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Math 198

Talk 1

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Prompt. Prepare and give a 2-3-minute talk that begins with the phrase, “You wouldn’t know it by looking at me, but....” You will not use slides, props, or the whiteboard for this talk. Your goal is a give a clear and compelling talk with a solid beginning, middle, and end.

Outline. You wouldn’t know it by looking at me, but I have very long toes. Or at least, that’s what I’ve been told. Personally, I’m not sure they’re *actually* long enough to warrant this kind of a big proclamation, but that’s probably because I’m just used to them, and hence am not well-equipped to judge if they’re atypical. That’s why I’m going to ask for your help here: throughout this short talk, I’ll give you various descriptions about my toes, and at the end, I want *you* to tell *me* whether you think they’re strangely long. So without further ado, let’s jump right in.

Let me begin by describing feats I can preform with my toes (no pun intended). My toes are long enough that I can pick up pencils and things with them, and turn doorknobs fairly easily. I can also unscrew caps for some water bottles, and even lift them up using my toes, albeit with a high risk of spillage. Of course, I’m not sure if this is really atypical — it could be that everybody is capable of such things, but few are silly enough to actually try. Hence, let’s talk about numbers.

Last night, I spent some time using a ruler to measure the lengths of each of my toes. The results were identical on my left and right feet, so for the following I’ll just say “my big toe” instead of “my left and right big toes.”

The results: my big toe is 6.0cm. My index toe is 5.4cm. My middle toe is 4.8cm, and my ring toe breaks the arithmetic progression, coming in at comfortable 4.6cm. Last but not least, my pinky toe is a quaint 3.2cm, just slightly over half of my big toe’s length.

Now, I’m guessing this description is probably less than satisfying to you, because those numbers probably don’t translate well into a visualization of “size.” After all: how big even is a centimeter? For the average person, it’s about the thickness of their pinky finger, but that’s just an estimate, and we might worry about how much error we’d accumulate in stacking six of them together.

We can circumvent this somewhat by choosing better comparison objects — my big toe is roughly the length of the average human thumb. My index toe is very slightly longer than the typical US chicken egg. My middle and ring toes are slightly longer than a matchstick, and my pinky toe is almost exactly as large as a typical quail egg.

Ok: this is better, but you’re probably still unsure whether you should be impressed or not. Are *most* middle toes shorter than a matchstick? Most of you probably don’t know. What you might *really* want is some information the distribution of toe lengths. Questions like “how many standard deviations above the mean are my toe lengths?”

Boy, I wish I knew. As it turns out, there is almost no data about this available online — and believe me, I looked. This is why I had to restructure a lot of my talk

I guess really, seeing is believing. So go with your gut here: (at this point, remove shoes) are my toes weirdly long?

(a) Intro

- I have very long toes
- ... Or so I’ve been told.

- I'm not the best judge
 - So I'll ask you to help me out
- (b) Before numbers, set the stage
- Long enough to pick up pencils and stuff with
 - Can turn most doorknobs, including smooth ones
 - Can open some water bottles, and even lift them up
- (c) Let's talk numbers
- Measured my toes last night
 - Brief summary of the methodology
 - Give lengths
- (d) Estimating lengths
- Numbers don't necessarily translate well into notions of size.
 - Real-world comparisons
- (e) Better, but not there yet.
- Still apples to oranges
 - Hard to confidently assess relative sizing
- (f) Apples to apples?
- Can't be done quantitatively (no data)
 - Leaves only the qualitative option.

