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The Degree of Relationship among Teochew, Hakka, and Cantonese

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Abstract

This article is entitled "The Degree of Relationship among Teochew, Hakka, and Cantonese". This research is based on theory in Historical Comparative Linguistics. This theory is also called diachronic theory, which involves the analysis of the form and regularity of changes in common languages such as those accompanied by sound changes, to reconstruct the language of the past, the ancient language (proto) that lived on thousands of years before that. The aim of this research is to calculate the cognate percentages of relationship for Teochew (TC), Hakka (HK), and Cantonese (CO). The research method used is quantitative-qualitative method. Data collection method and technique used refer to the method of proficiency and recording. The data analysis method and technique used respectively are qualitative and quantitative methods with lexicostatistic techniques. In lexicostatistics, language kinship is seen based on the similarities of sounds that exist in the lexicon that appears in these languages. This phonetic similarity will be the basis of whether a word in one language has a relationship with another language. The indicator used to determine related words is the basic vocabulary called the Sino-Tibetan Swadesh basic vocabulary which amounts to 207 words that are considered to exist in all languages in the world. After analyzing the 207 words, it is found that TC and HK have 51 related words and are considered in the subgroup of clump or stock (25%), TC and CO have 60 related words and are considered in the subgroup of clump or stock (29%), in addition to HK and CO have 119 words and are considered in the subgroup of family (57%).

Keywords: degree of relationship; Teochew; Hakka; Cantonese; lexicostatistics.

1. Introduction

This study discusses kinship among three different languages. The languages raised in this study are Teochew, Hakka, and Cantonese in Medan, North Sumatra, Indonesia. Medan, as the capital of the province of North Sumatra Indonesia, particularly in Medan Area, Medan Tembung, and Medan Timur districts. These three districts are known as places where most Chinese people live, do their business, study at schools and even to nearby colleges. In other to support this paper, the writer uses some relevant related paper which are wished to support findings in the field so that the theory can be strengthened and the data can be accurate. The theory used is Historical Comparative Linguistics (Comparative Linguistic History) (Grimm 1787-1863; Lehman 1972; Hock 1988; Bynon 1979). This theory is also called diachronic theory, which involves the analysis of the form and regularity of changes in common languages such as those accompanied by sound changes, to reconstruct the language of the past, the ancient language (proto) that lived on thousands of years before that. This ancient language (proto) is changed and broken into several derivative languages due to the place and time factor (Bynon, 1979: 54). These derived languages inherit the rules of the original language and will be different because of the development (innovation) that occurred later after the language is different (Bynon, 1979: 61). One of the goals in Comparative Linguistic History is to question cognate languages by making comparisons of the elements that show kinship (Crowley, 2010; Keraf, 1991; Widayati, 2016). This research is aimed to identify the similarities and differences in terms of sounds among Teochew, Hakka, and Cantonese, to calculate the cognate percentages of relationship among them, and to discover when they were separated before they were considered to be a language family.

1.1. Problem of the Study

The problems of this study will be related to Teochew (TC), Hakka (HK), and Cantonese (CO) words, especially on the degrees of relationship among TC, HK, and CO if they are considered as language family.

1.2. Significance of the Study

The significance of the study is the goal to be achieved in conducting the research. In this case, it is related to the findings of answers based on the question raised in the problem of the study which is to calculate the cognate percentage of relationship for TC, HK, and CO, resulting the theoretical and practical significances to give information to the readers about the glossaries and sound changes in these three languages and the kinship among them. It can also be used as a contribution to scientific study for further research.

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1.3. Relevant Scholarship

There are several writings that are used as references or literature reviews in this paper, Veniranda's article (2016) entitled "Oral and Nasal Vowels in Pontianak Teochew" which shows the vowels in Teochew dialect in terms of oral and nasal that the writer uses Praat program to obtain the values of the fundamental frequencies, the intensities, the first three bandwidths and the first three formant values. Next is Dardanila's article (2015) entitled "The Cognates among the Karo, Alas, and Gayo Languages", analyzing among three Proto-Austronesian languages which resulting that Karo and Alas were predicted to be family in 0.729 thousand years ago; meanwhile, Karo and Gayo were thought to be together in 1,926 thousand years ago. On the other hand, Alas and Gayo were altogether in 1,484 thousand years ago. Other writing related to the Comparative Historical Linguistic Study is found in Widayati and Lubis (2018) entitled "The Inherited Proto-Austronesian Vowel Phonemes in Karo Language" and (2016) "Vocal and Consonant PAN Features in Nias and Sigulai Languages" are both analyzing the sound correspondences in vowel and consonant phonemes of the languages.

