A Glottochronological Insight into Sanskrit and Persian Lexicon

Sanjay K. Jha

Amity School of Liberal Arts
Amity University Haryana
doctorskj@google.com

ABSTRACT

The prime objective of this study is to explore the degree of similarities between Sanskrit and Persian words using glottochronological approach. In doing so a representative sample of 200 basic words were taken from English followed by listing their equivalents in Sanskrit and Persian. The findings revealed only 18 words as cognates (with full or partial phonological similarity) between Sanskrit and Persian words. Furthermore, the study also revealed that these two languages had belonged to one common parent language about 4179 years ago.

Keywords: Glottochronology, Sanskrit, Persian, Cognate, Similarity

Introduction

Glottochronology is a method of lexicostatistics to compute not only the degrees of lexical similarities between two languages but also to find relationship between languages in terms of when they diverged from each other. The method of Glottochronology proposed by Swadesh (1955) assumes that common words in languages are maintained at a definite rate. According to Swadesh, (i) the rate of retention of vocabulary items in the basic core is constant through time; (ii) the rate of loss of basic vocabulary is approximately the same in all languages; (iii) the rate of loss was arrived at by testing lexical loss in languages with a long series of texts. On the basis of tests, 81% of loss is reported over the period of 1000 years. Once we know the percentage of cognates within the core vocabulary (248 in the present case) for any pair of languages, the length of time that has elapsed is computed to see when the two languages began to diverge from a single language. The following list of basic vocabulary, taken from the similar study of Jha (2020), has been prepared in terms of Hindi-Punjabi 248 words considered to the representative samples.

1. A-Ekah- yek –s
2. Above-upari- bola:- d
3. Add-yojanam-izaafeh kordon – d
4. After- pashchat – pas –s
5. Air- vayuh- hua- s
6. All- sarvam- hameh -d
7. Along- sah- hamrah –d
8. Also – Api- hemchanin – d
9. Always- Sravda- hamesha- d
10. And – evam- wa –s
11. Animal- Paswah- haiwanat -d
12. Another- Anyah - digri -d
13. Answer- uttarm- pasakh - d
14. Any- koapi- her - d
15. Ask – Prich – bapperside –d
16. At- Atah- der –d
17. Away- duram- dor- s
18. Because- Yatah- dalil - d
19. Become- Bhav - tabdeel - d
20. Bed-Shayya- takht -d
21. Begin- Aarabhat- sharoo - d
22. Below- niche- zer-d
23. Between- Adhah- beane - d
24. Big- Brihat- buzrag –d
25. Both- Dwavu-her du- d
26. Boy- Balkah- pasar-d
27. Bring- Aaanya- ra- d
28. By-dwaraih- tost-d
29. Call- Aavahnam Kurvantu- tamas-d
30. Can – saknoti- may tawanid- d
31. Change- Parivartnam- tagayur- d
32. Children- balkah- kodkan- d
33. City- Nagram-shahr- d
34. Close- Nimilyatam-nazdeek-d
35. Cold- Shitah-sard-d
36. Come- Agachatu-amadeh-d
37. Cut- katauti-bresh- d
38. Daily-Pratidinam-rozana- d
39. Different- bhinnam-mukhtalif-d
40. Do- kuru- anjam-d
41. Door-dwaram-darb- d
42. Down- Nichaih-pain-d
43. Earth- Prithvih- zamin- d
44. Eat- khadtnam- khordan- d
45. End-anth-payan- d
46. Example- Udahranam- misaal- d
47. Eye-Akchah- chasham- d
48. Face-Mukh Aavarnam- soorat- d
49. Family- Pariwaram- khanwade- d
50. Father- pittra- pader- s
51. Foot- padh- pa – d
52. Few- kinchit- chand- d
53. Find- Jyaatvaym- pida kordon- d
54. First- prthamam-awal- d
55. Food- bhojanam-ghazayi – d
56. For- Hi - brai- d
57. From- Paschat- az- d
58. Get- Prapnut- grafton- d
59. Girl- kanyaa- dokhtar- d
60. Give- Dadatu- bay- d
61. Go- Gachatu- raftan- d
62. Good- Sundram- khoob- d
63. Great- mahan- aali- d
64. Hand- hastam- dast- s
65. Has/have- Asti- st- s
66. He- Sah- ow- d
67. Hear- Shrinu-schneiden- d
68. Help- Sahaytam Kuru- comock- d
69. Here- Atra- inja- d
70. High- uchham- bala- d
71. Hot- Ushnam- dagh- d
72. House- griham- khaneh- d
73. How- katham- chegone- d
74. I- Aham- man- d
75. Idea – vicharam- idea- d
76. If- yadi- agar- d
77. Important- mahatuvpurnm- maham- s
78. In- me- der- d
79. Is-Asti- st- s
80. Keep- Sthapyatu- negeh dashtan- d
81. Large- vrihat- buzrag- d
82. Last- antimam- aakhreen- d
83. Learn- Shikchatu- yadgiri- d
84. Leave- Tyajtu- turk- d
85. Left-Vaamam- chip- d
86. Life- jeevanam-zindagi- d
87. List- suchih-list- d
88. Little- Alpam- cammie- d

