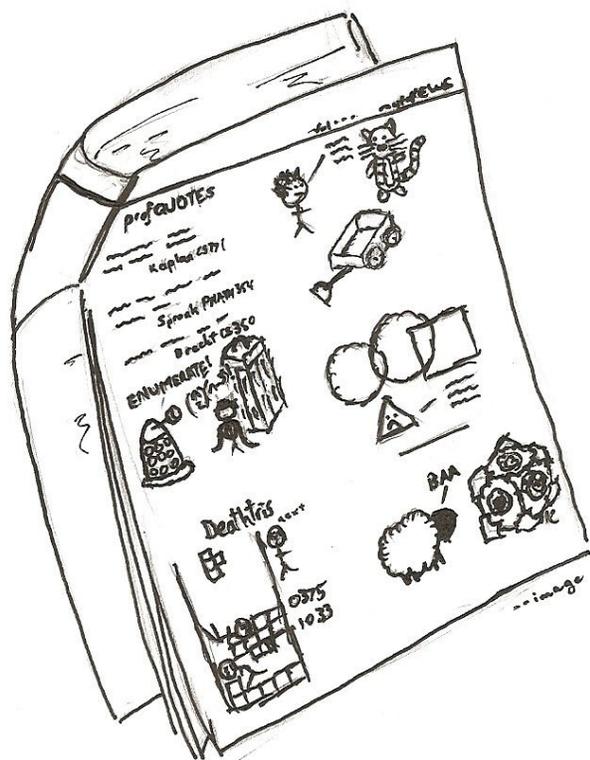


math NEWS

Volume 112, Issue 6

Friday, March 26th, 2010

BAD IDEA:



Filling mathNEWS with bad comics.

WORSE IDEA:



Filling comics with bad mathNEWS.



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lookAHEAD**mathNEWS**

March 26th Issue #6 disturbs young children

MathSoc

Wednesdays Games Night

Thursdays Movie Night

Math Faculty

April 5 Monday that feels like a Friday

April 8 ELPE

April 9-23 Exams

April 24 Fees due (Spring students)

Ongoing Math Orientation Leader Applications

CECS

Ongoing More interviews

Miscellaneous

March 27 Earth Hour (8:30-9:30pm)

April 1 April Fool's Day

April 2 Good Friday

April 7 World Health Day

CRO Sez*we can haz ratification?*

Hi folks! It's me again, your trusty neighbourhood MathSoc Chief Returning Officer, here to announce that we now have a president for the Fall 2010 term. Nominations closed March 12, 2010, and at the end of the All-Candidates Meeting but one valid nomination remained; that of Nadia Novikova. As such, I would like to congratulate the candidate; she has been acclaimed to the position of MathSoc President for the upcoming Fall 2010 school term. Also, I would like to thank all who submitted nomination forms and/or who took part in any way.

The next round of nominations (for 2011 positions) will be taking place at the end of the Spring term, as well as during the Fall 2010 term. Stay tuned!

Bryanne Pashley
MathSoc CRO

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The editor(s): The Father, The Son, and The Flying Spaghettii Monster: John Stevenson, John Baxter, Rami Finkelshtein

&mH ;

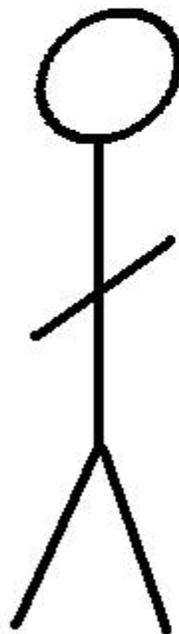
Howdy concerned readers!

Summer is nearly upon us, or at least the Spring academic term for those lucky enough to enjoy it, and we, faithful &mH; editors are restless preparing to pay the remaining invoices to graphics and get one last issue out before surrendering our keys to the mystical land of MC 3046. (For those of you who do not know, that is our office.)

In the spirit of end of term, I attempted to draw a comic.

Ain't it great!

Well, in the spirit of the impending season, I ask the entirely horror movie unreal question of "What did you do last summer anyway?"



ImpulsED
"Apparently not watching horror movies"

UW Police, Residences Confirm Armed Robbery

Students robbed at gunpoint in Beck Hall apartment

UW Police and officials from UW Residences confirmed that an armed robbery took place last Thursday in Beck Hall, one of the towers at UW Place.

At around 3am on March 18th, the suspect was able to enter the building, then made his way into one of the apartments using an unlocked door. Two residents were home at the time, but neither were injured.

The suspect is described as a black male, 5'8" tall with a heavy build. He was wearing a green plaid jacket at the time of the robbery.

UW Residences sent a memo to all of its residents reminding them not to let anybody they do not know into the building, either by holding the door open or buzzing them in, as well as to keep their room doors locked.

As of press time, no arrests have been made in the case. Police are asking anyone with information to contact UW Police (519-888-4911 or x22222), Waterloo Regional Police (519-653-7700), or Crime Stoppers (1-800-222-8477).

News from Off Campus

This is my final installment for this term, but we will be back next term with fun and funky off-campus news stories. If you see any you like, send me a tweet @mN_InsideR.

New Hard Drive Format to Affect Windows XP Users

Manufacturers have committed to adopting a new standard format for hard disks, starting January 2011, that is designed to improve the efficiency of said disks. The new format is designed to store up to 10% more data, use less power, and become more reliable.

However, users of Windows XP will have difficulty using the new format. Since the new format was not decided upon until after XP's release, it will likely not work properly on the 9-year-old operating system.

The major change relates to the size of a block on a hard disk. Presently, a single block is 512 bytes long, part of which must be used for marking and correction data. It was designed primarily for 1.44 MiB floppy disks, but has been adopted in hard drives for the past 30 years.

The new format involves increasing this block size to 4 kiB. This results in eight times fewer blocks, and hence up to eight times less wasted space. Manufacturers plan to double the amount of error-correcting space, though, to make drives more reliable.

Some of the new drives can reportedly be set up to pretend that they follow the old format, allowing them to work on Windows XP albeit with degraded performance. Windows Vista/7, Mac OSX Tiger/Leopard/Snow Leopard, and a number of Linux distributions are aware of the 4K format.

Prime Minister Participates in YouTube Interview

Prime Minister Stephen Harper participated in a unique opportunity to talk to Canadians live on the Internet, as he invited

citizens to ask questions on YouTube.

The interview, which started an hour late due to technical difficulties, was moderated by Google's CFO Patrick Pichette. Google selected a few from the 1800 text and video questions that were received based on 175,000 votes from the public.

Mr. Harper started with justifying Canada's economic forecasts and budget, as well as tackling our aid commitments to Africa. He also talked about Senate reform, Afghan detainees, and the controversial seal hunt, among other issues. The most popular question, according to Mr. Pichette, involved the legalization of marijuana. The user claimed that most Canadians want cannabis to be legal and taxed similar to alcohol, but Mr. Harper said that's not going to happen because of connections with drug cartels.

As of Saturday, the interview had received over 117,000 hits on YouTube, and received an average rating of 2.9 out of 5 stars.

Scientists Invent Invisibility Cloak

Scientists in Germany have developed a device that can render an object invisible in three dimensions.

The "cloak", as it's being referred to in the journal *Science*, uses photonic metamaterials designed to influence the behaviour of light rays. It is primarily designed to hide a bump that forms when an object is placed under a carpet, but scientists say it is a big step towards full invisibility cloaks.

The bump being hidden was about 1 micrometre high, and was being viewed under a microscope. However, Dr. Tolga Elgin, lead researcher in this study, says that in theory, there can be no limits to the size of what you can hide.

This is the first time that an object has been rendered invisible in three dimensions, though it will likely take many years for it to become practical for use.

InsideR

with files from BBC News and CTV News

Actuarial Science Student is Ontario's Top Co-op Student

One of Waterloo's brightest Mathematics students was honoured with the top provincial Co-op Student of the Year Award.

Siaw Yun Poi, a third-year actuarial science student, is the recipient of the Faculty of Mathematics Co-op Student of the Year Award. The ceremony honouring her and five other talented students took place during National Co-op Week this past Wednesday in the Tatham Centre. The award recognizes her achievements at Sun Life Financial, where she earned a reputation for original time-saving ideas for managing investments.

As well, Poi received a student-of-the-year award from Education at Work Ontario, an organization that advances co-op education and involves co-op educators working with more than 40,000 co-op students at 37 colleges and universities in the province.

As an actuarial assistant for Sun Life Financial, Poi left a strong impression on her employers and the company as a whole. She worked with an investments portfolio management team on multiple projects that involved processing cash flows of private deals. Noticing it typically took over an hour to process just one deal, Poi developed a robust, new framework that shortened the turnaround time to five minutes. In addition, the tool eliminated the many common errors of previous models. She went on to help create more time-saving frameworks, including one for Sun Life Financial's United Kingdom portfolio. Her ideas were described as "sophisticated and original to the industry." Poi was chosen

to represent the University of Waterloo for both provincial and national co-op student-of-the-year awards. In addition to getting the EWO award, Poi received an honourable mention from the Canadian Association for Co-operative Education.

One student from each of the Faculties of Applied Health Sciences, Arts, Engineering, Environment, and Science will also be honoured at the ceremony. National Co-operative Education Week, March 22 to 26, celebrates the steady growth and value of co-op education programs across the country.

Matthew Mendonca
CECS Media Associate

IOY NOMINATIONS ARE OPEN

Do you have an awesome professor ?

Does she/he deserve to be recognized?

Nominate your prof for the "INSTRUCTOR OF THE YEAR" Award.

It's simple. Pick up a form outside the MathSoc Office and submit it to the VPA mailbox by **April 02, 2010 !!**

E-mail any questions to vpa@mathsoc.uwaterloo.ca Remember, the deadline is : **APRIL 02, 2010**, so get your nominations in ASAP!

Interview Post Mortem

Why I Have Full Time Job Offers from Amazon, Google, and Microsoft

It stands to reason that I've figured out a thing or two about how to interview in my scant five years in CS co-op. I went to the sanctum sanctorum of Facebook, Google, Microsoft, and Amazon to interview. I came back bearing offers from three! Someone asked me how I did it and so I wrote it down. The following is what I wrote.

In an interview, you are the sum of your past experience and education. With some reasonable exceptions (like if you are visibly coming down with a cold or something), the interviewer can only assume that you are presenting yourself in the best possible way that you can. They don't expect every candidate to be super awesome, but they can only judge you based on what you show them. Ideally, you need to show them you are a good person to work with, that will not be a detriment.

An hour of preparation right before an interview does not suffice. Do you study only in the hour prior to an exam in your classes? Heck no! That's a sure fire way to a poor grade.

