MOSETEN AND PANO-TACANAN*

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0. This paper presents evidence for the genetic relationship of Moseten with Pano-Tacanan.[1] Although part of the evidence has been available since 1917, as will be shown in 3, Moseten has been listed as an independent family in the classifications of South American languages.[2] This fact and the lack of adequate materials for systematic reconstruction are the justification for the present preliminary and per force deficient presentation.

The logical procedure would be to compare Moseten with Proto-Pano-Tacanan, but we so far only have a reasonable reconstruction for Proto-Tacanan (Key 1968) plus the useful list of Panoan cognates or likely cognates therein included. Proto-Panoan has been reconstructed by O. Shell but the monograph remains unpublished (Key 1968: 49; Longacre 1968: 349). There are good lexical sources for three Tacanan languages: Cavineña (Key 1963), Tacana (Van Wynen 1962), and Chama (Wyma 1962), but only for Cashibo (Shell 1959), Shipibo (Alemany 1906), and Cashinahua (Abreu 1914) among the Panoan languages.[3] No material has appeared on the extant Chimame dialect of Moseten, so that we are restricted to the vocabularies gathered at the end of the XIXth century by Bibolotti (1917), and Armentia (1903), which contain little grammatical information and present problems of phonemic interpretation.

1. The phonemes of Proto-Tacanan, as reconstructed by Key, are: p t c ć č k b d s ś š x m n w r ŕ y ʔ i o e a.[4] Syllables have patterns CV, V. Stress was probably morphologically predictable.

The phonemes of Proto-Panoan, as reconstructed by Shell (Longacre 1968: 351), are: p t c č k k^w β s š ş m n r w y ʔ i ï a o į į̈ ą ǫ, high and low tones. These can serve as reference for the rather similar phonemic

systems of the Panoan languages. Syllable patterns of Panoan languages are CV, V, C_1VC_2, with C_2 restricted to fricatives and nasals.[5]

From the differing transcriptions used by Armentia and Bibolotti the phonemes of Moseten may be tentatively set up as follows: p t c č k b d f s š x v y r m n ñ i ï u e a o. The doubtful points remaining after a comparison of the sources[6] are: <tch> here transcribed as tč, which could be ţ̌.[7] There may be an h in addition to x. b and v represent perhaps the same phoneme (cf. Schuller in Bibolotti 1917: XXXVIII), but as there is enough consistency in the spellings of Armentia and Bibolotti I maintain the distinction. The y which corresponds to Armentia's <y> and <g>, and to Bibolotti's <g> could be a ž. The ï is described in some sources as being similar to French ü, but it is sparsely attested in the vocabularies, so that it is probably underdifferentiated and written as <i>, <e>, or <u>. Syllables have the structures CV, V, VC, C_1VC_2; d seems restricted to morpheme initial, the couple of examples in which it appears in the middle of a word look like compounds; there is considerable fluctuation, even in the same vocabulary, of x with zero before consonant; all consonants appear in C_1 and C_2 except, perhaps, d in C_2. No source gives any indication of stress or tone.

2.1. Correspondences which show systematicity are:

M	T	P	
p	p	p	BITTER, BRIGHT$_2$, BURST, COVER, GO, JUMP$_1$, JUMP$_2$, OPEN, SMALL-FOX, SPLIT, WASH.
b, v	b, v	b, v	ANIMAL$_1$, COOK, COTTON, COUSIN, EYE, FAT, FACE, FIND, FLOAT, 'Gerund', GIVE BIRTH TO, HOLE, MARRIED, MUD, PUT, TOWARDS, TREE.
m	m	m	ARROW, ASHES, FAT, NUT, PLATE, ROPE, SAP, SPEAK, STONE, WORM.
t	t	t	BRIGHT$_1$, CUT$_1$, CUT$_3$, FIND, HIT$_1$, HIT$_3$, NECK, PUSH, SAD, SICK$_2$.
d	d	d	HORN, MUCH, POLE.
n	n	n	DRY, FRIGHTEN, FLY, SMALL, WATER$_2$.
ǩ	ǩ	č	DIRTY, MUD, SNEEZE, WRINKLED.
č	ć	?	DRINK, EAR, FINGERNAIL.
s, c	s	š, č	BLACK, BONE$_1$, GREEN, LAUGH, ROPE, SCRATCH, SEW, SPLIT.
y	c	?	FACE, FLOAT, GOD.
k	k	k	ANIMAL$_2$, BEND, BOW, BURST, COME BACK, CUT$_3$, GO, LOOSE, PUSH.
x	?	ş	BRIGHT$_2$, COTTON.
x	y	?	HEAD, KILL.
a	a	a	ANIMAL$_1$, ANIMAL$_2$, ASHES, BITTER, BONE$_1$, BRIGHT$_1$, BURST, COOK, COTTON, DIRTY, DRY, FAT, FLY, 'Gerund', GIVE BIRTH TO, HIT$_3$, HORN, JUMP$_2$, LOOSE, MUD, PLATE, PUSH, SMALL.

