(<hr[^ >]*>^\1\>/ig`. Interpret it and report back to me.

If you read the preceding block and identified it as a regular expression, you’re quite correct. In fact, this is a very simple regular expression I recently employed while converting a document from HTML to XHTML compliance. Here is the full UNIX command that I actually issued in this particular circumstance: `sed -r -e 's/(<hr[^ >]*>^\1\>/ig' file.html > file.xhtml`. This command was useful because, in the document I was processing, someone had used a number of HTML `<hr>` tags (horizontal rule) when it should correctly be `<hr />` in XHTML. That command converts them. If it is already obvious to you why this is the case, congratulations! You’ve qualified for “patronizing lecture exempt” status. If it’s not obvious, well, read the rest of this patronizing lecture.

Do you need to understand regular expressions? Yes. You really, really, do. Anyone who uses computers for significant work, especially work with text, needs to know them. Regular expressions are a mechanism by which we can identify strings of text that match some pattern, and then optionally change that text in some way. I know for a fact that I’ve caught a great many friends of mine, programmers and non-programmers alike, performing tedious operations on text files. If you ever find yourself changing more than a few lines of a file in exactly the same way, stop! Think regular expressions.

The remainder of this article will be an explanation of the above example. I hope that by the time you finish it, you’ll at the least see how regular expressions can improve your life. First up, let me talk about `sed` a bit. It’s a UNIX program. If you aren’t familiar with what UNIX is, you’re probably not in my target demographic for this article. Feel free to stick around, though. So, `sed` is standard UNIX. That means that your new MacBook came with it installed, as did your shiny student.cs account. It stands for “stream editor” and it is the canonical way to apply a regular expression (or “regex”) to a file. You’ll also note that I supplied two flags to `sed`. Personally, I usually have an alias set up to apply these flags by default, but I’ll explain ‘em anyway. That `-r` flag means “use extended regular expressions”. Extended regular expressions could more accurately be called “non-terrible regular expressions”, since they actually support the normal syntax. You should pretty much just always use these. This is also, incidentally, why I advocate using `egrep` over just normal `grep`. The other flag is `-e`, which you always need to use to invoke a regex from the command line. Since this is normally what I want to do, I also make `-e` a default.

Before diving into the regular expression, let me jump to the other end and explain everything else that is going on. After the regular expression supplied by the `-e` flag, you need to include the name of the file you are applying the regular expression to. In this case, it’s called `file.html`. By default, `sed` outputs to standard output, so if you want to store the results of the expression in another file, you need to pipe the result there, via something like the `> file.xhtml` bit at the end. The last thing I’ll point out before

explaining the regex syntax is that I surrounded my expression in single quote characters. This is necessary to prevent the command shell (bash, in this case) from splitting up my expression every time a space occurs. Just get in the habit of doing it.

All right, now let’s get to the meat of the matter, the `s/(<hr[^ >]*>^\1\>/ig` part. All substitution regular expressions take the form `s/{some expression}/{stuff to replace it with}/{modifiers}`. In this case the `{some expression}` bit is looking for bits of text that match a pattern for HTML horizontal rules, the `{stuff to replace it with}` is saying to add my forward slash, and there are two modifiers being applied. Those modifiers are `/i` and `/g`. The `i` indicates that I want my matching to be case insensitive - that means that I want to match `<hr>`, `<Hr>`, and `<HR>`. The `g` indicates that I want my search to be global, to be applied over and over. Seems simple enough.

Let’s say my text file has a line like this: `<HR width="50%" align="center">`. I want this to become: `<HR width="50%" align="center"/>`. I need to be sure I am able to match all of the different fields that HTML’s `<hr>` tag supports. Let’s examine my `{some expression}` first: `(<hr[^ >]*>)`. Always break down a regular expression by its bracketing. The first thing you need to know about is this: `[^ >]*`. This part is called a character class. It is saying “match as many characters as possible that are not `>`”. When you put letters in between square brackets in a regular expression, the regular expression knows it can match any of the characters present there. When you start the square bracketed part with a caret (`^`), however, the regular expression can match anything that *isn’t* present. So `[^ >]` means “match anything that is not `>`”. The `*` at the end (called a Kleene Star) means “zero or more times”. We put it after the character class to indicate that we want to match as many characters as we can that aren’t `>` at that point (but we’d settle for no such characters). So you can read `(<hr[^ >]*>)` as “match a `<`, an `h`, an `r`, and then as many characters as you can that are not `>`”, and then a `>`. This is pattern we want to replace.

