

math **NEWS**



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Volume 124, Issue 1
Friday, January 17, 2014

lookAHEAD**mathNEWS**

January 27	<i>mathNEWS</i> editors summon writers to the field of battle
January 31	Issue 2 carries the trolls

MathSoc

January 17	Free brownies 11:00am-12:00pm
January 17	MathSoc Councillor Nomination Forms due

CCA

January 18	Job Postings (Main Group) open 7:00am
January 21	Job Postings (Main Group) close 11:59pm
January 24	Job Postings (Main Group) open 7:00am
January 27	Job Postings (Main Group) close 11:59pm
January 27	Employer Interviews start

University

January 24	Drop, no penalty period ends
February 17-21	Reading Week
February 21	Deadline for 50% tuition refund

Misc

February 17	Family Day
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Cream (Murphy Berzish), Sonic (Julie Sturgeon), Tails (Rachel Wiens)

mastHEAD

Southern Ontario was recently plunged into a deep freeze. We asked our writers, "How did you survive Icepocalypse 2014?"

konstantine ("I went for a late night walk in the *pretty* ice."); wibs ("I escaped the country."); !bar ("Skating!"); GingerbrED ("Burning writers for warmth."); bubblegum ("Layers. Lots of layers."); ScruffyED ("By being in Winnipeg for the previous three weeks. It was nice to come back to Waterloo and warm up."); Beyond Meta ("I didn't; my ghost now haunts campus determined to get vengeance on the administration."); unit ("Hibernation."); Ice Nine ("What? There was something wrong? I came to campus and did math."); Element 118 ("Went for a walk. I needed to keep the fever down."); VPA ("Came to campus to tell the University they should have closed."); psychomath ("I was huddled under a pile of blankets and kittens."); Big Mak ("Sleeping in a Tauntaun."); Stubbs ("Pink fluffy unicorns dancing on rainbows."); MuffinED ("I kept telling myself that that burning sensation in my fingers meant that I was alive."); xoxo ("Made friends with the penguins and learned their ways."); Wolverine Panda ("When the power went out, I grabbed a shit-ton of blankets, made a panda plushy/pillow/blanket fort and stayed there playing my PSP [awesome battery!] Oh, right... my house has a gas stove and fireplace so I had food available."); AddictedGmr ("I was in Calgary, we had a Chinook. Temperature was like +10."); MustardMap ("I didn't."); Zethar ("I think I was vacationing in DIS after being banished there. I surely that won't matter since we have this nuclear neighbour."); Soviet Canadian ("I stayed home learning Novan history and falconry.")

Sweet & Sour: Failing in the Fall

This past Fall 2013 has seen some changes to faculty policy that will affect you.

For every course you took until September 1, failed courses were not included in your average. In other words, if you took four courses in Spring 2013 and achieved 20, 40, 60 and 80, your average would be 70. However, if you achieved these same marks in the Fall 2013 term, your average would be 53. As of September 1, 2013, failed courses are included in your average. Courses with grades less than 32 or grades of DNW will be converted to a 32 in the average calculation. This brings the faculty into line with the other faculties.

Remember, this only affects courses that you take starting September 1, 2013. Any courses that you failed prior to September 1, 2013 will continue to be omitted from your average.

Additionally, should your cumulative average dip below 60%, you would currently be asked to leave the faculty. However, as of September 1, 2013 you will not be asked to leave the faculty.

Please note that plans (i.e. Actuarial Science, Applied Math, etc.) will continue to enforce their average requirements.

Should you have any questions, please direct them to an academic advisor. They may be contacted via mathadvisors@uwaterloo.ca or by dropping into MC 4023.

Riley Metzger

VPA Sez

I am your VPA Stéphane Hamade. My duties include working to give the student opinion on academic issues to the university, as well as working on our textbook library and exam bank, and running career events.

I would like to talk to you about an important issue that is being discussed at many universities and currently implemented at most universities in Ontario: Fall Reading Break.

On Monday it was passed at Laurier's senate meeting and they will be implementing a week break for Fall 2014.

The Mathematics Society sent out a survey near the end of Fall 2013 and there was a very strong demand for a Fall Reading Week. More than 85% of math students were in support of a Fall Reading Break.

I have heard several arguments in favour of a Fall Reading Break: we do not currently have enough breaks in the Fall; it will significantly help students' mental health, and it may also improve first-year and overall student success.

Many students who live further away need a longer break so that they are able to go home. Going home will also help with many of the aforementioned issues.

Finally, our students have fewer breaks because of co-op, and many students go straight from work to school and vice versa with only a weekend in between. By giving them a break in the middle of the term we will give them a chance to recharge. Furthermore, due to co-op, many students also miss the winter reading week.

We must work with the university to implement this and provide a better environment for our students.

I would be very interested in hearing any feedback on Fall Reading Break. If you have any opinions, let me know at vpa@mathsoc.uwaterloo.ca

Thank you.

Stéphane Hamade
Vice President Academic
Mathematics Society

CTRL-A Sez

Hey there! We're the Club That Really Likes Anime, a gathering place for those with an interest in anime, manga, and nerd culture! On Friday January 17 and Saturday January 18 we will be having our first anime show! Come join us in AL 113 at 4:30. We will also be doing a group registration for Anime North, so if you plan on going and want the group rate, contact us! For more information, you can find us at www.ctrl-a.org.

Nathan Hyde

Distinguished Teaching Awards

Do you know a distinguished teacher?

Here's your chance to recognize them through the Distinguished Teacher Awards (DTA)!

Pick up your nomination sheet at DC, DP, or SLC's TurnKey (drop boxes are also available at these locations).

Nominations are due Friday February 7, 2014.

For more info or questions:

- Visit: at EV1 325 or online at http://cte.uwaterloo.ca/teaching_awards_and_grants.
- E-mail: cte-awar@uwaterloo.ca or call 519-888-4567 ext. 33857
- Tips on writing your nominations: <http://cte-blog.uwaterloo.ca/?p=9>.

*An individual may only win the award once so check the list of past winners on our website!

Do you know an exceptional TA?

Here's your chance to recognize them through the Amit & Meena Chakma Awards for Exceptional Teaching by a Student (AETS)!

Email your online nomination forms to cte-awar@uwaterloo.ca by Friday, February 14, 2014.

Nomination forms online: http://cte.uwaterloo.ca/teaching_awards_and_grants/documents/ETSAnom-form.doc

FYI About the Awards:

- Nominators can be an undergraduate, graduate, alumnus, or faculty/departement member (or colleagues).
- For the DTA's, anyone who teaches at the University of Waterloo and its federated and affiliated universities/colleges (Renison, St. Jerome's, St. Paul's, and Conrad Grebel) can be nominated. These include lab instructors and clinical associates, as well as professors and part/full-time lecturers.
- For the AETS, all registered students who have a formal teaching role (Teaching assistant, laboratory demonstrator, sessional lecturer) at the University of Waterloo or its federated and affiliated university/colleges can be nominated.
- DTA nominees need a minimum of 10 nominations to be considered, and AETS nominees need a minimum of 5 nominations to be considered

Beal's Conjecture vs. "Positive Zero", FIGHT!

ABSTRACT: This article seeks to spark debates amongst today's youth regarding a possible solution to Beal's Conjecture. It breaks down one of the world's most difficult math problems into layman's terms and forces students to question some of the most fundamental rules of mathematics. More specifically, it reinforces basic algebra/critical thinking skills, makes use of properties attributed to the number one, and reanalyzes the definition of a positive integer in order to provide a potential counterexample to Beal's Conjecture.

