math NEWS

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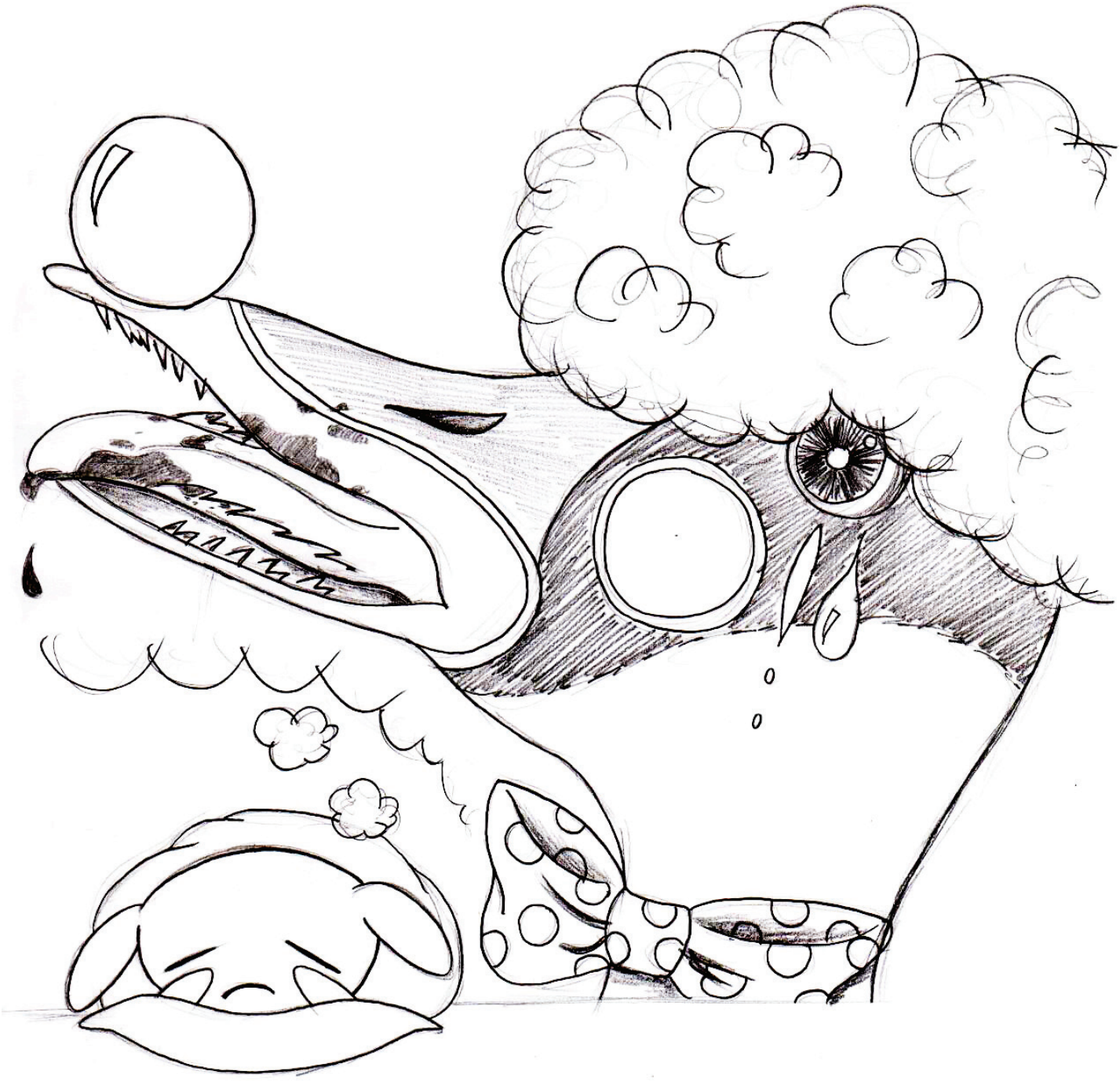

There are only two things scarier at night than thinking about your exam results...

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*look***AHEAD**

***math*NEWS**	
October 21	Rejoice! Issue 3 is here!
October 31	*math***NEWS** Production Night #4
November 4	Issue 4 is single, sexy and ready to be picked up ;-)

MathSoc	
October 27	Games Night
November 2	Party With Profs
November 3	Games Night
November 1–7	Novelties Sale
November 10	Pi Day (314th Day of the Year)

Feds	
October 27	General Meeting
October 30	UWaterloo Goes to Halloween Haunt
November 2	Battle of Waterloo

University	
October 19–24	Adjust your online course exam location
October 21–22	Fall 2016 Convocation
October 26	Deadline for 50% tuition refund
October 31	Fee arrangement deadline
October 31	WiM Presents: *How to Become a Liberated Mathematician in 13 Painful Years* with Dr. Piper Harron
November 2	*Learning in Lectures* lecture by Dan Wolczuk

Miscellaneous	
October 17–23	Sukkot
October 18	Pokémon Sun and Moon demo released
October 29	Diwali
October 31	Halloween
November 1	Cheap Candy Day
November 6	Daylight Savings Time ends
November 18	Pokémon Sun and Moon released

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Thomas Baxter (Taller than an Alolan Exeggutor)
Shaundalee Carvalho (Hair fluffier than an Alolan Vulpix)
Amy Li (More chill than an Alolan Meowth)
Katherine Tu (Fancier than an Alolan Dugtrio)

*mast***HEAD**

Much is there to do,
But slogging over *math***NEWS**
Is what was chosen,

For much is my love
For our belov'd newsletter,
Math-less and news-less

Though *math***NEWS** may be
Outside of the *look***AHEAD**
And Sez articles.

For what else but this
Would anyone bear fardels,
And tirelessly grunt

And tirelessly sweat—
For a mathie's one escape
From the dreariness

Of Friday mornings,
From the droning of a prof
And the dread of the

Triple integral
Projected on the plane
Of hyperbolae?

It is for this cause
That I forsook the demo
That came out today

For the new Pok'mon,
Though I have waited for it
For many a day,

While spoilers abound.
And it is only for this
That I would leave the

Feminism in STEM
Panel held by CSC
An hour early.

"Didn't you retire,
Like, a semester ago?"
Inquires the reader.

To which I simply
Shake my head—such is the fate
of an Editor,

Inseparable
From their paper. (Page thirteen
For writers' haikus.)

bunniED

MathSoc Sez

Hello Mathies!

We hoped you had productive study days and a wonderful Thanksgiving! Some quick announcements:

First-year and Program Representatives

Congratulations to the following, as they've been elected as Fall 2016–Winter 2017 First Year Representatives of MathSoc: June Xu, Harshith Depa, Lucy Wang, Karolina Xin, Raphael Kou and Keer Liu (SE).

