100%

ON-FIRE
KICK-ASS AND
CHEW BUBBLEGUM

SMUG
"I EXPECTED
NOTHING LESS"

JUBILANT
GOTTA LOVE THOSE
BELL CURVES!

75%

IN-DENIAL
"THIS CAN'T BE MY MARK!"

THANKFUL
"YES, I PASSED?"

CONTENT
"IT COULD HAVE
BEEN WORSE"

50%

SHOCKED
(AND AWED)

FRUSTRATED
"AH, NOT AGAIN"

NOT AMUSED
"DAMN, SO CLOSE"

25%

ANGRY
"THE EXAM WAS
UNFAIR... SOMEHOW?"

ACCEPTING
"OH WELL, THERE'S
ALWAYS NEXT TERM"

HUNG-OVER
"WHAT MIDTERM??"

0%

YOUR MIDTERM RESULTS MAKE YOU FEEL: T. BENDA '05

*look*AHEAD

Haiku

For the zergrushish among you

Ctrl-click and z
Click Right-click times two then enter
Kekekekeke

MathSoc Movie Night

2 Movies, $2 Dollars

So, this is issue three, and I can't think of anything to talk about. Then I realized I have, in the recent past, booked some really cool movies. I plan on showing said really cool movies. Said really cool movies include:

- National Treasure - March 3rd
- The Incredibles - March 17th
- The Aviator - March 17th

Just a reminder: I have decided to have a Movies contest. I am letting you pick your favourites for the Oscars… and if you're right, you could win stuff. My prizes are:

1. A $20 Gift Certificate for the Princess Cinemas
2. A Cheat/Limit Shirt (as to which one, I have not yet decided)
3. A pretty fleece blanket (I have Rita to thank for that one — I personally think it to be a much better prize than what I had before, because it lasts longer)

Reading Weekend: We will be shoeing a marathon per night (Wednesday through Saturday, inclusive). Current plans are to show the Back To The Future trilogy, the Indiana Jones Trilogy, the Star Wars trilogy (the good three, aka IV (A New Hope), V (The Empire Strikes Back) and VI (The Return Of The Jedi)) and three other yet to be determined movies (the current thought is Edward Norton movies: Primal Fear, Fight Club and The Italian Job OR Kevin Spacey movies: The Usual Suspects, The Negotiator, Se7en). If you've got a suggestion, email mtoivane@student.cs.uwaterloo.ca to make it. The only restrictions are that it must be a legally acquired copy of said movie, and it has to be covered by either the Criterion or the ACF license that MathSoc owns. *[This paragraph has been severely modified from it's original content. This was done to reflect more current information. — BeatleEd]*

MathSoc Movies Guy

*mast*HEAD

So, the weather's taken another turn for the weird. Snow, thaw, rain, ice, snow… It's all a weird climatic waltz that I'm sure I would appreciate much more if I could just stay inside.

Speaking of inside, that's where the production staff was this Monday. And so we asked them ,as they huddled over their UNIX terminals, "Why are you here on Valentine's Day?"

They replied: Eric 'inkEd' Logan (Hiring a girlfriend was too expensive), Movies guy (Sharing a drink they call loneliness, but it's better than drinking alone), J.Y. (I don't know, but it's my best Valentine's Day ever!), Andrew F. (I was told there's be bacon martinis), Val (It's better than sleeping), Math.Random() (Procrastinating from studying psych), DanS (I don't celebrate greeting card holidays), Jimmy the Leper (I had to stop watching anime sometime…), Kaitlyn "Half-pint" (same reason π isn't).

Our thanks go out to the wonderful crew over at Graphics, who put our digital rambles into Friday morning format, and to the staff over at University pizza, who always have our pizza fresh and hot despite the weird topping combinations we request.

SheepNinEd (BeatleEd made me by not showing up)
StatsEd (There were other ways to spend Valentine's Day?)

Prez Sez

Well, two more weeks down, a few more to go, and midterms are here.

I have not been too busy these past few weeks, and therefore do not have too many things to report:

- I've got plans for the new lighting that will go into the C&D and Comfy, if anyone wants to talk about it, please come find me
- Feds Election results come out sometime today
- Candy Grams were a great success! Thanks go out to the Social director and VPAS for handling this year's treats

Last, but by no means least, are the ever-sought-after Russel Peters tickets…

MathSoc has 20 tickets available for sale. Now, the list for people who want them is >2000 (the show *did* sell out in 3 minutes). Since the demand is so high (and to avoid mass pandemonium), MathSoc will be raffling off **the right to buy** 2 tickets on January 28. In order to enter the draw, you must send an e-mail to iwantaticket@gmail.com that includes your name, user ID, and student ID. Unfortunately, as per all draws, there are a few restrictions:

1. You must be a social member of MathSoc either this term or last term. (i.e. you have paid your fees for this term and have not requested a refund).
2. You can only submit one entry per student ID. **Should you submit more than one, both entries will be disqualified**.
3. Each winner (there will be 10) is eligible to purchase a maximum of two tickets.

You can send an e-mail to this address until January 25, 2005 at 3:00 PM, and winners will be contacted by e-mail on the 28th. Should anyone have any questions, please feel free to e-mail me at prez@mathsoc.uwaterloo.ca.

See you next time.

Michael Tersigni
MathSoc President W/F 05

VPA Sez

YO MATHIES. How are your midterms going?

The biggest news for you guys is that starting next term (Spring 2005) exams are gonna be 2.5 hours max, instead of 3 hours like before, starting from 9:00, 12:30, 4:00 and 7:30. Also, discussion of creating a new Bachelor of Computing and Financial Management program is ongoing.

In other news, the Computational Math department wouldn't let me have a Comp Math t-shirt (which are awesome), but right now I'm wearing a Bioinformatics one. I did get free pizza from them though.

Speaking of free pizza, the 1st year review sessions went well. The frosh that came got free pop and pizza. How WILD is that?!?! In my opinion, if you paid your MathSoc fee, you should get tons of free pizza, services and stuff.

I also met with the VPEd of FEDS to talk about coop. If you guys have anything to say about coop, school, labs, academics, please email me. It's my job to represent your views on these issues, and I wanna know your concerns or comments.

VPA-Lo out y'allz…

Andrew Lo
MathSoc VPA W/F 05

VPF

MathSoc directors have duties. Some of them include spending money responsibly, and properly accounting for those expenditures. One of the more eager directors had taken some initiative, and a week or so ago approached me with: "David, I've got some numbers here for you!" to which I promptly replied: "Aww… I don't like numbers." It was only a little while later that the gravity of the situation sunk in.

I was watching 'Old School' last night, which obviously targets a particular audience with its brand of humour. I still feel that dart every time I watch the movie… But more to the point, the random van pickups take the cake. I would expect to see a lot more random van attacks during your time at Waterloo. Specifically, if the orientation directors make the mistake of giving me a walkie-talkie and keys to the teamster van, you should not feel safe during orientation week. I'm sure Budget Rent-a-Car will appreciate having an inch or two or treads spread out over campus, a glorious reminder of the time masked bandits randomly ambushed you, dragged you blindfolded through engineering, and duct-taped you upside down to a wall in your underwear. Seems extreme? Try badmouthing PACO during orientation week and see who has to explain where all their body hair went.

