Goldilocks and the Three Levels of Data

Research Fables from the Sisters Grinn, No. 3

By Jeanne Grace, PhD, RN

Abstract: I started writing the fables in 1996, when I took over teaching the undergraduate research course. At first, they were "buried treasures" hidden in the online course materials (it was a hybrid course, and we were trying to get the students to develop internet surfing skills) for students to find. Then, as there were more of them, I started explicitly assigning them for student reading. As I've had time, I've written fables for areas where students seem to get "stuck" on basic concepts in research. Two of the fables have "readers' theater" versions that I use in class for traditional students. Casting the parts is always fun. Enjoy!

The entire series of Dr. Grace's research fables are available in this repository. Patrons may access the series by clicking on Dr. Grace's name in the item record.
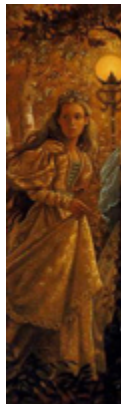
Goldilocks and the 3 Levels of Data

In the land of Data Analysis, there once lived an intrepid little girl. Her hair was the color of autumn hay in sunlight, and her name was Goldilocks. Goldilocks was an avid quantitative analyst, and she particularly loved interval/ratio level data. One day, when Goldilocks was out exploring, she happened upon a neatly kept homestead in the forest. Goldilocks was becoming tired and hungry, and so she went to the door, hoping the residents would offer her food or, even better, a really nifty interval/ratio variable into which she could sink her teeth.

No one was home. But as Goldilocks' knocking became more insistent, the door creaked open. Propriety and good manners should have kept Goldilocks outside, but her hunger and curiosity got the best of her. She opened the door and went in.

The kitchen looked as though the residents had just stepped out for a minute. The fire burned steadily in the fireplace; the clock ticked softly on the wall Three bowls of soup were set at the table, in front of three chairs of varying sizes.. "If I do not eat soon," declared Goldilocks to herself, "I shall become ill. Surely this family would not begrudge me a bowl of soup under the circumstances." Goldilocks seated herself in the largest chair and struggled to reach the bowl. The soup smelled appetizing, but the broth was filled with identical sized cubes of carrots, beets, avocados and mangos. "Too categorical!" exclaimed Goldilocks, after one spoonful. She was famished by now and totally uninterested in characterizing the chunks by frequency distribution.

Next she tried the soup in front of the medium sized chair. This broth was cool, and was starting to collect congealed fat on the surface. Still, Goldilocks could see that the broth was filled with small, medium and large pieces of tofu. Goldilocks found this more appetizing, but still not quite to her taste.

"Too ordinal!" she said, as she stood up. She was not in the mood for rank order procedures and the soup's contents did not seem robust enough for arithmetic means.

In front of the smallest chair, which she found fitted her quite comfortably, was a wonderful bowl of soup. It was appetizingly warm, but not too hot. Even better, it was filled with a variety of sizes of potato pieces, all of which were discrete multiples of the smallest in size. "How interval!" exclaimed Goldilocks, and she ate the entire contents of the bowl before it even occurred to her to determine the mean and standard deviation of the sizes of the potato pieces.

Having eaten, she became sleepy. And she convinced herself that a family that made food available would not mind if she napped in one of their beds. She climbed upstairs to the bedrooms and found three beds of varying sizes. The largest had a quilt of brightly colored, equal size cloth blocks, and the mattress was filled with chunks of styrofoam, cotton and latex foam. Goldilocks sprang up almost as soon as she had laid down. "Too categorical!", she declared, and proceeded to the next bed. This bed had strips of varying softness in the mattress, and a quilt with small, medium and large circles. Again, it was appealing, but not quite comfortable. "Too ordinal!" she decided and moved on.

Finally, she arrived at the smallest bed. This bed was filled with styrofoam beads of various sizes and had a quilt with intricate patterns of squares and rectangles of various sizes. Like the chair, it fit her perfectly. Goldilocks fell asleep working out the average size of a rectangle in the quilt pattern.

Soon after, the family who lived in the homestead returned. They were a family of brown bears -- Papa, Mama, and Baby -- and they had gone out for a stroll while waiting for

their soup to cool enough to eat. Papa Bear was a historian by vocation and Mama Bear was an ethnographer. Baby Bear wanted to be a phenomenologist when he grew up. All noticed the intrusion in their cozy kitchen.

"Someone's been eating my soup", mused Papa Bear. "I wonder if that person left source documents about the economic context of his life?"

"Someone's been eating my soup", commented Mama Bear, " and it doesn't look like that person observes the same customs of food consumption that we do."

"Someone's been eating my soup," piped up Baby Bear. "And it's all gone!" He was too disappointed to consider the lived experience of the intruder.

More intrigued, than alarmed, the Bear family went upstairs to search for additional signs of the intruder. "Someone's been sleeping in my bed," said Papa Bear, wondering about the political forces that influence trespassing.

"Someone's been sleeping in my bed", said Mama Bear, becoming excited about encountering an informant from culture with very different hospitality norms.

Baby Bear rushed to his bed and stopped short at the sight. Sleeping under his quilt, her golden hair spread across the pillow, was Goldilocks. In her sleep she was murmuring formulas for standard deviations, and a smile fleetingly crossed her face as she dreamed about the standard error of the mean.

"Someone's still sleeping in my bed, and she's a quantitative data analyst!", he screamed in terror. At that, Goldilocks awoke and fled from the house, never to be seen in that forest again.