Furthermore, the following were acclaimed as program representatives:

- Bryan Lacson as Math/Business Rep for Fall 2016 and Spring 2017
- Luke Scollard as Computer Science Rep for Fall 2016 and Spring 2017
- Sally Dong as PMath/AMath/CO Rep for Fall 2016 and Winter 2017
- Simon Huang as PMath/AMath/CO Rep for Winter 2017

Upcoming Events

Party With Profs
(Wednesday, November 2nd, 4:30 PM at the Bomber)
Be on the lookout for posters related to Party with Profs. Invitations for professors will be located outside MathSoc Office. Invite your profs for an enjoyable mingle!

Feds General Meeting
(Thursday, October 27th at 5:00 PM)
Attend the General Meeting to learn more about the changes happening for Feds and vote on Feds related issues or motions. This is important as Federation of Students seeks to represent undergraduate students at University of Waterloo.

UWaterloo Goes to Halloween Haunt
(Sunday, October 30th at 5:30 PM–1:30 AM)
Think you're brave enough to walk among the monsters at Canada's Wonderland? Ticket prices ranges between $37–$52. To purchase tickets, please visit the Feds Front Desk, near the SLC Great Hall. A valid WatCard must be shown. Hosted by Feds, partnership with all Faculty Societies!

Warrior Tribe Takes Over Battle of Waterloo
(Wednesday, November 2nd at 7:00 PM–9:00 PM)
Show your school pride by joining Warrior Tribe at the first ever Battle of Waterloo! This event is a high energy rival game between our Waterloo Warriors and the Laurier Golden Hawks from down the road! Purchase your tickets for $5 by showing your WatCard! There will be free swag and giveaways leading up to and at the event!

Mock Interviews (ongoing)
Mock interviews are a great way to get some practice in interviewing. They're ongoing right now! Sign up for CS Mock Interviews here: https://goo.gl/forms/jjRHvRjdlw12s0T02 For people interested in being a CS interviewer, email abaek@uwaterloo.ca and you'll get a C&D gift card!

Pi Day
The 314th day of the year is November 10th at 1:59 PM! Come to MC 3rd Floor Hallway to eat some FREE pie. If you are up for it, compete at the Pi Recitation contest and Pie Eating Contest for a chance to win cash prizes.

Weekly Games Night
Games Night happens every Thursday at 6:30 PM in MC C&D. Come outand have some food/drinks while you play board games!

Bi-Weekly *math*NEWS Production Night
Contribute to *math*NEWS by attending Production Night every other Monday at 6:30 PM in front of MathSoc. There's FREE PIZZA! *[Next one is October 31st!—ConvolutED]*

Monthly Novelties Sale
Come to the MathSoc Office during the first week of November and December to buy novelties on sale! We have Sweaters for $25, Sweatpants for $20, and T-shirts ranging from $1 to $10. Come by and get your Math Swag!

Stay tuned for the following events towards the end of the term: MathSoc Charity Ball, General Meeting (tentative agenda: http://tinyurl.com/MathSocGMF16), Games Night With Profs, and 24-Hour Games Night. Check out MathSoc's calendar of events at https://www.facebook.com/mathsoc/app/190322544333196/.

Open Director and Volunteer Positions

If you are eager to get involved with MathSoc, the following positions are still open:

- Novelties Director
- Charity Ball Director (will work under two directors)
- Clubs Director

Email mathsoc@mathsoc.uwaterloo.ca if you are interested. If you would like to be a general volunteer for MathSoc events with flexible commitments, fill out tinyurl.com/MathSocVol.

Follow us on Twitter, like us on Facebook, and follow us on Instagram to get updates on our activities, events, and more ways to get involved!

Have a fabulous week,

Jazbel Wang, Patrick Melanson,
Peggy Zou, Rosie DeFazio, and WenYu Xu
Fall 2016 Executive Team

Games Sez

Announcing Games Night with Profs (Pi Day Edition)

On the evening of Thursday, November 10th, after everybody is full with delicious pie, go to the C&D (at 6:30 PM or later), and play your favourite games with your favourite profs!

Of course, that only works if the profs are actually there. So: everyone! Invite all your profs! And if you happen to be a prof, invite yourself and all your colleagues!

Of course, Thursday, October 27th and Thursday, November 10th are regular Games Nights, and you should of course come to those, too!

PS: Mysteriously, our event budget increased by a lot, so prepare to feast upon the most delicious food!

the less competent one

Humans vs. Zombies Sez

COME EAT BRAINS WITH US

Sign up Oct 24th–28th from 11:00 AM to 5:00 PM in:

- MC ALL WEEK
- SLC Monday–Wednesday
- CPH Wednesday–Friday
- AL Thursday & Friday

The game runs October 31st–November 4th.

Morte Totalum

Article of the Issue

The Article of the Issue award goes to YouDon'tDeserveToKnow, simultaneously for The Divine Algorithm and the Haiku in Brainfuck, for touching on the full spectrum stretching from the most hallowed of code, to... well, Brainfuck.

The Editors

The Divine Algorithm

The British Museum Algorithm

Sometimes writing code is just too difficult. Over the decades, we have delved deep into the art of programming; is it so inconceivable that maybe, just maybe, there exists an algorithm that can write code for us? Well, dear coders and mathies, I now present to you the holy grail of programming; The Most Divine Algorithm, blessed be Its name: The British Museum Algorithm. Few are aware of Its hallowed existence, but rest assured its capabilities are immeasurable. The British Museum Algorithm (praise be unto it) can generate the source code to solve any problem. Indeed, any. Not only that but it will necessarily find the shortest source code to solve said problem. If that is not sufficient for your purposes the algorithm can be modified to instead find the most efficient solution to the problem.

Now that I have your full attention, I'm sure there is one question dominating your mind: how is The Algorithm written? Surely it must be some hugely complex algorithm that makes the Google back-end look like `"hello world"`. Perhaps it's a way to interface with the omniscient god-AI hidden in the deepest recesses of the Internet. On this subject, I must once again amaze you. The Algorithm, being elegantly simple in design yet sublimely profound in its execution, can be wrought by these simple instructions three:

1. Let n be the length of the generated code, initialized to 1
2. Generate all source codes of length n and see if any solve the problem
3. If no source code of length n solves the problem, increment n and repeat step 2

As mentioned above The Algorithm can produce the most efficient solution instead of the shortest one, if so desired. In this case, we add a fourth step: repeat steps 2 and 3 until the most efficient source code is found. If measuring efficiency proves to be difficult, simply construct an instance of The Algorithm that generates code to perform this assessment.