Let’s go on to `{stuff to replace it with}`, the last part of this regular expression I have not yet explained. There’s a special trick going on here that any regex whiz really needs to know about. The question is: Now that we’ve matched the `<hr>` that needs modifying, what do we want to replace it with? Clearly, we just want to change the ending bit from `>` to `/>`. The first thing to know is that we can’t just write `/`, because then `sed` would think we were ending the replacement string and starting with the modifiers. We need to escape the `/` as `\` to make it work, so we want to replace `>` with `\>`.

We’re not quite done yet. If our replacement string were just that, we’d simply replace all of the `<hr>` tags with `/>`. That’s no good. We want to say “Remember that text we matched before? Bring some of it back into the replacement string.” Well, that’s what capturing parentheses are for. I didn’t explain the parentheses in the matching expression before, because they’re actually quite irrelevant to it. The whole thing would match just fine without those there. But what they accomplish is to say “take the text that is matched between these parentheses, and store it in a variable for later use”. The variables in question are just numbered slots, with their number corresponding to the order in which parentheses were encountered from the left side of the

expression. So the text that we matched between those parentheses is stored in the "1" variable. We access this variable in our replacement string by writing \1. This means "Take the content matched by the first set of parentheses (from the left) and re-insert it into the replacement string at this point". This ends up actually having the desired result, so our expression manages to do the replacement as desired.

So there you go. This wasn't by any means a comprehensive guide to regular expression use, but I hope it was enough to really demonstrate the power of regular expressions in action. My goal is to motivate you to commit to actually learning regular expressions, instead of just thinking "well, they'd be more work to learn that just making these changes manually." Regular expressions can be learned in short order, and once you grasp them, they'll make your life infinitely better.

Thor

Confessions of a Burdened Mind

Whatever will be, will be

Everyone has their dirty little secrets. Surprisingly, I do too. As such, I find outlets to vent, and these are my confessions. Now not all of these will be true, but that's part of the fun, no? With that said, let us begin:

- It was the summer of 1996, and I bought my first real six-string at the Five-and-Dime. I played until my fingers bled, and it was awesome
- When I was younger, I had a lot of trouble with balance, so it wasn't until I was 13 when I finally learned how to ride a bicycle. One day, I said "I'm gonna ride a bike", so I did.
- One of my greatest regrets is never having done many extra-curricular activities back in high school. It seemed like I wasted what was essentially my high school life away
- One of my other great regrets is drinking alcohol. I'm not an alcoholic, I just drink when I feel like I can't do anything else. It knocks me out very quickly and it is actually hilarious.
- Contary to popular belief, I actually care about my son. My adopted son too, but he's not blood relation despite looking almost identical to me.
- There are times when the world gets too existant for me, and I just wish I could disappear (Or, if I was smart, that everyone else will disappear)
- This may seem contradictory, but I hate cleaning, but I love it at the same time. I find cleaning relaxes me sometimes, or at least it distracts me. When I actually have to clean though, I absolutely dread the idea.
- I regret coming to Waterloo, and I regret meeting everyone I have. I hate just about half the people I meet but I never tell anyone.
- I really really like Orange Crush's articles
- Hell, I really really like Orange Crush. Wonder if he'll go out with me?

Let the games begin...

Burdened

Friendly Final

survival guide to having and treasuring friends

It just came back to me last week, that the flu has gone away. The Tax syndrome is still up there, 95. It will stay there for some time. But my point in this last issue for this term is about friends and friendship.