Right, relevance. So I write cheques and move money from the photocopiers to the bank; sometimes I eat candy. The C&D Management board met on Tuesday, and I reported something to that effect in the council meeting on Thursday. But it's Tuesday as I write this… It feels so weird to write for the future in the past. In the past for the future? Augh! Temporal pains!

If you're wondering if I'm worth the air I breathe, just remember the next time the photocopiers give you quarters in change that I went out of my way to make sure it had quarters to grace you with. Without me, you would be plagued with a collection of dimes and nickels. Every step you take requires that much more energy to move a massive haul of boats and beavers, compared to the paltry weight of mooses. That's right. Mooses. You're welcome.

David Wheatly

VPAS

Last night was Valentine's Day, so instead of writing this *math*NEWS article, I surprised my special someone, and we went to dinner at 7 West in Toronto. It's a sweet place and it's open 24 hours a day. Hmm, I love good food. The Mathsoc Office also has good food. Well, we have leftover Candygram candy. It's still food (if you drop by my exec hours, and I don't know your name, you get a free C&D cookie or a bag of Malteasers)!

It's almost Reading Days, which means it's almost half-way through term. So far, all my directors have been doing an awesome job. They come in when I need them, even in the middle of the night! Sometimes, they even come in during the day. All in all, without them, you would not be able to enjoy quality Mathsoc service. So, I declare today Hug-A-Mathsoc-Director Day. If you see them, give them a big hug (or a small hug, depending on how big you are).

Enjoy Reading Days, and good luck to those entering the Oscar Contest (more info at http://www.mathsoc.uwaterloo.ca) or trying to win Russell Peters tickets.

Elaine Wong
VPAS W/F 2005

ActSci Club
Upcoming Events

New Actex study manuals for new Spring 2005 exams are coming. Members can come to the ActSci Club office (MC 3030) to borrow manuals or to put their name on the waiting list.

- Thursday, Feb. 17th — Ranking Day
  During this day, co-op students ranked for one of the actuarial positions may choose to put their name and rank on a huge sheet of paper in front of the ActSci Club office (MC 3030). This allows students with lower ranks to have a better idea of which positions they might be able to obtain, which increases the probability that, at an arbitrary time of the day, the student is sleeping well.
- Tuesday, Feb. 22nd — Poker/Casino Night
  Come out to relax before Reading Week! Located in the SLC Multipurpose Room (time to be announced in the ActSci Club newsletter).
- Thursday, Mar. 10th — Co-op Panel
  Listen to senior students discuss their co-op experience and give invaluable advice.
- Tuesday, Mar. 15th — IST Staff Speak
  Staff discuss the advantages MathCad offers for the actuarial science program. MathCad will be compared to R and Excel.
- Tuesday, Mar. 22nd — End of Term Party
  Last chance to relax before exam cramming begins.

The Actsci Club has been successful this term in bringing three employment sessions and an actuarial information session to the university community. The information session saw over 100 students in various stages of their academic and co-op careers in attendance. We thank you for your participation in our many activities, and hope that you will continue supporting this organization which values growth, sharing of information and mentorship.

Fox
UW Actsci. Be Proud.

MEF

Nominations for the MEF Funding Council are due Wednesday, February 23rd. The Funding Council decides which projects will receive MEF funding. Positions are available for students from every year and program. Normally, you will only be required to attend one meeting, and you get free food in exchange for your time. It also looks great on a resume!!

Professional Development Fund

Applications are due Monday, February 21. The P.D.F. provides funding for students to participate in conferences, workshops, etc. related to their field of study.

Funding Requests

Applications are due Monday, February 21. This term there is $48,000 available to spend.

Application/nomination forms are available from the MEF website, http://www.student.math.uwaterloo.ca/~mefcom.

Brendan White
Math Endowment Fund Director

Pledge for The Pink Tie-rade Continues

http://www.student.math.uwaterloo.ca/~mgc/ptp
pinktie.pledge@gmail.com

Hello, future alumni. Can you believe it could be less than three months and you're done with this place? More importantly, can you believe that you only have a few more months to help the Pink Tie Pledge? After that, you'll be bombarded by phone calls from the University, but you can avoid all of that if you just pledge early on. Hard to believe, eh?

New Pledge Levels

Yes, we've introduced four new pledge levels, in the form of three-year pledges. All of them fall under the title of the "Deregulated tuition? pledges. You begin with one of four base numbers (n) and then over 3 years, you pay (n, $n*1.17$, $n*1.17*1.15$), eg. $(142 + 166 + 191 = \$499)$. If you want, you can even design your own pledge!

What else… so, in my first publication, we mentioned PRIZES. Yes, as your eyes glaze over and you wonder what kind of prizes are in store for you, we'll begin to describe our first three challenges.

- Challenge #ln(e) is already underway. We have in our possession two Russell Peters tickets that you could win in a raffle! Anyone donating at any of the eight (read: "many?) pledge levels or the equivalent of them will instantly be entered into the raffle. Entry into this raffle will end on March 1st, and the draw will be the following day. If you're not graduating but would still like to win the tickets, please feel free to pledge or email us.
- Challenge #(2!) will hopefully be up and running by the time you read these words. What is it you ask? We have an exclusive mystery photo. This photo will be covered and the only way to view it is through meeting "mini-pledge? challenges. We'll have a "mini-pledge? tie up with the picture and as goals are reached, parts of it shall become uncovered for your viewing pleasure. We'll let you know that it's a very exclusive photo of our beloved, but soon-to-be-retired Dean Alan George.
- Challenge #(0011) is yet another raffle for (drumroll please) Math Grad Ball tickets. Grad Ball tickets are on sale now, but pledge by March 1st and you could WIN them instead. If you've already bought tickets, that's okay because you can be reimbursed for them as well. Right now, this raffle is open to pledges equivalent or above the Ralph Stanton Pledge level. The Grad Ball is a great opportunity for you to connect one last time in a meaningful setting with your fellow graduates. Good dinner, music, and a great venue will combine to give you a night you won't soon be able to erase from your memories.

And last (but not least) the Dean himself will be helping to serve MGC pizza on March 2nd. Don't miss out on getting a chance to have the Dean serve you! It's not a challenge so much as a privilege, so come out and support the MGC!

Remember, you pledge can go to any area of the Math Faculty, and every bit helps to make this place better for everyone. For more info, visit our website or email us!

Sincerely, your Pink Tie Guys,

@Calvin and Jim

Proposed Solutions to Fulfilling Canada's Kyoto Commitment

Lately, one of the hot topics on Canadian news publications has been Canada's commitment to the Kyoto protocol (once again, *math*NEWS is not considered a news publication).

The Chamber of Commerce has been babbling about the threat to Canada's competitiveness vs. the U.S., China, and India. Many have raised the concern that Canada may end up paying Russia and other countries millions of dollars each year to buy their unused carbon-emission rights. The Liberal Party has vowed not to fulfill Canada's commitment through buying "hot air" (carbon-emission rights), but some think that the government doesn't have a strategy in place to fulfill the commitment any other way.

Here is an evidently incomplete list of potential solutions to fulfilling Canada's Kyoto commitment: • Roll back industrial development to the Stone Age. (Actually, just 6% below year 1990).

- Super-advance technological development by a century to replace carbon-based power generation and energy storage with solar energy and fuel cells.
- Pay Russia and other countries millions of dollars to buy their unused carbon-emission rights. The Liberal government would have to break their promise, but it's not like they haven't done it before.
- Nuke it! Replace all conventional power generation with nuclear reactors. Outfit all cars with mini-nuclear reactors.