Now that my followers have stopped reading in order to implement their own versions of The Algorithm, I am left to address the skeptics and heretics of The Holiest of Algorithms. Many of you unenlightened souls likely wish to cite Turing's halting problem, arguing that this "problem" makes checking if a source code solves the problem at hand is impossible in the general case. However, it is trivial to write an implementation of The Algorithm that produces another version of The Algorithm that is not limited by Turing's problem. So I implore you, do not doubt that which offers you so much. If you still question The Most Divine Algorithm, test it thusly: use The Algorithm to generate the code for all the questions in your next computer science assignment, and observe the mark you receive.

YouDon'tDeserveToKnow

Hey clubs! Want your Sez in *math*NEWS?
Then submit them to us!

Interviewing Like A Professional

Let's face it: interviews are rough. Having to sit in front of potential employers for hours and hours as they scrutinize and study your every move, waiting to pounce on any weakness, is stressful enough. On top of that, having to do research, do code challenges, pick out proper outfits, and actually having to leave your house makes interviewing a crushingly stressful ordeal. Luckily, a whole lot of students at UW have been through it before, and almost all of them are willing to help another student in need. Having said that, talking to another human being is also a crushingly stressful ordeal for most of us math students. That's what *math***NEWS** is for.

If you recognize these feelings, and want to learn how to come out of the interview season with both a job offer and your sanity, then look no further! *math***NEWS** is here for all of your interview needs.

First things first. Now that you have an interview, how do you prepare? Well first, stop screaming. It's not helping anyone, and the C&D is noisy enough as is—and remember, half of nailing an interview is not screaming. Once you've stopped screaming, you're ready to start preparing yourself for the trials ahead.

The preparations you'll need to make can be split into two major categories: Mental, and Physical. Mentally preparing yourself for an interview, of course, means being ready to answer any questions you'll be asked, but equally important is being able to go 15–30 minutes without having a mental breakdown (employers generally like it when interviewees can do that). In the days leading up to your interview, listen to inspiring music, force your friends to give you compliments, and apply Netflix liberally to your frontal lobe. You might also want to study, but I'll leave that up to you.

Preparing physically for your interview consists of one thing and one thing alone. Your outfit. You want to dress up, but not overdress. You want to seem professional, but not boring. You want to stand out, but not in a police line up sort of way. I've personally found that employers are pleasantly intrigued by full Adidas tracksuits, but if you want to put your own outfit together, just remember the golden rule: You must be able to run at full speed in your outfit. Primarily because you will be late for your interview, but also quite relevant is the rare 100 meter dash interview question. Be ready for it.

Once you're prepared, it's time for the interview. The key to a good interview is to keep the interviewer on their toes. If possible, be in the interview room before the interviewer. This will make them unsure who is the interviewer and who is the interviewee. Use this to your advantage by offering yourself the job before leaving. This trick won't always work on veteran employers, as most of them carry business cards to remind them of who is who.

If the employer manages to see through this ploy, then don't panic, you are still completely capable of surviving a classic interview. At this point you have two options. One option is to refuse to answer questions until your lawyer arrives. This shows that you are street smart, and gives you that air of mystery that employers crave. Plus, they'll never know you forgot to prepare for the interview. Your second option is to answer their questions with questions of your own. At this point, the employer will have already handed over their business card, and will again need to guess if they are interviewer or interviewee. On top of this, they will need to focus all mental power on answering your question, and more often than not will forget that they even asked you anything.

Of course the above strategy isn't completely foolproof, but if it does fail then it is absolutely safe to assume that your interviewer is some sort of android or cyborg. At this point your only option is to state a logical paradox, such as "this statement is false" and put your athletic interview clothes to the test by speed walking away through the arts tunnels before CECA realizes you've frozen a potential employer.

And now you're set! By following these simple, logical rules, you are sure to receive tons of offers for very little effort, and your future career will be that much brighter. But always remember this: when you one day find yourself on the other end of the interview table, sitting across from a tracksuit wearing math journalist, remember this article, and show mercy.

LaurierTransform

Schrödinger's Blue Jays

[This article was written since we wanted to cover the Toronto-Cleveland series. However, it was written on last Sunday, so please select and read whichever version below is correct.]

CLEVELAND—Tonight, the Toronto Blue Jays look to keep their season alive, down 3-2 in their playoff series to the Major League Baseball Team from Cleveland. The Jays, who lost the first games in Cleveland and the first game in Toronto before taking two straight games in Toronto to keep their hopes alive, look to the left-hander J.A. Happ to stifle the Cleveland offense.

The main issue with the Jays has been their batting, as the opposing pitchers, particularly Corey Kluber and Andrew Miller, have baffled the Jays hitters with curveballs and sliders and mid-90's fastballs. The Jays' big bats have been almost silent this series, and without them the team has struggled to score any runs at all. Cleveland manager Terry Francona has not announced who will tonight's game, but it seems like the Jays are in tough no matter who they throw out.

Scythe Marshall

CLEVELAND—The Toronto Blue Jays gave it their best shot, but it wasn't enough, as the Jays fell to the Major League Baseball Team from Cleveland on Wednesday, losing the series four games to one. Marco Estrada pitched very well over seven innings, but the Jays' offense continued to be completely ineffective against Cleveland pitching. They say that offense can win pennants, but that pitching wins championships; it turns out that even if you have pitching, you need enough hitting to back your pitchers up, and the Jays couldn't muster anything against Cleveland.

Cleveland faces the winner of the NLCS in the World Series, beginning on October 25th; it will either be the L.A. Dodgers or the Chicago Cubs waving the National League pennant. The American League won the All-Star Game, so in a continuing display of silly decision-making, Cleveland begins the World Series at home as a reward. The Jays, meanwhile, begin the off-season thinking about offering Bautista and Encarnación contracts, and those two will be thinking about going elsewhere to collect on their first and only chance at a big payday.

Scythe Marshall

CLEVELAND—The Major League Baseball Team from Cleveland continues to relax after their sweep of the Toronto Blue Jays in the American League Championship Series, concluding this past Tuesday. They will be facing the winner of the Dodgers/Cubs NLCS, and will open the World Series at home on the 25th.

The Blue Jays are disappointed with the results of the series; 'circumstances' and terrible hitting aside, they just didn't perform when it mattered. José Bautista and Edwin Encarnación are free agents; it is unknown whether two of the best hitters in franchise history will be offered a contract, and if either would accept an offer, given that they might be able to make more money on the free agent market. Time will tell.

Scythe Marshall

Balanced Ternary

Balanced ternary is a weird base. Regular ternary has the digits {0, 1, 2}, and works much the same as decimal or binary. Balanced ternary, however, has the digits {0, 1, T} where T represents -1. If you were counting upwards from zero, you would get the sequence 0, 1, 1T, 10, 11, 1TT, 1T0, 1T1...

It's called a 'non-standard positional number system' because it still works like a positional number system, but it's weird. To convert a number from balanced ternary, you multiply each digit by three to the power of the position, the same as in base 10. For example, $T10T = -1*3^3 + 1*3^2 + (-1)*3^0 = -27 + 9 - 1 = -19$.