I started preparations for my barrage of interviews a week prior to my first screenings and kept refreshing myself on any basic CS concept or language feature that I could. Know all the various data structures (arrays, lists, heaps, hash-maps, trees, and more) and basic algorithms on them or that use them (searching, sorting, many more complicated ones come down to these very concepts). Understand concepts of Concurrency (threads, locking, deadlocks, scheduling, etc) since with the advent of multiple cores, understanding multi threading is more important than ever. Know how to implement them. Know how fast (by Big O notation) each are, and know when you would use each appropriately. Understand how to test things, with positive cases, negative cases, different testing concepts and why things are done that way.

Be confident but never arrogant in your knowledge. Demonstrate, clearly, that you understand what you are doing.

Treat interviews as finals, because when you are looking for a full time job, that's exactly what they are. You don't need to be an expert on everything, but you need to show that you understand why.

If they ask something that's very very specific that didn't seem like it was in the job description, call them on it. Don't try and waffle through something you know nothing about, and have no idea where to begin. There's no shame in asking for a place to start or clarification of a problem. You can always ask for help/search google at a real job, so they check to see if you have the common sense to ask! There's a limit to how much you can ask of course. Too many questions displays ignorance rather than wisdom.

The overall best way to do well in an interview is to genuinely know the material, and understand their implications. You can't expect to do well in interviews merely because you do well in classes. You have to work for each and every one (I did at least).

For most higher end jobs, you can pick whatever language you want to write your code. I personally do things in Java, not because it's my favourite language, but because with that I can display knowledge of code re-use (by using library functions and data structures), and higher level concepts such as generics. C++ with the standard library would work just as well. If the job requires Ruby on Rails, re-read the basics and features, and be able to explain how they work. If it explicitly asks that you know

Python, be able to do all of the above in Python. And so on. The same goes for any specific technology. You don't need to know everything in the job description, but you should know at least everything that you have put on your resume!

Never use pseudo code. Unless it's a pure theoretical job, interviewers want code that at least looks like it would run. That said, you can usually skip formal class declarations, instead just using a few notes on methods and instance variables a class has. After all, you only have 30-60 minutes to answer questions. You can generally abbreviate things like Java's print statement (`System.out.println`) to just the method call (`println`). You also don't need to be a master of the libraries of the language. It doesn't matter if your Map class uses `add(key,value)` or `put(key,value)`, the point is you know they have it, and how to use it.

Interviewers are not mind readers. Unless you tell them something, they cannot assume that you know it. They are people too, after all. Tell them any shorthand you're using from the previous paragraph.

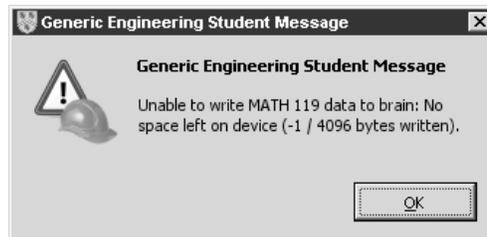
When you are working on a problem, talk about it. You can pause to think or write things down, but explain what you plan to do, why you're doing it that way, and why you're making these little changes. If you can't explain the solution or how it works, then it may seem that you've seen the solution before and are just copying it down from memory. Showing your work, or at least explaining it, is paramount. Come up with multiple solutions! If you do this before writing down any code, pick one early on, and implement it. You can optimize later, or explain why another solution is better afterwards. You don't need to come up with the best solution right away. It's a good rule to start with the most naive way, and then walk your way to something with a better run time.

Be aware of and look for edge cases. The interviewer will point out errors in your code, (and there will be errors in your code), thank them, and fix the problem. If they didn't identify the problem, explain why.

Explain things in a way that is as simple as possible, while not being ambiguous. I recommend being able to explain just about any CS concept as if you were speaking to a child. Anyone can quote text books. The truly capable have internal models of how the concepts work and can distill most of them to very simple terms or analogies.

Your technical background matters only as much as you have learned from it, and that having it on your resume got you the interview. After that it's all you.

Most importantly, relax. Interviewers understand it's stressful to interview, they aren't out to get you, but they need to know how you work technically. Would you want to work around something who is nervous and twitchy all the time? Be the person you want to work with! It turns out we all want to work with the same kind of people. How you do that is entirely up to you.



U-Pass Program May Lead to Income Tax Fraud

Currently no vetting process for FedS income tax receipts

The Federation of Students has placed empty receipts for the Universal Bus Pass system on its website, which have been pre-signed by President Allan Babor and VP Admin/Finance Chris Neal. This allows virtually anyone to use the receipts to get a rebate on their federal income tax.

The federal government introduced a program in 2006 that gives taxpayers a tax incentive for purchasing transit passes, allowing them to claim a percentage of the cost on their annual tax returns. The U-Pass, which costs students \$49.75 per term this academic year, is covered under this program.

Because the Federation of Students accepts the payment for the U-Pass, they are responsible for issuing tax receipts to students who are asked for documentation from the government. All students have to do is download the receipt from the FedS website, fill in their information, and attach a copy of their Watcard. However, there is currently no vetting process on the issuance of these receipts, and so students could fill one out for terms where they didn't pay fees (such as a co-op term), and students who have recently left the school whose Watcards have yet to expire could theoretically fill one out as well.

We attempted to contact Mr. Babor and Mr. Neal on this issue, but they did not respond as of the press deadline. (Because we couldn't give them a lot of time to respond, I will post their responses to my Twitter page if they respond before publication.)

InsideR

mathNEWS News Editor

Twitter: @mN_InsideR

Soft Skills Assessment for Engineers

Which also has another name that shall not be uttered

So I've been hanging out with some of my friends in engineering, and I'm beginning to hear about this "course" called Soft Skills Assessment for Engineers (SSAE). In fact, as I'm writing this at the *mathNEWS* production night, some of the softies are discussing SSAE. This came up when a first-year was complaining about PD1, to which a first-year softie pulled out his one-inch thick, hard-copy of the collated SSAE Course Outline and Guide, and gave it to the complainer. (Why he decided to kill trees, I have no idea. Silly softie.)

I've also learned that in an assignment on workplace hazards, one of the upper-year softies wrote about how using GPL'd code was a legitimate workplace hazard. Hmm... maybe I should be careful next time... don't want a velociraptor to attack me.

Anyway, I'm rambling. The point of this article was to outline the second SSAE assignment, since it's due tonight. Oh wait, don't the engineers take this course during their work term? I've also been told that if a student doesn't submit this assignment, they will fail the course. Before it has even begun.

So... for this assignment, my friends have to write three paragraphs. One about a skill that is a strength (and justification for it), a skill that is a weakness (and the corresponding justification), and two strategies for improving that weakness. Doesn't sound too bad... except that the skills must be from a list.

Here are some of the skills I have obtained from the list, and some problems I see with them:

A Cautionary Tale

So you're with a few friends when one of them has the brilliant idea of climbing a tree. It's a beautiful day, the sun is shining, your assignments are done: why the hell not?

Don't get me wrong, I applaud the initiative. What I do question, however, is your plan to get down. Options include, but are not limited to: having people hold out a tarp below like firemen (bonus points for real firemen), using that handy dandy highly compact ladder you keep hidden in your back pocket for these occasions, taming a toruk, or gymnastic-ing your way down. Some may complain that these methods are too complex or require advanced planning. To you, I scoff and retort that I "don't really see your point". So let's pretend I'm an understanding human being (one or more of those descriptives may be a stretch) and that I respond with "I understand your plea completely".

Unfortunately, you're left with making that tree your home, or jumping from your current unfortunate position. Depending on where this tree is located, there may not be adequate wireless and the latter of these options is sounding more and more reasonable. So if you do jump, please follow this sage advice: look before you leap. Perhaps you have heard this saying before, perhaps you have not. More important than the looking is the deciding **not** to leap. As a last resort, I suppose you could jump. Keep in mind this may leave you writhing in pain in the fetal position on the cold asphalt parking lot outside PAS waiting for an ambulance. But what do I know, you could be just fine. You'll never know until you try, so by all means, don't.

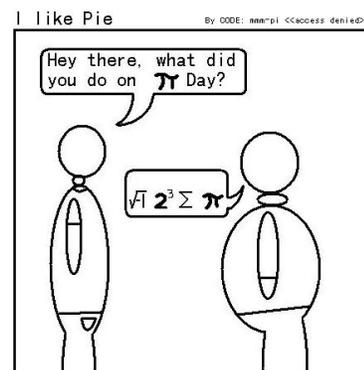
waiting in the wings with 9-1 - dialed
prime8

- Initiative. I've heard that very few students have the initiative for SSAE.
- Setting goals. Unfortunately, improving this skill would itself involve setting goals.
- Quality of work. Like the quality of SSAE submissions?
- Creativity. SSAE is supposed to be fairly inspiring for this. Oh wait, I'm mistaking that for something else...
- Handling conflict. They say that practice makes perfect, so should you go and intentionally start conflicts to practice handling them?

Well, I'm glad that I don't have to take SSAE.

!BoB

Disclaimer: I may or may not be one of the aforementioned "friends."

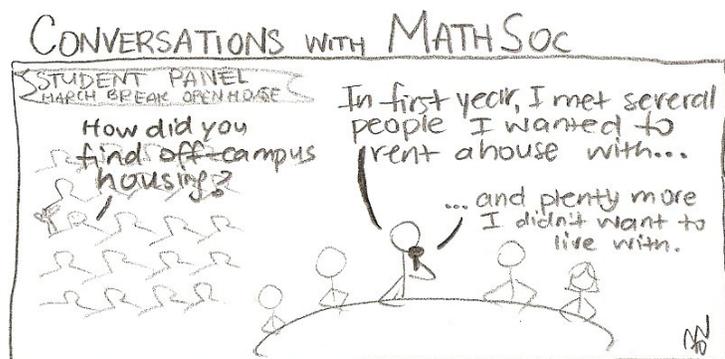


The untold perils of global warming

So you may have heard some people whining about how global warming will kill all the bunnies or whatever, but this is not why it's truly evil. Dead bunnies can go well on pizza. However, global warming has several hidden downsides, which I will list here:

- Higher housing expenses. With fewer students electing to spend their winter term in igloos to cut down on housing expenses, we will have more people occupying non-water-based shelters. This will increase demand, and drive housing prices up.
- Zombie hordes: As global temperatures rise, there will be longer breeding seasons for insects. This has potential to be a way of spreading blood infected with the zombie virus. When swarms of zombie mosquitoes attack, even low population density areas won't be safe and easily defensible.
- Ninja attacks: As sea levels rise and swampy areas become more prevalent, the world will turn to rice farming as a major food source, as potatoes would float to the surface. This attracts ninjas, who enjoy rice and cultural stereotypes.
- Pirates: Ok, so this isn't necessarily a downside, but there will be more. Again, rising sea levels will create a larger habitat for them. This may lead to increased candy distribution to small children, and from there to an obesity epidemic in seaside areas.
- Mutants: As the natural ranges of plants and animals move further towards the poles, the animals will converge into a singularity. Seriously, you don't want to meet whatever will occur when polar bears and oak trees combine with giraffes and rattlesnakes.
- Economic collapse: As temperatures get higher, fewer people will buy winter clothing. As a result, the mitten industry will grind to a halt, followed by the fluffy hat industry. This will strike a huge blow to the Olympic committee's advertising department, which in turn will cause major apathy, and the tourist industry will decline rapidly. This will send the global economy into collapse, which will put the accountants out of business. Seriously, you don't want unemployed accountants.
- Penguin deficiencies: Seriously, penguins rock, but they live in cold places. Think of Tux!

