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Sign Languages and Sign Language Families in Thailand and Viet Nam

James Woodward
Ratchasuda College
Mahidol University at Salaya, Thailand

I have a long-standing interest in the history of sign languages and the historical relations of sign languages. Part of this interest stems from my own training in sociolinguistic variation and change, and part stems from contact with Ursula Bellugi and other researchers working with her. Specifically, Ursula Bellugi's early comparative sign language research work (see Klima & Bellugi, 1979), as well as Nancy Frishberg's (1975, 1976) seminal work on historical change in American Sign Language (ASL), played extremely important roles in some of my early efforts to apply general historical-comparative linguistic techniques to sign language research. One such work, "Historical Bases of American Sign Language" (Woodward, 1978), focused on the historical relations of French Sign Language and ASL. Since that time, I have applied historical-comparative linguistic techniques to a number of other sets of sign language varieties: sign language varieties in India (Vasishta, Woodward, & Wilson, 1978); in Costa Rica (Woodward, 1991, 1992); in India, Pakistan, and Nepal (Woodward, 1993b); in Hong Kong and Shanghai (Woodward, 1993a); in Thailand (Woodward, 1996, 1997a); and in Viet Nam (Woodward, 1997b).

This chapter is intended to add to previous research on the relations of Asian sign language varieties by comparing sign languages in Thailand with sign languages in Viet Nam. To determine the possible linguistic relations of sign language varieties in Thailand and in Viet Nam, this chapter (a) describes the sources of comparative data for sign language varieties in Thailand and in Viet Nam, (b) summarizes the findings of previous comparative lexical research on sign language varieties in Thailand, (c) summarizes the findings of previous comparative lexical research on sign language varieties in Viet Nam, (d) compares for cognates in basic vocabulary between each distinct sign language in Thailand with each distinct sign language in Viet Nam, (e) discusses the results of the analysis, and (f) concludes with implications for future research.

SOURCES OF DATA

This section discusses the type of linguistic data collected and the background of the Deaf consultants from whom the data were collected.

The Type of Linguistic Data Collected

The amount of data available on the language varieties determines the historical-comparative technique that should be used to analyze the data.

Standard books on historical linguistics (e.g., Crowley, 1992; Lehmann 1992) point out that lexicostatistics is often used for determining relationships across unwritten languages that are underdescribed or undescribed and for which there are relatively limited amounts of data available. As Crowley (1992) stated, "There is a . . . technique for subgrouping languages that is often used with languages for which there are relatively limited amounts of data available, and that is lexicostatistics" (p. 168). Lexicostatistics has been especially useful in the classification of 959 distinct, underdescribed Austronesian spoken languages and 250 distinct, underdescribed Australian spoken languages (Lehmann, 1992).

Given the facts that (a) all seven sign language varieties examined in this chapter are unwritten, (b) six out of the seven language varieties are underdescribed, and (c) there is limited data on six out of the seven languages, lexicostatistics was chosen as the appropriate historical-linguistic technique for analysis.

The reason why lexicostatistics is such an appropriate technique for underdescribed languages is that as Crowley (1992) pointed out:

> Lexicostatistics is a technique that allows us to determine the degree of relationship between two languages, simply by comparing the (core or basic) vocabularies of the languages and determining the degree of similarity between them. . . .[C]ore vocabulary includes items such as pronouns, numerals, body parts, geographical features, basic actions, and basic states." (pp. 168–169)

According to standard lexicostatistical guidelines for subgroupings (Crowley, 1992; Gudschinsky, 1956; Lehmann, 1992), dialects of the same language should have an 81% to 100% rate of cognates, and languages belonging to the same language family should have a 36% to 81% rate of cognates.

To compare basic vocabulary, Crowley (1992) stated that "most lexicostatisticians tend to operate with 200-word lists. The most popular list of this length is known as the *Swadesh list,* which is named after the linguist Morris Swadesh, who drew it up" (pp. 170–171).

Whereas it is common to use the original 200-word Swadesh list to compare for cognates in basic vocabulary across spoken languages, it is not generally desirable to use the same list for sign language research. Use of the original 200-word Swadesh list in sign language research may result in slight overestimation of the relation of closely related sign languages, moderate overestimation of the relation of loosely related sign languages, and great overestimation of the relation of historically unrelated sign languages (Woodward, 1993a).