You'll notice that balanced ternary doesn't need any additional symbols to represent positive or negative numbers. You can convert any number to it's negative by swapping all the 1's for T's and vice versa. Also, you can always find the parity of a balanced ternary number by summing the digits and checking the parity of your sum.

Something you may find interesting is that the term 'decimal point' only applies in base ten, which becomes clear when you notice it has the prefix deci- attached to it. The general term is actually 'radix point'. So in balanced ternary, we would call it the 'balanced ternary point'—but that sounds terrible, so I won't do that.

One thing that gets weird with non-integer balanced ternary numbers is that some of them are non-uniquely represented. For example, the decimal number 0.5 is representable as both 0.111... and 1.TTT...

Apparently balanced ternary is useful in logic, which sounds stupid because a cursory examination shows that addition and subtraction in balanced ternary is freaking awful. It doesn't seem to have any non-trivial applications where it's superior to a non-balanced number system, so I don't expect it to widely catch on anytime soon.

Still, it exists. Now you know.

Diminutive Rex

Eating Healthy on Campus

Tim Horton's, Pizza Pizza, Starbucks... There are a lot of options for students to eat on an every day basis on the campus. However, most of these options involve just grabing a bite, no real vegetables, so overall not really healthy.

On an effort to help students who feel that way, *math*NEWS reviewed one of the popular choices for lunch, Subway. And after some trials and errors, we found out that, on average, 6 inches sandwiches—or Subs—contain half less calories than the footlong ones.

Adam Gooseling

N Things Professor Willow Does With Transferred Pokémon

- Attaches a bunch of Pidgeys to a chair with leashes and flies around
- Renames the Spearows with as many thrown-weapon puns as he can come up with
- Brushes the Venonats to get hair to make fluffy yet dangerous pillows
- Puts Rattatas in giant wheel-generators while he waits fruitlessly for someone to transfer him an electric-type
- Uncomfortably eyes an ever-growing, ever-flopping pile of Magikarp
- Constantly mistakes Voltorbs for Pokéballs
- Releases all the Zubats from a coffin all at once every Halloween
- Tries to see how many Gastlys he can fit in a closet
- Makes the Drowzees stand at the points of pentagons in order to [REDACTED]
- Has staring contests with the Slowpokes
- Pets all the Eevees and brushes their hair and I won't believe anything different

Diminutive Rex

Overheard at *math*NEWS

- "You get an Imprint! And you get an Imprint!"
  "Yeah, but you're supposed to do that with shit people want. Like cars!"
- "I'm liking the idea of the clown goose chasing off the *math***NEWS** bunny."
- "I need to put an article in Imprint bitching about Imprint. I need to level up my *math***NEWS** sass."
- "I refuse to drink energy drinks unless they also have alcohol."
- "That's it, this is Meaty McMeat-meat."
- "How do you fucks make pizza voting so complicated?"
- "We are actually pulling out MathSoc levels of democracy."
- "Your opinion has been noted. Please stop saying it every time it comes up, it's not helpful."
- "Assigning dialogue to characters really diminishes the actors interpretations."
- "If you are looking for a topic for your haiku, mocking Imprint is always available. Just a seventeen syllable barb."

How to Make Minions and Influence People

Have you ever struggled with convincing other people to follow your commands? Do you find that, no matter how illogical your arguments or unreasonable your requests are they just will not follow your orders? Well here's the solution!

This guide will give you several foolproof methods to gain minions, whether for your evil plan or simply to get you coffee/tea/hot beverage of choice.

The first tactic is the forlorn look, and is a bit more of a subtle manipulation than the others. This only works when your goal is within eyesight. Say you have dropped something on the ground, or what you want is just out of your reach. If there are people around, simply look sadly at the object you desire and oftentimes, people will get it for you. You will need to somehow draw attention to yourself as you do this. I suggest a simple sad "oh" or some other other disappointed sound. When someone performs the task you want, act surprised. The goal is to convey the impression that you did not intend for someone to perform the task for you and are thankful that they did.

Another tactic is the obvious, but still innocent-seeming manipulation. It works well for a large variety of goals. Preface your request with the phrase "Have I told you you're a wonderful person?" or something equivalent. This will prime your target for a request, and while it is obvious that you are trying to get them to help you, many people will want to prove themselves worthy of your compliment.

Bribery is a good option, although a cliche one. This also gives you less plausible deniability. If possible, I suggest non-monetary bribes. Try to bribe people with food, festivities or favours. These can be perceived as normal, friendly things to trade, and gives you greater plausible deniability.

The final technique, for only the experts: cultivate a truly terrifying glare. A condescending look you can employ if they question you is also a useful tool.

Yours in manipulation,
Shay Blair

How to Ship People

Although shipping people is seen by some as strange or eccentric, it is much easier than you may have thought. Simply select two or more people (fictional or otherwise) that you feel should be in a romantic relationship. Then simply proceed to keep tabs on their interactions with each other while becoming emotionally invested in the potential romance. Congratulations! You have successfully shipped people.

aPlayerofGames

How to Ship People

Although shipping people is seen by some as strange or eccentric, it is much easier than you may have thought. Simply place two or more people inside a large box with enough food and water supplies to last the journey. Make sure to bore some discreet air-holes as well. Then simply take the box to a postal office and drop off the box with the appropriate postage. Congratulations! You have successfully shipped people.

aPlayerofGames

Follow us on Facebook (*math*NEWS) or in person (MC 3030)!

A Few Words on Translation

Recently, I gave a rant about translation defending a decision I made in the last issue. Since if one person asked (and you know who you are), there bound to be a half-dozen silent students who are too shy to do the same, I figure it'd make a good article. Here goes.

Translation is a tricky thing to tackle. It may come to a surprise to the readers who have never had a brush with another language that translation is not just about looking up individual words (whatever that means) in a dictionary, finding the appropriate word that matches in the target language and then shuffle the words together, plus or minus some small words; if you tried that you might have Pelé kicking a social evening dance instead of some sort of orb.

As evidenced, the lexicon mapping between languages isn't bijective. Sometimes, the information needed to make this mapping isn't in the original text: for example, in Russian, there is no catch-all word for blue; one must distinguish between goluboy (голубой, light blue) and siniy (синий, dark blue). Other times, the meaning of a phrase is more than the sum of its parts: *pédaler dans la choucroute* doesn't actually just mean "to pedal in sauerkraut".

Natural language, unlike programming languages or $\{0,1\}^*$, are context-dependent, and not always the all information is present. In addition to the aforementioned types, idioms highlight another difficulty in translation: the cultural background that is assumed of the speaker. A Chinese speaker will understand that when you are talking about horses and tigers (馬虎) you mean mediocrity or clumsiness and when you talk about spears and shields (自相矛盾) you mean self-contradiction—the language draws from the complex history and prior work in the language wherein classical literature allusions creep into the lexicon. This works in other ways as well: when you say "sorry" when you're trying to squeeze past someone in a corridor, you don't mean that you're despondent or are apologizing for any misdeed (because there is none), it's a request to the listener to be aware of your presence and what you're about to do.