!case



An open letter to static type systems

In which I come down in favor of type coercion

Dear statically typed programming languages:

Seriously guys. I want you to coerce my integers to floating point numbers. Mathematics had this shit figured out like two hundred years ago. An integer is-a real number. Integers are a subset of floating point numbers. This is not complicated! All operations that work on floating point numbers should *automatically* also work on integers.

The problem here is that sometimes I want to use the type system to add additional constraints to my program, instead of simply employing it in a descriptive manner. For example, suppose I have a Haskell function that calculates the number of bits it would take to represent an integer in binary:

```
numBits n = floor (1 + logBase 2 n)
```

Pretty reasonable, right? Just an application of a well-known formula. But wait! This function only makes sense if n is an integer. It doesn't work for computing the number of bits for a floating point number. Being good programmers, we should make note of that using the type system!

```
numBits :: (Integral a) => a -> a
numBits n = floor (1 + logBase 2 n)
```

Oops! You just introduced a type error, idiot. **logBase** only works on floating point numbers! Yeah, that's right. Your punishment for trying to enforce this constraint in the type signature is that you need to use the **fromIntegral** function now. This is a great example of the kind of thing I don't want to have to think about when I'm using a static type system.

Thor

International Olympiad in Informatics

Call for Volunteers

The IOI (International Olympiad in Informatics) will be held August 14-21st at the University of Waterloo. About 400 high school students from around the world will be on campus to compete in this computer science competition. We are looking for volunteers to help us out with many different aspects of the week long event. This is an exciting opportunity to meet people from around the world and give a positive impression of UW, Waterloo, Ontario and Canada.

We are looking for volunteers who can communicate clearly and enjoy working with others and meeting people from around the world. Mathematical and/or technical inclination is not a requirement for most of these volunteer positions. Also, the ability to speak another language is an asset, but not a requirement. Public transportation and meals will be provided for IOI volunteers during the week.

Please visit www.ioi2010.org for more information, including the Volunteer Information Sheet and Volunteer Application Form. Volunteer applications are due back to Jen Nissen (jnissen@uwaterloo.ca) by Wednesday, March 31st.

Jen Nissen
IOI Volunteer Coordinator

Why you should care about Scheme: Part Four

Even more text!

In the next part of this now bewilderingly long, rambling, stream-of-consciousness-style journey through the landscape that is functional programming, I'm going to try and come eventually to *why* all of these people who are smarter than me are spending all of this time on matters functional. This will require me to assume that I have any idea. I mean, if they're really way smarter than me, presumably their motivations act at a higher level than that which my primitive brain is able to comprehend. At any rate, the question to ask is: What exactly *are* all of these great ideas that functional languages have, and how are they applicable to engineering? All these questions and more will be answered soon!

The first reason why functional programs are often the right tool for the job is because the function is an incredibly good way of doing encapsulation. In the object-oriented understanding of software, you can invoke a method on a class, and all you need to worry about is the state of that class. That does simplify things a lot, but we can do better. In a functional system, you can have even more fine-grained control over what state your function interacts with. In fact, in a pure function, the *only* state you need to worry about is what you explicitly pass to the function. Narrowing down the amount of state you need to manage goes a long way towards simplifying software. This is interestingly very closely aligned with another trend in modern object-oriented programming - the movement towards dependency injection and inversion-of-control, which are basically (in my increasingly controversial opinion) fancy names for applying functional ideas to object-oriented systems. It turns out that minimizing the amount of system state that any given piece of code can interact with greatly simplifies the task of understanding what a program is doing. At the same time, it's a big win in terms of testability - code with minimal implicit state is very easy to test, making it far less error-prone. The problem with the Java model is that all methods need to belong to some class. This encourages methods to implement their behaviour in terms of the private state of that class, instead of in terms of the public interface, breaking encapsulation. This can be resolved by moving more methods to different classes with no state, but that complicates your object hierarchy to the point where you'll probably end up just making a container for a bunch of static methods - basically, the functional style. It was interesting to note that in his excellent book *Effective C++*, Scott Meyers encourages the reader to avoid adding methods to classes whenever possible, instead preferring to place functions outside of a class. This is more reinforcement of the fundamental principle that functions are often a better form of encapsulation than classes are.

The second reason why the functional paradigm is useful is because it enables you to express things naturally that simply cannot be expressed otherwise. One of the simplest motivations for functional programming syntax is to enable users to create control flow abstractions. A common example of this is the `synchronized` keyword that Java has. The problem with this keyword is basically that it exists. In any reasonable functional language, the `synchronized` keyword could be implemented as a library function. This, obviously, gives a lot more power to the developer to define his or her own control flow constructs, which in turn is a powerful abstraction mechanism. Something like implementing the `synchronized` keyword will probably be possible in Java 7. One example of how this syntax could work is

given in version 0.5 of the BGG Java closure proposal. This isn't just a random group of academics trying to sneak functional programming into Java, incidentally. That second G stands for "Gosling". As in James. As in "Famed Canadian Computer Scientist James Gosling, progenitor of the Java Programming Language". He might have some influence over the language. In this proposal, it's possible to pass a block of code to a method using a special, Ruby-style functional syntax. Here's how the synchronized keyword would look:

```
Locks.synchronized(this) {
    // critical section code
}
```

Pretty amazing, eh? The same syntax could also be used to define a method that opens a file or database connection, lets you interact with it, and then automatically closes it for you. Of course, closures, lambdas, and first-class functions get you lots of other stuff too. Ever implemented the `Comparator` interface? Better modelled as a function object, don't you think? Have you ever written an `ActionListener`? Sounds pretty functional. What about `Runnable`? Isn't that the definition of what a function is? It turns out that programming languages without syntax-level support for functional programming use a lot of functional tricks anyway. So another reason for us to like functional programming is because we're doing it anyway, so we might as well learn a thing or two about it. And don't think that this stuff is Java-specific. It would be just as easy to point out examples of this kind in C++, C, or any other programming language. The functional paradigm is omnipresent, and it enables abstractions that can simplify code - there's no question that the "improved for loop" from Java 5 simplifies iteration code in the language and reduces the chances of error. Well, with the right functional syntax, the improved for loop could also be a library function. This just goes to show that functional techniques help us create new and better abstractions, and abstractions are the lifeblood of software engineering.

In this, the summary paragraph, let us get back to fundamentals. Functional programming is a Good Thing. It's relevant in basically every type of programming, regardless of whether your pet programming language supports it (which it probably does). When functions are a first-class citizen in your software designs, you gain an amazingly powerful tool for abstraction that's simply not available if you slavishly adhere to some other paradigm. A function, fundamentally, represents deferred execution - the ability to specify behaviour which should occur at some later date. This is a very powerful technique. When it comes down to it, Scheme is relevant to you because it's important to not be a one-trick pony. The entire point of a university is not to crank out code monkeys by the hundred. The idea is to create the next generation of leaders and innovators, the people who will take their industry to new heights. Part of this responsibility is not producing software developers who are only familiar with one paradigm, but who instead have been exposed to a rich diversity of different techniques and tools. It is in this manner that they will be able to innovate and create new and novel solutions to the problems that they face. After all, if your only tool is a hammer, every problem starts to look like a nail... and if your only tool is C++, every problem starts to look like your thumb!

profQUOTES

- I've wanted to tap that all day.
Metzger, March Break Open House
- I don't like to read *mathNEWS*, just in case I'm in there for something I've said.
Watrous, CS 365
- If you look at 2 books, you might see 2 different definitions of Turing Machines. Or you might see 0. But if you're reading books about Turing Machines...
Watrous, CS 365
- If you have 100 people all doing the same job, someone's bound to make mistakes. That's kind of scary when you think about dental surgery.
Watrous, CS 365
- People ask me, "What does Linux do?" I don't know, it changes every week.
Brecht, CS 350
- Make sure your kernel is no bigger than half a GB. If it is, well... Microsoft will hire you.
Brecht, CS 350
- One thing about Standard formats is that it's useful to have a bunch of them.
Brecht, CS 350
- I can tell from the midterm that some of you can't write code.
Brecht, CS 350
- Maybe you want Netscape, uh, Firefox, to run at highest priority.
Brecht, CS 350
- I showed the midterm to Gord Cormack and he said, "Finally, a midterm I can pass."
Ragde, CS 442
- If you keep tweaking the axioms of set theory, you can do quite terrible things.
Spronk, PMATH 354
- I wouldn't give this as a bonus question, because I wouldn't want to have to look at it.
Spronk, PMATH 354
- This notation is all about formalized laziness.
Childs, CO 481
- There's not much you can do if, with probability 1/2, a meteor hits your computer and blows it up.
Childs, CO 481
- k is the new R.
Moosa, PMATH 444
- We get some corollaries out of this, which have somewhat pompous names.
Moosa, PMATH 444
- It's hard to judge which definition will be more annoying later.
Moosa, PMATH 444
- It's always fun to play with models for which there's no data.
Balogh, PHYS 375
- "HI is from H1"? That's not a very good sentence.
Balogh, PHYS 375
- And now we'll just introduce some constant that we don't care about.
Balogh, PHYS 375
- I am not a denialist!
Evans, EARTH 270
- I should put on the exam, "What is your instructors name?" How many of you know my name? [A few people raise their hands] OK, I should put that on the exam.
Beatty, CS 241
- I'm not smart enough to use all this technology.
Beatty, CS 241
- This is University, we aren't here to have fun!
Beatty, CS 241
- Everybody is not yawning. That's progress.
Beatty, CS 241
- Don't come to me and say, "My dog ate my compiler."
Beatty, CS 241
- Real programmers violate the rule.
Beatty, CS 241
- If engineers weren't so busy getting drunk all the time, we wouldn't have wires.
Smith, ECON 102
- If you go to a person and say you are impressed by Lord Keynes and they respond sensibly, you can have sex with that person.
Smith, ECON 101
- But some of you know me by another name. Some of you know me as Frodo.
Smith, ECON 102
- ... and that's why I like young people - not in a natural way.
Smith, ECON 102
- Some of us have a fantasy life that doesn't end in grunting. Oops, shouldn't have said that. Go back to think about Frodo.
Smith, ECON 102
- This is so boring, I'm not gonna talk about it. But I'm talking about it. Contradiction.
Zorzitto, MATH 146
- I'm basically teaching you like I was a computer.
Zorzitto, MATH 146
- Ok, we're gonna have another proposition here. Let's call it six.
Zorzitto, MATH 146
- Nevermind, you do it. I don't feel like doing it.
Zorzitto, MATH 146

MORE! profQUOTES

If you're nodding off, it's OK. I feel your pain.

