COMBINATORICS
& OPTIMIZATION

math

NEWS

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*look*AHEAD

*mast*HEAD

Welcome to another fun-and-frosh-filled issue of *math*NEWS! We had so many writers this week, we didn't have enough work for them to do… which must be why so many of them played games during production night. This week *math*NEWS tried Warrior Pizza, the new pizza place in the Plaza. While a whole lot cheaper than Campus Pizza, it is quite a lot slower, and often burnt on the bottom *[I thought it was still better than Campus… — inkEd]*. That is our restaurant review for the week. Maybe next issue we should try the King Street Trio? They do takeout, right?

While asking about the weather this week would not have done any good (what with the dramatic changes going on outside daily), we can ask about the upcoming holiday! Isn't everyone excited to get an extra day off school? Even if you can't go home because it is too far away, you still get an extra day to sleep, or do homework if you are so inclined (who am I kidding, of course you aren't).

Since we know our writers don't do homework, we asked them what they would be doing instead this Thanksgiving (aka "Artsie-Pick-On Day"). And here they are:

Kousu (Roasting artsies); Shdwfeather (Raising funds for the 'Educate an Artsie' Foundation); Richard (Turkey and football, of course); Wooly Logic (Turkey and oblivion); Derek (Artsy stuffed with Turkey stuffed with a smaller Artsy); Peter ("Training." I'll be a railway expert); Insider (Well, I kinda have a cousin in arts who goes here, added to family reunion, creates…get that thought out of your head!); Anonym. (I don't know about the rest of the people signing this, but I don't have a fetish for dead birds); Orcus (Consuming innocent souls. Tasty, tasty souls); Val (Staying away from people. You never know when one will try to eat you); Andrew (Staying away from MathSoc); Math.random () (Boobs!); VPF (Watching every Friends Thanksgiving episode ever made…yes all 10 of them); Angelo (Graphing the limit of Anglo-Saxon domination of Colonial Canada as living Natives approaches zero); Lukas (Helping to curb the Canada Goose population around campus); DanS (Same thing I do every weekend: graphics); Michael ("Now it's time to *thumps stomach* eat Turkey"); Robert (Ottawa! Food! Friends! Sleep!); James Simpson (Driving my motorcycle on the Autobahn, flying and swimming like a bird in Trafalgar, or a Photoshop freak to infinity); Kaitlyn (Go back on more empty threats made last term).

Jenn (No turkey. No friends. No home.)
Eric (Same thing we try to do every Thanksgiving, Pinky…)

Cheese!

Because it's tasty!

Hello *math*NEWS readers! Today at 4:30 in MC4045 is the first Campus Crusade for Cheese meeting of the term and it will be cheesy. We should have 10-12 kinds of cheese to tickle your tastebuds with. To partake of these most cheesy delights, just show up at MC 4045 at 4:30 today with $2 in hand. Due to the long weekend we may have less cheese than normal(or rather, more for the attendees!). If you don't already know, we provide crackers and toothpicks to help eat the cheese, and plates for 10 cents to put the cheese on.

In any case, you don't need to know anything about cheeses to attend, you just need to want to edam.

Robert Burke
Commander-in-Cheese

Prez Sez

Hello again, readers. It's been a busy two weeks since I last wrote in this space. We have added many new voting members to MathSoc Council, and I can only hope that they will enjoy making the big decisions. By the time this issue goes to print, we will have undergone our marathon budget meeting, a rite of passage for councillors.

One thing that may interest you is the upcoming Oktoberfest University Night at Bingeman's in Kitchener. It's taking place this Thursday, October 12, and it should be a great time. Your Federation of Students has arranged a great deal for UW students. They are providing return transportation from the Davis Centre on big friendly yellow school buses, as well as admission to the party at Bingeman's, all for $9 for UW students, $11 for non-UW compared to a regular admission price of $8. That's like getting transportation for $1. So if you're up for a celebration of German culture or just a good time, I encourage you to attend. Tickets are available in the MathSoc Office (MC 3038), and in the Feds Office in the SLC.

We're also going to be organizing a trip to the Fields Institute in Toronto. It just so happens that J.D. Murray will be giving a talk at the centre for Mathematical Medicine. He will be talking about a variety of topics, including the modeling and prediction of "marital stability and divorce." We haven't hammered out the details, but the bus will likely be leaving in the early afternoon of Friday, October 20 and return in the early evening. Spots on the bus will be available on a first come, first served basis, and will probably cost $4. More details will be available in poster form by the week of the event.

I think that's all for now. As always, if you have any questions or comments, please forward them to `mathsoc@mathsoc.uwaterloo.ca` or drop by my office sometime.

Andrew Fransen
MathSoc President F06

VPF Sez

This issue's interesting item is how *math*NEWS gets to play with time. Playing with time can be really fun. I get to play with time because as I write this article MathSoc's budget has not been presented to council. However, as you read this article, everything in MathSoc budget land will be done and I get down to doing real work. Who am I kidding? The budgeting process is all the work I do… MUAHAHAHAHA. Well, I guess I sign a lot of cheques during the term, but a monkey could really do that…

I hope everyone has a yummy turkey weekend. I know I will, although it will be a little sad without the traditional potato stuffing I love so much. However, if my dreams come true, I'll be travelling to New Brunswick the weekend after Thanksgiving and my mother with make the potato stuffing for me. Although my dreams are on sale, they may still be too expensive.

If you think my rant about Thanksgiving is really boring, you should e-mail me things that interest you and I will try to write about them.

Please e-mail any other questions, or come and see me in the MathSoc Exec Office (MC 3039). I'm there a lot, really. We can chat about financial matters or anything at all for that matter.

Nicole LeBlanc
MathSoc VPF F06

VPAS is Awesome!!!

I can write what I want damnit

So Cove Night came and went, 200+ mathies enjoyed the festivities despite the inclement weather. I consider it a success. We've settled into the swing of term movie nights, and have decided it to be on Wednesdays of each week. The movies are free so drop by! (Keep an eye on the movies posters for location.) We've also decided to have games nights this term; each Tuesday at 6:00 PM in the comfy (MC3001) we will be playing board games. Yes, that's right. Board games. Mostly crazy and German, but board games nonetheless. All are welcome. It's great fun! I would recommend it to anyone with a few free hours on a Tuesday night, and even if you have things to do, it's a good distraction.

We also have some special events coming up soon:
- Charity Ball - Tickets are on sale now (third floor hallway)
- Name That Tune - October 26th
- Oktoberfest - Tickets are on sale now (MC3038)

If you have any other ideas for events, you're welcome to drop by my office (MC3039) and tell me about it, and I'll see what I can do to make it happen. You can also drop by my office if you want to *help* me make events happen. I always need assistance of some kind.

That's all I have to say for now, so I'll bid you all farewell. Keep an eye on the stairwalls for shiny and new events and remember to take some time away from studying every once in a while to make sure you don't go insane.

Alex McCausland
MathSoc VPAS F06

Introducing your VPA...

Hello to the undergraduate body of the Math Faculty. I am your new Vice President, Academics (VPA) of the Mathematics Society. Officially, I deal with all manner of academic issues; in other words, I make it a little bit less stressful to get those good marks. I am also the person to talk to if you have any academic concerns.

As part of my position, I attend the meetings of several important organizations within the Faculty of Math and keep you, the students, informed on topics that affect your education, such as new courses and degree requirement changes. To stay informed:
- Read future *math*NEWS articles.
- Look on the "Academic Information" board outside of Mathsoc.
- Check out the Mathsoc website from time to time.
- Talk to me! I can be found in Mathsoc often around lunch time.

