A BREIF REVIEW ON PANINI'S RESEARCH ON SANSKRIT AS LANGUANE OF ARTIFICAL INTELLIGENCE(NLP)

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ABSTRACT- ***samskrtam or for short sanskrit or samskrtā vāk is an ancient sacred language of bharatavarsha that is the language of Hinduism and the Vedas and is the classical literary language of India. The name Sanskrit means "refined", "consecrated" and "sanctified". It has always been regarded as the 'high' language and used mainly for religious and scientific discourse. Now a days it is in the "Sanskrit World", heard the voice that "Sanskrit is the best language for computer programming". The idea of using a natural language for computer programming is to make it easier for people to talk to computers in their native tongue and spare them the pain of learning a computer friendly language like assembly/C/Java. In this paper we exhibited all the environments related to Sanskrit Language, Computer Programming Language and Natural Language Processing***

History and Origin of 'Sanskrit' as Language of Communication:

The Vedic tradition informs us that human beings in former ages were physically and intellectually by far more able than nowadays. Knowledge was passed on by oral reception since the disciples were able to remember everything by hearing it once.3 Thus, no writing was necessary. But at the dawn of the present age — the kali-yuga, or "age of quarrel" — human mankind degraded more and more and gradually lost all good qualities. The duration of life decreased, and with the loss of the keen remembrance the traditional system of acquiring knowledge ceased to be applicable. In order to prevent its
decay, the Vedic wisdom had to be conserved in written form. This happened about 5000 years ago by the divine incarnation Shri
Vyasadeva. He compiled the presently existing Vedic literature, namely the four Vedas, the Upanishads, the Puranas and the Mahabharata. Thus, he created no new knowledge but rather tried to preserve the original wisdom of human mankind for the oncoming generations.

History of panini Sanskrit potentials:

Panini should be thought of as the forerunner of the modern formal language theory used to specify computer languages. The Backus Normal Form was discovered independently by John Backus in 1959, but Panini's notation is equivalent in its power to that of Backus and has many similar properties. It is remarkable to think that concepts which are fundamental to today's theoretical computer science should have their origin with an Indian genius around 2500 years ago.The most successful, hence most prominent amongst these grammarians was Panini. His grammar, surpassing all others in tightness and precision, became the standard and remained so undisputedly until today. Panini was able to joint the original devanagari language into an exact framework of rules, thus preserving it for the posterity. Since his time, this language is called Sanskrit, "joined together, refined".

The Extraordinary Comments About 'Sanskrit':

The extraordinary thing about Sanskrit is that it offers direct accessibility to anyone to that elevated plane where the two — mathematics and music, brain and heart, analytical and intuitive, scientific and spiritual — become one.
Relevant to this, there has recently been an astounding discovery made at the NASA research center. The following quote is from an article Sanskrit & Artificial Intelligence, which appeared

in **AI (Artificial Intelligence)** magazine in spring of 1985, written NASA researcher **Rick Briggs**:

In the past twenty years, much time, effort, and money has been expended on designing an unambiguous representation of natural languages to make them accessible to computer processing. These efforts have centered around creating schemata designed to parallel logical relations with relations expressed by the syntax and semantics of natural languages, which are clearly cumbersome and ambiguous in their function as vehicles for the transmission of logical data. Understandably, there is a widespread belief that natural languages are unsuitable for the transmission of many ideas that artificial languages can render with great precision and mathematical rigor.

But this dichotomy, which has served as a premise underlying much work in the areas of linguistics and artificial intelligence, is a false one. There is at least one language, Sanskrit, which for the duration of almost 1000 years was a living spoken language with a considerable literature of its own. Besides works of literary value, there was a long philosophical and grammatical tradition that has continued to exist with undiminished vigor until the present century. Among the accomplishments of the grammarians can be reckoned a method for paraphrasing Sanskrit in a manner that is identical not only in essence but in form with current work in Artificial Intelligence. This article demonstrates that a natural language can serve as an artificial language also, and that much work in AI has been reinventing a wheel millennia old."

This discovery is of monumental significance. It is mind-boggling to consider that we have available to us a language which has been spoken for at least 5000 years that appears to be in every respect a perfect language designed for enlightened communication. But the most stunning aspect of the discovery is this: NASA, the most advanced research center in the world for cutting-edge technology, has discovered that Sanskrit, the world's oldest spiritual language, is the only unambiguous spoken language on the planet.