This cultural expectation is the reason why *wakarimasen*' (分かりません) was translated as "I don't know", even though a more literal translation is "I don't understand". While "I don't understand" might be a reasonable answer to a question where you don't understand (eg. Florb gzork itam pfengt szchorj?), in the case you simply haven't thought of or don't have the background knowledge to answer (eg. Should I save for my rainbow set or splurge for some limited esthé?) in English one is more likely to respond "I don't know"—and that's the crux of the issue. In Japanese, responding with *wakarimasen*' indicates to the listener that one has thought about the issue and *shirimasen* (or goodness forbid, *shiran*'), a more faithful "I don't know" doesn't have the implication, and would be treated as less polite. (Disclaimer: Japanese politeness is extremely complicated. Take with a grain of salt.)

One, when making a translation, needs to think about the style of translation—that is, what is important to preserve and present to the audience: sometimes this can be drastically different. For example, *θešréŋ'œ* could be fairly accurately translated as "From my perspective and observations, I am going to assume that the issue has been resolved", but depending on context it might be better to say something like "It's been fixed" or "All clear". The translation needs to fit the cultural style and circumstance lest it be stilted and unnatural, which could be very detrimental if it were dramatic. Each style has its place, and it is the job of the translator to judge which is best, and this is no clearer to see than in poetry.

Poetry pulls this need into the stark spotlight, for each language has different poetic traditions, forcing the translator to make a decision as to what they must prioritize. This is best illustrated with an example; the following is the very famous frog haiku from *Matsuo Bashō*, followed by several translations:

Furuike ya / *kawazu tobikomu* / *mizu no oto*
古池や / 蛙飛びこむ / 水のおと

—Matsuo Bashō

Old pond — frogs jumped in — sound of water.

—Translation by Lafcadio Hearn

Listen! a frog
Jumping into the stillness
Of an ancient pond!

—Translation by Dorothy Britton

pond
frog
plop!

—Translation by James Kirkup

An old silent pond...
A frog jumps into the pond,
splash! Silence again.

—Translation by Henry Behn

There once was a curious frog
Who sat by a pond on a log
And, to see what resulted,
In the pond catapulted
With a water-noise heard round the bog.

—Translation by Alfred H. Marks

Let us first talk about the original poem, highlighting its features which the casual reader may not pick up upon. First, the final mora of the first line, *ya*, is the cutting word (*kireji*) of the poem. It draws attention to the juncture, at the same time separating and connecting the two halves of the poem. It is a pause that builds tension, and it is contrasted with the lack of such a particle in the second line, flowing to the climax of the poem, *oto*. *Oto* by itself means "sound", but *Bashō* decided to write it in hiragana and not kanji (as would be usual), perhaps signaling wordplay: he is invoking the sound of the word *oto* to mimic the sound of a frog plopping into the water, not unlike a stone dropped onto the surface of a placid pond.

Finally, the focus on the sound of the water is a reversal of expectations: the presence of a frog usually invokes the sound of a croak, and the revelation forces the reader to re-evaluate the scene and focus on something entirely different. Like many haiku, it juxtaposes its imagery and forces the reader to think beyond the surface level, to entice the reader to tease out a connection between the parts of the poem.

Hearn's translation is probably the most literal of the group presented; explictly using em dashes to draw out the line breaks that are not actually present in the original. Compared with the other translations, it lacks the poetic *je ne sais quoi* which impacts the reader, especially if the reader is not familiar with the haiku format.

The translations of Britton and Kirkup both try and capture the poetic feeling: they try to deliver the impact the poem to the reader, although they do this in slightly different ways. Britton's translation is a bit more literal in style to the original, keeping a three-line form and tries to capture the feel of the *kireji* with "Listen!", which tries to entice the reader to explore the poem further than is presented. Kirkup's rendition is a bit more whimsical, instead it relies on its berevity to allude that there is more to the poem than its surface meaning, while preserving the onomatopoeic invocation of the water-sound the frog makes.

The reamaining two translations preserve the poetic form of the original: Behn's translation follows the nominal 5–7–5 syllable structure of the haiku while Marks decided to use a poetic form the audience is more familiar with. Yet, sacrifices are made to mangle the langauge to fit the nuances of the original: Behn's translation gives a different reader conclusion (probably partially due to his remark of "silence again", unpresent in the original), and Marks' invokes the reader's cultural expectation of a limerick, which is quite unlike that of the haiku.

Overall, there isn't a best way to translate something; it really depends on what is important and what can be sacrificed. Soemtimes things do not translate cleanly, and thus the translator must make a compromise. All of this is behind the scenes, and with the lack of annotations from the translator, there is no way for the unsuspecting reader to know what decisions the translator has made in their craft. Perhaps the original text has some brilliant wordplay that simply does not translate and the translator decided that it wasn't worth preserving, but you wouldn't know. Perhaps some day machine translation would be sufficiently advanced to resolve all of these issues and produce perfect translations without any loss of signal, but I, for one, am not holding my breath.

Zethar

Why Are There Still So Many Jobs?

Recently (on August 6th) David Autor, an influential Economist from MIT, visited our campus for a lecture titled "Why are there still so many jobs?" which is about workplace automation (where machines, including robots and computers, are used to replace or complement human labour) and why machines have failed to take over all work.

The lecture, and the article that it is based on, also notes important trends related to automation that will affect the future of all occupations, the largest trend of note being 'job polarization'. Job polarization is the result of easily automated tasks (such as in manufacturing and clerical work) removing the need for individuals with decent technical skills (so called 'middle-skill' workers), leaving only low- to no-skill or high-skill jobs in demand. This could eventually lead to the social and economic issue of an increased wage gap, as those with high skill get the jobs with high wages, while those that cannot make the grade are stuck with unskilled work for low pay.

The issues of job polarization (and other issues arising from workplace automation) and possible solutions can be found in David Autor's article and I highly suggest you go and read it. Just search "Why are there still so many jobs?" and you should find it.

Soviet Canadian

Decision Making in Groups

Making decisions is hard especially when you have to make decisions with other people. This term, I am taking group theory, which thankfully involves zero actual group work.

Unfortunately I have not avoided decisions by committee in other aspects of my life.

For my forecasting class we had to pick a data set to analyze. My fellow group members said that they would pretty happy with any data set. They were far more hesitant to actually make up their mind on what data sets we were doing. After over an hour of discussion we narrowed down the topic. We have not made a decision.

