International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES)
Impact Factor: 5.22 (SJIF-2017), e-ISSN: 2455-2585
Volume 4, Issue 10, October-2018

SUITABILITY OF SANSKRIT FOR COMPUTER PROGRAMMING: A REVIEW

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Abstract: ***From the past many years, a lot time, attempt, and cash has been expended on designing an ambiguous illustration of natural languages to make them accessible to computer processing. Those efforts have centered round developing schemata designed to parallel logical relations with relations expressed by means of the syntax and semantics of natural languages, which can be truly cumbersome and ambiguous in their feature as automobiles for the transmission of logical facts. Understandably, there may be a massive perception that natural languages are fallacious for the transmission of many ideas that artificial languages can render with super precision and mathematical rigor. In this paper I have reviewed the attempt to establish the parallelism between the Sanskrit and natural language processing and the theoretical implications of this equivalence will be given.***

IndexTerms – Semantic networks, Sanskrit, AI

I. INTRODUCTION

Methodologies for linguistics are for the most part supported linguistic theories, each ancient and trendy. The proposal is predicated on the perceived similarity between a usually used technique of knowledge illustration in AI, viz., semantic networks, and also the shastric Sanskrit technique, that is remarkably unambiguous. The influence of Sanskrit on ancient Western linguistics is acknowledged vital [1]. Whereas linguistic traditions like Mesopotamian, Chinese, Arabic, etc., are for the most part tangled with their particularities, Sanskrit has had a minimum of 3 major influences[1], First, the unraveling of Indo-European languages in comparative linguistics is attributed to the invention of Sanskrit by Western linguists Second, Sanskrit provides a phonetic analysis technique that is immensely superior to Western phonetic tradition and its discovery crystal rectifier to the systematic study of Western , Third, and most vital to the current paper, the principles of research (e.g., sutras of Panini) for compound nouns, etc, is incredibly like modern theories like those supported semantic networks. It's been argued that analyses of natural-language sentences in semantic networks and in Sanskrit descriptive linguistics are remarkably similar. Therefore Srihari et al [2] propose an implementation of Sanskrit in semantic network to be used as an Interlingua for MT. As an Interlingua, Sanskrit fulfills the essential necessities of being formal, language-independent, and a strong medium for representing meaning. Sanskrit thought-about being the mother of all languages possesses an upscale grammar that was penned by grammarian around 2500 years ago. The twin case may be a distinctive and delightful feature of Sanskrit that isn't present in the other language aside from Sanskrit [3]. Jha et al [3] focuses on this Indian treasure and suggests its use for today's computer applications. It is a common and reasonable idea that natural languages are too ambiguous for transmission of the many ideas that the artificial languages will handle and method with nice precision and mathematical rigor. The creator of Sanskrit language was grammarian who developed 3,949 rules. Currently even a millennium later, Sanskrit has the strongest and simplest grammar of all the natural languages and surprisingly. The most suited language for AI and natural language Processors. It's extremely commendable that grammarian was able to style a language that may build computers perceive the concept of human linguistics with none ambiguity even during this day and age. Sure advantages of Sanskrit mentioned could notice its use in advanced AI for computers. It is also immensely helpful for making an extremely economical natural language Processor.

II. REVIEW

From the past many years, a lot time, attempt, and cash has been expended on designing an ambiguous illustration of natural languages to make them accessible to computer processing. Those efforts have centered round developing schemata designed to parallel logical relations with relations expressed by means of the syntax and semantics of natural languages, which can be truly cumbersome and ambiguous in their feature as automobiles for the transmission of logical facts. Understandably, there may be a massive perception that natural languages are fallacious for the transmission of many ideas that artificial languages can render with super precision and mathematical rigor. In his paper [1] first, a typical Knowledge Representation Scheme (using Semantic Nets) will be laid out, followed by an outline of the method used by the ancient Indian Grammarians to analyze sentences unambiguously. Finally, the clear parallelism between the two will be demonstrated, and the theoretical implications of this equivalence will be given. Briggs [1] had known the similarity