Zorzitto, MATH 146

This would be a great theorem. Unfortunately, it's false.

Forrest, MATH 148

Here's a remark, just to confuse the issue.

Godsil, MATH 249

Student: How do we know this matrix is invertible?

Prof: You know, when I was in first year, my friend and I were taking the advanced calculus courses. We were nerdy. So one day we're working on this assignment, and we're doing this proof, and with proofs it often comes down to the small details, you have a good intuition about what you need to do, but it doesn't quite work. And so we're working on this question for a long time, and a friend of ours walks by, he was in regular math. So we asked him about this proof, and he says, "oh, just use such and such theorem", and we said "yeah.. but you can only use that if you know the function is continuous.. what if it's not continuous?", to which he shrugged and said, "what are the chances...". Well in this course, we take that guy's philosophy.

Orchard, CS 473

[Pointing at a picture of a level set] And here we have... breasts... or possibly buttocks.

Orchard, CS 473

That looks like "maim." I didn't mean maim. I meant main.

Godfrey, CS 138

Java references are similar to C++ pointers, except that they don't have sharp edges.

Godfrey, CS 138

C/C++ pointers have really nasty points and will kill you if you look at them the wrong way.

Godfrey, CS 138

All problems can be solved with another level of indirection.

Godfrey, CS 138

If I said $s = \text{NULL}$, then bad things would happen. Memory leak, people would go home crying without knowing why... much like the Leafs season this year.

Godfrey, CS 138

In some languages, if you don't return, the language goes "Hey you jerk, you didn't return!" But C/C++ are not the language police. They'll just go "Dude... you don't want to return? Fine by me."

Godfrey, CS 138

There was a question at the back, but it appears to have dissipated into nothing.

Godfrey, CS 138

In my main, I have a queue... a cute little queue.

Godfrey, CS 138

So initQ wants in on the action and says "You've got a queue? Now I have a queue too and it's cuter than yours."

Godfrey, CS 138

Assert is a poison pill. You only use it when something horrible happens and the honourable thing to do is to die and slice open your stomach and expose your entrails to the debugger.

Godfrey, CS 138

Let's say you want to build a CPU, since someone successfully sued Intel and they're bankrupt.

Roh, MATH 119

Prof: What's the radius?

Student 1: Two.

Student 2: Four.

Prof: OK, Two and Four can fight it out.

Roh, MATH 119

Prof: So what do we do here?

Student: Strip it down.

Prof: Whoa, keep it family-oriented!

Roh, MATH 119

I'm not Windows; I can't multitask.

Roh, MATH 119

Student: Can't you use a Taylor polynomial?

Prof: I don't like Taylor polynomials. Just because I teach them doesn't mean I like them.

Roh, MATH 119

Prof: So what do you do now?

Student: Give up?

Prof: If you say that again I'll just give you a 0 and then you don't have to show up for the final.

Roh, MATH 119

Hey, cut me some slack! I'm not an English major. ...And at least I passed the ELPE, unlike some of you.

Roh, MATH 119

No, you don't give up. Billions of dollars at RIM may be at stake.

Roh, MATH 119

I'm not good at math, you guys better be double-checking this.

Roh, MATH 119

Student: We need $\text{rsin } \theta$.

Prof: Arrrrrrr!!! $\text{sin } \theta$. Polar coordinates are a pirate's best friend.

Roh MATH 119

Prof: So why would we build a sequential system without a clock?

Students: Because we can. For fun. Why wouldn't we?

Prof: Any practical reasons?

Thistle, SE 141

Sometimes you decide not to pay tax, so you spend a little time in jail.

Koo, MSCI 261

Eddy, who took MSCI 261, calculated the after-tax MARR and IRR. His boss, who didn't take this course, wants to compare the before-tax figures. That was a very stupid request of the boss.

Koo, MSCI 261

MOAR! profQUOTES

The midterm was very easy, judging from the average. I am very disappointed.

Koo, MSCI 261

If you live in Canada, your life is miserable. Move to Australia.

Koo, MSCI 261

Nothing is hiding from us in C.

Haxell, MATH 135

The complex number $z = x + yi$ has a little friend for its life...

Haxell, MATH 135

This is probably all review for you and thus very boring — and I might add that it is not a thrill for me either — but it will be on the final.

Haxell, MATH 135

What does the triangle inequality have to say? Hint: it has to do with triangles.

Haxell, MATH 135

$(-\sqrt{3} + i)^{17}$. We would not want to use the binomial theorem on this, since it would give us 18 terms, all of which are ugly.

Haxell MATH 135

If you're able to imagine things in four dimensions, then go ahead, since I'm unable to do so.

Haxell, MATH 135

I will not define what a field is, because it would be a very long list of axioms that would fill three or four boards.

Haxell, MATH 135

Prof: Do I have enough brackets here?

Student: No, you need more! It's Scheme!

Haxell, MATH 135

In the event I get murdered after your final marks come out, we can use string matching on the DNA to find out which one of you did it.

Roche, CS 240

Lessons of 1B

Because doing one for 1A wasn't enough

1. Linear Algebra 1 is a lot easier and a lot less interesting than it sounds.
2. Floors come together as friends, and never go to a party again.
3. Spending all your time on schoolwork for prolonged amounts of time is hard on your health.
4. I still don't understand how people stay up all night working on assignments.
5. Sleeping in class is a great way to grab an extra hour, especially if it is an easy course.
6. As per the previous, if you plan to sleep in class, do not sit in the front.
7. If you pay attention, *profQUOTES* are abound.
8. Sleep is more important than it sounds.
9. Somehow I still have too much time on my hands.
10. PD1 is both more annoying and more difficult than it seems on first glance.
11. MAHNA MAHNA
12. Everyone has a more interesting life than I do.
13. Writing for *mathNEWS* is a great way to get free food, every second Monday at 6:30 at MathSoc.

—!theNewGuy—



Interesting UW campus services to abuse.

Disclaimer: We are not responsible for any damage/bodily harm/bad grades/arrests resulting from the suggestions following.

Marmoset

- Use it as a file server. Nothing like online storage for your entire music collection.
- Use it as an excuse to not have a compiler.
- Malloc large amounts of memory, then enter an infinite loop
- Use it as a proxy for your net access by writing a virtual modem
- Install a rootkit. It will compile and run anything, right?

On campus mailing system

- Mail interesting objects to other people. Good candidates are pink tiaras, copies of Thor's Scheme article, and bobcats.
- Run an on campus ebay-like service.
- Lazy way to pick up copies of *mathNEWS*, for those days when you can't be bothered to walk to MC.
- Run into your text limit? Mail your phone to people. Don't expect it back though.

PDEng

- Insert humour into articles. This confuses PDEng and makes them agitated. Use this opportunity to sneak rodents into the PDEng office.
- Claim you have no internet and get the instructors to mail you PDEng guides and course outlines. Then build a house out of them.
- Submit copies of *mathNEWS* as assignments.
- Save *mathNEWS* the indignity of the above suggestion and submit Imprint instead.

Thor's C.S. Problem of the Fortnight

Goose-stepping through the halls of Computer Science

Last Fortnight's Question: A programmer walks into a singles bar. Spread throughout the bar are tables with eligible single gentlemen. The programmer, like all programmers, is quite lazy, and she settles on the simplest possible algorithm to select an individual to approach. She will simply talk to the person at the closest table. Given a set of points corresponding to the tables, and a point for the programmer's current location, how can you identify which table is closest? What if this query needs to be made efficiently numerous times as the programmer moves around the bar?

Its Answer: The problem described is nearest neighbour search. Admittedly, with the number of tables likely to be present in any single's bar, it's probably fine just to take the simple approach and test each point in turn. But that would hardly be interesting, so let's discuss the larger case. An alternative to linear search is to take the branch and bound approach. A space-partitioning technique can be used, which splits the single's bar into several discrete regions to search. One of the data structures that can be used to implement this is a KD-tree, which will repeatedly bisect the single's bar into regions containing half the points of the parent region. Queries on the tree would be performed by traversing it from the root to a leaf, evaluating the query point at each level. It might also be necessary to search neighbouring branches, depending on the distances involved. This will work out to an average query complexity of $O(\log N)$ in the case of randomly distributed points. Another data structure that could be employed would be an R-tree, which supports more efficient insertions and deletions (useful for people entering and leaving the bar).

This Fortnight's Question: Pretend that you are the network engineer of a telephone company. You've decided to expand your operations to a new region, and you need to roll out telephone service to a number of new customers. You're given a list of customers and their locations, and your job is to lay wires to each of the customer's homes so that they'll all be connected to the central switchboard. How would you determine a wiring scheme that uses the least wire possible?

Thor



Hello Titty: Episode 1

Or How I Found Out that All Mathies are Incredibly Useful

It was the day before reading week when I first heard about it. I still don't believe in it. The softies spoke to me of a Hello Kitty-themed porno, entitled Hello Titty. The only problem- there was episodes two through six found on the internet, and the original, Hello Titty Episode 1, remained as a 98% torrent. 2% between the softies and a meme capable of rewriting all stereotypes about the internet ever. As such, I assembled a team of my closest friends. Strangely enough, my friendship algorithm only allows me to have one friend in each Math major.

Anyway, we went on all that we had, 5 episodes of porn. Resisting natural human urges, we took the pornos, and did instead what all mathies would do given that much data - put it through a hash (SHA-1). As if designed by some higher being, the hash when converted to ASCII came out ridiculously reasonable, the word "Chat Roulette", and the number 20070130. While most of us mathies pointed out that these two objects were the deaths of the internet, and the operating system, my wizened Computational Mathematics friend deduced that 20070130 was not a date, but a seed! We hastened to our computers (aka sat up in our chairs), and jumped to the dreaded site and entered the digits slowly, hoping that it wouldn't lead us to some masturbating loner in Portugal. As the webcam loaded, we saw a man holding a cardboard sign enscribed, "Hello Tits or GTFO" followed by what appeared to be geographic coordinates pointing to a small village outside Guadalajara, Mexico.

Twelve hours later, we were on an Air Canada flight to Mexico, with high hopes of finding this holy grail of porn. It took us another 5 hours to get through Mexican customs, as it's hard to explain that you are coming to a country in hopes to find a porn that cannot be found in your home country. After a short description of the porn, we left the airport in a small jeep, headed toward El Guano Mucho, a ghost town in the desert. As we neared the coordinates, we began seeing corpses of small animals, around a darkened cavern. We stopped the jeep and slowly walked into the cavern, with the glow of our iPhones lighting the way. Suddenly we saw it- El Chupacabra. It gave a low growl, and began cutting us off from the exit. Luckily, my statistician friend had a plan.

"So how do you survive on such small-bodied animals? I mean, the total size of their mass cannot even come close to you. If we quickly go through the calculations..."

