SINO-TIBETAN LINGUISTICS

Critical Concepts in Linguistics

Edited by
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INTRODUCTION TO VOLUME III

Sinitic

This volume of the set is devoted to articles about the Sinitic varieties, particularly the historical development of this branch of the family.

We begin in Part I with studies on Old Chinese, in particular the identification of word families (“groups of words which may be suspected of being cognate” Karlgren 1956: 1), a methodology followed by every major figure working on historical linguistics in Sino-Tibetan. The first application of this concept within Sino-Tibetan is probably Stuart Wolffenden’s 1928 article on word families in Tibetan, but as Walter Simons (1949: 3) mentions, Wolffenden’s work in this area got a boost from our first article in this volume, Chapter 35, Bernhard Karlgren’s “Word families in Chinese” (1933). Karlgren’s basic insight is that:

Chinese does not consist of so and so many thousands of independent monosyllables, none of them cognate to any others; in Chinese, as in all other languages, the words form families, groups of cognate words formed from one and the same primary stem.

(p. 9)

Because of this, in doing internal reconstruction and in doing comparative work we need to first identify as many members of a particular word family as possible, and then analyse all of the members of the word family in order to isolate the root and affixes, if possible, in doing internal reconstruction, and also to identify the correct cognate forms when comparing with other languages (see also Wolffenden (1937), Chapter 14 in Volume I) This paper deals only with the internal identification of word families in Old Chinese. Except for a short note at the very end that some of the alternations involve “different parts of speech or similar grammatical distinctions” (p. 119), Karlgren does not discuss the variations as derivation. Karlgren says this very long paper is just a “short preliminary note” (p. 10), and he will expand on word families at greater length later, but from this article we can see the tremendous amount of work that went into collecting and comparing the different words to group 693 of them into word families. We of course could disagree with certain of his decisions, and with his reconstructions of Archaic (Old) Chinese, which are what he is often basing his families on, but we cannot
deny that this article led to a lot of very useful work in Chinese historical phonology and morphology, and is still a valuable resource on its own. Karlgren himself later (1956: 1) says of this paper:

My list was, of course, only tentative: in a great many of the cases adduced the affinity is obvious and undeniable, in other cases it is only probable or even merely possible and it was left to future research to determine which of the stem alternations proposed could be proved.

Chapter 36, Karlgren 1956, “Cognate words in the Chinese phonetic series”, is a short follow-up on Karlgren’s 1933 paper on word families, showing how the Chinese intellectuals who created the Chinese characters must have understood the word family relations among the members of many word families because of the way they used the same character to represent two words, or used similar characters to represent related words. He distinguishes cases where an element is used purely as a phonetic and cases where what might be considered the phonetic is in fact the basic root, e.g. he argues, for example, that 牙 “tooth” and 皆 “sprout” are the same word, and the second character is simply disambiguated by the addition of the “grass” radical, but 師 “to welcome, receive” is different in that the “tooth” character has been borrowed (假借) for its sound alone, and then later disambiguated from “tooth” with the “to speak” radical, and so only in this case can we talk about the character being a combination of phonetic and radical. He gives pairs of words that he argues are variants of the same root, organized by the type of variation in initial or final (all together 546 characters are discussed, but this involves more than 546 words, as Karlgren only gives one number to a character used for two different words).

Karlgren stopped at identifying the variations and argued the alternations were part of Archaic Chinese (Wang Li’s view as well, e.g. 1979, 1982). In some cases that is all we can do, though in many cases we can identify the morphology involved in the variations. The third article in this set, Chapter 37, Downer’s seminal article, “Derivation by tone-change in Classical Chinese” (1959), was inspired by Wang Li’s (1958) insight that at least some of the tonal variation can be considered morphological derivation, with the 一声, 二声, and 三声 tones considered basic, and many of the 四声 tones considered derived.1 Downer attempts to develop this idea. He gives a long list of forms broken down into the different types of semantic contrast between the two forms. He also mentions the alternation in voicing of initial segment in some pairs of words (including forms that also contrast in tone), and sees a similarity in the sorts of derivations found. Although he is aware of Haudricourt’s suggestion of an *-s suffix as the source of the 四声 tone, he does not discuss that and sees the variants simply as a difference in tone. He seems to not accept the possibility of affixes in Chinese. In his discussion of the difference in voicing of initials he says “... it is difficult to account for the incidence of voiced and voiceless initials. It seems that here there is only alternation, no system of derivation being demonstrable” (p. 263).2 Now the idea of an

*-s suffix as the origin of the 四声 tone is generally accepted, and although there is still controversy about what affixes there were other than that and what they did, there is general agreement that affixation was a part of the earliest stages of Chinese, and Proto-Sino-Tibetan as well (see LaPolla 1994, 2017a)).

Chapter 38, Mei Tsu-lin’s 1970 classic, “Tones and prosody in Middle Chinese and the origin of the rising tone” brings together evidence from modern dialects, Buddhist sources with descriptions of Middle Chinese, and old Sino-Vietnamese loans to support Pulleyblank’s (1962) proposal that a glottal stop was the origin of the shang (rising) tone, a hypothesis that is now widely accepted. From the Buddhist sources Prof. Mei concludes that:

the tonal system of Middle Chinese around the eighth century is found to be (1) level tone: long, level, and low; (2) rising tone: short, level, and high; (3) departing tone: longishness about to be lost and probably high in pitch and rising in contour; and (4) entering tone: short, with uncertain pitch and contour... (p. 110)

Given that there are some Min varieties that still have glottal stop in the rising tone, and given that the old (Han era) Sino-Vietnamese loans also point to a final glottal stop in those loan words, and given that glottal stop has been shown in other related languages to develop into a high tone, he concludes that the rising tone should have originated in a glottal stop.