I will also be working to help improve the Mathsoc Exam Bank! This includes getting more exams and helping to get the online system updated. If you have recent exams you would like to donate to the exam bank, or you would like to help inventory, typeset, or do other useful things, please contact either myself at `vpa@mathsoc.uwaterloo.ca` or the resources director at `resources@mathsoc.uwaterloo.ca`.

I am still new at this position, so I apologize in advance if things don't get done as fast as they should be at first. I wish you success in your studies this term!

Anton Markov
MathSoc Vice President Academics F06

ElseWhen

25 years ago in math*NEWS*

Greetings, interested and faithful readers. Today's precis is based on Volume 18, Number 2, originally published October 2nd, 1981.

Eric 'inkEd' Logan

This Week in Point Form

There are no good pullout paragraphs, but here's a point-form summary of this six-page issue.

- William Hughes is writing about the current constitutional crisis *[The crisis would be resolved (mostly) by the introduction of the Constituion Act, 1982, by one P.E. Trudeau — inkEd]*
- The Department of Physics' NOVA computer died of old age on or about September 22nd.
- The next meetring of WATSFIC will be in MC3009 *[This room is now a computer lab. — inkEd]*.
- The Math flag football team defeats their first opponents, North E, 13-12.
- E. Siastes is back (remember him?), but his form's a little off. A quote: "When I approached one of these so-called tutors for clairification, he proved to be no better, delivering a half-hour lecture on various subjects that, as far as I could see, had nothing to do with calculus."
- David Welbourn prepares a *grid*WORD.
- In Greg Bezoff's *History of the World, Part N* recounts some of the history of the now-forgotten *Chevron[Which is too bad, because it's an interesting story — inkEd]*.
- WJ Jordan provides a frosh-eye's view of Orientation '81, providing a day-by-day breakdown of what happened. He says: "All in all, Orientation Week was fun for all those involved, and I am looking forward to helping out with Orientation '83".
- Richard Cleve writes a "Fun With Toruses" article (problem: given an infinitely elastic hollow torus with a hole in it, turn it inside out). He also writes: "Next issue: Fun With Tauruses"
- David Till's *Platter Spatter* (he is conveniently also the editor) reviews *Throbbbing Gristle's Greatest Hits*. His verdict: "I'm not even going to attempt to do this one justice: all I can do is recommend that you beg, borrow, buy, or otherwise contrive to get a hold of a copy (alas, only available as an import)…".
- Steve Reid, 4A CS, has some choice words for E. Siastes *[Watch next issue to see what Mr. Siastes says in response… — inkEd]*
- Finally, Pizza Pie at Albert and Hazel is seeking help in the kitchen and also drivers.

FOC Nominations Now Open

I hope all you orientation leaders had fun during Orientation Week this year. Maybe enough fun that you'd be interested in running the show next year? If so, you should nominate yourself for Faculty Orientation Committee Director. Forms are available outside the MathSoc Office (MC 3038) and forms are due into the Office by Friday, October 13. If you have any problems or questions about the process, feel free to send me an email at: `prez@mathsoc.uwaterloo.ca`.

Andrew
That President Guy

Function Party!

It is Friday evening and $f(x) = x$ decided to throw a party for his brethren functions. Within the hour, the room was filled. $f(x) = x + 1$ was chatting up the curvaceous $f(x) = \sin x$ in a corner while $f(x) = 1/x$ and $f(x) = 1/x^2$ entered a drinking contest with near-infinite amounts of beer, ignoring the concerned comments that their limits were zero; they were soon carted off to a hospital. However, in this vivacious and chaotic atmosphere $f(x) = x$ saw $f(x) = e^x$ alone in a corner, *differentiating* himself from the crowd. Slightly tipsy, $f(x) = x$ stumbled over to his friend and asked:

"Hey you, why don't you *integrate* yourself with the crowd?"

$f(x) = e^x$ threw a dark glare at $f(x) = x$ and then sighed.

"You know it won't make any difference."

Firefox 2 Release Candidate 1

Mozilla is getting close to releasing Firefox 2. Release Candidate 1 was made available on September 26th, 27 days after Beta 2.

Important changes include:

- Javascipt 1.7
- Transition to OpenSearch from Sherlock format for search plugins
- Support for textPath in SVG
- Session store API helps extensions to save the browsing state
- Built-in crash restoration
- MozStorage (sqlite-based database storage)

Other changes, of less importance:

- Inline spell-checking for forms (if you want it)
- Microsummaries allow dynamic bookmark titles
- Manage Search Engines simplifies managing the search engines list
- All-important icon changes make Firefox look more like an Apple program (not *like*, but *more* like)

RC1 is quite stable, and seems somewhat faster at startup than Firefox 1.5 did. Unfortunately, it is less customizable by default than previous versions. For example, the "go" button is attached to the address bar, so it can't be removed via the Customise Toolbars box. The Options box has been cleaned up as well, relegating some options to the Advanced tab or about:config. Users of stand-alone feed readers will be pleased to know that Firefox 2 will support readers other than Live Bookmarks.

Mozilla has not announced when the release version will be available. However, Release Candidate 2 is expected October 10th or shortly thereafter.

MozWatch

Multiple Choice

Is there a singer in you?

Q: Do you:
- a. Sing in the shower?
- b. Hog the mic at karaoke?
- c. Want to meet a group of fun enthusiasts to sing with?

If you answer yes to any of the above, then we want you!

Accent is looking for voices (soprano, alto, tenor, bass) to sing on a weekly basis for a performance at the end of the term.

If you have what it takes, email `accentchoir@gmail.com` for audition times.

Want more info? Email us!

Living with Lino

Just Kidding. This Article is About Electives.

Now that enrollment appointments for the Winter term have appeared on Quest, it's time for those of us fortunate enough to have electives to choose some. Since, at this particular moment anyway, I'm a Pure Math and C&O joint major, I am quite informed on this topic.

To get an honours degree in Math from this fine institution, you require 10 courses taken outside of the math faculty (or MTHEL courses). But which ones? When are they offered? What's the word on the grapevine?

Some of you may say, "But Kaitlyn, I'm not in school next term." It doesn't mean that you can't take note of these awesome courses for future reference!

So I compiled some ideas, including my favourites (instead of starting an assignment), in case you were looking for an alternative to the CHEM120 and CHEM121 (aka learning to multiply).

This information provided as a guideline only. Consult your calendar/plan accordingly. Scheduling subject to change. Author not responsible for ruined university careers.

- **SPCOM 223: Public Speaking**
  I almost insist that you take this class. If you are easy-going enough to read this publication, you'll love this course. It's one of those classes where minimal work yields high marks, *and you learn something*. The focus is on extemporaneous speaking, where you speak on several points without having a written "speech" you recite. The bulk of marking is on 3 topics you prepare. The class size is about 26, allowing for really getting to know some people outside of math. *Currently offered every term*
- **SMF 204: Intro to Human Sexuality**
  Semi-commonly known as sex class, you may have spotted this class's text book being passed around while giggles abound. Not for the faint of heart, this class is suitable for the totally inexperienced or weathered master — as long as you have a big… sense of curiosity. The class is a scientific study of the biology and practice of human sexual behaviour. If you are brave enough to ask questions and share, you'll enjoy this class. If you are simply open-minded enough to listen from the back, you'll still enjoy this class, and probably learn even more. *Currently offered every term*
- **SCI 206: The Physics of How Things Work**
  I've only heard about this course, because it fills up so fast I've never made it in, so I'll "paraphrase" from one of the *math*NEWS editor's blog. The class has no numbers (concepts only), is full of fun demos, and complete lecture notes are available ahead of time. It's a night class which leaves your week feeling way emptier (on a side note, that's a strange side effect of all night classes). *Only offered fall terms*
- **Other Ideas**
  Music. Dance. Painting. Sculpting. History. Literature. Graphic design. A new language. That topic you loved in high school. Whatever you like, there is probably a major in it at this university, allowing you to take advantage of the courses. If you don't know where to look, it's probably listed under the Faculty of Arts. Check out a calendar for ideas.