These overestimations occur because the original 200-word Swadesh list contains many items, such as body parts and pronouns, which are represented indexically (i.e., simply by pointing) in many sign languages. The comparison of such indexic signs results in a number of false potential cognates.

To avoid these problems of overestimation, a special vocabulary list (Table 4.1) has been used for comparisons of sign language varieties within Thailand and Viet Nam.

The list in Table 4.1 is a modification of the 200-word Swadesh list that removes typically indexic signs and has proven useful in earlier comparisons of sign languages (Woodward, 1978, 1991, 1992, 1993a, 1993b).

The Background of the Deaf Consultants

Sign translations of the basic vocabulary list in Table 4.1 were collected from fluent Deaf signers in four signing communities in Thailand and from three signing communities in Viet Nam.

The four signing communities in Thailand include (a) the Ban Khor signing community, (b) the Original Chiangmai signing community, (c) the Original Bangkok signing community, and (d) the Modern Thai signing community.

The Ban Khor signing community refers to a small community of signers living in certain rice farming villages in the district of Ban Khor in Nakornpanom province in Northeastern Thailand. From this community, signs were obtained from 9 female signers and 5 male signers ranging in age from 13 years to more than 60 years of age. Signs were elicited in Ban Khor in 1996.

The Original Chiangmai signing community refers to the community of signers in Chiangmai before 1951 and to certain signers older than 45 still

TABLE 4.1
Special Modified Swadesh Vocabulary List for Sign Languages

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. correct	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	68. stand	93. full
19. grease	44. mountain	69. star	94. moon
20. father	45. name	70. stone	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

living in the urban Chiangmai area in Northern Thailand. Signs were obtained from 1 male signer in his late forties from this community. Signs were elicited in Chiangmai in 1996.

The Original Bangkok signing community refers to the community of signers living in the urban Bangkok area before 1951 and to certain signers older than 45 still living in the urban Bangkok area. From this community, signs were obtained from 1 male signer in his late fifties and 1 female signer in her late forties. Signs were elicited in Bangkok in 1996.

The Modern Thai signing community refers to the majority of signers younger than 40 living in the urban areas of Thailand. From this community, signs were obtained from a total of 8 signers younger than forty: 2 males and 2 females from Bangkok and 2 males and 2 females from Nakornpanom City in Northeastern Thailand. Signs were elicited in Bangkok and Nakornpanom City in 1996.

The three signing communities in Viet Nam include (a) the Ho Chi Minh City signing community, (b) the Ha Noi signing community, and (c) the Hai Phong signing community.

The Ho Chi Minh signing community refers to the community of signers living in the Ho Chi Minh City Metropolitan Area of Southern Viet Nam. Signs were obtained from 2 female signers in their early twenties from this community. Signs were elicited at a conference in Ha Noi in 1997.

The Ha Noi signing community refers to the community of signers living in the Ha Noi Metropolitan Area in Northern Viet Nam. Signs were obtained from 1 male signer in his twenties from this community. Signs were elicited in Ha Noi in 1997.

The Hai Phong signing community refers to the community of signers living in the Hai Phong Metropolitan Area of Northern Viet Nam. From this community, signs were obtained from 2 female signers in their late twenties and 1 male signer is his early twenties. Signs were elicited at a conference in Ha Noi in 1996.

PREVIOUS RESEARCH ON SIGN LANGUAGES IN THAILAND

Previous research (Woodward, 1996, 1997a) compared for cognates in basic vocabulary across the four signing communities in Thailand: (a) the Ban Khor signing community, (b) the Original Chiangmai signing community, (c) the Original Bangkok signing community, and (d) the Modern

TABLE 4.2
Summary Results of Previous Cognate Comparisons of Thai Sign Language Varieties

	Ban Khor SL (%)	Original Chiangmai SL (%)	Original Bangkok SL (%)	Modern Thai SL (%)
Ban Khor SL	X	34	33	24
Original Chiangmai SL		X	65	29
Original Bangkok SL			X	26
Modern Thai SL				X

Note: SL = sign language.

