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Der Aufsatz illustriert die Wichtigkeit der silbischen Organisation in der phonologischen Entwicklung und den Wert von 'drift' als einen Faktor in der Sprachgeschichte. Zu einem früheren Zeitpunkt waren im Hausa Silben der CVC-Struktur im Wortinnern, wobei das zweite C zur Coda gehörte, weit verbreitet. Als Ergebnis gut bekannter Lautgesetze unterlagen viele dieser endsilbigen Konsonanten einer Abschwächung, z.B. **k* > *w*, **t* > *ĩ*, **r* > *y*, **m* > *N* (ein homorganer Nasal). Später lösten sich die vordem endsilbigen Konsonanten von der Coda und schlossen sich dem Nukleus an. So bewegten sich beispielsweise /y/- und /w/-Codas in den Nukleus um echte /ai/- und /au/-Diphthonge zu bilden. Der gleiche Prozess produzierte ebenfalls */ui/- und */iu/-Diphthonge, die sich danach zu /ii/ bzw. /uu/ vereinfachten. Dieser 'drift' in den Nukleus ergriff ebenfalls nasale Konsonanten, so daß CVn-Silben oftmals dem Muster der Silben folgen, die einen Diphthong oder einen langen Vokal enthalten, anstelle dem der CVC-Silbenstruktur. Es werden hier Daten aus vier Bereichen des Hausa gezeigt, die diese Bewegung von der Coda in den Nukleus illustrieren: 1) Diphthongisierung und Monophthongisierung als Folge einer Konsonantenabschwächung (Lenition) in der Coda; 2) Suffixierung des Bindegliedes; (3) Pluralbildung und (4) Bildung von Ausdrücken der Verachtung. In allen Fällen weist der Wandel eine allgemeine Tendenz im Hausa auf, die sich nicht nur mehrere Male in der Vergangenheit zeigte, sondern allen Anschein hat, auch noch in der Gegenwart zu wirken.

TONE LANGUAGE TYPE CHANGE IN AFRICA AND ASIA
!XŪ, GOKANA, AND MPI*

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1. *Tone language types and type change*

This paper presents a historical perspective on problems posed by three unusual tone languages for a tone language typology the author is currently developing (Ratliff 1990, 1991, 1992). The project has so far involved the study of forty tone languages from Africa, Asia, and Mesoamerica.¹ Two tone language types have been discerned on the basis of the morphological and phonological features listed below:

TYPE A	TYPE B
I. TONE FUNCTION	
lexical and minor morphological use of tone	all type A functions and the following major morphological use of tone
1) lexical tone	
2) emotional; attitudinal tone	
3) expressive (ideophonic) tone patterns	7) tonal derivation

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¹ The forty languages were selected with attention to (1) even representation of tone language families, and (2) even representation of geographical areas as constrained by (3) the availability of thorough, reliable descriptions. Both the corpus and the classification are open to addition and revision.

Type A (14): Amoy Hokkien, Biao Min, Bouyei, Cantonese, Hakka, Shimen Hmong, White Hmong, Huihui, Bwe Karen, Mandarin, Thai, Vietnamese. MPI and !Xū have become type A languages.

Type A > Type B (2): Shanghai, Tang Xi

Type B (23): Amuzgo, Burmese, Chin, Chinantec, Dinka, Grebo, Gwandara, Hausa, Huave, Kanuri, Kikuyu, Kpelle, Kxoe, Mazatec, Mende, Nubian, Otomi, Pakot, Somali, Trique, Turkana, Yoruba, Zapotec

Type B > Type A (1): Gokana

- 4) meaningful tone patterns in reduplicative phrases
- 5) compound formation by tone alteration
- 6) minor (closed) word classes marked by tone

II. SEGMENTAL MORPHOLOGY

little to no segmental morphology

III. ROOT SYLLABLE STRUCTURE

predominantly monosyllabic roots

IV. SEGMENTAL CONTRASTS AND PHONOTACTICS

of possible syllables as determined by non-tonal contrasts comparatively low

V. NUMBER OF TONES

number of tones 3 or more

VI. TONE SANDHI

none or predominantly replacement (paradigmatic)

- 8) tonal inflection

- 9) major (open) word classes characterized by different tone inventories or alternation patterns

derivational and inflectional segmental morphology (either affixal or vowel/ consonant gradation)

polysyllabic roots (or predominantly monosyllabic roots if a stem-altering language)