2. Method

In order to collect the data in this proposal, the writer uses the method of by Sudaryanto (2015) by asking the informants to pronounce their ethnic group dialects based on the glossaries provided from Sino-Tibetan Swadesh List. Then she will ask them to pronounce each of the words and their pronunciation will be recorded by using a recorder as soon as it is uttered. After that the recording voices will be transcribed into phonetic transcriptions or phonetic symbols, so that the phonemes could be analyzed easily. After setting the words of relatives with the procedure as stated above, the similarities, the differences, and the percentage of the three languages can be determined. Then if the percentage of kinship has been obtained, the calculation of the split time can be done among two or three languages by comparing them to the same proto language using the formula:

$$C = \frac{C'}{G} \times 100\% \quad (1)$$

Information:
C' = number of cognate words
G = number of glossaries

The list of vocabularies brings advantages in research because they consist of non-cultural words and retention of basic words that have been tested in languages that have written texts. In determining kinship on TC, HK, and CO, the following procedures are taken. First, the basic vocabulary list is not taken into account (i) empty words, namely glossless words, (ii) loan words, and (iii) complex words. Second, bound morphemes are separated from the basic word. That is, if the words collected contain bound morphemes, the morpheme is separated first so that it is easier to set the same pair of words or not. Third, the word pairs belonging to relatives fulfill one of the following conditions: (i) the pair is identical, that is, all the phonemes are correct; (ii) the couple corresponds phonemically; (iii) the pair is phonetically similar, which has the same articulatory position; and (iv) the pair has a different phoneme because of the environmental influences it enters. After determining the relatives' words with the procedure above, the percentage of kinship in the two languages is calculated. This calculation refers to the number of remaining pairs, which is 200 words reduced by words or gloss that are not taken into account due to blanks, loans, and so on. The remaining pairs consist of related words and non-family words. In lexicostatistics, different levels of the subgroup are named as following:

Table 1. Language Subgroups

Naming Language Subgroups	Subgroup Level Percentage of Relatives to Vocabulary Core
Language	81-100%
Family	36-81%
Clump (Stock)	12-36%
Microphyll	4-12%
Mesophyll	1-4%
Macrophyll	0-1%

In the lexicostatistic classification, similarities at the level of 81-100% are called languages, similarities at the level of 36-81% are called families, similarities at the level of 12-36% are called clumps, similarity at the level of 4-12% is called microphyll, similarity at levels 1-4 % is called mesophyll, and similarities at the 0-1% level are called macrophyll. However, it should be noted that different linguists sometimes use different counts.

