

Short description of the dissertation

Modelling the Pāṇinian System of Sanskrit Grammar

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The rules of grammar, composed by Pāṇini (ca. 5th cent. B.C.) and collected in his work which consists of eight chapters (*Aṣṭādhyāyī*), continue to be a source of intellectual enquiry ever since their formulation. These rules, together with a lexicon of verbal roots and a partial list of nominal stems, describe Sanskrit, the object language, as well as the meta-language of description. The generative nature of the grammatical formulation, presented as a complex combinatorics of linguistic constituents, stimulates its computer simulation.

The last decade of research in the field of Pāṇinian studies shows an emerging focus on exploring the theoretical and practical possibilities to implement different aspects of Sanskrit grammar computationally. There have been a few attempts to electronically store the Pāṇinian corpus, but a programmed implementation of Pāṇinian process is still in a stage of incipience.

The aim of my research work is to develop a model for computer representation of the Pāṇinian system of Sanskrit grammar; and based on this model, simulate the grammatical process on computer.

Apart from analyzing the attempts being made thus far, I propose a new model, based primarily upon the set-theoretical operations, to represent the linguistic and meta-linguistic information of *Aṣṭādhyāyī*.

After discussing the theoretical underpinnings of my model, I provide a computer implementation of the same, which should be able to generate the morpho-syntactical components of the language according to the rules of Pāṇini. The challenges and further possibilities of extending the model (e.g. to include the context and purpose of Pāṇini's grammar as well as to explore the potential of evolving a 'grammar' of rituals) will also be discussed.

Along with a printed version, the results will be presented in the form of an internet based lexicon on Pāṇinian principles for subsequent access.