

Bio-Linguistic Studies on the South Indian Dravidian Language Family and Population

Radhika Bhat¹, Anoop Markande^{2*}

Assistant Professor, Department of Humanities and Social Sciences, Indukaka Ipkowala Institute of Management, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat 388421, India¹

Assistant Professor, Department of Biological Sciences, PD Patel Institute of Applied Sciences, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat 388421, India²

Abstract: The Dravidian language family of South India is considered to be one of the most prominent connected language family known with 73 major sections and subsections. The Dravidian language diversification starts at a point where the proto-Dravidian language started split coinciding with the decline of the Indus valley civilization around 1500 years ago. This era also coincides with the enhanced diversification of Sanskrit to different Prakrit languages within Indian subcontinent. The next significant change in the Dravidian languages occurs during the conquest of Alexander coinciding with the beginning of Proto-Telugu and proto-Kannada. This era coincided with the emergence and popularisation of Buddhism and Jainism (social Renaissance), the diversification of the languages also can be traced with the mixing of the population during these periods. These have been traced using mtDNA and Y-chromosomal studies. The changes in the genetic makeup which could be traced along the migratory route to Australia can be easily ascertained. Thus, the genetic divergence of human populations within this area could be correlated with the diversification of the language family due to various factors. The psycho-linguistic effects of the environmental, social and geographical factors resulted in diversification of Indian Dravidian population and their linguistic diversity. In this review, we have elucidated these factors and correlated the two changes as interrelated and significant. Hence this bio-linguistic study can help in further research in the field.

Keywords: Psycholinguistics, Bio-linguistics, Dravidian, Genetics

I. INTRODUCTION

In India, more than a thousand languages people used to speak, either this belongs to Dravidian or Indo-European. Although there are multitudes of languages and dialects are present in India, majority of these have originated from either the aforementioned two categories that are Indo-European and Dravidian, so a lot of phonics and semantic similarities are expected. Indian populations' genetic structure has been influenced by not only by major movement in populations but also by social structure and caste and linguistic centered endogamy (Watkins *et al.*, 2008). There has been great discussion and speculation on the first or earliest human settlers of the Indian subcontinent (Trivedi *et al.*, 2008). Genetic studies of present Indian population revealed that the linguistic differences account for the genetic diversity significantly but there has been considerable mixing of Indo-Europeans and Dravidians especially in the north (Passarino *et al.*, 1996).

II. THE DRAVIDIAN LANGUAGE FAMILY

The most popular South Indian languages such as Tamil, Kannada, Telugu, Malayalam apart from being neighbours, share some common features. The Dravidian language family first recognised as an independent family in 1816 (Campbell, 1816) and the term was first used by Robert Caldwell to refer the South Indian languages. The term 'Dravidian' or 'Dravida' is first used by Robert Caldwell to refer major south Indian languages which earlier was used to refer people of the south region (Caldwell, 1875). These Dravidian language family have a shared history in terms of linguistic origin and are considered to be one of the largest language families in the world. South Indian language family includes 73 languages spoken by 222 million people in south India and Sri Lanka. Trade and immigration spread this language outside India, mainly Tamil, Indonesia, Malaysia, Fiji, Madagascar, Mauritius, Guyana, Martinique and Trinidad (Thompson, 1989). 'The high and low Tamil including the Telugu, Karnataka or Cannada (ancient and modern), Malayalam, Tuluva and Kodava from Codagu constituting the family of languages which may be appropriately called the dialects of South India' (Krishnamurti, 2003).

The major step in the study of the Dravidian languages is, by Robert Caldwell (1814-91) he published the first edition of his 'comparative grammar' in 1856, this marked as a strong initiative in the study of Dravidian languages. Caldwell

pointed only twenty languages- Tamil, Malayalam, Telugu, Canarese (Kannada), Tulu, Kodagu or Corg (Kodagu), Tuda (Toda), Kota, Gond (Gondi), Khond or Ku (Kui), Oraon (Kurux or Orao), raajmahal (malto). Caldwell adds a note on Brahui in the Appendix to the 2nd edition in 1875 (in the third edition reprinted in 1956:633-5). There he paid more considerable attention to Tamil and which he studied over thirty-seven, and he published the second edition of the book in 1875. He showed family likeness among the Dravidian languages in Phonology and Morphology and more important is, he disapproved the influence of Sanskrit language in the Dravidian languages, so many western and oriental scholars support it before and after him. He interested to show that possible affinity between Dravidian and the so-called 'Scythian' languages (Caldwell, 1875).