And already the mighty beast had fallen asleep from boredom. I ran to the jeep, kicked it into gear, and smoked the Chupacabra in the gizzard. The shriek from the beast ripped across the horizon, and made a sound so distinct, all of us recognized it - the Toruk from Avatar.

We drove for three days north, to Brea, California, home of Canadian Filmmaker James Cameron. Once again we were detained at customs, because the story of searching for porn from Canada to Mexico to the States gets even weirder. We neared the street of Cameron's ranch estate, but nothing was there! We all knew what it would take to find our target. We took out our 3D glasses, and saw the building jump out at us as we put them on. We got out, walked up to the door, and rang the door. A pounding footstep neared, and the door opened only for us to see... a Nav'i security guard!

"Oel ngati kameie" said the humanoid as he raised his bow. "I see you"

My actuary friend responded quickly, and began describing the value of the Nav'i compared to the ground it walked on. After about 2 minutes, the Nav'i was curled up in the corner, crying. Continuing through the building, we found James Cameron sitting at a table.

"We found the Chupacabra that you have been feeding in Mexico. We know you have Hello Titty. Give it up, James."

"The Chupacabra!?! I just stole that noise from mixing sounds from noises I heard in Disney movies! It's a mixture of the hunchback, the hyenas, and Donald Duck."

So our quest slowed down, but certainly did not stop us from hunting the Millenium Problem of pornography. We headed to Los Angeles, to the land where Mickey is king. We took the coordinates of the three given Disney characters, and using some first year geometry found the centre, deep inside the new ride, Mr. Toad's Recursive Ride. After a long line that had poisson-like properties, and enough babies to fuel a Prius, we boarded a train.

As our train entered the tunnel, we realised that we had been here before....

And then we went back one paragraph.

All of a sudden, my computer science friend jumped out and BROKE through the wall! We went through the hole, only to discover a shrine to the 1950's anime, "Kimba, the White Lion". Investigating further, we found references in the scripts, and pictures of a 'Helo TieTie' character. We knew now that we were destined to Japan, to find the source of this mystery.

A week later (including 6 days of making it through customs), we were at the gates of Tezuka Productions. On the verge of bankruptcy after failed lawsuits against Disney's Lion King, the company was going to close down shop for good. Luckily, my friend in Business/Applied/Accounting (I forget which) found a tax loophole which allowed the company to gain 1 billion Yen in tax rebates unaccounted for. Pleased at the news, the CEO told us of the ancient story of Hello Titty, the episode lost in time.

When the Yakuza first came to North America in the eighties, they needed something to rake in thugs and street soldiers. To compete with American lifestyle, the Yakuza hired Third World Media to develop a series of pornographies based on the popular Japanese anime, Hello Kitty. To promote competition and improvement, the low ranks were given Hello Titty Episode 6 to watch, and it was so enthralling, that they continued gang work to get copies of lower digit episodes. Episode 1 was never released, but is said to be hidden in the heart of a Yakuza Lair in Japan. Conveniently, the CEO knew of this lair, and gave us directions, and we were on our way.

As we neared the alley housing the relic of obscure fetishism, we knew that our journey was nearing its end. Suddenly...

Wild Raichu appeared!

I choose you! C&O Friend.

Wild Raichu uses Thunderbolt!

C&O Friend dodges, using the optimal trajectory of static electricity.

C&O Friend uses Rock Throw!

It's Super effective???

Yeah, who knew that just throwing rocks defeats Pokemon. And we continued into a vent, which lead us precisely to a dimly

Hello Titty: Episode 1

lit room with a pedestal holding a DVD. We knew it was the DVD we had been searching for, as it was clearly labeled “Hello Titty: Episode 1”, but it was mysterious just the same.

Suddenly, our Pure Math friend finally spoke up for the first time the entire 2 weeks. Through usage of set theory and Spock quotes, he single-handedly proved the non-existence of the DVD. The building began collapsing around us, and through a series of explosions and “Pew-pews”, we could hear the maniacal laughter of the one director who could make so many explosions from such an empty plotline: Michael Bay.

Note 1: When I say all mathies, I don't include undeclared, or majors so obscure they rarely get good horrorscopes.

Note 2: Yes, I know, the most ridiculous part about this story is the fact that a stats major has a friend.

Note 3: We are still looking for a copy of this fine piece of artwork. If you happen to have a copy, could you rip it and leave it in the BLACK BOX?

A Cautionary Tail

Tbor

With Marissa I awoke this morn,
As she left, she did stop to warn,
“You should have that rash seen to,
Or no more girls will you do,
Home alone with your big box-o-porn”

bitmap

Gambling removed from Pokemon HeartGold and SoulSilver

Have been replaced with another game of chance

So HeartGold and SoulSilver (stupid spacing for the names, I know) came out last Sunday. Eager to waste precious hours of my life on nostalgia and video games, I dove in and began playing. But when I arrived in Goldenrod City, I was in for a shock.

The moral guardians removed all of the slot machines and older flip games! The monsters! Instead there was a new game where you bet nothing and are simply given coins for completing a mini-game. The mini-game is a mix of Picross and Minesweeper, and it's all right, but I miss my slot machines, thanks. It seems Nintendo removed them from all but the Japanese versions of the games, to save time and headaches from fanatical mothers claiming their children were corrupted by gambling. To these people I ask, is a game where children bet money on fighting animals of mass destruction against one another, enslave them from the wild and all along claim to be friends with these monsters not enough to incense you? Is gambling really what you should be offended by?

Now of course, there's no proof that this measure is for such people, the evidence seems to support Nintendo just being lazy; and since they were going to remove it for Europe as they did for Platinum, they figured they might as well replace them in all versions.

Also of note is that these games are awesome, I thoroughly recommend them if you've gotten even a little enjoyment out of a Pokemon game in the past.

GroovyED

The Black Eyed Peas recall album

New estimates change projected how good of a time tonight will be

In a startling announcement, the famous hip hop group the Black Eyed Peas has recalled their hit album *The Energy Never Dies*. The recall was a response to new information recently made available which changed the projections about tonight's prospects.

During a press conference about the decision, singer will.i.am had commented that “... we no longer have a feeling that tonight's going to be a good night... in fact, we have reason to suspect that tonight may end up being particularly shitty.” Group singer Fergie contributed insights as to the change in projections. “Around noon before the night in question,” stated Fergie, “we received word that that skank, Trisha, would be in attendance and if she tries to start shit with me, then I'll smack that bitch down.”

Other reasons that were stated by the ensemble included Taboo's ex girlfriend showing up with that new Euro-freak boyfriend of hers, Apl.De.Ap being sconed by regulars at their usual haunts, and “Most importantly,” said will.i.am, “if I hear that fucking Boom Boom Pow song again, someone's getting punched... and it'll probably be me.”

Other changes to the album for redistribution include altering the lyrics to the song “Party All the Time” to include the phrase “If I could party at least one night a week, I think I'd be okay with that too”, “Rock that Body” to “Please stop girating in front of me, I don't want to see that; no one wants to see that”, and the song “Missing You” will now be titled “Fuck off”.

The Hee Ho



Primal Scream Therapy

Bad Advice

How to Write a Resume

The key to writing a successful resume is to make yourself look as good as possible. As the saying goes, "It is easier to seek forgiveness than ask permission". Be sure to project confidence. The best way is to refer to yourself using the royal "we". Make your experiences as grandiose as possible, even if it means stretching the truth to the point of breaking.

Unrequited Love

The key is to never give up. Make sure the object of your affection, be it man, woman, or animal, knows about your feeling and its strength. Persist and they will eventually come to love you back. Don't let anything get in your way.

Prescription Medication

The numbers they give are merely guidelines. If it does not seem to be working, it probably isn't, and you should modify the dosage until it seems to work. Experimentation is key, and if one medication does not work, try another in conjunction. Medicines work like the union of sets. Forging doctors' writing is an entirely acceptable way to get more medication.

Failing a Course

Never give up. If you are failing a course, you should invest more time into the course so that you have a chance at passing. Dropping a course is to admit failure, and that is the worst thing you can do.

Midnight Capture the Flag

A moose once bit my sister.

We apologize for the outrageous subtitle to this article. The member of the Management responsible for coming up with a proper subtitle has been sacked. It is presumed that he took the order to not include information about an upcoming game time and location seriously. In addition to his being sacked, he will also be forced to push the pram a lot more than usual. And then he may run away.

We now return to our regularly unscheduled programming. There shall not be a game of midnight capture the flag occur at **midnight (23:59)** on **Sunday, March 28**. So you should definitely not find yourself at **MC Comfy Lounge** at that time.

The Management

How to Get Laid

The best faculty for getting laid is Engineering. If you are not currently in Engineering, you should transfer. The key is to be upfront about your intentions. Alcohol and/or other drugs are great additions to the situation.

How to Attract Girls

It is widely known that girls love the "bad boy" look, so do your best to look dangerous. For talking to them, constructive criticism is the key. You need to let them know that you are capable of solving any problem they might have. As well, girls don't like their men to be too clean, so before you approach a girl, make sure you have not showered or brushed your teeth in the past day or so. Deodorant is also a big no-no.

Course Choices

To get a CS degree, you must satisfy some level of depth and breadth in other fields. So, you should choose subjects that you know nothing about, to expand your knowledge to the maximum possibility. Also, taking courses at a higher level will teach you more, so take the highest, most difficult classes that you can.

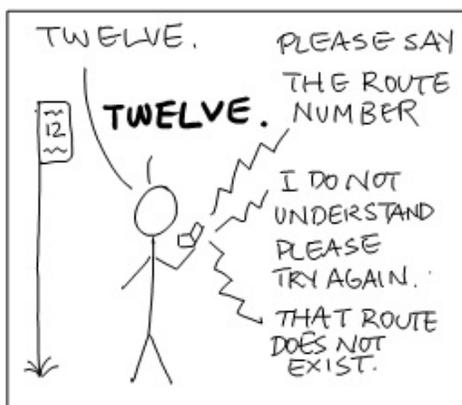
Finding a House

The worse maintained a house is, the more you can do to the house without anyone knowing. So you should aim for the most dilapidated house you can find, as far from the University as possible, to minimize costs. As well, houses near bus routes are loud because buses come at all hours. Finally, insurance is unnecessary if you do not plan on breaking anything.

—!theNewGuy—



NOT-SO-EASYGO



Snippet

Half-Finished Blog Posts & Other Miscellany

One of the annoying things about the “young and educated” is that these people often have two particular traits - a lot of ambition, and the potential to do almost anything. The problem with this, I find, is that it often leads to the desire to **do** everything (at least once). Whether it’s rolling your own implementation of Hashtable, or creating your own WordPress theme from scratch, to writing blog posts and articles on every topic imaginable or redesigning the user interface for your bank’s online banking system. But with so many ideas, how will you ever manage to implement any of them?

