

## 2 Stuff is broken, and only you know how

by Rvd. Dr. Manul Laphroaig

Gather around, neighbors. We will talk of science and pwnage, and of how lucky we are that our science is (mostly) pwnage, and our pwnage is (mostly) science.

I say that we are lucky, and I mean it, despite there being no lack of folks who look at us askance and would like to build pretty bonfires out of our tools or to set “regulators” upon us to stand over our shoulders while we work (weird reprobrates as we are, surely some moral supervision from straight-and-narrow bureaucrats will do us good!)

But consider the bright and wonderful subject-matter we work on. An exploit is like a natural law: either it works, here and now, or it’s bullshit. Imagine our incredible luck, neighbors: in order to find out something clever about the world, we just need to run a program! Then, if it works, we know immediately that this is how things work. It’s even better than proving a theorem, because every mathematician knows that an exciting freshly-baked proof might contain a mistake; but with a root shell there can be no mistake. Indeed, few are so privileged to discover natural laws just by phrasing them right!<sup>1</sup>

Now while we puzzle out the secrets of unexpected machines inside machines, other neighbors are after other secrets of the universe, human life, and everything—and consider their plight! One day there’s a promise of insight into the biochemical mechanisms that make humans selfish or hypocritical—from not just a professor of a respected university, but a Dean<sup>2</sup> of such. This is a huge and unexpected step forward, and even newspapers like The New York Times write about it. That research connected selfishness with meat-eating. The connection seemed a bit too simplistic, but sometimes Nature does favor simple answers. Now this is knowledge, neighbor, and you had to work it in—except, as it turns out, it’s likely bullshit, just as the Dean Diederik Stapel’s entire career, built on his many “scientific studies” of record was bullshit (look him up in Wikipedia, neighbor!). It was bullshit made up to play on educated people’s stereotypes, to make headlines, to be featured in the *Times* of New York and of LA, and it totally worked for over a decade. It would’ve worked longer, too, if the fraud wasn’t aiming so high so fast.

Imagine the plight of all the students, underlings, colleagues, and co-authors—all victims of Stapel’s bullshit—who have wasted time building their careers on his crock of bullshit as if it were true insights into what makes humans tick. Some may have had their own research papers rejected by peer reviewers for not having cited Stapel’s flagship results—which were, as you recall, accepted science for over ten years.

Verily I tell you, neighbors, we are so much more fortunate, for in the domain we call ours truth runs and pwns, and bullshit doesn’t run and doesn’t pwn, and nothing can be built on top of bullshit in good faith or in bad faith that would stand to even casual scrutiny. (Well, possibly nothing other than a VC pitch—but judge and be judged, neighbors.) We may be distracted from pwnage by one too many debates, but at least none of these debates are about something called “replication bullying.” If you think this is funny, neighbor, consider that this is a real term, taken from complaints by actual and successful professional scientists. These complaints are about some other scientists who staged the same experiments without involving the original authors and published a paper about how they failed to replicate the original findings. They call this “bullying”, neighbor, and you might want to remember this when you hear that “scientists have shown X” or “linked X and Y.” Verily I tell you, even the hallowed halls of science, blessed with peer-review, are no refuge from bullshit.

We have another tremendous bit of luck, neighbors. In our domain of knowledge, whether 75%, or 99%, or 99.99% of us agree, paid or unpaid, expert or amateur, industry or academic—means *nothing*. Let me repeat, the consensus of all of us taken together—for whatever definitions of “all” and “together”—means *exactly* nothing. We may all be wrong, and whoever comes up with an exploit will be right, and that will be that. It happened before, and it will all happen again. We progress by someone noticing what the rest of us

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<sup>1</sup>This turn of phrase has been shamelessly stolen from Meredith L. Patterson’s essay “*When nerds collide*”, where she writes about our strange tribe of people brought together by *the power to translate pure thought into actions that ripple across the world merely by the virtue of being phrased correctly*—but that is another story.

<sup>2</sup>“Leaps tall buildings in a single bound”—look it up on the internets under “academic structure”, neighbor! The only finer bit of college-land folklore is the one that starts with “Biologists think they are biochemists, . . .”, and it is mostly found pinned to doors of rather squalid-looking offices around math departments.

have overlooked to date, and if some group of people started counting our publications to learn something about security of computers, we'd tell them to stop wasting their time and ours. Pwnage laughs at majority vote and "consensus"—for these two are, in fact, flagstones on the royal road to being royally pwned.

Is this luck undeserved and unfair, as some would like us to believe? Not so. It is like the luck of a fisherman that he has to spend time on the water, or maybe the luck of a fish that has to live in the water; or the luck of a hunter that he needs to hang out where Mother Nature is constantly munching upon herself. (Stand quietly some late afternoon in a summer meadow, watch dragonflies zip back and forth, and listen. You are hearing the sound of a million lunches, neighbor!)

We see through bullshit because we hunt in its fields and jungles, and we know that wherever there is bullshit that's where stuff will be badly pwned. Bullshit and pretending that things are understood when they are not are like a watering hole in a parched steppe; ecologies of breakage are ecologies of bullshit and pretense. A good hunter knows to pay attention to the watering holes.

Some of us are hunters of bullshit, others care more about bullshit sneaking into their villages at night, carrying away a pet project here, a young 'un there. But no matter whether a hunter or a guardian, one knows the beast, and where the beast comes from. However you reckon the number of the beast, you all know the names of the beast: Bullshit and Pretense.

Paul Phillips, who walked away after having written a million lines of code for Scala and having closed nine hundred bugs, got to the bottom of this. He spoke of deliberate lies that stayed in the documentation for over three years, as an attempt to make things look less complicated, but in reality making it hard for programmers to be sure whether a bug was in their program or in the language itself:

This is the message it sends: your time is worthless. . . . I don't want to be a part of something that thinks your time is worthless.

[. . .]

It's too complicated, people say it's too complicated—let's just not let them see that complicated thing. . . . They told me I'd never have to know. Well, obviously, you do have to know, there's no way to avoid knowing. It's only a question of how much you are going to suffer in the course of acquiring this knowledge.

That is a fine sermon against the kind of engineering that ends in bullshit and pretense, neighbors, but it also reveals a deep truth about us. We don't want to be a part of things that treat people's time as worthless. More to the point, we cannot stand such things, we simply cannot operate where they rule. We fight, we flee, or we walk away, but in the end we are by and large a community of refugees with an allergy to bullshit.

In the end, neighbors, our privilege may just be an allergy, an allergy to useless waste of time and busy work that makes no sense and brings no improvement. We find ourselves in this oasis of no-bullshit we-don't-care-what-other-people-think reproducibility for a simple reason that has little to do with luck. We simply fled here from the dark lands where Bullshit reigned supreme, where the very air was laden with its reek, and where we would succumb to our allergy in fairly short order, but not before being branded as disagreeable, lazy, or hubris-prone. We defied the gods of these places (which was what *hubris* originally meant), and we are a nation of immigrants in our Chosen Vale of No-Bullshit.

Rejoice, then, and give a thought to neighbors who still suffer—and reach out to them with a good word, a friendly PoC, or a copy of this fine journal when you feel extra neighborly! For your allergy to bullshit, your hubris, your impatience, and your distaste for busy-work may make poor privilege, but that is what we've got to share, and share it we shall.

Go now in pwnage, share your privilege, and help deliver neighbors from bullshit.