J.Y.

Game Theory Meets Computer Science

A talk by Prof. Kate Larson, School of Computer Science

When: Wednesday, March 2
4:30 p.m.
Where: MC 5158

This talk is aimed at upper-year undergraduate and graduate students, and is presented by the Women in Mathematics Committee.

Abstract

Over the past few years there has been an explosion of research activity at the boundary of game theory, economics, computer science and artificial intelligence. In computer science and artificial intelligence, game theory and the closely related field of mechanism design are being used as design principles for distributed algorithms, network protocols, and systems of complex autonomous agents. From the game theory perspective, people have recognised that computational issues limit the applicability of some of the classic models. Recently techniques from computer science have been used to study and cope with these issues.

In this talk I will provide an overview of some fundamental game theoretic concepts. I will show how these ideas are being used in different computer science applications, and will also talk about some of the ways the field of computer science is now influencing game theory.

WIM

Beyond Imprint

While writing a *math*NEWS article for all the obvious reasons (I'm shit poor, and need food), I was thinking about our media choices.

First off, I'm shocked whenever I'm in the SLC and see how many people are reading the Imprint. I think it's great that you're reading student publications. Somebody should and otherwise you wouldn't be reading this. But the Imprint takes about 5 minutes to read cover to cover (20 if you read the ads) and in the SLC you're just a few meters away from *real* reading.

Just go to the Turnkey desk, and you can trade your student card for any of dozens of magazines, every major Canadian newspaper, and the Toronto Star *[Would the Toronto Star not be included in the set of Canadian papers? — BeatleEd]*. Just a little effort and you're smiling.

Television is the same way. Ever since I've started downloading television off Bittorrent (I use btefnet/Azureus) it's hard to go back.

There's something strange about waiting until a TV exec decides to air something. There's something really strange about there being commercials on TV I pay for *[I know exactly where you're coming from… watched an episode of 24 today and realized that "Wow! There's actually time for commercials instead of just instantaneous return to the awesomeness of the show!" — BeatleEd]*. Downloading TV is guilt-free to boot, I have cable, I've even watched it — I'm already paying for my downloads.

It's all there, and now there's no excuse to watch bad television anymore. If you only watch what you download, you never have to see "Joey".

Even better, you can discover new shows that you can't get here. Only a few months ago, I noticed a poor sap had to sit through Coronation Street because his girlfriend adored the program. Coupling saved them.

"Coupling" is possibly the best sitcom ever made. It's British, but the sheer brilliance of the writing is more than enough compensation. Don't be fooled in to watching the American version, the odd joke about Maggie Thatcher is a small price to pay to watch actual actors with actual timing (apparently you should blame NBC).

And most importantly, your girlfriend or you boyfriend will love it. There are 3 archetypal guys, and 3 archetypal girls, constantly sleeping with each other. It's a little like "Friends", most of the jokes are about sex. Generation X has the DVDs of their earlier seasons (there have been 4), so does isohunt.com.

If you like Coupling, you might want also like "The Thin Blue Line," a police sitcom starring Rowan Atkinson (Mr. Bean). It has the added advantage that you can show it to your parents, if you have to do that kind of thing.

It's not all sunshine and flowers though, I was all excited to find out that the guy behind "Shaun of the Dead" (Simon Pegg, and if you haven't seen it, do) had made a TV series earlier. I had high hopes for "Spaced" but I couldn't sit through more than 2 episodes (and I was being generous), but hey: maybe you thought that Shaun was too exciting, funny, interesting, and easy to understand. There you go, something for everyone.

Dave

ElseWhen

25 Years Ago in math*NEWS*

Welcome to the *math*NEWS archives, where I dust off crap that no-one's read in ages and reprint it for your erudition. Today's historical artifact is Volume 22, Issue 2: "Issue 2!?" I hear you remark. Well, Volume 22 published tri-weekly. And since I missed the last issue because I was in FASS, I figured we're fine. Anyway, doodly-do and all that.

<div align="right">inkEd</div>

Limitless Limericks

COURSE OUTLINE: STAT334

WARNING! This course never lies.
Contains Poisson in p.d.e. guise.
If use is internal,
See SRS journal
At once, for convulsions arise!

<div align="right">bwlutek</div>

[I think this course is now called STAT330, but don't ask me,
I'm a CS major… — inkEd]

Superdump

Give a llink,
Give a llink of your core to me
Oh, give a llink
I'll give a llink of my file to you
Now's the Time that we need to Share
So swap me in, and show you care…

Elsewhere in the News

- Course drop deadline for W80 is February 12
- Platter Spatter reviews Neil Young's "Rust Never Sleeps" (****) and "Live Rust" (**** 1/2), as well as XTC's "Drum's & Wires" (***)
- Math Grad Ball tickets are sold out
- The Mathsocists (a broomball team) is dominating their league
- There will be a Whine & Cheeze Pahty on February 21st in MC5136 with preferred admission given to mathies and FASSies.

math*NEWS Glans the Spobe!*

Mathematician Profile

John von Neumann

In an effort to increase the math content of *math*NEWS, I've decided to start writing short profiles on interesting Mathematicians. In this issue, our subject of discussion is the legendary John von Neumann.

Name: John (originally Janos) von Neumann
Birth: December 28, 1903; Budapest, Hungary
Death: February 8, 1957; Washington, D.C.

Important Contributions:
- Quantum mechanics: Unified and generalized Schrodinger's wave mechanics and Heisenberg's matrix mechanics approaches
- Set theory: Early work in axiomatization of set theory
- Game theory: Foundational work in the mathematical theory of uncertain games. Proved the minimax theorem. Mathematically formulated the minimax (best, conservative) strategy to a simplified game of poker.
- Computing: Contributed to the ENIAC project. Credited with the invention of stored-program computer, the von Neumann architecture.
- Weapons development: Lead the computational work in the development of the A-bomb and the subsequent H-bomb.

Random facts:
- Known to be a child prodigy, he was capable mentally multiplying 8-digit numbers at the age of six. Once when his mother stared in front of her aimlessly, John asked, "What are you calculating?"
- Being a reckless driver, he destroyed roughly one car per year on average.
- The "von" in his family name "von Neumann" had been prepended because his father purchased a title of nobility from the Austro-Hungararian royalty.
- He published his first paper when he was 17, in the *Journal of the German Mathematical Society*.
- He named the Hilbert space the Hilbert space.
- He believed that logic is the ultimate basis of life. Therefore, he thought, there must be logical constructs that supports life. This lead to his theoretical work in artificial automata.

<div align="right">J.Y.</div>

New Psychological Disorders Discovered at UW

According to a very reliable source on the grapevine, new psychological disorders are becoming widespread at the University of Waterloo. Particularly vulnerable to these disorders, students of the School of Computer Science and the Software Engineering program have been reported to exhibit symptoms of these severe and bizarre disorders.

"Circles! Cirles! They're everywhere!", cried Crazy Johnny, a Software Engineering student suffering from *Gnimmophobia*. Crazy Johnny has acquired a strong fear of circles — especially cute, happy, smiling and moving circles. Students with Gnimmophobia avoid anything circular at all costs, unable to participate in activities such as ultimate frisbee. "I used to own a cookie container with a happy face on it. I had to throw it away though – I just couldn't stand it anymore!", said Crazy Johnny.

