

A LEXICOSTATISTICAL EVALUATION OF TAGALOG-CHAMORRO RELATIONS

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1. INTRODUCTION

The primary purpose of this work is to present a new lexicostatistical comparison of Tagalog and Chamorro¹. The presentation has a secondary function in that it makes available to other scholars an adequate and extensive Chamorro word list which can be used in further tests. The list used was recently compiled and is much more representative of the native language than was the list used by Dyen in his *A Lexicostatistical Classification of the Austronesian Languages* (1965). Dyen's sources were von Preissig (1918) and Fritz (1908); these dictionaries seem to suffer from biased elicitation (an excess of European concepts) and the use of informants who spoke fluent Spanish which they naturally used when producing words to match the European concepts suggested to them.

Dyen's cited classification places Chamorro in the Malayopolynesian Linkage, although it has been frequently noted that Chamorro appears to be most closely related to Philippine languages (in Dyen's Hesperonesian Linkage). On the Philippine relationship, see, for example, comments by

Safford (1903:292) and Topping (1968:78). Dyen himself does not feel that his tentative classification of Chamorro is correct, and he explains the problem as follows: "The lexicostatistically defined position of Chamorro as a member of the Malayopolynesian Linkage is very likely to need revision. Chamorro shares so many features with the Hesperonesian languages and particularly with those of the Philippines as to suggest that Chamorro's percentages for some reason are distorted. It is not unlikely that the heavy borrowing from Spanish has deflated its percentages at least with Hesperonesian languages and perhaps more particularly with Philippine languages" (1965:51).

Dyen is undoubtedly correct to conclude that Spanish influence on Chamorro has been so great as to deflate its percentages with any language which was a markedly less heavy borrower. Although modern, everyday Chamorro does not contain as many Spanish loans as might be suggested by dictionaries like those of Fritz and von Preissig, the number of such loan words in Chamorro is many times the number found in Tagalog. Yet the groups speaking these two languages were contacted and placed under Spanish influence at approximately the same time in history (roughly, the middle decades of the 17th century). The cause of the more pervasive influence of Spanish on Chamorro almost certainly lies in the nature of the Chamorro homeland. This is a chain (the Marianas) of quite small islands; the largest island is Guam which measures at the most only 30 by 10 miles. The Chamorro had no place to go, to escape or to gain a measure of relief and freedom from Spanish control over their lives. Small-island people are singularly helpless when large-nation peoples are on the move.

The problem created by Spanish loans into Chamorro is easily demonstrated by research into older Chamorro forms, now obsolete. One finds that for a very large percentage of now-dominant Spanish loans, the recently-remembered native forms are cognates of Tagalog words elicited for the same meanings. This is true, for example, of the numerals one through five; Chamorro uses Spanish words for these numerals while Tagalog retains the native forms. This situation occurs so frequently that it is obvious that the use of Spanish loans would greatly distort the result of a lexicostatistical test of relationship between the two languages. How great this distortion would be is suggested by my finding that Chamorro contains a percentage of Spanish loans which is greater than that of Tagalog by approximately six to one. This figure was determined by study of core vocabulary items; the percentages might be even more disparate if taken from analysis of the general vocabulary. For these reasons, therefore, I decided to eliminate Spanish loan words from my lists.

Both the Tagalog and the Chamorro lists used in the present test were obtained from informants. Forms for the Chamorro lists were taken from my files, which contain lexical data from four informants², all from Guam. The Tagalog list was obtained for me by Robert Michero, from two Tagalog-speakers³ now residing in Los Angeles.

2. SUBSTITUTIONS

The lexical base for this comparison is the standard 200 word list, as given in Gudschinsky (1956:186-200). It was necessary to make some substitutions in order to have an adequate word-count; with the substitutions I was able to compare 194 word pairs. Without the substitutions, the lists would have had only 166 word pairs, since in 34 cases, a meaning in the standard 200 word list was absent (this may mean "un-collected as yet") or unusable in either Tagalog or Chamorro or both. Seventeen of the "unusables" were Spanish loan words in Chamorro; the Tagalog data contained two Spanish loans (possibly three, as I suspect No. 46 also). Whatever the justification, meanings dropped from my lists will hereafter be referred to as "omissions".