Meanwhile at mathNEWS we took over twenty minutes to decide on six pizza. This process involved a lot of nested voting. Highlights include voting on toppings for a given pizza by elimination and then voting on whether we would get that particular pizza. At the very least we did actually make a decision and now have pizza as a reward

Beyond Meta

How did you enjoy the Fall reading break?
Loved it? Hated it?
Submit your feedback at `goo.gl/h9yDHJ` or
`https://uwaterloo.ca/student-success/fall-break`.

Unprinting Imprint News Policy: Investigating How Imprint Turns the Absence of Anything into News

After an extensive search through official UW press releases and inquiries into any potential sources of news, it can be safely said that nothing notable happened at this university in the last two weeks, especially nothing pertaining specifically to dress codes, continuing a decades-long trend of not-having-dress-code-news to report.

However, according to the International Imprintulluminati Handbook, "There is no rule that says campus newspapers have to contain news." The only enforcements found are surrounding *math*NEWS editors. As stated on their secret handbook[1], if they don't have anything newsworthy, they have to at least write something moderately funny. *math*NEWS contributors are also expected to mock particularly stupid Imprint articles.

There also seem to be no news specifically about ducks and geese.

"If anything newsworthy happened to geese in any department, I'm unaware of it," said goose Goose McGooseface.

As a method of self-expression, Imprint editors don't seem interested in setting limits to how un-newsworthy things they report on.

Assistant News Editor Zalgo The Nezperdian Hive Mind Of Chaos said, "In the absence of news, I have no basis by which I can fill the first page of Imprint. But I thought leaving it blank would be highly inappropriate of me."

Editor Jan Michael Vincents said, "We're all adults here, and I think that Imprint editors often try to find themselves while looking through random UW policies to find something that, while not being new, is at least mildly interesting; experimentation in random topics is an important tool of self-expression, and cultivating tolerance for Imprint articles, including those that are so devoid of content that they offend you, is likewise an important thing for our students to develop."

If an issue arose where a third of the page was still blank after this article, there are no policies in place to prevent Imprint from filling with with a photo of a random guy wearing a boring T-shirt. Police Services at UW have no control over what Imprint writes about them, so it makes sense to somehow try to link them to the topic of your article.

Of the Imprint staff that Imprint spoke to, all agreed that writing about something that doesn't exist, and (presumably) never existed, is a great way to fill Imprint. Also, if they still had some space left, they could reiterate the points of previous paragraphs, with minor variations according to the context.

And editors could always speculate about which sinister social forces keep students from running around naked. "A quick look around the campus suggests that... gosh, everything looks so boring! ... wait, I forgot what I wanted to say." said Of Chaos.

Dank

[1] The name is secret, but I assure you it doesn't sound stupid.

Profs Taking After Beyoncé

Three years ago, Beyoncé took the world by storm when she released her self titled album 'Beyoncé' with no lead up what so ever. This was the life changing move that proved you could win everyone's hearts overnight. Since this move, many have tried to emulate Beyoncé's ways but with little success. Among these admirers are many profs at UW.

These profs are releasing assignments like Beyoncé drops albums: no pretext or warning given. Unlike Beyoncé, they are not met with admiration and adoration, but instead with frustration. They try to show up in daring outfits; breaking down academic barriers. Their showmanship is unmatched, jumping from blackboard to blackboard with little hesitation. Lecture, FLAWLESS. Post up assignment solutions, FLAWLESS. Write on it, FLAWLESS. Their proofs, FLAWLESS. My proof, FLAWLESS. I woke up like this.

They think they are Beyoncé but the rest of us see them as the hot mess that they are.

A Very Useful Theorem

So midterm season is upon us, and one specific midterm a lot of first-years are stressing about is Calculus I, which is on Oct. 24 (for both 137 and 147 students). As this is my last term here, I'd like to leave a parting gift, which is a theorem I found very useful when dealing with convergent sequences:

Theorem: Suppose $f : \mathbb{R} \to \mathbb{R}$ is a continuous function, and for some fixed a, we have that $x < f(x) < a$ for all $x < a$. Then for every $x_0 < a$, the sequence defined by $x_n = f(x_{n-1})$ converges to a.

I'm surprised that this theorem has not been taught in the Calc I curriculum, because it would be very useful for a lot of problems people have been doing in the tutorials up to now, from what I've seen.

The proof is left as an exercise to the reader, since 1) you'll need to prove this yourself to use it on the midterm and I don't want to get a cheating investigation launched for 50 people using the same extracurricular proof, and 2) I'm confident that solving this yourself will be an interesting and educational exercise.

G-UNIT

Ender Dragon

Submit your comments, *prof*QUOTES, and articles in the BLACK BOX outside the MC Comfy or email them to mathNEWS@gmail.com!

The Record's Sultry Serenade, Part 3

Formerly known as "The City's Dying Cry"

Light streamed in through the venetian blinds covering my windows, casting bright streaks on the wooden floor. I flicked on the light, half-expecting it to reveal someone already there. Being a private detective makes you paranoid like that. As I walked in, I ended having to squeeze my way past the bed. I won't lie, my place was pretty cramped. There was barely enough room to put three eighths of my stuff in it. Still, it cost me over a thousand bucks a month in rent. That was Toronto housing for you. In order to even stay in the city, my bosses agreed to help cover my rent on the condition that I pick the seediest place possible.

One word seemed to play its way through my head again and again. My only clue to who was blackmailing Ms. Brandname. A name: Bowie. How did David Bowie play into this? I looked over to my turntable and began thinking about how much better vinyl is than any other music format. The sound quality is so much better when compared to CDs and MP3s, and it actually doesn't cost much to get yourself a good setup. And there's nothing like the feel of a vinyl record. It's almost as though you're connected to an older time. That you're listening to music the way its supposed to be listened. As the artists wanted you to listen to it. And its not like vinyl is some dying medium, modern albums are being released as LP records all the time, such as David Bowie's Blackstar. There is no reason not to switch to vinyl. It truly is the superior medium. Anybody is thinks otherwise is wrong, and their opinions shouldn't be trusted.

Suddenly, I realized: the album, it had to have something to do with this case. I took out my vinyl LP of David Bowie's Blackstar, and started playing the record. It came in a beautiful black folder, where the record itself could be viewed through an opening in the front of the folder shaped like a star. The sleeve and the accompanying materials were exquisite. It was a high quality release. I listened to the music, and started examining the lyrics. Perhaps they contained a clue. After I listened to the whole album, and thoroughly scanned the folder, sleeve, and the record itself, I realized that I wasn't searching for the Ancient Stone of Nioj any more, so I probably wouldn't find any clues hidden inside paintings, or in this case, albums.

But what could 'Bowie' mean, then? I walked over to my record collection to put the album away. I slipped it back into its proper place. Even if my place wasn't the biggest, I liked to keep everything in order. Sitting a few LPs away was David Bowie's "The Rise and Fall of Ziggy Stardust and the Spiders From Mars", which I'll refer to as Ziggy Stardust from now on, because its a mouthful.