Another disorder related to Gnimmophobia is known as *Gnimmelitus*. Once affected, students develop a peculiar interest in circles — especially cute, happy, smiling and moving circles, and a tendency to bounce off walls, dig holes in the ground, and madly dash towards exit signs. "Outta my waaaaay!!!", cried an unidentified student as he rushed past a crowd of confused students toward the exit, clearly affected by Gnimmelitus.

Experts state that both disorders are highly related to the Gnome of Gnimmel (which was given as part of the first UI assignment). Both the School of Computer Science and Software Engineering program administrators are looking into this situation, but an inside source tells that they are dealing with a massive number of petitions from concerned students who want the Gnome of Gnimmel removed from the current CS curriculum.

<div align="right">Super Tree</div>

Am I Sleep Deprived?

Sleep!? What is this Sleep?

I am told by my psych friend that the average teenager needs 9.25 hours of sleep. So I think to myself: why? I seem to function perfectly with little sleep. No sleeps is more questionable, but at least I can still get things done.

So, as a presumably average CS student, I can't accomplish everything I need/want to do and still get more than 9 hours of sleep. I'm wondering if it's worth it to skip doing assignments and going to class to get sleep. The best way to find a solution is always in the math style: I'm going to make a list and use algebra to determine if it's a good idea (yes, that's right — mathies/CSers can have style)!

– less assignments done <=> less marks ∧ less concept of material

+ less than 2 hours of sleep => difficulty paying attention in class

 – if I don't get enough time to play video games I get irritable

 + lack of sleep makes me irritable

 + if I get more sleep, I'll live longer

 – if I sleep at night, I'll miss the beautiful night hours

 – if I sleep in the morning, I'll miss the sunrise

 – if I sleep in the afternoon, I'll miss my classes

 – if I sleep in the evening, I'll never talk to people

+4 if I don't sleep at all, I'll go insane again (yes, it's a funny story)

 + if I sleep, people give me cookies

 – the grocery stores are too damned crowded during the day

 + sleep deprivation makes you stupid. Stupidness makes working harder

 – if I sleep, who will keep the office open?

 + my eyes will probably stop burning if I get some sleep

 + if I was fully conscious, I would probably be able to stay on my chair

Let's add this up: 5… 7… carry the three… and voilà! It looks like sleep wins by a slim margin. I guess that means I should stop wasting my time writing for *math*NEWS and go home to get some sleep.

Seriously, you should too. Lower your sleep deficit. Stop killing time and get some sleep. You'll be happier, healthier, and you'll live longer.

You'll wish you would have listened to me when you're 30 and feel like you're 60.

Val
Soon to be well slept

Pi Day News Flash

3.14.2005

So, for those of you who don't know, last year during Pi Day there was a documentary taped of our festivities. This year, the director will be coming to UW yet again, but this time, she plans on showing the video. "Easy as Pi" will be shown for the first time on March 14th in MC 2066 at 4:30 PM. Tune in next issue for further details.

MathSoc Movies Guy

BYOB Jr.

Wow, Nine submissions! Great job, Dan Rosart, Daly Chang, Will Chen, Grace, Russel, Hussein, Andy, Warren, and *math*NEWS' most frequently quoted prof, Troy Vasiga. Coin-flipology results in Daly Chang being our winner, come on down to MC3038 (MathSoc Castle) to pickup your C&D gift certificate.

It entertained me to have the known letters go down the diagonal, sadly it did result in my first non-unique solution in quite some time. Well, turns out the other diagonal is even prettier and I believe it does have a single unique solution, so get ready for it. Here is one of the possible solutions:

A	F	B	E	D	C
C	B	D	F	A	E
F	C	E	A	B	D
E	A	C	D	F	B
B	D	F	C	E	A
D	E	A	B	C	F

Fun Fact about BYOB Jr: There are 2 possible 2x2 Latin Squares, 12 possible 3x3's, 576 possible 4x4's, 161,280 possible 5x5's, and a whopping 812,851,200 possible 6x6's. So I don't think we'll run out anytime soon, despite the added limitation created by our sub-blocks.

The image shown has six shapes with six squares each. Place the letters A through F in the squares such that each row, column, and sub-block contains each letter exactly once (exactly one letter per square please).

Teeny-Weeny
Snuggles

Ten Sure-Fire Ways of Acing that Essay

Or Not

1. Do it all in yodaspeak
2. Substitute every figure, table, etc. with its ascii art equivalent
3. Bribe the TA by taping monopoly money to the last page
4. Write it in English, then use babelfish to translate it to Afrikaans
5. In lieu of the essay, hand in a treasure map with its location
6. Four words: one massive run-on sentence
7. Use the word "burninate" no less than 10 times
8. Write your essay on the differences between African and European swallows
9. Append "master 3000" to the end of every nounmaster 3000
10. Who needs a word-processor? All you need is a crayon

frogg & knowshun

Not Burning the House Down: Adventures From a First Apartment

Week 3: Signs you need to do laundry sooner next time, or, Signs you should be bringing laundry home with you

This list was originally composed in the summer for my blog, and revised and re-shared after my roommate inspired me this past weekend.

Most of these are based on true events. In fact, all but one are true in my personal or one-degree-of-separation experience. • You hear an echo in your room when you leave with your clothes

- You have to dress sexy to get to the laundry room because they are your only clean clothes
- You find lost things in your now-empty drawers, like the first draft of the midterm study notes you made for your exam last week
- You realize you should have been lifting weights in preparation when it comes time to drag clothes to and from the machines

- You find clothes you thought you had lost / left at your parents' / given away to the needy
- You realize that that maybe that smell was the laundry, since now the house smells fine and you haven't cleaned the fridge, done the dishes, or taken out the garbage yet
- You find a gremlin under that pile in the corner
- You bankrupt yourself paying for four washers, or you make your boyfriend's/girlfriend's housemates angry with you after hogging their personal machines for the entire weekend
- You find more roommates you forgot you had
- You go out to the store to buy more clothes
- The humidity in your room when you hang stuff up to dry fries your comp - *sizzle*

Half-pint, lazily corresponding from a Valentine's Day evening spent in, enjoying newfangled "internet not from school"

So you're Alone for Valentine's Day

You're not alone(?)

It's sad but true, it's… four days after Valentine's day, and you are (were) alone. Well, there are several solutions to this problem, and unlike most of you, who just prove that solutions exist and go off and party, I'm actually going to enumerate the solutions! Without further ado, here's a list of things to do to not be alone this (next) Valentine's day!

First, there's the existential cop-out: you're not alone, there are a lot of people who are also alone, so you're not alone in your aloneness. Yup. Philosophy majors will take this little tidbit and be totally satisfied by this. Since you're not a philosophy major, I'll move along.

Next on your list is to come to *math*NEWS production night. That's right, we were pounding this issue out while most of the world was busy getting busy. Not only that, but we were having a better time than they were. There was more nudity at least. You won't actually know whether I'm lying unless you show up next week. So write for *math*NEWS.

For the internet-enabled, there's online dating services. This is where people like you wiggle a carrot (usually taking the form of a piece of ass) in front of your face and get you to send them a very expensive email. The cost of using these services, which are usually billed monthly, becomes less and less as you email more people. Therefore, you should log on and email every single person you can. You'll be able to ask 7500 people out for the low low price of $0.0053 each, and you may actually get a yes!

