

What is the probability of a horse?

Cover Article

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Here is a story that I heard second hand: A math inquiry was redirected to the shared phone in our graduate office space. The caller was interested in the probability that his daughter and her newly-acquired horse might share the same birthday. More precisely (or, actually, considerably *less* precisely) the caller wanted some measure of a bad omen, he being convinced that this coincidence of birthdays was a bad omen and his daughter not. This call, made with the intention of quickly settling the matter via expert consult, took much longer than it was meant to. For one thing, it was difficult to convey that a clear definition for “bad omen” is really tricky to pin down. And further, that this lack of definition places mathematical tools somewhat out of arms reach. I am not sure if it is good luck or bad that the student who picked up the phone was studying category theory. But it only improves the story as far as I am concerned.

Even if it didn't happen exactly this way, I love this story. It perfectly captures a certain mismatch between what a mathematician does and what one might imagine they could be doing. There is a whimsical element to it that, if I am being honest, I wish were a little more true about the day-to-day of my job. More and more I find myself noticing the gap between what I thought I was getting into versus what I actually do, most of the time, for a living. And this is not to say that that general feeling is particular to academia; I recently read that burnout might best be defined as a mismatch between expectations and reality in one's workplace. That is worth considering and, for anyone trying to understand burnout, Jonathan Malesic's *The End of Burnout* is certainly worth reading.

Of course people don't really call landlines anymore—that is what email is for—though like nearly everyone, I expect, my email inbox has become a near-useless space of loosely triaged items where only the hottest-burning fires receive attention. And I have learned that an effort to really combat the problem only makes it worse, as observed and interrogated in Oliver Burkeman's alt-treatise on time management *Four Thousand Weeks*. In particular, responding to email generates more email. (It may do other things too, but this is the only outcome that is guaranteed.)

I should note, or I suppose admit, that email is on its way out. For better or worse, change is what happens. My emails from students read more and more like text messages—complete with emojis and typos. I am also learning that some of my colleagues have it far worse: The number of this-information-was-already-provided-to-you requests (including, but not limited to, deadlines and exam locations) appear far higher for instructors from traditionally under-represented groups. While this suggests I can't really complain, it also suggests that I *should* complain in the hopes that said colleagues get some of their valuable time back.

A move towards more forums that emulate social media spaces would be worse; perhaps even irresponsible. Students have their attention pulled in too many directions as it is and, on top of that, the negative health impacts of social media seem very real. There is an inherently social dimension to what mathematicians do that I am not convinced is enhanced by drawing on or incorporating social media tools. At the very least, we need to make our transition to the next thing thoughtful and deliberate. Students need fewer digital points of contact and instructors need fewer queries from said points of contact. Amazingly, the problem appears to be the same on both sides: Meaningful blocks of time need to be re-captured in order to get back to the straightforward (if challenging) matter of doing the work of learning and teaching.

What made me reflect on this? I received a great email that I probably can't take the time to respond to. And the problem is that there is a really short answer, but I can't think of how to provide it so that I don't come off as an arrogant resident of the ivory tower. I'm being asked to settle a debate, appealing to my expertise in topology, but the real answer is that the problem is not well posed. In the case at hand, *topological* is being used, loosely, as an adjective without any real definitions in sight. Which would be fine, except that depending on the definitions either side of the argument comes out on top. I know I am overthinking this one; it is easier to delete an email than to hang up a phone mid-call, after all.

I am regularly reminded by those non-mathematicians close to me that real life does not move purposefully from careful definitions towards clear solutions. While mathematics can support critical thinking it is too much to expect that mathematical tools might clear up the messiness of day-to-day life. Given this, both queries to settle arguments and requests for already-provided information seem misdirected—and perhaps this is a place where a better understanding of what a mathematician does might help. Or maybe it is more important to think about how to encourage, or even require, more thoughtful communication from our students. Given that this is clearly a media-independent problem, it is something that is going to require more serious thought. Right after I deal with some of this other email.

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