TABLE 4.3
Summary Results of Previous Cognate Comparisons of Sign Language Varieties in Viet Nam

	Ho Chi Minh City SL (%)	Ha Noi SL (%)	Hai Phong SL (%)
Ho Chi Mihn City SL	X	58	54
Ha Noi SL		X	54
Hai Phong SL			X

Note: SL = sign language.

Thai signing community. Table 4.2 shows a summary of the results of the cognate comparisons of the sign language varieties used in these four communities.

Following standard lexicostatistical guidelines for subgroupings[1] (Crowley, 1992; Lehmann, 1992), these four sign language varieties were classified as four separate languages that belong to three separate language families. Fig. 4.1 illustrates this classification with a traditional family tree diagram.

PREVIOUS RESEARCH ON SIGN LANGUAGES IN VIET NAM

Previous research (Woodward, 1997b) compared for cognates in basic vocabulary across the three signing communities in Viet Nam: (a) the Ho Chi Minh City signing community, (b) the Ha Noi signing community, and (c) the Hai Phong signing community.

Table 4.3 shows a summary of the results of the cognate comparisons of the sign language varieties used in these three communities.
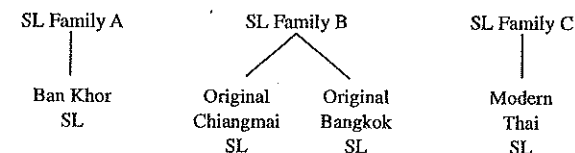
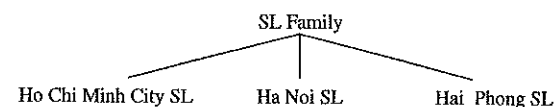FIG. 4.1.   Sign Languages in Thailand Classified by Traditional Language Family Trees.

FIG. 4.2.   Sign Languages in Viet Nam Classified by a Traditional Language Family Tree.

Following standard lexicostatistical guidelines for subgroupings[1] (Crowley, 1992; Lehmann, 1992), these three sign language varieties should be classified as three separate languages that belong to the same language family. Fig. 4.2 illustrates this classification with a traditional family tree diagram.

COMPARISON OF BASIC VOCABULARY IN SIGN LANGUAGES IN VIET NAM WITH BASIC VOCABULARY IN SIGN LANGUAGES IN THAILAND

To determine the possible relationships of sign languages in Viet Nam with sign languages in Thailand, we compare for cognates in basic vocabulary from each of sign languages in Viet Nam with basic vocabulary from each of the sign languages from the three sign language families in Thailand.

Tables 4.4 to 4.15 (in the Appendix at the end of this chapter) show detailed comparisons of individual pairs of sign languages. In each of these tables, possible cognates are shown in **bold** print; missing data are

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[1]According to standard lexicostatistical guidelines for sub-groupings (Crowley, 1992; Gudschinsky, 1956; Lehmann, 1992), dialects of the same language should have an 81% to 100% rate of cognates, and languages belonging to the same language family should have a 36% to 81% rate of cognates. These percentages are based on the results of historical linguistic studies in 13 languages for which there are written records going back more than 1,000 years (Crowley, 1992) and are considered the standard measuring tool for lexicostatistical studies.

TABLE 4.4
Summary Results of Cognate Comparisons of Sign Languages
in Viet Nam With Sign Languages in Thailand

	Ho Chi Minh City SL (%)	Ha Noi SL (%)	Hai Phong SL (%)
Ban Khor SL	~~18~~	~~19~~	~~26~~
Original Chiangmai SL	~~23~~	~~33~~	46
Original Bangkok SL	~~25~~	~~31~~	48
Modern Thai SL	39	45	40

Note: SL = sign language.

shown ~~struck out~~; and noncognates are shown in straight print. All fractions in percentages are rounded to the next highest whole number.

Table 4.16 shows such a summary of the findings in Table 4.4 through Table 4.15. Percentages lower than 36% are ~~struck out~~, because language varieties with less than 36% cognates should be classified as belonging to different language families.

We can summarize the language family relations in Table 4.16 as follows:

1. The seven sign languages in Thailand and in Viet Nam can be classified into three language families.
2. The first language family includes Ban Khor Sign Language. Ban Khor Sign Language is the only known member of this sign language family.
3. The second language family includes Original Chiangmai Sign Language, Original Bangkok Sign Language, and Hai Phong Sign Language.
4. The third language family includes Modern Thai Sign Language, Ha Noi Sign Language, Ho Chi Minh Sign Language, and Hai Phong Sign Language.

