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Math Talk: Preparing Your Conference Presentation

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Math Talk: Preparing Your Conference Presentation

Posted on 08/04/2014 by [gkaraali](#)

If you are a typical reader of this blog, then you recently wrapped up [your finals week](#) and then dutifully made [a summer plan](#). And then came the summer. Your plan may have involved working on a manuscript, preparing for [a qualifying exam](#) or a new course coming up in the fall, drafting a grant proposal, learning a new language (human or machine), eating kale in four different forms, and perhaps some fun times under the sun. Some, like me, also made plans to travel to conferences and give talks. Gearing up to get ready for my first conference of the summer, I thought about some of the best and the worst math talks I have witnessed. And I said to myself: "Self, you have surely seen the worst!" But why? Why do so many mathematicians give truly disastrous talks? Maybe we should talk about talks a bit.

There are some commonalities in all the good talks I have seen. Below I list a few characteristics of a good talk:

- *The presenter is clear and audible:* This is obvious. If the audience cannot hear you, you are toast.
- *The presentation was prepared on a computer:* Some old-school mathematicians will disagree with me. Chalk, they will say, is the ultimate communicator. And racking my brain, I too can recall an excellent chalk talk, one that was given by [Lauren Williams \(UC Berkeley\)](#) a while back. It is true that good chalk talks are easier to follow as they are paced more naturally; the presenter is somewhat constrained by her own writing speed which almost always works to the advantage of the audience. However it is also true that good chalk talks are VERY hard to do. So unless you are one of the naturals (and perhaps even then), I'd vote for a Beamer presentation any time.
- *The slides are legible:* This means that you are using a sensible font size and are not packing in too much information in one slide.
- *The content in each slide is interesting but not too interesting:* You want the audience to have a reason to look at you, the presenter, the conveyor of the Ultimate Truth about Exponential Sums and Polynomial-Growth Groups with Finitely Many Nilpotents. A humorous slide every now and then, perhaps one every twenty minutes, might be acceptable.
- *The slides contain visual and tabular information as much as possible:* To contradict immediately with what I said above, I propose that you aim to include as much visual material in your talk as is feasible for your topic. Graphs, figures, tables, and any other content that describes your math in a visual way will go a long way toward making your talk comprehensible and interesting. We all know that striking mathematical imagery adds value and [visual insight](#) to most advanced mathematics.
- *The talk was not put together in the last five minutes:* Ok, so, it is true that many talks are indeed put together at the last minute, I mean, the night before the actual event. But if you want to make this talk work well, you have to start early. You have to put your thoughts together onto paper (or preferably an electronic medium) much earlier. You want to start brainstorming: What needs to be in this talk? What is the minimum background the audience should have and what definitions and background results should you provide? What

motivating examples would be best to start with? Is there one good sample case that you can use through the whole talk? What are the best figures to use? And then you want to have some time to put the slides together. Make sure things flow right, and that your overall presentation has a narrative coherence to it. Then you want to let it sit for a while and simmer, while you go play your favorite video game, and then come back to it with fresh eyes to see if it really works well. Then you have to practice. More on that later. But just like in cooking, slow and steady wins the race, or at least makes a delicious meal more likely.

- *The talk starts and ends on time:* This too should be obvious but unfortunately is not. In each conference session I have attended there has been at least one speaker who went over time, and another who was late to his own talk. Please don't be that guy! More on this later, too.

The web is full of great suggestions about how to prepare successful presentations. [Some](#) are clearly intended for non-academic audiences, but they may still have some good ideas for you to ponder. And [some of these](#) may seem to be focusing exclusively on Powerpoint, and almost all math people will immediately roll their eyes at that, but the perspective gained from giving a good presentation in one context does carry over to other contexts; see for instance Jeana Mastrangeli's article [PowerPoint Unveils Coordinate Confusion](#) for some great tips learned from a job in the industry that carry over well to the academic context. And you can find more tips on academic blogs and other sites for an academic audience, for instance on [general presentation tips](#), on [how not to use Powerpoint in the academic context](#), on [how to give a fabulous academic presentation](#), and more specifically on [how to create a presentation out of a completed paper](#).