Our fifth paper returns to the methodology of word families, in this case trying to find morphological explanations for the variant forms. Unlike Karlgren, who thought there was no discernable pattern that could be identified, Prof. Edwin G. Pulleyblank has quite a few papers on this issue, and here we reproduce two of them (see also Pulleyblank 1977–1978). The first one, Chapter 39, is his "Some new hypotheses concerning word families in Chinese" (1973a), a follow-up to his two-part 1962 article on word families mentioned earlier in the discussion of Prof. Mei’s article. This article discusses the *-s suffix which is said to have resulted in the departing tone; a voiced glottal fricative prefix which he argues was the source of the voiced/voiceless initial alternations; an *-s prefix which in some cases has a causative or transitive function (see also Bodman 1973); an *-s prefix with a causative sense; and a vocalic ablaut. Prof. Pulleyblank presents word families in Chinese and Tibetan to support the reconstruction of these features in Chinese, and to show the parallels in the morphology between the two branches of the family. He also gives evidence from Chinese renderings (transcriptions) of foreign terms (expounded on more fully in the next article) in support of the *-s suffix. In support of his idea of a voiced prefix as the source of the voiced/voiceless initial variants he equates this prefix with the Tibetan prefix ཐ, which appears often as prenasalization before consonants in modern dialects, and has been argued to have been a voiced velar or glottal fricative in Old Tibetan (Coblin 2002; Hill 2009). As discussed in LaPolla (2017a), the association of this Tibetan prefix with
the Chinese voicing distinctions is problematic, as the Tibetan form did not have that function, and the voicing alternations are independent of that prefix. Currently some scholars argue that the variants were due to an *s*-prefix (e.g. Dai (2001); Gong (2000, 2002); Phua (2004); and Mei (2012)) while Sagart and Baxter (2010, 2012) argue for an *N*-prefix as the cause of many of the voicing contrasts said by the others to be due to *s*. My own view, argued in LaPolla (2017a), is that:

all three phenomena exist; while some of the voicing distinctions can be shown to be due to either an *s*-prefix or a *nasal* prefix, we need to also recognize the possibility that some of the voicing contrasts can't be explained by either of these prefixes and so are an independent phenomenon.

(p. 32)

The *s*-prefix in Chinese and its correspondence with a similar prefix in many Tibeto-Burman languages is well accepted, though as mentioned earlier, there is controversy about which particular words it applied to in Chinese. The next few items discussed by Pulleyblank are not so well accepted, but stimulated thought about the issues he is trying to address. The first is what he initially calls an "*s*-( infix associated with causative meaning" (1973a: 118), but then a couple of lines down he says, "This could well reflect an original r-prefix which has left its trace as retroflexion of the following dental initial" (p. 118), and he compares it with the r-prefix in Tibetan, so it seems he intends it to be a prefix in the proto-language. Next he talks about vowel variations or ablaut, though does not give any meaning associated with the differences, so this does not seem to be derivational morphology. One very important contribution of this article is the move beyond the more limited sense of word family of Karlgen and others to allowing any sort of variation. As Pulleyblank discusses, Karlgen limited his word families to words that had finals of the same kind, and he mentions Tôdo Akiyasu's (1962) etymological dictionary of word families as being more strict in terms of limiting the word families to words that were in the same rhyme category in the Shijing. But there is no reason to be so strict. Pulleyblank gives a number of word families that show different types of variations, in initial, in final, or in vowel (see LaPolla (1994) for many examples where the forms differ only in the final consonant).

Chapter 40, also by Pulleyblank (1973b: "Some further evidence regarding Old Chinese *s* and its time of disappearance") is also a follow-up on his 1962 article. In the 1962 article Prof. Pulleyblank had given evidence from Chinese translations of foreign words for the persistence of a sibilant final in some words in the departing (64) tone until the third century CE, and in this article he presents more evidence to push that date up to the sixth century CE in some areas. He also gives a justification for the use of transcription (transliteration) evidence in historical linguistics, which up to that time had not been widely used. He hypothesizes that in those finals where there was no longer the original *s* (*s*-ts), there was still a final *h* (< *s*) at the time the tone categories were recognized (late fifth century), and all the words with sibilant finals were considered departing tone words.

The next article, Chapter 41, is only one of many I could have included from the many important works produced by W. South Coblin on the dialects of the Western and Eastern Han dynasty periods based on sound glosses, transcriptions, and other relevant materials (see the 15 works listed for Prof. Coblin between 1977 and 1994 in the references section). This was before he turned to looking at the dialects of the Tang period, the Qing period, and the modern period (e.g. Coblin (2005, 2011); see Simmons and Van Auken (2014) for a full listing of Prof. Coblin's publications up to 2014). The book Fang Yan (The speech of different locales) is an obvious source for people looking for dialect material, and Serruys had done important work on this (1955, 1959, etc.), but was criticized by Miller (1975) for assuming that the words in the Fang Yan were cognate. Prof. Coblin acknowledges that many of the sets are not cognate, but goes on to give lists of words that we could see as cognate, and compares them in terms of differing in initial, final, or tone, showing that there is regularity to the differences in the forms that could help us identify different dialects.