DISCUSSION

The composition of the second family and the composition of the third language family are a bit surprising, particularly in regard to the lexicostatistical classifications of Modern Thai Sign Language and of Hai Phong Sign Language.

Specifically, we need to answer the following three questions:

1. How can the lexicostatistical classification of Modern Thai Sign Language in a separate language family from original sign languages in Thailand be explained?
2. How can the lexicostatistical classification of Modern Thai Sign Language in the same language family with sign languages used in Viet Nam be explained?
3. How can the lexicostatistical classification of Hai Phong Sign Language as a member of two separate language families be explained?

The answer to Question 1 lies in the different histories of sign languages in Thailand. Research on Modern Thai Sign Language (Woodward, 1996) has shown that the introduction of vocabulary from ASL into schools for the Deaf in Thailand has resulted in a 52% rate of cognates between basic vocabulary in Modern Thai Sign Language and ASL.

Given the great amount of foreign contact and borrowing that has influenced Modern Thai Sign Language's development and use and the lack of such contact and borrowing in other sign languages in Thailand, there should be little doubt why Modern Thai Sign Language is not closely related to any other sign language in Thailand and why it belongs to a separate language family from any other sign language in Thailand.

The answer to Question 2 can be found by examining external factors that have influenced the history of Modern Thai Sign Language and sign languages in Viet Nam. The relation of Modern Thai Sign Language to sign languages in Viet Nam is in fact not a result of direct contact but of indirect contact. Ha Noi Sign Language, Ho Chi Minh Sign Language, and Hai Phong Sign Language all show very strong influences from French Sign Language, which was introduced into schools for the Deaf in Viet Nam. French Sign Language and ASL have a 61% rate of cognates in basic vocabulary and therefore belong to the same language family (Woodward, 1978). Thus, the influence of ASL on Modern Thai Sign Language and the influence of French Sign Language on Ha Noi Sign Language, Ho Chi Minh Sign Language, and Hai Phong Sign Language result in a large number of shared cognates between Modern Thai Sign Language and sign languages in Viet Nam.

We can now turn to the final issue of why Hai Phong Sign Language appears to belong to two separate sign language families. Ha Noi Sign Language, Ho Chi Minh Sign Language, and Hai Phong Sign Language have all three been influenced by French Sign Language. However, Hai Phong signers, perhaps because of their relative isolation from Ha Noi and

Ho Chi Minh City, have managed to preserve more original Southeast Asian signs than the other signers in Ha Noi and Ho Chi Minh City.

Even when Hai Phong has borrowed a French sign for a vocabulary item, Hai Phong signers sometimes keep the original Southeast Asian sign along with the French sign. This has resulted in pairs of cognates for a number of words. One sign in the cognate pair is cognate with original sign languages in Thailand and one with French Sign Language. Examples of this can be found in signs for WIFE, HUSBAND, and PIG, among others. Because of these pairs, Hai Phong Sign Language shows strong similarities to Southeast Asian sign languages that *have not* been influenced by French Sign Language or ASL (Original Chiangmai Sign Language and Original Bangkok Sign Language) and also shows strong similarities to Southeast Asian sign languages that *have* been influenced by French Sign Language or ASL (Ha Noi Sign Language, Ho Chi Minh Sign Language, and Modern Thai Sign Language).

When we put all of these facts together, an interesting picture of linguistic relations emerges. This picture is graphically represented in Fig. 4.3.
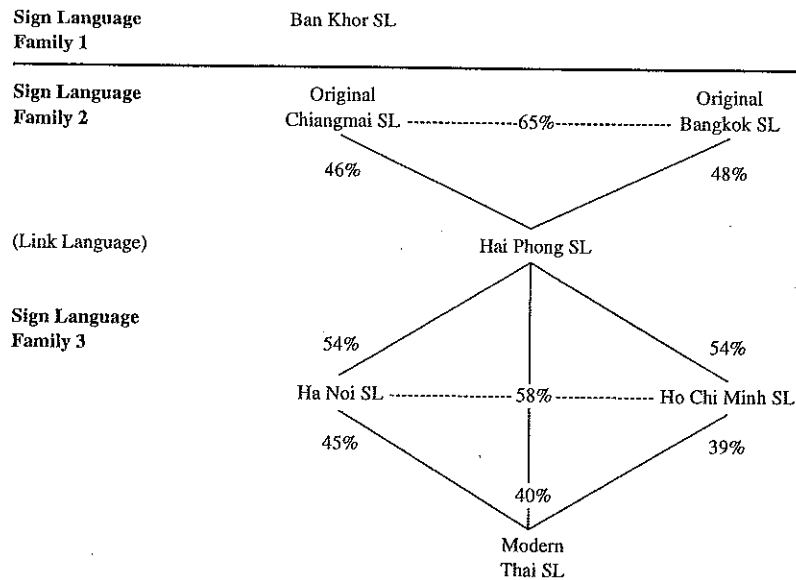