To replace the omissions, another meaning, judged to be as universal as most in the original list, was substituted. Some replacements were taken from the standard 100 word list, which has a few words not found in the 200 word list. The generally problematic words 'snow', 'freeze', and 'ice' were of course without representation in either of these warm-climate languages. Six omissions were left unreplaced, due to the usual shortage of satisfactory word pairs with "core" meanings.

A list of the omissions follows (Figure 1). The columns give word number, word omitted, reason for the omission, and word used in its stead (if replaced). In column three, the terms "loan", "lack", and "dup." are used. The term "loan" should be understood to refer to Spanish loans only. "Lack" means of course that a word for the original meaning is absent in either or both languages. "Dup." means that the word elicited for a meaning in either or both languages is a duplicate (at least in the root) of a word elicited for another meaning which has been retained in the lists. The symbol \emptyset is used in column four to mean "no replacement made".

Readers who are critical of my substitution policy will be somewhat relieved to learn that out of 28 replacements used, only eight turned out to be cognate pairs. This gives a cognate percentage of 28.6% as compared with the 37.6% found in the lists as a whole.

FIGURE 1: List of omissions

No:	Omission:	Reason:	Replacement:
1	<i>all</i>	loan Ch.	<i>again</i>
12	<i>bird</i>	loan Ch.	<i>burn (injury)</i>
26	<i>day</i>	dup. Ch. 'sun'	∅
45	<i>feather</i>	dup. Ch. 'hair'	<i>cry</i>
50	<i>five</i>	loan Ch.	∅
52	<i>flow</i>	dup. Ch. 'run'	<i>downwards</i>
53	<i>flower</i>	loan Ch.	<i>carry/bring</i>
56	<i>foot</i>	loan Ch.	<i>finger</i>
57	<i>four</i>	loan Ch.	<i>loan</i>
58	<i>freeze</i>	lack Ch., Tag.	<i>full</i>
63	<i>green</i>	lack Ch.	<i>knee</i>
64	<i>guts</i>	lack Ch.	<i>gift</i>
70	<i>heart</i>	loan Ch.	<i>center</i>
79	<i>ice</i>	lack Ch. loan Tag.	<i>be ill</i>
82	<i>kill</i>	dup. Ch., Tag. 'die'	<i>hunger</i>
84	<i>lake</i>	dup. Tag. 'river'	<i>like/love</i>
91	<i>liver</i>	loan Ch.	<i>medicine</i>
96	<i>meat/flesh</i>	loan Ch.	<i>moon</i>
109	<i>one</i>	loan Ch.	<i>horn (of animal)</i>
110	<i>other</i>	loan Ch.	<i>plant</i>
135	<i>sing</i>	loan Ch., Tag.	<i>run</i>
137	<i>skin</i>	dup. Ch., Tag. 'bark'	<i>sibling</i>
144	<i>snake</i>	loan Ch.	<i>speak</i>
145	<i>snow</i>	lack Ch., Tag.	<i>soft</i>
155	<i>straight</i>	dup. Ch. 'right/correct'	<i>round (shape)</i>
164	<i>thick</i>	dup. Ch. 'heavy'	∅
169	<i>three</i>	loan Ch.	∅
171	<i>tie</i>	dup. Tag. 'rope'	<i>true</i>
174	<i>tree</i>	dup. Tag. 'wood'	<i>tall</i>
176	<i>two</i>	loan Ch.	<i>house</i>
190	<i>wife</i>	dup. Ch., Tag. 'husband'	<i>rule</i>
194	<i>with</i>	dup. Ch. 'and'	∅
198	<i>you-plural</i>	dup. Tag. 'thou'	∅
200	<i>yellow</i>	loan Ch.	"asthma"