When you break it down, classes are *expensive*. Don't waste your time and money on a topic just because you'll get a higher mark when you can get that high mark and learn something or, heaven forbid, *have fun*. Take a class with your friend from that other program or faculty! Take a break from the smell of the MC! Make new friends with people not in math! …Well, *try* anyway.

Half-pint

Things to do on constrained bandwidth

- Study the university's Internet usage patterns — a slower connection tells you when people are using it!
- See how many websites break from connections being reset.
- See how many websites break because they assume your connection is actually quite fast.
- Track your own Internet usage, to see if those daily statistics are, in fact, accurate. Complain if your numbers come out lower.
- Keep querying the usage page: `http://noc.uwaterloo.ca/cn/scripts/resUse`, until you're absolutely sure you've been placed in constrained bandwidth.
- Keep refreshing said page until you can figure out exactly when the university checks your daily usage.
- Use BitTorrent to download some movies. Hey, it's already slow anyways!
- Do some work, like develop a web page, or run Matlab from across campus. Give up because it takes too long.
- Coerce somebody else to let you use their connection. Bonus points if you can use it without asking first.
- Seriously consider not living in rez next term/year.

Richard

A few bonus *prof*QUOTES

[prof] If I give you a graph on 25 vertices, it's worth coming to blow my office up after the exam.
[student] You're just saying that because you're changing offices.
[prof] Exactly.

Verstraete, CO 342

I'm not going to tell you the generalisation until you're older.

McKinnon, PMATH 345

[regarding the inability of news media to distinguish "debt" and "deficit"]
They are not the same word just because they start with D. I'll tell you another word that starts with D: dumb!

Smith, ECON 102

I'm more of a tree-hugger than a tree-chopper. My family seems to think I've gone sissy on them.

Smith, ECON 102

Lemma 7.1 seems to be able to solve all of our problems here. Actually, I think Lemma 7.1 can be used to solve all problems in life.

Willard, MATH 145

Student: "How are we supposed to study if you have our notes?"
Prof: "We have this magical device called a photocopier…"

Michaels, PLAN 350

Sorting Algorithms they don't teach you in School

…And by school we mean CS 13x

At some point will come to realise that data is not always sorted, and sometimes it's not always a good idea. But for every other case, we will now teach you some algorithms that might get that extra 10% from the cute TA.

- **God Sort:** An O(0) sort, the data will be sorted by the 7th day, regardless of the set size. In the beginning, there was nothing. On the First Day the Dataset was Created. On the Second Day there was pizza and god said "I doth have the Munchies," for God did have the Munchies. On the Third Day God created the pivot to separate the Greater data from the Lesser data. On the Fourth Day God realised the need for comparison, and It was So. On the Fifth Day God had a snack, for all the pizza had been ateth. On the Sixth Day God had a system crash for the system was new and had yet to be debugged. And Low, on the Seventh Day The Data Was Sorted and there was much rejoicing.

- **Nuclear Sort:** An $O(n^{-1})$ sort, this requires a critical mass of unstable data. One simply removes data to a remote location and allows nature to take its course. The radioactive Data zombies that rise from the aftermath will sort the data in time proportional to their quantity which is proportional to the size of the dataset. Therefore the larger the dataset, the faster the sort.

- ***math*NEWS Sort:** An $O(n^x)$ sort where x is the number of student participants. Toss a large dataset at the *math*NEWS production staff with the promise of pizza. After several hours, the data will be returned greasy, unsorted, but with a colourful and often humorous cover attached (and with a few more spelling errors) *[Not on my watch! — DirtyEd]*.

- **Quit Sort:** An O(?) sort which terminates the current process and causes a segmentation fault as well. In the ensuing chaos, it is not noticeable until later that the data never was sorted. It's amazing what people will sort by hand if this is the only alternative.

- **Pastafarian Sort:** An O(P) sort, where P is a Pirate. The dataset is touched by His noodly appendage, and is thus sorted.

- **Seat-of-your-Pants Sort:** An intuitive O(i) sort. It's a complex sort, involving flash cards, gut instinct, and a crystal bar. Numbers are flashed on the screen, at which point you assign an index value. If data remains unsorted, repeat. (also known as the Psych Sort.)

- **Chuck-Norris Sort:** Chuck Norris doesn't believe in unsorted data, and so it is now sorted.

- **Spaghetti Sort:** Twirl data with fork on spoon. Do not use knife. Avoid splattering.

- **Egg Sort:** Scramble data until uniform. Order unknown.

The first three successful peons who calculate the unknown sort orders shall receive copies of *math*NEWS autographed by the authors of this article.

42, WoolyLogic, aLemma

Q: What do you use to tie stuff to your dog sled?
A: Polar Cords!

The Quest
Mathie D&D

Having routed the TAs, your party hears the ferocious roar of a professor now forced to mark assignments. The Undeclared rolls a fear test and, as expected, fails miserably. However, the Undeclared is too indecisive to actually act on its fear. The PMath also rolls the test but doesn't understand what the numbers on the die mean.

The sound of the professor approaching draws near. There is talk in your party of whom will suffer the professor's wrath. The ActSci knows exactly which ones of your party will die, but only chuckles quietly.

Your party can tell that the professor is nigh. The DoubleDegree tells everyone to look like they have more work than everyone else, like they usually do. When the professor appears, seeing everyone looking busy, he assumes your party isn't responsible for handing in assignments late. The professor marches off mumbling.

Having avoided instant death, your party agrees to take some rest. For about two weeks.

Angelo

Failure to Launch

The Launchpad $50K Venture Creation Competition turns 3 this year. Created to foster the entrepreneurial spirit in undergraduate students, the contest invites any would-be Donald Trumps to submit a business plan in consideration of the grand prize: $25,000 of funds and services to launch your new venture. The 2007 season is getting kick-started this Tuesday with a workshop entitled "Evaluating Business Opportunities." Why the workshop? When asked, representatives were tight-lipped, yet usually snickered knowingly. We now present, for your education, a short list of concepts that won't get you $25,000.

Anything targeted at students. They're not earning more than a subsistence wage, if that. They're big fans of information sessions (free pizza), BitTorrent (free music) and Arts classes (free academic credit). Notice a pattern? Don't base your business on students!

Anything that won't turn a profit until five years down the road. If you couldn't stick it out through a 4-year degree without getting so bored that you decided to become an entrepreneur, what are the odds you'll see your business through? Besides which, loss leading has the same credibility as a business model as skipping class and cramming before the final exam does as a study method. Tip: if you're trying to change the way a certain service is provided, losing money is NOT the best way to do it. Just ask Amazon.

Anything that aims to change the world. Sure, you came to Waterloo because you're smart and you want to make the world better. Which is why you're going to pitch your cure for cancer, right? Wrong. $25,000 can't even buy enough storage space to hold the red tape you'll face.