I believe there are a lot of types of friends. There's those friends that you call best friend, just those normal friends, those friends who are kind of close to you but not as close as your best friend and you call them your bother or your sister, those friends that you are just close with and you can always rely on them with your secrets or just those friends that like to pick on you. There would probably be more than the one that I just listed, but the ones that I know off are those for now.

Since the beginning of this term, I felt like I'm blessed because I actually have a lot of friends that really care about me. I've always thought that people hates me because since high school, I was the one who gets bullied. Friends, they will always be there for you whenever you need them. Why do we sometimes take them for granted? When you need them, then you'll find them but when you don't, you just ignore them.

I used to have this friend, who calls me her best friend, but she keeps on ditching me whenever we make plans. I don't think she has the right to call me her best friend. When I talk to her about it, she says that I'm acting childish. I don't understand this. That's not a real friend. She only calls me when she doesn't have anyone to talk to. Come on! Grow up now! Anyways, in return, I ditched her. Why waste time on someone that doesn't really care about you?

I think a big part of being a friend is honesty. Although you know that sometimes honesty might hurt you, it is best for your friends to tell you what's going on. As in, who else would tell you and be honest with you. You know, it's always good if you have someone to rely on. That shoulder to cry on. And I'm lucky to have that. Occasionally, when I do something wrong, I would just ask my best friend to be honest with me. Although it hurts, the words that come out will mean a lot.

Well I should probably stop musing now. My main point is, treasure your friends. They really mean a lot in the long run. Why talk bad about them if you don't want them to talk bad about you? Be good to your friends, and they'll be good to you. Be there for them (when you're not busy) and they'll be there for you. Another strong point that I want to make is that, as much as there exist the bro code, there's also the sister code. Whatever happens, we don't ditch our sisters but I think that can only be broken in case of emergency. I'd just like to thank the people that has been listening to me, my bestie, real fish, panda, mr casanova, my brothers, my secret secret-listener, and everyone else who has been making my life so wonderful here. Good luck in your finals.

Cuppycake goes friendly

**Zombies rise up against their
ACTSCI masters.**

Horrorscopes

because if we don't write it, someone will care

ACC: We hope you're finished calculating your Christmas finances, because now you've got exams to worry about. If you need motivation to study, get practice by calculating how much money you'll save by passing all of your exams.

ACTSCI: Prepare for the zombie uprising. We don't know why they're coming, or why they're coming for you, but go play Left 4 Dead and Dead Rising in preparation for the coming apocalypse. Also, exams. But zombies first.

AMATH: Apply your math skills to calculate how many ACTSCI brains are consumed until the zombies are satisfied and go home. If nothing else, it's more interesting than studying for exams.

BBA/BMATH: You have just hit the poor house. With all that free time on your hands maybe you should try to create a startup. I mean sure the economy is in hard times but you have something people always need. Go and sell that.

C&O/OR: Your new optimization assignment is to calculate the optimal amount of studying time to video game time, given you wish to neither burnout nor fail out. Bonus points for general solutions.

CM: Don't fear the impending exams. We know that you aren't ready for any of them but don't despair. Instead may we suggest that you hook up with some BBA/BMATH people and buy some... inspiration.

CS: Your work for the next week is to build a program that when given exam questions as input, returns comical phrases that answer the question correctly while insulting the professor.

MATH BUS: You should be excited. Since you aren't doing particularly difficult math, you can expect your exams to not be particularly difficult. Expect to be the envy of all your friends. Or expect your head on a pike before the end of the exam period. The stars are a little hazy on this one.

MATHEMATICAL SCIENCES: With Venus crashing into Jupiter causing an explosion of magnificent proportions you are going to be completely out of whack. Expect all your science to be mixed up with your math. Just don't try to ask your AMATH friends how to integrate your biological cells from 0 to x.

PMATH: Theoretically you should pass all your exams. But

then again in theory communism works. We guess your horrorscope is expect to be taken over a democratic government that will redistribute all your wealth.

SE: Put down *mathNEWS* right now. We realize we're funny, but you don't have time for this. You should be studying and doing piles of assignments. Don't worry, you can read this later. It can wait.