Up to this point, the work we have been looking at generally followed Karlgen's view that the Qieyun (601 CE), on which Karlgen based his reconstruction of Ancient Chinese (now more often called "Middle Chinese"), was a real language and was a direct descendent of Archaic Chinese (roughly 1000 BCE, now called "Old Chinese"), and so the latter could be reconstructed at least partly on the basis of working backward from the former. Our next article, Chapter 42, Jerry L. Norman and W. South Coblin's, "A new approach to Chinese historical linguistics" (1995), breaks with that tradition, pointing out the problems with these assumptions and the whole methodology of relying solely on rhyme books and written materials rather than spoken dialect data in doing Chinese historical linguistics, and arguing for a more empirical approach to Chinese historical linguistics and dialect studies. It argues that the Qieyun not only does not represent the Chiang dialect of the Sui period, as Karlgen had assumed, it does not represent the phonological system of any single variety (as also argued by a number of the most eminent Chinese scholars): "...it is rather an inventory of a tradition of phonological glossing. As such, the Chiehyn system is not really a language in any common sense of the term" (p. 580). As it does not represent the spoken language of any particular place or time, the Qieyun (Chiehyn) system cannot be the origin of the modern dialects. The modern dialects derive from earlier spoken languages. As Prof. Norman also argues in his 2014 article, the sources used for reconstructing Middle and Old Chinese are heterogeneous, and so can't reflect a single variety, and so we should work back from the spoken languages and reconstruct a much simpler proto-system. To do proper work on reconstructing Chinese, scholars need to collect full descriptions of modern and earlier documented dialects, compare the different dialects using the comparative method, and also work out the migration history to try to explain how the varieties came to be the way they are.
These ideas were largely due to Prof. Norman, who, as was, to Prof. Coblin (2013: 222), “the most original thinker in the field of Chinese linguistics encountered in nearly fifty years spent in the field. Simply put, he changed forever the way we perceive and think about Chinese.” The ideas presented in this article, like some of Prof. Norman’s other ideas, were ahead of their time and did not go down well with many of those working within the established traditions, and so aside from some of Prof. Norman’s students and colleagues who have focused on natural dialect data (e.g. Prof. Coblin, Kevin O’Connor, Richard V. Simmons, David Prager Branner, Zev Handel—see also LaPolla (2001) on the migrations and their influence on the dialects), most in the field did not heed the call of this article and are still mainly working within the old tradition based on the old problematic assumptions.

The final two papers in this part are on the grammar of Old Chinese. As mentioned (and criticized) in Norman and Coblin’s paper (Chapter 42), not much attention was paid to the grammar and lexicon of Old Chinese or later periods, as the focus was only on the phonology.

In Chapter 43, Derek D. Herforth’s paper, “A case of radical ambiguity in Old Chinese: some notes toward a discourse-based grammar” (1987), the point is not so much a description of the grammar, though some of that is included, but how readers of Old Chinese can understand expressions in context even though there is no redundancy in the language, and so all interpretation is context dependent. Although not mentioned by Herforth, the article is in line with W. von Humboldt’s view that Chinese “consists all grammatical form of the language to the work of the mind” (1863[1988]: 230), and it presages David Gil’s work on Riau Indonesian, showing how little grammatical structure is necessary for communication (e.g. Gil (1994, 2008, 2013)). It also presages the constructionist approach, as it argues that much of the interpretation is based on the overall construction of the expression (see LaPolla (2013) for a constructionist approach to Modern Mandarin). It was also influential in the development of the ideas initially expressed in LaPolla (1990, 1993, 1995). Working with Chinese and seeing how different languages can be in terms of what they make explicit and what they don’t led me also to an understanding of communication that does not assume a coding-decoding model, but instead depends on abductive inference of the communicator’s intention in performing an act that the communicator intends for the addressee to infer the intention of (e.g. LaPolla (2015a)). My one quibble with the article is that it makes a distinction between topic and subject on the basis of semantics rather than any grammatical features, and so argues that topics cannot be arguments of the verb. This is a very different use of the terms from the usual typological literature, where topic is a pragmatic notion, what the clause is about (whether or not it is an argument of the verb), and subject is a grammatical notion that must be shown to have grammaticalized in the language.

The last paper in this part, Chapter 44, Sun Chao-fen’s “The adposition 以 and word order in Classical Chinese” (1991), discusses the history and distribution of phrases formed with 以, which Sun treats as an adposition (in Old Chinese it had verbal uses as well). He shows that within the adposition phrase (AP) 以 can occur before or after its complement, i.e. as preposition or postposition, and the whole adposition phrase can occur before or after the verb, though the postpositional AP does not appear postverbally. Based on topic continuity counts of the type used in Givón 1983, he argues that the position of the prepositional AP before or after the verb is related to discourse-pragmatic factors—the preverbal type is more likely to be used in contrastive contexts. Sun also suggests that the postpositional, preverbal AP is the archaic order, in contrast to some scholars who argued that it was a newer order. See LaPolla (2015b) for the significance of this.

In Part 2 we turn to the modern varieties of Sinitic.

The first paper, Chapter 45, written entirely in the International Phonetic Alphabet, as was the custom for the Journal of the International Phonetic Association, is the very famous and often cited but rarely read classic by Prof. Yuen-Ren Chao (1930) introducing his system for transcribing tones and intonation. This system has become standard in Sino-Tibetan studies and beyond. It involves seeing the tones as being on a five-level scale, and so the tones can be represented using numerals that refer to the levels, e.g. 33 for a mid level tone, and 35 for a high falling tone. He also created “tone letters” for expressing the same concept, such as 4 (= 33) and 1 (= 53).

Chapter 46 is also a classic by Prof. Chao (1934), in this case a classic for Structuralist linguistics generally, and is not normally thought of as a paper on Chinese linguistics, even though it uses examples from Chinese varieties. It points out the fact that a phonemic analysis is a model of a language, and different models may be constructed for different purposes, and so an analysis is not correct or incorrect, but good or bad for particular purposes. Prof. Chao puts forward a new and broader concept of the phoneme:

A phoneme is one of an exhaustive list of classes of sounds in a language, such that every word in the language can be given as an ordered series of one or more of these classes and such that two different words which are not considered as having the same pronunciation differ in the order or in the constituency of the classes which make up the word.