e	e	ï	BLACK, BRIGHT$_2$, HIT$_1$, NECK, RAIN, SAD, TOWARDS.
o	o	o	ARRIVE, CLOTHES, CUT$_3$, FRIGHTEN, POLE, SAD, SEW, SWELL$_2$, WATER$_1$.
u	o	o	COME BACK, HEAD, HEAT, JUMP$_1$, MUD, NUT.

To the above correspondences other sets can be added. These, however, present conflicting evidence as to which sounds in Panoan and Tacanan correspond to those in Moseten. In several cases the correspondences are not regular within Tacanan or Pano-Tacanan. Furthermore, since the likely cognate is often found in one Panoan or Tacanan language only, the Moseten sound and the glosses are given below without indicating the corresponding Panoan and/or Tacanan sounds.

c ANIMAL$_2$, COUNT, COVER, ENTER, FIRE, ITCH, ROUGH.
č ASHES, CUT$_2$, DRY, HIT$_3$.
s ARRIVE, BONE$_1$.
š BRIGHT$_1$, CLOTHES, HEAT, SWELL$_2$.
x HIT$_2$, NUT.
y ANIMAL$_1$, BLACK, BONE$_2$, BROTHER, GREASE, 'Interrogative', LAUGH, NAVEL, WITH.
n RAFT.
ñ RAIN, SICK, WATER$_1$.
r ADHERE, FULL, HOLE, WHITE.
i ANIMAL$_2$, FIND, GO, GREASE, ITCH, STONE, TREE.
e BRIGHT$_1$, EYE, FACE.
o BOW, EAR, GREASE, HOLE.

The diversity of correspondences appearing in sibilant sounds is not surprising since already within the closely related Tacanan languages there are many irregularities still not accounted for. Furthermore, there are at least six Proto-Tacanan sibilants to match, and the scarcity of examples does not permit ascertaining which are the probable regular correspondences or in which conditions there have been phonemic split or fusions.

It should be noticed that the only sound of Moseten for which no likely cognate appears in the preceding lists is f; the same holds for Proto-Tacanan*x.

I think that the evidence advanced above is enough, not only to prove the genetic relationship of these languages families, but also to indicate that, with better materials, this relationship would be fully within the reach of the standard comparative method. This evidence can be evaluated from several viewpoints which all give positive results:

(1) the number of glosses and the number of CVC matchings included;
(2) the number of glosses for each correspondence and the recurrence of the same glosses in the different correspondences;
(3) some correspondences which appear particularly well attested, e.g. b/v and the vowels;
(4) the plausibility of the proto-phonemic system which the correspondences suggest.

2.2. The list of glosses follows. The first form given after the gloss is Moseten, followed by Tacanan and/or Panoan forms. Abbreviations are the following: (a) Tacanan languages: Chm: Chama, Cv: Cavineña, H: Huarayu, R: Reyesano, PT: Proto-Tacanan, T: Tacana; (b) Panoan languages: A: Amahuaca, Chc: Chacobo, Chn: Chaninahua, Cp: Capanahua, Cshb: Cashibo, Cshn: Cashinahua, Mr: Marinahua, My: Mayoruna, P: Pánobo, Shp: Shipibo. Sets not referred to above because they constitute very dubious cognates but included in the list are: DIE, DRUNK, 'Genitive', HARD, HELP, HIT_2, IN, INQUIRE, LINE, 'Past', PLAY, POINT, SPIRIT, SWEAT, $SWELL_1$, TAIL, TOOTH, UNDERSTANDING. I have included also what are sure or likely loans, e.g. CANOE, COMB, MAT, PAPER (ultimately Quechua), SCALE, SIN (ultimately Quechua).

$ANIMAL_1$ ebakye edible forest animal; Cv bakahome (Spanish) jochi pintado, T basome id.