One technique, that works really well, is to just sit down with a pen and paper and to do your given task as quickly as possible. This is so you don’t forget the little quirks in your implementation/writing/design between when you start writing and when you finish. (And I do literally mean a physical pen and white paper. I personally prefer writing on unlined copy paper, but your preference may vary. I find it’s **way** too distracting to work at a computer, and yet my future career choice involves doing this very thing.) With any luck, after a fortnight or three, your masterpiece will be done and you can unleash it into the world. For short tasks (say, a *mathNEWS* article), this works great - you can get away with breaking almost all of the rules and life is good.

For larger things, unfortunately, you’ll need to start following conventions if you wish you avoid becoming unnecessarily crazy as your pet project progresses, or, indeed, if you wish to finish your project at all. This might be as simple as setting yourself a deadline (NaNoWriMo.org is a good example of this), or writing comments for “yourself in three weeks”. At times, more elaborate schemes, such as project plans or (*gasp*) structured essay-style writing are necessary. Whether your master plan is dominate the world or to provide a safe online environment where autistic kids can learn to communicate with the outside world, for your young mind, the idea of “convention, convention, convention” may be sheer absurdity. Conventions mean following the crowd like sheep, and this goes against your entire existence. If you’re lucky, one day you might see the benefits and pitfalls of convention - how conventions allow the rest of the world to understand what it is that you’re trying to accomplish, and how conventions also free up your mind to think about really important dilemmas, like deciding whether or not your project is actually finished.

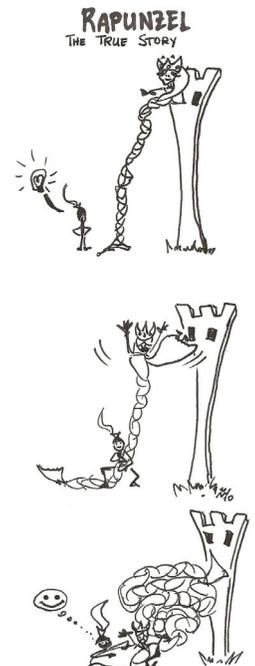
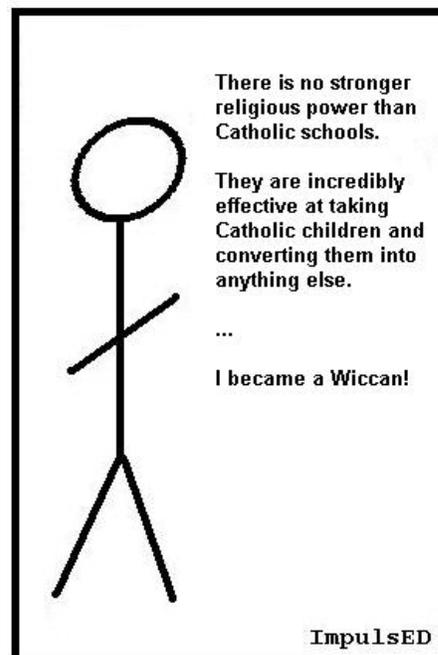
How do you go about deciding when your project is actually finished, anyway? There’s the traditional open-source model of release early and release often - your project is never truly finished and early adopters will see all the rough edges in your work. On the other hand, you might be like the stereotypical artistic mastermind: “it’ll be done when it’s done.” (Even if that means that your pet project never sees the light of day.) For most fairly large projects, you’ll want to find some middle ground between these two extremes - giving yourself enough time to work out the major kinks without losing too many (potential but impatient) users, readers, or minions to competitors who actually unleash their latest and greatest creation upon the world. It’s a fine line, and the criteria for release vary from project to project and from day to day. You’ll need to figure this one out for yourself, unfortunately.

Finally, for any fairly sizable project, you’ll need to collaborate with others. At least, you will if you ever hope to profit from

your creation before desktop computers go the way of the Ford Model T and Sam the Record Man. Yes, this means the oh-so-dreaded group project. Suddenly, you have amateurs mucking about in your code, adding misfeatures and generally detracting from your master plan. You need to develop project plans and specifications and keep those specifications up to date with **every** code change. Perhaps, even, you’ll need to work with non-technical people, whether it’s the double-degree Design student from Sheridan, or the business student from Schulich, or the Physics kid from Waterloo who remembers Hooke’s Law just a bit better than you do. These are the obvious examples, too. It takes an open mind and a bit of cleverness to see the skills and potential present in people like the girl in Applied Health Sciences who spends all day on Twitter and making avatars for LiveJournal, or the popular kid from high school (who, to this day, only talks to you when nobody else is watching), or the accounting kid that all your friends tease and “abuse” because she’s short.

As time goes on, you’ll find you know more and more about less and less. Specialization is part of growing up in today’s world. (It also makes us dependent on others, but that’s a whole other article.) Advertisers have recognized the need to start profiling individual consumers, so that they can provide targeted advertisements relevant to ideas you already have stuck in your head - whether it’s time to buy a new computer or a new house, time to switch banks, or time to figure out what graduate school program you want to apply for. The organizations who don’t do these evil things will protect our “privacy”, sure, but they will eventually go out of business when their special offers and surveys end up in the Junk E-mail folder on our computers. Likewise, you, the brilliant mastermind you are, will need to recognize the individual strengths of people around you if you are going to succeed in taking over the world. Otherwise, you’ll just become another cog - another rat in the great rat race known as life. Which isn’t so bad, really... or so I’ve been told. If I waited to find out myself, this article would have sat half-finished for at least 40 more years.

cbhllhbc



Profit Driven Trends in Human Society As Demonstrated in the Works of Twentieth and Twenty-First Century Authors

Many books are written with the intent of critiquing society's obsession with profit. *Oryx and Crake*, by Margaret Atwood, and *Fox in Socks*, by Dr. Seuss both suggest that human society ignores ethics for the sake of the bottom line. Both authors discuss such issues as genetic engineering, of both plants and animals, as well as extreme commercial competition and inter-corporation warfare.

One of the most prevalent themes in both *Oryx and Crake* and *Fox in Socks* is the genetic engineering of animals for profit. In Atwood's novel, there are many examples of genetic engineering, but the most relevant is the ChickieNob. ChickieNobs are life forms which grow chicken meat for eating, as many as twenty breasts or twelve drumsticks per unit. The woman who is in charge of the ChickieNobs boasts, saying "You get chicken breasts in two weeks-that's a three-week improvement on the most efficient low-light, high-density chicken farming operations so far developed" (*Oryx and Crake*, page 247). The promise of efficient chicken meat causes the scientists to create an abomination; a creature incapable of thought outside of eating and growing. Likewise, Dr. Seuss suggests that people will exploit chicks for their own advantage. When talking to Knox, Fox states, "Let's do tricks with chicks and clocks, sir" (*Fox in Socks*, page 7). Fox is suggesting that he plans to form some sort of chicken/clock hybrid. Fox later states, "Six sick chicks tock" (*Fox in Socks*, page 12). Fox has succeeded at combining the clock with the chick for his own benefits, but has injured the health of the animal during the procedure. Fox quickly abandons the chicks and steers the conversation between himself and Knox to other matters, never mentioning the poor chicks again. Dr. Seuss suggests that any sort of genetic engineer will likely cause far more harm to the animal than it will benefit human society. Atwood and Seuss both decry the ethics of genetic engineering on animals.

The books *Fox in Socks* and *Oryx and Crake* also deal with the impacts of genetically modifying plants for profit. In *Oryx and Crake*, Hapcuppa genetically modifies coffee beans to ripen simultaneously. This causes an uproar because it means that millions who once could find work hand picking coffee can be replaced by automated machines. Atwood suggests that by genetically modifying crops for ease of agricultural work is amoral because it will lead to the destruction of millions of jobs and increasing poverty in poorer countries that depend on farming as a major source of income. Atwood further implies that, even if people realize the problems of genetically modified plants, like termination of jobs, contamination of organic crops, and negative health effects in humans, nothing will be done, as long as the price is lower. The prime example of this is the character Uncle Pete, who states, "Everybody wants a cheaper cup of coffee-you can't fight that" (*Oryx and Crake*, page 220). Dr. Seuss also deals with the genetic engineering of agricultural plants. While showing Knox around, Fox brings him to his dairy orchard, where he grows cheese trees. The trees pose a severe impact on the local wildlife; while talking about the trees, Fox states, "That's what made these three free fleas sneeze" (*Fox in Socks*, page 43). The fleas see the trees as a likely place to shelter from poor weather, but end up sickening. This does not discourage Fox from continuing his genetic experiments, however. Dr. Seuss and Margaret Atwood cast light on many of the problems caused

by genetic engineering of plants.

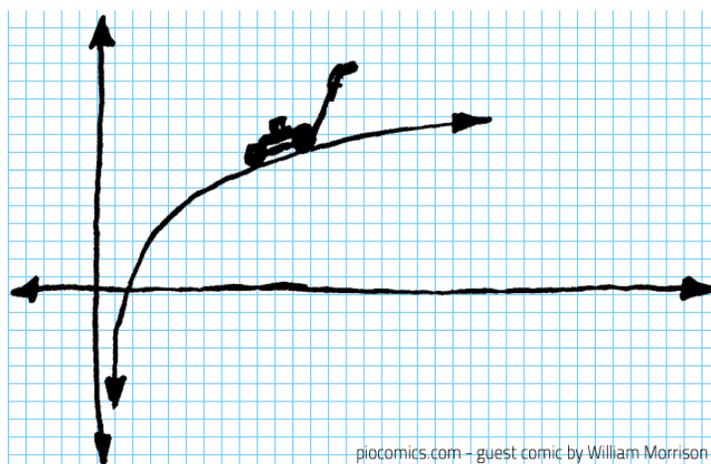
Oryx and Crake and *Fox in Socks* additionally point out the lack of ethics in economic competition. In Atwood's novel, corporations often resort to illegal and unethical methods to increase their own market shares. It is common for people high in the corporations to be assassinated, and the companies hire guards to look after their buildings and workers. In one incident early in the novel, one company attacks the livestock of another with a genetically engineered virus. As stated by an anonymous man, it was done simply to "'Drive up the prices.' Make a killing on their own stuff, that way" (*Oryx and Crake*, page 23). In Atwood's novel, corporations discard all forms of ethics and become concerned only with the bottom line. In *Fox in Socks*, Dr. Seuss is a little more subtle. He uses tweetle beetles to represent corporations, but they display the same fixed single-mindedness. Two beetles near each other will battle. Give them paddles in a puddle, and they will enter into a tweetle beetle puddle paddle battle. Beetles ignore all of their surroundings when in the presence of other beetles, electing to fight instead. Even when the beetles are put in a bottle, which is balanced on a poodle and the poodle's eating noodles, the beetles still attack one another in a "Muddle puddle tweetle poodle beetle noodle bottle paddle battle" (*Fox in Socks*, page 54). Just like mega-corporations, tweetle beetles ignore the environment, ethics, and everything else in order to prove themselves stronger than their competition. Dr. Seuss and Margaret Atwood both slander the ethics of big businesses and the way they interact with one another.