1. The Undefeated Champion (Beal's Conjecture):

$$A^x + B^y = C^z$$

Where A , B , C , x , y , and z are positive integers with $x, y, z > 2$, then A , B , and C have a common prime factor.

2. Now for the Counterexample of Doom. Let the Games Begin:

Pre-Fight: Beal's Conjecture is never true when $(A^x = 1) + B^y = C^z$. This is because 1 has no prime factors.

Final Match: There are instances when positive 0 is not the same as zero.

"Signed zero is zero with an associated sign. In ordinary arithmetic, $-0 = +0 = 0$. However, in computing, some number representations allow for the existence of two zeros, often denoted by -0 (negative zero) and $+0$ (positive zero)".

Furthermore, the same website proved that signed 0 sometimes produces different results than 0: "...the concept of signed zero runs contrary to the general assumption made in most mathematical fields (and in most mathematics courses) that negative zero is the same thing as zero. Representations that allow negative zero can be a source of errors in programs, as software developers do not realize (or may forget) that, while the two zero representations behave as equal under numeric comparisons, they are different bit patterns and yield different results in some operations."

Additionally, the site confirmed that signed zero can be used to represent different concepts: "...signed zero echoes the mathematical analysis concept of approaching 0 from below as

a one-sided limit, which may be denoted by $x \rightarrow 0^-$, $x \rightarrow 0-$, or $x \rightarrow \uparrow 0$. The notation " -0 " may be used informally to denote a small negative number that has been rounded to zero. The concept of negative zero also has some theoretical applications in statistical mechanics and other disciplines" Wikipedia.org/wiki/Signed_zero.

Since 0 is an integer and it is possible for positive 0 to not be the same as 0; that means there are some rare instances when positive 0 could technically be considered a positive integer, due to the fact that it is **both positive and an integer**.

FATALITY: If the formula $(A^x = 1) + B^y = C^z$ is used when the existence of positive 0 that can technically be considered a positive integer is allowed, then the following statement disproves Beal's Conjecture: $1^3 + (+0)^4 = 1^5$ (when reduced, this is equivalent to $1+0=1$).

3. Moves Performed During the Fatality (values used):

$A=1$, $B=+0$, $C=1$, $x=3$, $y=4$, $z=5$.

4. Can you choose a winner?:

Some people may say that Beal's Conjecture won this fight due to the fact that zero is NEVER included in "the positive integers." Furthermore, some people may say that it is highly implied that the numbers used in the final answer must be greater than zero. Others may argue that Positive Zero won the match due to the fact that it is never specifically stated in the question that a positive integer has to be greater than zero or part of the "official positive integers." The question only states that the integer must be positive and that ANY counterexample to the question posed is acceptable. Based on what you have read in this story and what you have learned in previous math classes, who do you think won the final match?

Angela Moore

elseWHEN

New Time Travel Class to be Offered Last Term

v287i4 – At South Campus Hall mk 2 yesterday, Lars A'na'tho'r announced UW's newest course, Introduction to Time Travel. The announcement was met with great acclaim by the human members of campus, who have been oppressed by the heartless pan-dimensional robotic overlords roosting in the upper levels of Needles Atrium.

"This is really going to be an exciting opportunity not just for the students of UW, but for the faculty members as well," Lars notes. "Ever since that vortex in Biology II was created by those poorly-equipped coop students, we've been living under the fear of pterodactyl attacks unleashed by our most benevolent tin-hearted administration. But now we have a chance to go back

in time and prevent that building from being built, by delaying the construction by any way possible."

The course will be a multidisciplinary program combining the faculties of Mathematics and Arts, where students will be expected to have a thorough understanding of history, improvisation, quantum theory, and Real-Time. Assignments will include correct verb conjugation, paradox avoidance, and how to do a quick genetic test to make sure that you don't sleep with your ancestor.

Pre-enrollment will start yesterday.

The Unnatural Historian

C++ Column: The `export` keyword

This is a column where I write about random C++ topics. I make no guarantees on whether these topics are useful, funny, or just plain crazy.

The subject for this issue is the `export` keyword, which did something up until C++11, where the keyword is now reserved but does nothing. So this article is more for history/trivia/entertainment than anything.

The keyword was supposed to allow you to separate template definitions from their declarations, similar to how you can separate function definitions and declarations. However, the feature had a lot of subtleties and confused even experts. Edison Design Group (EDG), a three-person compiler front-end company, was one of the groups that opposed `export`, but the keyword narrowly passed the vote and was standardized in C++98.

Fast forward to 2002, where Comeau C/C++ shipped as the first compiler to implement `export`. Of course, they licensed their front-end from EDG. (The only other compiler to ship with `export` was Borland C++Builder in 2004, which also used EDG's front-end.)

Now that `export` was actually implemented, EDG could share their experiences. They noted that it was extremely difficult to implement, taking over three person-years to implement and test—design not included. (It took them two person-years to implement their Java front-end.) EDG also found other C++ language features that were affected by `export`.

In 2009, the C++ standards committee began discussions on whether to deprecate or remove `export`, on EDG's recommendation. The feature was removed in 2010, and was finally standardized in C++11.

So there you go. In C++11, `export` is a keyword that does nothing, but is "reserved for future use."

Next time, we'll take a look at the black magic that is C++ templates.

I glossed over a lot of the details for the `export` keyword, but here are some links if you want to learn more. I used these as my sources when researching for this article:

<http://www.gotw.ca/publications/mill23-x.htm>
<http://web.archive.org/web/20120816022326/http://www.drdobbs.com/export-restrictions-part-2/184401584>
<http://herbsutter.com/2010/03/13/trip-report-march-2010-iso-c-standards-meeting/>

nothob



Drop your Minecraft username in the **BLACK BOX** or email it to us at mathNEWS@gmail.com to be whitelisted on our Minecraft server (129.97.134.134).

Shut Up, Feminists

Sexism is over

Society has already made its amends to centuries of ignoring the contributions of women. Like the single poster board featuring women in mathematics, made as an addendum to the boards covering the entire adjacent wall titled the History of Mathematics and featuring only male mathematicians, society has already given its apology. Females are equal now. Sexism is over.

Sexism is over, but you think it's sexist to educate males on not committing sexual assault, to implement female-only gyms, or to have female-only residences. It doesn't matter that one in four women are sexually assaulted in their lifetime, and that often they are blamed for their own sexual assault. You aren't a sexual offender, nor are you a victim-blamer. You think females are equal, so sexism is over.

Sexism is over, because people you know no longer assume women to be less competent solely based on gender, and because no one explicitly insults women simply because they are women. It doesn't matter that only 12% of computer science students are women at your university, that there is only one girl in your pure math class, or that some clubs affiliated with MathSoc have been accused of sexism. Females are equal—and sexism is over.

Sexism is over, so you call yourself an egalitarian. You don't want to be associated with those feminists—you know the ones—the angry ones, the killjoys, the ones that believe in the existence of the patriarchy. You call yourself an egalitarian because females are equal now. Sexism is over.

In fact, you hate those angry feminists. What is there to be so angry about? Why can't they just be nice about it? After all, sexism is over.

Sexism is over, just like racism is over. After all, slavery ended a hundred years ago. Sexism is over, just like homophobia is over. After all, same-sex marriage is legal now. Sexism is over, just like transphobia is over. You're definitely okay with trans people existing. They're equal, like everyone else.

Sexism is over.