89. Live- jeevnam-zandeh- d
90. Long- Dirghah-tolani- d
91. Main-mukhyam -asli- d
92. Make-Nirmanam-ra- d
93. Man- Manushyah-mard- d
94. Many-bahu/Atydhikam-basyari- d
95. May- Main- maye- d
96. Me-Mam- man- d
97. Mean-madhyam -maani- d
98. Meet-miltu-mulaqat- d
99. Mid-madhy-madha- s
100. Milk-dugdham-sher- d
101. Mistake-Trutih-ishtabah- d
102. More- Atydhikam-bishtar- d
103. Morning- Pratah-subh-d
104. Mother-maatuh-mather- d
105. Mountain-Parvatah-kooh- d
106. Move-chalnam-harkat- d
107. Much-bahuh-basyar- d
108. My-mam-man- s
109. Name-naamh-nam- s
110. Near-Niktastham-nazdiki- d
111. Need- Aavasykta-niyaz- d
112. Never-kadapi na-hargaz- d
113. New-Nutnam-jadid- d
114. Next-Param-badi- d
115. Night-raatrih-shab- d
116. No-Naiva -nah- d
117. Of-ka-az- d
118. Off- Avram-khamosh- d
119. Often- Prayah -aghlab- d
120. Oil- Tailam -roghan- d
121. Old- Puratnam -ghadimi- d
122. On-per-der- d
123. Once – Ekda -hangami kah- d
124. One-ekm-yak- s
125. Only-kevlam-tanha- d
126. Open-Udghatitam-baaz- d
127. Or-athwaa-yaa- d
128. Our-Asmaakam-ma- d
129. Out-Bahih-birun- d
130. Over- Ati -tool- d
131. Own- Swakiyah-khud- d
132. Path-pathah-masir- d
133. Paper-kaagdah-kaghaz- s
134. Part-bhaagah-bhaag- s
135. People- Janaah-mardam- d
136. Place- sthnam-mahal- d
137. Plant- Vanasptih-giah- d
138. Play- krida -bazzi-d
139. Read- Pathtu-khandan-s
140. Really- Vaastvam-waqia-s
141. Right- Samyak -rast- d
142. River-nadih-rudkhaneh- d
143. Run-dhavnam-ajra- d
144. Same-Samaanam -haman- d
145. Saw- Pashya-didam- d
146. Say-kthnam -gouind- d
147. School-vidyalayam-madrassah- d
148. Sea-samudram-darya- d
149. See- Pashya-dekhna- d
150. Seem- Pratiyate-bay nazar may rasad- d
151. Sentence-waakyam -jamla- d
152. Set-Samuhah-majmua- d
153. She- Saa-ow- d
154. Should- kartavyam-bayad- d
155. Show- Darshyatu-namayesh- d
156. Side- Paarshva-janbi- d
157. Small- Laghuh-koochak- d
158. So-ittham -benabrin- d
159. Some-kechan-barkhi- d
160. Something- Kimapi –chisey- d
161. Sometimes-kadachit -gahi- d
162. Song- geetm- ahang- d
163. Soon- Shigram-zoodi- d
164. Sound-dhwanih-sada- d
165. Spell- vartni-talasm- d
166. State- Rajyam-dowlat- d
167. Still - Adyaapi-hanoz ham- d
168. Stop- Nivartyatu -byst- d
169. Story-katha-dastan- d
170. Study-Adhyayanam-mutaliah- d
171. Sweets- Misthanam-shirini- d
172. Take- Grihan-ra- d
173. Talk- Vaartalaapah-bahas- d
174. Tell-kathyatu-beguide- d
175. That- tat-kah- d