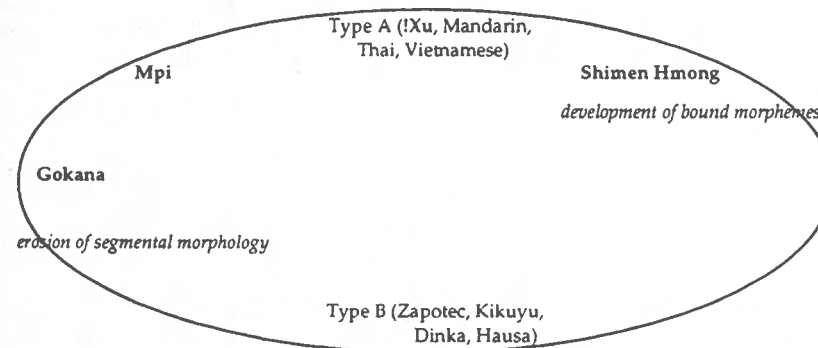
number reflecting possible syllables times syllable positions within the word comparatively high

number of tones 2 or 3

spreading (syntagmatic)

The identification of some part of these feature sets and the linkage of types defined by one or more features to geographical areas is not new (see, e.g., Wang 1967 and Schuh 1978 on sets of features; and Abercrombie 1967, Ladefoged 1971, Welmers 1975, and Anderson 1978 after Pike 1948 on the register/contour distinction) and has been informally understood for a long time. What is new is (1) the focus on tone function in tone languages, (2) the study of tone function as necessarily linked to other structural features of a tone language in an interdependent web, and (3) the study of the role these linkages play in the historical realization and disintegration of these types.

A simple model for tone language type change is presented on facing page:



It is my claim that tone languages change type in the wake of change in morphological structure and that, once so changed, there is no impediment in principle to their cycling back, through the intermediary of morphological change, to their pre-change types. The shape I chose for this model, a flat oval, reflects the fact that languages are not distributed equally throughout the cycle. Most tone languages can be placed at either the top or the bottom of the oval: isolating type A tone languages without significant morphology, either segmental or tonal, and synthetic type B tone languages with extensive morphology, both segmental and tonal.

The communicative reason for the preponderance of type A and type B tone languages over mixed types is as follows: in those languages without morphology, the type A languages, the internal resources of each language are not sufficiently great to derive all necessary lexical contrasts². In order to increase the word pool, tone is limited primarily to a lexical function. Major tonal alternations of the B type which involve the nouns and verbs are absent in such languages, since they would obscure non-redundant lexical tone. The primacy of the discrimination function in type A languages can also help explain why these languages have more phonemic tones and why their tone sandhi rules often involve replacement of one tone for another rather than spreading of a tone on to neighboring syllables.

² The determination of what the "necessary lexical contrasts" are, will, of course, need to be made more precise. See the discussion below.

In type B languages, word identification is not dependent on tone to as great an extent due to greater internal resources for word-building. Word-building resources include not only derivational morphology and the trivially related feature of word length, but also the number of phonemic contrasts a language has in combination with phonotactic rules licensing their appearance in various positions in the syllable. Tone can be squandered in these languages: it can redundantly mark category distinctions made by segmental morphology, and will be left to mark some of these distinctions exclusively when and if the segmental markers disappear.

Languages at the narrow sides of the oval are less stable and less frequently encountered. Of the forty tone languages so far examined, I tentatively place only three there now: Shanghai and Tang Xi (both Wu dialects of Chinese), which have acquired type B features, and Gokana, which has acquired type A features. This model thus makes at least the following predictions:³

(1) Languages with no segmental morphology yet with extensive morphological tone will be rare and will show signs of the erosion of morphological tone. This is because at the same time these languages are moving toward an analytic structure that marks such relationships by the use of free morphemes, tone will be needed more urgently to perform its primary function of lexical discrimination.⁴

(2) Languages with segmental morphology and no tonal morphology at all will be nonexistent or very rare. This is because, if the languages I have looked at so far are representative, tone languages seem to start to lose segmental morphology, with consequent transfer of its function to the tonal plane, almost as soon as they begin to acquire it.