3. Results

No.	Sino-Tibetan Swadesh List	Teochew (TC)	Hakka (HK)	Cantonese (CO)
1.	I	[wa]	[ŋai]	[ŋɔ]
2.	you (singular)	[lə]	[ni]	[nei]
3.	he	[yi]	[ki he nam cai]	[hoi he nam cai]
4.	we	[wa naŋ]	[ŋai te ni]	[ŋɔ te]
5.	you (plural)	[lə naŋ]	[ŋi te ŋin]	[ne te]
6.	they	[yi naŋ]	[ki te ŋin]	[hoi te]
7.	this	[ci kai]	[li ye]	[i kɔ]
8.	that	[hi kai]	[ke ke]	[kɔ kɔ]
9.	here	[cə peŋ]	[li pʰeŋ]	[kə ni si]
10.	there	[hiɔ peŋ]	[ke pʰeŋ]	[kən kɔ si]
11.	who	[ti tiaŋ]	[ma ŋin]	[piŋ kɔ]
12.	what	[si mie]	[ma'e]	[me ye]
13.	where	[na ti kɔ]	[hi nai'e]	[hei pin si]
14.	when	[ti si]	[ki sə]	[kei si]
15.	how	[cə ni muek]	[yɔŋ pan]	[tim yɔŋ]
16.	not	[bɔ] [əm si]	[məi]	[mou]
17.	all	[nɔŋ cɔŋ]	[loŋ coŋ]	[loŋ coŋ]
18.	many	[cɔi]	[sə fən tɔ]	[tɔ]
19.	some	[kua kai]	[mɔ kik tɔ cak]	[kei tɔ]
20.	few	[tam pok]	[ik tik]	[ya tik]
21.	other	[pak kai]	[li ŋɔi]	[kʰei tʰa]
22.	one	[cek]	[ik]	[yat]
23.	two	[nɔ]	[liɔŋ]	[yi]
24.	three	[sa]	[sam]	[sam]
25.	four	[si]	[si]	[se]
26.	five	[ŋou]	[əŋ]	[əm]
27.	big	[tua]	[tai]	[tai]
28.	long	[təŋ]	[cʰəŋ]	[cʰiɔŋ]
29.	wide	[kʰuak]	[fat]	[fut]
30.	thick	[kau]	[pʰun]	[hau]
31.	heavy	[taŋ]	[cʰoŋ]	[cʰoŋ]
32.	small	[sɔi]	[se cak]	[sai]
33.	short	[tɔ]	[tuan]	[tin]
34.	narrow	[ɔik]	[hap]	[cak]
35.	thin	[saŋ] [pɔk]	[səu] [pʰɔk]	[sau] [pɔk]
36.	woman	[ca bou]	[məi cai]	[nui yen]
37.	man (adult, male)	[ta pou]	[nam cai]	[nam yen]
38.	man (human being)	[naŋ]	[ŋin]	[yan]
39.	child (a youth)	[kia]	[se ŋin]	[sei lo kɔ]
40.	wife	[bou]	[lau pʰɔ]	[lou pʰɔ]
41.	husband	[aŋ]	[lau koŋ]	[lou koŋ]
42.	mother	[ma]	[ɔi yek]	[ama]
43.	father	[pa]	[apa]	[apa] [lou tau]
44.	animal	[kʰim siu]	[kʰim siu]	[kʰam sau]
45.	fish	[hə]	[əŋ]	[yi]
46.	bird	[ciau]	[tiau]	[ciɔk]
47.	dog	[kau]	[kiau]	[kau]
48.	louse	[sak]	[sek ma]	[sat]
49.	snake	[cua]	[sa kɔ]	[se]
50.	worm	[tʰaŋ]	[cʰoŋ]	[cʰoŋ]
51.	tree	[cʰiu]	[su]	[si]
52.	forest	[ou taŋ]	[san pa]	[sam pa]
53.	stick	[cʰa]	[muk tʰou]	[muk]
54.	fruit	[kue ci]	[sui kɔ]	[kɔ ci]
55.	seed	[ci]	[cə]	[wat]