A month or two back, in May, there was a music group that performed the album live. And if I remembered correctly, the same group were going to perform the setlist from The Beatles 1966 concert live; it ended up being their last concert in Toronto. That had to be it. Things were in black and white back in 1966. Even if it was outside the regular noir period, it was close enough that it, along with the giant tommy gun battle at Young-Dundas Square, would be the events capping off the Noir Festival. I knew the concert had to have something to do with Mr. Beechlawn's blackmailer.

I left my office, strolling down to the old Maple Leaf Gardens, now called the Mattamy Centre. I needed to get myself a front row ticket to all the seediness that lurked in this city. Also, a ticket to the concert itself. When I got there, I walked up to an old looking ticket booth, lit only by the yellow light of a small lamp. The woman behind it looked about the same age as the booth.

"I would like a ticket to The Beatles 1966 concert performance," I told her.

She eyed me curiously, before taking the cigarette out of her mouth. "Any particular seat you want? I can see if it's filled."

"Bowie," I said.

"The Bowie concert already happened, and it was at Massey Hall. This is The Beatles concert you're buying tickets for, on August 17th, the 50th anniversary of when they last played in Toronto."

"I meant Seat B0. That was what I was trying to say when I said Bowie. Is it taken?"

She looked down at an old book, pages brown and faded by time. Her voice was as a flat as an old cola. "No, it isn't. Are you really sure you want that seat, though?" she asked, eyeing me curiously. "There are other, better seats available."

I told her no, that I'd be taking that seat, and she nodded. "I'll have to go into the back to get your ticket ready then. It'll take a couple minutes."

She disappeared from my sight, heading back. I leaned against the counter as I waited. I heard the sound of people talking from the back, but I didn't think anything of it. She was probably sorting something out with her manager. I was wrong.

I heard footsteps coming from behind, and turned around only to find myself facing two huge mooks. They were bald, and they looked angry, probably because they were bald. I was about to say something, when the guy on the left pulled a frozen salmon out from behind his back, and whacked me over the head with it.

I was out cold, almost as cold as the fish.

Theodore Bear

Submit your *grid*WORD solutions and cursed amulets in the BLACK BOX outside the MC Comfy or email them to mathNEWS@gmail.com!

profQUOTES

The page you picked this up to read

"This theorem is so intensely pleasurable. This theorem makes me wanna go out and have a cigarette, and I don't even smoke!" *[looks at the theorem]* "Ahhhhh..."

Geelen, CO 442

"Smoke 'em if you got 'em."

Manning, AFM 101

"Let's respect the great man Euler, hashtag respect."

Kothari, CO 250

"That's a fancy-looking zero. Let's add it."

Kothari, CO 250

"Well, one way to deal with the problems of life is to escape them, which is what we're going to do today."

Kothari, CO 250

"I'm pathetically insecure, so if you don't say good morning to me I'll be crushed."

Goulden, CO 330

"Don't take the fingers off your hand and put them back in the wrong place."

Goulden, CO 330

Adjusts his glasses to be askew "I'm a twisted guy."

Goulden, CO 330

"You're an unfaithful kind of guy. I expected that."

Goulden, CO 330

"Every odd number corresponds to some kind of elbow."

Goulden, CO 330

"My imagination is severely limited, but I guess you already know that."

Goulden, CO 330

"When I'm an old man in a home and I can't remember my own name, they'll ask me my name and I'll say minus *b* plus minus the square root of *b* squared minus *4ac* all over *2a*, and they'll say, 'Wow! That man was a mathematician!'"

Wolczuk, MATH 235

"Ever since I was a little boy, I wondered, 'What is the length of one?'"

Wolczuk, MATH 235

Wolczuk: "What's the length of e_1?"
Student: "Could it be i?"
Wolczuk: "That's a little too complex for this class."

Wolczuk, MATH 235

"When you do the pushin' and the poppin', you're comparin'."

DeVidi, PHIL 371

"This was all done in the fifties, when all ethical examples were violent ones."

DeVidi, PHIL 371

"Kicking puppies. Yuck! Boo puppy kicker!"

DeVidi, PHIL 371

"My wife is a librarian, and she got really mad at me when I named a paper '■ in Intuitionist Logic', because how do you search that? That might be the dumbest thing I've ever done."

DeVidi, PHIL 371

"If it's morally obligatory to drive on the right side of the road, what does that say about England? I've always known they're an evil society."

DeVidi, PHIL 371

"We are stuck on a desert island. Thankfully, because we are in CS, we have glasses. And we can use those glasses to melt the sand and make a CPU."

Vasiga, CS 241

"Maybe you got heat-stroke and decided you actually wanted to program in C++."

Vasiga, CS 241

"You would hate it if your compiler sounded like Donald Trump: 'Wrong! Wrong! Wrong!'"

Vasiga, CS 241

"Tofu is kind of like watery wood."

Vasiga, CS 241

"I don't want you to have free time."

Vasiga, CS 241

"I've lied to you for your own benefit—just like Hillary!"

Vasiga, CS 241

"Where would I like to get loaded?"

Vasiga, CS 241

"Sometimes Dora does drugs and then we get a hash-map."

Vasiga, CS 241

"Why is it my bedtime?"

Vasiga, CS 241

"It's a dogdogcat, which means it'll still fetch, but won't love you."

Vasiga, CS 241

"How does your *Breaking Bad* clone do? He got a chemistry degree from Guelph. How tragic."

Vasiga, CS 241

"In the circles I run in, it is traditional to give each other Deterministic Finite Automata for Thanksgiving."

Vasiga, CS 241

"Next class, I will discuss the birth of a lion on the plains of Africa—see you next Tuesday!"

Vasiga, CS241

"We worked till 3:00 AM on post quantum cryptography. Just kidding what actually happened was we went to a bar and got smashed."

Jao, CO 456

“I can think… I think. I’m thinking.”

Willard, MATH 135

mastHEAD Request and gridQUESTION Answers

This issue, we asked
*math***NEWS** writers a question—
Or rather, request:

Haiku About *math*NEWS

I drew a comic,
But did not write a haiku.
I did get pizza. —kaoshi

Haiku? Not a clue
Some things are bad for *mast***HEAD**
This is my ending —Theodore Bear

Unfortunately,/I did not write a haiku./Cheers! —Ender Dragon

I write this haiku
As I wait for nirvana,
That is, free pizza —Diminutive Rex

*math***NEWS** was good luck
Caught a Charmander nearby
Praise be Lord Helix —Shay Blair

The short answer is
I enjoy watching people
Count on their fingers —waldo@<3.LE-GASP.ca

Haiku Written in Brainfuck

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https://goo.gl/Mfopk2 —YouDon'tDeserveToKnow

Haiku About Something???