It is my claim, therefore, that tone function can be predicted on the basis of other non-tonal, structural properties of the tone language. Features other than tone function either favor or disfavor, require or obviate the occurrence of specific tone functions.⁵

³ As one of the reviewers of this paper pointed out, many more predictions should (and will) follow from the hypothesis that all features associated with type A on the one hand and type B on the other hand are interdependent. For example, we should not expect to discover a language which is increasing both its tonal inventory and its inventory of grammatical affixes at the same time.

⁴ Jerry Edmondson has recently brought my attention to Iau, a very unusual tone language of Irian Jaya, which may constitute a challenge to my hypothesis: it has extensive tonal morphology, but apparently very little segmental morphology.

⁵ It has rightly been pointed out to me that a typology of this scope is in danger of proving anything one might desire without adequate controls. The controls which I am in the process

Assuming that languages go through this cycle, what sets them in motion (the 'actuation problem' of Weinreich et al. 1968)? I claim that change in the status of segmental morphology in a tone language, itself actuated by a variety of other pressures, is the common force driving most, and perhaps all, tone language type change.⁶ Outside influences may encourage or retard change, but a language must have the right internal constitution in order to start along the path to type change. This would include, for a language changing from type A to type B, the grammaticalization and binding of free morphemes which could then become tone donors to their host morphemes, and, for a language changing from type B to type A, phonological erosion of segmental morphology which would simultaneously erode support for the overt marking of certain grammatical contrasts and require that tone be used increasingly as a tool for lexical disambiguation. This is the morphological analog to Matisoff's observation that a language must be 'tone-prone' before it can grow tones (1973:89): the domination of people speaking an atonal language by people speaking a tone language is not sufficient to plant tones in the atonal language. China had either a presence in or a strong influence on both Vietnam and Korea for a thousand years apiece, and a strong influence on Japan for 300 years, but only Vietnamese developed tones because of the three, only Vietnamese, also under Chinese influence, had become a monosyllabic word language.

I discuss no examples here of the numerous languages which exemplify one of the two types and are found in their expected territories, Asia for type A and Africa and Mesoamerica for type B. I will present, rather, three tone languages, the African languages !Xū and Gokana and the Asian language

of formalizing include the following: (1) a clear definition of the terms used as a basis of tone language type categorization such as 'root', 'word class', and 'tone' itself; (2) a technique for comparing descriptions of languages in which definitions for these terms do not correspond to those developed; and (3) an evaluation measure to assess the relative strength of these features, individually and in combination, in the determination of type classification and in the determination of possible paths of change. To this point, work on the typology has been driven largely by intuition and careful observation. Further work on objective controls of this kind will lead to unequivocal, testable statements of what should not be (or what should only rarely be). Details will be addressed fully in a larger work of which this paper constitutes a part.

⁶ Both Eugénie Henderson (1976) and Paul Benedict (p.c.) have remarked that tone should be taken as an equal partner to consonants and vowels, and that the linguists who treat it as a secondary feature are guilty of Eurocentrism. Although I agree with this view as it pertains to the description of individual tone languages, historically it does not hold (except perhaps as it pertains to the determination of whether or not a proto-language had tones) for the following simple reason: tones can be derived from consonants and vowels but there is no evidence that consonants or vowels can be derived from tones.

Mpi, which are problematic and historically interesting because they are areally and, in the first two cases, genetically atypical. Gokana is also a language that does not fit the description of either type well. A fourth language discussed in detail in Ratliff (1992) properly belongs to this group. It is an Asian language spoken in southern China, Shimen Hmong, which has exhibited some signs of starting a change from type A to type B. All three of the languages discussed here involve a change the other way, from type B to type A. I welcome challenges to these analyses in each case, since they rest on the reconstruction of the protolanguage type as well as the determination of the type of the contemporary language being discussed, and evidence for the reconstruction of the ancestor type and even, in one case (!Xū), evidence for the identification of the ancestor stock itself is not uncontroversial. For each language, information concerning (1) determination of the type of the ancestor language, (2) the areal type, (3) determination of the type of the language in question, and (4) development will be given.

