MathOverflow

David Brown

University of Wisconsin-Madison
Slides available at http://www.math.wisc.edu/~brownda/slides/

Rice University

March 29, 2011

Introduction

- Mathoverflow: http://mathoverflow.net/.

History

"I assume everybody has dreams about organizing and sharing everything they ever think of, or of how great it would be if everybody in your field shared a big brain like the borg"

– Anton Geraschenko

- See whats-the-story-behind-mathoverflow
- Other motivation: things like this 5-page comment by Matt Emerton on "How to become an arithmetic geometer" get buried in the comments of Terry Tao's blog.

About the site - fun facts

- Created in October, 2009;
- **17,380** questions; at least **3000** 'active' users;
- Time before getting an answer:
  - Average: 3.9,
  - Median: 1.4 hours,
  - Standard deviation: 5.4 hours;
- Time before getting an 'accepted' answer:
  - Average: 5.01,
  - Median : 2.21,
  - Standard Deviation: 6.04;

About the site - fun facts

- Draws questions and advice from each extreme – Fields medalists and gifted high school students;
- (Sanitized) database dumps are publicly available, fun to grep for statistics of site usage;
- Two academic studies by a post-doc at UT-Austin.

About the site – features

- **Badges** - mostly exist to reward exploring the site and figuring out how to do everything;
- **Reputation** - gain more ability to use site;
- Big boon – the community is **self moderating**;
- **Wiki effect** – edit others' answers;

Reputation

- Things you get to do with a little reputation:
  - Up-voting;
  - Down-voting;
  - Ability to leave comments.

Reputation

- Things you get to do with a lot of reputation
  - "Moderator" privileges

    (e.g., can "vote to close" a bad question);
  - Ability to retag questions;
  - Can edit posts;
  - Can edit answers.

About the site – features

Easy to cut through the clutter:

- Tags;
- Watched;
- Avoided;
- RSS (for questions, users, tags, etc.).

Tips and tricks page

Go here for lots of useful tips and tricks.

About the site - quote from Anton

"One thing that I like to point out in conversation about MO is that putting a question or answer out there without posing it towards some specific person often leads to meaningful interactions with awesome people. Some people start collaborations based on MO questions, but even if you don't, you get to know a lot of people pretty well, which feels great. Also, there is something about interacting with famous people on MO that humanizes my internal representation of them."

– Anton Geraschenko

Typical questions

- Specific mathematical questions;
  - Research oriented;
  - Idle (e.g., "Is this theorem still true if I weaken hypothesis X'?");
- Historical questions;
- Reference requests;
- "What's the point of...?";
- Career advice;
- Gossip (discouraged).

Sample questions

- An interesting reference request;
- Career advice;
- Kevin Buzzard used MathOverflow to crowdsource typos and corrections to Cassels-Froehlich;
- MO discussion passing to real life collaboration;
- A nice example of a historical question.

Sample questions

- A technical question about stacks from my own research;
- An idle algebraic geometry question; an idle topology question;
- Minhyong Kim clarifies Grothendieck's motivation for introducing injective resolutions (partial spolier: Grothendieck wasn't trying to extend left exact functors...);
- An example which casually enriches my life;
- A question about the purpose of scheme theory algebraic geometry.

MO in the wild

- Atlantic article – "Beyond Facebook: How the World's Mathematicians Organize Online"
- Gowers description of Milnor's work in Abel prize;
- William Stein says nice things at the MO question How to be updated with current advances in mathematics;
- Most math blogs have some commentary on MO.

MO – keeping current

"I started reading mathoverflow a few months ago, and currently for me it is by far the best online way to find out about current events in math research (at least in my area – number theory). It's just stunning the number of new results and links to key papers I've found on mathoverflow."

– William Stein

How to ask

- Tips on how to ask good mathematical questions:

> "Using MathOverflow should be an extension of the way you normally do mathematics, and the same rules you use to effectively solve problems can be used to make good MO questions. Just like solving problems, crafting good questions requires you to put in some effort!"
>
> – "'How to ask" page

Meta

- The first rule of MO is "you do not talk about MO" (on MO);
- Very important: meta site.

Meta

- Report bugs;
- Discuss community norms;
- Provides a written record to settle policy debates;
- Odd advantate: software is frozen.

Sample conflict resolution

- Somebody asks a fishy question that gets some pushback.
- François starts a meta thread and links to it in a comment (he happens to be a moderator, but anybody can do it):
- Discussion ensues and people end up with a more refined understanding of how to effectively do math on the internet.

Ask a question!

The first person to ask a question (and email me a link to the question) gets a free MathOverflow t-shirt!

Thank you!

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