Now besides these general-purpose advice articles, you might wish to know just what is out there on math talks specifically. If so, you should check out [these AMS-sanctioned suggestions on presenting papers](#). A great resource for good advice on anything math-related is [Terence Tao's blog](#), and as expected he has some [substantive things to say about how to give a good math talk](#). Another great resource for the fundamentals of giving a good math talk is [Technically Speaking](#), an NSF-funded project aiming to improve the oral communication skills of STEM undergraduates. Though intended mainly for undergraduate math majors, the short videos on this site are eye-opening for most people, and not only for those who are new to giving math talks.

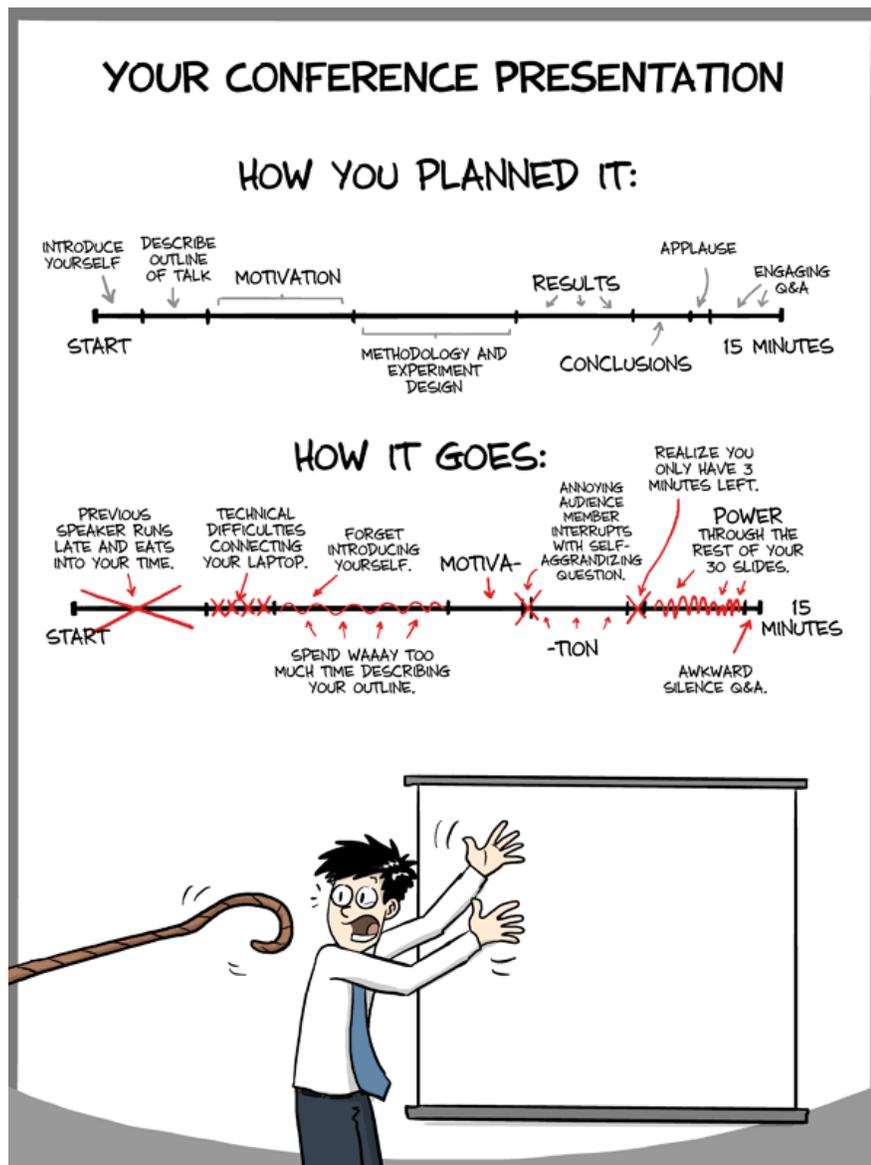
Friends and colleagues may have more pointed suggestions; my favorite is [a list by Bill Ross \(University of Richmond\)](#). I totally agree with him in all the specifics, in particular about not including any proofs in a 20-minute talk. If you insist that your proof is the most elegant and the most intellectually satisfying proof on earth, then bring along copies of your paper to share with your audience after the talk. If you really really *really* have to, and if you are ok with upsetting Bill, then go ahead and do include an outline of the proof in one slide, but please do not spend more than a tenth of your time on this outline (about as much as a slide deserves).

