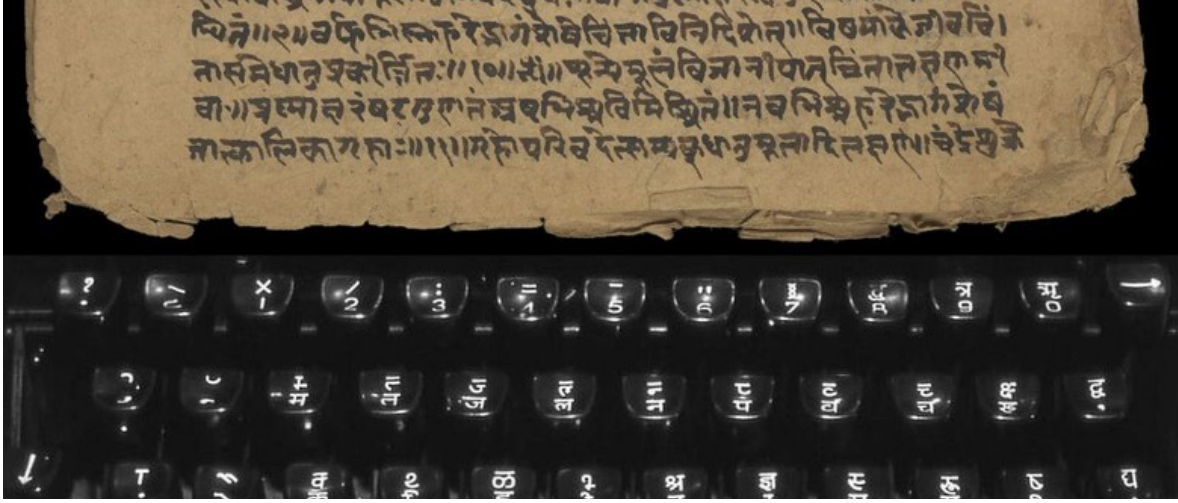


How Sanskrit came to be considered the most suitable language for computer software

Misreading of a 1995 paper in 'AI Magazine' and the sheer power of assertion repeated so often that it's never questioned seem to be responsible.

Dilip D'Souza · Aug 25, 2015 · 06:30 pm



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About Sanskrit in contemporary India, there are two things of note.

The first is typified by what I found in the *Hindustan Times* a few days ago. When a mobile app firm observed August 15 by asking people to tweet with the hashtag #IndianAndProud, many Indians responded. A selection of their 140-or-less character epigrams covered three full pages in the paper on August 19. One repeated an assertion that's been made so often it's no longer even questioned: that "Sanskrit is considered the most suitable language for computer software".

The way I've often seen it, that statement is usually prefixed by the words "A report in Forbes magazine in 1987 said that...". Perhaps in this case the Twitter character limit forced their omission. But this attribution to *Forbes* has been made so often, it is no longer even questioned. Though if it was, we'd find that no such report was ever in *Forbes*, whether in 1987 or any other time.

So why do so many people appear to believe it? Or what does it even mean? Or where did this shibboleth come from in the first place?

Natural language for computers

To answer that, you have to go back about 30 years, to 1985. That's when, in a previous life, I was writing software

for a living, particularly in a field that the industry was actively trying to profit from at the time, Artificial Intelligence. That year, a researcher named Rick Briggs at National Aeronautics and Space Administration, or NASA, made waves by publishing a paper in *AI Magazine*, titled “Knowledge Representation in Sanskrit and Artificial Intelligence.” (Abstract and full text available [here](#).)

This is the paper that would launch a thousand claims about Sanskrit and software.

Now a major AI goal at the time was to get computers to understand “natural language” – meaning not Lisp or C or Prolog, which they all did quite well, but languages we humans speak. Like English, or Hindi, or Tagalog – or, for that matter, Sanskrit. That you can today ask Google a perfectly grammatical English question (try “What is the temperature on Tristan da Cunha?”) and actually get meaningful results owes something to those early research efforts. And Briggs alerted AI folks to something fascinating and useful: that the grammar of Sanskrit – structured and rule-based as it was – had significant lessons for this business of natural language understanding. Studying the way ancient Indian grammarians worked, Briggs suggested, might help AI researchers “finally solve the natural language understanding [problem]”.

All of which is fascinating enough. But while his abstract does say that “a natural language can serve as an artificial language also”, nowhere in the paper did Briggs claim that Sanskrit is “the most suitable language for computer software”. That second is an essentially meaningless statement.

For one thing, different kinds of software are suited to different computer languages. Much of AI research has happened in Lisp, for example, because of its ability to manipulate words and sentences – but Lisp is nearly unheard of outside AI. So there is no such thing as the “most suitable language” for software. But for another thing, if it was indeed so spot-on suitable, we’d have seen software written in Sanskrit by now. That we haven’t is a pointer to the truth: certainly the rigorous rules of Sanskrit grammar have lessons for AI, but writing software is another challenge altogether. The way computers are built requires a certain clear and unmistakable logic in how we give instructions to them. Nobody has yet found a way to do that in any natural language, whether Sanskrit or English or Tagalog.

Elective, not mandatory

Which brings us to the other thing about Sanskrit in contemporary India: Himachal Pradesh has just [announced](#) that “Sanskrit will be made a mandatory subject in all government schools” in the state.

Why would a state force its students – or at least, the students in government schools – to learn Sanskrit? This is not to suggest that no students must learn it, not at all. After all, plenty of the collective wisdom of this country, gathered over many centuries, is recorded in Sanskrit and is, we believe, stored somewhere safe. I would have liked to learn enough Sanskrit – and maybe will someday – to read and understand even the line Rick Briggs deconstructs in his paper: “*Maitrah: sauhardyat Devadattaya odanam ghathe agnina pacati.*” (He did kindly translate: “Out of friendship, Maitra cooks rice for Devadatta in a pot over a fire.”) And of course some of us – AI researchers, in

particular – would do well to learn enough of the language’s grammar to use it as Briggs suggests.

The word, of course, is “some”. Some of us will learn the intricacies of quantum mechanics, so as to tackle the endless mysteries of our universe. Some of us will learn the ins and outs of economics, so as to understand the dynamics of trade and markets. But not all of us. Because we don’t need that knowledge to live our lives. Which is why those subjects are not taught to every school-going kid.

In the same way as it would make no sense to make quantum mechanics and economics mandatory, it makes no sense to make Sanskrit mandatory in schools. Make it available as an elective for those who want to study it; leave the rest to focus on their other subjects.

Because for all its precise grammar and its centuries of history, this is the truth about Sanskrit: few people today speak it – just over 14,000 according to the 2001 Census, in fact. And certainly computers don’t speak it.

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