$ANIMAL_2$ kica lizard; T keca (Spanish) londra

ARRIVE sokiti; Cv cora

ARROW yisme (Bibolotti), iyme (Armentia); Chm emehe, H emese

ASHES čim; R timo, T etimo; A čiʔimapo, Chc čiʔimišpo, Cshb čimapo

BEND kac; Cshn katǫ

BITTER pač; PT *pace

BLACK seyeye night, cinkai; PT * sewe; Shp čïṣï

$BONE_1$ sasa ~ caca brain, marrow; Chm esa, esapa head, Cv ecaʔo, T ecao, ecaha foot, ankle; A xao, Chc ṣao, Cshb ṣoo

$BONE_2$ yiñ (Bibolotti), xiñ (Armentia); Chm sapa-xii skull (sapa head)

BOW koinye; Chc kanati, Cshb kanti, Cshn kanǫ, Shp kanuti

$BRIGHT_1$ tašeše shine; Cv tahita lightening, thunderbolt, tahina rainbow

$BRIGHT_2$ pexpeo lightening; Cshb pïṣ shine (the moon)

CANOE kuaba; Cv kwaba, R kwamba, T kwaba

CLOTHES ošo; Cv ehotoki, R ecoloi, T ehoʃoi; A čosnaʔka, Shp raoti

COMB peci; T pesu

COOK evac burn; Chm dawa heat, roast, Cv pawa, šowa burn; Cshb bĩą Cshn ba, bą, Shp yuwamis cook (n.)

COME BACK kuvi; Chm ekomee return (n.), Cv koeti

COTTON baxma; PT * wapeśe; Chc waṣmĩnï, Shp waṣmį

COUNT ciik; Chm sico

COVER cup; Chm esipi roof, T cipi roof (v.); Mr ṣïpa, Shp ṣiwa-

CUT_1 tec; Cshn tïθ

CUT_2 čet split; PT * śiki; Cshn θïkï, θïnï

CUT_3 tokaks cut with knife; Cshb tuka

DIE señi; Cv sanatana; Cshn šąkąi

DIRTY ači tattered, bad; T ači

DRINK čei; PT * iću; A xıʔa, Mr ṣïa, Shp ṣĩa

DRUNK šukit; Cv kanixukisati; Cshn šuma

DRY ičanaki; Cshb šaĩnka

EAR čo; PT *iću-ka

ENTER aci come(back), arrive; Cshb acį́

EYE (cf. FACE) ve; PT * ba look; Cshn φį
FACE veya; Chm ebosi, Cv bocekini, T ebu
FAT mabbet; T mabe pregnant
FIND rixbiti; Cshn bïti
FINGERNAIL patči; Chm -kiši, R -tiśi, T -tiśi; A mïcis, Chc mïcisi, Chn bicis, Cshb ?oncis, Mr mïcisi, My mïïncís, Shp mįcis
FIRE ci; PT * -ti; A či?i, Cshb čii, Cshn ti
FLOAT vi(i)yi swim; PT * bići raft (Cv beco swim, T beca swim)
FLY nay; Cp naya, Cshb nuą, Cshn nuya
FRIGHTEN noyi; Cshb noo
FULL riyi, ritiei stuff (v.); PT * eśexe; Shp hıtıC-
'Genitive' -s ~ -si; T -sa
'Gerund' -bañ; Cp -ba?in 'continuous action', bai id.
GO pikei run; Chm poki leave
GOD doyit; Chm edosikia sorcerer, T educi whitchcraft
GREASE coye oil; Cv eceri
GREEN ca; Chm etawa, Cv sanada; Cshn šo
HARD neyexo; Cshb ñaši strong
HEAD xutči; PT * e-iyo-xa, (Chm ewoxa, Cv iyoka, R ečoha, T ečoa)
HEART oñi; Cv eniho, T enido spirit; My ointé, Shp nišobo kind of demon
HEAT ešuk; Cv toča, śowa, T ucua burn; Chc mïįšo, Cshb šui, Shp mïšo
HELP ñečiti; Cshb ?ïsïti
HIT$_1$ teey; Cshb tï
HIT$_2$ xai, xak; Cshn tθa, tθą
HIT$_3$ tače slap; Cv etašatana broken, T (mei) etaxaxi grinding (stone); Cshb taš, Cshn eašo break, Shp tasna
HOLE vora; T bere dig; Cshb basa id., baθa
HORN daš (Bibolotti), dacð (Armentia); Cv edana, Chm ese?ana, T edana
IN kañ; Cp hanin
INQUIRE kevakxe; Cv kwaxiti
'Interrogative' eye- how, what; Chm aya who, ae who, Cv ehe- how, when, T aiya, aiðe who
ISLAND po(t)čo; R esapopo, T edapopo
ITCH ececei; Chm siso
JUMP$_1$ puecei curvet; Cv potitana; Cshb pu throw away
JUMP$_2$ paixoi; Cshn pai stamp
KILL oxai, ixae; PT * iye
LEANING ciñeñ; Cshb -ñaña
LAUGH yisi; Cv caya, T idebati; Cshb šïči
LINE isine, ñis; Cshb ?ii
LOOSE cakcak; Cshn tθąka
MAN soñi, coñi; Cshn huni husband, Cshb uni, A wïni
MARRIED venčias (of a woman); Cv vanayake; Cshb bïnu to marry (a woman), Cshn bïnï husband, Mr φïndi id.
MAT šipna; Chm xepi, Cv hopi, R xememi, T ŕipe; Chn piši, Cshn piši, Mr píšį , My pisín, Shp pišį́