STAT: Hey there... How is it going... Insane yet? If not then wait for the next week. Considering the number of people that lose their minds is a Poisson process with mean of YOU per day! What's the probability that you still possess a shred of dignity by the end of the week? (Hint: it's not very high)

UNDECLARED: We know you're incapable of making up your mind, but make sure you figure out which courses to study for first for your exams, or you might never get around to it.

AHS: Oh man did you get your flu shot yet? If you have, you actually are now infected with the T-virus. Watch out for ACTSCI people. They are definatly trying to kill you. You are on your own here.

ARTS: Why are you reading this? Surely when you're not partying you should be doing some essays or studying for courses since you can't just derive how to get your answers if you forget. Now get back to the books! Or beer.

ENG: We realize that as engineers, all of your math is much easier, but you should probably still be studying. After all, the math might be easier, but that doesn't change the fact you're... well, *engineers*.

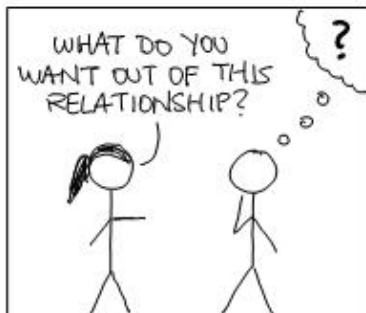
SCI: Oh poor science. How hard must it be to be the bastard child of certain sects of engineering. But don't worry. I mean at least you can look forward to so many job prospects when you are done... Oh wait. Expect hardship ahead.

E: Flower Power won't help you pass your exams. But a drum (or study) circle might work. We know it's not conventional, but we decided to actually help you get through this. I mean without you, who would we make fun of.

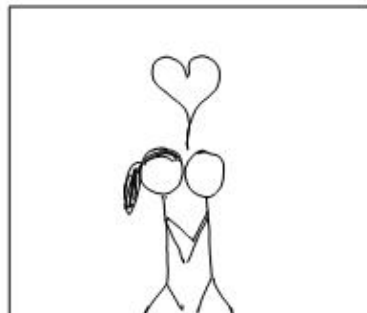
OTHER: I don't know whether or not we should tell you to study, because we don't even know what your courses are. Walking and Thinking 101? Maybe your exam can be an explanation of what OTHER constitutes. Please submit to the **BLACK BOX** by December 1st.

Sector_Corrupt
DaFink

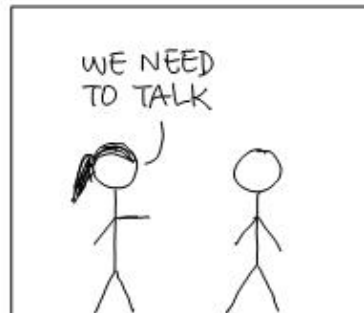
DATING GUIDE FOR CS MAJORS



FUNCTIONAL SPECIFICATION



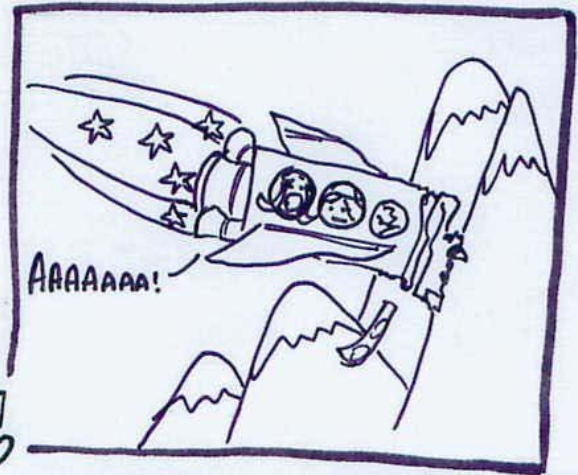
DEVELOPMENT



DEBUGGING



GETTING SHELVED



Class, welcome to Limbo!
That's what we get
for flying in a
sentient bus
with
a
helicopter
engine!




Miss Fizzle,
what do
we get
to do
here?


Nothing!
We're in
Limbo!
We do
NOTHING!



At my old
school,
we never
went to
limbo...