Limitation of Sanskrit in English Translations:

As Hinduism expands in the West, the emerging forms of this ancient tradition are naturally being reflected through the medium of Western languages, most prominent of which, is English. But the meanings of words are not easily moved from one language to the next. The more distant two languages are separated by geography, latitude and climate, etc. the more the meanings of words shift and ultimately the more the worldview shifts. The differences between the Indian regional languages and Sanskrit are minuscule when compared to the differences between a Western language such as English and Sanskrit.

With this problem in mind, the great difficultly in understanding Hinduism in the West, whether from the perspective of conversion or from a second generation of Hindus, is that it is all too easy to approach Hinduism with foreign concepts of religion in mind. It is natural to unknowingly approach Hinduism with Christian, Jewish and Islamic notions of God, soul, heaven, hell and sin in mind. We translate brahman as God, atman as soul, papa as sin, dharma as religion. But brahman is not the same as God; atman is not equivalent to the soul, papa is not sin and dharma is much more than mere religion. To obtain a true understanding of sacred writings, such as the Upanishads or the Bhagavad-Gita, one must read them on their own terms and not from the perspective of another religious tradition. Because the Hinduism now developing in the West is being reflected through the lens of Christianity, Judaism and Islam, the theological uniqueness of Hinduism is being compromised or completely lost.

Ideally, anyone attempting to understand Hinduism should have a working knowledge of Sanskrit. Ideally, all Hindu educational institutions and temples should teach Sanskrit, and all Hindu youth should learn Sanskrit.

Pāṇini's grammar defines Classical Sanskrit, so Pāṇini by definition lived at the end of the Vedic period. He notes a few special rules, marked chandasi ("in the hymns") to account for forms in the Vedic scriptures that had fallen out of use in the spoken language of his time. These indicate that Vedic Sanskrit was already archaic, but still a comprehensible dialect.

An important hint for the dating of Pāṇini is the occurrence of the word yavanānī (in 4.1.49, either "Greek woman", or "Greek script"). Some Greeks, such as the Persian admiral Scylax of Caryanda were present in Gandhara as co-citizens of the Persian empire, well before the conquests of Alexander the Great in the 330s BC,; the name could also have been transmitted via Old Persian yauna, and the administrative languages Elamite or Aramaic, so that the occurrence of yavanānī taken

in isolation allows for a terminus post quem as early as 519 BC, i.e. the time of Darius the Great's Behistun inscription that includes the Indian province of Gandara (Sanskrit Gandhāra).

Facts About Existence of 'Panini' and His Work :

Panini was born in Shalatula, a town near to Attock on the Indus river in present day Pakistan. The dates given for Panini are pure guesses. Experts give dates in the 4th, 5th, 6th and 7th century BC and there is also no agreement among historians about the extent of the work which he undertook. What is in little doubt is that, given the period in which he worked, he is one of the most innovative people in the whole development of knowledge. We will say a little more below about how historians have gone about trying to pinpoint the date when Panini lived.

It is believed that he and 'Katyayan' were two disciples of his guru. 'Katyayan' was very intelligent while on the other hand 'Panini' was dumb and often criticized by his guru and fellows. To overcome with this dumbness, he went to Himalaya and worshiped Lord Shiva. A please Lord Shiva made forteen sounds by his instrument 'Damroo' and Panini composed first grammar of Sanskrit by giving a sloka consisting fourteen words.

Aiunrilrik Aiyeyong Aiyvoch, Hayavarat, Lanyamgannam,Yamgannam//
Khafchatath Chatatva Kapaya Shasar Hal//

Above sloka consisting fourteen consonants and vowels derived from fourteen sounds of Lord Shiva's Damroo became base of Sanskrit grammar founded by Panini.There are a number of pieces of evidence to support Indraji's theory that the Brahmi numerals developed from letters or syllables. However, it is not totally convincing since, to quote one example, the symbols for 1, 2 and 3 clearly do not come from letters but from one, two and three lines respectively. Even if one accepts the link between the numerals and the letters, making Panini the originator of this idea would seem to have no more behind it than knowing that Panini was one of the most innovative geniuses that world has known so it is not unreasonable to believe that he might have made this step too.

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