2. *!Xū* (= !K(h)ung, Zhu) < Eastern Zhu < Northern Khoisan < Khoisan [Köhler 1981]) Typologically aberrant for area; type innovated

2.1 *Type of ancestor language: B.* If one assumes the genetic relatedness of the Khoisan languages, following Greenberg (1963) and Köhler (1981), our best hypothesis is that the ancestor of !Xū was a type B language. As opposed to Northern Khoisan languages, Central and Southern Khoisan languages are characterized by extremely rich morphologies, including grammatical gender/number/case suffixes, verb classes defined by complex tonal alternations in several degrees, tense and mood suffixes, and derivational suffixes in the Central languages, and ablaut morphology marking tense and aspect and nominal concord in the verbal system in the Southern languages. Furthermore, the presence of tone in all Khoisan languages makes it plausible that Proto-Khoisan was a tone language.

2.2 *Areal type: B.* !Xū is spoken in the Kaukau Veld on the northernmost part of the border between Namibia and Botswana. It is surrounded by type B Khoisan languages and type B Bantu languages.

2.3 *Type of present-day language: A.* Despite the odds against it on the basis of history and environment, however, !Xū is a type A tone language. It has three level tones, H, M, L, and two contour tones with low functional load:

tʃi	"to hear"
tʃí	"thing"
tʃî	"arrow" (Köhler 1981:568)

Tone functions lexically, yet there are few word sets differentiated by tone alone (as exemplified by the use of a minimal trio as opposed to a minimal quintet in the list above). Tone is not used productively for any type B function either, however: according to Köhler (1981:577), there is only one case in which a grammatical category is marked by a change in tone: the singular for "human being" is /ʒü/, whereas the plural is /ʒû/. Segmental morphology is very limited: most productively, there is a subordinating suffix /-à/ and only an inconsistently used plural suffix on nouns, /-si/. Grammatical morphemes are generally free morphemes. To the extent that grammatical contrasts marked by affixation in other Khoisan languages remain in !Xū, they are realized lexically. For example: (1) noun classes exist in !Xū as 'classes of selection': pronoun choice is determined by noun class membership — but there is no morphological marking of noun classes, and (2) one frequent way of preserving the singular/plural contrast in both nouns and verbs is by joining two roots together into a suppletive paradigm. Roots are predominantly monosyllabic. The possible number of syllables (= roots) in !Xū is very high because of the presence of distinctive nasality, glottalization/length, pharyngealization, and breathiness in the nucleus, and no less than eighty-seven contrastive onsets, thirty-six of which are click onsets. The presence of these rich resources for the generation of lexical contrasts explains the low functional load of lexical tone in !Xū for Köhler (1981:566).

2.4 *Development notes.* Adequate descriptive studies do not exist to allow us to reconstruct the steps of the development of this nearly pure type A language from a type B language. We can be fairly sure of the starting point (B), and completely sure of both the end point (A) and the correlation of the near lack of segmental morphology to the lack of tonal morphology in the present-day language, however.

One very tentative hypothesis exists, however. In a review of Traill (1975), Köhler (1977) suggests that Proto-Northern Khoisan may have been as Traill claims Proto-Southern Khoisan was: a language with a much simpler phonemic inventory than any of its descendants. The complexities of nasality, pharyngealization and breathiness would thus have come from phonetic sequences of sounds less exotic, presumably via vowel loss and the consequent loss of segmental morphology. I would agree with Köhler that the limitation of

the contrastive role of tone in this language, not typical of type A tone languages, is due to the fact that these other segmental and suprasegmental resources have developed to meet the need of generating all required lexical contrasts, leaving tone in a relatively marginalized position. This is an illustration of the influence of the feature of extensive (phonological) word-building resources on the function of tone; in the case of !Xū, perhaps on the eventual fate of the existence of tone itself.

3. *Gokana* (< Ogoni < Delta-Cross < Cross River < Benue-Congo < Niger-Congo [Faraclas 1989; Williamson 1989]) Areal development; type innovated

3.1 *Type of ancestor language*: B. Faraclas affirms:

Cross River nominal class-concord systems [...] typify almost every possible stage of simplification of the proto-Benue-Congo system, from full retention in some conservative Upper Cross and Bendi languages to near complete elimination in the Ogoni group. (1989:389)

The nominal class-concord system has been reconstructed for Proto-Benue-Congo by DeWolf (1971). Moreover, the wide distribution of nominal class-concord systems in branches beyond Benue-Congo have also led such a system to be reconstructed for Niger-Congo itself (Williamson 1989:31ff.) Since tone is also a Niger-Congo feature, being absent only in the West Atlantic branch, our best hypothesis is that the ancestors of *Gokana*, both near and distant, were type B languages.