NOTANGRY

N Ways to be a Girl on the Internet

- Like Samus, don't let them know until they already love you.
- Social Justice Blogger – this is the “scare everyone away” method.
- Hannah Hart of My Drunk Kitchen (AKA be drunk and a lesbian).
- Know your “guy stuff” like sports and video games so you can tear their opinions apart when they point out that you have boobs.
- Ugh, duck face. You deserve to be judged if this is you.
- Cosplay (fun, but expensive).
- Just don't. It's a dangerous place.

konstantine

60% Of Amazon Drones Return After Test, Considered Success

Earlier this week, Amazon did a test run of the new drone system to see the success and return rate. After the initial run of sending drones, 60% of the drones returned back to Amazon's shipment facility. Of the 60%, 30% came back in acceptable condition, ready for another delivery.

Jeff Bezos, the CEO of Amazon, was thrilled with the results.

“I honestly expected none of the drones to return, I especially didn't expect to see this many return in working condition.”

Many of the drones suffered from varying degrees of damage, including weather, impact, bullet, and bite marks from animals. In stranger circumstances, one drone was found partially damaged, and another returned much later than expected. The late drone seemed to have been temporarily taken, and was now sporting a doll's dress.

In terms of actual successful deliveries, a surprising 80% actually made it to their destination in some way. Many of the drones landed on rooftops, pools, driveways, and cars. Most of the drones had an error of approximately 50m, requiring some of the customers to hunt around the neighbourhood in order to find their package. Some enjoyed the adventure, while others weren't too pleased. In many cases, the stray package was not picked up by the intended recipient. Not everyone was displeased with this, though.

“Well, it's better someone random stole it compared to the people at the post office,” said one customer.

“I really didn't expect it to do any better, but the fact it even came around my house at one point was quite a pleasant surprise,” said another.

With the initial test considered successful, Amazon hopes to see the future covered in drones. In order to increase the accuracy and return rate of the drone, airdrops are now being considered instead of the drone actually landing and risking being damaged or stolen. Amazon hopes to use the same system the military uses to deliver bombs accurately and successfully to their targets.

John Smith, *mathNEWS* Reporter

**Send us your articles,
profQUOTES, grievances, puzzle
solutions, flirtations, hate mail
and Sez's to
mathnews@gmail.com.**

Hobbing on Campus

Ah... winter. Back to school means the joy of seeing friends again, the hassle of getting all the required courses added (at least for the course-adding-challenged such as myself) and the pain of the bloody ridiculous cold. And by bloody ridiculous, I mean horrible, biting, icicles-forming-from-your-tears COLD. Seriously, apparently it was colder in Canada than on Mars this January!

But I'm not here to rant about the cold. I've already done that to my friends and exhausted my clever turns of phrase on the subject. Instead, I present a paean in praise of the Comfy Lounge. (Not actually a paean because I can't sing.) There are many pros to staying in the Comfy Lounge when temperatures dip twenty degrees below freezing and there's neither food nor internet waiting for you at home because you've neglected shopping for food and your housemates have left, taking the modem/router with them. However, there are cons as well.

Pros:

- Internet. For those whose only friends and entertainments are online, this is vital.
- Food. True, vending machines are way overpriced, but there's a wide assortment of unhealthy yet delicious consumables just waiting for you to purchase them.
- Privacy. During the day, the Comfy is so full it's a matter of luck finding a couch at all. But at night, the crowd thins and you can move a group of couches to form a shelter that hides you from the world.
- Dark. This is why I prefer the Comfy over other places such as the SLC. The lights in the Comfy are kept off.
- Comfort. The couches in the Comfy are, in a word, damn awesome. Okay, that's two words. That just underlines how damn awesome they are. (A caveat: If you plan to sleep there, do not rest your head on the armrests. It will hurt.)

Really, that should say it all. But beware! There are cons:

- Interruptions. This varies from night to night and usually takes the form of janitors with vacuum cleaners. Beware the janitors with vacuum cleaners.
- Hygiene. No, the Comfy is not dirty. But you'll need to go home to shower or else load up on deodorant and wear a hat to conceal the atrocious state of your hair. And bring a toothbrush. (Still, I prefer travelling in the morning over travelling at night. More buses, more light, less chance of freezing to death before a jogger finds your stiff, frozen corpse.)
- Cold. The Comfy has big windows and sleeping there at night without a blanket is not advisable. Bring a blanket. Bring a sweater, too.

Sleeping on campus can't compare to a nice bed with blankets and a pillow and everything. But as an alternative to going out in a polar vortex and facing an empty fridge and no net, it's hard to beat. Stay warm, friends, and stay connected!

bubblegum

N Things that Returned Before Sherlock

The third season of the BBC series Sherlock, starring Benedict Cumberbatch (alias Smaug) and Bilbo Baggins, has finally returned! For those who don't know, avid fans of the show have been waiting for this moment for forever. If you think I'm exaggerating, here is a list of things that happened before Sherlock returned:

- It snowed in Egypt.
- The geese left the university (notice the conspicuous lack of honking?).
- I learned how to cook.
- Two Hobbit films were released, the second of which starred both lead actors of Sherlock.
- 'N Sync, the Spice Girls, and Destiny's Child all reunited.
- The University of Waterloo closed down for a snow day (remember last winter?).
- The U.S. government shut down.
- The U.S. government started back up.
- A meteor crashed in Russia.
- Agent Coulson came back from the dead.

At least we got season three before the Niagara Falls froze over, though it was a pretty close race. Maybe by the time we get season four, the Leafs will have won the Stanley Cup.

xoxo

Awesome Games Done Quick 2014: A Brief Debrief

Last week, from Jan 5-11, a bunch of speed runners from Speed Demos Archive and Speed Runs Live played video games for a week straight to raise over \$1 million. They ran 165 games in a row in the main stream. Below is a list of games which were pretty "hype" (read: cool and/or interesting) and why.

- TAS Block: A robot speedruns video games and hacks them to program other games. A must-see if you love Pong with Mario's head.
- Banjo Kazooie, Metroid Prime, VVVVVV, I Wanna Be The Guy. All of these races have some developer commentary with the runners over Skype.
- Sonic 2006. They finish this terrible game in 40 minutes.
- F-Zero GX. His stunts are insane. Over 3000 m/s.
- Zoo Race. An insane game.
- Punch Out and Super Punch Out. BLINDFOLDED.
- Pokemon Soul Silver. 7 seconds off of the world record.
- Super Metroid. Four way race, final two are within 0.3 seconds of each other.
- Yoshi's Story. A bonus run which will likely be in the main stream next year, 30 melons run.

You can find videos on demand of all these runs at http://www.reddit.com/r/speedrun/comments/lui4dn/agdq_vods_thread/

Ice Nine

How I Got My Last Co-op Job

At the end of the co-op term, if you've done a great job, your employer will most likely want you back. After all, you've passed the four-month "interview," they're happy with your work, and they've already trained you. Getting you to come back is much easier than going through interviews and training a new candidate.

This story took place at the end of my fifth co-op term. I was at a large software company, one of the "Big Four." At the end of the term, I was meeting with my recruiter, and here's snippet of our conversation:

Recruiter: So, we're very pleased with your work and would like to ask you to come back. What do you think of going back to your current team?

Me: Well, it was fun, but the work isn't what I'm passionate about.

Recruiter: What are you passionate about?