(39–40)

Prof. Chao points out that this proposal "leaves unspecified the scope of the word ‘sound’ as regards size and kind, i.e. the degree of analysis into successive elements and the degree of differentiation into kinds" (p. 40), and so the phoneme is not limited to individual segments. This concept was echoed by Firth (1957), and has recently been developed in Chinese linguistics by Shen Ruqing, building on the concept of emergent phonology. Another thing that sets Prof. Chao’s view apart from much modern work is his awareness of the temporal aspect of communicative interaction, something that was lost in the latter part of the twentieth century, as scholars just worked with abstract symbols on paper (and so talk about “left edge” or “right edge” phenomena, showing how divorced they are from actual
speech). Only recently have efforts within Interactional Linguistics attempted to bring temporality back into linguistic analysis (e.g., Aufer 2009, Hopper 2011).

Prof. Chao's article was considered very important in the development of Structuralist linguistics. Voegelin and Voegelin (1999: 79) said that "one of the longest critical bibliographies in the history of twentieth century linguistics will be concerned with tracing the reactions that followed Yuen-ren Chao's stimulus." Because of its importance it was selected for inclusion in Martin Joos' Readings in Linguistics (1957), a selection of important works in the Structuralist tradition. 6

We see in Prof. Chao's paper an ability to think in an unbiased way about issues from different perspectives. One thing that strikes a reader of early twentieth century linguistics articles is the free-thinking nature of the discussions. This changed in the latter part of the twentieth century in the US, as Compositional dogma held sway. The next three articles are included here to show how differently people could think about certain issues, as discussed by Chao as well—in this case, how to analyze the phonemic system of the Beijing dialect of Chinese. Chapter 47 is Charles F. Hockett's "Peiping phonology" (1947), which argues for a different approach to phonology based on a non-traditional conception of distinctive features, where what is important is identifying a small set of "determining features" as opposed to "determined features", which allow us to create a minimal set of such features for distinguishing the different phonemes of the language. Like Chao and Firth, Hockett also argues for a non-linear approach to phonology, quite different from late twentieth century phonology, which as I mentioned was based on left-to-right written data, and so depended quite a bit on linearity. Hockett says (p. 255):

> Phonological description thus consists of: (a) a list of the determining features (with alternative statements if alternatives exist); (b) a statement of the arrangements in which determining features occur in utterances; (c) a statement of the circumstances under which each determined feature occurs. 7

The rest of the article is an application of this approach to the Beijing dialect of Chinese.

The next, Chapter 48, is Fang-Kuei Li's short article, "The zero initial and the zero syllabic" (1966), which I have selected because of Prof. Li's status in the field, but also because it presents a rather radical analysis, even suggesting the possibility of a vowelless analysis of Mandarin.

The next, Chapter 49, is Michael Halliday's article, "A systemic interpretation of Peking syllable finals" (1992), which argues for an approach that is a combination of the traditional Chinese approach which Prof. Halliday learned from Wang Li and Luo Changpei and the prosodic approach which Prof. Halliday learned from J. R. Firth (cf. Firth and Rogers 1937). Prof. Halliday explains his four principles of analysis:

One is the Chinese phonological principle whereby all syllables are structured simply as initial plus final. The second is the Firthian prosodic principle whereby features such as posture (y/a/w) and resonance (nasal/oral) are treated nonsegmentally. The third is the paradigmatic principle whereby features are interpreted as terms in systems, each system having a specified condition of entry... The fourth is the dynamic principle whereby the syllable is envisaged as a wave, a periodic pattern of movement characterized by a kind of 'flow-and-return'.

(p. 435)

Prof. Halliday's approach is highly original and insightful, and not based on segmental phonemes, and the article contrasts the prosodic approach and the traditional segmental approach. It also suggests a typology of features, but one that is quite different from that of Hockett, as it classifies the syllables in terms of the initial and final prosodic systems, the initial systems being "alignment (place)" (pointed vs. flat), "manner", "voice onset" (entirely unaspirated vs. late (aspirated)), and "posture" (a-posture vs. y-posture vs. w-posture) and the final systems being "posture" (a-posture vs. y-posture vs. w-posture), "resonance" (oral vs. nasal), "spurt" (close, half-close, open), and "tone" (high level, mid rising, low rising, falling). "Posture shift" within the syllable is seen as yet another prosodic system.

We now turn to two articles on non-Mandarin varieties. The first is Jerry Norman's "Tonal development in Min" (1973), Chapter 50, which is relevant to Part I, as it was sort of a forerunner of the article by Norman and Coblin (Chapter 42) discussed there, but as it is about a single group, Min, it is included here. It uses the comparative method to reconstruct the system of initial stops in Proto-Min in order to explain the tonal and initial correspondences between the different Min dialects. In doing this it shows that a six-way system of initial stops (plus voiceless resonants) is needed to explain the correspondences, which implies that the Qîéyîn system, which only has a three-way system of initial stops, cannot be the ancestor of the Min group. What has stimulated a lot of interest in this article is Norman's reconstruction of a series of "softened initials", which he suggests might have been due to some sort of prefix. This has stimulated much work on this question, e.g., Handel (2003, 2010a, 2010b), and Baxter (2014).

Our next item, Chapter 51, Mantaro J. Hashimoto's 1992nd article "Hakka in Wellenheorie perspective", could have been included in Volume II, as it deals with language contact, but as it is mainly about a single branch of Sinitic, Hakka, I have included it here. It is very much the sort of dialect geography discussed in the introduction to Volume II of this set, in this case as a way to identify what is unique about the Hakka varieties, and to show how the correspondences between initials and tones is due to a particular wave of migration out of the Central Plains, which forms a ring around the Central Plains (see the maps given in the article). This also ties in with Prof. Chao and Prof. Norman's work on the dialects, as it argues for the same empirical approach involving comparing existing varieties.

Next we have Anne Oi-kan Yiu-Hashimoto's "The lexicon in syntactic change: lexical diffusion in Chinese syntax" (1993a). I mentioned earlier how little attention had been given to the grammar of Sinitic varieties other than Mandarin due
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Notes


INTRODUCTION TO VOLUME III


LaPolla, Randy J. and Dory Poon. 2005. ‘Jiaodian jiegu de leixing jii de dui Hanyu cixu de yingxiang [The typology of focus structures and their effect on word order in Chinese]’. In Xu Liqiong and Haihu Pan (eds), *Jiaodian jiegu he yuyi de yanjiu [Studies on the Structure and Semantics of Focus]*. Beijing: Beijing Foreign Studies University Press, 57–78.