3.2 *Areal type*: B > A. Although never classified as Kwa languages, the Ogoni languages have a number of the Westermann & Bryan 'Kwa' (or in the present framework, 'type A') language characteristics (1952:90-94): they are tonal languages characterized by monosyllabic roots, reduced noun class systems, and serial verb constructions. The typological development of languages in this broad area, although not significant for settling questions of genetic affiliation, is still interesting historically. A number of West African tone languages have eroded systems of inflectional and derivational morphology and seem to be moving toward the type A feature cluster, although retention of tonal morphology of the B type is not uncommon. *Gokana*, spoken east of the Cross River delta in Nigeria, is perhaps the language which has developed farthest along this common path.

3.3 *Type of present-day language*: B > A. *Gokana* has three tones — L, M, H:

bà	"eat"
ba	"crocodile"
bá	"hand" (Brosnahan 1964:46)

whereas many Cross River languages have two, a differentiation which weakly supports other facts which place this language closer to the A end of the pole than other languages in the sub-family. Tone function is both lexical and grammatical: report of grammatical tone includes instances of pairs of words in which word class membership is distinguished by tone, for example:

zòb	"(to) dance"
zob	"(a) dance" (Williamson 1985:429)

and the existence of tonal alternations in the verbal complex (Hyman 1985: 106-115). Not accidentally, I maintain, segmental morphology is found chiefly in the verbal system (marking tense and aspect) where one finds the most extensive use of tonal morphology.⁷ *Gokana* is unusual in that it maintains little trace of the segmental morphology used to mark class/gender/number in the noun system which is evident to various degrees in closely related languages (Williamson 1989:36).⁸ Roots are monosyllabic, but unlike typical Kwa languages and type A Asian languages, can be closed, showing a conservatism in the retention of old syllable-final consonants not present in an Ogoni language such as Eleme (the subject of Williamson 1985). However, Hyman (p.c.) has noted that verbs only marginally have closed syllables.

3.4 *Development notes*. The tonal doublet for "(to) dance" and "(a) dance" presented above can be accounted for by the influence of the tone of an old noun class prefix with nominalizing function on the root (Williamson 1985: 428-429). Williamson mentions the existence of other such pairs which could be accounted for in the same way. She mentions that Eleme has a low-toned derivational prefix. Inspection of her data reveals that this prefix has the effect

⁷ The following minimal use of tonal morphology in the noun system was reported to me by Hyman (p.c.): there is a low-tone genitive marker on the first noun in a possessive construction only when that first (possessed) noun has an underlying mid tone: *zob* "dance", *zòb nwín* "dance of the child".

⁸ The only trace is reported to me by Hyman (p.c.): "... there is a H tone homorganic nasal prefix N- that marks diminutives (and which could very easily have come from a noun class prefix), e.g., *gà* 'skewer', *+gà* 'needle'."

of raising the low tone of the verbal root to which it is attached. Gokana prefixes have left their trace in the heightened tone of the noun members of such doublet pairs. Isolated tonal doublets of this kind are not uncommon in the 'hard core' type A languages of Asia, where they are used, when commented on at all, to justify the reconstruction of ancient morphology. They do not represent in Asian languages, nor do they represent here, a productive synchronic process.

The tonal alternations in the verbal system primarily involve different tonal realizations of the dependent subject pronouns in conjunction with different tense and aspect markers, as described in Wolff (1971). The marking of morphological contrasts in the Gokana verb is characteristic of type B languages, unlike the doublets described above. All this means, however, is that Gokana is a language which partakes of both types, consistent with its location in West Africa and its position on the path of its development from B to A. Gokana exemplifies a change in progress which my model would predict: true type B morphological tone is only present in the verbal system, where it is structurally supported by segmental morphology. In the noun system, very little segmental and tonal morphology remains.

4. *Mpi* (< Southern Lolo < Lolo < Lolo-Burmese < Burmic < Tibeto-Burman [Bradley 1978; Matisoff 1978]) Typologically aberrant for area; type preserved

4.1 *Type of ancestor language: B?* Establishing the type of Proto-Tibeto-Burman is extremely problematic. In the first place, it is not clear that tone can be reconstructed for Proto-Tibeto-Burman. Although Benedict (1972) does reconstruct a two tone system all the way back to Proto-Sino-Tibetan, which many claim to be the ancestor of Proto-Tibeto-Burman, Matisoff (1973:82-83, 1978:7) writes of the cyclical appearance and disappearance of tone in the various branches of the family, and reports that even closely related dialects of the same Tibeto-Burman language may differ in whether or not they possess lexically distinctive tone.