between the linguistics network technique of information illustration in computing and shastric Sanskrit. Additional Srihari et al [2] gave a summary of Semantic networks and natural-language understanding supported semantic networks. it's shown that linguistic case frames are necessary for semantic network process which Sanskrit provides such case frames. He has planned Sanskrit-based semantic network illustration is planned as an Interlingua for machine translation. Linguistics may be a subfield of computing (AI) involved with the event of methodologies and algorithms for process natural-language by computer. Methodologies for linguistics are for the most part supported linguistic theories, each ancient and trendy. The proposal is predicated on the perceived similarity between a usually used technique of knowledge illustration in AI, viz., semantic networks, and also the shastric Sanskrit technique, that is remarkably unambiguous. The influence of Sanskrit on ancient Western linguistics is acknowledged vital [2]. Whereas linguistic traditions like Mesopotamian, Chinese, Arabic, etc., are for the most part tangled with their particularities, Sanskrit has had a minimum of 3 major influences. First, the unraveling of Indo-European languages in comparative linguistics is attributed to the invention of Sanskrit by Western linguists. Second, Sanskrit provides a phonetic analysis technique that is immensely superior to Western phonetic tradition and its discovery crystal rectifier to the systematic study of Western acoustics. Third, and most vital to the current paper, the principles of research (e.g., sutras of Panini) for compound nouns, etc, are incredibly like modern theories like those supported semantic networks. Srihari et al [2] has concluded 3 purpose: 1) to explain propositional semantic networks as utilized in AI, in addition as a software system for semantic network process (ii) to explain many case structures that are planned for natural-language process and that are necessary for language understanding supported semantic networks, and (iii) to introduce a proposal for natural-language translation supported shastric Sanskrit and semantic networks as an Interlingua. It's been argued that analyses of natural-language sentences in semantic networks and in Sanskrit descriptive linguistics are remarkably similar. Therefore Srihari et al [2] propose an implementation of Sanskrit in semantic network to be used as an Interlingua for MT. As an Interlingua, Sanskrit fulfills the essential necessities of being formal, language-independent, and a strong medium for representing meaning. The twin case may be a distinctive and delightful feature of Sanskrit that isn't present in the other language aside from Sanskrit [3]. The importance of twin case is unnoticed in the majority the languages that result in confusion whereas processing twin and plural however this ambiguity is also removed in the extremely economical and arranged Sanskrit descriptive linguistics. Jha et al [3] focuses on this Indian treasure and suggests its use for today's computer applications. It explores diverse key characteristics of human language technology, various issues encountered in human language technology are and the way Sanskrit with success overcomes these limitations and fulfills all the necessities of a natural language Processor. It is a common and reasonable idea that natural languages are too ambiguous for transmission of the many ideas that the artificial languages will handle and method with nice precision and mathematical rigor. However, there's one language that despite being natural has no ambiguity which is that the mother of all Indo-European languages, treasure of India "Sanskrit". The creator of Sanskrit language was grammarian who developed 3,949 rules. Currently even a millennium later, Sanskrit has the strongest and simplest grammar of all the natural languages and surprisingly. The most suited language for AI and natural language Processors. It's extremely commendable that grammarian was able to style a language that may build computers perceive the concept of human linguistics with none ambiguity even during this day and age. Sure advantages of Sanskrit mentioned could notice its use in advanced AI for computers. It is also immensely helpful for making an extremely economical natural language Processor. In this article, we'll discuss what human language technology is, numerous issues encountered in NLP are and how Sanskrit descriptive linguistics effectively handles these limits and restrictions with exactness whereas accomplishing each demand of a natural language Processor. Following are the reasons to support Sanskrit as a language for Natural Language process as compared to alternative languages due to its huge and intelligent grammar and various properties like 1)Words describing the properties instead of objects 2) Special attention to twin case 3) intensive use of vibhaktis

4) Support for prime inflection, and 5) Very refined pronunciation of every and each word.