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Part 1

ARCHAIC/OLD CHINESE AND ANcient/MIDDLE CHINESE
One of the great goals of Chinese historical phonetics is to prepare the ground for comparative Sinitic linguistics—a systematic comparison of Chinese, the T'ai languages and the Tibeto-Burman languages, which are all undoubtedly cognate though widely differentiated idioms. But in my opinion it will not do to pick out isolated Chinese words and compare them with isolated Tibetan or Si- nese words. It stands to reason that Chinese does not consist of so and so many thousands of independent monosyllables, none of them cognate to any others; in Chinese, as in all other languages, the words form families, groups of cognate words formed from one and the same primary stem. It is not allowable to identify Chinese 宋 Arch. mjok' 'eye' with Tibetan mig 'eye' so long as we have not first established the word family to which mjok belongs. Akin to mjok is undoubtedly the word 宋 Arch. mjog 'pupil of the eye'; and it is just as likely that it is this mjog which corresponds directly to the Tibetan mig. In other words: before Sinitic comparative linguistics can be safely tackled there remains a great task to be solved in each of the language groups concerned. In Chinese the words must be sorted and grouped according to genetic affinity, and the same must be done in T'ai and in Tibeto-Burman. Then, but only then, we can start comparing the word groups of these three great branches and hope for reliable results.

That some words in Chinese are cognate to others is of course no new idea. Already August Conrad in his pioneer work: Eine Indo-Chinesische Causativ-Denominativ-Bildung, 1896, had this as a fundamental point of departure. In my Analytic Dictionary I have pointed out, in many cases, such affinities between words, not only examples in which one and the same word happens to be represented by two different characters, e. g. 简 zeal: 簡 zeal, and hence appears to be two different words, but also cases like 简 Anc. kap 'to press': 簡 Anc. yap 'narrow' etc., which are clearly cognate words. Indeed, even the Chinese script often indicates two forms as cognate by designing them with one and the same character: 简 d'jang) 'long': 简 jiang 'grow long, grow up'. But it is important to take up this problem of the Chinese word
families for a more systematic investigation. The present paper is intended to be a short preliminary notice, as a kind of introduction to a larger work, which I hope to be able to publish soon.

Before entering upon this principal theme I shall have to give some long preparatory chapters. We must not build our study of Chinese word families on the language of the Ts'ie yün (Anc.) which is comparatively late (5th c. A. D.), since we can attain to a fairly detailed knowledge of Archaic Chinese, the language of the Shâu king and the (slightly older) kie sheng characters (phonetic compound characters) dating from the early part of the Chou epoch. It is about this latter language I first wish to make some fairly extensive remarks.

In my »Shâu king Researches« (this Bulletin vol. 4) I have studied certain phonetic categories in Archaic Chinese, and I wish to revert here to some points connected with those categories; and in that work I left the reconstruction of certain other Shâu king rime categories for future discussion, and I wish to take them up here for a detailed analysis.

Categories ending in Arch. dental consonant

In Ancient Chinese (Ts'ie yün) there are two rimes -jan and -jën between which the words are distributed in an obviously mechanized fashion (Phonol. Chin. p. 174):

kjën, kjuën; jën, jyên; tjën, tjtûn; tjën, tsjën, tsjtûn, piân, ○;

kjan, kjun; ○ ○ ○ ○ ○ ○ ○ ○ pjuen.

The final jan, jyen does not exist after palatals and dentals, but only after gutturals and labials. It is natural to suspect that this is a result of the general tendency of nivellation, so strongly at work in Chinese, and that Arch. Chinese had both types: jen and jyen, but that these have been confounded in Anc. jen.

That this really was so is confirmed by the Shâu king rimes. Let us state first that from the word groups here concerned we have to keep entirely separate words with Archaic d, a (long) and a (short). They form a Shâu king rime category here called A, which is no. 14 in Tuan Yu-ts'ai's famous Liu shu yün k'un piao and cat. 9 in Wang Nien-sun's equally important Ku yün pu (in Kao-yu Wang shih i shu). I need not reproduce their tables completely; they can be conveniently summed up in a few type words, for which I insert the Arch. and Anc. sounds: 1

<table>
<thead>
<tr>
<th>Arch.</th>
<th>Anc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>kän, kwän</td>
<td>kän, kwän</td>
</tr>
<tr>
<td>ngän, kwän</td>
<td>ngän, ngwän</td>
</tr>
</tbody>
</table>


d 當, 傳, 成, 應, 聲, 聲, 騰, 聲.

From this rime category A are well distinguished two other Shâu rime categories: B, cat. 12 of Tuan's = cat. 7 of Wang's. Here the principal words are:

1. had Anc. -yen : yien etc.; 2. had Anc. -wen : 'wen;
3. had Anc. -jen : jën etc.; 4. had Anc. -wen : jwen etc.

C, cat. 13 of Tuan's = cat. 8 of Wang's. Here the principal words are:

1. had Anc. -an : kan; 2. had Anc. -an : kwan etc.;
3. had Anc. -an : g'yan etc.; 4. had Anc. -yan : kyen etc.;
5. had Anc. -en : tsjen etc.; 6. had Anc. -yen : tsjen etc.;
7. had Anc. -en : sten etc.; 8. had Anc. -an : kan;
9. had Anc. -an : kwan etc.; 10. had Anc. -en : kien etc.;
11. had Anc. -en : tsjen etc.; 12. had Anc. -jen : tsyen etc.