With regard to segmental morphology, "Tibeto-Burman languages, unlike other Southeast Asian languages, show traces of a very complex morphology in the proto-language" (Mazaudon 1977: 3). A causative/transitive prefix *s- is reconstructed with some confidence for the proto-language; other reconstructions are less certain. In his classic 1929 study, Wolfenden posits verbal affixes (a reflexive and directives), pronominal prefixes and derivational affixes

in Proto-Tibeto-Burman on the basis of written Tibetan and the western Tibeto-Burman languages of India and Burma. Thus, evidence of earlier affixation would suggest that Proto-Tibeto-Burman, if tonal, was type B.

Tibeto-Burman fits the type A profile better with regard to monosyllabicity, however: roots in Tibeto-Burman are predominantly monosyllabic. Mazaudon (p.c.) has identified the character of the present-day languages as more type A than type B, according to the present typology. Such affixation that exists in the daughter languages is in many cases not reflective of ancient morphology, but has arisen through the reduction of one element of a compound (Mazaudon 1977:3; Matisoff 1978:13). Compounding is the primary form of word derivation in type A languages.

The difficulty in classifying Proto-Tibeto-Burman with respect to this typology is instructive: it exposes both the schematic nature of the dichotomy I am proposing at this stage, and, even more, the difficulty of attempting to classify ancient, abstract language constructs on the same basis as living languages. Still, the Tibeto-Burman family is unlike its neighbors in Southeast Asia in one respect that is pertinent to our effort to understand historical change in tone languages: both traces of older segmental morphology and living processes of affixation in the daughter languages set Tibeto-Burman apart, and place these languages and their ancestor closer to the B end of the scale than to the A end of the scale than the languages of neighboring families.

4.2 *Areal type: A.* Members of the neighboring Tai-Kadai, Hmong-Mien, and Chinese families are overwhelmingly type A. The type A Tibeto-Burman languages are spoken in the eastern part of the Tibeto-Burman territory where they come into contact with members of these type A families. The Lolo languages are spoken in southern China and the northern part of Southeast Asia, and include Akha, Lahu, and Lisu, as well as Mpi. Mpi is spoken in Phrae Province in northern Thailand.

4.3 *Type of present-day language: A with one feature of B.* Mpi has three level tones, H, M, L, and three contour (allo-)tones found only on verbs phrase-finally (and in isolation), as illustrated below:

sí	"four"
si	"a color"
sì	"blood"
si	"to be putrid"
sî (mid-fall)	"to roll"
sî (high-fall)	"to die" (Srinuan 1976:xii)

Tone is used lexically, with one important exception: the fact that three of the six tones are grammatically conditioned. The latter is a classic type B tone function. Roots are mainly monosyllabic; there is no account of segmental morphology. An examination of the dictionary suggests that word derivation takes place primarily by compounding. Mpi has developed both a laryngealization and a nasalization contrast on syllables, which together with tone creates a powerful phonological resource for word building. The UCLA 'Sounds of the World's Languages' HyperCard stack contains an illustration by a native speaker of a twelve-way contrast on the syllable /si/ reflecting every possible combination of phonation type and tone. Srinuan states that there is no tone sandhi in the language other than the grammatically conditioned tone change mentioned.

4.4 Development notes. The change from B to A in the case of Mpi can only be attributed in a general way to language contact at this point. As to the development of morphological tone in Mpi, indicative here of possible type preservation, Matisoff (1978) and Bradley (1978) are in agreement with Srinuan's analysis: the phrase final verbal tones developed upon the loss of all but the tonal influence of a phrase final enclitic (Srinuan 1976:xii). Evidence supporting this analysis is that verbs preceded by a negative element do not have the verbal tone phrase finally coupled with the fact that negated verbs in non-phrase final position are never followed by verbal auxiliaries or particles. For example:

mā mū "not good" (as opposed to mū "good", with verb tone)
(Srinuan 1976:xiii)

Matisoff (p.c.), moreover, believes that he can identify which morpheme lent its tone to preceding verbs to produce the three contour verbal tones in Mpi: a reflex of Proto-Tibeto-Burman /*way/ "being; identification; existence" which serves a variety of grammatical functions including citation form marker for verbs in a number of related languages. Cognates include Lahu /-ve/, Akha /-eu/ and, in Mpi and Phunoi — /-ø/ (cf. discussion of Proto-Tibeto-Burman /*way/ in Matisoff 1985:57-58).

