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South American Relationships with North American Indian Languages

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Resemblances between languages have captured the interest and imagination of people for many centuries. In the academic community scholars of all disciplines study the differences and similarities of data gathered from various settings. Paradoxically, in comparative linguistics, often it is not the apparent similarities that muster the proof of genetic relationships. Formulas of reflected forms in language families may result in words which do not appear to be similar, especially when re-combinations of morphemes redistribute the comparable sounds. Thus, the proof of language connections may not come by compiling word lists with similar forms. The proof it manifested by working out the system of correspondences of languages known to be related, and then tediously teasing out the possible correspondences in languages of more distant relationships. This is what I have been doing during the past five years since my stay in Chile as a Fulbright lecturer and scholar [1].

[1] I express my appreciation to Professor Ambrosio Rabanales, who generously shared his library and his extraordinary knowledge of linguistics and languages of Chile. I gratefully acknowledge the Fulbright-Hays Research and Lectureship in Comparative Linguistics and Indian Languages of Chile, 1975. Members of the Fulbright committee in Chile were helpful at every point, in introducing me to libraries and to scholars of Chile.

Students in my Historical Linguistics, and Indians of the Americas classes used these comparative data in their individual projects. Everyone contributed, but I particularly want to mention the through and careful work of Kim Richardson. Members of the classes also included Gail Cameron, Ruth Cavender, Linda Daetwyler, Gregg Ewing, Jacquie Hoffman, Jeni Howe, Erica Lansdown, Eva Litochleb, Mary Mastren, Eileen Matsumoto, Karel Mundt, Sherry Rathsam, Cyndi Rann Reilly, and Debbie Ross.

I would also like to express my appreciation to Dr. Adalberto Salas, who introduced me to my Mapuche language teacher, Professor Manuel Loncomel C. The interest and subsequent correspondence from both of them encouraged me greatly.

The hypothesis that I set forth here is that the Uto-Aztecan languages have an affinity with the Quechua and Aymara of South America, as well as with the Tacanan, Panoan, and Mosetene of Bolivia and Peru, the Fuegian languages, and with the Mapuche (= Mapudungu) of Chile.

In order to understand language development it is a useful exercise to imagine the explorations and migrations of our early ancestors. It is an acknowledged axiom that people are constantly reaching out and moving on to new territory and/or to innovative ideas. People have always wanted to see what was beyond the next mountain or beyond the next island. They never seem to be satisfied with staying in one place or using the same artifacts generation after generation. People don't need any more incentive than their own curiosity to urge them on to explore the far horizons of geography or of a state of mind. This is what is behind language change. If we could imagine how, in earlier times, groups of people moved up and down, and across the Americas, we could visualize wave after wave of movement. Those who were on the horizons of oceans and great lakes dared even more adventurous trips as they put out for the unknown. The sailing craft, without modern technology, would have transported them where the winds and currents chose to carry them. The ocean currents of the world are displayed on a map by Heyerdahl, 1964.

People didn't realize how large the oceans were, and when they set out they may have thought that they were reaching out to another island— such as the Galápagos, Madagascar, the Canary Islands, or Easter Island. Many of the little sailing vessels undoubtedly went to the bottom of the ocean, but many of them arrived —on unknown islands— or on other shores where life began another cycle with this new population. Did they meet up with other men and women? Or were they the first arrivals?

When we first look at resemblances between languages, it is not clear whether the similarities result from borrowings of groups that met throughout the centuries of time and across the vast expanses of space, or whether the similarities result from forms that proceeded from a common origin. This is a cliché that linguists no longer need to be reminded of; it has been the basis of discussions during the last century. We know too, that when borrowings are maintained for a very long time, they can assume the characteristics of "natives" and subsequently take on the sound changes of the native phoneme .

At the present time, or state of investigation into the relationships of very distant connections between North and South America. it is

not clear from what depth or level the various resemblances are reflected. Forms reflected from a proto language exist alongside borrowed forms. It appears that many doublets occur in these languages. We might remind ourselves of the discussions during the last century of "mixed languages". In the matter of Uto-Aztecan and South American languages, are we dealing with mixed languages, Creolized languages, or languages of a common origin? Or are all of these conditions involved, producing layer upon layer of vocabulary, with genetic origins proved by sound correspondences at some points and Creolized aspects occuring at other points?

In a succession of articles published since 1976, I have been seeking to establish the linguistic proof of the connections of the languages mentioned at the beginning of this article. These have been presented from varying points of view –starting from the southernmost languages of the Americas, the Fuegian languages (Key and Clairis 1978). Then I dealt with the Araucanian (= Mapuche = Mapudungu, 1978), treating all the phonemes of Mapuche and their possible correspondences with languages of Bolivia and Perú. The next article (in press, a) dealt with Quechumaran, showing the relationship with the Tacanan and Panoan languages, using the proto forms of the Tacanan (1968). In a recent article (in press, b) I am taking the point of view of Uto-Aztecan and using the phonological systems of the proposed proto system and the actual phonemes of present-day Aztecan languages. In this present study I am adding further observations of the phonological similarities among all of these languages.