One of the major south Indian languages is Kannada, and some other Dravidian languages are influenced and loaned many words. The study of these languages by linguistics started by Rev. F. Kittel was a protestant Christian. At a young age, he came to Dharwar as a missionary in 1853. Where he studied Kannada, Konkani, Tamil and he published Kannda English Dictionary in 1894 which paved the way for the standardisation and modernisation of Kannada grammar, and he collected the materials regarding this from 1871 to 77 living in Karnataka. Rev. F Kittel's most important contribution to Kannada language is "Nagavarmana Chandassu" (i.e. that Nagavarma's 'Canarese Prosody'). It is 'Nagavarma's chandobudhi' a Kannada text on prosody with an elaborate introduction containing a historical out-line of Kannada literature. Kittel's another major contribution is on 'Keshiraja's Shabdamani Darpana' (1872), and still, it is most authentic classical grammar of Kannada another unique point is he edited this classical grammar is by giving English interpretation and illustrations to every 'sutra' of 'Shabdamani Darpana', wherever it is necessary (Mallikarjun, 2015).

A British admiral officer, C.B. Brown (1798-1884) worked in the Telugu speaking area, poured his time and money to study this language, preparing and publishing a grammar of 'Telugu a Dictionary', Telugu and English Dictionary published in 1862. Rev. Hermann Gundert (1814-93) published Malayalam-English Dictionary (1872), A Grammar of the Malayalam language (1859). Manner's Tulu-English Dictionary (1886), these are still considered a vital tool in the study of these languages. In the late of the nineteenth century, grammatical structure and vocabularies were available even on minor languages. Gondi (Driberg 1849), Kui (Letchmajee 1853), Kolami (Hislop 1866), Kodagu (Cole), Tulu (Brigel) and Malto (Driese 1884) were the languages Toda identified as Dravidian in 1837 (Bernhard Schmidt) and Brahui in 1838 (Krishnamurti, 2003).

III. THE SOUTHERN DRAVIDIAN POPULATIONS

Significant correlations have been seen between the diversities of linguistic and genetic differences in Europe. Language barriers play an important role in the maintenance of genetic diversities as they also impose reproductive barriers (Belle and Barbujani, 2007). For the Australoasiatic speakers presently settled in South and Southeast Asia remains disputed concerning their time of dispersal and geographic origin (Chaubey *et al.*, 2011).

The comparison of mtDNA of the south Indian tribal populations shows the possibility of their convergent ancestry with the Africans (Vishwanathan *et al.*, 2004). The Y-chromosomal studies from Indian higher castes showed similarities with Europeans than Asians; the overall Indo-European gene admixture seems to be coinciding with the influx of Indo-European speakers during the late Pleistocene (Trivedi *et al.*, 2008).

Proto-Neolithic farmers entered Indian subcontinent about 10,000 years ago and were subsequently faced southward-displacement due to massive influx of Indo-European speakers about 3500 years ago (Kanthimathi *et al.*, 2008). India has played a pivotal role in the distribution of humans in South Asia to Australia and can be traced and evidenced by genetic similarity from Indian mainland tribes to the African aboriginal populations. This evidences supports the 'Out of Africa' theory of human migrations occurred about 70,000 years ago (Krishnamurti, 2003; Morlote *et al.*, 2011).

IV. THE CORRELATION OF DRAVIDIAN LINGUISTICS AND GENETICS

The Indian population and in general, the south Asian population show relatively small divergence in genetic differentiation than expected. This is one of the major human subgroups that shows increased genetic similarity in ancestry (Rosenberg *et al.*, 2006).

The prehistoric gene pool of earliest human settlers from Africa during late Pleistocene along the Indian coasts also provided the inocula for further diversification of Indian gene pool influenced by the subsequent migrants (Trivedi *et al.*, 2008). Proto-Dravidian, the progenitor language of the most of the present Dravidian languages seems to be a major language during 4000 BCE or about 6000 years ago. The Proto Dravidian has been reported to have split into corresponding subgroups around 1500-1100 BCE, the possible timing of the migration of the people of Indus basin due to extreme conditions and thus the collapse of civilization in the area (Fig 1). There is a lack of studies correlating the

linguistic and genetic makeup of the selected populations especially limited by the lack of specific gene markers (Belle and Barbujani, 2007).

