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S. R. Jammalamadaka

The founder of the Statistical Consulting Lab keeps a sense of humor as he plunges into the new field of "directional statistics."/3

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This Professor has Statistics' Probable Number

By VIC COX

HIS NAME IS euphonious: Jammalamadaka (Jamala-MAH-dakah). Sreenivasa Rao Jammalamadaka.

It requires practice for a Western tongue to master, a fact of which the native of India is well aware. "People call me Dr. J, yes," smiled the professor of statistics and probability.

But that is not the only name by which he has been known. Fellow professionals have also called him J.S. Rao. In fact, a statistical test—Rao's spacing test—was named after him.

How probable is it that this soft-spoken statistician should have started life under one name and then, in mid-career, apparently changed to another? Like the field of numbers in which he toils, there is a logic to how this has happened, though it is refracted through the human factor.

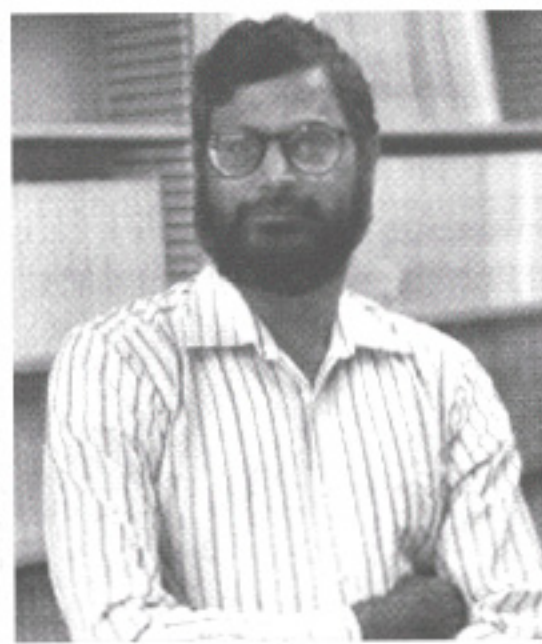
Jammalamadaka is an old and honored family name in the Telugu culture of Munipalle in southern India where Dr. J was born. In that society it is customary for individual names to begin with the family name and the given names follow. In his early years, through higher education at the Statistical Institute of Calcutta

where he secured his doctorate, he signed his name Jammalamadaka S. Rao.

J. S. Rao was the name on his first published papers and was what he went by when he came to the Indiana University at Bloomington in 1969 to teach statistics as a visiting professor. That one-year appointment extended to six, and in 1976 he accepted UCSB's invitation to join the faculty.

When he became a naturalized American citizen in the early 1980s Dr. J decided to change the order of his names officially. The pending arrival of a first-born to Jammalamadaka and his wife, Vijaya, also helped finalize the decision. "We had to decide what his last name, which means the family name in this country, would be," recalled Dr. J. "People often try to make their lives simpler by calling themselves John Smith or something. I went the other way around."

It was a hard decision, in part, because it meant a confusing switch in by-lines to S. R. Jammalamadaka from J. S. Rao. "Half my research papers are under that [latter] name," he pointed out. By this time he had an international reputation for pioneering work in an emerging statistical specialty that sought to forge new tools to analyze



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'Statistics cannot prove anything beyond a doubt.'

—S.R. JAMMALAMADAKA.

nonlinear phenomenon like directions or circularity.

For example, geologists often need to know how often rivers have changed course over the eons or when Earth's magnetic fields reversed. Statisticians cannot apply standard tools, such as sample vari-

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ance or averaging, to establish reliability of possible answers to such questions. But by imagining directions as angles on a circle or as points on a sphere it is possible to estimate the reliability of a geologist's supposition, Jammalamadaka explained.

It is possible to use the methods of directional statistical analysis on such things as bird migrations, the effect of wind direction in pollution transport, tectonic plate movement, even in timing medications or surgery for greatest impact, he added. Recent studies of breast cancer surgeries have found that operations are more successful if performed in the middle of the patient's menstrual cycle rather than at the beginning or end. "Supposedly 30 percent more successful," he said. "Timing is everything."

Yet Dr. J remains circumspect about his field's take on the truth of a given situation. Contrary to the way advocates use them, "Statistics cannot prove anything beyond a doubt," he cautioned. "I think of the statistician as an honorable middle man. He helps the scientist to uncover truths in some ways."