

# THE RELATIONSHIP OF SIGN LANGUAGE VARIETIES IN INDIA, PAKISTAN, & NEPAL

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## Abstract

Recent research has shown that sign language varieties in India and Pakistan are related. This paper examines the possible relationship of sign language varieties in India and Pakistan to those in Nepal by analyzing comparative lexical data from sign language varieties in the three countries. The paper uses a special vocabulary list for sign language research to compare for cognates across sign language varieties in Kathmandu, Karachi, Delhi, Bombay, Calcutta, and Bangalore. Results of the comparisons as well as implications for future research are discussed.

## Introduction

Early research on sign languages on the Indian sub-continent (Vasishta, Woodward, and Wilson 1978, p. 72) concluded: "that varieties of Indian signing are not related to European Sign Languages." Due to lack of comparative data from sign language from neighboring countries, studies as late as 1989 (Woodward 1989) were forced to list varieties of Indian Sign Language as being of "unknown affiliation."

Recent research (Woodward 1992a) has shown that sign language varieties in India and Pakistan are related. This research used a special vocabulary list designed for sign language research to compare for cognates across sign language varieties in Karachi, Delhi, Bombay, Calcutta, and Bangalore. Results of the comparisons indicated that sign language varieties in India and Pakistan are distinct but closely related language varieties that belong to the same language family. The sign language variety in Karachi is most closely related to the sign language variety in Delhi (76% cognates), followed by Bombay (71% cognates), Calcutta (69% cognates), and Bangalore (63% cognates).

This paper carries recent research further by examining the possible relationship of sign language varieties used in India and

Pakistan to those in Nepal. In order to determine the possible linguistic relationship of sign language varieties in India, Pakistan, and Nepal, this paper will compare for cognates in basic vocabulary among sign language varieties in Kathmandu, Karachi, Delhi, Bombay, Calcutta, and Bangalore. Table 1 lists the sources of data for this paper.

**Table. 1.** Sources of data

<i>Sign Language Variety</i>	<i>Source</i>	<i>No. of Lexical entries</i>
1. New Delhi	Vasishta et al. 1980	896
2. Bangalore	Vasishta et al. 1985	785
3. Bombay	Vasishta et al. 1986	782
4. Calcutta	Vasishta et al. 1987	805
5. Karachi	ABSA 1987	464
6. Kathmandu	Ross et al. 1989	1,179

While it is common to use the original 200 word list Swadesh used to compare for cognates across spoken languages, it is not generally desirable to use the same list for sign language research, because its use may result in slight overestimation of the relationship of closely related sign languages, moderate overestimation of the relationship of loosely related sign languages, and great overestimation of the relationship of historically unrelated sign languages. These overestimations are due to presence in the original 200 word Swadesh list of many items (e.g. body parts and pronouns) that are represented by pointing in sign languages. The comparison of indexic signs results in a number of false potential cognates. To avoid this problem, I am using for sign language research a vocabulary list that I have derived from the Swadesh list. by removing most of the potentially indexic signs from the original list. Table 2 illustrates the words included in the special vocabulary list for sign languages.

**Table 2.** Special vocabulary list for sign language comparison.

1. all	26. grass	51. other	76. warm
2. animal	27. green	52. person	77. water
3. bad	28. heavy	53. play	78. wet
4. because	29. how	54. rain	79. what
5. bird	30. hunt	55. red	80. when
6. black	31. husband	56. right	81. where
7. blood	32. ice	57. river	82. white
8. child	33. if	58. rope	83. who
9. count	34. kill	59. salt	84. wide
10. day	35. laugh	60. sea	85. wife
11. die	36. leaf	61. sharp	86. wind
12. dirty	37. lie	62. short	87. with
13. dog	38. live	63. sing	88. woman
14. dry	39. long	64. sit	89. wood
15. dull	40. louse	65. smooth	90. worm
16. dust	41. man	66. snake	91. year
17. earth	42. meat	67. snow	92. yellow
18. egg	43. mother	69. star	93. full
19. fat	44. mountain	70. stone	94. moon
20. father	45. name	68. stand	95. brother
21. feather	46. narrow	71. sun	96. cat
22. fire	47. new	72. tail	97. dance
23. fish	48. night	73. thin	98. pig
24. flower	49. not	74. tree	99. sister
25. good	50. old	75. vomit	100. work

#### Comparison of sign varieties in Nepal, India & Pakistan.

Each of the sources of data for this study contained translations for 62 out of the 100 basic vocabulary items listed above in Table 2. Tables 3, 4, 5, 6, and 7 below show the results of comparisons of signs used in Kathmandu with signs used in Karachi, Delhi, Bombay, Calcutta, and Bangalore. Possible cognates are shown in boldface.