Two preliminary remarks:

Firstly, I have entered, in a few cases, characters which do not occur in the Shâu rimes but which belong to the category, as revealed by rimes in other Archaic texts or by their phonetics. Secondly, the second character in line 11 according to its Anc. sound should stand in the w line (12); I have placed it in the w-less line (11), since it had no w in Archaic Chinese.

This latter phenomenon is an important point, which concerns several common words. I have arrived at the opinion that in Ts'ie yün time there were two kinds of ho k'ou w: one is genuine and Archaic, occurring after all kinds of initials, one is secondary and late, occurring only after p, p'; b, m and due to an exaggerated labial articulation of the initial. Whereas genuine pjuw regularly gives hw- at the very time of the Ts'ie yün: p'jwu > jwu, p'jwu > fjuw etc., a secondary and evidently more volatile and weak w causes no such change. That n' Anc. p'mwng, p b'jng, n mjwng had really a w in Ts'ie yün time is certain (n' is spelled by n'), but since this p'jwu- has not given hw- I conclude that the Arch. forms were j'ng, b'jng, mj'ng, and that the w is secondary and parasitic. Such cases are to be found, besides in the table xkeng, also in the tables
If we revert to our Shī king rime categories B and C and scrutinize them, we find that cat. B in the Ts’ie yüan language had exclusively e vowels: -en or -en; cat. C had a rich part with: -on, -wan, -jan, -jian, and then both -en, -en, -on and -en. To my mind there cannot be the slightest doubt that here in C the -on vowelism is primary and principal, and that all the -en and -en are secondary. Thus line C 5 was Arch. jian etc. and line 6 was Arch. i‘wan etc.; but whereas -jan after the gutturals and labials with ho k’ou was preserved down to Ts’ie yüan time; line 2 g‘jan, line 4 k‘wan, i‘wan, after palatals and dentals and labials with k’ai k’ou, -on became -en; line 5 Arch. i‘jan > Anc. ts‘jen; line 6 Arch. i‘wan > Anc. ts‘juen. This explains the gaps in the scheme of p. 2. In Ts’ie yüan there are only types k‘jan, k‘wan and i‘wan but no types g‘jan, i‘wan, ts‘jen, ts‘juen etc. because the latter, which existed in Arch. Chinese, have passed over to ts‘jen, ts‘juen, ts‘jen, ts‘juen, thus coinciding with the original (Archaic) jen, juen (lines 3 and 4) of cat. B. Line C 7 is easily explained in consistency with this; just as Arch. sjan (with short j) in line 5 became Anc. sjen (after dental), so Arch. zian (with long i) became Anc. sien (equally after dental).

There seems to be a great difficulty which vetoes this general theory: the words which I have placed in line C 10: zon, k‘jen etc. If an Arch. k‘jan kept its a (after guttural): line 2 g‘jan etc., how could we explain the k‘jen etc. of line 10 with e after guttural in this same rime category? The answer to this riddle will be given presently after we have discussed lines C 8, 9, 11 and 12.

The -en in lines 8 and 9 cannot be original, for then the words of these lines would have rimeed in cat. A. What their Arch. value was is not difficult to find. In my Shī King Researches (pp. 157 and 160) I have shown that Arch. kek (with an open, short, slack a- sound: e) and kek (> Anc. k‘al) rime with ak, -ag. Thus e and a regularly go together in the Shī rimes. I conclude that the Anc. -on, -wan (lines 8,9) in our cat. C derive from Arch. -en, -wen; 8 ken, 9 kwen.

Next we have lines C 11 and 12. I am happy to be able to improve here my reconstruction system of Anc. Chinese (Ts’ie yüan) on this point. For line 11, which is a rime of its own in the Ts’ie yüan (no. 19 in the Nei fa ts’ang T‘ang sie pen Ts’ie yüan and in the Kuang yüan, p’ing sheng) I had not been able to give any independent final at all; for line 12 I had given a very unsatisfactory reconstruction: I had distinguished it from line 6 only by a difference in the ho k’ou w; 6 -juen; 12 -juen. Now this was very artificial and doubtful, and I have myself stated earlier that a new solution had to be found (Shi King Researches p. 126). Our Shī rime system helps us to solve the riddle. Lines 11 and 12 are the f correspondences to the -en, -wen of lines 8 and 9; 11 ts‘jen, 12 j‘wen (Arch. given). Anticipating this discussion I have already entered these values in the table on p. 3 above.

We can now revert to the mysterious line 10: zon, k‘jen etc. It is explained by the system of lines 11 and 12. If we take the latter two together, we have ts‘jen and mj‘en and we have given, but we have no type k‘jen, i.e. the k’ai k’ou final -jen after gutturals and laryngals (which are the most frequent of the Chinese initials).

### Word Families in Chinese

It might be expected that in ho k’ou, as well as in k’ai k’ou, after guttural -wan would become -juen. And indeed, there is a strong tendency in this direction. For the word 花 Kuang yüan gives double readings g‘wen and k‘wen (rime 花, not rime juen 花), for it it gives k‘wen (not juen!).

There is one more very strong support for our theory that the Anc. -jen of line 10 (etc.) has a different Arch. origin from the -jen of cat. B (type 花), that indeed it stood closer to Arch. -jon (type 花), C 3, than did type 花 (B 3). In Go-on, the most ancient dialect of which we have a detailed knowledge, type 花 (B 3), Arch. -jen, is rendered by in: type 花 (C 3). Arch. -jon, is regularly rendered by -on; now, the words 花, 花 of line 10 are, in Go-on, not kin, in, in, but kon, on, on. Evidently, in the dialect that was the basis of Go-on, the Arch. k‘en, j‘en in these words had become k‘en, j‘en, j‘en, thus joining the C 3 type (花 k‘en, 花 j‘en) and not, as in Ts’ie yüan, becoming k‘en, j‘en (joining the B 3 type 花).

