CONFERENCE REPORT

Knowledge Representation and Inference in Sanskrit

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This report is a review of the First National Conference on Knowledge Representation and Inference in Sanskrit, Bangalore, India, 20 through 22 December, 1986 The conference was inspired by an article that appeared in the Spring 1985 issue of AI Magazine--"Knowledge Representation in Sanskrit and Artificial Intelligence."

A working group has been created to pursue the goals of the conference and to possibly arrange another conference for 1987 and 1988

This conference is analogous to the consultation of philosophers and cognitive psychologists by computer scientists in the beginnings of AI. Western psychology and philosophy is quite different from the Indo-Aryan tradition: the former has its basis in Aristotelian logic and the scientific method, whereas the latter is also based on introspection and internal experience Nevertheless, both these schools have converged in the analysis of natural language and the extraction of the semantic message from a text.The purpose of AI in this context is to derive a "method" for natural language understanding; the purpose for the Sanskrit scholars was to understand the nature of language and thought in and of itself. Hence, for the Sanskrit scholars, the actual methodology was implicit; it was not the focus.

The purpose of the conference was to extract this hidden "algorithm" of automatic semantic parsing from the Sanskrit pandits. One obvious barrier was language. Although the computer scientists attending the conference were bilingual, the pandits spoke no English. Each presentation was translated and presented in both English and Sanskrit by various translators. In addition, the proceedings were issued in both languages.

The conference was preceded by two tutorials. The first tutorial was for the pandits. The magazine article mentioned earlier was translated into Sanskrit, and the pandits were given an AI tutorial. The second tutorial familiarized computer scientists with the vast Sanskrit literature on knowledge representation. Because the methodology has always been implicit (examples of parsing are given in the

ancient texts but little procedural information), we had to rely on the pandits to whom the oral tradition had been passed.

The conference was inspired by Sri Paramananda Bharathi Swamiji and was organized by Dr. H. N. Mahabala (president, Computer Society of India; chairman, Indian Institute of Technology) and others. The conference was attended by the vice-chairman of the University Grants' Commission and the secretary of the Department of Electronics. Virtually every institute of science, mathematics and engineering was represented. In addition, the conference was attended by professors of Sanskrit and computer science from England (Oxford and Sussex universities) and the United States.

Papers were presented in three basic groups. The first group of papers were of an overview nature (of natural language processing), such as the paper by I. Mani of Texas Instruments. The second set of papers were purely Sanskrit. A third group (the most important) addressed the possibility of utilizing the underlying Sanskrit methodology in natural language processing, such as the paper by Srihari, Rappaport, and Kumov of the State University of New York at Buffalo concerning the use of the semantic network processing system (SNEPS) for Sanskrit grammatical analysis.

The outcome of the conference was positive. Most importantly, the right questions were asked of the Sanskrit scholars, and findings will be made available in India, where such information was previously unavailable, for future work of this kind.