Me: I want to do X. If I can't do X, I won't come back. My manager introduced me to three different teams doing X, and I've already chatted with them about their work and my interests. *If I can get a position on one of those teams, I'd definitely come back. Otherwise, I will try my chances with other companies.*

So that was my condition. I had done everything I could do, and now it was up to the teams I spoke with and my recruiter.

A few weeks later, I got confirmation that I would be placed on my first-choice team. I accepted the return offer. Win-win for the employer and me.

If there's a lesson in this story, it's that connections are extremely important and useful. Especially if they're inside connections.

Cheeses Murphy

notbob

It's midnight and you're hungry and you've been dragged out to celebrate some friend's birthday or bat mitzvah or whatever people celebrate when they go out these days. You've been out an hour and need an excuse to escape the throngs of sweaty drunk people demanding you sign up for karaoke. This is why Cheeses Murphy was created, for times like this. Take advantage of it. It's open midnight-3:30am in Uptown Waterloo (Note: Uptown... downtown is Kitchener) in the Princess Twin cinema box office. If you've never had a sticky frenchman – you need to. Brie and caramelized apple, dessert grilled cheese. Also, cheese and chong. Which is exactly what you think it is – taco grilled cheese. Best part is, you order and get a ticket for picking the sandwich up later. The ticket is an awesome famous person... I have a rule that if you get Mr. Universe, you win. Your friends buy your next drink.

So don't despair next time you are stuck in the great unknown of Uptown, just hold out until midnight and then go to grilled cheese heaven. Well now I'm craving one so I'm off to their daytime hours restaurant in Kitchener before it closes.

konstantine

Russian Reviews: Long Live The Queen

or, How Many Ways Can A Princess Die?

Have you ever wanted to raise a 14-year-old princess to become queen? Do you think it'll be all dresses and dancing? If you answers are yes and no respectively, then you are ready for Long Live The Queen, where you don't live very long. With assassinations and wars, accidents in the castle and magical experiments gone awry, you will be in mortal danger for most of the game. You will need to prepare for the worst by learning all the skills you can, and manipulating your mood to better learn those skills.

A duke asks to betroth you. If you accept, you will need to marry him and deny all others. If you refuse him, it is likely his family will support the rebels. With a better understanding of Court Manners and maybe Flattery, you could convince him of an alternative. You are sent a gift of poisoned chocolates, and since you are not knowledgeable in the merchant houses, you do not catch that this gift comes from a fake house. Now only your knowledge of poisons, or trusty dog that you might have trained, can keep you from death. A war has broken out! You must lead the troops in your kingdom's defense, with knowledge of strategy, logistics, and medicine coming into play.

All this and more as you try to survive until your coronation. With your nation and your life on the line, will you succeed?

Soviet Canadian

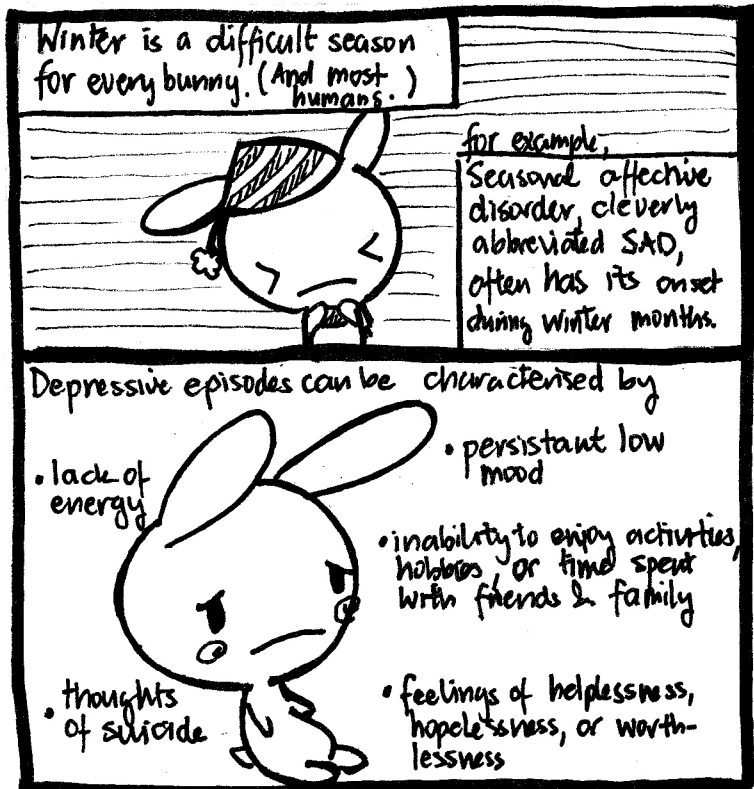
Gender Neutral Pronouns

Sometimes, you don't refer to someone's gender. Perhaps you're playing a game and you don't want to reveal information, you are writing about a generic scenario and you don't actually know their gender, or you are writing about an extraterrestrial race for whom the concept of gender is alien to them. Whatever the case, it may be useful to have a gender neutral pronoun. Numerous attempts have been made to create such a pronoun. Examples of proposed gender neutral pronouns are Hu, Ze, Je, Per, Thon, and E, though none of these pronouns have really any lasting impact on the language. However, there does exist a pronoun in the English language which has been used for gender neutral situations since the 1300.

What is the wonderful pronoun? It is singular they. You just use the pronoun they to refer to a single entity. The alternative would be to use he/she. However, that is awkward. It disrupts the follow of the text and further emphasizes the gender binary. Singular they is the most organic, it already exists and is accepted by all but the most conservative grammarians.

In summary if a person wishes to use a gender neutral pronoun, they should use singular they.

Beyond Meta



If any of these symptoms sound familiar, please see a health professional.

Counselling Services*
NH 2080 x 32655

Health Services
519-888-4096

Math Undergrad Office
MC 4022 x 33405

* long waitlists

Crisis Resources
anytime, anywhere you need someone to talk to

Crisis Line: 1866-996-0991.

Online Crisis Network iamalive.org

Mobile Crisis Team 519-744-1813

Grand River Hospital 519-742-3611

KW Distress Line 519-745-1166

Telecare Distress Line 519-658-6805

There's
no shame
in getting
a check-
up!

A New Beginning: A Review of the Nexus 5

The story. I used to be a simple man when talking about cellphones. I've owned this one BlackBerry for as long as I can remember. Small, practical, easy to use. It was the Honda Civic of phones. Unbreakable...until it died a peaceful death. I needed a new device, so I embarked on a journey that brought me to the most magical land of all: the world of smartphones. I spent years exploring this new universe, but none of the Galaxies fitted my needs and desires perfectly. This one is too big; that one is built with cheap material. I decided to wait and wait for the promised one, the nexus between reality and dreams.

On the afternoon of the 31st of October, I walked in class and opened my laptop nervously. My palms were sweating, my knees were weak, and my arms were heavy. The Nexus 5, the long-awaited one for me, was being released at this very moment. And it sold out right before my eyes. Twenty minutes was all it took. All it took to go from being an emotionally stable adult to the edge of tears. I sighed in disbelief and a single tear ran down my face. I was not going to give up so easily! The next ten minutes can be summarized by one keyboard key: F5.

The efforts paid off as I successfully acquired a Nexus 5 after ten tense minutes. I could not contain my joy. I raised my arms in air and jumped out of my seat! The teacher perfectly described the situation: "You're having too much fun in this class!"

The teacher was right. But I don't mind. At all. I bought my Nexus 5 and nothing can stop me now!

The review. Good phone. Camera is average. It still takes good selfies though, so I'm fine with that.