**Table 3.** Kathmandu & Karachi cognate comparison (42/62, 68%).

1. all	17. green	33. red	49. where
2. <b>bad</b>	18. <b>hunt</b>	34. <b>river</b>	50. <b>white</b>
3. <b>bird</b>	19. <b>husband</b>	35. <b>sal t</b>	51. who
4. <b>black</b>	20. if	36. <b>sea</b>	52. <b>wife</b>
5. <b>blood</b>	21. laugh	37. <b>short</b>	53. <b>woman</b>
6. <b>child</b>	22. <b>leaf</b>	38. <b>sit</b>	54. wood
7. <b>day</b>	23. long	39. <b>snake</b>	55. <b>year</b>
8. die	24. <b>man</b>	40. <b>stand</b>	56. yellow
9. <b>dog</b>	25. <b>mother</b>	41. <b>star</b>	57. full
10. earth	26. <b>name</b>	42. stone	58. <b>moon</b>
11. <b>fat</b>	27. <b>new</b>	43. <b>sun</b>	59. <b>brother</b>
12. <b>father</b>	28. night	44. tree	60. <b>cat</b>
13. <b>fire</b>	29. not	45. <b>vomit</b>	61. <b>dance</b>
14. fish	30. old	46. <b>water</b>	62. <b>sister</b>
15. <b>flower</b>	31. <b>play</b>	47. <b>what</b>	
16. <b>good</b>	32. rain	48. <b>when</b>	

**Table 4.** Kathmandu & Delhi cognate comparison (44/62, 71%).

1. all	17. green	33. red	49. where
2. <b>bad</b>	18. <b>hunt</b>	34. <b>river</b>	50. <b>white</b>
3. <b>bird</b>	19. <b>husband</b>	35. <b>sal t</b>	51. who
4. <b>black</b>	20. if	36. <b>sea</b>	52. <b>wife</b>
5. <b>blood</b>	21. laugh	37. <b>short</b>	53. <b>woman</b>
6. <b>child</b>	22. <b>leaf</b>	38. <b>sit</b>	54. wood
7. <b>day</b>	23. long	39. snake	55. <b>year</b>
8. die	24. <b>man</b>	40. stand	56. yellow
9. dog	25. <b>mother</b>	41. <b>star</b>	57. full
10. earth	26. <b>name</b>	42. stone	58. <b>moon</b>
11. <b>fat</b>	27. <b>new</b>	43. <b>sun</b>	59. <b>brother</b>
12. <b>father</b>	28. night	44. tree	60. <b>cat</b>
13. <b>fire</b>	29. not	45. <b>vomit</b>	61. <b>dance</b>
14. fish	30. old	46. <b>water</b>	62. <b>sister</b>
15. <b>flower</b>	31. <b>play</b>	47. <b>what</b>	
16. <b>good</b>	32. rain	48. <b>when</b>	

**Table 5.** Kathmandu & Bombay cognate comparison (42/62, 68%).

1. all	17. green	33. red	49. where
2. <b>bad</b>	18. <b>hunt</b>	34. <b>river</b>	50. white
3. <b>bird</b>	19. <b>husband</b>	35. <b>sal t</b>	51. <b>who</b>
4. <b>black</b>	20. if	36. <b>sea</b>	52. <b>wife</b>
5. <b>blood</b>	21. <b>laugh</b>	37. <b>short</b>	53. <b>woman</b>
6. <b>child</b>	22. leaf	38. <b>sit</b>	54. wood
7. <b>day</b>	23. long	39. snake	55. <b>year</b>
8. <b>die</b>	24. <b>man</b>	40. stand	56. yellow
9. <b>dog</b>	25. <b>mother</b>	41. <b>star</b>	57. <b>full</b>
10. earth	26. <b>name</b>	42. <b>stone</b>	58. <b>moon</b>
11. <b>fat</b>	27. new	43. <b>sun</b>	59. <b>brother</b>
12. <b>father</b>	28. night	44. <b>tree</b>	60. cat
13. <b>fire</b>	29. not	45. <b>vomit</b>	61. <b>dance</b>
14. fish	30. old	46. <b>water</b>	62. <b>sister</b>
15. <b>flower</b>	31. <b>play</b>	47. <b>what</b>	
16. good	32. <b>rain</b>	48. <b>when</b>	