Clearly, this workshop couldn't have come too soon. If you follow these simple guidelines, perhaps you'll rise triumphant as the Launchpad 2007 winner, claiming your place next to previous winners who offered such things as tours of universities for high-school students, a plan to totally replace non-renewable energy sources in Ontario with wind power, and an, er, cure for cancer.

Dirty Softie

Mongolian 101

The Mongolian Grill is a popular venue for student eating, and rightfully so. All you can eat buffets draw students like a moth to the flame. It is a great place to sample foods you may not have tried, experience flavours you have not encountered, and quaff drinks that have never been consumed. I myself was a humble griller for a year, and in my time, I have accumulated some Grill Wisdom. I pass it on to you in the hopes that your meals will be well cooked, substantial and tasty, and that you might make the grillers' lives easier.

1. DO NOT MIX THE MEATS! Chicken, beef, pork, lamb and fish all have different cooking times. Putting them in the same meal raises the chance of your meal being burnt or undercooked very significantly. So don't do it.
2. DO NOT MIX THE MEATS! Seriously.
3. The order for maximum bowl content is vegetables, meat, noodles.
4. Use a second bowl for your sauces. This will avoid a lot of spilling mess. You can also use a second bowl for food if your first bowl spilleth over.
5. The line for the grill is a circular array. Those of you in CS know what that is. The line goes clockwise around the grill. The more the grillers have to direct you on where to go, the less time they spend cooking your food.
6. Tip the grillers. It's very hot behind the grill, and they need something to cheer them up.
7. Do not heap piles of cayenne pepper or other extremely hot spices or sauces on your meal. Think pepper spray. That's what the smoke that comes off your meal will be like. That smoke gets in the grillers' eyes, noses and throats, choking them. The smoke may even get to you, and you probably don't want that either.

Hopefully these simple guidelines will help you eat more, enjoy what you eat, and get what you eat quicker. Cheers.

Chuck

Rejected *mast*HEAD questions

As a regular *math*NEWS reader, you may be familiar with our *mast*HEAD section, where we list the credits for each of our issues by asking a, usually humurous, question to our writers.

Often, however, there are question asked that we feel are too offensive to our readers, our writers, or either one of our *math*NEWS editors; these "rejected" *mast*HEAD questions are shunned, ignored, never to see the light of day again.

That is, until today. We at *math*NEWS are pleased to present, for your reading enjoyment, the Rejected *mast*HEADs!

- So, how are you today?
- If all fish are seafood, you are what you eat, and you eat seafood, what are you?
- How many fingers am I holding up?
- Define your weekend in alcohol
- George W. Bush: Great president or greatest president?
- If the skeletons aren't in your closet, where are they?
- Where's *your* happy place?
- What's the difference between an artsie and an engineer?
- What is your favorite pizza topping?
- If Bill Gates were to mud wrestle Linus Torvalds, in a four way competition with Richard Stallman and Steve Ballmer, who would win?

Richard et al.

Mathie Sport Hype

And how it doesn't actually exist

Wouldn't it be nice to be cheered on by scantily clad, attractive females/males (depending on your preference) for doing math or programming or other intellectual pursuits? Sure, football teams have cheerleaders and for what? Chasing a ball that's being tossed around while colliding head first with a pack of other louts? When it comes down to it I suppose that's the real motivation for playing sports. I still beg the question: Why don't mathies and CSers get cheered on by entities more attractive than Microsoft, RIM, Google, or other employers?

In one regard it would be just a little bit distracting to be doing pure math with high-class strippers waving pompoms around. However, athletes have their competitions and we have our own. Like the Putnam as one example. Imagine: writing the Putnam with an announcer stating such as "Pascal goes to factor the quadratic, but he fumbles and pulls out his calculator." Who wouldn't be able to focus on mathematics with an annoying ruckus like that going on?

Even with the idea of mathie cheerleader, can you imagine the cheers? "Give me an epsilon greater than zero! Give me a delta greater than zero! Give me a x and an x-not such that the absolute value of x minus x-not less than delta implies that a function, f, from the R-2 to R-2 gives the absolute value of f at x minus f at x-not is less than epsilon! Go epsilon to zero, but never be zero! YAY!!!"

What can be gathered from this is: we, as nerds, will never truly be cool enough to have commentators, cheerleaders or groupies wanting ridiculous quantities of sex from us. I mean, you never hear about any famous mathematicians being admitted to the Betty Ford rehabilitation center. We just aren't cool enough for those things.

Angelo

Top Ten Reasons Why People Hate Customer Service Jobs

10. Smelly Customers
9. Talkative Customers
8. Aggressive Customers
7. Horny Customers
6. Needy Customers
5. Creepy Customers
4. Bitchy Customers
3. Regular Customers
2. Cheap Customers
1. Customers

In Celebration of Thanksgiving

The Editors

Dating Advice From The Single Guy

Part 2: Winning Her Over

Like last time, I have just a couple quick notes before I begin. First, the sub-title seems to be pretty gender exclusive, and well, I don't intend it to be. English sucks at having gender neutral pronouns. I used the word "her" because that's how I would see things. Second thing before I begin: Dave and Steve has asked me to ask you guys (and girls) to stop asking them if they are me. If I am DanS, then why am I signing as *The Single Guy*? Why?

So I was going to write today's article about the first date, but then I realised that last time, although I gave you some tips for finding the perfect mate, I forgot to tell you about the stuff in between finding them and getting that first date I was going to write about. That's really one of the hardest parts so I've decided to make this article entirely about that.

First thing I advise is make sure she (remember, not neccessarily a girl, I'm just going to pretend that she is) gets the previous issue of *math*NEWS and reads my article. Try to be subtle about it, shoving something in her face and telling her to read it might not go over too well. Instead try saying something like "That *The Single Guy* from *math*NEWS sure has some insightful things to say back in issue 1." Depending on the person, that might be a little too blunt too. Try leaving a copy of *math*NEWS open on her desk, or hacking her computer and opening it up on our website www.mathnews.waterloo.ca. Once shes read the article, the odds are better that she'll notice that you used my tips and now she'll be after you. If she doesn't realize that, then either you think she's someone she isn't (and isn't the perfect girl for you, so start over at article 1 again) or she needs some more nudging in your direction.

If you don't spend much time with her, or don't know her very well try to get on more friendly terms with her. It's impor-tant that you don't become a "friend" because then when you do get around to actually asking her out, she'll be all "well you're my friend and I don't want to screw that up," and you'll be all "damn, that sucks." Also, don't do that, you don't want to mess up your friendship. This is incredibly important, whenever someone says or implies that you and her are "friends" make sure to say in a very stern and serious voice "No, we are not *friends* and we will **NEVER** be friends." You should then accelerate your plans and ask her out right away so that rumours don't spread to her that you two are "friends."

Whether or not the above tricks work to get her wanting to go out with you, there's still the fact that you're never going to get anywhere if you don't ask. Sure, if you never get up the confidence to ask she can never say "no" but if you do ask, she *might* say yes, and even if she doesn't you're just going to go cry in your room about being alone, and you'd be doing that if you didn't ask anyway. This obviously means that asking is the branch with the greatest expected returns.

I suggest that you may want to do this asking with some semblance of not despair but instead real hope in your voice, even if that's not what you're feeling. Plus if she says yes, hiding what you're really feeling from your voice is going to be a valuble skill to have. I also suggest keeping the self-deprecating humour, the cynicism and the sarcasm till after you get a positive response, or a negative one I guess. Some people get off-put by those things, often seen as parts of a typical mathie sense of humour.