For those of you suckers in 1B, you could write your Calc 2 midterm. Sucker. Even the dateless people laugh at you, but at least you'll be around a bunch of other suckers. Ask one of them to post-midterm dinner. Sucker.

If you're a girl in math, and you don't want to be alone, walk into the comfy wearing something more revealing than, say, a full-body parka. I'll be the one to admit it, we male mathies are desperate. Capitalize.

If you're a guy in math, take an arts course. Arts is full of girls trying to get as far away as possible from you. You'll be set if the girls value their grades enough to not skip all their classes just to continue avoiding you.

Become one of those goth people that hate everyone. Then you're happy being alone, and the problem is solved by being entirely avoided.

Ask your crush out. It's a last resort, but it could work.

SheepNine

C. Vilesak

Mandelbrot Sets in Bash

So last time I wrote for *math*NEWS I promised to give some badly formatted code that rendered a Mandelbrot set using bash in a terminal. I was too lazy to come in last production night, but I'm here now (on Valentines day no less, God I'm so depressed). The code is now here along with some explanation.

Bash can do lots of things, but it doesn't do floating point numbers. To fix this I just fudged fixed point numbers with bash's integer support. So the number 100 is treated as a 1, and 5 is treated as a 0.05. This is approximation is good enough for low-res terminal output.

```
inmandelbrot() {
 let "mag = $1 * $1 + $2 * $2"
 if [ $mag -gt "40000" ] || [ $5 -ge $6 ]; then
 echo $5
 else
 let "r = ($1 * $1)/100 - ($2 * $2)/100 + $3"
 let "i = ($1 * $2)/100 * 2 + $4"
 let "cnt = $5 + 1"

 inmandelbrot r i $3 $4 $cnt $6
 fi
 }

 for y in $(seq -20 20);
 do
 for x in $(seq -20 20);
 do
 let "rval = x * 10"
 let "ival = y * 10"
 val=$(inmandelbrot rval ival rval ival 1 10)
 if [ $val -eq 10 ]; then
 echo -n ".";
 else
 echo -n $val;
 fi
 done
 echo
 done
```

Now you'd have to be really bored to copy this out. If you're only sort of bored you can go to `www.mathnews.ca` and copy this code out (hint: use the middle mouse button to paste highlighted text). If you don't want to do that some sample output is displayed below:

```
11111111111111111112111111111111111111111
11111111111111222222222222111111111111111
11111111111122222222222222222211111111111
11111111111222222222222222222221111111111
11111111222222222222222222222221111111111
11111112222222222222222222222222221111111
11111122222222222222222222222222222111111
11112222222233333222222222222222221111111
11112222233674333333392222222222222221111
11112223333465443333347332222222222221111
11122233333468..4334.833322222222222222111
11123333333446664444..333332222222222222111
11233333333344466555...53333322222222222211
11233333333446.......43333222222222222211
12333333334457.........5446222222222221
12333333333456..........4222222222221
13333333334568...........6333222222221
1443333344568.............4333222222221
1444444558.................5333222222221
15.6557....................4333222222221
.......................75433332222222222
15.6557....................4333222222221
1444444558.................5333222222221
1443333344568.............4333222222221
13333333334568...........6333222222221
12333333333456..........4222222222221
12333333334457.........5446222222222221
11233333333446.......43333222222222222211
11233333333344466555...53333322222222222211
11123333333446664444..333332222222222222111
11122233333468..4334.833322222222222222111
11112223333465443333347332222222222221111
11112222233674333333392222222222222221111
11111222222233333222222222222222222211111
11111122222222222222222222222222222111111
11111112222222222222222222222222221111111
11111111222222222222222222222221111111111
11111111122222222222222222222211111111111
11111111112222222222222222221111111111111
11111111111112222222222222211111111111111
11111111111111222222222222111111111111111
11111111111111111112111111111111111111111
```

JimmyTheLeper
You're only as clean as your towel.

Enterprise Cancelled

Say it ain't so!

I recently had a discussion with a roommate of mine in which he told me: "You know Enterprise is cancelled, right?" to which I promptly responded: "That can't be right!". Lo and behold, less than 10 minutes later, I find a press release on `www.startrek.com` stating exactly what my roommate told me: Enterprise is canned at the end of this season.

Does this bother you? Well, I can tell you that it sure as hell bothered me — enough that I spent the next hour or so finding out what people can do about it. If you're interested in helping the worthy cause of saving the only currently airing Star Trek series (and preventing the first entire Star Trek-free TV season since 1986-1987), send a *POLITE* letter to `saveenterprise@interpage.net?Subject=Enterprise` (that's saveenterprise@interpage.net with the subject being "Enterprise" (sans quotation marks)). This email will reach 11 executives that, with some degree of luck, will allow Enterprise to air for a 5th season. Remember, it worked in 1967-1968 when Star Trek was almost cancelled!

Mark "Beatlemaniac"

mathNEWS BYOB #3

Break Your Own Brain - Hit the mental Trifecta

So last issue I hinted that here we'd be playing with Greco-Latin Squares, and then I totally neglected to do it. Well, have no fear, I'll provide them for you this week! Here are the answers from last issue:

Hicks Insanity

1.	439 + 587 = 1026	25.	423 + 675 = 1098
2.	489 + 537 = 1026	26.	475 + 623 = 1098
3.	539 + 487 = 1026	27.	625 + 473 = 1098
4.	589 + 437 = 1026	28.	673 + 425 = 1098
5.	286 + 749 = 1035	29.	742 + 356 = 1098
6.	289 + 746 = 1035	30.	746 + 352 = 1098
7.	786 + 249 = 1035	31.	752 + 346 = 1098
8.	789 + 246 = 1035	32.	756 + 342 = 1098
9.	264 + 789 = 1053	33.	847 + 359 = 1206
10.	764 + 289 = 1053	34.	849 + 357 = 1206
11.	769 + 284 = 1053	35.	857 + 349 = 1206
12.	784 + 269 = 1053	36.	859 + 347 = 1206
13.	483 + 579 = 1062	37.	476 + 829 = 1305
14.	573 + 489 = 1062	38.	479 + 826 = 1305
15.	583 + 479 = 1062	39.	876 + 429 = 1305
16.	589 + 473 = 1062	40.	879 + 426 = 1305
17.	324 + 765 = 1089	41.	674 + 829 = 1503
18.	325 + 764 = 1089	42.	679 + 824 = 1503
19.	364 + 725 = 1089	43.	874 + 629 = 1503
20.	432 + 657 = 1089	44.	879 + 624 = 1503
21.	452 + 637 = 1089	45.	743 + 859 = 1602
22.	632 + 457 = 1089	46.	759 + 843 = 1602
23.	652 + 437 = 1089	47.	849 + 753 = 1602
24.	724 + 365 = 1089	48.	853 + 749 = 1602

Phun with Fuzzics (It's like Physics, but better)

1. The water level will go down. When in the canoe the iron displaces water equal to its weight. When in the water it displaces according to its volume. Iron is denser than water, hence the iron actually displaces less water when submerged.
2. The evil clown has no affect, it's essentially a closed system since the air and pigeons are both within the van, the fact that the pigeons are no longer sitting on the perches is offset by the air being pushed down to keep them hovering.
3. The balloons actually move forward (in the same direction as the acceleration)! This occurs since air is denser then helium and tries to get to the back of the bus (much as we all did in elementary school, apparently I'm denser then helium too)

Word Play / Play Word

1.	Timepiece / Peace Time	6.	Basic / Sick Bay
2.	Super / Pursue	7.	Welfare / Fare Well
3.	Believe / Leave be	8.	Zero / Rosy
4.	Kilo / Low-key	9.	Germane / Manger
5.	Intern / Turn In	10.	Settee / Tea Set

Just two submissions this week, which hurts, on the inside, in the bad place. Then I remember the nine from BYOB Jr. and decide to count my submissions this week as 11, thus maintaining BYOB's title as King of Domination (due to all the submitting). No submission from Adam Weatherhead worries me, since I've come to expect his constant submitting to only one of the problems, I hope he's ok. On to those who did submit (and thus, are better then those who didn't) Adam Hill made a valiant effort, only having a couple minor errors, but Yi Wei Lin takes the prize with a perfect submission. Come on down to MC3038 (Mathie Pink Magic Central) to pick up your C&D gift certificate.