In its use of tone, Mpi is representative of a number of Tibeto-Burman languages that have limited segmental morphology and limited tonal morphology. All I have encountered to date are from the Burmic branch: Tiddim Chin (Henderson 1965), Ugong (Bradley to appear), Nosu (Bradley 1990), Maru (Okell 1988), and Burmese (Okell 1969, Thurgood 1981). Bradley (p.c.) has

reported that the phenomenon of limited grammatical use of tone in these languages is "widespread".

I should note that Mpi, along with the other Burmic languages just mentioned, may first appear to be changing type from A to B because of their location in Southeast Asia. Many features of the language are similar to those of Shimen Hmong, for example, discussed in Ratliff (1992), which is historically a type A language with a recently developed type B tone function. When the nature of the family as a whole and the probable character of the proto-language is taken into consideration, however, it appears that these languages, on the western edge of the Southeast Asian sprachbund, are of a fundamentally different nature, and that over time they are moving closer to, rather than away from, the other languages of Southeast Asia.

5. Summary

All three of these tone languages are areal surprises. !Xū and Gokana will look familiar to students of Asian languages. In fact, typologically !Xū is an Asian language. Gokana, on the other hand, has the 'feel' of an Asian language, if not the whole inventory of type A features: Hyman (p.c.) has noted that he was impressed by the fact that in Gokana "words are kept very distinct from one another, i.e., [there is] no segmental or tonal sandhi across word boundaries [...]". Mpi (like Shimen Hmong [Ratliff 1992]), on the other hand, is doing things with its tones that Asian languages are not supposed to do. What these three languages have in common is the loss of segmental morphology which has resulted in a tone language type change from B to A. In Mpi, although the process is the same as in the African languages, the marginal preservation of both segmental and tonal morphology gives the language a type B exoticism in an otherwise type A territory.

!Xū represents a complete change of type B to type A whereas Gokana represents a near-complete change. Whether Gokana will move further toward the realization of type A is hard to say: its 'drift' is in this direction, which is to be explained in terms of the relationship between internal structure and communicative function, and the typological drift evidenced in much of West Africa. However, a counteracting force will continue to be present in the type B characteristics which persist in the other languages of the area. Mpi also represents a near-complete change from B to A. Unlike the situation with Gokana, however, contact has played an important role in fostering the development of type change in Mpi: Mpi is swimming downstream while Gokana is swimming upstream toward the prototype A. Of the three languages, !Xū is perhaps the

most historically intriguing, since there is no evidence that contact played a role in influencing the change of B to A, making this appear to be a case of development triggered exclusively by internal pressures.

In conclusion, I address two questions concerning this model of language change which have been put to me in various forms and attempt to provide provisional answers to them.

1) In what sense are these two discrete types of languages, since some of their features are not mutually exclusive? In other words, are there in fact two types when all of the type A tone functions are possible in a type B tone language?

First, many of the features correlated with tone function are mutually exclusive: a language has either a predominantly monosyllabic or polysyllabic root structure, and it is not difficult to place a language in one of two groups based on the size of its tonal inventory. The possibility of the occurrence of all the type A tone functions in both tone language types is not symmetrical, but it reflects the fact that lexical discrimination is the main function of tone in most tone languages. In fact, the criterion used to discriminate tone from pitch-accent is usually the lexical use of pitch contrasts (Pike 1948:3, Welmers 1973:80).

Furthermore, this typology defines a graded relationship between two poles: a number of languages show properties of both types. There are examples of this in any kind of typology one considers: SVO languages with SOV in subordinate clauses, split-ergative languages, and languages which show a mix of head-marking and dependent-marking.

Finally, the existence of these feature networks has been recognized informally for a long time. I would doubt that anyone would question the assertion that Kikuyu and Mandarin are representative of different types of tone languages. The perception arises from an awareness of the feature sets which my larger study attempts to make explicit.