**Table 6.** Karachi & Calcutta cognate comparison (30/62, 60%).

1. all	17. green	33. red	49. where
2. <b>bad</b>	18. <b>hunt</b>	34. river	50. white
3. <b>bird</b>	19. husband	35. <b>sal t</b>	51. <b>who</b>
4. <b>black</b>	20. if	36. <b>sea</b>	52. wife
5. <b>blood</b>	21. <b>laugh</b>	37. <b>short</b>	53. <b>woman</b>
6. <b>child</b>	22. leaf	38. <b>sit</b>	54. wood
7. <b>day</b>	23. long	39. snake	55. <b>year</b>
8. die	24. man	40. <b>stand</b>	56. yellow
9. dog	25. <b>mother</b>	41. <b>star</b>	57. full
10. earth	26. <b>name</b>	42. stone	58. <b>moon</b>
11. <b>fat</b>	27. new	43. <b>sun</b>	59. <b>brother</b>
12. <b>father</b>	28. night	44. <b>tree</b>	60. cat
13. <b>fire</b>	29. not	45. <b>vomit</b>	61. <b>dance</b>
14. fish	30. old	46. <b>water</b>	62. <b>sister</b>
15. <b>flower</b>	31. <b>play</b>	47. <b>what</b>	
16. good	32. rain	48. <b>when</b>	

**Table 7.** Karachi & Bangalore cognate comparison (39/62, 63%).

1. all	17. green	33. red	49. where
2. bad	18. hunt	34. river	50. white
3. bird	19. husband	35. sal t	51. who
4. black	20. if	36. sea	52. wife
5. blood	21. laugh	37. short	53. woman
6. child	22. leaf	38. sit	54. wood
7. day	23. long	39. snake	55. year
8. die	24. man	40. stand	56. yellow
9. dog	25. mother	41. star	57. full
10. earth	26. name	42. stone	58. moon
11. fat	27. new	43. sun	59. brother
12. father	28. night	44. tree	60. cat
13. fire	29. not	45. vomit	61. dance
14. fish	30. old	46. water	62. sister
15. flower	31. play	47. what	
16. good	32. rain	48. when	

Classical glottochronological norms (Gudschinsky 1956) suggest that language varieties that exhibit 36% to 81% cognates should be classified as separate languages belonging to the same family and that language varieties that exhibit 81% or more cognates should be classified as varieties of the same language. Following classical glottochronological norms in the interpretation of Tables 3, 4, 5, 6, and 7, we conclude that Nepalese Sign Language is a separate language from Pakistani Sign Language and from Indian Sign Language. We also conclude that Nepalese Sign Language, Pakistani Sign Language, and Indian Sign Language clearly belong to the same language family. Moreover, we can conclude that the sign language variety in Kathmandu is most closely related to the sign variety used in Delhi (71%), followed by Karachi and Bombay (both 68%). These rates of cognates are quite similar to those that have been found between other related sign languages in the same family. For example, earlier studies using the same vocabulary list with sign language varieties in the French Sign Language Family found the rate of cognates between historically related French and American Sign Languages was

61% (Woodward 1978) and the rate of cognates between historically related Costa Rican and American Sign Languages was 63% (Woodward 1992b).

### **Summary & conclusion**

Recent research has indicated that sign varieties used in India and Pakistan are related. The purpose of this paper was to examine the possible relationship of sign language varieties in India and Pakistan to those in Nepal. The paper used a special vocabulary list for sign language research to compare for cognates across sign language varieties in Kathmandu, Karachi, Delhi, Bombay, Calcutta, and Bangalore.

Results of the comparisons indicated that sign language varieties in India, Pakistan, and Nepal are distinct but closely related language varieties that belong to the same language family. The sign language variety used in Kathmandu is most closely related to the sign variety used in Delhi (71%), followed by Karachi and Bombay (both 68%).

It is clear that there is a sub-family of sign languages which includes sign language varieties in India, Pakistan, and Nepal. Further research is needed to determine if this subfamily includes sign language varieties from other countries and if this sub-family can be grouped with other related subfamilies to form a larger family of Indo-Asian languages.

### **Note**

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