The position that I have taken in all of these studies of distant relationships is that it is premature to try to set up proto phonemes. I repeat this, because I believe it is crucial in avoiding mistakes that might be carried into subsequent work, thereby establishing a very weak and shabby foundation for further work. The insistence of setting up proto forms lends itself to wrong guesses before there is complete familiarity with the sound systems of all the languages involved, including the distribution patterns and morphophonemic alternations The wrong guesses at these early stages bring disrepute to the comparative method. To prove genetic relationships, it is enough to identify recurring patterns of phoneme correspondences between the sister (or cousin?) languages. I do not consider that one example of a "correspondence" is sufficient; there must be several words that manifest the same formulas of correspondences. For example, in the Tacanan languages of Bolivia, the alveolar stop is reflected in five different Tacanan languages as: ***t : t : k : t : t***. These co-

rrespondences occur in most of the words of the languages; when they do not occur as expected, I consider the words to be "residue" to be dealt with later. Perhaps there is conditioning that will be discovered with more study, or perhaps the residue comprises borrowings. In any case, the regular, recurring formulas prove genetic relationships, and the proto form is set up after studying the whole system and how all the sounds work in relationship to each other and to the sets in the system (in the Tacanan case above, * *t*, Key 1968).

The following presentation is given in two sections —first dealing with the sound systems as seen from the point of view of Uto-Aztecan. The second section presents examples of metathesis and other transpositions which occur within language families and between the languages. I suggest that metathesis is one of the reasons that genetic relationships among American Indian languages have been obscured for over three hundred years. Another reason is the amount of fluctuation that occurs within one language, particularly the Chama (Tacanan) language of Bolivia. Interestingly enough it is also this language which is the key to discovering regularity in many cases. By fluctuation I mean those varieties of pronunciation (free variation?) that actually occur in natural speech. These include the whole range of phonetic realizations as well as alternation of phonemes tolerated in casual, natural speech. In previous articles I have dealt with the fluctuations and suggested that the variants are reflexes of sister languages in the form of borrowings or retentions of a former state. This information is crucial in recognizing relationships and distinguishing cognates from loanwords.

The examples given in the following two sections are taken from a working file of about 600 selected entries which show resemblances between two or more languages. This working file was compiled from my larger files which contain, in dictionary form, all the material from the major studies of the languages treated here. Complete bibliographies are given in my articles of the past five years. There are many cognates that are transparent; other sets of resemblances are presented as possibilities, to be culled out as more knowledge of the languages is acquired.

Because of the hazards inherent in identifying cognates among distant relationships, I have worked within a very narrow semantic range. Most of the items in my sets have identical meanings.

In addition to the phonological similarities among these languages, there are also many grammatical resemblances. Some of these were included in a paper I presented in 1978, and this aspect will be further developed in time.

Language abbreviations in the examples given in the next two sections are:

S A South American

Uto-Aztecan	UAz
Comanche	Co
Hopi	
Huichol	
Papago	
orthern Paiute	NP
Shoshone	Sh
Southern Paiute	SP
Tarahumara	Tar
Tübatulabal	Tüb

Aztecan	Az
Aztec-Pochutla	AzPo
Aztec-Tetelcingo	AzTet
Aztec-Zacapoaxtla	AzZac
Classical Nahuatl	(= Aztec)
Pipil	

Quechumaran	Q-Ay (includes Quechua and Aymara)
Aymara	Ay
Quechua	
Q-A	Ayacucho, Peru
Q-B	Cochabamba, Bolivia
Q-C	Cuzco, Peru
Q-H	Huarás, Peru
Q-N	Napo del Suno
Q-P	Putumayo, Colombia
Q-Q	Quito, Ecuador
Q-R	Riobamba, Ecuador
Q-S	Santiago del Estero, Argentina
Q-T	Tena, Ecuador.