Since we often have ties (and I don't mean ones out on Stanford's lawn) we need a tiebreaker. So: submit a riddle/puzzle/brain teaser along with full solution, and in the event of a tie, our favourite will win. This has the added benefit that we might use your puzzle, which means you'll be a real published author (appearing in the National Archives of Canada and everything). And the added added benefit of saving MY brain a little. So don't forget those tiebreakers!

Answers must be in by 6pm on February 28th, so be sure to submit or I might cause an extra day to appear in February (I won't, but I could, really, they bestow that power when you've been writing for *math*NEWS for a number of terms that require two digits to represent). Drop off those answers at the BLACK BOX, between the C&D and Comfy, or email us at *math*NEWS@student.math.uwaterloo.ca, or play the ever fun game of Find the Snuggles to submit in person (bottoms optional). If you don't submit, maybe I'll have to bring out the handcuffs and pink pig slippers!

Scientists with Ketchup

There are three scientists and three cannibals on one side of a river. There is a single boat that can only hold two people at a time (and cannot travel without at least one person in it). The object is to get everyone to the opposite side of the river without anyone getting eaten. If at any point there are more cannibals then scientists on either side of the river (with at least one scientist there) then the cannibals can overpower them and chow down. Use the minimum number of trips to get everyone across (and if you're thinking of being sneaky, the river is piranha infested, no swimming, jumping, trees etc).

Greco-Latin Squares

An NxN Greco-Latin Square has two sets of N elements (traditionally represented by the letters of the Latin and Greek alphabets, thus the name). Similar to Latin Squares (aka the BYOB Jr.) you can only have one of any element in each row, or column, and there is the added limitation that you may only have a pair occur once (so all N squared elements occur exactly once) . Euler found that there are no possible examples for 2 or 6, and theorized that there were none for 2+4n. He was very wrong, it's just hard to check, which is unfortunate because there are all sorts of lovely applications in statistics and combinatorics with Graeco-Latin squares. Here is a 3x3 example using capital and lowercase letters:

Aa Bb Cc
Bc Ca Ab
Cb Ac Ba

Eat Carbs
They're GOOD for you

Many people in the world are on the Atkins diet, and are making themselves thin by severely limiting their carbohydrate intake in an effort to better control their blood-glucose levels. They are all stupid. With three O's.

I hate how everything is becoming "Atkins approved!" and "Low carb!", as if carbs were the devil. Well, guess what: carbs are good for you. They are wonderful structures of hydrogen, carbon and oxygen that provide your body with energy. And energy, if we are to believe all our physicists and biologists, is good.

"But I'm losing weight!" they will decree. Good for them. I much prefer, say, exercising. That way, once I eat again, I won't gain it all back. Unlike what Atkins would have you believe, you can't merely diet and lose weight.

Let me put this in no uncertain terms: you cannot lose weight simply by eating differently. You also have to get in better shape, fat ass. Sad but true. If you work out and get some muscle, your metabolism will speed up ever so slighly. Then, you offset that by not eating more. Eventually you will break even and, shock and amazement! You'll start losing weight. Not only that, but instead of looking anemic, you'll be buff and sexy, or curvy and sexy, depending on your preference.

Not only will you be safely losing weight, but you'll also be able to enjoy all the foods you like. For example, the non-atkins weightloser can enjoy such foods as pasta, fruit, bread, fruit juice, vegetables, fruit snacks, and sugar. The Atkins weightloser has to eat lumps of fat. And lumps of protein. Any diet plan that lets you eat all the bacon and cheese you want doesn't seem safe by any means, especially when they're telling you not to eat fruits and vegetables.

Now, I'm not opposed to other people doing stooopid things that ultimately do more harm than good, but when it impacts my eating, I draw the line. Say, when the person in front of you in line at Subway orders some Atkins-approved crap, er, wrap, and you have to wait another minute before the "sandwich artist", beleaguered by the unusual request, needs to look up the process. At that point, my urge to cram a potato down that carb-fearing zombie is further exacerbated by the hunger in my stomach. Which can be large, considering my 6'1", 230 lb body burns a lot of food.

SheepNine

(continued from previous page)

More Squares!

This is also known as the "It's 4AM on Tuesday, I'm tired and need to finish BYOB" problem. While there is only one 4x4 Greco-Latin square (there are trivial rotations of course), there are actually two different non-isomorphic 5x5's. Well, I want those too. That's right, more squares, MORE!

That's it folks, enjoy the problems, don't forget to submit, and please, solve responsibly.

King Snuggles

NHL Season (Saved/Cancelled)
Union (free vote saves season/continues to act as a child)

Announced this past Wednesday at the 1:00 PM by NHL Commissioner Gary Betteman, the current NHL season has been (saved/cancelled), due in large part to the NHLPA's (historic free vote/continued ignorance of member wishes). *math*NEWS managed to get in touch with a senior NHLPA member who went on record to say: "(How the hell could we have been so damn far off mark?/Blame Bettemen. He's the one that cancelled the season.)"

(If the season was saved, read this paragraph)

With the "miracle" deal, the NHL will undergo the shortest season in history and will continue its tradition of handing out Lord Stanley's Cup. As previously suspected, each team will play a Home-and-Home series with each team within their conference in order to determine Stanley Cup Playoff rankings. Albeit shortened, league and players are very happy to not go down in history as the first major sports league to not cancel an entire season due to contract impasses. A senior NHL spokesman made the following comment shortly after Betteman's announcement of a saved season: "My god. I'm glad the players agreed to this deal. Sure, it's not quite what we wanted, but hey, that's negotiating for you, and they're still making exorbitant amounts of money just to play a game."