We are now able to fill in the Arch. values of our tables B and C:

#### B.

<table>
<thead>
<tr>
<th>Arch.</th>
<th>Anc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. jen &gt; ien</td>
<td>2. jwen &gt; iwen</td>
</tr>
<tr>
<td>4. jwen &gt; juen</td>
<td></td>
</tr>
</tbody>
</table>

#### C.

<table>
<thead>
<tr>
<th>Arch.</th>
<th>Anc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. on &gt; ien</td>
<td>2. wan &gt; iuen</td>
</tr>
<tr>
<td>3. k‘en &gt; k‘en</td>
<td>4. k‘wen &gt; k‘wen</td>
</tr>
<tr>
<td>5. i‘en &gt; i‘en</td>
<td>6. i‘wen &gt; i‘wen</td>
</tr>
<tr>
<td>7. ien &gt; ien</td>
<td></td>
</tr>
<tr>
<td>8. en &gt; ien</td>
<td></td>
</tr>
<tr>
<td>9. wen &gt; iwen</td>
<td></td>
</tr>
<tr>
<td>10. k‘en &gt; k‘en</td>
<td></td>
</tr>
<tr>
<td>11. ts‘jen &gt; ts‘jen</td>
<td></td>
</tr>
<tr>
<td>12. j‘wen &gt; j‘wen</td>
<td></td>
</tr>
</tbody>
</table>

To the three -en categories A, B and C studied above there correspond three categories D, E and F ending in -i and -d. Before taking them up for discussion I wish to make a preliminary remark. In my Analytic Dictionary of Chinese (1923) I pointed out that numerous 花 sheng cases like 花 Anc. k‘ai, 花 y‘en, 花 li‘en reveal an Arch. final dental -j‘ai, -j‘en lost, or rather vocalized into -i, before the time of Anc. Chinese; and since there is regularly a falling tone in such cases,
I concluded that the loss of the dental which I interpreted as 

\[-d\] (yād, ljād) in contradistinction to \[kāt\], ljād) entailed the falling tone. In some later articles I modified my theory and said that the Arch. final dental was \[-t\] in yād and ljād as well, and that the falling tone was primary and decided the evolution: whereas "kāt" preserved their \[-t\] (yād) and ljād" vocalized it because of the falling tone (similarly \[bprk\] > \[brk\]; "p'āt" > "p'āt"). This modified theory had great advantages (see Shi King Researches p. 119); and yet here I make a sudden volte-face and revert to my original theory such as was sketched in my Analytic Dictionary. My reasons for so doing will be given on p. 23 below.

We now revert to the \[-t\] and \[-d\] correspondences to categories A, B and C. Two of them (the \[-ar\] and the \[-er\] groups) Tuan Yū-ts'ai has erroneously confused into one; his cat. 15 (ju sheng section). This is one of the weakest spots in his otherwise excellent Shi rime treatise. Wang Nien-sun is superior on this point; he has clearly distinguished the three categories.

D. Cat. 14 of Wang's is part of Tuan's cat. 15, ju sheng section. The principal words are:

![Chinese characters]

1. had Anc. \(-d\) : kāt etc.;
2. had Anc. \(-d\) : tāi etc.;
3. had Anc. \(-d\) : kāt etc.;
4. had Anc. \(-d\) : ngūdī etc.;
5. had Anc. \(-d\) : tāi;
6. had Anc. \(-d\) : tāi;
7. had Anc. \(-d\) : kwāt;
8. had Anc. \(-d\) : kwāt;
9. had Anc. \(-d\) : g'āt etc.;
10. had Anc. \(-d\) : liāt etc.;
11. had Anc. \(-d\) : jwāt etc.;
12. had Anc. \(-d\) : jwāt etc.;
13. had Anc. \(-d\) : dz'āt;
14. had Anc. \(-d\) : dz'āt;
15. had Anc. \(-d\) : kāt;
16. had Anc. \(-d\) : tāi;
17. had Anc. \(-d\) : kwāt;
18. had Anc. \(-d\) : kwāt;
19. had Anc. \(-d\) : kwāt;
20. had Anc. \(-d\) : kwāt;
21. had Anc. \(-d\) : kwāt etc.;
22. had Anc. \(-d\) : kwāt etc.;

There is first a strict parallelism between lines with odd and even numbers. To the final \[-t\] of the former corresponds \[-d\] of the latter. This \[-d\] is the vestige of the lost "kāt" preserved its \[-t\] while \[-d\] has become > tāi."

Further the whole of this category corresponds faithfully to the \[-n\] class in cat. A above. We therefore obtain the following Arch. values:

**Category D:**

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å| å|

**Category A:**

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån| ån|

We can now pass on to cat. E, being the \[-t\] and \[-d\] correspondence to cat. B. The principal words are:

1. had Anc. \(-t\) : kiet etc.;
2. had Anc. \(-t\) : tiet etc.;
3. had Anc. \(-t\) : xiet etc.;
4. had Anc. \(-t\) : xiet etc.;
5. had Anc. \(-t\) : tiet;
6. had Anc. \(-t\) : sniet.