2) In what way does the proposed picture of cyclic historical change correspond to two other conceivable cycles that would involve these same languages and many of these same features, (a) the cycle from tonal to atonal to tonal language and (b) the cycle from analytic to synthetic to analytic language?

The questions of tonogenesis and tone loss are both related in a natural way to this study. I have excluded them from the model at this point in order to set limits to the inquiry, but with the knowledge that both the appearance and the disappearance of tone altogether is also tied to the nature of the structural resources of a language in relation to the communicative needs of its speakers.

!Xū, for example, as mentioned above, is a language which may be losing its need for tone. Eventually, the model for tone language change presented in section 1 above needs to be elaborated to include other cycles representing the acquisition and loss of tone which add languages to and bleach languages from the type A to type B cycle at various points (see Matisoff 1973 on tonogenesis; and Clements & Goldsmith 1984 on tone loss).

Finally, this cycle subsumes, but is not identical to, a cycle based on change in morphological structure alone. These sets of features go beyond morphological structure to related aspects of phonological structure. Morphological change in this model has not only the effect of changing the categorization of a language from synthetic to analytic or vice versa, but also has an effect on the number of tones a language has, the nature of its tone sandhi rules, and perhaps even the size of its phonemic inventory and the structure of its syllables.

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SUMMARY

Tone languages can be characterized by the degree to which they realize one of two tone language prototypes defined in terms of tone function. Type A tone languages (usually Asian) employ tone lexically and in minor morphological patterns. Type B tone languages (usually African and Mesoamerican) employ tone to make major morphological distinctions in addition to performing type A functions. For communicative reasons, these functions are necessarily linked to other structural properties of the languages of each type. This paper discusses three tone languages which have undergone different degrees of tone language type change and, as a result, are genetically or areally atypical: !Xū (Khoisan), Gokana (Niger-Congo), and Mpi (Tibeto-Burman). It is the claim of the author that the driving force behind tone language type change, as exemplified by these three languages, is a change in the role of segmental morphology.

RÉSUMÉ

On peut caractériser les langues tonales par le degré par lequel elles réalisent un des deux prototypes de langues tonales définis en terme de fonction tonale. Les langues tonales de type A (généralement asiatiques) emploient le ton pour des fonctions lexicales et des fonctions morphologiques mineures. Outre les fonctions de type A, les langues tonales de type B (généralement africaines et mésoaméricaines) emploient le ton pour des fonctions morphologiques majeures. La communication ayant ses exigences, ces fonctions sont inévitablement liées aux autres propriétés structurales de chaque type. Dans cette étude il s'agit de trois langues tonales qui ont subi différents degrés de changement de type tonal et qui sont, par conséquent, atypiques du point de vue génétique et régional: !Xū (Khoisan), Gokana (Niger-Congo), et Mpi (Tibeto-Birman). Se fondant sur ces trois langues, l'auteur émet l'hypothèse que la causalité de l'évolution du ton se trouve dans un changement du rôle de la morphologie segmentale.

ZUSAMMENFASSUNG

Tonsprachen können nach dem Grade, nach dem sie einem der beiden Prototypen folgen, charakterisiert werden, und zwar im Sinne ihrer Funktion. Typ A Tonsprachen (meistens asiatische) verwenden Ton lexikalisch und in weniger wichtigen morphologischen Strukturen; Typ B Tonsprachen (z. B. afrikanische und mittelamerikanische) hingegen verwenden Ton, um wichtige morphologische Unterscheidungen zu treffen, während sie gleichzeitig die Funktionen des Typ A wahrnehmen. Aus kommunikativen Gründen sind die Funktionen notwendigerweise mit anderen Struktureigenschaften der Sprache des jeweiligen Typs verbunden. Der Aufsatz analysiert drei Tonsprachen, die zu verschiedenen Graden Änderungen in ihrem Tonsystemtyp erfahren haben und daher als entweder genetisch oder areal gesehen atypisch sind: !Xū (Khoisan), Gokana (Niger-Kongo) und Mpi (Tibeto-Burmesisch). Die Autorin vertritt die Auffassung, daß die treibende Kraft hinter diesem Tonsprachentypwandel wie er in diesen drei Sprachen aufgezeigt wird, in der Veränderung in der segmentalen Morphologie in diesen Sprachen zu suchen sei.