Well that's all I'm writing for now, hopefully she says yes, unless I want to make a stab at her, then I hope she says no to you. Remember to schedule your first date in two weeks after you get a chance to read my next article.

The Single Guy

This text is in a lozenge

*math*NEWS Drinking Games

Not actually endorsed by math*NEWS*

This past weekend, I have learned about the true entertainment value of drinking. However, some very sad people need some motivation to engage in the Friday night tradition. This is where I come in.

By the way, if my don is reading this, that paragraph was a lie.

Monopoly: drink every time:
- you land on Boardwalk.
- someone buys hotels.
- you land on a hotel.
- you have to sell hotels.

Risk: drink every time:
- you lose a territory.
- you lose an attack.

Scrabble: drink every time:
- someone lays a word 5 letters or longer.
- someone lays "MATH."

Clue: drink every time:
- your suggestion is disproven.
- your accusation is wrong (then you finish the bottle).

Jenga: drink every time:
- your opponent is successful with their turn (it will actually end the game quicker).
- you kill the tower (then you drink the rest of the bottle).

Uno: drink every time:
- someone has Uno.
- you have to pick up a card.

Taboo: when you mess up, either:
- take a shot, or
- get viciously attacked by your opponents.

Twister: drink every time:
- you are not using your hands for something else.
- you fall off the mat.

The Insider
Who should not at all be taken seriously on this one!

Psst, look over there....

Horrorscopes

Sorry, but I can't get my mind off of Thanksgiving!

ACCOUNTING

It is your job this week to deal with accounting for turkey sales. For once, it is relatively easy to figure out if you messed up because your total should not be red. If it is, see Mr. Trump about getting fired.

Your lucky number: $5 profit per turkey.

AMATH

The beauty of mathematics is the ability to apply it to almost any situation, for example, how to divide a turkey so that everyone gets the exact same amount. It's nice in theory, but in practice, I get hungry because you take too long.

Your lucky number: 12 minutes just to cut a damn bird; I mean, come on!

BBA/BMATH

If you can't go home this weekend, then you can probably find at least one person on each campus that is in the same boat as you. Invite yourself to both of their turkey dinners, but make sure that you bring something to the table to show your appreciation.

Your lucky number: 1 cranberry (OK, maybe 2).

C&O

Your experience in combining and optimising at the grocery store this week will result in the ideal turkey dinner for you. Don't feel shy to invite your friends over; tell them how good it's going to be. Just don't disappoint by burning the turkey.

Your lucky number: turkey choose stuffing.

CS

Computer scientists are essential to the whole Thanksgiving tradition. You program the thermostats in our ovens to cook the turkeys, you program the scoreboards for the CFL games … where would we be without you?

Your lucky number: 3rd down and turkey.

MATHBUS

Turkeys are in high demand right now, so the poultry industry is going to do very well. Mind you, I am saying this as of Production Night: by the time this issue comes out, turkey stocks will be at their high and you will have missed a wise investment. HAHA!

Your lucky number: 54% rise in turkey prices.

MATHSCI

Thanksgiving provides a tradition other than turkey-eating. Another popular event is CFL Football! A word of warning, though: do not tell anyone that a team sucks because they are not delivering optimal angle and trajectory on their punts.

Your lucky number: 18 very angry Ti-Cat fans (as if they're not angry enough as it is).

PMATH

Well, it's Thanksgiving, and unfortunately you cannot apply many of your learned concepts to the holiday. This gives you a slight advantage, because you can spend more time actually eating the turkey. Just save some for me.

Your lucky number: n lbs of turkey eaten.

SOFTENG

You strongly believe that you are a congregation of the best minds in Canada (just because you are in two faculties), but what about the family you may have in another faculty that you'll be seeing this weekend? Just avoid bragging to them that you are "better" than they are.

Your lucky number: 1 family feud.

STAT

Approximately one-third of Canadian turkey consumption will be this weekend (based on my habits). You'd better hope that the farmers are ready for this rush, because if not, you will be left out (not me, but you).

Your lucky number: 2 million turkeys sold this week.

UNDECLARED

An undeclared math major is like a turkey. You are bred not knowing what your purpose in life is, and then WHAM! The only difference is that your wham will be on your degree rather than on your neck.

Your lucky number: RUN, TURKEY, RUN!

AHS

Even during the long weekend, we mathies take the time (although not much of it) to appreciate what kinesiologists or whatever you call yourselves do, trying to keep us healthy and all. But remember, especially after a large turkey dinner, your attempts to get us up will be in vain.

Your lucky number: free exercise programs provided by you.

ARTS

I would say that it is time for you to sit back, relax, and enjoy this long weekend. However, you do that even when it's not a long weekend. Heck, you do it even when it's not a weekend.

Your lucky number: 336 hours of R&R before the next issue.

ENG

What goes with Thanksgiving turkey better than a nice cold beer? Heck, even I can answer that for you! However, I have decided that I am going to leave that question for you to figure out.

Your lucky number: 2 nice cold beers.

ES

Right about now, you are probably feeling sorry for the millions of turkeys that are going to be eaten this weekend. It may make you think that you are going to protest by not eating any turkey at all. Great! More for me!

Your lucky number: 0 turkeys saved.

SCI

While ES is holding private funerals for all of the turkeys, you are realizing the true nutritional value of the tradition. Don't try to tell them, though, or else you will be called a "turkey killer."

Your lucky number: 20 amino acids per turkey.

*math*EYE

Who will be enjoying this weekend with his family

Movie Night: Two Movies, No Dollars, Wednesdays!

Socialization

An Instruction Manual

Being a mathie you suck at socialization. Don't try to deny it, it's true. We all do. We hide in the corners, wait for others to talk to us or at least hope that no one will attack us, and in the future we will sleep in our offices and not know what to say when eager frosh come to visit at 13:00, waking us up.

But there's hope! It was the very first day I was here, the RCC BBQ. No leadership or events or talks, just food and leaving the nerds to fill in the air themselves. One would not expect much socialization, and what the organizers were thinking I do not know, but it was even worse than I imagined: not only was there complete and utter silence… we arranged ourselves in 3 perfectly aligned rows (without verbal communication). It was so overwhelming that I felt forced into doing something about it. I actually broke through my mathie-neuroses and started people talking, and then with the help of some peppy Accounting Leaders eventually no one was left awkwardly lonely. This started a mission of mine to meet, greet, and make steak "with" everyone I could. Furthermore, being such a pedantically logical scientician I chronicled each new technique that I discovered in the quest.

If you're not a mathie and you're reading this don't laugh, we really don't know these things.

- **Randomly introduce yourself to everyone you can:**
- Sit in a new seat every day and tell everyone around you your name.
- Wander around classes.
- Wander around your res and knock on people's doors (especially in MKV!).
- **Pretexts!**
1. Ask people simple simple questions (a good script: wazzup/ whazurname/whereulive/whereufrom/whazurprogram/ wazzbye).
2. Ask people for simple favours:
- Ask the time.
- Help with some homework problems.
- Ask to borrow supplies, e.g. pots, ingredients, etc. (can easily tie into an invite to a partyparty).
- For any piece of data they tell, offer your corresponding piece of data. For every piece of data you tell, ask them their corresponding piece.
- **Conversation starters:**
- "Hey, you look interesting."
- Blatantly explain that you are socializing based on what *math*NEWS told you to do.
- Make random obvious observations.
- Ask their interests in {music, movies, television, art, …, categoryN, categoryN+1, …}.
- "Sorry, I forgot your name."
- Random gifts! Candy can buy friendship!
- Catchphrases!
- Party tricks! (talents, anecdotes, dances etc.)
- Be open to laughter, so long as you don't just get annoying most people like the natural high they get from happy people.
- Compliments. People love to be told they are awesome.
- Remember people's names and use them.
- *Especially for the mathies*: drop topics that are spiralling into tangents. I think these are fun myself but to non-geeks they are tedious and confusing.
- And finally, **Confidence**. This is single most important detail, because everyone is attracted to confidence. Very few people actually have it, even the naturally outgoing social people. The last one especially would just be wrong. You don't need to actually be confident, you merely need to *project* the image of confidence (However, please, Mathies, don't take this as an invective to wander around grabbing crotches, threatening their gats, or licking ice cream.).