Tacanan	Tacn
Araona	Ara
Cavineña	Cav
Chama	Chm
Huarayo	Huar
Reyesano	Rey
Tacana	Tac

Panoan	Pan
Amahuaca	Ama
Capanahua	Cap
Cashibo	Cshb
Chacobo	Chac
Chaninahua	Chan
Marinahua	Mar
Mayoruna	May
Shipibo-Conibo	SC
Yaminahua	Yam
Mosetene	Mos
Mapuche	Map (= Mapudungu = Araucanian)
Chon	
Ona	
Selknam	Selk
Tehuelche	Te
Qawasqar	(= Alacaluf)

Discussion of Phonemes

The following charts of phonemes are taken from the studies of Uto-Aztecan. I have compiled these charts from Proto-Aztecan and from Proto-Uto-Aztecan (references given below). This gives a basis on which to build the development of correspondences which I am finding in the South American languages. Some of the reflexes are straightforward; others will take years to define. Particularly troublesome is the sibilant series, but these have not been worked out even within the families, for example Tacanan (Key 1968, pp. 36-37). Shell (1965) notes that there are similar difficulties in Panoan.

In the charts which I have compiled here the asterisk form given first is the Proto-Uto-Aztecan form. I have chosen correspondences from a few individual Uto-Aztecan languages where there are particular phonological developments represented, which also occur in the South American languages. These follow the proto form in succession, such as: * *p p p* etc. When a language shows more than one correspondence, these occur vertically in the same column. Correspondences of the languages are always given in the same order.

Following the charts I offer a few specific comments on the various series with some examples. I have already given many examples in recent articles that treat these relationships, and a full word list will be published as soon as possible (Key, in preparation).

PROTO-UTO-AZTECAN AND REFLEXES

	anche	Hopi	Papago	Tara um ra	Huichol	Aztec
*p	p hp v/b	p v	p w	p b	p h w #	p #
*kw	kw hkw	kw	b	kw w	kw	kw
*ŋ	n hn	ŋ	n	n	n	n

	Comanche	Hopi	Papago	Tarah ma a	Huichol	Azte
*t	t ht r	t	t č	t r	t	t tl
*c	c hc #	c	š s	c	c	c č
*s	s hs h #	s	h	s	š	s
*m	m hm	m	m	m	m	m n
*n	n hn	n	n ñ/ny	n	n	n
*l	n hn	n	d l n y	r	n #	n l
*r	(?)	r	d l	(?)	r	(?)
*w	w #	w l ŋw	g	w #	w h	w #
*y	y #	y	d ž	ʔy #	y	y
*k	k	k q	k	k g [rare]	k	k
*ʔ	ʔ #	ʔ	ʔ	ʔ #	ʔ	#
*h	h	h #	ʔ #	h #	ʔ #	#

UAz	* p	p	p	p	p	p	p
		hp	v	w	b	h	#
		v/b				w	
						#	

UAz * *p* has a reflex *-p-* in medial position and a reflex zero in initial position in the Aztecan Languages. These identical correspondences occur in dozens of examples in the South American languages. 'Caminar (walk, go, come, arrive)' * UAz * *po* (road); * *pit-* (arrive); AzZac *oh-ti* (road); * Q * *puri-;* Ay *puri-* (arrive); * Tacn * *po-ti;* PanSC *na-poC* (go inside); PanAma *wo-;* Map *rïpï.*

UAz * *p* also has reflexes *w* and *h,* as shown above. These occur in South American (SA) languages in possible cognates and also in instances of fluctuation. 'Lodo (mud)' TacnTac *hočo-hočo;* TacnRey *wočo-wočo.* 'Humo (smoke)' AzZac *pook-ti;* TacnTac *hodo;* TacnRey *wondzo;* TacnAra *hodo* ~ *wodo;* Map *pitʳun.* 'Echar (throw)' TacnAra *woya* ~ *hoya.* 'Correr (run)' TacnAra *hododo* ~ *wododo.* 'Soplar (blow)' UAz * * *puca;* UAz * *puhi;* AzZac *-pipiitsa;* TacnCav *hoha-;* TacnTac *ho-;* TacnChm *woha-;* * Q * *phuku-;* Map *piŋún.* 'Frío (cold)' TacnChm *kia-poe* ~ *kia-weʔ* 'Tener (have)' Az * *piya;* PanChac *haya-;* PanMar *aiya.*

A voiced stop *b* occurs as a reflex in a few of the UAz languages. The list above gives Tarahumara as an example. The following examples also show this voiced reflex as a correspondence in the voiced stop of SA languages. 'Cabello (hair)' UAz * *po;* UAzTar *bo* (ʔwé); * Pan * *boo;* PanMay *-bo.* 'Ojo (eye)' UAz * *pusi;* UAzTar *busí;* TacnChm *-bosi* (face). 'Pesado (heavy)' UAz * *pitʲi* UAzTar *bité;* * Tacn * *bike-.*

'Entrar (enter)' UAz * *paki;* UAzTar *bakí;* TacnTac *nobi;* TacnChm *dopikikwi* ~ *dobikikwi;* * Pan * *iʔki-.* Proto Tacanan * *b* corresponds to Quechumaran *p* most of the time, and it may eventually be seen that the Quechumaran aspirated and glottalized series correspond to the other reflexes. Also related (and significant), is the fact that Qawasqar of the Estrecho de Magallanes has two stop series: *p t q* and glottalized *t'* and *q'.* Note that it does *not* have a bilabial glottalized stop.