56.	leaf	[hiɔk]	[yap]	[yip]
57.	root	[kəŋ]	[kin]	[kən]
58.	bark	[ki]	[su kin]	[si ci]
59.	flower	[hue]	[fa]	[fa]
60.	grass	[cʰau]	[cʰau]	[cʰou]
61.	rope	[sɔk]	[sɔk]	[seŋ]
62.	skin	[pʰoi]	[pʰi]	[pʰei]
63.	meat	[bak]	[niuk]	[yok]
64.	blood	[hoik]	[hiet]	[hit]
65.	bone	[kut]	[kut tʰiau]	[kuat]
66.	fat	[pui]	[pʰi]	[fei]
67.	egg	[nəŋ]	[lɔn]	[tan]
68.	horn	[kak]	[kɔk]	[kɔk]
69.	tail	[boi]	[mi]	[mei]
70.	feather	[mɔ]	[mau]	[mou]
71.	hair	[tʰau mɔ]	[tʰiau na mau]	[tʰou fat]
72.	head	[tʰau]	[tʰiau na]	[tʰou]
73.	ear	[hi]	[ŋi koŋ]	[yi cai]
74.	eye	[mak ciu]	[ŋien cu]	[ŋan]
75.	nose	[pʰi]	[pʰi koŋ]	[pei kɔ]
76.	mouth	[cʰui]	[cɔi]	[hau]
77.	tooth	[kʰi]	[ŋa cʰə]	[ŋa]
78.	tongue	[cik]	[sek tʰiau]	[lei]
79.	fingernail	[cəŋ kak]	[siu cə kak]	[sau kap]
80.	foot	[kʰa toi]	[kiɔk pʰan]	[kiɔk min]
81.	leg	[kʰa]	[ŋi kiɔk]	[kiɔk kua]
82.	knee	[kʰa tʰau wu]	[cʰik tʰiau]	[sək tʰau]
83.	hand	[cʰiu]	[siu]	[sau]
84.	wing	[sek]	[yik]	[yek]
85.	belly	[pat tou]	[tu sə]	[tʰou]
86.	guts	[təŋ]	[cʰəŋ]	[cʰiɔŋ]
87.	neck	[aŋ kuŋ]	[kiaŋ kin]	[kiaŋ]
88.	back	[ka ciak]	[poi nɔŋ]	[pui]
89.	breast	[heŋ]	[sim kuan cʰien]	[sam hau]
90.	heart	[sim caŋ]	[kɔn]	[sam cɔŋ]
91.	liver	[kua]	[sim]	[kɔn]
92.	drink	[lim]	[sək]	[yam]
93.	eat	[ciak]	[sək]	[sek]
94.	bite	[ka]	[ŋat]	[ŋau]
95.	suck	[suk]	[sək]	[sɔk]
96.	spit	[pʰui nua]	[tʰui hiau lan]	[tʰou]
97.	vomit	[tʰou]	[pʰɔn]	[au]
98.	blow	[puŋ]	[cʰɔi]	[cʰɔi]
99.	breathe	[tʰau kʰui]	[tʰiau hi]	[fu kʰap]
100.	laugh	[cʰiɔ]	[siau]	[siu]
101.	see	[tʰɔi]	[kʰɔn]	[tʰai]
102.	hear	[tʰia]	[tʰaŋ]	[tʰiaŋ]
103.	know	[cai]	[ti]	[ci tɔ]
104.	think	[siɔ]	[siɔŋ]	[siɔŋ]
105.	smell	[pʰi]	[pʰi]	[mən]
106.	fear	[kia]	[kiaŋ]	[kiaŋ]
107.	sleep	[uk]	[sɔi]	[fən kau]
108.	live	[uak]	[saŋ]	[saŋ]
109.	die	[si]	[si]	[sei]
110.	kill	[tʰai]	[ta si]	[sat]
111.	fight	[sio pʰak]	[ta kau]	[ta kau]
112.	hunt	[pʰak lak]	[ta liek]	[ta lit]
113.	hit	[pʰak]	[ta]	[ta]