If you need help doing this in conversation try thinking of something you'd like to say, or at least, that you could say, and then turn off your mind for a few seconds as you blurt it out. You probably already have done similar things online, but now you must practice it verbally.

And remember, everyone is just as scared as you.

Now, following this guide, you will be an instant celebrity. Just like `dirthyfilthy@livejournal.com`. Just make sure you don't slide into idiot all-out-Artsie, or worse, AHS-ness.

Kousu

Tricky Math

A Nice Little Game From St. Petersburg

I like games, so this week I'm going to detail a little game I'd like to play with you. Should you wish to actually play this please contact me and we'll arrange a time. The game is a simple game of chance. All we need is a fair coin. The game works like this: you pay me a set cost to play, then I flip a coin until heads turns up. Once that happens, I will give you 2^n, where n is the number of times tails turned up. If we flip once, and heads comes up the first time, you get $1. If, however, tails comes up 10 times, finally followed by heads, then you win $1024. The game only ends once heads comes up. Now, if the cost to play is too high, then it doesn't make any sense for you to play, so I need to find a reasonable price for you. Luckily, I've taken a STAT course or two. So all I need to do is figure out your expected gains and then set the cost to be less than that, and statistically you can't lose.

So let's figure this out. The probability of the game ending on flip number n is equal to 2^{-n}. Your gain if the game ends on flip number n is equal to 2^{n-1}. Now all we need to do is multiply the probability of the game ending on flip n with how much money you win if it ends on flip n, and add together the values for all possible n. The multiplying part is easy: 2^{-n} times; 2^{n-1} is just 2^{-1} or 50 cents. n can take the value of any positive integer greater than 0, so there is an infinite number of ns. The expected gains for this game are then $.50 x infinity. If you don't believe me, ask someone who's taken STAT 230 already. If you already have, and still don't believe me, you should have failed the course; the numbers are correct.

So what should I charge for this game that you can expect to win $infinity at? Well, if I wanted to break even, it should be an infinite amount of money, but I'll tell you what, I'm feeling generous—how about you just give me $20 per game. Sound good? So like I said above, if you're interested in playing, just get a hold of me sometime, and you can satrt earning crazy amounts of money.

DanS

Reduce This Matrix

To the tune of "We Built This City" by Starship

CHORUS:
Reduce this matrix. Reduce this matrix to echelon.
Put this matrix. We put this matrix to echelon.

Say you don't know me so echelon my rows.
Say you don't want to go where the kernel goes
Knee deep in the MatLab finding out out my base.
Too many vectors spanning just one space.
Gaussian row reduction, eliminate those rows. Don't you use Maple!
Put this matrix. We put this matrix to echelon.
CHORUS:
Someone's always playing operation games.
Who cares they're always changing operation names.
We just want a kernel with an empty set.
So there is no vector that we cannot get.
Gaussian row reducion, eliminate those rows. Don't you use Maple!
Put this matrix. We put this matrix to echelon.
CHORUS:
It's just another midterm, we're too tired to beat.
Proffies have the answers all written on a sheet.
Who counts dimension under non-zero bars?
Who rides eigenvectors into the stars?
Don't tell us Cauchy-Schwartz it, orthogonalize those fools
Looking for a classmate who remembers all these rules
SPOKEN: I'm looking over a non-zero eigenvalue out on another gorgeous nxn matrix, A, not seeing the eigenvectors.
Don't you use Maple
SPOKEN: What's your favourite elementary matrix, in your favourite field, in the class that never fails, the class the messes space, the class makes you never sleep.
CHORUS: (Repeat until fade out)

Angelo

A Demon Prince's Guide to Thanksgiving

Ah, Thanksgiving. There is no celebration more decadent, more insensitive or more filling than October's yearly ritual slaughter and consumption of a large fowl to commemorate the near extermination of a people and eating all their food. I hope to help you and your families in preparing this holiday's heathen feast.

For the turkey, I recommend adding the blood of a young virgin to the stuffing, to give it that extra fresh taste. Remember, there's no blood more virginal than that found in the MC. Harvest from the Comfy Lounge to get a particularly sugary vintage.

If you are planning on eliminating your significant other as it is common for the ritual, I suggest taking the term "Turkey Dump" literally, and drop the turkey on your SO's head. If they die, then you may break up with them guilt free, having followed the rituals. If they survive, then much hilarity will ensue as they will be forced to wear a turkey on their head much like that Joey character on that devilish *Friends* show.

So, Good Slaughtering! Good Feasting! Good Dumping!

Orcus, Demon Prince of the Undead

Take Heart, at Least You're Smart

As I idly gaze at the M.C. Escher painting on the wall, attempting, but failing, to finish my physics homework in something that even resembles a timely manner, I wonder why its topsy-turvy architecture and impossible lines are purported to be a distorted view of reality when, in fact, our lives more closely resemble this painting than the real buildings that we see every day. What I am trying to say, in an incredibly obtuse way, is that our lives are often screwed up.

Is it unavoidable, enrolled in what you thought two months ago were the right classes? Think again! And, by the way, you're sentenced to a week in class-limbo hell, making regular stops at the registrar and undergraduate office instead of eating lunch, partying, and relieving yourself in inappropriate places like a normal person.

Or consider the following situation, which has never happened to me: you, in a fit of premature Alzheimer's, take off your backpack that contains all the notes for, say, all of your classes, in some random location, such as the bathroom, and forget to pick it up again. Much displeasure, anxiety, depression, and fear follows, I assure you, though of course I have no personal experience, and the next week is known forever for the $200 photocopying bill that you rack up as you attempt, wildly and directionlessly, to reclaim all that lost knowledge that so easily fled from your grasp, and that you now must painstakingly reconstruct from the clearly inadequate records of other students.

But we are Math students, so we endure these hardships, and maintain a resolute and expressionless face as our futures crumble before us. Hey, the Pink Tie has been vandalized more than once and it certainly endures. On the other hand, the Pink Tie has never had to survive a course after sleeping through the midterm.

Sometimes it is tempting to look at Fido, your lovable mutt (you can imagine him if, like me, you're living in residence and no pets are allowed) lying there on the rug, sleeping contentedly, scratching furiously behind one ear, and envy him. There he is, without a single care, without the stress of university or co-op job hunting, without terror at the prospect of his future. And there you sit, with three assignments, four hours each, due the next day, and the clock already reading two in the morning. Don't feel too sorry for yourself. Hey, at least you can do the assignments (with the possible exception of that algebra one). All Fido can do is sleep, eat, be cute, and, if he's really, *really* lucky, live to be fifteen.