UAz	*t	t	t	t	t	t	t
		ht		č	r		tl
		r					

UAz * *t* corresponds to *t* in SA and also has sibilant correspondences. Note the *č* in Papago. Note that TacnChm *t* derives from * Tacn * *s.* ProtoTacn has *t* and *č* correspondences in Panoan. Map has fluctuation of *t* ~ *č* in 'esposo (husband)' *ïita* ~ *ïiča.* UAz * *t* co-

rresponds to Map *tʳ*. Map *tʳ* is a retroflexed affricated stop, with an *r*-like sound as in English 'tree'. It shows up metathesized in Q and as an *r* alternating with *l* in Aztec: 'agrio (sour)' Map *kotʳï;* Q-Tena *urti;* Q-Napo del Suno *hurti.* 'Apretar (squeeze)' Map *kïtʳïn;* AzTet *kii-triniia, kii-tiriniia, kii-tiliniia.* Other examples of UAz * *t* are: 'cadera (buttocks, hip, anus)' UAz * *ʔato;* Q *ukuti* (anus); TacnTac *e-moto;* TacnCav *e-tima.* 'Cuello (neck)' UAz * *kuta;* AzZac *-kеč;* Tacn * *-piti;* PanSC *tï-.* 'Nominalizer' AzZac *-ti;* TacnAra *-i;* * Pan * *-ti.*

The stop consonants *t* and *k* are both reflexes of proto * *t* in Tacanan (with Chama *k*). They also fluctuate in the same words in Chama: 'hígado (liver)' Tacn * *e-taka;* TacnChm *e-takwa* ~ *e-kakwa.*

UAz	* k	k	k	k	k	k	k
		hk	q		g		

UAz * *k* corresponds to several velars in SA languages. 'Casa (house)' UAz * *kali;* UAz * *ki;* TacnChm *e'kiʔ;* Mos *akaʔ;* Map *ruka, nïkal;* ChonSelk *ka-wj.* 'Dormir (sleep)' UAz ** *koʧi;* * Pan **ʔošạ—;* Mos *koči.*

UAz * *k* corresponds to * Tacn * *k* which has both *k* and *kw* as reflexes. The conditioning of the Tacn reflexes are parallel to the conditioning of UAz-Hopi *k* and *q* (see above), that is, preceding the vowel /a/. The Quechumaran languages also have two positions, velar and back velar; they are further modified by aspiration and glottalization.

There are two further complications. Note the involvement with *t* as mentioned above, in Chama. The velar *k* is also related to the fricatives *h* and *x* in the Tacanan languages, where * Tacn * *x* has reflexes *k* : *h* : *x* and zero (the latter in undefined circumstances). Within the Quechuan family there are languages that have reflexes of *x* and *h* for * Q * *k* and * *q* and reflexes of *k* and *q* for * Q * *x*. In the Panoan family there are occurrences of *h, k,* and *ʔ* where * Tacn * *x* occurs. The following examples from the Quechumaran languages show a good deal of variation: 'fiebre (fever, malaria)' * Q * *čukču;* Q-B *čuhču;* Ay *čuxču, č'uhč'u;* (Cf. Map *arekutʳan).* Gatear (crawl)' * Q * *lʸuka-;* Q-S *žuqa-;* Q-B *lʸuq'a-;* Q-C *lʸuqʰa-;* Q-A *lʸuxa-;* Q-R *žuka-;* Q-T *lʸuka-.* 'Último (last one)' * Q * *xipa;* Q-S *qipa;* Q-A *xipa;* Q-B *qʰipa;* Q-R *kʰipa;* Ay *qʰipa.*

UAz	* kw	kw	kw	b	kw	kw	kw
		hkw			w		

UAz * *kw* corresponds to *k*, *kw*, back velar *q*, *w*, zero, and glottalized velars. 'Arbol (tree)' UAz * *kwaw-i-;* Ay *qoqa;* * Q *qiro;* * Tacn * *aki;* PanSC *hiwi.* 'Comer (eat)' UAz * *kwa(ʔ)a;* * Q * *qara-;* Tacn-Cav *ara-;* ChonSelk *qàr* (hambre). 'Defecar (defecate, excrement)' UAz ** *kwita;* UAzHopi *kwí:ci(ʷi);* UAzTar *witá;* * Q * *qʔušni;* Q *kiča;* TacnChm *wičača-;* PanCshb *tsií-kwi;* PanChac *koʔíni;* Mos *wesi.*

UAz	*ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	#
		#			#			

UAz * ʔ has not been identified yet with regular correspondences. In the Tacn languages it comes and goes; these must be recorded accurately before progress can be made. There are words in which it occurs optionally, and there are words in which it must occur.