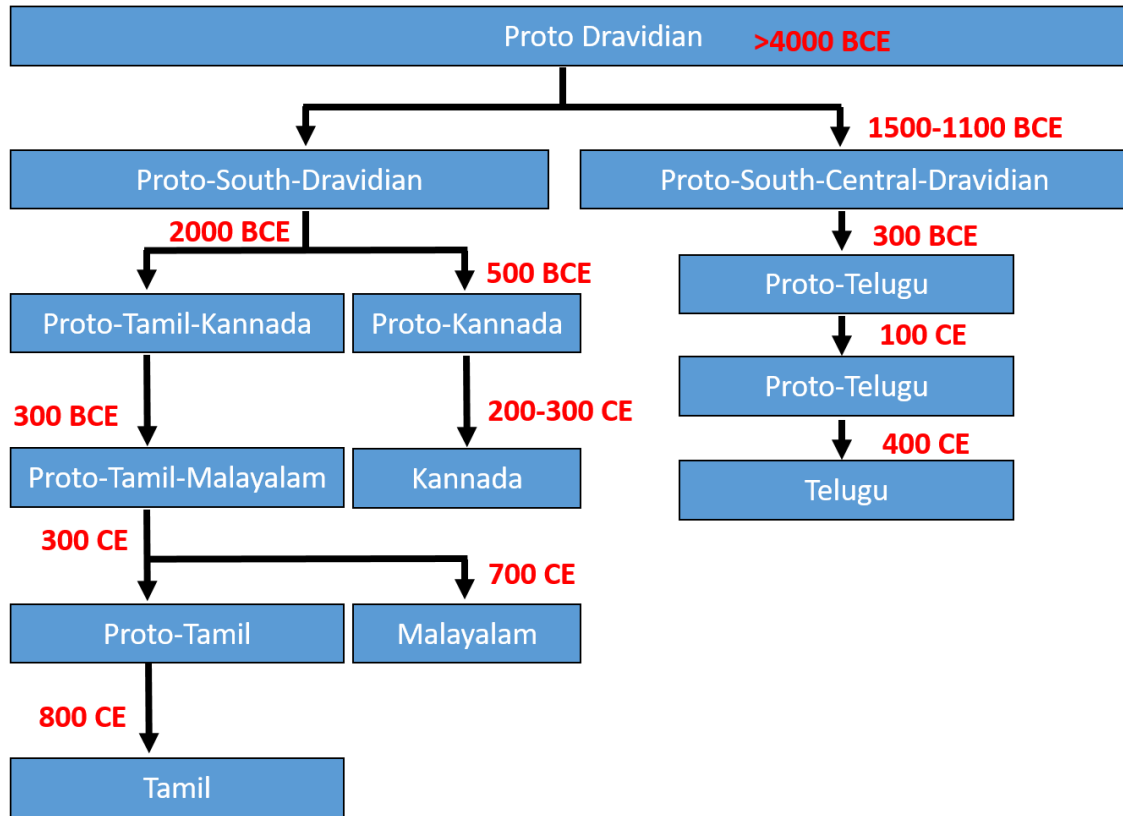


Fig. 1 The branching of the major Dravidian languages and their antiquities.

The Proto-Tamil, as a language is known to have survived this tumultuous age. The proto Tamil seems to have a sister language after the split depending on the geographical positioning. The two proto-Dravidian languages split were re-named by linguistics as Proto-South-Dravidian and Proto-South-Central-Dravidian languages. The second major changes seem to be occurring during and after the Battle of the Hydaspes (300BCE) during the conquest of the Alexander the Great when both the major languages seem to have undergone major changes. Soon after the conquest of Alexander and subsequent rule of Greek lineage in India, the Proto-Dravidian language of South and South-central formed further languages like Proto-Tamil, Proto-Kannada and Proto-Telugu (Fig 1). The Dravidian languages of Kannada and Telugu further bifurcated and streamlined into specific languages. The languages which might have differentiated may have been due to possible Renaissance occurring in India with respect to religion (popularity of Buddhism and Jainism) and linguistic (Breaking down of Sanskrit to Prakrit and popularity of Pali). The southern Dravidian- Proto-Tamil split further into Malayalam and thus Malayalam faced many linguistic influences of the time.

Morphology is part of linguistics, which deals with the way words are put together using small words (pieces) called morphemes. A morpheme is the smallest unit of a word with meaning, each language has its morphemes, and these follow certain rules. Dravidian languages follow almost the same rules for their word morphemes. Furthermore, the production of infinite sentences using an finite number of grammatical rules are the agglutinative language characteristics. The major Dravidian languages such as Tamil, Kannada, Telugu, Malayalam and Tulu are ‘agglutinative’ languages. An ‘agglutinative language’ is a type of synthetic language, in which morphology primarily uses agglutination, a language may contain different morphemes to express various meanings in the sentence, but these morphemes remain unchanged in any sentences. All agglutinative languages have one grammatical category, that is ‘affix’ while fusional languages have multiple categories (Stocking, 1992).

Kanthimathi et al., (Krishnamurti, 2003) reported the possible widespread distribution of Dravidians in India before the influx of the Eurasians. Their retreat to South of peninsular India for protecting their linguistic dominance due to initial admixture of populations. Belle and Barbujani, (Belle and Barbujani, 2007) studied the 377 polymorphic microsatellite loci from autosomal cells along with Ruhlen’s linguistic classification investigating the role of language and geography

deciding the worldwide distribution of human DNA diversity. Chaubey et al., (Chaubey *et al.*, 2011) analysed the markers uniparentally inherited with 610,000 common loci for single nucleotide polymorphism. Studying the Y-chromosome haplogroup O2a of Australoasiatic speakers in South Asia and Australia, they showed the coalescent time of Indian and Australian speaker genes at 17-28 thousand years ago and thus providing glimpse that the Neolithic settlers in India further migrated leading to dispersal of this language family towards Australia. The ancient migration hypothesis of ancient east Africa to India was supported by the presence of mtDNA haplogroup M in both the places (Vishwanathan *et al.*, 2004).