Fox in Socks, by Dr. Seuss, and *Oryx and Crake*, by Margaret Atwood, both show the tendency of human society to place short term goals, like money, over long term goals, such as ethics. In both novels, profitable, amoral elements, such as biological engineering of animals and plants, and inter corporation warfare are evident. It is common for writers to deal with such shortcomings of society.

Works Cited

Atwood, Margaret. *Oryx and Crake*. O. W. Toad Ltd., 2003.
Dr. Seuss. *Fox in Socks*. Random House, 1965.

—image



piocomics.com - guest comic by William Morrison

QNC Construction Delayed

University cites grue outbreak as cause

Construction on the Quantum Nano Centre has been delayed again after workers finishing the underground layers accidentally broke into the grue-infested steam tunnels. Seven workers were eaten, and several more brutally wounded, before GRT, Waterloo's Grue Response Team, arrived bearing brass lanterns and flaming torches. University officials claim to be unsurprised that GRT was late, commenting that they "almost never arrive on time."

>What is a grue?

The grue is a sinister, lurking presence in the dark places of the earth. Its favourite diet is adventurers, but its insatiable appetite is tempered by its fear of light. No grue has ever been seen by the light of day, and few have survived its fearsome jaws to tell the tale. Student access to the Waterloo Tunnels was cut off over a decade ago, when a colony of grues was discovered living in the tunnels. The university decided that the danger of traversing the tunnels was too great as the grue population was so large.

Work on the building is expected to continue once the University can secure a supply of Frobozz Magic Grue Repellent. Just one more ridiculous cost over budget the University has incurred for destroying the B2 Green.

—image

Important Notice

RE: Gaming in the MFCF Labs

Over the last few months, MFCF has received numerous complaints regarding the gaming activities being pursued in our student computing labs. Of particular concern are the large and disruptive groups who monopolize lab resources while playing MMORPG games such as Warcraft, Starcraft and Counterstrike.

MFCF is actively pursuing technological initiatives to block MMORPGs in the computing labs as this is a clear violation of University Policy: <http://www.adm.uwaterloo.ca/infocist/use.htm>

Until this technology can be deployed, the following procedures will be followed:

Effective immediately, any groups of gamers seen by MFCF staff in MFCF student computing labs will have their computer accounts disabled and will have to arrange to meet with the Director of MFCF Manager to discuss the terms under which their account will be re-enabled.

If complaints are received outside of regular MFCF hours, any user who was playing a MMORPGs at the time will have their account disabled. Students can report disruptive gaming in confidence to: mfcf-mgmt@mfcf.math.uwaterloo.ca

Please ensure you report the time and room number in which the disruption was occurring.

MFCF

Pokemon CS?!!

Scenes from a selection of fights

CCC wants to fight! CCC sent out CCC Problem 3!

Go C!

C used malloc! C malloced 10 GB of memory.

CCC Problem 3 is paralyzed! It might not attack!

C used pointers!

C segfaulted! C fainted! Use next programming language?

Wild Thor's CS Problem of the Fortnight appeared! Go! Scheme!

Scheme used Recursion, but it had no effect!

Thor's CS Problem of the Fortnight used a Lambda!

Scheme became confused!

Scheme is confused! Scheme hurt itself in its confusion!

Marmoset wants to fight! Marmoset sent out Assignment 1337!

Get 'em, C!

C used Strings!

It's not very effective...

Assignment 1337 used C++ Strings! Critical hit!

Trade Scheme for C?

Received C. Goodbye Scheme!

What? C is evolving?

C evolved to C++!

C++ is trying to learn vectors, but needs to forget a move.

What should C++ forget?

One, two, poof! C++ forgot arrays...

And C++ learned vectors!

Wild CS Interview Question appeared! Go! C++!

CS Interview Question used Convoluting Questions! It's super effective!

C++ used Hash Tables!

It's a one-hit KO!

!BoB

MCTF Mismanagement

No realli! She was Karving her initials on the moose

We apologize for the continuation of ridiculous subtitles. Those responsible for sacking those responsible have also been sacked. It would seem that the Management has been completely unreliable and therefore they have also been sacked. We do, however, like the time and location not previously appointed by the previous management. You should therefore definitely not come to MC Comfy Lounge at midnight on Sunday, the 28th of March, as there will certainly not be a game of capture the flag taking place at that time.

Not The New Management

Apologies

We recently read in the Imprint that Michael L. Davenport, writer of the Points Yet Unrelated column, was disappointed at the apology for a *mathNEWS* article published in October of 2004, and believes that we should not have apologized. For this we offer our sincere apologies, and promise to do our best not to give a crap about whiny people in the future.

The *mathNEWS* Editors

ElseWhen

back in Volume 66.6...

We the Editors are still regularly surprised at what we find on our shelf. I mean, what sort of people write this stuff? This article originally appeared in Volume 66 No.6, December 2nd, 1994.

Top 10+ Sources of Satanic Evil at UW

Well it's Friday, the cute girl in my night class didn't show up, so I left class early. I suppose I could go home and clean my room before the health inspectors show up, but I figured what the heck, let's write an article for mathNEWS instead. Due to lack of inspiration, I've decided to do a top ten list. Since this is issue 6 volume 66, the choice was obvious.

Without further corruption, let us proceed with the top ten sources of satanic evil at UW.

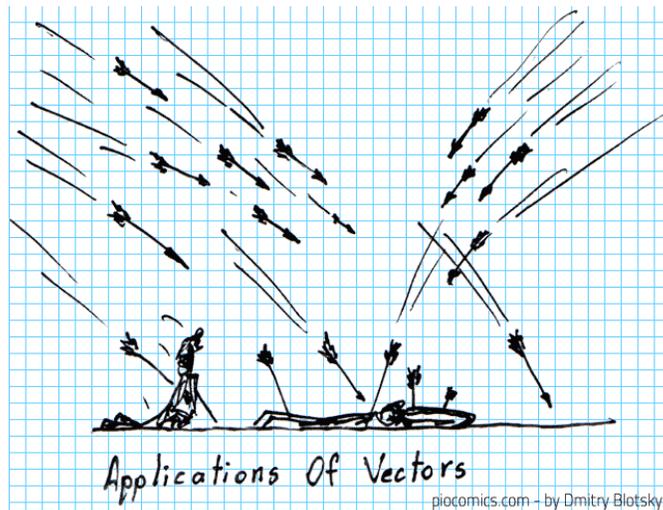
10. **FEDS:** Is it just me, or does the new Student Life Centre bear a startling resemblance to a circa 3000 BC Sumerian sacrificial altar? Well, it's a little bigger, and no one ever argued about the use of office space in a sacrificial altar, but beyond that the resemblance is striking. Remember folks, pagans are just satanists with cooler hats. Burn the centre now. Let's start paying for a new one right away!
9. **The CSC Couch:** You thought those inhuman goblins sitting in the CSC couch were actual UW students? Surprise! Years of obscene rituals involving goats, TRS-80s, and oblong fruit have made the CSC couch a sink hole of evil. From its depths emerge all kinds of creatures born of hell, and better left there. Foul vapours leak from its recesses (I'm talking about the couch, not the memebbers). And you thought the CSC just had a hygiene problem, well let me tell you, it's a hell-gene problem!
8. **Co-op:** You're in third rounds. You're desperate for a job. An evil, grinning, co-op officer hands you a "special job form." Well, don't sign it! Read the small print. Chances are ten-to-one you'll be spending a work term in hell! And no, I don't mean working for STN.
7. **This Article:** Feel it. Feel the evil. Seeping from these unholy pages into your trembling fingers. This paper, pressed from baby's skin. This ink, distilled from seminal fluid and vaginal blood of those who participated in production night. These evil words, the product of a demented ming. These forces are corrupting you, right now. Give in, you have read too far, your sould is already lost!
6. **WatsFic:** These people aren't really evil. They just heard the CSC was going to be in my list, so they whined until I agreed to include them also. Congratulations guys! Now you're as respected and loved as the CSC. Don't you feel special!
5. **Femynysts:** These agents of Hyll are bent on the corruption of the human race. Renaming 'women' to 'womyn' is only the first step in their evil plot. Eventually they're rename the 'bible' to 'bibly', and who can take a book called the Bibly seriously? Especially once they've taken out all the stuff that's sexist towards women. The book will eventually read "God created the world, and some day it'll be destroyed, have a nice day." How can you base a religion on that?
4. **Math Courses:** The average math student has sold their soul to the devil three times by the time they reach 2B. The sad thing is, their marks haven't even gone up.

3. **Food Services:** The evidence is there. Human fingers in the meatloaf. Mashed potatoes with a texture oddly reminiscent of baby corpses consumed in evil satanic rituals! The barbarism of this is shocking, especially when you consider that you can get fine quality human corpse flesh in the C&D for half the price!
2. **Beer:** Beer is the source of 90% of the satanic evil in UW. Beer is also the source of 90% of the good. Beer is basically the source. All is beer. Praise beer. Beer is one, I am one with beer. Hallelujah.
1. **mathNEWS:** mathNEWS. Think back for a moment to when you were a frosh. Young. Pure. Innocent. That all ended the first day you picked up a mathNEWS. Since then, your days have been naught but an exercise in drinking and debauchery. Day after day you have supped on the feasts of sensuality and experience, with narry a thought to your immortal soul. But wait, it is not too late! Repent now! Burn this issue of mathNEWS right now! Burn it! Burn it! Then burn the math building to the ground! And burn the mathNEWS editors! Burn them! Burn them all! And feast on their charred flesh! And defile their bodies! Then cry out to lord Baal, for your soul shall be saved!

Christina "Worship me! Whorship me!" Norman

And since you're still reading, it's now just absolutely too late. Not a thing can be done for your poor, mathNEWS-devoured soul. So you might as well read on the 2010 addition to the Satanic Evil of UW list...

0. **PD Eng:** Seriously, doing PDEng is like taking all of the above and putting them in a blender with the defiled spirit of Engineering with just a hint of crushed dreams. Although the PDEng staff work endlessly to improve the program, their linear efforts are thwarted by exponential maleficent factors. Remember, there is a reason you feel sorry for the Engineers. So next time you see one, tell them that you understand and that you will be there if they need a shoulder to cry on.



Unnatural History

The Unnatural Historian

In times of present
 And not of yore
 It was that *mathNEWS* did indeed bore
 The laser-saurus had past away
 And little seen to be done.

Then from the ashes
 A writer rose
 To chill, and stun
 With truthful prose
 Of times, that had gone, not far, away.