3. SOUND CORRESPONDENCES

A number of sound correspondences are easily observed in any comparison of Chamorro and Tagalog (as in Safford 1903:296,308; Conant 1911,

throughout). For the purposes of this test, I regarded as "proven" those sound correspondences noted in at least six Chamorro-Tagalog word pairs with the same or similar meanings. Also accepted (if found three or more times) were a few correspondences which seem to occur only in special environments; these are indicated (in the list to follow) with an asterisk. Data used to determine sound correspondences consisted of the 200 word lists and about an equal number of supplementary word pairs from the two languages. Each accepted sound correspondence was considered as only part of the evidence for the cognate status of word pairs in the lists. When a word pair was found to exhibit one or more of these sound correspondences, and to share other phonetic similarities, the members of that word pair were judged to be cognates. Only consonants were so analysed; my attempts to determine vowel correspondences were handicapped by the fact that no reliable analysis of Chamorro vowels has yet been published.⁴

A list of the "accepted" sound shifts is given in Figure 2. "Environment" refers only to gross position within the root morpheme. It should be understood that a vowel in initial position implies a preceding non-phonemic [?]; this feature also occurs between vowel phonemes. However [?] and silence contrast in final position after a vowel, where the glottal stop is phonemic. (These comments apply to both Tagalog and Chamorro.)

FIGURE 2: Probable Tagalog-Chamorro sound correspondences

<i>Tagalog:</i>	<i>Chamorro:</i>	<i>Environment:</i>
b	p	initial, medial
p	f	medial
d	h	initial, medial
d	ts*	initial
t	ts	initial
g	∅	initial
k	h	initial, medial
h	m*	initial, medial
h	g	initial, medial
l	h*	medial
l	n*	initial, medial
l	ts*	initial, medial
l, r	?	medial
?	l*	medial

continued overleaf

FIGURE 2: continued

Tagalog:	Chamorro:	Environment:
s	ts	initial
w	gw	medial
w	l	medial
∅	gw	initial
y	dz	medial
y	g*	medial
m	n	medial
ŋ	n	initial, medial

In addition to the above, the following tendencies are common: In final position, voiced stops in Tagalog tend to appear in Chamorro as voiceless stops; in the same position, voiceless stops in Tagalog are often reflected in Chamorro by [ʔ] or [∅]. The Chamorro diphthong /au/ is sometimes heard in a Tagalog cognate as two vowels separated either by a glottal stop (No. 111) or by an /h/ (No. 141).

4. THE LISTS

The data used in the computations is given below. In the case of each matched word pair, the English meaning gloss is followed by Tagalog word : Chamorro word, judgement (cognate, noncognate). Transcription of Chamorro words is roughly phonemic⁴, while the Tagalog words are written in the native orthography, with the exception of stress and glottal notation. Glottal stops are represented in my list with /ʔ/, and primary stress, being unpredictable, is marked. In Chamorro words, primary stress will be noted only if it does not occur, as is usual, on the penultimate syllable. Meanings which might belong to more than one word class (noun, verb, adjective) should be interpreted as verbs, unless the gloss is followed by n. for noun or adj. for adjective.

1. *Again.* mulíʔ : taʔlu. Noncognate.
2. *And.* at : dza. Noncognate.
3. *Animal.* háyop : gaʔgaʔ. Noncognate.
4. *Ashes.* abó : apu. Cognate.
5. *At.* sa : gi. Noncognate.
6. *Back, n.* líkód : tati. Noncognate.
7. *Bad.* masamáʔ : baba. Noncognate.
8. *Bark (of tree).* balát : lasas. Noncognate.
9. *Because.* dáhil : saʔ. Noncognate.