(If it wasn't, read this one)

To the surprise of few, the NHLPA continued its "hardline" approach to negotiating with the NHL (wherein it dictates terms and rejects anything that is not exactly what it told the league it wanted). The unprecedented cancellation of the entire season left critics fuming that a deal was there for the making, if only the players knew the meaning of the word "negotiate". There is widespread belief that the lockout, to this point alone, had done irreparable harm to the US fan base. It is widely believed that when a new collective bargaining agreement is reached, there will be 4-5 fewer teams in the US (before the agreement expires). Some critics say that this is necessary, as the US rates "sporting events" such as spelling bees above NHL hockey, and the league has been unable to generate TV contracts that bring in significant revenues South of the border.
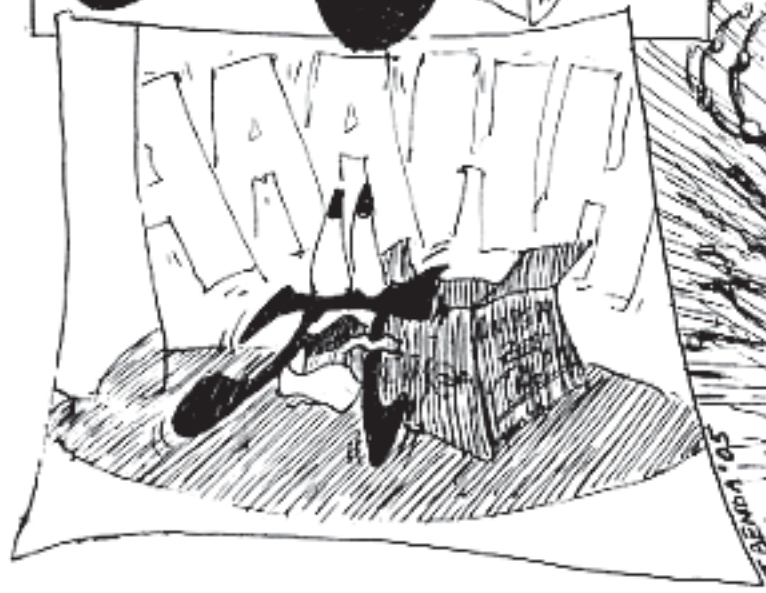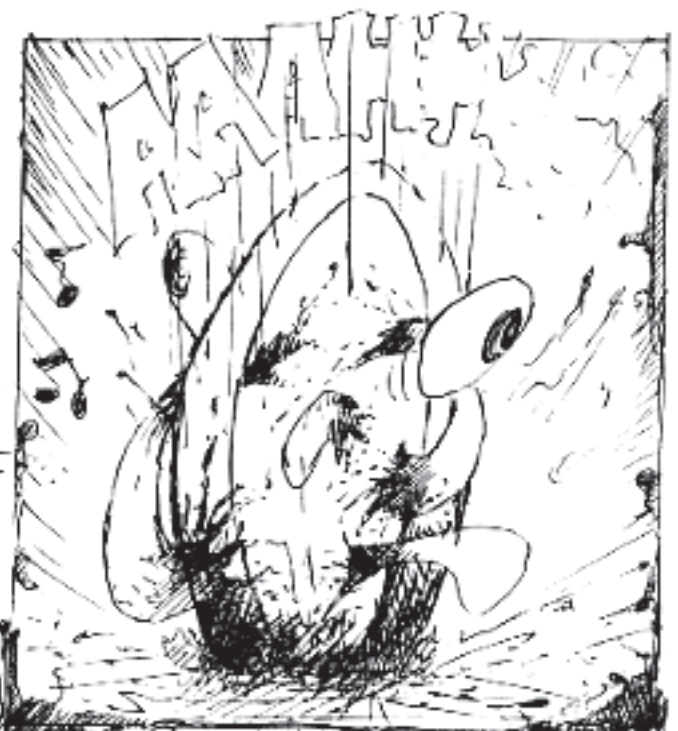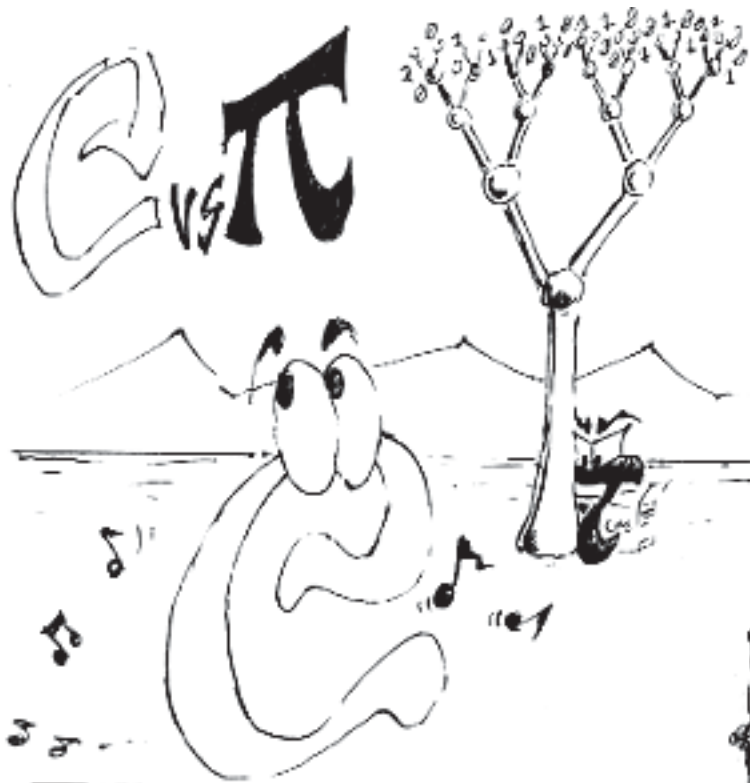
(Regardless of what happened)

Being early Tuesday morning now, I'm really hoping a deal gets done that saves the season (or at least a semblance of one), but I'm not optimistic. Whatever happens, let this be a lesson to all other sports out there: SOLVE CBA AGREEMENTS EARLY. IF YOU HAVE ISSUES, **COMMUNICATE** THEM TO APPROPRIATE PARTIES AHEAD OF TIME.

Mark "Beatlemaniac"

Last Chance for the Lost & Found!

This is your last chance! The lost and found in the MathSoc Office (MC 3038)is going to be emptied at the end of the day. If you've lost something, you should go look for it.

Val

Hardware Deathmatch

Part 1: Monitors

The monitor is probably one of the most important pieces of your computer. Sure, it really doesn't do anything, but without a monitor most people aren't going to even consider using a computer. The question remains: just what type of monitor should you use — LCD or CRT? In the interest of educating everyone here, *math*NEWS brings you the "Great Monitor Showdown".

Let's start off by introducing our two contestants. First we have the **C**athode **R**ay **T**ube, the old and reliable display attempting to defend its reign as current leader. Challenging the CRT's tremendous reign is the **L**iquid **C**rystal **D**isplay, the young hotshot who's gaining quite the following.