It's okay to feel sorry for yourself once in a while, but remember, if life throws you a curveball, hit it out of the field. Or you could try to hit the pitcher, but I don't recommend that. Be reassured in the fact that you can handle anything that life throws at you; after all, you're a Mathie! So, when looking at Fido, take heart, at least you're smart.

Jeremy Sharpe

Writers need to learn to write just a little bit more

*prof*QUOTES

Let's go slowly—some of you are falling asleep now.

Ng, MATH 245

The proof is trivial: it's just a sentence.

Ng, MATH 245

All right, the lights are on and there's no chemical spill. Let's go!

Hare, MATH 247

How do you expect to get bonus marks if you send [gifts] anonymously?

Hare, MATH 247

Now, I could check that these two multiplied together makes one. Better yet, I could give it to you.

Godsil, MATH 249

I'm up here with chalk in my hand so I can define whatever I want.

Godsil, MATH 249

Going once, going twice, understood!

D'allesir, MATH 235

Be precise! If I have to sort out the answer, who gets the marks? I get the marks!

Nguyen, ECON 101

Three minus two is one. This is that advanced section, right?

Ng, MATH 245

Why use little x and capital X in the same place? Well, to be confusing. There's no other reason.

Lopez-Ortiz, CS 240

Did you know there is a Calculus for Dummies? I've read it. It's written by dummies.

Zorzitto, MATH 147

The skill to make correct judgement is ... skill.

Zorzitto, MATH 147

Always code as if the program were going to a violent psychopath who knows where you live.

Alencar, CS 133

That's the last time I try to have fun with you because you always pick apart my examples.

Balogh, PHYS 115

Here we have two men and a toilet falling out of an airplane. That's what I like about Google Images—you can find two men and a toilet falling out of an airplane.

Balogh, PHYS 115

That's what engineers do to find the answer: they break things.

Balogh, PHYS 115

It's a good question—and I'm not going to answer it.

Balogh, PHYS 115

[after mistaking clockwise for counter-clockwise]
In America, the clocks go the other way.

Wollan, MATH 115

[written on board] BA doesn't exist

Wollan, MATH 115

This looks hard, but we are getting into harder material so it will look relatively easy.

Chang, MATH 117

How can you factorise this? Well, you can always use Mathematical Maple!

Chang, MATH 117

This is all you need to know. Well, there's another one...

Chang, MATH 117

Close to Infinity

Angelo and Math.Random()
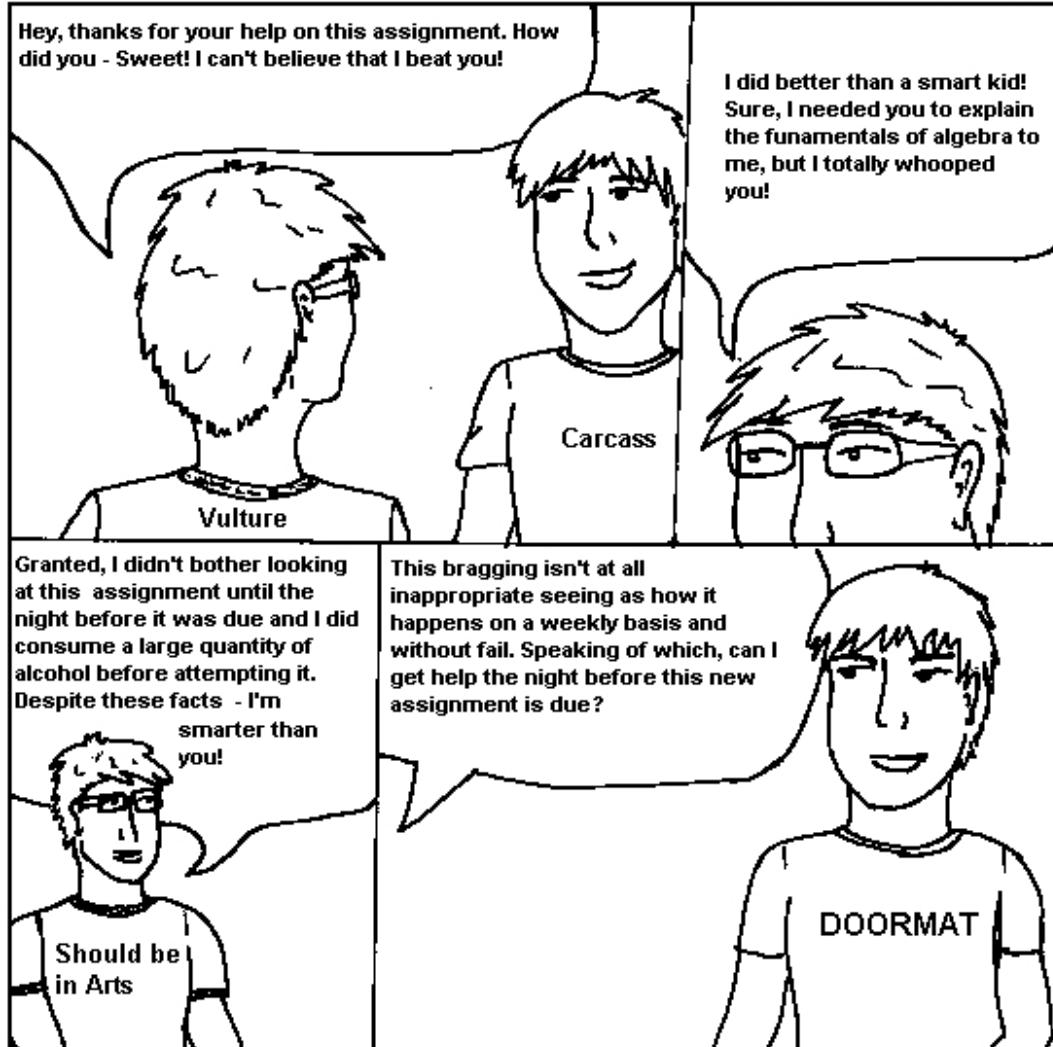
*prof*QUOTES

I don't know if you've noticed, but so far my lectures had nothing to do with the assignment. So I'll continue with that now...

Willard, MATH 145

As soon as the denominator is 0, we're in a world of pain.

Willard, MATH 145

I really blew it... no part marks for me.

Spronk, MATH 137

Let's do it again. I know it's a waste of time, but I want to waste it.

Zorzitto, MATH 147

It's called long division. I don't know why, maybe because it takes a while to do.

Zorzitto, MATH 147

What do you use for average, a bar? Good. I like bars. I go to them regularly.

O'Donovan, PHYS 121

As a side note, never rollerblade with a glass bottle of Nestea.

Shea, CS 135

If you want, you can do a rigorous proof by handwaving.

Cheriyan, CO 351

Nowadays when you buy a computer, it comes in a bag that has 30 different languages on it that tell you "if you put this bag over your head you'll die"

Lhotak, CS 241

Don't get recursive on me!

Godsil, MATH 249

There's a function that takes in a real and spits out a chicken. But that's not calculus.

Zorzitto, MATH 147

But all the other physicists are doing it, so we have to jump off the bridge with them.

O'Donovan, PHYS 121

I don't know what to say about this, so I'll just put an exclamation point.

Wagner, CO 330

[after a correction by a student] This is even easier to prove, because it's true.

Wagner, CO 330

You can think of concurrent and real-time programming as "extreme programming". We're white water rafting without the raft, skydiving without the parachute.

Buhr, CS 343

[prof] I'll answer any questions, provided they're not compromising questions.
[student] What would be an example of a compromising question?
[prof] That's a compromising question.