MUCH dai; Cshn da0i
MUD bučai; Cv oyo muddy, R wočo-wočo, T hočo-hočo, roto; Cshb čua, Shp čawa
NAVEL oyo; Cv so?o, T co
NECK tec, (tereret throat); Cv t́owi; Cshb tĭ́ru throat, tïsa nape, Cshn tĭš
NIGHT yomoi at night; Cshn iamï, Shp yammue
NUT muxie almond; Cv moke Brazil nut, T moihe; Cshb amukuta, Cshn amukuta
OPEN pakañ cut; Cv pakašaya open, burst
PAPER kirika; Shp kirka
'Past' ike; T hihi; Chc kï when, 'completed action'
PLATE mikta; Cshn mit0a
PLAY icanye; Chm xabekai, Cv ixawe
POLE doč; Cv dodo
POINT ešam; Cshb rïšḱn
PUSH tak; Cshb taka shake, Cshn taka
PUT bixčei; T bio put into, Chm bio id.
RAFT pene; PT * peŕe
RAIN añei; Cv ney
ROUGH ca; Chm eše, kca-š a?a, T ŕaka-ŕaka; Shp šaš
ROPE mice (Bibolotti), miše (Armentia); Cv misa, T mida; Cshb mïši
SAD ote pity (v.); Cshb utï
SAP misare rubber; PT * emadi
SAY yi ~ ye; Cp ?i?; Cshb ñui
SCALE tupuye; Cv topoya to weigh, T tupua id.
SCRATCH eceñ, šeyete, cibete whip; PT * eć́ewi; Shp cĭwĭ ceremonial mark on back of head
SEW coso, sovsov thread (v.); Chm soko, Cv toco, T roso, due thread (v.); Cshn 6ïo
SICK1 ñobi tire; Cshb ñu, Cshn yoinaka, suffer, yuna fever
SICK2 oton; Cshn tïnï suffer, Shp tene
SIN xutča; Cv hoča-ki, T hoča; Chc hoča, Shp oča
SMALL nanat young; Cv nanada, T enana tender
SMALL-POX potanye; Cv posese
SNEEZE ačik; Chm ači, Cv ečiu
SPEAK mik; PT * mimi; Cshn miyoi
SPIRIT (cf. HEART) tčutči soul, soyo demon; Cshb ñuś́i evil spirit; Cshn yoiši soul
SPLIT pacyete blow, pacak-pacak in pieces; Cv pacaya, T paŕa, epedú piece
STONE miy; Chm mei, Cv tumu
SUN icuñ; PT * ić́eti; Cshn ošĭ moon, My oïšï
SWEAT xinxoi; Chm šiši
SWELL1 kišiñ tumor; Chm šexe, Cv kwidi, T sehe
SWELL2 šo(x)bi; Cshn 0oi, Cp so6i?
TAIL kondi; PT * etisa; Cshn tį́to tail-less
TOWARD -ve; Chm -wa, T -be
TREE iivi willow; A hii, Cshb ii, Mr iwi, Shp hiwi

TOOTH moinyin; PT * ece; A xïtá, Chc ʂïta, Cshb ʂiña, Mr ʂïtá, My ʂïtá Shp ʂïta
UNDERSTANDING yi(y)eye; Chm e?enee-, Cv ehene to think
WARM mek; Cshn mikǫ brasier, Shp mïno heat
WASH pipitak, putak; T pupu
WATER1 (cf. RAIN) oñi; Cshb uñee rain
WATER2 inac river; Chm ena, Cv ne?i rain, T nai id; My ïni, Shp hïnï
WHITE oroxkañ clear day; Chm -oše; Cshb uʂu, Cshn hošo, P hóšo
WITH -ya 'instrumental'; Cp ya
WOMAN pen; T epuna
WRINKLED čorečo gutter; Cshb čuru, čuričuria kinky

3.1. The history of the classification of Moseten, Panoan and Tacanan is not very long or complicated but a curious one and not an isolated instance in the classification of South American Indian languages. It seems convenient to summarize it since it is usually inaccurately stated.