176. There- Tatra-oonjasat- d
177. They- Tey -anha- d
178. Thing- vaartam-cheese- d
179. Think- Chintnam-fikar- d
180. This- Esah-ain- d
181. Time-samayah-zaman- d
182. Walk- Chalnam-piadeh roye- d
183. Want- ichhati-khawahid- d
184. Water- jalam-ab- d
185. Way-Maargm-rah- d
186. We- Vayam-ma- d
187. What-kim -cheh cheese- d
188. When-kada- waqti- d
189. Where-kutra -ann- d
190. Which- Yat-kah- d
191. White- Shwetam-sefid- d
192. Who-kah -cheh kassi- d
193. Why-kimartham -charaa- d
194. With-Saardham-ba- d
195. Without- bina-badoon- d
196. Word-Shabdah-kalameh- d
197. Work-kaaryam-kar- s
198. World-vishvah -jahan- d
199. You- Bhavaan-shama- d
200. Your- Bhavtah -shama- d

In the comparison of Sanskrit and Persian, two facts come on surface. Firstly 18 words out of the 200 pairs were found to be probable cognates. In linguistics, cognates are the words which have similar linguistic derivation. Statistically, if we divide 14 by 246, we get 9%. In other words, one can say here that the degree of similarity between Sanskrit and Persian is 9%. This is the value which will also be used for C in the time depth formula.

Secondly, the study finds time depth of Sanskrit-Persian as to when these two languages started separating from a common parent language. In doing so, the following time depth formula of Swadesh (1956) was used:

Time Depth Formula:

$$t = \frac{\log C}{2 \log r}$$

Where
t = time of separation
c = percentage of shared core vocabulary
r = the glottochronological constant (= 81%)

The result of computing the values using the above formula is as follows:

$$t = \frac{\log .09}{2 \log .81}$$

After computing the log value in the above formula, the result is as follows:

$$t = \frac{1.814}{2 \times .217}$$

$$t = \frac{1.814}{.434}$$

t =4.179

The quotient of 1.814 divided by .434 gives 4.179 which is the indicated time depth, 't'. This needs to be read further as Sanskrit and Persian separated from each other about 4179 years ago.

Conclusion

Meeting the objectives of the study, the study firstly has revealed the degree of similarities between Sanskrit and Persian which was found to be 9%. Secondly, the study reveals that Sanskrit and Persian belong to two different language families, i.e. Indo-Aryan family and Indo-Iranian family and these two languages started separating from each other about 4179 years ago. The researcher however does not approve authenticity of the findings in terms of separation of these two languages. Hence, the findings of this study is put forth for further research.

References

Jha, S.K. (2019). *Exploring the Degree of Similarities between Hindi and Maithili Words from Glottochronological Perspective.* International Journal of TESOL and Applied Linguistics.

Swadesh, M. (1955). *Towards Greater Accuracy in Lexicostatistic Dating.* International Journal of American Linguistics 21:121-37.