FIG. 4.3. Linguistic Relations Between Sign Languages in Thailand and Viet Nam.

The first family is an indigenous sign language family in Thailand that includes Ban Khor Sign Language. Ban Khor Sign Language developed in a small village with a large proportion of Deaf people. Thus, Ban Khor Sign Language developed in isolation from other sign languages in Southeast Asia. There may be other related indigenous sign languages in other small villages with large Deaf populations in the same general region in Northeast Thailand. For example, the villages of Pla Bag and Bang Na, which are relatively close to Ban Khor, also appear to have larger Deaf populations than expected, and Pla Bag and Bang Na may have sign language varieties related to Ban Khor Sign Language. There may also be other indigenous sign language families in Thailand and in Viet Nam.

The second sign language family includes original Southeast Asian sign languages that developed in contact with other sign languages in Southeast Asia but with no contact (or extremely limited contact) with Western sign languages. This sign language family includes Original Chiangmai Sign Language and Original Bangkok Sign Language. Hai Phong Sign Language is still linked to this family. Other related original sign languages may have existed in urban areas in Thailand and Viet Nam. For example, it is likely that there were original sign languages in the Northeastern and Southern parts of Thailand. It is also likely that there was an Original Ha Noi Sign Language and an Original Saigon (Ho Chi Minh City) Sign Language before French Sign Language had an impact on sign languages in Viet Nam. Some of these original sign languages may still exist among older signers. Some probably have already died out.

The third sign language family includes "modern" sign languages that are mixtures, probably creolizations, of original sign languages with French Sign Language, ASL, or both. Modern sign languages have already replaced original sign languages among younger signers in Thailand and in Viet Nam. Within 50 years, it is highly likely that all original sign languages in Thailand and Viet Nam will be extinct, dying out with the users who still remember them.

IMPLICATIONS FOR FUTURE RESEARCH

In conclusion, although we have gained some knowledge about the relations of sign language varieties in Thailand and Viet Nam, there are still many gaps in our knowledge. For example, we still do not know the following:

- How many original sign languages and how many indigenous sign languages exist or have existed in Thailand or in Viet Nam, not to mention in other countries in Southeast Asia
- How many language families these original sign languages and indigenous sign languages belonged to
- What intercountry and intracountry relations exist among original sign languages in Southeast Asia
- How many "link languages," like Hai Phong Sign Language, may still exist in Southeast Asia
- What the future of endangered original and endangered indigenous sign languages in Southeast Asia may be.

What is needed at this point is a large-scale, in-depth sociolinguistic study of sign languages in Southeast Asia. This sociolinguistic study must look at a large number of Deaf linguistic informants who have competence in one or more sign languages in Southeast Asia. These Deaf people must be selected from various stratified age groups and various regions of Southeast Asia, and they should represent various Deaf social identities in Southeast Asia. This research needs to include original, indigenous, and modern sign languages and needs to focus primarily on sign languages that are most endangered and on link languages. Link languages, which preserve older forms and still link certain sign languages in modern sign language families with certain sign languages in original sign language families, provide important clues about the history of sign languages in Southeast Asia.

At this point, it is likely that the great majority of users of original sign languages in most countries in Southeast Asia are around 50 years old. If the documentation of these original sign languages is not completed in one generation, it is quite likely that they will be lost to linguistic study forever, because there are currently no records of these sign languages.