Brinton (1892: 9-11) noticed similarities between Tacana, Aymara, Pano, and Moseten. He assumed that there were Aymara and Pano loans in Tacana, and considered that the coincidences with Moseten were of no significance. If his examples from Aymara show an unusually wide concept of 'identities', as he called them, on the contrary the coincidences between Pano and Tacana are almost identities, and include eleven words of basic vocabulary.[8] As for Moseten, three of the five resemblances given are at least suggestive, namely those for fish, god, woman. If the same kind of evidence had been available for languages of North or Middle America, it is likely that Panoan and Tacanan would have been considered related very soon, and the connection with Moseten worth investigating.

On the basis of the pronominal forms Groeteken (1907: 733) pointed to a relationship between Pacaguara, a Panoan language, and Cavineña, but he considered the latter to be 'eine Verschmelzung des Tacanischen und Pacaguarischen'.

R. Schuller, in his edition of Bibolotti (1917: XCIII), found that "the morphological and syntactical structure convey the impression that the Moseteno is related to the Tacana group, and particularly to the Cavineño." He added a list of 43 resemblances of which more than 10 are rather obvious and belonging to basic vocabulary, some others are likely to be loans, and even many which we have not included here are reasonable rapprochements. Schuller's proposal remained unacknowledged even by such a careful surveyor of the bibliography as Schmidt (1926: 230), and later Mason (1950: 274) wrongly affirmed that nobody 'has even hinted at broader relationship'. Strangely too, Loukotka (1945) did not point to 'Spuren' from Tacanan and or Panoan, which he could have done on the basis of his 45 word test.

Créqui-Montfort and Rivet (1924) made an extensive comparison of Tacanan with Panoan and Arawakan, and arrived at the conclusion that the former was an Arawakan language strongly influenced by Panoan. Concerning the Arawakan parallels Mason (1950: 219) and more recently Key (1968: 15), have made a fitting critique and it is not necessary to insist on

this aspect of the monograph. The rapprochements with Panoan are a different matter. The authors not only stressed the great similarity of the grammatical systems but specifically found a remarkable resemblance in the personal pronouns, as well as coincidences of sound and meaning in the instrumental, the negative, and in what they called the attributive. They found also 101 lexical similarities, but here their reasoning went astray. They eliminated 31 as loans because of their not being general in Panoan, 23 as loans because although general in Panoan they were not general in Tacanan; of the remaining 41, 17 more were eliminated because, according to them, they appear also in Arawakan, so that there were left 24 which being general in Panoan and Tacanan had a chance of being inherited. Since according to them, there were 178 cognates with Arawakan, they assigned Tacanan to this family, and their classification has generally been accepted. Even from Mason's resumée — who nevertheless classifies it as probably Arawakan — the truth can be guessed and McQuown (1955) cautiously left it unclassified. If it is realized that those 24 words — which are cognates on inspection, to the point that such similitude seems to be the reason which lead Mason to think hesitantly of borrowing — all belong to the 100 item list of basic vocabulary, it is obvious that the reasoning should have been in the opposite direction, and that most of the remaining 77 coincidences had a chance of being inherited vocabulary. In fact 43 of them reappear in the list of Pano-Tacanan cognates set up by Key, and at least a dozen more are surely cognates as well.

If Créqui-Montfort and Rivet, in spite of having plenty of evidence for proving the relationship of Panoan and Tacanan, made a wrong classification, Schuller (1933) while restricting himself to less abundant material, maintained that it was sufficient to prove the relationship. I think that Key (1968: 15) underestimates it in calling the evidence 'very meager', and misunderstands the role of the comparative method assuming that the materials presented by her — a first step in reconstruction — were still necessary to prove the relationship. Schuller adduced 16 obviously related forms of basic vocabulary, the pronouns of 1st, 2nd, and 3rd sg, 2nd pl, a demonstrative, the imperative, the negative, and the causative. If this amount of resemblance was the result of chance or of loans, then a genetic classification would have no meaning and no comparative method whatever could justify or prove it. I find it not surprising, then, that Greenberg and Swadesh agree in having a Pano-Tacanan group, the disagreement as to the placement of Moseten in their classification merits a few additional remarks.