UAz	*c	c	c	š	c	c	c	
		hc		s			č	
		#						

UAz	*s	s	s	h	s	š	s	UAz	*h	h	h	ʔ	h	ʔ	#
		hs					š				#	#	#	#	
		h													
		#													

Sibilants and affricates occur in dozens of examples in the sets of possible cognates, though no clear picture emerges yet. At this stage I believe it is more profitable to compare the UAz sibilant charts given above with proto charts of SA languages.

Proto-Quechua has an affricate and a sibilant series which occur at three points of articulation: alveolar, alveopalatal, and retroflexed. These are also aspirated and glottalized.

* c	* č	* č
* s	* š	* š

Proto-Tacanan also has a complex array of reflexes. The proto form is given here, with reflexes from three Tacanan languages: Cavineña, Tacana, and Chama:

*c	c	c	s		*ć	h	ď	š		*č	č	c	s
												č	č
*s	s	~~d~~	s		*ś	h	s	h		*š	š	š	š
			t	(ʔ)									
			š										

Proto-Panoan has one less phoneme in the sibilant/affricate series:

*c	*č	
*s	*š	*ṣ̌

Note that *t* is a possible reflex of *Tacn *s in TacnChm. Throughout the languages there is a relationship between *t* and the sibilants and fricatives. Throughout the Tacanan and Quechuan languages there is a close relationship among the *s*, *š*, and *h* sounds. These phonemes occur as correspondences between the languages and also occur in fluctuations or variations of pronunciations (Key 1968, 1976, 1979). Note above the *h* reflex from **s* in some of the UAz languages. The following example illustrates the *h*/*s* variation. 'Otro, uno (other, one)' * Q *s̱uk;* Q-S *suh;* Q-B *uh;* Q-C *huh;* Q-A *huk;* Q-R *šuh;* Q-Q *šug*; Q-T *šuk*. In Quechuan, *h* is related to the sibilants *s* and *š* on the one hand, and it is related to velars, *k*, *g*, *q*, *x* on the other hand.

A final comment on the sibilant/affricate sounds. When I was in Chile, one of the young linguists expressed his curiosity about the name of the UAz language, Comanche. He noted that the final *-che* was pronounced exactly as the word for 'gente (people)' in Mapuche: /če/. I dismissed the idea as no more than coincidence, but now it does not seem so far fetched.

UAz *m	m	m	m	m	m	m	
	hm					n	

UAz **m* usually corresponds to *m* in the SA languages. The reflex *n* in the Aztecan languages occurs in final position. A few examples show *n* where *m* is expected, as in 'tragar (swallow)' *Q **mil*ʸ*p'u-*; Q-T *nil*ʸ*pu-*. 'Usted (you)' *Q **qam*; Q-B *qan*; Q-A *xam*; Q-R *kan*; Q-P *kam*. 'Todo (all)' UAz * *moč~~i~~,* AzZac *noči*. Mapuche also has *n* in a few examples where *m* occurs in other languages.

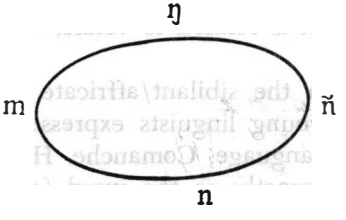
Another possibility of a correspondence with *m is the stop /p/. 'Llevar (carry)' UAz *maama; *Q *apa-; *Tacn *mapa-; PanAma *pə.–; Map padin; ChonSelk *p'à-*.

UAz *n	n	n	n	n	n	n	
	hn	ñ/ny					

UAz *n usually corresponds to *n*. It also corresponds to *ñ*. Note that *Tacn *n has both *n* and *ñ* in its reflexes. Proto-Quechua has three nasals: *m*, *n*, and *ñ*, the latter often preceding *i*. UAz *n* may show up as a nasalized vowel in Panoan: 'ver (see)' UAzCo *púni-*; UAzSh *pui-*; * Tacn * *ba-*; * *Pan* * *ʔoĩ*

UAz *ŋ	n	ŋ	n	n	n	n	
	hn						

UAz *ŋ often corresponds to *n* in the SA languages. It also appears to have a relationship with a nasal which is articulated toward the front of the mouth, for example, *m* or Mapuche fronted *n̼*. Note that Map ŋ very often corresponds to Tacn *m* and Pan *m*. The bilabial and velar nasals may move toward each other with intervening morphophonemic changes or because of phonological "closeness" as illustrated in this sketch (Key 1979).



The Aztec dialect of the Isthmus has been analyzed as having two voiced nasals *m* and *n*, with *m* comprised of two allophones [m] and [ŋ]. The bilabial allophone occurs in word initial and intervocalic positions; the velar allophone occurs in word final position and before velar stops and *w* (Law 1955, p. 269).

Examples are: 'gente (people)' UAz *kuŋa 'esposo (spouse-male)'; Q *yanakona* (servant); PanCap *nókï*; Map *koŋ̼a* (servant); ChonTe *këna*. 'Lengua (tongue)' UAz * *ɬɨŋi*; UAzHuichol *není*; * Tacn * *-ya-*na; *Pan *ana*; Mos *num*; Map *kewïŋ̼*.

UAz *l	n	d	r	n	n	
	hn	n	l	#		
			ny			

UAz *l usually corresponds to l^y in Q; to *ɾ́ in *Tacn; to *r* and *n* in Pan; to *l* and *ll* in Map; and to *l* in the Fuegian languages. In Map *l* fluctuates with *ll* in a few cases: 'máscara (mask)' *kolo*ŋ ~ *kollo*ŋ . Also in Quechua *l* and l^y fluctuate.

Examples are: 'bueno (good)' AzZac *kwali;* *Q *al^yi.* 'Carbón (charcoal)' AzZac *tekol;* *Q *$kʔil^yimša;$* Map *kuyuļ* 'Junco (reed)' AzZac *tooliin;* Q *tutura.* 'Mariposa (butterfly)' AzZac *paapaaloo-t;* *Q *$pil^ypintu;$* PanSC *pïnpïn.*

UAz *w	w	w	g	w	w	w
	#	l		#	h	#
		$ŋ^w$				

UAz *w corresponds to *w*. It is involved with *r* in some ways. Proto Q *r has reflexes *r* and *w* in the Quechuan languages. Semivowels *w* and *y* are reflexes of *Tacn *r and *ɾ́. Examples are: 'cielo (sky)' AzZac *elwiak;* Map *wenu.* 'Decir (say)' UAz *ʔawɨ ~ *ʔawa;* *Q *wil^ya–;* *Tac *a–;* PanMar *yowiwï.* 'Gordo (fat)' UAz *wi–;* UAzHuichol *wi:(yá);* *Q *wira.* 'Maíz (corn)' UAz *saki* (parched corn); *Q *sara;* PanAma *ʂəwō–;* Map *wa;* Mos *tara.*

UAz *r	(?)	r	d	(?)	r	(?)
			l			

UAz *r corresponds to *r* and to zero. Note that zero is a reflex of *Tacn *r and *ɾ́. Tacanan *r has reflex *l* in TacnAra. Panoan has a proto *r, with a *d* in some environments.

UAz *y	y	y	d	ʔy	y	y
	#		ž	#		

UAz *y corresponds to *y* in a few examples. Proto Tacn *y has *y* and *č* reflexes and these correspond to *y* and *č* in Quechumaran. 'Morir (die)' UAzCo *(t$\widehat{ɬ}$)yaai–;* UAzSh *(ti)ye–;* *Q *aya* (corpse); * Tacn * *iye-*. 'Querer (love)' UAzTüb *ya·ʔ-, ʔa·ya* (cherish); Ay *kayu–ña;* Map *ayïn.*

The vowel phonemes show considerable variation even within individual languages of these families. There is vowel harmony and there are other morphophonemic changes. Until these are described adequately in each language, it is useless to try to work out proto sounds. I have observed patterns of correspondences within a phonological space, for example, front vowels, or high vowels, or back

vowels. Vowel fluctuation, for example, exhibits these patterns in Mapuche (Key 1976) and Chama (Key 1968).

A regular correspondence occurs in Aztecan and Pochutla in the reflexes *a* and *e*. This correspondence also occurs in the Chon languages.

Palatalization is a common feature of these languages. Cavineña and Mapuche have a highly developed palatalized order. An interesting example occurs between Aztec and Quechua: 'otro (other, one)' AzZac *oksee;* AzTet *oksie;* *Q **šuk*. Other examples are: 'hambre (hunger)' *Q **yarqa(či)-;* Q-Bolivian *lʸarqa-*. 'Pedir, prestar (ask, beg)' *UAz **tani;* UAzPapago *taanʸ;* *Q **mańa-*.

Metathesis and Re-alignment of Linguistic Elements

Metathesis is a process that occurs infrequently in language change and can be observed in comparative linguistic studies. It is relatively untouched in historical linguistic handbooks. It is the transposition of two elements, which Jespersen described as a situation in which "the order for a sound is issued too early or too late..." (Jespersen 1921 [1964] pp. 280-281). There are problems in identifying metathesis; terminology is not established. The terms "transposition" or "realignment" may better describe a situation. There are also problems in differentiating metathesis from other processes of loss, addition, or assimilation. Undoubtedly some of the following examples will later be analyzed as resulting from other phonological processes. For the moment I am including several types together for convenience in examining the illustrations.

The following examples are from closely related languages within a family. ProtoAztecan **ikpa-;* AztecanPochutla *opket;* note Classical Nahuatl *ikapatl* 'hilo (thread)'. AzZacapoaxtla *tepeet;* AzPipil-Teotepeque *petet;* AzPipil-Cuisnahuat *petet;* AzPipil-Nahuizalco *tepet* 'cerro (hill)'. ProtoQuechuan **ñutqhu;* Quechua-B *ñuhtu;* Quechua-C *ñutqhu, ñusqhu;* Quechua-A *ñutxu;* Quechua-R *ñutku;* Quechua-T *ñuktu* 'sesos (brain)' *Quechuan **mutkhi-;* Quechua-B *muskhi-;* Quechua-C *muskhi-; mutkhi;* Quechua-A *muski-, mutki;* Quechua-H *muski-;* Quechua-R *muthki;* Quechua-Q *muhti-;* Quechua-T *mukti* 'olor (smell)'. *Quechuan **utqha;* Quechua-B *usqhay;* Q echua-C *usqha, utqha;* Quechua-A *utxa-;* Quechua-R *utka, ukta;* Quechua-Q *učha;* Quechua-T *ukta;* Quechua-P *utka* 'rápido (fast)'. Note that a dialect may have both of the metathesized forms.

In the individual languages of this study phonological conditions occur, such as loss of initial consonant, vowel harmony, morphophonemic change in final consonant of the word, and various vowel alternations which have not been fully described. Even within closely related languages there are unexpected occurrences of vowel varition. AzZacapoaxtla *istat;* AzPochutla *ostet* 'sal (salt)'. Tacanan-Cavineña *mare;* TacnTacana *moe;* TacnChama *mai* 'palmera (chonta palm)'. TacnCav *ne(ʔ)i;* TacnTac *nai* 'lluvia (rain)'. Loss of sounds produces new canonical shapes — consonant clusters are formed: TacnCav *šokota;* TacnTac *sokota;* *Quechuan **soqta;* (Cf. AzPochutla *čukose*) 'seis (six)'. *Quechuan **p'ampa;* *Tacn **papa;* 'sepultar (bury)'.

What appears to be vowel metathesis occurs with loss of initial consonant. In most of the cases the initial consonant is a labial. *Quechuan **mira-;* *Tacn *aŕi–* 'grande (large)'. AzZac *nemi;* Mapuche *amu-n* (with vowel variation) 'ir (go)'. AzTetelcingo *öpa;* * Panoan * *paro* 'río (river)'. * Uto-Aztecan * *ʔoŋa;* *Tacn * *bano* 'sal (salt)'. *Panoan **ati . . .;* TacnTac *kitana;* (Cf. *Quechuan **tukuy*); 'todo (all)'. AzZac *wiitsa;* Mosetene *atsi-* 'venir (come)'. Other examples of metathesis will show up as the correspondences are worked out. For example, if the correspondences *m* : *p* prove to be authentic reflexes, then the words for 'dos (two)' would show metathesis between AzZac *oome* and Mapuche *epu*.

Syllable types with vowel clusters (CVV) compare with VCV syllables: Quechua *čailla;* PanYaminahua *ičа-pá* 'bastante (enough)'. * Pan * *šïʔa-;* * Tacn * *iči* 'beber (drink)'. AzZac *wiinti-;* Classical Nahuatl *iwintia* 'borracho (drunk)'.

The most common pattern found is metathesis of syllables: $CV_1CV_2 < > CV_2CV_1$. There are dozens of these examples. *Uto-Az **cipu;* *Tacn **pace;* PanSC *paṣa* (raw); 'amargo (bitter)'. *Q **ñiṫ'i-;* TacnCav *tᵛa'na-* 'apretar (squeeze)'. Q *t'uru;* TacnTac *roto* 'barro (clay)'. *Q **puri-;* Mapuche *rïpï* 'camino (path, walk)'. *UAz * *kumi∼a;* * Q * *mikhu-* 'comer (eat)'. Map *noči;* TacnChama *-šono* 'despacio (slowly)'. *UAZ * *t̶i̶wa;* PanAmahuaca *wəči-* 'encontrar (find)'. AzZac *tomaawa-;* AzTet *tomöwa;* Map *motʳi;* *Pan **ṣïni;* (Note Selknam *otme,* which follows a pattern given below); 'gordo (obese, fat)'. * UAz * *tuʔ-i;* TacnTac *e-hoto* 'harina (flour)'. AzZac *čipaawa;* *Q **p̶i̶ča* 'limpiar (clean)'. *Q **kuta–;* TacnCav *tako* 'moler (grind)'. *Tacn **sewe;* *Pan **wiso* 'negro (black)'. AzTet *-šima;* PanAma *nisa-kĩ* 'raspar (scrape)'. * Q * *(h)uk'uča;* Aymara *ačaku* 'ratón (mouse)'. AzZac *kotoo-n;* Map *tukún;* PanAma *kotõ*: 'ropa,

cotón (blanket worn over shoulders)'. °UAz °*pikki-;* TacnChama *e-kipa* 'sesos (brains)'. °UAz °*yoma;* Map *vemiyo;* Q *yuma-* 'coito (sexual copulation)' Q-Bolivian *č'ulu;* Aymara *lluč'u* (gorra); Tacn-Tac *čolo* 'sombrero (hat)'. °UAz °*muhu;* UAzTüb *ʔu • muʔ-*~*ʔu • nu•ʔ* 'tirar (shoot)'. UAzTarahumara *ʔiʔní;* UAzPapago *nɣ́ ʔì* 'volar (fly)'.

There are many examples of metathesis where a change in canonical shape takes place, with medial consonant clusters occurring: CVCV < > VCCV. There are two patterns of this type, assuming C_1VC_2V: VC_1C_2V and VC_2C_1V. Examples are: AzZac *šiika-l;* AzPo *oškast* 'calabaza (gourd)'. °UAz °°*kasi;* UAz °*ɨkši-;* °Panoan °*kiši* 'pierna (leg)'. UAzSP *kwana-;* TacnTac *tekinai;* °Q °*anka* 'águila (eagle)'. °Az °*toma;* Aymara *antu-* 'aflojar (loosen)'. °UAz °*puli* ~*a;* °°*puuli;* °*ɨlpi-* 'amarrar (tie)'. °UAz °*tosa;* AzZac *istaa-k* (also salt) 'blanco (white)'. °UAz °*saki* (popcorn); UAzPapago *háaki;* TacnCav *ihike-;* °Tacn °*čixe;* Aymara *kosa;* °Q °*išku-;* °Pan °*šiki* 'maíz (corn)'. °Az °*toona-l;* AzPo *tune-l;* °Pan °*nïtï;* °Q °*inti;* Map *antï* 'sol, día (sun, day)'. UAzHuichol *šɨté;* AzZac *i-sti;* °Tacn °*tiči;* PanChacobo *mïcisi* 'uña (fingernail)'.

Further examples with additional canonical shapes are: °Q °*phaska-;* TacnCav *pakaša;* Selknam *àṣke* 'abrir (open)'. °Q °*halɣ-ma;* Map *lumatun* 'arar (plow)'. °UAz °*kawi;* PanChan *karana* [w = r]; Map *wiŋkul;* Q-Bolivia *urqu* 'cerro (hill)'. PanCashibo *ñáši;* °Q *sinč'i;* °QAymara °°*sinť'i* 'fuerte (strong)'. °UAz °*tosa* (blanco); ° UAz °*ɨsta-* (also blanco); ° Pan ° *taši* ° Tacn ° *paśa-* (blanco); Q-L *pistana* 'sal (salt)'. TacnChm *enakwiši;* PanAma *piškã•;* Q *kašu* 'sobaco (armpit)'. Map *puliwén;* Aymara *alwa* 'temprano (early)'. °Pan °*mapoka;* °Q °č'ampa; Map *mapu* 'tierra (earth)'. TacnChm *bakiši;* AzZac *iiškaw-ti* 'garrapata (tick)'.

At this preliminary stage of assembling the examples of these phenomena, all we can say is that there are recurring patterns, and these will be analyzed and described in time. My feeling now is that some of these examples of metathesis are a result of borrowings and reshaping to conform to native patterns and that some of them result from phonological processes.

In summary, this article presents preliminary findings of structural patterns that show regular correspondences between the Uto-Aztecan languages and languages of Chile, Peru, and Bolivia. The recurring patterns of the formulas of correspondences are proof of genetic relationship of languages. These new discoveries of relationships will open up discussions again on problems of substratum and loanwords that occur all over the Americas. Further analysis of

these features could help in determining the status of such loanwords. In recent publications in scholarly journals there has been a surge of interest in Aztecan and Incan languages by linguists from all over the Americas. The future can be a time of cooperation and sharing will contribute to knowledge of universals and general linguistic theory. This would be a suitable tribute to the distinguished scholar, Profesor Ambrosio Rabanales, in whose honor this book of studies is being published.

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The selected list of words from which the examples in this paper are chosen includes about 600 entries that show resemblances. This file was made up from my larger files which contain all the material from the following, and other material, all of which is documented in my Mapuche (= Araucanian) article (Key 1978).

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