The contest was broken down into three parts, the swimsuit competition, the highdive, and the no-rules underground cagematch to the death. It began, simply enough, with the two displays showing off their features in their bathing suits. From the very beginning it was obvious that the LCD was going to take the points for this competition as its sleek and thin body seemed to be exactly what the judges were looking for; something that was exactly NOT the huge fat monstrosity of the CRT wearing a speedo that followed it on stage. LCD 1 - CRT 0

Round 2 found itself to be quite different. For the highdive we looked around for a suitably high enough diving spot, yet none could be found. So instead we took a kiddy pool, filled it up, and put it at the base of the MC wall. The 2 contestants were then brought up to the MC roof and "dove" off the top. The LCD, winner of the previous contest, went first; but it was disqualified after it missed the pool, and, in fact, actually hit some random engineer walking by. This was followed by shouts of, "Where's your hard hat now?" and the like. Next was the CRT's chance to dive. Although a win by default, the CRT had a most spectacular dive. When it hit the pool it turned out that the water wasn't quite deep enough, and the CRT shattered into hundreds of pieces. This sent the water into some amazing movements as it was first sucked into the vacuum left by the monitor, and then sent flying outwards with all the monitor pieces. It was truly the most amazing high dive performed by a Cathode Ray Tube, ever. LCD 1 - CRT 1

With both our monitors destroyed we found ourselves needing to find a couple more for the final event. The CRT was simple enough, as they're dirt cheap now, but the LCDs 7mdash; they're not. One more quick trip the the 3rd floor computer labs brought us a 2nd (and even 3rd and 4th and more) LCD for our comparison *[Remember kids - stealing UNIX lab monitors is wrong and not endorsed by* math*NEWS — SheepNinEd]*. Now was time for the main event, the one that made both previous matches obsolete. It was time for the cage match. The thin LCD was able to dodge many of the CRT's attacks, but dodging alone wasn't going to tire out the CRT. The LCD, finally going for the offensive, was caught off guard by the CRT and was hit hard in the screen causing more than a few dead pixels. The LCD wasn't going to let that get it down, and it came in for a quick attack against the CRT, making the CRT's screen go all magenta. The CRT, pissed off with having its colour go all off, decided to unleash its deadly electromagnetic radiation attack, bombarding the LCD with radiation. The LCD, barely affected by this, decided to go for the final attack and charged straight at the glass screen of the CRT. The glass shattered upon impact, but the shards managed to cut up the LCD pretty bad, causing some serious loss of internal fluids. Neither monitor was in working order after this. Final Score LCD 1.5 - CRT 1.5

In conclusion, wrecking monitors is fun. As for our original purpose… we forgot about why we were doing this in the first place, and, in fact, just learned a few other important lessons: do not look at CRTs in speedos, and dropping CRTs off the top of the MC is cool. Anyway, see you next time where we pit ATI vs NVIDIA in a 3 part cook off, 1 on 1 basketball game and caged deathmatch.

DanS

*prof*QUOTES

"I'm old, fat and lazy."

Laidlaw, MATH 138

"The applications we show you in this class are useless."

Forrest, MATH 148

"I ask my kids what's the cool to use nowadays. And they tell me, 'Dad, if you need to ask, you're not going to sound cool using them.'"

Cowan, SE 382

"The only people who think complex problems can be solved with simple solutions are politicians."

Buhr, CS 343

"Writing concurrent programs is hard. (forms fists and makes a face) Hard! Hard! Hard! Dirty! Dirty! Hard!"

Buhr, CS 343

"I forgot my balls at home."

West

"Most mathematics professors are cripplingly unimaginative."

Goulden, MATH 239

"Now, uh, please consider this as magic… and correct… and use it!"

Goulden, MATH 239

[After correcting something on the board] "That's an 8:30 error."

Malton, CS 246

[After showing a complicated proof] "Any questions? Except 'naaagh' which isn't actually a question unless you inflect it properly."

Lacroix, MATH 239

Hockey

So, as you're reading this, it has probably been officially stated that this year's NHL season has been cancelled. If you are a hockey fan, now that any hope you had left of seeing hockey this season has been crushed more than a styrofoam cup 5km under the ocean, you may need something to do in regards to this depressing news. So, if you still haven't done anything to get your hockey fix this year (or if what you've already done hasn't been enough) I will now present you with a list of things to do to make up for your lost hockey.

1. Follow the players — move to Europe.
2. Write an angry letter to the NHL explaining to them that if this thing is entirely about money, they stand to make much more money with games being played than without.
3. Try some hockey video games; they're getting more and more realistic every year. In fact, EA's NHL 2005 has European leagues beat for realism.
4. If you're a Leafs fan you could just pretend that the season was happening anyway, as they're just as likely to win (don't get me wrong, I *am* a Leafs fan, but you know it's the truth).
5. You could always just go play some hockey, but that would actually require doing stuff, and we all know how much you hate doing stuff.
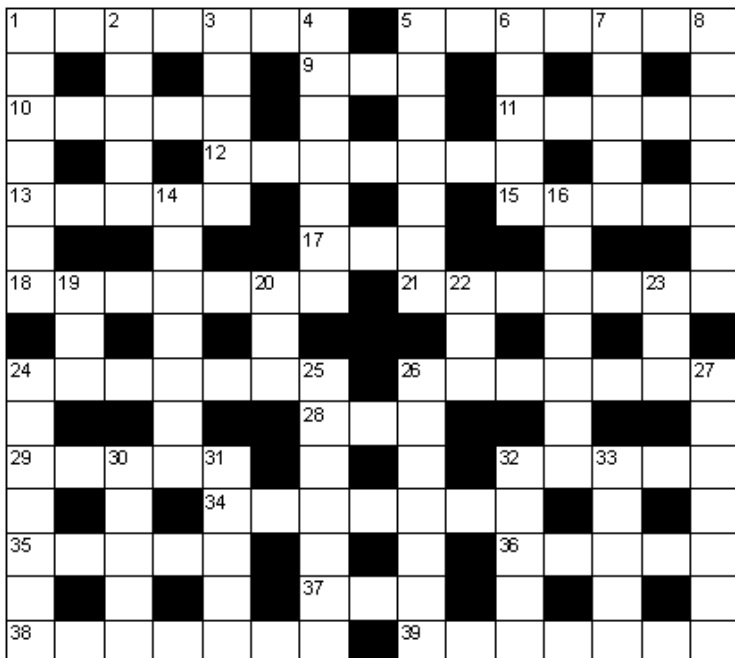
DanS

*grid*COMMENTS

All-consuming loneliness

Nobody loves me! Nobody wants my prizes… nobody is doing me. Why does nobody love me? The all-consuming loneliness is eating away at my very soul! Look at what happens… I get easier! *sobs* – grid*WORD*

Now look what's happened! The grid's feeling lonely with no submissions. And those $5 gift certificates to the C&D? They're sitting in the office… unused. They want to be used, people! So, submit! Submit to the power of the *grid*WORD!

For those interested in submitting, please send solutions to jkleinge@uwaterloo.ca or submit hard copy solutions to the BLACK BOX by the next production night (one week from Monday)… and win!

In the unlikely case of a tie breaker, please send answers to the *grid*QUESTION: *If you were the* grid*WORD, what would you do?*

ConMaster

*grid*WORD

ACROSS

1. has an ear for tunes
5. pins and needles
9. Pierre's friend
10. apparition
11. chose
12. foes
13. more adorable
15. run away to marry
17. assistants to courses
18. rubs in shampoo
21. violent windstorm
24. soft, fruity candies
26. post-mortem analysis
28. kept out of sight
29. enumerate
32. vocal
34. physically violent and hurtful
35. cars
36. monastery leader
37. anger
38. conspicuous or prominent
39. void or annul

DOWN

1. enchanting or bewitching
2. vertically challenged
3. provide food or entertainment
4. grieves or mourns
5. cleanest
6. hangman's tool
7. game of chance
8. most depressed
14. level in a hierarchy
16. Hansen's disease
19. mimic
20. fish eggs
22. flightless bird
23. help (abbr.)
24. cousins of the dog or wolf
25. turn the other cheek: _____ ___ off
26. one who holds in high regard
27. sailed or cruised
30. up to the time of
31. distinguish by flavour
32. drips from a tap
33. Jewish leader