Now if you are speaking at a specialized session (with the caveat that not all AMS special sessions are as specialized as you might think), and if you have a lot more time than 20 minutes, you might want to focus on your proof a bit more. This is understandable. Proof is the heart of what most academic mathematicians do, so it is natural that you want to share your life's work with your colleagues. Just be aware that you might lose some of your audience when you do that. It is unavoidable. But it may be worth it. You will probably even have people come up to you later on and ask you detailed questions about one of your technical lemmas, to leave you convinced that at least some of those people with the closed eyes had indeed been awake, for at least some of the time.

Coming back to the practice issue: I won't suggest that you need [10,000 hours of practice](#), but it is always a good idea to do a complete run-through of your talk beforehand. Especially if you have not yet given over thirty talks in your career, you need to practice. Even if you have been a celebrated teaching assistant for years, even if you have taught your own classes for a couple years with no serious blunder, if you have not stood in front of a mathematical audience to talk about your work for over thirty times, then you have to practice. Find someone to listen to you. And time yourself. Everybody understands and nobody will blame you if you are nervous during your talk, but almost everyone will be quite annoyed if you go over time. Conference regulars in each subdiscipline know who gives great talks and who always goes over time. You can guess whose talks are well attended and whose are avoided like the dusty reruns of a decade-old reality show.

Keep in mind that you also do not want to be late to your own talk. So find out where the talk is, and visit the room before the day of your talk. If the organizers requested it, it helps to send them a copy of your talk ahead of time (another reason why it is a good idea to prepare your slides before the night before your talk!); this ensures that the transitions between speakers will not cost you precious time.

Now after all that hard work, it is still possible that you could go to your conference room on the day of your talk and then face this:



“Piled Higher and Deeper” by Jorge Cham

www.phdcomics.com

So sit back, relax, and just try to enjoy the conference. The talk, if well-prepared, will almost certainly be a good one, and if not, there will surely be a chance for a do-over.

[Gizem Karaali](#) is associate professor of mathematics at Pomona College and a founding editor of the [Journal of Humanistic Mathematics](#). Since May 2013, she is also the associate editor of the [Mathematical Intelligencer](#).

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5 Responses to *Math Talk: Preparing Your Conference Presentation*



Priscilla Bremser says:

08/08/2014 at 8:49 pm

Thank you for this post, Gizem. Excellent points. Just because something “should be obvious” doesn’t mean that it is. For example, I went to a talk at the last JMM by a well-known number theorist who decided that he didn’t need the microphone. He does have a booming voice, at least for the first half of each sentence. But I missed most of the punchlines, as I was two-thirds of the way back in a typical mid-sized conference center space with lousy acoustics. The in crowd, meaning the organizers and presenters of that session, could all hear what he said, bunched as they were up front. At least several of the rest of us were frustrated. So organizers and moderators: to make sure that talks are accessible to all in the room, please insist that all speakers use the mike. Speakers, use the mike, and if still in doubt, start the talk with “those in the back, raise your hand if you can hear me clearly.” (“Can you hear me?” won’t get a response from those who can’t.)

[Reply](#)



John Baez says:

08/08/2014 at 11:16 pm

Who made the cartoon?

[Reply](#)



Gizem Karaali says:

08/19/2014 at 7:46 pm

The cartoon is from “Piled Higher and Deeper” by Jorge Cham (www.phdcomics.com). This should be clearer in the body of the post now. Thanks for the inquiry (= gentle prod to correct attribution).

[Reply](#)



Mark Arjomandi says:

08/12/2014 at 1:03 pm

Very insightful remarks... Enjoyed reading. I also think if the presenter gives out a fairly detailed and clear abstract to the audience before the talk, it helps run the proceeds more smoothly. A handout during the talk summarizing the main points would not hurt either.

[Reply](#)



Gizem Karaali says:

03/07/2015 at 11:44 am

Here is another good summary: <http://blogs.lse.ac.uk/impactofsocialsciences/2015/02/20/how-to-win-at-academic-presentations/>

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