If original sign languages in Southeast Asia die out before they can be properly documented and described, Deaf people in Southeast Asia will lose a valuable part of their history, all Southeast Asian people will lose a valuable part of their national or regional heritage, and the rest of us will lose one of the important keys to understanding the history of sign languages in Southeast Asia.

ACKNOWLEDGMENTS

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APPENDIX

TABLE 4.4
Ho Chi Minh City SL/Ban Khor SL: 18% Possible Cognates (17/97)

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. correct	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	68. stand	93. full
19. grease	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	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

Note: SL = sign language.

TABLE 4.5
Ha Noi SL/Ban Khor SL: 19% Possible Cognates (18/97)

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. correct	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	**68. stand**	93. full
19. grease	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	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

Note: SL = sign language.

TABLE 4.6
Hai Phong SL/Ban Khor SL: 26% Possible Cognates (25/97)

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. correct	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	68. stand	93. full
~~19. grease~~	**44. mountain**	**69. star**	**94. moon**
20. father	45. name	70. stone	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

Note: SL = sign language.

TABLE 4.7
Ho Chi Minh City SL/Original Chiangmai SL: 23% Possible Cognates (22/97)

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. correct	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	68. stand	93. full
~~19. grease~~	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	**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

Note: SL = sign language.

TABLE 4.8
Ha Noi SL/Original Chiangmai SL: 33% Possible Cognates (32/97)

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. correct	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	**68. stand**	93. full
~~19. grease~~	**44. mountain**	69. star	94. moon
20. father	45. name	**70. stone****	**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

Note: SL = sign language.

*Original Chiangmai SL has 2 signs; one is cognate with Ha Noi SL.

**Ha Noi SL has a compound sign; one part is cognate with Original Chiangmai SL.

TABLE 4.9
Hai Phong SL/Original Chiangmai SL: 46% Possible Cognates (44/97)

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. correct	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	68. stand	93. full
~~19. grease~~	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	**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

Note: SL = sign language.

*Original Chiangmai SL has 2 signs; one is cognate with Hai Phong SL.

**Hai Phong SL has two signs; one is cognate with Original Chiangmai SL.

***Hai Phong SL has a compound sign; one part is cognate with Original Chiangmai SL.

TABLE 4.10
Ho Chi Minh City SL/Original Bangkok SL: 25% Possible Cognates (24/97)

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. correct	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	68. stand	93. full
~~19. grease~~	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	**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**

Note: SL = sign language.

TABLE 4.11
Ha Noi SL/Original Bangkok SL: 31% Possible Cognates (30/97)

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. correct	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	**68. stand**	93. full
~~19. grease~~	**44. mountain**	69. star	94. moon
20. father	45. name	70. stone	**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**

Note: SL = sign language.

TABLE 4.12
Hai Phong SL/Original Bangkok SL: 48% Possible Cognates (46/97)

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. correct	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	68. stand	93. full
19. grease	44. mountain	69. star	94. moon
20. father	45. name	70. stone	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

Note: SL = sign language.
*Hai Phong SL has two signs; one is cognate with Original Bangkok SL.
**Hai Phong SL has a compound sign; one part is cognate with Original Bangkok SL.

TABLE 4.13
Ho Chi Minh City SL/Modern Thai SL: 39% Possible Cognates (37/97)

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. correct	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	68. stand	93. full
19. grease	44. mountain	69. star	94. moon
20. father	45. name	70. stone	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

Note: SL = sign language.
*Modern Thai SL has two signs; one is cognate with Ho Chi Minh City SL.

TABLE 4.14
Ha Noi SL/Modern Thai SL: 45% Possible Cognates (43/97)

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. correct	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	68. stand	**93. full**
19. grease	**44. mountain**	69. star	94. moon
20. father	**45. name**	70. stone	**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**

Note: SL = sign language.
*Modern Thai SL has two signs; one is cognate with Ha Noi SL.
**Ha Noi SL has a compound sign; one part is cognate with Modern Thai SL.

TABLE 4.15
Hai Phong SL/Modern Thai SL: 40% Possible Cognates (38/97)

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. correct	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	68. stand	93. full
19. grease	**44. mountain**	69. star	94. moon
20. father	**45. name**	70. stone	**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

Note: SL = sign language.
*Modern Thai SL has two signs; one is cognate with Hai Phong SL.
**Hai Phong SL has two signs; one is cognate with Modern Thai SL.