GingerbrED

A Cheesy Article (for Cheese Club)

It's a gouda idea to join the Campus Crusade for Cheese! You cheddar come to our meetings, in MC 4063 on Fridays at 4:30.

It's gonna be a dairy good time.

It's a brie-ze to join; you're a member once you pay for your cheese.

It'll drive you crackers how cheap it is! Only \$2 for cheese.

Come parmed and ready; bring a plate, or pay \$0.25 for a disposable one.

Then you'll edam up all the cheese you'd like!

If you have a cheese feta-ish, or you just want to join a really weird club, come to our meetings!

Don't be forever provolone; you'll meet lots of people!

You just ricotta come! Or else you'll make us bleu.

If you don't, we'll Swiss you.

You'll Havarti a good time! We'll love you for chevre.

Make emmental the puns!

El Jengibre

Follow us:
on Facebook (MathNEWS),
on Twitter (@UWmathNEWS),
or in person (MC 3030)!

Europa Universalis IV: Getting My British Bum Stomped

I'm a fan of strategy games. I suck at them, but I'm still a fan. I love playing Risk with my housemates and absolutely adore the Civilization series. So, a colleague of mine (I'm on a work term) suggested that I might enjoy the game, Europa Universalis IV.

First impression: it's a pretty awesome game.

The games start in the mid fifteenth century when the Ottomans are threatening Europe in the East; the English and the French are engaged in the Hundred Years War in the West; the Renaissance and mad trade is kicking off in the Italian city states; and in the middle different components of the Holy Roman Empire vie for control. It is a time where the race to colonize is about to start and powers in Europe rise and fall on the world stage.

I've started playing as England because the English are awesome. With their naval strength unmatched and their armies powerful and plentiful, their shrewd merchants and charming diplomats, England is both rich and influential. So right out the gate... I got my my royal British butt stomped by the French. The FRENCH! I lost all territory to France except Calais. This is what happened in history as well, but I had hoped to do better.

Of course, war with France had put a serious strain on my resources. Not only did I have few men to replenish the ranks of my army, but I was also in serious debt from trying to hold off the French in Normandy. So I did the only logical thing as an Englishman: I invaded Scotland. The invasion was a profound

success resulting in Scotland giving up possession of Fief, Aberdeen, the Highlands and Ayrshire as well as them becoming my vassal.

This had really just exacerbated the whole "less than no money and no army" problem. Luckily I planned next to consolidate my power for the next long time until I was out of debt and my country was stable. Except because of my "aggressive expansion" into Scotland, the Irish states, Castille and Aragon declared war because I had "become too powerful." Tell that to my bankers. I mean, who lets a guy who has no income take out half a dozen bank loans?

So I sank Spanish ships while moving my ever dwindling military resources and some mercenaries (paid for with even more bank loans) into Ireland to tame them. I finished up the war as quickly as possible (taking territory but giving it back in return for peace) because now there were revolts throughout the motherland that had to be put down (guess I don't need to keep paying those mercenaries). So back onto ships... Stupid peasants, don't they know my bankers are idiots?

Now, I've been at peace for eight years and am now making money (only three bank loans left). Some people like me, the pope is English, and Calais remains in my hands.

This is all before 1470. I haven't even started colonising anything yet.

Stubbs

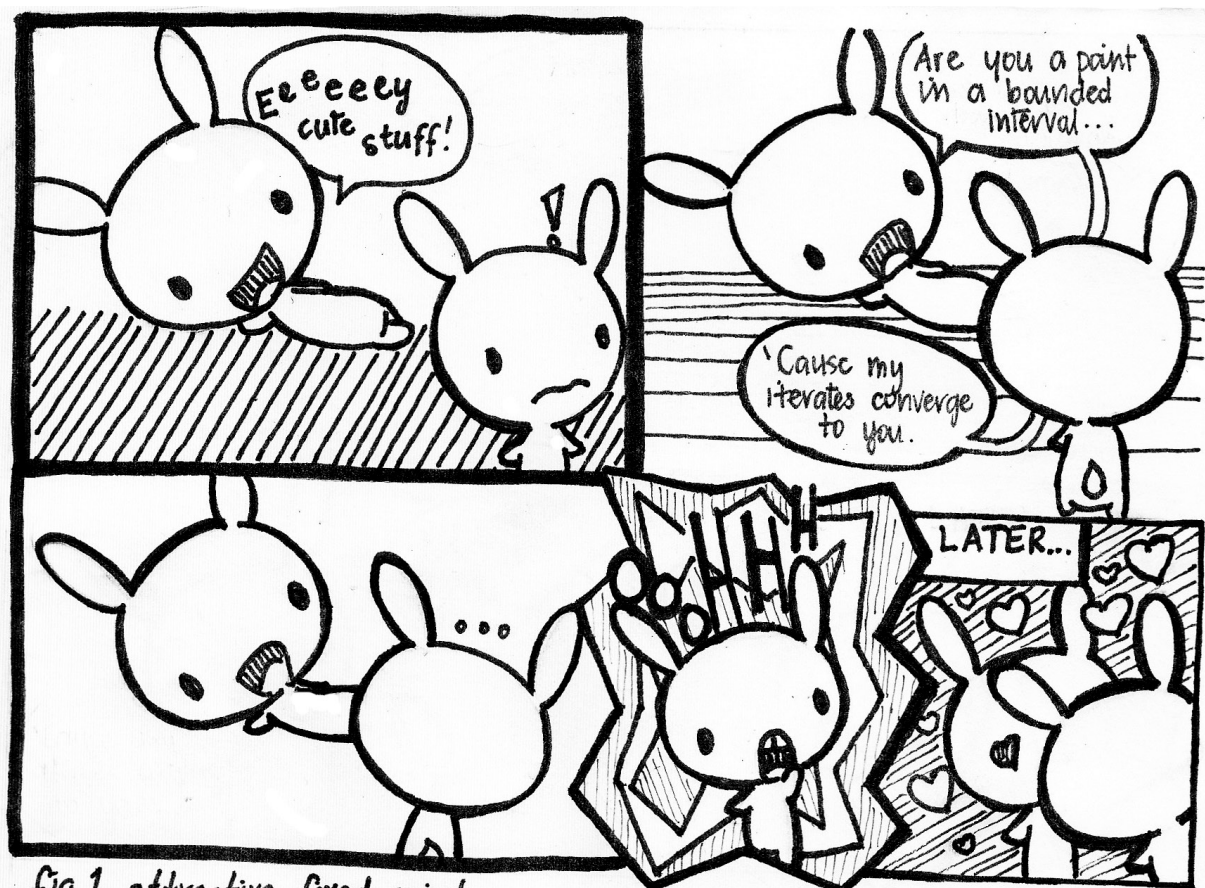


fig 1. attractive fixed points

LilyPond: Text-Based Music Engraving

or: Why Knowing Scheme Helps You Engrave Music

Hello all! Happy New Year/Merry Christmas/Happy Epiphany/etc etc. Hopefully everyone is having a marvellous term so far. The present author intends on making this an even *more* marvellous term for the reader by introducing what is, the reader should eventually agree, a great way to engrave music without touching a WYSIWYG editor. A brief disclaimer is necessary: As some of the author's former classmates have remarked, he is old (thanks goes to yourlocalWHETHERgirl), and thus still calls the language Scheme, not Racket.