Well, your old school wasn't
filled with unbaptised
heathens, was it?



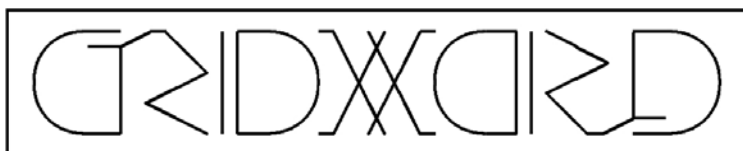
GridComments

Lots of submissions last week!

Last week, Crazy Katlady Karen got a lot of submissions for her Krazy Krossword, meow! Unfortunately, half of you answered "Kitty" as the answer to the clue "Not a kitty", so that threw out a lot of possible winners. Honourable mention goes to the person who went nuts on the paper with kitties! Our winner this week is Dale Brydon, who answered "Only if you get that other guy who's stealing my internet out of my tubes". Come to Math-Soc to pick up you \$5 C&D certificate now!

This week we're going to reuse a cryptic from the 80's. Have fun! There's no prizes unfortunately, since it is the last issue of the term...

Megaton Panda



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							

Last week's solution:

			K	I	T	T	Y			K				
			K	I	T	T	Y			K	I	T		
			K	I	T	T	Y			K	I	T		
			T	T	Y		K	I	T	T	Y			
			T	Y			K	I	T	T	Y			
			Y			K	I	T	T	Y		P		
						K	I	T	T	Y		U		
			K	I	T	T	Y					P		
			K	I	T	T	Y					P		
			T			Y				K	I	T	T	Y

(duh.)

dy/dx=0

- Plans to get me involved in chess problems. (7)
- Father, friend of the pope. (5)
- Hobnob with a business partner. (9)
- Written record of part of the play. (3)
- Don't throw a glance in return. (4)
- (with 20 down) Deserves a prize, so steals from the pastry shop? (5,3,4)
- Parcel for the boat. (6)
- Insect on board and branches. (6)
- Summoned from above—by telephone? (6,2)
- She's locked in the cellar. (4)
- Carefully look at a brood of pheasants. (3)
- Quite established, but dine out around a manger. (9)
- Santa ruined by the devil. (5)
- Give a gift. (7)

dx/dy=0

- Stripped bare Noah's boat on the street. (5)
- A man's this when beheaded. (3)
- Came out with a dangerous weapon. (4)
- Mark left on the sailor from a beetle. (6)
- Forestalls opening in the press being cut short. (8)
- It will be practicable, but be missing. (9)
- Mail for a new settler. (7)
- Very good or best granted. (9)
- It was removed for the French to dine out. (8)
- Disturbed skeptic protest outside. (7)
- Builds place to eat. (4,2)
- Check the accounts in the fraud I tried. (5)
- See 12 Across.
- Not the truth of the golf ball's position. (3)

Left4Dead - The Review

Zombies. I love killing zombies. And the only thing better than killing thousands of zombies? Killing thousands of zombies with friends. And it doesn't have to be good friends, you can do it with random people online with microphones.

You may think that Left4Dead people with microphones will be just like those CS kids with microphones but this is not the case. From what I've experienced it is generally a mature community. The co-op nature of the game means that when you win, your team wins and you are rewarded for saving teammates. You know, living people are more useful than non-living teammates.

Complaints? The only things I've heard is that people don't like playing single player and it is too easy. Yes, co-op does suck with bots, the whole point is to go online and play with humans. And the easy settings are easy, I played expert for 4 hours and didn't beat a mission that took me less than an hour on advanced. These aren't problems with the game, they are problems with the people.

The one thing I can criticize is the graphic quality. It uses the source engine which originally came out back in 2004. There have been improvements made to it but you can notice the age when comparing it to many new shooters.

Overall? Totally worth my \$45. The random zombie and item spawns make it feel a little bit different and sometimes surprising every time. In conclusion I would give it an 8.5/10. Metacritic currently has it at 88%. This tops my previous co-op choice of Serious Sam when trying a friendly LAN party.