

A f t e r m a t h

A Carnival of Calculus

by Dan Margalit

How do you get upwards of 180 Calculus students to hang out in the math department after hours on a Tuesday night, giggling in the hallways, and playing mathematically themed party games?

Was it the candy corn? The balloons? Well, more likely it was the promise of that sweetest of pedagogical nectars, extra credit.

Let me back up. At the start of the school year, I was given the assignment of helping with the Fall semester's calculus challenge, a part of my VIGRE duties. As Angie explained to me, this kind of activity has been taking place for a number of years, under various guises, for example "Who Wants To Be A Mathionnaire". Unfortunately, in recent years, participation has declined, to the point where we were having only a few students show up.

So we set out to improve attendance. We decided we wanted to attract more first year Calculus students this time. We came up with 3 guiding principles:

1. Extra credit.
2. Luck / Accessibility for Calculus I students.
3. Fun games.

Angie and I started kicking around ideas for some party games. I advertised the idea to my Calculus class of 150 students, and was shocked that about half of them were interested (actually, at first, only one student was interested, but then I mentioned Guiding Principle #1). At this point, Angie and I started hyperventilating at the thought of hundreds of Calculus students descending upon us in the Loft. Then, at tea, Julien Paupert came up with the idea of having the students rotating through different rooms ("carnival booths"), Angie immediately came back with the moniker "Calculus Carnival," and we were on our way.

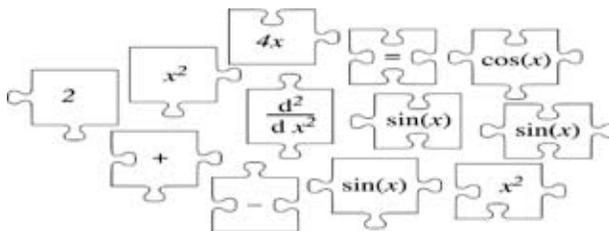
Calculus teachers in the department quickly warmed up to the idea of the Carnival, and before long we had a number of people commit to offering extra credit for participation: Nick Korevaar, Rob Easton, Jeff Blanchard, Ping Huang, Julian Chan, Dennis Allison, Yungfeng Jiang, Dan Ciubotaru, as well as Julien and myself. One of Julien's great ideas with regard to extra credit, was to have a "Carnival Currency," (smiley face stickers) and to allow each instructor to come up with their own scheme for extra credit based (or not based) on the number of smiley faces each student won.

The next step was inventing games for the students to play. After spending lots of time talking amongst

ourselves, and collecting input from many faculty members, Julien, Angie, and I came up with the following potpourri of math games.

We had three individual games:

1. *Pin the Nose on Isaac Newton* (thanks Aaron!). Do a Calculus problem, write your answer on Isaac's nose, and pin it to his face.
2. *Puzzler*. How do you arrange those pieces to get a correct mathematical statement?



3. *Basket Toss* (thanks Peter!). Do a Calculus problem, crumple it up, and try to throw it into a bin. Repeat.

Then there were team games:

4. *Pictionary*. You all know this game. But how do you draw "antiderivative"?
5. *Distraction*. Teams take turns, one team doing problems, the other team making silly faces, singing annoying songs, and attacking self-esteem.
6. *Telephone*. Do a problem, pass the answer to your teammate behind you; she then plugs that number into her problem, and repeats the process.



Students enjoyed playing pictionary in the Loft.
Photo by Andrejs Treibergs.

Oh, and one game that the students could play individually during any spare time:

7. *Demoralizer*. What is the largest rectangle that can be inscribed in a 3-4-5 right triangle? Which of the two inscribed squares is larger?

Leading up to the Carnival, there was a lot of preparatory work, for example cutting out hundreds of Isaac Newton noses. Most of this work was done by Angie and the rest of the department staff, in particular Kathleen Moore

and Paula Tooman. This reminded me of how lucky we are to have such an enthusiastic, helpful, and capable support system here. Angie in particular was really an incredible force of creativity and dedication throughout the whole process.

The Carnival itself happened in the evening on November 14th. Students arrived to a JWB 335 decked out with candy corn and animal crackers (Julian Chan's idea), balloons, streamers, and wonderfully colored puzzle pieces drawn by Sarah Kitchen and Joro Todorov.

By 4:30 the room was packed. After a quick pep rally, we sent students to one of the 6 games depending on the color of the scorecard they picked up on the way in. We had Pin the Nose and Pictionary in the Loft, Puzzler and Telephone in JWB 335, Basket Toss in the lounge, and Distraction in two smaller classrooms in JWB. Students switched rooms about once every 10 minutes, and somehow the timing was magically coherent.

Throughout the evening, I popped in and out of the different games. I was struck (and overjoyed) by how much fun people were having--not just the students, but also the department members who graciously gave their time to help run the games: Marilyn Keir, Alexis, Ching-Jui Lai, Kathleen Moore, Aaron Bertram, Dennis Allison, Peter Marcy, Karim Khader, Jingyi Zhu, Julian Chan, Jeff Blanchard, Nick Korevaar, Trung Dinh, Dylan Zwick, Sarah Kitchen, Joro Todorov, Aaron Wood, Matt Housley, Aaron McDonald, and Hankun Ko.

At the end of the evening, we all gathered back in 335 for donuts and awards. Katie Burrows, Zachary Matheson and Jeffrey Green, and Sung Chan Choi won in the Calculus I, II, and "Advanced" categories, and Raymond Walther took home first place for best Demoralizer solution. Each won a \$25 gift certificate to the bookstore.

In the end, the Calculus Carnival was a lot of fun and a great success. But what I think we should all be most proud of is how many different department members chipped in with their time and with their ideas. Thanks again to everyone that helped!

Personality!



Dan Ciubotaru was born in Cluj, Romania (Transylvania, 0000000000), and came to the U.S. to work on his Ph.D., which he received from Cornell in 2004. He did a postdoc at MIT and then joined our faculty this year. He enjoys being here and being a part of our great research group in representation theory

of Lie groups. Although he thinks the mountains are spectacular he has managed to not go skiing since he's been here. He likes that there are many parks in the city and that it is a safe place to live.

Dan enjoys watching movies, although he hasn't found the time to watch many recently. Amadeus by Milos Forman is one of his all-time favorites. His favorite TV shows are Arrested Development (too bad it was cancelled) and Curb Your Enthusiasm (on HBO, too bad he doesn't have cable anymore.) He's a little embarrassed to admit that he hasn't read a fiction book from beginning to end in a while, although he has Atonement on his night stand. In the end, he might have to cheat and watch the movie.

Dan enjoys music, but listening only. He doesn't play an instrument, and is tone deaf. He claims that people fall on the floor laughing if he sings. He listens to mostly alternative and indie rock, and his favorite band at the moment is a little known group, Patsy Ohio, but they'll be famous soon. Remember, you heard it here first.

Dan would rather eat than cook. He enjoys many different cuisines and likes to eat out with his wife and 16 month old daughter (ahh, now it becomes clear why he doesn't have time to ski, watch movies, or read anymore!). He enjoys taking his daughter for walks and going to the park, so he's excited for spring. He's also becoming well acquainted with the children's museum. Welcome to the department, Dan!

Aftermath is published monthly during the academic year. If you have an idea or article to submit contact one of the editors:

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