LilyPond, found at lilypond.org, is an open-source music engraving program, complete with its own language/syntax and compiler. To engrave a piece of music, one writes an .ly file containing the appropriate code, and hands it off to LilyPond, which interprets the file and spits out a PDF (or other image type) and/or MIDI file accordingly. Once one learns the basic syntax and format of .ly files, it becomes remarkably straightforward to engrave music; even slightly more complicated things like full scores and matching lyrics to a melody line are well within grasp of a relative newbie. As well, the syntax is at least reasonable in terms of learning curve, and the online documentation is fantastic, so actually learning the language is not as terrible as it could be (of note, the present author is definitely not an accomplished programmer, so this is saying, well, something).

Why is the author going on about LilyPond? Firstly, the output is absolutely gorgeous, with only a very small amount of manual correction necessary, and usually none, in most cases. Any musician has probably seen some sheet music and wondered why it was so badly engraved, and then grumbled because it was required to play said ugly looking sheet music; this situation will never come up using LilyPond ('never' in the measure-theoretic sense of the word). Check out some of the example music on the webpage to see why 'gorgeous' is appropriate. Secondly, it is completely free, in both the libre and gratis senses of the

word. This means that one is not required to sacrifice an arm or leg to the gods of proprietary software, or otherwise procure, possibly "illegally" (whatever that means in today's day and age, honestly), things like full-version Finale or Sibelius. This also means that it is possible to get involved with the ongoing development of the program, and see good ideas implemented in future versions.

Now, the reader might be wondering where the topic teased upon in the subtitle will come into focus. It is the case that LilyPond, originally built from the ashes of MusiXTeX in the mid-late 1990s by two Dutchmen, Han-Wen Nienhuys and Jan Nieuwenhuizen, now features in its codebase code written in C++ and Scheme. In addition, Scheme is the extension language for the program; it is very much possible to define new code or change parameters on the fly in one's .ly files and have the compiler see this and utilize the changes. In this sense, knowledge of Scheme makes this process much less challenging, due to familiarity with typical Scheme syntax.

While the present author has spilled electronic ink on an introduction/advertisement of LilyPond, other beings on the Internet have spilled much, much more, and on detailed essays regarding automatic music engraving and comparisons of common engravers. Investigate the essay on the LilyPond website about the reasons for developing the software, and the Finale/LilyPond comparison by Andrew Hawryluk, both of which should be easily found via some Google-fu. It is well-worth learning more about this subject; indeed, Hawryluk mentions that there exists a method to input LilyPond notation via MIDI keyboard, for instance, thus mostly bypassing the note entry via text issue.

Happy engraving!

Scythe Marshall

UW Promises to Close "When Hell Freezes Over," Breaks Promise

After the snowpocalypse of February 2013, the University of Waterloo created a committee to review its non-closure policies. The policies were discarded as they were deemed discriminatory to bearded individuals due to the following condition: "2c) Should the inclement weather result in complete surface coverage of the skin by frozen precipitation within 30 seconds, students will be excused from University attendance." This clause forced anyone with facial hair to attend class during all winter weather or face the consequences of academic absence. University staff originally defended this clause as "ensuring that the University uphold its Canadian heritage of bearded bravery in the face of adversity." This phrase was then turned against the University itself as symbolizing the right of those with truly great beards to "assert their rights to chop wood, heat their homes, and care for their families, regardless of what the University demands of them."

With the original policies overthrown, the University decided to try a new "closure" policy. This meant that the University would actually cease services during inclement weather. With

hopes high for winter days off, faculty, alumni, students, and staff awaited to hear the new policies. The announcement was simple and clear: "the University will close in the event that Hell freezes over." The joy was unprecedented. Expectations were now for at least two days off each winter term. This year the new policy was put to the test. With temperatures in the low -30's at the start of term, closure was obvious. To alleviate doubt, several grad students "volunteered" to check the weather in Hell. While originally denied the vacation time, they managed to convince one former PhD graduate to fund the research trip. Thanks to this unknown donor, they managed to find that the gates of Hell were closed due to the five feet of snow and black ice filling the locks. Cerberus was found with severe hypothermia on two heads and all the tennis balls in the third's mouth.

With proof in hand, the grad students prepared to demand their day off. The University said no. Professors were forced to cancel their own lectures and create make-up plans. What this breach of policy will mean, only time will tell.

Element118

horrorSCOPES

Horoscope Edition

ActSci: Over the next few days it will feel like you have turned a corner, and that better days are coming. Turns out, they're surprisingly early midterms.

Your unlucky number is: 10 hours of cramming already.

AHS: You will find that people will be even more assertive than usual today, but don't let that intimidate you in the gym. It just means that you have to lift even harder!

Your unlucky number is: 400lbs attempted bench press into infamy.

AMATH: Something will happen over the next 24 hours that makes you feel a lot better about your long-term prospects. Like the prof suddenly saying "Wait, these equations are all wrong! I have just discovered a simple universal constant to make these transformations so much simpler!"

Your unlucky number is: 22-minute nap in class leads to lovely dreams.

ARTS: Take time out of your busy schedule to sit down and think about what it is you are doing and where it is you are going. That applies to all areas of your life, but especially to your career. Would Starbucks be a better employment opportunity, or Tim Hortons?

Your unlucky number is: \$11/hour

C&O: It might be a smart idea to take a closer look at how you organize your everyday affairs. Start thinking of ways you can make your routines simpler and your chores less of a burden. For example, you can start living in MC to minimize the time spent on other work.

Your unlucky number is: 21 days without a shower.

CS: The pace of life will pick up over the next few days, and that's good. It means you still have a bit of time to end your relationships and cut off your social life before the Graphics due date gets too close.

Your unlucky number is: 0 friends needed.

Double Degree: You will hear something today that does not exactly fill you with joyous feelings but it's not as bad as you think it is. It's much worse. Your Laurier course clashes with your Waterloo one, and it won't be offered again until you're on co-op.

Your unlucky number is: 16 months delayed graduation.

ENG: You will push yourself hard over the next few days, of that there is little doubt, but will you push yourself in the right direction? Only if it is to a hard drink, because you'll need one once you see the returned assignment marks.

Your unlucky number is: 35% proof, and grade.

ENV: You are a generous soul at heart and like to see friends and family enjoy themselves. They'll be sure to love the new marmite diet you discovered on Instagram!

Your unlucky number is: 231 calories forced upon them in each serving.

Grad: It's good that you know your own mind but you also need to make sure those you live and work with know it as well. Spend all day forcing your thesis upon everyone you meet—that'll be sure to get you noticed.

Your unlucky number is: 17 people scared away in the first hour.

Math Bus: Sometimes you can be too suspicious for your own good, so you better downplay that fact that you bet against your buddy's company for the next little while. Buy him a cake to diffuse tension.

Your unlucky number is: 8" chocolate brownie cake never fails!

Math Phys: Remember that not everyone wants to change the world – in fact, some people like it just the way it is. With that in mind you now have test subjects for when you use your new quantum computer to test its encryption cracking capabilities.

Your unlucky number is: \$1,700,000 siphoned away before getting caught.

PMATH: The sun is outside and your confidence is high, so do something special over the next few days, like staying in your bleak office trying to solve that same $@\#\%^{\&*}$ proof that you spent your holidays working on.

Your unlucky number is: 172 straight hours in fluorescent light.

SCI: No matter how many times you have fallen short in the past you will succeed this week. This week, you will get a lab partner that pulls his own weight on the assignments!

Your unlucky number is: 3 years of waiting for more disappointment.