V. CONCLUSION

Many reports have proved the correlation and similarity between the phylogeny of Dravidian languages and their genetics. The split in the linguistics of Proto-Dravidian language coinciding with the genetic admixture and social unrest shows the dependency of the two for the conserved continuation of a language. In this work, we have shown the psycholinguistic effects of immigration of the humans and biopsychological effects on the renaissance period of India during the time frame of the linguistic split of the Dravidian language.

ACKNOWLEDGMENT

RB and AM would like to thank their respective heads and Principals for all the encouragements.

REFERENCES

- [1]. W. S. Watkins, R. Thara, B. J. Mowry, Y. Zhang, D. J. Witherspoon, W. Tolpinrud, M. J. Bamshad, S. Tirupati, R. Padmavati, H. Smith and D. Nancarrow, Genetic variation in South Indian castes: Evidence from Y-chromosome, mitochondrial, and autosomal polymorphisms. *BMC Genetics*, vol. 9, pp. 1–17, 2008.
- [2]. R. Trivedi, S. Sahoo, A. Singh, G. Hima Bindu, J. Banerjee, M. Tandon, S. Gaikwad, R. Rajkumar, T. Sitalaximi, R. Ashma, and G. B. N. Chainy. Genetic imprints of pleistocene origin of Indian populations: A comprehensive phylogeographic sketch of Indian Y-chromosomes. *Int J Hum Genet*. vol. 8, pp. 97–118. 2008.
- [3]. G. Passarino, O. Semino, L. F. Bernini, A. S. Santachiara-Benerecetti. Pre-Caucasoid and Caucasoid genetic features of the Indian population, revealed by mtDNA polymorphisms. *Am J Hum Genet*. vol. 59, pp. 927–34. 1996.
- [4]. A. D. Campbell. A Grammar of the Teloogoo Language, commonly termed the Gentoo, peculiar to the Hindoos inhabiting the North Eastern provinces of the Indian Peninsula. Sashachellum; 1816.
- [5]. Caldwell R. A Comparative Grammar of the Dravidian or South-Indian Family of Languages. Trübner; 1875.
- [6]. S. A. Thompson. A discourse approach to the cross-linguistic category “adjective.” In: R. Corrigan, F. R. Eckman, M. P. Noonan, editors. Linguistic categorization. John Benjamins Publishing; 1989. p. 245.
- [7]. B. Krishnamurti. The Dravidian languages. *Dravidian Lang*. 2003, pp. 1–545.
- [8]. M. Mallikarjun. Language endangerment: the fate of indigenous languages (a theoretical approach). *Stud Humanit Soc Sci*. vol. 15. 2015.
- [9]. E. M. S. Belle, G. Barbujani. Worldwide analysis of multiple microsatellites: Language diversity has a detectable influence on DNA diversity. *Am J Phys Anthropol*. vol. 133, pp. 1137–46. 2007.
- [10]. G. Chaubey, M. Metspalu, Y. Choi, R. Mägi, I. G. Romero, P. Soares, M. Van Oven, D. M. Behar, S. Rootsi, G. Hudjashov, and C. B. Mallick. Population genetic structure in Andian Austroasiatic speakers: The role of landscape barriers and sex-specific admixture. *Mol Biol Evol*. vol. 28, pp. 1013–24. 2011.
- [11]. H. Vishwanathan, E. Deepa, R. Cordaux, M. Stoneking, M. V. Usha Rani, P. P. Majumder. Genetic structure and affinities among tribal populations of southern India: A study of 24 autosomal DNA markers. *Ann Hum Genet*. vol. 68, pp. 128–38. 2004.
- [12]. D. M. Morlote, T. Gayden, P. Arvind, A. Babu, R. J. Herrera. The Soliga, an isolated tribe from Southern India: Genetic diversity and phylogenetic affinities. *J Hum Genet*. vol. 56, pp. 258–69. 2011.
- [13]. N. A. Rosenberg, S. Mahajan, C. Gonzalez-Quevedo, M. G. Blum, L. Nino-Rosales, V. Ninis, P. Das, M. Hegde, L. Molinari, G. Zapata, and J. L. Weber. Low levels of genetic divergence across geographically and linguistically diverse populations from India. *PLoS Genet*. vol. 2, pp. 2052–61. 2006.
- [14]. G. W. Stocking. The ethnographer’s magic and other essays in the history of anthropology. University of Wisconsin Press; 1992.