10. *Belly*. tiyán : tudzan. Cognate.
11. *Big*. malakí : dáŋkulu. Noncognate.
12. *Burn (injury)*. páso? : tunu. Noncognate.
13. *Bite*. kagát : aka?. Cognate.
14. *Black*. itím : átiluŋ. Cognate.
15. *Blood*. dugó? : haga?. Cognate.
16. *Blow*. hípan : gwaifi. Noncognate.
17. *Bone, n.* butó : tu?laŋ. Noncognate.
18. *Breathe*. humiŋá : haguŋ. Noncognate.
19. *Burn*. sunógin : sunuk. Cognate.
20. *Child*. báta? : patgun. Cognate.
21. *Cloud*. úlap : mapagahis. Noncognate.
22. *Cold, adj.* malamíŋ : maniŋhiŋ. Noncognate.
23. *Come*. halíka : maila. Noncognate.
24. *Count*. biláŋin : tufuŋ. Noncognate.
25. *Cut*. hiwá?in : utut. Noncognate.
26. *Day*. ∅
27. *Die*. mamatáy : matai. Noncognate. (Too similar.)
28. *Dig*. kubkubín : guaduk. Noncognate.
29. *Dirty, adj.* marumí : taki?. Noncognate.
30. *Dog*. áso : ga?lagu. Noncognate.
31. *Drink*. uminóm : gimin. Cognate.
32. *Dry, adj.* tuyó? : aŋlu?. Noncognate.
33. *Dull, adj.* mapuról : mafihfuŋ. Noncognate.
34. *Dust, n.* alikabók : asgun. Noncognate.
35. *Ear*. táyŋa : talana. Cognate.
36. *Earth (soil)*. lúpa? : uda?. Noncognate.
37. *Eat*. kumá?in : kanu?. Cognate.
38. *Egg*. itlóg : tsada?. Noncognate.
39. *Eye*. matá : mata. Noncognate. (Too similar.)
40. *Fall*. mahúlog : pu?duŋ. Noncognate.
41. *Far*. maláyo? : tsagu?. Cognate.
42. *Fat (size)*. matabá? : dzumuk. Noncognate.
43. *Father*. amá : tata. Noncognate.
44. *Fear, n.* tákot : ma?atñau. Noncognate.
45. *Cry*. umiyák : kati. Noncognate.
46. *Few*. ka?untí? : dídidi?. Noncognate.
47. *Fight*. áwai : mumu. Noncognate.
48. *Fire, n.* apóy : gwafi. Cognate.
49. *Fish, n.* isdá? : gwihan. Noncognate.
50. *Five*. ∅

51. *Float.* lumútan : gama. Noncognate.
52. *Downwards.* pababá? : papa?. Cognate.
53. *Carry/bring.* dalhín : tsuli?. Noncognate.
54. *Fly, n.* lánɡaw : lalu?. Noncognate.
55. *Fog, n.* úsok : humhum. Noncognate.
56. *Finger.* dalíri : kálulut. Noncognate.
57. *Loan, n.* híramin : adzau. Noncognate.
58. *Full (container).* punó? : mutmut. Noncognate.
59. *Fruit.* búŋaŋ : kahit. Noncognate.
60. *Give.* ibigáy : na?i. Noncognate.
61. *Good.* mabúti : maulik. Noncognate.
62. *Grass.* damó : umuk. Noncognate.
63. *Knee.* túhod : tumu. Cognate.
64. *Gift.* ala?ála : a?uk. Cognate.
65. *Hair.* buhók : pulu. Cognate.
66. *Hand.* kamáy : kanai. Cognate.
67. *He.* siyá : gwidza. Cognate.
68. *Head.* úlo : (h)ulu?. Cognate.
69. *Hear.* makiníg : huŋuk. Cognate.
70. *Center.* gitná? : talu?. Noncognate.
71. *Heavy.* mabigát : maput. Noncognate.
72. *Here.* díto : gwini. Noncognate.
73. *Hit.* tamá?an : dantsi. Noncognate.
74. *Hold/take.* hawákan : kuni?. Noncognate.
75. *How.* pa?ánow : taimanau. Cognate.
76. *Hunt.* hanápin : kahat. Noncognate.
77. *Husband (mate).* asáwa : asagwa. Cognate.
78. *I.* akó? : gwahu. Cognate.
79. *Be ill.* máysakit : malaŋo. Noncognate.
80. *If, conj.* kuŋ : aŋgin. Noncognate.
81. *In.* salu?ób : halum. Noncognate.
82. *Hunger, n.* gútom : niñalaŋ. Noncognate.
83. *Know.* maláman : tunu?. Noncognate.
84. *Like/love.* íbig : gwaidza. Noncognate.
85. *Laugh.* tumáwa : matsalik. Cognate.
86. *Leaf.* dáhon : hagun. Cognate.
87. *Left side.* kaliwá? : akagi. Noncognate.
88. *Leg.* bintí? : adiŋ. Noncognate.
89. *Lie (body).* humigá? : asun. Noncognate.
90. *Live.* mabúhay : luma?la?. Noncognate.
91. *Medicine.* gamót : amut. Cognate.
92. *Long, adj.* mahába? : anaku?. Noncognate.