Soft Eng: Don't listen to those who counsel caution. The upper years said that "`:() { :|& } ; :`" is the best way to overclock your computer for maximum performance, right?

Your unlucky number is: 120°C CPU overheating malfunction.

Stats: Others may feel sorry for someone whose luck appears to have deserted them, but you don't. They should have learned to calculate the odds to know that you were bluffing. Just like you should have calculated the odds of them bringing a nailed stick to the poker game.

Your unlucky number is: 2 broken kneecaps.

Teaching Option: Even if you disagree with someone on a point of principle you can still work together, so stay on good terms and seek a compromise. And then tell your students that it was your coworker's fault that they were given that pop quiz.

Your lucky number is: 30 rebellious teenagers on your side.

Undeclared: You may know what you are after but you still need help in getting it. If you don't ask for assistance today you may find yourself being left behind on the work front. Don't worry though, Jobmine has all sorts of other jobs that you can apply to, like Sewage and Sanitation work!

Your unlucky number is: 16 weeks in muck.

profQUOTES*LAST TERM*

"I've got a brother in radio, so I'm sure I'll eventually be a strip club DJ."

Burris, SMF 205

"Pornography and scholarly are two words that you don't hear together often."

Rempel, SMF 205

[Regarding pornography] "She's a ventriloquist, since she's talking with her mouth full!"

Rempel, SMF 205

"I am sure that Diane Keaton has a wonderful body."

Greenberg, DRAMA 394B

"They've even used this technique in projects such as the Hubble Space Telescope. Err. I mean telescope."

Berry, SE 463

"I've only been in **mathNEWS** once, and the other time, I said 'I like CRAQ'."

Wong, CS 343

"Wow, that sounds like someone skinning a cat... not like I know what skinning a cat sounds like."

Wong, CS 343

"My grad students always let me win Starcraft. One time I was watching a replay. They marched their units into a base, saw I wasn't ready, then left."

Wong, CS 343

[Professor breaks chalk.]

Student: You're at 73 [chalk breaks].

Professor: I'm not going to make it to 100. I always wanted to be a centenarian.

Small, STAT 240

"I'll have office hours during the exam period ... but if you have any emergent question right before the final, we may Skype."

Sakhnini, CS 116

THIS TERM

"Since this is a pure math class, I will suppress the word 'abstract'."

McKinnon, PMATH 467

"This is not a continuous function!" [Rips piece of paper in half.]

McKinnon, PMATH 467

"I really don't like this notation, but all the cool people are using it."

McKinnon, PMATH 467

"One is where the money is. Two and three are for the guys in Legal."

McKinnon, PMATH 467

"How many people are too chicken to put their hands up?"

McKinnon, PMATH 467

"It is stonkingly useful. That's not the technical term."

McKinnon, PMATH 467

"We say that T has dense range if the range of T is dense in X ."

Davidson, PMATH 810

"Pi drives me around the bend. I never know where to stick my pi."

Hewitt, AMATH 231

"It's actually an 80-minute advertisement for the material. You're not going to learn from the lectures."

Lam, ECE 459

"This was back in the 30s and 40s, which was before the 60s and 70."

Epp, HIST 224

"I'll illustrate my point literally. Well, I'll illustrate a whole bunch of points."

Marcoux, PMATH 450

"We argue by contradiction. Anybody who's married should be good at this."

Marcoux, PMATH 450

"You can call my office and ask, 'Are you there?' 'Yes, I picked up my phone.'"

Charbonneau, PMATH 365

"You don't only get math in this course, you also get trivia."

Purbhoo, CO 330

"I'm not good at pushing buttons."

Zeng, STAT 431

"I'm sure none of you have this experience, but for pregnant women [this is a real concern] "

Zeng, STAT 431

"Last time I checked my messages was in late 2007."

Van de Waal, ECON 201

"The students in my last class calculated the distribution of how often I break my chalk. Turns out it follows a Poisson process!"

Mu Zhu, STAT 241

[Student corrects mistake on the board.] "I'm an idiot. Actually, no, I'm not an idiot, but I was an idiot when I wrote that."

Biedl, CS 762

profQUOTES*"Don't quote me on this, but..."*

"There's a whole section in the lecture notes where I said 'skip that'. If this interests you, don't skip."

Biedl, CS 762

"The one time there's an exception [to Canadians not being patriotic] might be any time there's an international hockey tournament going on."

MacFarlane, PSCI 363

"We will use the Toucan Sam principle where we follow our noses. This is different from the Coco Puff Principle where we go crazy for coco puffs."

Katz, MATH 239

[After a student answers a question incorrectly.] "Wrong! Everyone point and laugh!"

West, MATH 237

"When I took this class I was crying, just to reassure you guys."

Abd-Elrazak, FR 197

"Don't believe anything you say, and even less that you hear."

Dymock, SCI 200

"You're right. Now I feel stupid. Just wait till the test..."

Mann, PHYS124

"It's not a bad room. It has tables anyway."

Prabhakar, CS 442

"Nothing in this course will help your CV. In fact, it will probably hurt your CV."

Prabhakar, CS 442

"He died in an asylum. This is something that happens to everybody."

Prabhakar, CS 442

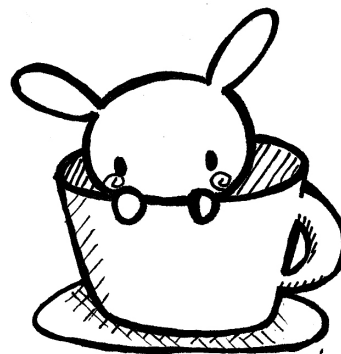
**I Think the MC 6th Floor Is In Another Universe**

The MC 6th floor was renovated recently and it's beautiful and still smells like new paint. The floor is purple (amethyst), grey, lime green, and white with occasional splashes of pink. And the meandering path on the floor makes me feel like I'm walking on an alien planet.

There's more study space on the 6th floor now. There are 8 desks, 6 of them fairly large, available to work on, helpfully locatable on the map. There's a corner with 2 of them painted pink. (A very good math joke is written on one of the whiteboards near the pink corner.)

There's more study space, but there's not a lot of wasted space. It's aesthetically appealing without having useless elements or being wasteful. I think it makes good use of space. I really like the renovated 6th floor.

lightningbug

**General Tips for Moving into a New Place**

- Clean before moving in! It doesn't take that long and it's so much better than putting your nice silverware onto dusty shelves.
- Move your furniture around. Unless it's bolted to the ground, your furniture can be rearranged in so many different ways for a more pleasing experience. If you have a smallish room, you can feng shui it into looking a lot bigger and also more user friendly: dresser by closet so clothes are all in one place, bed by door for easy access, etc.
- Get to know your bus schedules. Also consider posting them somewhere and memorize the bus stop number for your closest stop. If you can walk to school, then consider me jealous.
- Figure out with your roommates what you're going to share and what you absolutely do not want other people to touch. Agreeing on things beforehand saves a lot of grief, and a lot of passive-aggressive sticky notes later on.
- Same goes for cleaning shared spaces.
- Find out who will kill the spiders.
- If the previous tenants left it behind, it's up for grabs. Feel free to toss or use or keep.

wibz

First Impressions: Elder Scrolls Online Beta

Last week I got into the closed beta for the upcoming Elder Scrolls Online MMO and this past weekend I got to try out the game for the first time. I ran into a couple of issues and bugs with the game; however, most of these were minor and the release date is still 3 months away, which means the developers still have time to resolve these issues. My tune will be different later on though if these bugs are still a problem closer to launch. Of course there is still lots of time for everything to possibly change, and my own opinions may change as well.