Natural Language process (NLP) is a field of computing, computing and computational linguistics involved with the interactions between computers and human (natural) languages. The thought of employing a natural language for programming is to form it easier for individuals to speak to computers in their native tongue and spare them the pain of learning a computer friendly language like assembly, C, C++, Java, LISP etc. Among all the Natural Languages, Sanskrit language in its style is known to be the most effective language that has minimum deviation. Panini, the creator of Sanskrit developed 3,949 rules. This paper[4] has explores varied distinctive features of AI like natural language processing, semantic net, Vibhakti, Dual Case, Inflection based Syntax etc. and the way Sanskrit language effectively triumphs over these limitations and fulfills the conditions of a natural language Processor. "The structure of Paninian grammar is nothing however a computer program" – Charles Babbage. It's captured the bottom of universal principles of all languages. Computational Linguistics needs formal rules for analysis and generation of language. Much time, effort and money has been exhausted on planning computers that may work with phrases, expressions, idioms, oratory, rhetoric, ambiguity, vagueness, specialness and peculiarity of human language for NLP programming. Understandably, there is a widespread belief that natural languages are unsuitable for the transmission of the many ideas that artificial languages will render with nice preciseness and mathematical rigor. These efforts have centered on making schema designed to parallel logical relations with relations expressed by the syntax and linguistics of natural languages that are clearly cumbersome and ambiguous in their perform as vehicles for the transmission of logical data[4]. finally, we are ready to say that Sanskrit language being well programmed tongue is that the simplest suited language for Soft Computing areas in AIand tongue tongue Processors. We tend to conjointly want very powerful and durable design computers for Sanskrit language language testing and implementation. Depth data and learning of Sanskrit language ought to be impressed for AI

& informatics programmers. There are an entire set of reasons on why Sanskrit language is termed the foremost appropriate programming language. The assorted rules, the linguistics work seamlessly with the whole programming paradigm, such are the principles and versatile notions that Sanskrit language offers [5]:

Semantics: The linguistics, that comprise of some 4000 rules in total, are therefore scientific and logical in nature, that it might o.k. be the baseline of structures utilized by numerous pc scientists. The synchronic linguistics relies strictly on mathematical and algebraical algorithms, and is powerful enough to be wont to model a generator, that might churn out the principles for languages like Chinese or Thai. Database and Metadata: In commoner terms, information may be a assortment of knowledge. data is empty. Metadata, in programming terms, means that knowledge regarding knowledge. In different words, raw data, that is empty intrinsically, assumes meaty patterns and assortment once data is applied thereto. Panini's Sanskrit language, within the variety of 4000 rules, type four compact databases. Aksharasam Amanaya, Sutrapatha, Datupatha and Ganpatha ar the databases of Sanskrit language, and therefore the data ar the principles contained among these databases. Recursion: those that aren't aware, formula may be a method of continuance things during a self-similar means. In programming, whenever a way decision is formed from among the tactic itself, it's referred to as formula Arrays and null values: Panini has outlined a term referred to as Lop, which might be love Null. A null are often assigned to a variable, or a pada in Sanskrit language, and so used for easy Array operations in Sanskrit Language like be part (Sandhi in Sanskrit). Variety of array joins may result during a advanced term, that once more are often de-escalated (disjoint). Polymorphism: virtually, polymorphism merely means that one word having quite one that means. My computer code trade friends would perceive higher, however the below image are often of facilitate for the others. Distributive Law (Inheritance and Sets): Panini used Brevity extensively in his Sanskrit language synchronic Linguistics rules. Conditional Programming (If-Then-Else): Panini had created strict rules once 2 words were being joint or disjoint. At times, it'd happen that these rules might conflict. He once more had a collection of conditional statements, as per which each and every time there was a conflict, some rules will "block" different rules supported bound conditions

III. CONCLUSION

All the papers thought of during this review has evidenced to be Sanskrit language the foremost appropriate language for programming, computing , tongue process because of the distinctive feature that aren't bestowed in the other languages. Besides these are attention-grabbing analysis areas to search for Sanskrit language are WorldNet, text to Speech, easy Panini synchronic linguistics for English language, E-library.

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