3.2. Greenberg placed Moseten in his Macro-Guaycuruan family together with Mataco-Maca, Guaycuruan, Lule-Vilelan, and Mascoian, while Panoan and Tacanan constitute two different families coordinated with Macro-Guaycuruan. To the extent that comparison of the 100 word list may reflect the degree of relationship accurately, none of Greenberg's Macro-Guaycuruan families has a chance of being more closely related to Moseten than this is to Pano-Tacanan, in fact I do not even find much ground for thinking that they are related at all.

Swadesh has Moseten grouped with Chon in his Sonchon group, which is

one of the closest to Pano-Tacanan.[9] I believe that he is right in considering Moseten and Chon related, but from his figures it can be seen that the differentiation within Sonchon (54 minimum centuries) is greater than the minimum difference between this group and Pano-Tacanan (43 minimum centuries), and the language which gives this lower figure is precisely Moseten.

There has been a detectable preference for Greenberg's classification, at least in the frequency with which it has been quoted or adopted as a frame of reference. The only reason I find for this preference is that this classification is couched in the standard frame of phyla, stocks, and families. But such a classification has little meaning if in the lower levels, those presumably easier to establish, three groups like Panoan, Tacanan, and Macro-Guaycuruan are placed on the same level, two of which — Panoan and Tacanan — are relatable by inspection, while it is difficult to guess at the reasons for relating the subfamilies of the third group (Macro-Guaycuruan). And this type of anomaly is not an isolated example.[10] On the other hand, it is probable that Swadesh's 'mesh principle', his idea of having groups more differentiated internally than with respect to other groups, and his glottochronological dating, have militated against his classification. But it is not necessary to accept any of these principles — and I do not — in assuming that his classification possibly provides some of the best guesses for establishing more inclusive groupings among South American languages.

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NOTES

* This paper was written while the author was researcher of the Fundación Bariloche and of the Consejo Nacional de Investigaciones Científicas y Técnicas (Argentina).

1. The Moseten linguistic family of northwestern Bolivia includes Moseten proper, now extinct, and Chimame. The Panoan languages are spoken, for the most part, in eastern Peru and northern Bolivia. Tacanan languages are spoken in northwestern Bolivia.

2. Exceptions are, naturally, Greenberg (in Tax 1960), and Swadesh (1959; 1960).

3. I had no access to Steinen's Shipibo dictionary (Steinen 1904). The Shipibo forms quoted here, when not in Key (1969), have been taken from Alemany (1906). The vocabularies by Abreu and Alemany are under- and over-differentiated phonemically.

4. As a guide for those cases in which a reconstructed form is not given, the following summary of correspondences (Key 1968: 35-6) may be useful:

	PT	Cv	Chm	T
*	t	t	k	t
*	c	c	s	c̬
*	ć	h	š	ḑ
*	č	č	c(č)	s(č)
*	s	s	ð	s (t, š)
*	ś	h	s	h
*	k	kw	kw	k(kw)
*	x	k	x	k

	PT	Cv	Chm	T
*	r	r	ø	r
*	ŕ	r	ø	ø
*	y	y	y	y(ɤ)

5. For the phonemic systems of Panoan languages cf. Kensinger 1963, Loos 1963; Pike and Scott 1962; Prost 1967; Russell 1959; Shell 1950.

6. Schuller (1917: XXXVIII) presents a comparison of Bibolotti's and Armentia's orthographies as well as of other sources; I do not always agree with his interpretation.

7. The combination <tch> could represent a glottalized sound but as there is no other hint of glottalized sounds it would give a very asymetrical system.

8. The glosses are: blood, child, hill, meat, moon, small, son, sun, tongue, uncle, water.

9. Yuracare is a bit closer to Sonchon (43 minimum centuries) and at the same distance with Pano-Tacanan (45 m. c.); I think it probable that they are related, but considerably more remotely.

10. Another example is his Araucanian-Chon family in which Araucanian, Ona, and Tehuelche are placed as coordinated subfamilies on the same level of differentiation as different subgroups within Mayan or Panoan. Ona and Tehuelche are obviously related and differentiated from each other approximately as Mamean and Huastecan, while there is little evidence for considering Araucanian related to Ona and Tehuelche. The same holds for Puelche and Yaghan included as unclassified in the same family.