93. *Louse.* kúto? : huto. Cognate.
94. *Man/male.* laláki : lahi. Cognate.
95. *Many.* marámi : mi?gai. Noncognate.
96. *Moon.* buwán : pulan. Cognate.
97. *Mother.* iná : nana. Cognate.
98. *Mountain.* búndok : uksu?. Cognate.
99. *Mouth.* bibíng : patsut. Noncognate.
100. *Name, n.* pañálan : na?ani. Cognate.
101. *Narrow.* makítid. : mafnut. Noncognate.
102. *Near, adj.* malápit : hihut. Noncognate.
103. *Neck.* le?ég : ágaga?. Noncognate.
104. *New.* bágo : pa?gu. Cognate.
105. *Night.* gabí : pweni. Noncognate.
106. *Nose.* ilón : gwi?in. Cognate.
107. *Not.* hindí? : ahi. Cognate.
108. *Old (person).* matandá? : amku?. Noncognate.
109. *Horn (of animal).* súngay : kangilun. Noncognate.
110. *Plant.* magtaním : tanum. Cognate.
111. *Person.* tá?o : tautau. Cognate.
112. *Play.* laró? : lá?imai. Cognate.
113. *Pull.* batákin : hali?. Noncognate.
114. *Push.* itúlak : tsunik. Cognate.
115. *Rain, n.* ulán : utsan. Cognate.
116. *Red.* pulá : agaga?. Noncognate.
117. *Right/correct.* táma? : tunas. Cognate.
118. *Right side.* kánan : agapa?. Noncognate.
119. *River.* ílog : sa?duk. Noncognate.
120. *Road.* da?án : tsalan. Cognate.
121. *Root, n.* dáli : hali?. Cognate.
122. *Rope.* táli? : tali. Noncognate. (Too similar.)
123. *Rotten.* bulók : mahangi?. Noncognate.
124. *Rub.* himásin : hu?dzat. Noncognate.
125. *Salt.* asín : asiga. Cognate.
126. *Sand.* buháñin : unai. Cognate.
127. *Say.* sabíhin : sañan. Noncognate.
128. *Scratch.* kamútin : ka?gwas. Noncognate.
129. *Sea.* dágat : tasi. Noncognate.
130. *See.* tiñnán : li?i?. Noncognate.
131. *Seed (pit).* butó : finsu?. Noncognate.
132. *Sew.* tahí? : laki. Noncognate.
133. *Sharp.* matúlís : diduk. Noncognate.
134. *Short.* pandák : kádada?. Cognate.

135. *Run.* tumakbó : malagu. Noncognate.
 136. *Sit.* umupó? : fatatsun. Noncognate.
 137. *Sibling.* kapatíd : tsi?lu. Noncognate.
 138. *Sky.* lánit : lanit. Noncognate. (Too similar.)
 139. *Sleep.* matúlug : matuhuk. Cognate.
 140. *Small.* mali?ít : díkiki?. Noncognate.
 141. *Smell (bad odour).* mabáho? : pau. Cognate.
 142. *Smoke, n.* úsok : asu. Cognate.
 143. *Smooth, adj.* madulás : mahlos. Cognate.
 144. *Speak.* magsalítá? : adiñan. Noncognate.
 145. *Soft.* malambót : máña?ña?. Noncognate.
 146. *Some.* ilán : palu. Noncognate.
 147. *Spit.* dumuráp : buhbuhdzi. Noncognate.
 148. *Split.* hatí?in : ka?ka?. Noncognate.
 149. *Squeeze.* pilipít : fugu?. Noncognate.
 150. *Stab/pierce.* saksakín : tsaktsak. Cognate.
 151. *Stand.* tumayó? : tuhgi. Noncognate.
 152. *Star.* bituwín : puti?un. Cognate.
 153. *Stick, n.* dikít : galuti. Noncognate.
 154. *Stone, n.* bató : atsu?. Noncognate.
 155. *Round, adj.* mabílog : adamiluñ. Noncognate.
 156. *Suck.* súso : tsuptsup. Cognate.
 157. *Sun, n.* áraw : a?dau. Cognate.
 158. *Swell.* namagá? : pukpuk. Noncognate.
 159. *Swim.* lumañóy : numañu. Cognate.
 160. *Tail, n.* buntót : dádalak. Noncognate.
 161. *That.* iyán : adzu. Cognate.
 162. *There.* du?ón : gwinau. Noncognate.
 163. *They.* silá : siha. Cognate.
 164. *Thick.* Ø
 165. *Thin.* manipís : kanifis. Cognate.
 166. *Think.* isípín : hasu?. Cognate.
 167. *This.* itó : ini. Noncognate.
 168. *Thou.* kayó : hago. Cognate.
 169. *Three.* Ø
 170. *Throw.* itápon : dzuti. Noncognate.
 171. *True.* toto?ó : magahit. Noncognate.
 172. *Tongue.* díla? : hula?. Cognate.
 173. *Tooth.* ñspín : nifin. Cognate.
 174. *Tall.* mata?ás : lu?ka?. Noncognate.
 175. *Turn.* íkot : kiluk. Noncognate.
 176. *House, n.* báhay : guma?. Noncognate.