So far it has been a pretty decent MMO with many character customization choices and a class system that isn't super restrictive. However, it pales in comparison to the freedom available in other games of the franchise such as Skyrim. It does look like Skyrim quite a bit, and for an MMO I would say that it does have pretty decent graphics, but compared to single player games there is really no contest in who wins.

The story so far is pretty decent, and I have enjoyed the fact that often times quests grouped in an area will relate to each other and culminate in a final quest that will send you off to your next destination. Side quest also use this same technique very well, with the exception that the final quest doesn't point you in a new direction. The amount of content seems to be pretty good, as I believe each faction will have different quests, something I will test during the next beta session, at the start with the exception of the main story quest. I am not sure if eventually they all converge or not, or if people will power through it like they

did for The Old Republic as I'm a pretty so-so player. What can I say, I like wandering around, exploring, and trying to break the physics of the game.

The equipment you get through quests and chests seems interesting and varied. I haven't had the same enchantment on an item yet, and the effect seem to be anything from causing additional damage of a specific type, to allowing you to sell to vendors at higher prices. There is also no limit to the number of professions you take on, you merely have to put time into them to become better at them, which is nice since you can switch to different professions as you desire.

It's hard not to compare the differences between Skyrim and the Elder Scrolls Online; they are after all in very different genres. However, Skyrim has definitely set the bar for the series and the franchise and people have developed expectations on how an Elder Scrolls game should play. They definitely have tried to marry the ideas behind so many of the MMOs out on the market already and the mechanics known to people who play Elder Scrolls games in order to appeal to both groups, but I can't help feeling that if they had taken a bigger risk and held on to more parts of the Elder Scrolls series it could have been a much more innovative and new experience. If you were expecting online Skyrim I would suggest you don't pre-order and see if it is something you would like after it is released and look into other people's opinions on the game.

AddictedGmr

Tuesday is Cancelled

Due to a string of recent budget cuts, this upcoming Tuesday will be cancelled, and will be rescheduled to a later time. The rest of the week will still happen on schedule. Therefore, this week will be Monday, Wednesday, Thursday, and then Friday. Saturday will come next.

Current estimates place Tuesday at possibly being rescheduled in June, during the summer midterms season (pending the approval of extra time). Expect to rearrange your calendar to look like the following now, to avoid confusion in the future.

Big Mak

Axis and Allies: Like Risk but Longer!

For Christmas I gave my brother the gift of pain and endless misery. I gifted him the board game of Axis and Allies. For those unfamiliar with it, it is a strategy game with the goal of world domination for either the Axis powers or the Allies. The game, set in 1942, is amazingly complex with lots of different types of units and regions.

So, we started the game late (11:00pm) since that was when one of our friends could make it over. Nathan and I played as the Axis powers, Germany and Japan respectively, whilst my brother, James (Great Britain and the U.S.S.R.), and Billy (U.S.) took control of the Allies. The Soviets start and James did a pretty good job of destroying large amounts of German infantry. Nathan failed at responding and made no territory gains at all. He had tanks and everything, but nope, wouldn't commit them to taking Moscow. Also, he moved the German fleets into poor positions which Great Britain promptly destroyed.

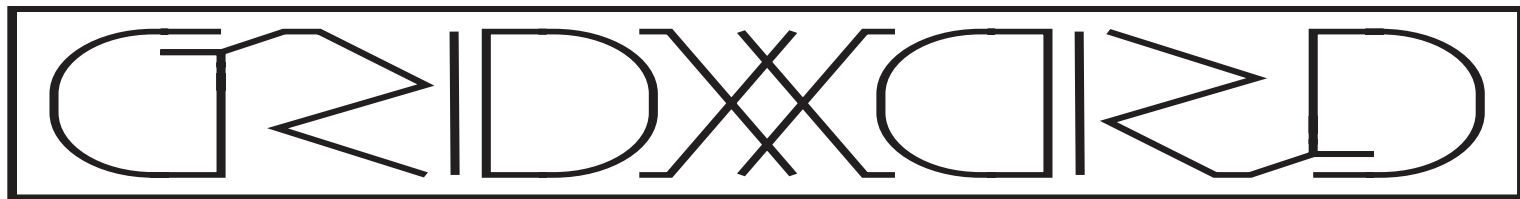
With Japan, I consolidated their fleets into one massive force and destroyed the American aircraft carriers and battleships in the Pacific. With this done, I focused my air power onto the continent and ate away at the China and the Eastern Soviet Union. But the territory gains were short-lived since Britain was under no pressure from Germany and were able to commit substantial forces to India that pushed up through Asia.

James truly came into his own with his command of British forces. Kicking German forces completely out of Africa, he reinforced the Russians in their hour of need and using bomber wings kept Western Europe under high pressure.

By 3:30am, I gave up and went to bed.

Each country had only had three turns.

Stubbs



gridCOMMENTS

Winter words

I'm sick, so I did a lot more sleeping than crossword-making this weekend. To countervail the smaller wordlist, I made the clues tougher. You should not do this crossword outdoors.

Submit complete (or incomplete!) grids to the **BLACK BOX** (by the Comfy Lounge on floor 3 of MC) by 18:30 on Monday January 27th. Include your name and your answer to this issue's **gridQUESTION**—the funniest answer decides the winner (of a \$5 C&D gift card) in the event of a tie: "What's the dumbest way to stay warm?"

Cheers,
unit

Across:

- 2. Breakfast grains
- 6. Highway stripes
- 11. Typographic unit
- 13. Terminus
- 14. Most mammoth
- 15. Psi Pokémon
- 19. The best policy
- 20. Dying? Don't buy 'em
- 22. Dues due
- 23. Leprosy sufferer
- 24. Sphere
- 26. The same in Celsius and Fahrenheit
- 29. Transient Ischemic Attack
- 30. Pope to Christ
- 32. Snowy cocoa?
- 34. Monochrome cookies?
- 35. Mortgage-Backed Security
- 36. Frostbite's friends
- 40. Timid
- 42. Polish currency
- 43. Hautbois
- 44. Hydrogeology
- 45. Maserati or Bertarelli
- 47. Cat cry variant
- 48. Riches
- 49. Nychthemeron
- 51. Starts Heaney's Beowulf
- 53. {}
- 54. Millionaire's glass

Down:

- 1. You and I
- 3. Half of us
- 4. Bathe in light
- 5. Mag plague
- 6. Moony?

- 7. Middle or Dark
- 8. Famicom
- 9. Chemical compound
- 10. Pigpen
- 12. Annually Fat in New Orleans
- 14. Bee jail?
- 16. Past participle of "be"
- 17. Do up (a dress shirt) again
- 18. More fidgety
- 19. Of touch
- 21. The heebie-jeebies
- 25. Spiders, snakes, and slimy things
- 26. Grass trimmers
- 27. Small towel
- 28. Pencil, e.g.
- 31. Vice chancellor of New York University Abu Dhabi
- 33. Santa's postal code
- 37. Octave species
- 38. A thousand in letters
- 39. Port, lemon, sugar
- 41. Women's quarters
- 42. Gusto
- 44. Castrated
- 45. Ram mate
- 46. Siesta
- 49. Half a dodo
- 50. Half a yo-yo
- 52. Yoke-bearer

This Week's Grid:

1		2			3	4	5			6	7	8	9	10
11	12				13				14					
	15	16	17	18			19							
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53						54								