114.	cut	[cɔik]	[cʰiet]	[cʰit]
115.	split	[puŋ]	[pun]	[fən]
116.	stab	[cʰiam]	[cʰiam]	[kət]
117.	scratch	[lek]	[kua]	[wak]
118.	dig	[ou]	[wak]	[wat]
119.	swim	[siu ek]	[iu sui]	[yau sui]
120.	fly	[poi]	[pi]	[fei]
121.	walk	[kia]	[haŋ lu]	[haŋ lo]
122.	come	[lai]	[ləi]	[lei]
123.	lie	[tɔ]	[min ten]	[tʰau ha]
124.	sit	[cɔ]	[cʰɔ]	[cʰɔ]
125.	stand	[kʰia]	[kʰi]	[kʰei]
126.	turn	[waŋ]	[wan]	[wan]
127.	fall	[puak tɔ]	[tiek tau]	[tit]
128.	give	[kʰɔk]	[pun]	[mai]
129.	hold	[gim]	[na ten]	[ca]
130.	squeeze	[te]	[ŋien]	[nau]
131.	rub	[cʰiu]	[sɔt]	[cʰat]
132.	wash	[sɔi]	[se]	[sei]
133.	wipe	[cʰek]	[cʰat pʰek]	[cʰat]
134.	pull	[tui]	[lai]	[lai]
135.	push	[leŋ]	[suŋ]	[tʰui]
136.	throw	[kak tiau]	[tiu]	[tiau]
137.	tie	[pak]	[pɔŋ]	[pɔŋ]
138.	sew	[tʰi]	[cʰa]	[cʰe]
139.	count	[səŋ]	[suan]	[sin]
140.	say	[ta]	[kɔŋ]	[kɔŋ]
141.	sing	[cʰio kua]	[cʰɔŋ kɔ]	[cʰiɔŋ]
142.	play	[səŋ]	[kau]	[fan]
143.	float	[pʰu]	[pʰu]	[fau]
144.	flow	[lau]	[liu]	[lau]
145.	freeze	[kek səŋ]	[kiet]	[kit]
146.	swell	[ceŋ]	[cuŋ]	[coŋ]
147.	sun	[jit tʰau]	[nik tʰiau]	[yit tʰau]
148.	moon	[guek niɔ]	[ŋik kɔŋ]	[yit kɔŋ]
149.	star	[cʰe]	[siŋ]	[seŋ-seŋ]
150.	water	[cui]	[sui]	[sui]
151.	rain	[lək hou]	[lək sui]	[lək sui]
152.	river	[kau]	[hɔ]	[hɔ]
153.	lake	[hɔ]	[fu]	[wu]
154.	sea	[hai]	[tʰai hɔi]	[hɔi]
155.	salt	[yam]	[yam]	[yim]
156.	stone	[ciɔk tʰau]	[sak thiau]	[siak ku]
157.	sand	[sua]	[hai]	[sa]
158.	dust	[tʰou huŋ]	[fei cʰən]	[fui cʰən]
159.	earth	[ti kiu]	[tʰi kʰiu]	[te kʰau]
160.	cloud	[huŋ]	-	[wan]
161.	fog	[mɔŋ]	[wu]	[mou]
162.	sky	[tʰi]	[tʰien]	[tʰin]
163.	wind	[huaŋ]	[foŋ]	[fəŋ]
164.	snow	[səŋ sɔk]	[lək siet]	[sit]
165.	ice	[səŋ]	[siet]	[sit] [peŋ]
166.	smoke	[eŋ]	[yen]	[yun]
167.	fire	[hoi]	[fɔ]	[fɔ]
168.	ashes	[hoi hu]	[fɔi]	[fui cʰən]
169.	burn	[siɔ]	[sau]	[siu]
170.	road	[lou]	[haŋ]	[haŋ]
171.	mountain	[sua]	[san]	[san]

172.	red	[aŋ]	[foŋ]	[hoŋ]
173.	green	[c^{h}e]	[c^{h}iaŋ]	[c^{h}iaŋ]
174.	yellow	[ə]	[wɔŋ]	[wɔŋ]
175.	white	[pek]	[p^{h}ak]	[pak]
176.	black	[ou]	[wu]	[hək]
177.	night	[am me]	[am pu]	[man siɔŋ]
178.	day	[jek]	[yit]	[yat]
179.	year	[ni]	[nien]	[nin]
180.	warm	[haŋ]	[wən]	[nün]
181.	cold	[ŋaŋ]	[laŋ]	[laŋ]
182.	full	[mua]	[man]	[mun]
183.	new	[seŋ]	[sin]	[sən]
184.	old	[lau]	[lau]	[lou]
185.	good	[hɔ]	[hau]	[hou]
186.	bad	[p^{h}ai]	[fai] [mɔ liaŋ]	[wai]
187.	rotten	[c^{h}au]	[c^{h}u]	[c^{h}au]
188.	dirty	[la tak]	[lek cek]	[la t^{h}at]
189.	straight	[tek]	[c^{h}ək c^{h}ək]	[cek]
190.	round	[yi]	[yen]	[yin]
191.	sharp	[ciam]	[li]	[cim]
192.	dull	[lu]	[mɔ li]	[kuat]
193.	smooth	[kut]	[ŋiɔn] [iu]	[yau]
194.	wet	[tam]	[sək]	[sap]
195.	dry	[ta]	[cau]	[kɔn]
196.	correct	[tiɔk]	[c^{h}ɔk]	[ŋam]
197.	near	[kəŋ]	[k^{h}iun]	[k^{h}ən]
198.	far	[hə]	[yen]	[yün]
199.	right	[tɔ c^{h}iu]	[yiu]	[yau]
200.	left	[cia c^{h}iu]	[cɔ]	[cɔ]
201.	at	[na]	[k^{h}i]	[hei] [pin si]
202.	in	[na lai meŋ]	[ti pɔi]	[yap pin]
203.	with	[eŋ]	[yuŋ]	[yɔŋ]
204.	and	[kak]	[te]	[t^{h}ɔŋ]
205.	if	[ka lau]	[ke cak]	[yi kɔ]
206.	because	[iŋ wei]	[iŋ wui]	[yan wei]
207.	name	[mia]	[miaŋ]	[miaŋ]