177. *Vomit.* sumúka : tu?la?. Noncognate.
 178. *Walk.* lumákad : pu?kat. Cognate.
 179. *Warm, adj.* ma?ínit : maipi. Noncognate.
 180. *Wash.* húgas : na?gasgas. Cognate.
 181. *Water, n.* túbig : hanum. Noncognate.
 182. *We.* táyo : hita. Cognate.
 183. *Wet, adj.* basá? : fu?gun. Noncognate.
 184. *What?* anú : hafa. Noncognate.
 185. *When?* ka?ilán : gai?an. Noncognate.
 186. *Where?* sa?án : maggi. Noncognate.
 187. *White.* patí? : á?paka?. Noncognate.
 188. *Who?* síno : hadzi. Noncognate.
 189. *Wide.* maláwak : ma?gwak. Cognate.
 190. *Rule.* pangasiwa?án : ma?gasi. Cognate.
 191. *Wind, n.* hájin : maŋlu?. Cognate.
 192. *Wing.* bakkák : papa. Cognate.
 193. *Wipe off.* púnas : sausau. Noncognate.
 194. *With.* Ø
 195. *Woman.* babá?e : palau?an. Cognate.
 196. *Wood.* kahúyan : hadzu. Cognate.
 197. *Worm.* ú?ud : ulu?. Cognate.
 198. *You-plural.* Ø
 199. *Year.* ta?ón : sakan. Noncognate.
 200. *"Asthma".* híka : guha. Cognate.

5. COMPUTATION OF TIME DEPTH

To compute time depth and range of error, the standard formulas given in Lees (1953:119ff.) were used. In the comparison of Tagalog and Chamorro, 73 of the 194 word pairs were judged to be probable cognates, giving a cognate percentage of 37.6. Computation of time depth produced the figure of 2250 years before the present as the probable date of divergence for Tagalog and Chamorro.

The computation of the range of error at 7/10 confidence level gave a figure in years of 200. On the basis of this test, then, it can be stated that Tagalog and Chamorro began to diverge from a common parent language sometime between 2050 and 2450 years before the present.

The above divergence date of 2250 years \pm 200 years seems consistent with what is known or suspected about the relationship between Chamorro and the Tagalic languages of the Philippines.

NOTES

1. Chamorro is the native language of the Mariana Islands in Micronesia; the variety used in this study is that of Guam. Tagalog is the official native language of the Philippines.
2. Ruperta Blas, Remedios Perez, Rosario Sablan, and Robert Underwood.
3. Rosemarie Salvador, from Zamboanga, Mindanao; and Gemma Cabella Ramos, from Manila, Luzon.
4. See Witucki (1973) for arguments in support of a Chamorro vowel system /i u a ai au/. This system, rather than the traditional /i e ə a o u ai au/, is used in the "roughly phonemic" representations of Chamorro words in the present paper.

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