Procrastination!
Though perhaps a lesser choice,
A choice we all make. —Scythe Marshall

Haiku Acronym;
Ideal Kierkegaardian
Utilisation —Beyond Meta

いなづまや 紅葉飛交ひ ひらひらと —Zethar

Ignoring the truth
Proofreading is for the weak
Welcome to imPrint. —Adam Gooseling

Get out of here fool
I said come in, don't stand there
Chiki-Briki, suka —Soviet Canadian

Sweeping throuth the trades
Four very broken passives
I hate Yasuo —aPlayerofGames

Some *grid*QUESTION Haiku

*grid***WORD** was too short
There is not enough content
Left unfulfilled —v130i2 Cat Scribbler

Must this haiku make
NE¢? NE@ all?
Tyrannosaurus —Robert GT

I should study but
I did this crossword instead
Hope I don't fail, fuck. —Jessica Keung

Dan from Game Grumps says,
"It's snowing on Mount Fuji."
I beg to differ. —Ender Dragon

I, the great Night Light,
Shall save you, Willy Nilly,
From who else? D. Trump. —Scythe Marshall

Hello, it is me
Me me me me me me me
Me me me me me —<3

I want to win this,
Please let me win this shindig.
Donuts I will eat. —LUQMAN

Quickly writing words
Puzzle done at 6:00 PM
Race to school in time? —Michel Brossard-Flood

GRIDWORD

*grid*COMMENTS

We got so many solutions and haiku I couldn't print them all! I need to make *grid*QUESTIONs open like that, to allow everyone to flex a little creativity. Some of my favourites can be seen on the previous page. An honourable mention, which has unfortunately been excluded from the running, can be seen to the side.

The winner is **Mary Kate MacPherson**, whose haiku you can see to the side. It even contains a *kigo*, or season indicator: "Midterm". Congratulations! You can pick up your prize from the *math*NEWS office at MC 3030.

Last issue's solution is up at `http://imgur.com/a/5E4B6`

This issue's *grid*QUESTION is not a question at all; it's a request: "If you could cast any spell, what would it do, and how would you cast it?" In my crystal ball, I see answers with potions, incantations, and rituals. Muhahahaha...

As always, please submit your solution to the *grid*WORD as well as your answer to the *grid*QUESTION either electronically or physically to the **BLACK BOX** found between the MC Comfy and the glass case with the ties before 6:30 PM on Monday, October 31st. The magical spells shall be the tiebreaker.

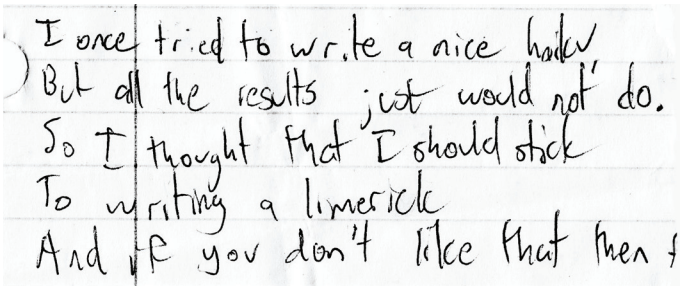
ConvolutED

*grid*QUESTION Winner!

I gaze at abyss
Abyss gazes back at me
Midterm time begins —Mary Kate MacPherson

*grid*QUESTION Honourable Mention

An honourable mention goes to this submission, which unfortunately is excluded for: not providing a name; not writing a haiku; and submitting on a torn piece of paper which made it impossible to read the very end of the poem.

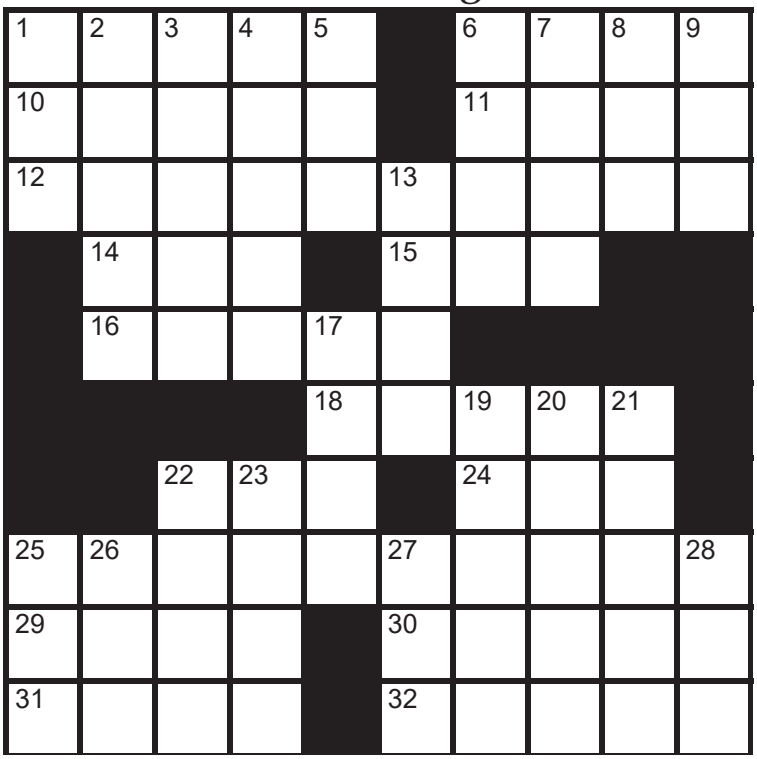


*grid*CLUES

Across

1. Profoundness
6. +
10. It's like a musical, except sometimes it lasts 5 hours and often it's performed in Italian
11. Common spot for mascara
12. Dance that's all about putting the right leg in, taking it out, etc.
14. Scam
15. Common spot for mascara, but unintentionally this time
16. Row of shrubs
18. It beeps when it's time for me to hit the snooze button and refuse to wake up, like every morning
22. Smartphone purchase
24. My least-favourite science course in high school
25. Wand-waving words
29. Greek god of war
30. Something that's happening
31. Fabric with a lot of holes in it
32. Low on patience, and short on temper

Down

1. Something Homer Simpson hollers
2. Time unit that takes ages to pass
3. Black tea that's often Orange too
4. Something that's happening
5. Part of a stable diet?
6. Scheme or tactic
7. Ontario, for example
8. "___ the Force, Luke."
9. Skittish
13. Pear part
17. Openings
19. Atop
20. Long-grain, Japonica, and Basmati, for example *[I didn't realize until now that this could be pluralized.—ConvolutED]*
21. _____ Rushmore
22. They're worth 1 or 11, in 21
23. Word on some doors
25. Sandwich meat
26. Lode's load
27. Four-footed friend
28. A pig's digs

This week's grid: