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Chapter 25

Contextualizing Proto-languages, Homelands and Distant Genetic Relationship: Some Reflections on the Comparative Method from a Mesoamerican Perspective

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The general argument of this paper is that comparative linguistics, narrowly defined as the practice of the comparative method, has to be combined with theories modelled on other principles or imported from other disciplines if it is to be applied in any interesting way to questions of homelands and migrations. An attempt will be made to characterize as precisely as possible the possible differences between a proto-language and the 'real' language which a proto-language is seen as representing. It is also argued that the logic of the comparative method, when used for devising scenarios for the way that language families split up and subgroups and individual languages disperse, is not necessarily adequate. Finally, some recent proposals concerning long-distance relationships involving Mesoamerican languages are discussed. Again it will be argued that we need to refer to theories external to that of the comparative method in order to evaluate or explain the results of its application to cases of possible long-distance relations.

The nature of proto-languages

Before using reconstructions produced by means of the comparative method as representations of an early language state for the purpose of archaeological or other external correlations, it is wise to consider the nature of such reconstructions as compared with the real-life languages that they are taken to represent. In the following I shall refer to the 'real-life' early language as 'eLg' (for 'early language'). The more conventional abbreviation 'pLg' stands for 'proto-language' in the strict sense of the construct resulting from the application of the comparative method. In this paper I shall stress that the pLg is

both impoverished and partly anachronistic in comparison with the eLg. It is impoverished because it must exclude items that are either innovated or retained by just one dialect, as well as items that were carried through to the eLg but did not make it to any descendants. It is anachronistic because it collapses potentially very old items that may have been innovated any time in prehistory, items that were innovated during the time of the eLg, and some items that were innovated even after the eLg stage.

Given the great success of the comparative method and the absence of a better method of reconstruction we are usually content to think about proto-languages as fairly good approximations of real languages. We are perhaps not inclined to see discontinued trajectories, insufficient attestation and late diffusion as factors that seriously threaten the adequacy of the proto-language as an image of the real language. It would be nice, however, to gain a more precise impression of the sorts of differences one might expect between a reconstructed pLg and the eLg that it is supposed to represent. Such a comparison offers itself in the case of the Ch'olan subgroup of the Mayan languages. Ch'olan speakers were the foremost group responsible for maintaining the writing system with the longest history among the writing systems of the Americas: Maya writing. Comparison of the attested hieroglyphic language and Proto-Ch'olan, as reconstructed bottom-up, will allow us to flesh out the general observations made above.

While the language which had emerged by the end of the 1990s from the decipherment of the ancient Mayan script looked like a mildly impoverished version of Proto-Ch'olan, the proto-language ancestral to an important group of Lowland Mayan

languages (reconstructed, in part, by Kaufman & Norman 1984), things have taken a drastic new turn since 1998. New discoveries have resulted in a reversal, such that the hieroglyphic language now presents a richer picture than the proto-language, not only in terms of grammar and lexicon, but also in phonological contrasts. The inventory of known affixes has increased to around 80 (Wichmann forthcoming a, ch. 5). By a conservative count, the lexical inventory has swollen to about the same size as the one reconstructed for Proto-Ch'olan by Kaufman & Norman (1984), but is by no means identical and is in reality greater, considering all the items that have yet to be identified. With the discovery (Grube forthcoming) that the writing system not only distinguished velar and glottal fricatives, which had already been reconstructed for Proto-Ch'olan (Kaufman & Norman 1984) and were expected (e.g. Justeson 1989) to be distinguished in the writing system, but also vowel length (Houston *et al.* 1998) and glottal stops (Lacadena & Wichmann forthcoming b), the phonological system of the written language has grown richer than reconstructed Proto-Ch'olan.

At the same time, a more refined picture of the language distribution in the so-called Classic Maya period (the time of the monumental inscriptions, c. AD 250–900) has emerged which shows that we have full texts in two different languages; Yucatecan in the far central and northeast regions of Yucatan, and Ch'olan in the rest of the lowlands (Lacadena & Wichmann 2002; forthcoming a; Lacadena 2000). Within the Ch'olan area there are dialect differences and a dynamic situation of diffusion, and on its western fringe we can identify substrate features of Tzeltalan (Lacadena & Wichman forthcoming a). There are reasons to believe that all four of the Ch'olan languages that we recognize today had begun to crystallize by the Classic period. In earlier studies (Robertson 1992; 1998), it was assumed that the Ch'olti' language, which is only known through descriptions dating to the end of the seventeenth century, was a forerunner of modern Ch'orti', but it now appears (Wichmann 2002) that the two, rather than standing in a mother–daughter relationship, are related as aunts and nieces, descending from sisters that had already begun to emerge as distinct from one another during the last part of the Classic period.

Thus, the linguistic epigraphy of the Maya script is at a critical juncture where epigraphically identified lexical, grammatical or phonological data are not necessarily expected to match Proto-Ch'olan re-

constructions, but may go beyond, matching Proto-Mayan reconstructions that are not licensed for bottom-up reconstructed Proto-Ch'olan by data in the alphabetically-attested Ch'olan languages. The very notion of 'Proto-Ch'olan' is beginning to lose sense since its impoverished and anachronistic nature is becoming more and more apparent. As the language of the hieroglyphic Ch'olan inscriptions reveals an increasingly greater part of its nature and the grip on the decipherment becomes steadily stronger, this language must begin to count as a set of data in its own right. Even Proto-Mayan may in some respects not provide verification of linguistic interpretations of the Maya script since there could easily be features of hieroglyphic Ch'olan that are only attested in this language, but nevertheless have Proto-Mayan ancestry, which, given the uniqueness of attestation, would be undetectable.

A comparison of Proto-Ch'olan and hieroglyphic Ch'olan will reveal exactly the sorts of differences that we expect to exist between a proto-language (pLg) and the early language (eLg) that the pLg is supposed to represent. Let us summarize in tabular form some of the differences that separate all pLgs and eLgs and then exemplify these differences by reference to the Ch'olan case.

pLg	eLg
1 Is essentially unitary (although in some cases a few dialect differences, tuzzily defined geographically, may be detected).	Has a number of dialect differences with specific geographic distributions.
2 Includes some late diffused items as belonging to the entire entity.	Diffused items will appear as such.
3 Excludes discontinued items.	Includes discontinued items.
4 Excludes features attested in one branch only.	Includes features only attested in one branch if they are attested, even if only dialectally, at the given stage of the eLg.
5 Is placed in space within a relatively confined 'homeland', normally defined as corresponding to a particular ecological or otherwise geographically-defined region.	May be spoken across different ecological zones, like any language.

Each of the five differences listed can be exemplified by findings from recent epigraphic research:

1. Hieroglyphic Ch'olan has dialect differences. These begin to be attested around AD 400. From around 700, features from the western dialect be-

gin to spread to the eastern vernacular zone. The attested differences are slight, relating to a single derivational affix, some lexical items, and the phonological area of vowel length, but may in reality have been greater. It is not certain to what degree the writing system covers up differences under norms deriving from one or more high Ch'olan variant(s). Some epigraphers (Houston *et al.* 2000) have gone so far as to claim that one language of special prestige, namely a direct ancestor of modern Ch'orti', is identifiable as *the* language of the Mayan hieroglyphic inscriptions and that all variation in the script must be interpreted as stemming from vernacular substrates. Even if it is too early to say whether this model is acceptable in its entirety, it is certainly the case that no writing system has ever been found to increase the degree of linguistic differentiation. If there are any effects from writing on language at all they will always pull in the opposite direction of greater uniformity. So the fact that we are looking at the eLg (in this case eCh'olan) through the writing system should alert us that the variation found is only a fraction of the vernacular variation.

2. An example of a late diffused item that has been reconstructed for Proto-Ch'olan is the suffix ^{*}-*wan*, whose function has been reconstructed as marking the completive of the class of intransitive verbs known in Mayan linguistics as positionals (Kaufman & Norman 1984, 106–7). Hruby & Child (forthcoming) point out that this suffix first appears in the Western Maya lowlands around the middle of the seventh century and later spreads to sites in the eastern lowlands, following the same direction of spread as several other dialectal features identified by Lacadena & Wichmann (2002).
3. Items that are discontinued in Proto-Ch'olan but found to recur in Hieroglyphic Ch'olan are among the most interesting finds of recent epigraphy. The first item of this kind is actually not so recent, but it has taken time to become widely accepted. This is the vowel-harmonic *-V?w* affix that serves to indicate the declarative status of the class of transitive verbs that have the structure consonant-vowel-consonant (CVC). This suffix was recognized by Bricker (1986, 126), who identified it as 'some kind of transitive suffix' that goes with 'root transitive verbs' (roughly the same as CVC transitives), and related it to Tojolab'al *-V(w)*, a transitive verbal marker. For the first time a grammatical marker had to be reconstructed for Proto-Ch'olan from evidence

attested for Ch'olan only in the script, supported by non-Ch'olan evidence. More recent examples are two markers for the absolutive status of different classes of nouns, *-ax* (Houston *et al.* 2001, 43) and *-is* (Zender forthcoming). The first of these appears in Q'anjob'alan, Mamean and K'iche'an languages but not in Ch'olan, apart from the script. The second shows up only in the script and in the Poqom languages Poqomam and Poqomchi' within the K'iche'an subgroup.

As for phonology, a contrast between velar and glottal fricatives was consistently recorded in the script (Grube forthcoming). Without the inscriptions it would not be fully reconstructible for Proto-Ch'olan without drawing upon evidence from Mayan languages beyond the Ch'olan group. Similarly, vowel length was recorded in the script (Houston *et al.* 1998), a distinction no longer reconstructible for Proto-Ch'olan except for the /a:/a/ contrast, which is reflected as two different qualities in the Western Ch'olan languages. Finally, there are a number of lexical items that show a certain syllable nucleus type involving a glottal stop both in the script as well as in some non-Ch'olan languages, but not in the modern Ch'olan languages where this complex nucleus type is reduced to a plain, short vowel (Lacadena & Wichmann forthcoming b). It is interesting that the losses of the /h:/x/ contrast, vowel length and the glottal stop in the afore-mentioned syllable nucleus type all begin to get recorded in the script at roughly the same time, around the beginning of the eighth century AD. At this time the Maya collapse, although it was to begin only one to two centuries later, had not yet set in and literacy was still vigorous, so it is more natural to explain the changes attested in the script as real language changes than as the results of decreased literacy or the breakdown of orthographic norms.

In sum, Hieroglyphic Ch'olan records a significant number of features that cannot be reconstructed for Proto-Ch'olan. The current tendency is for an ever-increasing number of such features to be identified. With each year, Proto-Ch'olan as reconstructed from the alphabetically-recorded languages and as a model of a real language spoken by real people, becomes increasingly less meaningful.

4. As an example of a feature which cannot be reconstructed bottom-up for Ch'olan because it is only attested in one branch we may cite the (vowel-harmonic) transitivizer of positional verbs *-b'u/-b'a*. Today this suffix occurs in the Eastern

branch only, but the script shows it to have been in use throughout the Ch'olan area. We might reconstruct it for Proto-Ch'olan using evidence from the Tzeltalan subgroup, but the point here is to see what Proto-Ch'olan would look like if we did not have any cognate languages outside the group, i.e. as a picture of a reconstructed ancestor to an entire family, and then compare it to the real language of the inscriptions.

5. The methodology of homeland identification invites one to search out confined geographical (often ecologically defined) regions as candidates. When mapped on to space, the idea of a family tree splitting up brings with it the image of an ever-expanding zone occupied by members of the language family and, conversely, the image of an area which is ever-more refined as one goes back in time to the proto-language. A major problem with this type of logic is that the speakers of some of the most widespread and well understood language families in terms of their historical development were farmers (Bellwood 1994; 1997; 2001). Since farming is expected to produce a demographic boom with concomitant geographical spread of the population, many proto-languages would also be expected to be spoken in larger regions. The observation of Bellwood that some of the best-established language families correlate with farming dispersal leads to the possible hypothesis that subsistence patterns license family tree structures that make possible detailed reconstructions of most areas within the proto-language. If this hypothesis is correct, the same conditions that produce the possibility for us to reconstruct a proto-language also produce a pattern of settlement over large areas, which is at variance with the traditional conception of a narrowly defined homeland. The pLg, then, is not even a tolerable approximation of the eLg in what concerns geographical correlates, it is rather its reverse. The more refined the proto-language, the more widespread the eLg must have been geographically and the more dialect variation we must posit for the eLg.

The hypothesis that an eLg may have been more widespread than the idea of a proto-language would have led us to assume is again borne out by the comparison of Proto-Ch'olan and the eLg represented by the Ch'olan hieroglyphic inscriptions. Whereas the former should theoretically have been spoken in a quite restricted area, the latter spread out across a large part of southern Mesoamerica, occupying the southern part of

the Yucatan peninsula as well as a large area to the south of it.

The question of homelands: some Mesoamerican examples

In the above I have sought to argue that a pLg should be used as a model of an eLg only with extreme caution. In terms of structure the pLg is inevitably an impoverished and anachronistic model of the eLg, and in terms of mapping on to space the eLg is more likely to be the reverse of a pLg. The eLg will tend to have a rather indefinite extension, whereas a pLg will tend to be viewed almost as a point in space. Two studies concerning homelands by Terrence Kaufman exemplify different takes on the problem. In an early attempt to pinpoint the homeland of Proto-Mayan, Kaufman (1976) presents various 'working principles' of his approach, specifically designed to suit the Mayan case. One of them is a 'least moves' principle, i.e. a model that requires a minimum of dislocation with respect to the current location of the Mayan languages. Another working principle is the following:

Proto-Mayan has terms for both highland and lowland flora and fauna. In this area, lowland people are ignorant of highland products, but highland people are aware of lowland products. Therefore, the Proto-Mayan homeland was in a highland not far from the lowlands. (Kaufman 1976, 104)

It appears that Kaufman was working from the assumption that Proto-Mayan could not have been spoken over more than one ecological zone. Without this assumption, the conclusion would simply be that the Proto-Mayans were located both in the highlands and the lowlands. Instead, Kaufman goes on to envisage a highland location close to lowlands and near rivers flowing north, east, and west, which, when followed the easiest way, i.e. downstream, would facilitate the dispersal of the Proto-Mayans and suggests one particular homeland area (the Soloma area).

This sort of approach is very similar to comparative linguistics itself. 'Least moves' resembles parsimony in the explanation of linguistic developments. The least effort assumption motivating the placement of the Proto-Mayan upstream and having them move downstream as they disperse resembles the assumption of directionality in phonological changes (e.g. lenition, assimilation, etc.). The single location resembles linguistic reconstruction, for instance of proto-phonemes that will later mutate or even split up. There is an important difference be-

tween a proto-language and a homeland, however, namely that the former is a model accounting for descendant phenomena and not a real entity in its own right, whereas a homeland is something assumed to be real.

In another work, written about a decade later, Kaufman (n.d.) looks at another of the large Mesoamerican language families, namely Oto-Manguean, again setting out to determine the homeland. This time the proposal, although presented in a less optimistic tone, is realistic and probably closer to the truth. Kaufman sees no reason for locating the Proto-Oto-Mangueans in any particular narrowly defined area and simply projects a large part of the area occupied today by Oto-Manguean languages back in time:

the maximum extent of the pOM might have been as follows: the Valley of Mexico, the Valley of Morelos, the Balsas Basin, the Valley of Puebla, the Tehuacán Valley, the Valley of Oaxaca, and the Mixteca Alta. The Tehuacán Tradition, an archaeological horizon that extends from 5000 to 2300 BC, brackets the probable time period for the break-up of pOM (c. 4000–4500 BC). The Tehuacán Tradition has a geographical spread that includes all of the above regions, as well as the Chinantla, the Valley of Querétaro, and the Pachuca-Mezquital Valley. Locating the pOM homeland within this area seem[s] unavoidable. *We may doubt whether a single protolanguage could have been spoken over such a large area*, but associating the pOM homeland with a specific subarea within the distribution of the Tehuacán Tradition is not at the moment feasible. The Tehuacán Tradition occupies a highland habitat. (Kaufman n.d.; my emphasis)

The speakers of the Mayan and Oto-Manguean languages are farmers and evidence, as long as we can trace it, points to considerable populations of the speakers of both language families. For both, I would assume that the eLgs were quite widespread, having distributions not radically different from those of the current families.

In conclusion, we should not assume that the logic of making linguistic reconstruction applies equally well when we are dealing with the spatial distribution of the languages that we reconstruct. The criticism I have voiced against mapping the root node of a family tree on to a narrow region in space also applies to the translation of nodes of the tree into migration in space. If we allow ourselves to envisage a proto-language as being extended over a large area we do not necessarily in all cases need migrations to account for the development of branches further down the tree. Demographic conti-

nunity may easily combine with increased linguistic differentiation. In other words, the forefathers of the speakers of different related languages may well have been in the same areas as their descendants even if the languages of the descendants have become differentiated from the language of the forefathers. It is difficult to refrain from projecting latter-day differentiation back into the past, but doing so leads to the absurdity of a linguistic map of the World's languages of some 5000–8000 years ago where the forefathers of today's major language families were just points in space.

New perspectives on some recently proposed long-distance relationships involving Mesoamerican languages

In recent work Jane Hill (2001; this volume) has followed a suggestion by Peter Bellwood (1994; 1997) and argued that speakers of the Uto-Aztecan languages were emigrants from Mesoamerica who moved north as a result of population expansion in the wake of the development of agriculture. I prefer to remain agnostic about this theory since it rests largely on the probability of the general language-agriculture expansion theory in general and has very little hard linguistic evidence to support it (Campbell this volume). Nevertheless, I will here give it the benefit of the doubt and try to look at how the hypothesis of the Uto-Aztecan expansion from the south, as well as the language-farming hypothesis in general, fit into a larger view of Mesoamerican languages.

In a paper written and circulated in 1993 and published in a working paper series (Wichmann 1999) I propose that Uto-Aztecan (UA) is related to Mixe-Zoquean (MZ), a language family whose speakers reside in the heart of Mesoamerica. The proposal is based on 80 comparisons of proto-forms from the two language families, including 11 grammatical markers (8 affixes and 3 particles). Although today I would throw out some of the comparisons altogether, I still believe that the evidence is quite good. In the following, I cite the most convincing comparisons without attempting to reconstruct the forms ancestral to the two proto-languages (this is done in the original article). A number of correspondences that involve changes in one of the proto-languages are demonstrated: an *a : *o correspondence (1–3), an *ng : *w correspondence (4–6), loss of initial *p in MZ (3, 7–11), an *s : *tz correspondence (12–13), loss of medial *s in MZ (14–16) and subsequent change of *i, if present, to a glide (14–15), loss of final *k in UA

(18–21) (in the practical orthography used 'ä' represents a high, central vowel, 'ng' a velar nasal, and 'tz' an unvoiced alveolar affricate; 'X' is a symbol for an indeterminate element and 'V' for an indeterminate vowel). Some of the similarities may be due to chance, but chance can hardly explain all of them, given that the lists of reconstructed forms from which the comparisons are drawn are quite limited.

The Uto-Aztecan reconstructions are from a number of authors, but mostly Kaufman (1981), and the Mixe-Zoquean ones are from Wichmann (1995). In most cases the reconstructions go back to the deepest level of either language family, although some of them pertain to intermediate stages.

UA	MZ
(1) *ʔahyü 'good'	*ʔoya 'good'
(2) *naʔa/i 'to burn, kindle'	*noʔ 'to light, set fire to'
(3) *paakaa 'reed'	*ʔook(wiʔn) 'reed'
(4) *nga.. 'to cry'	*wanʔ 'to sing; want'
(5) *ngo.. 'to bend back'	*woy 'to roll'
(6) *ngaa 'root'	*wa-tzi 'root-diminutive'
(7) *paa-tzi 'elder brother-dim.'	*ʔahtzi 'elder brother'
(8) *po(o)tzi 'navel'	*ʔotz-i 'folded or rolled'
(9) *(p)äwi 'to sleep'	*ʔaw 'to sing; sleep'
(10) *punku 'dog'	*ʔuku 'agouti' or 'dog'
(11) *pala 'leaf'	*ʔay 'leaf'
(12) *sik 'to cut'	*tzik 'to cut, harvest, peel'
(13) *suma 'to tie'	*tzun 'to tie'
(14) *ku(X)si 'wood'	*kuy 'tree'
(15) *nasii 'ashes'	*nuyi 'wax'
(16) *k*äsä 'to take, catch'	*küiʔ 'hand, arm'
(17) *nihyä 'to name, call'	*näyä 'name'
(18) *kupa 'forehead'	*ko-pak 'head'
(19) *kutaä 'neck'	*ko- 'pertaining to head', *tak(us) 'walking stick'
(20) *maana 'female child'	manäk 'son, daughter'
(21) *tongoo 'knee'	*tongko 'heel'
(22) *wiku 'to whistle'	*wiikʔ 'to whistle'
(23) *ʔalpä '(grand)father'	*ʔapu 'grandfather'
(24) *ʔaawV 'to tell'	*ʔaw 'mouth'
(25) *näätza 'moon'	*maatzaʔ 'star'
(26) *ya 'die'	*yah 'end'
(27) *soho 'cottonwood'	*soho 'oak'
(28) *toʔka 'spider'	*toʔk 'to spread out on the ground'
(29) *wohi 'to bark, yell, howl'	*woh 'to bark'
(30) *hää 'yes'	*hää 'yes'
(31) *ka 'negative'	*kaah 'no'
(32) *sivi 'now, today'	*säaw 'day, sun'
(33) *hota 'to dig'	*hot 'to dig a hole'
(34) *makoi '10'	*ma(h)k(V)y '10'
(35) *koomV 'pitcher, jug, pot'	*kom 'to put in'
(36) *soon 'many'	*sone 'much, many'
(37) *suyi- 'sting'	*suy 'sew, fish with hook'
(38) *huuki 'bunchgrass'	*huk 'to tie together'
(39) *-i 'nominalizer (result)'	*-i 'nominalizer (product)'

(40) *naa- 'reciprocal'	*nay- 'reciprocal'
(41) *pää 'distributive'	*-päʔ 'distributive'
(42) *-mä 'plural'	*ta-n 'plural'
(43) *-tzi 'diminutive'	*-tzi 'diminutive'

The proposal is presented as an alternative to the better-known Macro-Mayan hypothesis, according to which the Mesoamerican families Mixe-Zoquean, Mayan and Totonacan are related (some scholars also include Huave, but data in support of this suggestion have never been presented, so it is of little interest). For proposals of Macro-Mayan that present actual — though in all cases scanty — data in support, see Radin (1924), Swadesh (1954), Kaufman (1964, paper not seen by the present author), Brown & Witkowski (1979), and Greenberg (1987). For disagreements with the hypothesis see Wonderly (1953) and Hamp (1979). Lyle Campbell and Terrence Kaufman (most recently Campbell 1997, 323–4, Kaufman & Golla 2000) have both, for around a quarter of a century, voiced the opinion that the hypothesis is shaky but worthy of investigation, but neither of them have ever made any larger attempts to either dismantle or support it. I have always been sceptical about the Macro-Mayan hypothesis (Wichmann 1994a, 243) and more recently, as I have begun to work more intensely on comparative Mayan, I have not come across good evidence for it.

Kaufman (in press) has made a good case for a relation between Oto-Manguean and Hokan (where Hokan is said to include Pomoan, Chimariko, Yana-Yahi, Karok, Shastan, Achumawi-Atsugewi, Washo, Salinan, Yuman, Seri, Tequistlatec, Jicaque, and perhaps some other languages that are poorly documented). Kaufman's evidence is also based on the comparison of reconstructed forms and he provides 115 such comparisons, including 23 grammatical markers (13 affixes or clitics and 10 particles). There are thus more comparisons than in my Uto-Aztecan-Mixe-Zoquean proposal and the number of good semantic matches is greater. On the other hand, in Kaufman's comparisons no systematic correspondences of non-identical segments are demonstrated and the items compared are in many cases short (CV), yielding a greater possibility of chance resemblance. Finally, Kaufman does not cite his Hokan data, but only reconstructions (introduced by '#' instead of '**', probably to indicate that they are not fully worked out reconstructions). Thus, the weights of the two proposals could be roughly equal. It is likely that they are both good examples of the limits of what the comparative method has to offer in terms of establishing long-distance relationship.

The geographical separation of Oto-Manguean and Hokan is similar to that of Mixe-Zoquean and Uto-Aztecan. One may wonder how the two cases relate to the language-farming dispersal hypothesis. Since both Oto-Manguean and Hokan have a great time depth, as evidenced by a high degree of diversity in the descendant languages, comparable to that of Indo-European, it is unlikely that the expansion of their common ancestor could be late enough to be related to farming. Presumably, the geographical link between the two families is the Pacific coast, since speakers of several of the California Hokan languages have a coastal adaptation. It is not easy to determine which way the migration would have gone, but if we follow the lead of Blust (1991b), Fortescue (1997), and Ross (1991) (all cited in Bellwood 2001, 185) we may perhaps wage a hypothesis. The authors mentioned agree on the observation that the languages of migrants tend to more rapidly undergo linguistic changes than the languages of those who stay home. Now, in the case of Hokan–Oto-Manguean, Kaufman argues that Oto-Manguean has undergone a greater number of changes. Applying the standard theory of tonogenesis he mentions the possibility that tones in Oto-Manguean developed from the loss of morpheme-final consonants. Additionally, Kaufman notes that the VO word order in Oto-Manguean could have developed from the OV type word order found in Hokan. He argues that 'VO syntax is an areal trait in Mesoamerica, and while universal and perhaps original in OM, is probably not original in the common ancestor of OM and Hokan' (Kaufman in press). In support of Kaufman's assumption that OV is the older order is the highly unusual typological combination in Tlapanec, one of the Oto-Manguean languages, of a reference-tracking system related to switch-reference and VSO word order (Wichmann 1994b) (a similar system may exist in other Oto-Manguean languages as well, but this has so far not been documented). Switch-reference, which is a common phenomenon among Hokan languages and many other languages of North America, is almost universally associated with a verb-final word order so we must explain the Tlapanec phenomenon as a change prompted by a change from verb-final to verb-initial word order. This would seem to suggest that Oto-Manguean underwent a change under the influence of other Mesoamerican languages, perhaps as a result of an entrance into Mesoamerica.

On the other hand, it is difficult to tell what a Mesoamerican linguistic area might have looked like at the time of Proto-Oto-Manguean, Oto-Manguean being the largest and oldest family in the area. In-

deed, it probably does not make sense to talk about such an area at all at the time concerned. Brown (1996) makes a good case that some of the features argued by Campbell *et al.* (1986) to define the Mesoamerican linguistic area may be due to a very late influence, mainly from Nahuatl of the Aztec empire, i.e. several thousand years after a possible Oto-Manguean immigration. Thus, the linguistic evidence cannot determine whether the Oto-Manguean–Hokan ancestor came from Mesoamerica or from some place, say, in or around present-day California, although it does perhaps weigh in favour of the latter view. It is not impossible that the language-farming dispersal hypothesis might explain the expansion of Oto-Manguean within Mesoamerica, but before this expansion we might perhaps imagine that speakers of a branch of Hokan–Oto-Manguean, for whatever other reason, migrated to the south, perhaps along the Pacific coast. A similar migration much later took speakers of Tequistlatec, a Hokan language, to southern Mexico where, today, they are surrounded by speakers of Oto-Manguean languages.

The time depths of both Uto-Aztecan and Mixe-Zoquean are shallower than those of Hokan and Oto-Manguean, so their presumed ancestor would also be younger than the presumed Hokan–Oto-Manguean ancestor. It is not clear at all whether the invention of agriculture could be simultaneous with a common Uto-Aztecan–Mixe-Zoquean expansion. But perhaps it might explain the case of Uto-Aztecan. The family's current distribution represents an enormous area, and if we consider the possibility that some of the extinguished languages of northern Mexico were Uto-Aztecan, the prehistoric territory would have been even vaster. If there ever were a continuity between Hokan and Oto-Manguean, the Uto-Aztecan would have encroached upon the area that today separate Hokan and Oto-Manguean. On the other hand, if there ever were geographical continuity between Uto-Aztecan and Mixe-Zoquean, this could have been broken by the Oto-Manguean expansion. Mixe-Zoquean is not very expansive, but this fact is not difficult to explain, since the Proto-Mixe-Zoqueans would have been surrounded by other sedentary peoples, mostly notably the Mayans to the east and the Oto-Mangueans to the west, who would all have taken up farming at roughly the same time as the Proto-Mixe-Zoqueans.

To sum up, we may imagine a picture of thousands of years of initial migrations by Palaeoindians and their descendants followed by the maximal expansion of groups who took up farming. Within Mesoamerica, different groups would have taken up

farming at roughly the same time, in most cases reducing the possibilities of particular groups to expand at the expense of others. To the north of Mesoamerica, however, there would be space to invade which was not already occupied by farmers.

Conclusion

It is clear that the comparative method, while a back-bone of any serious attempt to device language histories at shallower levels and even still useful for first-order distant relationships (i.e. demonstrating relationship between well-established language families but not beyond that), is not in itself a sufficient tool when it comes to correlating linguistic history with space, time, and archaeologically defined horizons. Proto-languages are impoverished and anachronistic, homeland hypotheses generated by a logic similar to that of the comparative method may be inaccurate if not sometimes misleading, and in the case of long-distance comparison the comparative method often can not tell us which way the migration went. Thus, models of human interaction, dispersal, etc. from other disciplines should be fused with the results of the application of the comparative method if we are to arrive at firm and interesting hypotheses concerning human prehistory. As a case study we have been looking at the major language families in and to the immediate north of Mesoamerica. It seems that the language-farming hypothesis could help explain the current distributions of these language families. To be sure, there is no currently available alternative theory that explains them better.

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