Furino, CO 350

The second issue is that drawing a picture of ten thousand equations in a hundred thousand variables requires some serious weed.

Furino, CO 350

Don't forget to submit your prof*QUOTES!*

Umbrellas

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

http://euri.ca/puzzles
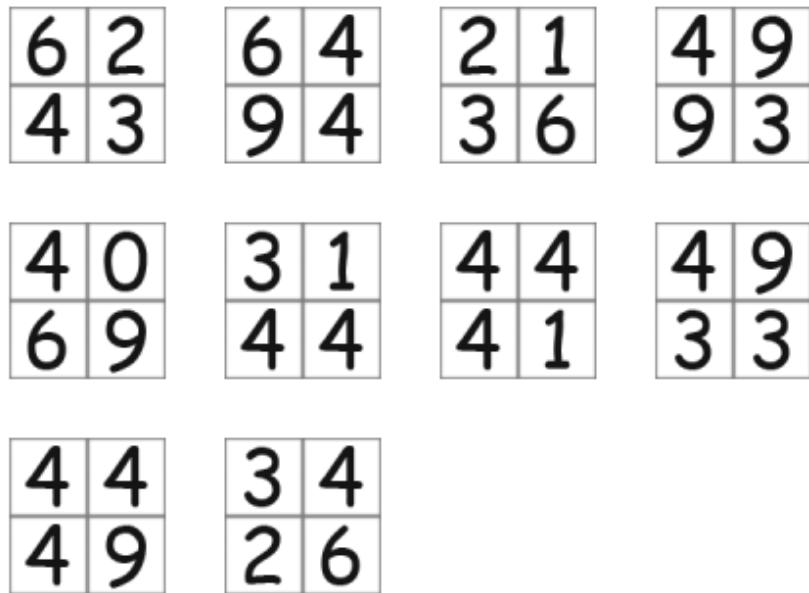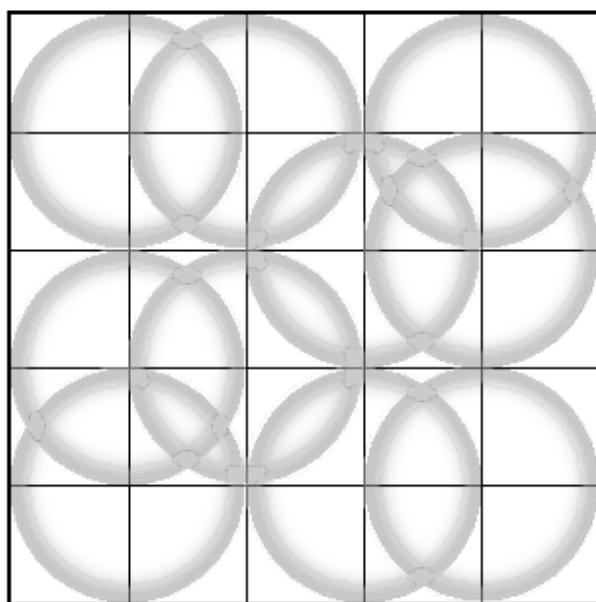
Morgan Stanley Info Session

Morgan Stanley will be having an information session in TC2218 on Monday, October 23rd from 5 to 7PM. They've got free pizza! Bring in your resume and be entered into a draw for an interesting and shiny prize.

For those who don't know, Morgan Stanley is an investment bank, retail broker and credit firm based in New York City. Students in Actuarial Science, Computer Science, Electrical Engineering, Computer Engineering, Software Engineering, Systems Design Engineering, and other related disciplines are invited to attend.

Solutions to Last Issue's Grid
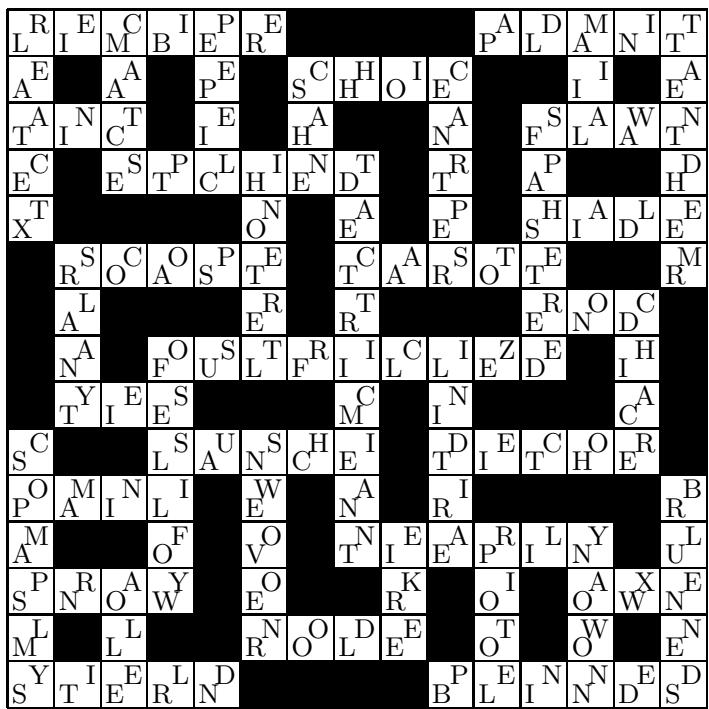
*grid*COMMENTS

None of you slackers submitted solutions to the last *grid*WORD! This means I'm going to keep the FABULOUS PRIZE for myself this week. It's a $5 gift certificate to the C&D! Fret not, if you submit a solution to this *grid*WORD, you may win the FABULOUS PRIZE next time. Heck, you could've submitted a blank grid and won TWICE; one for having the most correct answers to the cryptic, once for having the most correct answers to the conventional. Oh! You can also win the FABULOUS PRIZE by submitting solutions to the Umbrellas puzzle, too.

If you should be curious, solutions to last issue's grid are in this issue somewhere.

The CryptMaster was demoralized by the lack of submissions and so didn't clue a puzzle this week. This disappoints me because I gave him a great grid with words like DOGSBODY, INGOT, PORNO, and RESCRUB in it. Maybe if we get some submissions this time he'll write a cryptic for us next time. Enjoy my conventional crossword for now…it's got to be better than that lecture you're sitting in right now.

Oh, yes, and a *grid*QUESTION: I still want to know your favourite kind of fruit.

inkEd

GRIDWORD
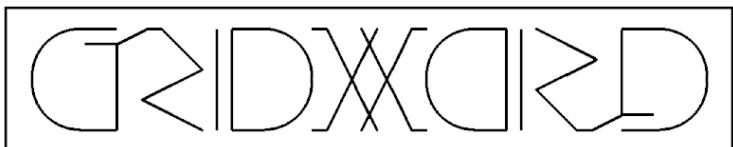
ACROSS

5. Boot
7. Rebel
8. Compulsive thief
13. Fire remants
16. Put off
17. $ax + by + cz + d$
18. Assists in sketches of 17 Across
19. Spread
22. Hyperbole
26. Fierce remarks may be this
27. Whistle sound

DOWN

1. Trumpets
2. Alcoholic beverage
3. Deny
4. Song
5. Antipodean?
6. Hot
9. Mixture
10. Art class models?
11. Terrible
12. Hedonistic party
13. Gone wrong
14. $x=\sin t$; $y=\cos t$; $z=t$
15. A bit of parsley, for example
20. Like a bad lawn
21. Name a successor
22. Therefore
23. To be next to
24. Something you might do for breath
25. Leonine yell