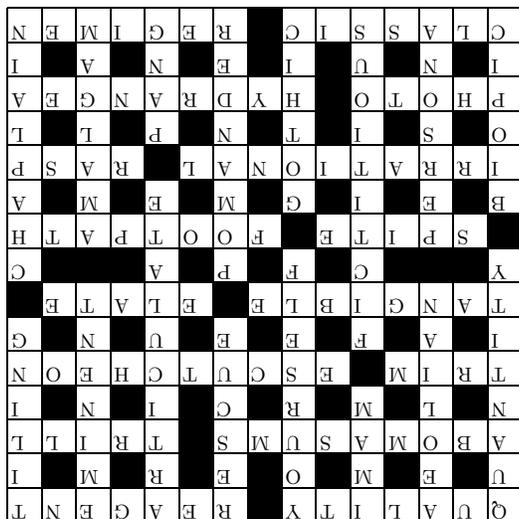
They wrote things of trash and gold
 Of how the world did work.
 And tried some styles
 Both weird and strange
 And seldom was a jerk.

This may be the last they write,
 For Graduation is soon.
 Regaling you with tales of legend,
 and of Spanish doubloons.

But truth be told
 Though I am old
 I will be bored, in time.
 And on that day
 I'll write away
 And bless *mathNEWS* with rhyme.

The Unnatural Historian

Solutions: Issue 6 No Peeking!!!



We Had Writers

Thank-you Soooooooooo Much, Writers

Ahhh, and so it has come to pass that this term ends with a bang. In fact, a 22 page bang! I must say, we are impressed. It is also with great sorrow that we end this term as editors. Believe us when we say that we enjoyed providing you with the laughs .

Yet we are here to thank the great writers that we have had over the term. *mathNEWS* is nothing without its writers (What? You think the editors can write?) and at the end of each term, we like to honour a few of our writers with gifts for their exemplary work over the term.

So without further ado, this term's best articles/pictures go to:

- **Issue 1:** Thor for his continued work on CS problems, not for his views on Scheme. No we won't even consider them, stop asking us.
- **Issue 2:** image, for exposing the surprising demand for under the table labour in this university.
- **Issue 3:** unja, for reminding us that even Daleks need love sometimes.
- **Issue 4:** prime8, because I never knew pride had that many meanings.
- **Issue 5:** !case, actually we give this very reluctantly since you actually DIVULGED OUR SECRET PIZZA FORMULAS!
- **Issue 6:** Tbor, for the most disturbing story that includes the word porn but no actual pornography
- **n+1:** And a special award to the Unnatural Historian, we thank you for your many years of servitude, no you can't have them back.

If you have been mentioned above, please contact the editors to receive your prize. Thank you yet again to all our writers for the greatness that we have created this term, and see you in the spring!

The Editors

Orientation Week!

Hey Mathies!

Want a way to meet new people, gain leadership skills, improve your organizational skills, and just be awesome*? Math Orientation 2010 is now taking applications! Apply today at: <http://orientation.math.uwaterloo.ca>

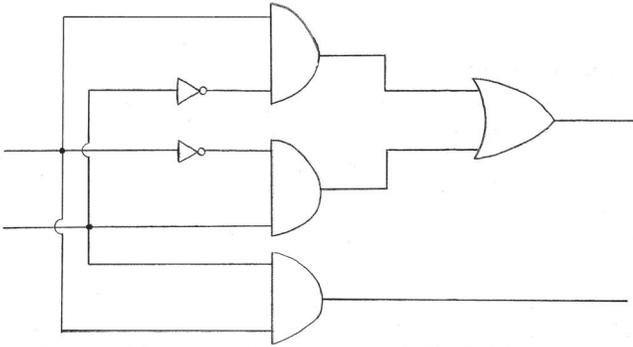
We are looking for people just like YOU to make Orientation 2010 the best Orientation week ever!

Have questions? Feel free to email us at orientat@student.math.uwaterloo.ca.

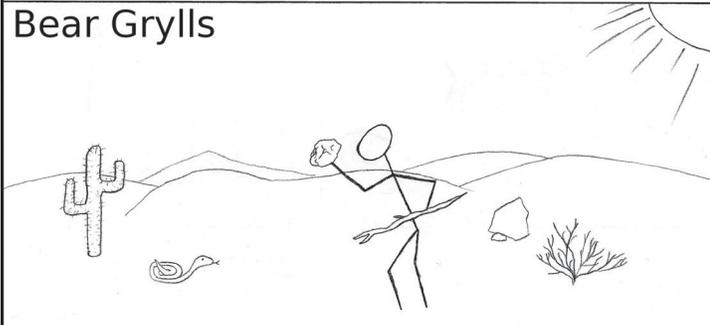
Patrick, Julianne, Abhishek, Maria
 Math Orientation Directors
orientat@student.math.uwaterloo.ca

How to make a Half Adder

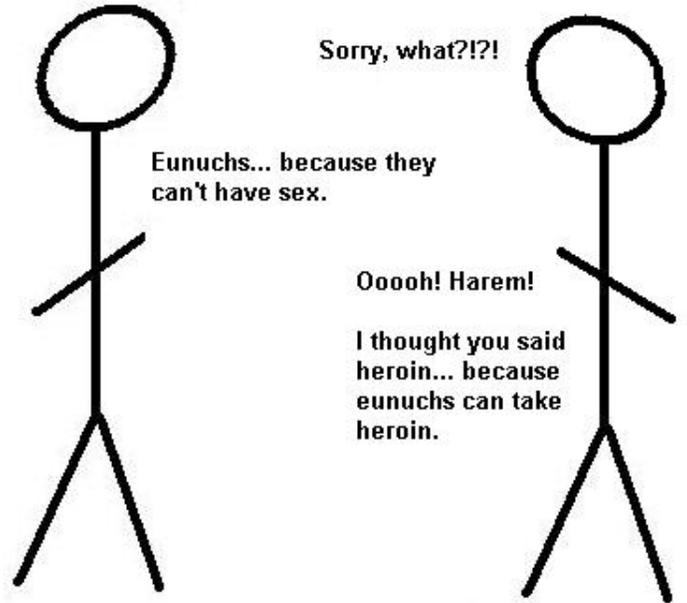
Regular people



Bear Grylls



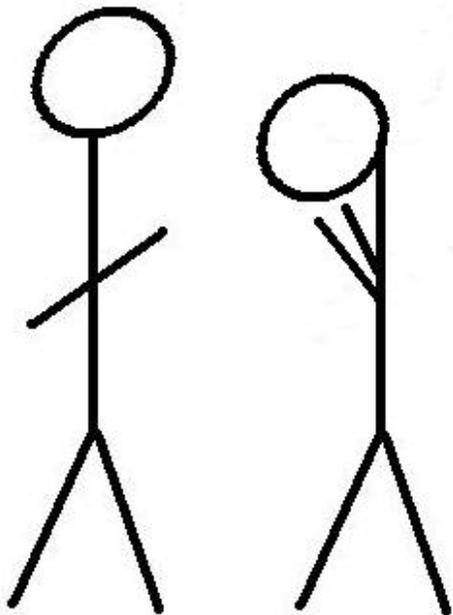
... It's like eunuchs guarding the harem.



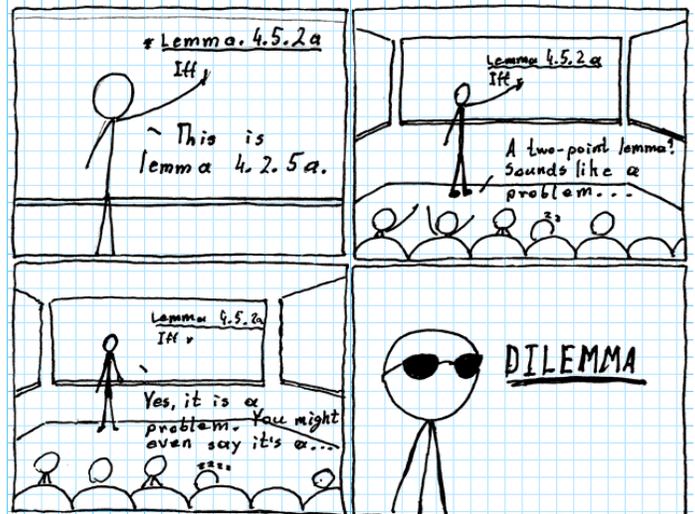
ImpulSED

Too many comics!!!!

Wow, your parents were stupid.



ImpulSED



WE WANT

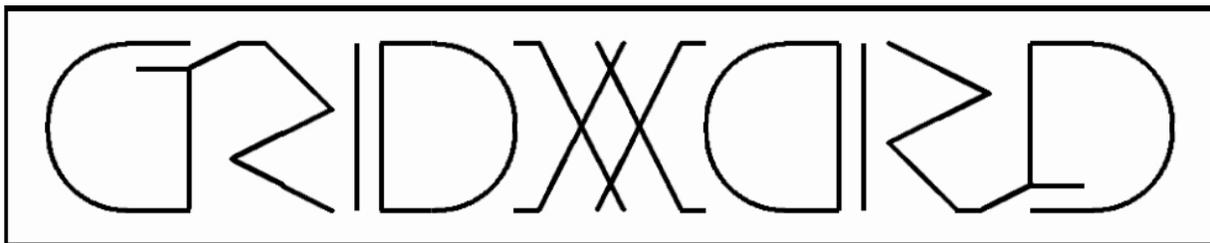


YOU!

JOIN THE ZOMBIE RESPONSE TEAM!

COMING FALL 2010

FIND US ON FACEBOOK:
ZOMBIE RESPONSE TEAM (ZRT) @ UWATERLOO



gridCOMMENTS

It would seem that I once again created an overly difficult grid. There was one incomplete solution submitted by David, whose favorite colour is “blue, blue like my soul!”. I don’t quite get the answer you gave to the *grid*QUESTION, but for the solution, you can pick up your prize at the MathSoc office.

Since this issue is the last of the term, there is no prize for answering the new grid. However, the solution is in the issue so that you can check your answers. Until next term!

perki

Grid Clues

Across

1. Attribute
5. A substance in a chemical reaction
9. Fourth stomachs
10. Warble
11. Compact
12. Coat of arms shield
14. Palpable
15. Make happy
18. Rancour
20. Trail
24. Illogical
25. Coarse file
27. Picture
28. Shrub with mophead and lacecap varieties
29. Archetypal
30. Systematic plan

Down

1. Amount
2. Of the wind
3. Muslim religious official
4. Reflexive pronoun
5. Save
6. Enunciate
7. Renowned
8. Tessellation
13. Spurious
16. Ball of aromatic substances
17. Padre
19. Perceived personality
21. Alloy of mercury
22. Notorious or Walk the Line
23. Font family and architectural style
26. Twinge

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Solutions: Issue 5

S	L	I	D	E	R		S	E	M	A	N	T	I	C
C		N		D		S		S		N		U		R
R	E	S	P	E	C	T		C	L	E	A	R	L	Y
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W	A	T	T		O	E	N	O	L	O	G	I	S	T
B					P		P		W		M		T	
A	M	E	N	A	B	L	E		S	E	Q	U	E	L
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S		O		E		L		E		P		I		M
S	O	N	O	R	O	U	S		Z	Y	G	O	T	E