Information:

The cognate between TC and HK
The cognate between TC and CO
The cognate between HK and CO

4. Discussion

4.1. Cognates between TC and HK

Analyzing and comparing 207 words between TC and HK, there are 51 related words. Therefore, the degree of kinship between those two languages can be calculated using lexicostatistics:

$$C = \frac{C'}{G} \times 100\% = \frac{51}{207} \times 100\% = 24.63\% \ (25\%) \quad (1)$$

Based on the method by Crowley and Keraf, both TC and HK are considered in the subgroup of clump or stock.

4.2. Cognates between TC and CO

Analyzing and comparing 207 words between TC and CO, there are 60 related words. Therefore, the degree of kinship between those two languages can be calculated using lexicostatistics:

$$C = \frac{C'}{G} \times 100\% = \frac{60}{207} \times 100\% = 28.98\% \ (29\%) \quad (1)$$

Based on the method by Crowley and Keraf, both TC and CO are considered in the subgroup of clump or stock.

4.3. Cognates between HK and CO

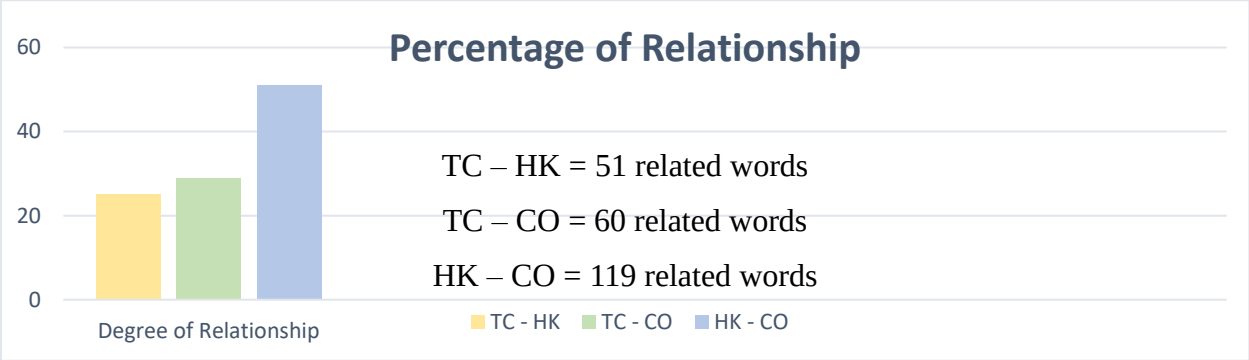
Analyzing and comparing 207 words between HK and CO, there are 119 related words. Therefore, the degree of kinship between those two languages can be calculated using lexicostatistics:

$$C = \frac{C'}{G} \times 100\% = \frac{119}{207} \times 100\% = 57.48\% \ (57\%) \quad (1)$$

Based on the method by Crowley and Keraf, both HK and CO are considered in the subgroup of family.

5. Conclusion

Graphic 1. Degree of Relationship



Identifying and analyzing the 207 Sino-Tibetan Swadesh Vocabulary List among TC, HK, and CO, it can be concluded that:

1. The degree of relationship between TC and HK is 25% and considered in the subgroup of clump or stock.
2. The degree of relationship between TC and CO is 29% and considered in the subgroup of clump or stock.
3. The degree of relationship between HK and CO is 57% and considered in the subgroup of family.

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