Here again 1 and 2, and 4 and 5 respectively had the same Arch. final, differentiated only by the contrast \[-d\] \[-t\]. the latter having vocalized into \[-d\] and causing a falling tone. We thus obtain the following Arch. values:

**Category E:**

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
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<tbody>
<tr>
<td>iet</td>
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<td>iet</td>
</tr>
</tbody>
</table>

**Category B:**

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ten</td>
<td>ten</td>
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<td>ten</td>
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</tbody>
</table>

Somewhat more complicated is cat. F, being the \[-t\] and \[-d\] correspondence to cat. C. The principal words are:

...
We can sum up all this in the following table:

<table>
<thead>
<tr>
<th>Category F.</th>
<th>Arch.</th>
<th>Anc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (st)</td>
<td>2. ad</td>
<td>1. (st)</td>
</tr>
<tr>
<td>3. wat</td>
<td>4. wad</td>
<td>3. wet</td>
</tr>
<tr>
<td>5. kiōt</td>
<td>6. kiōd</td>
<td>5. kiōt</td>
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<tr>
<td>7. kiōwet</td>
<td>8. kiōwad</td>
<td>7. kiōwet</td>
</tr>
<tr>
<td>9. iōt</td>
<td>10. iōd</td>
<td>9. iōt</td>
</tr>
<tr>
<td>11. iōwet</td>
<td>12. iōwad</td>
<td>11. iōwet</td>
</tr>
<tr>
<td>15. iōwat</td>
<td>16. iōwad</td>
<td>15. iōwat</td>
</tr>
<tr>
<td>17. āt</td>
<td>18. ād</td>
<td>17. āt</td>
</tr>
<tr>
<td>21. āt</td>
<td>22. ād</td>
<td>21. āt</td>
</tr>
<tr>
<td>23. āt</td>
<td>24. ād</td>
<td>23. āt</td>
</tr>
</tbody>
</table>

In this last category, F, we have had a large number of words with Anc. final -gi and -i, and I have shown that these are remnants of an Arch. -d. Now, the same finals, -gi and -i, occur in still another great rime category of the Shī, which it is necessary to take up for examination: cat. G, which is cat. 15 of Wang Nien-sun’s cat. 15 of Tuan Yü-ts’ai’s (one half of this latter only). The principal words are:

1. āt     2. āt     3. āt     4. āt
1. āt     2. āt     3. āt     4. āt
1. āt     2. āt     3. āt     4. āt
1. āt     2. āt     3. āt     4. āt

The interpretation of this category might seem to be very simple: nearly all the words end in -i and thus rime, and we could, for that matter, suppose it to
represents words with original Archaic final -i. But the question is in fact infinitely more complicated and necessitates an extensive investigation.

In the discussion of cat. c above I have purposely left out a few curious rimes, in which Anc. -un rimes with Anc. -i. e. g. 諸, 諸 Anc. t'an (< Arch. 亜軍); 亜 Anc. g'jan; 亜 Anc. t'ai shu. These cases are all the more interesting since 亜 has for phonetic 亜 k'jan (with -n) and 諸 has for phonetic 亜 k'jan. They naturally call to mind cases with other vowels in which similarly words with -n have rime or 亜 sheng connections with words ending in vowel, e. g. 諸 Anc. ná with phon. ná; 亜 b'wán with phon. b'wán and riming with 亜 nán (Yi king, kua 22); 亜 d'a with phon. d'a and riming with 亜 yán (Tsou chuan, Stan 2nd year). In all these cases it is very natural to think of nasalization phenomena, so that certain -an have become -a > -a, certain -jan have become -o > -o > -i. I suggested this in this Bulletin, vol. 1, p. 182, and the same has been proposed by Prof. Lin Yu-t'ang in his Yü yén lun ts'ung pp. 82 ff.

The theory would purport that 亜 was originally *nán, 亜 *b'wán and 亜 *d'a, and that 諸 was originally *g'jan, which by nasalization became Anc. ná, b'wán, d'a and g'jan respectively. But if so, we have to answer the question: how did this nasalization work? If 亜 was Arch. t'an and has always kept its -n (Anc. t'an, Peking t'an), how could 亜, if it was Arch. *d'a, get its -n eliminated by nasalization and become Anc. d'a (Peking t'o)? How could they develop differently? In the same way, if both 亜 and 諸 were Arch. g'jan, how could the former become Anc. g'jan (Peking k'i) and the latter Anc. g'jan (Peking k'í)? There is no possibility of this within the same line of the language. If it were so, it must be due to a mixing of dialects. Whereas -n, in the main line of the language, that of the Shih king and the 亜 sheng characters, High Chinese, was preserved and lived down to Ts'ie yün time, it has been nasalized in one or several dialects which were on the side of (parallel with) the High Chinese: from this side-track dialect, so to speak, a few forms like 亜 d'a, 諸 g'jan have then penetrated into High Chinese and there ousted the regular forms *d'a, *g'jan for these words and taken their place. Thus, in Ancient Chinese (Ts'ie yün) we have obtained 亜 d'a (dialectal loan word) but 諸 t'an (regular form), 諸 g'jan (dialectal form) but 諸 g'jan (regular form).

In principle, there would be nothing against such an explanation. We could find numerous parallels in other languages. In French, for instance, we have the words cage, canevas, caillou. In High French they should properly read change, chenave, chaillou according to the regular phonetic laws of that language, and such forms with ch have really existed earlier, but have been ousted, in High French, by the dialect forms (Picardie, Normandie) cage, canevas, caillou. Again, in High Swedish, the words spår (spöd), lén, stråk (stråk), pase (påse) should regularly have been spör, lern, stråk, pösse (cf. bör, törn, lök, mösse), but have got long vowels because they are forms loaned from other dialects than the one which is the regular basis of High Swedish. The same phenomenon can be observed in Pekinese in certain sporadic cases. 亜 and 諸 should regularly give Pek. ying and

WORLD FAMILIES IN CHINESE

"chengo," but they are pronounced yin and cheng through influence of some dialect in which -ng > -n. And certain Archaic words have similarly jumped over into Anc. Chin. category where they should not properly belong: 亜 Arch. seng should be Anc. song (Kuang yün rime 13) but was really song (Kuang yün rime 12); 亜 Arch. lüan (cat. c above) should give Anc. ti'ün (Kuang yün rime 18) but has given Anc. ti'wén (Kuang yün rime II, 2). It is here always a sporadic irregularity.

For a long time, indeed, I have imagined that this solution was the correct one. But the longer I studied the question, the more I have become convinced that it must be wrong. I have gradually been brought to an opinion which expresses that with W. Simon (Zur Rekonstruktion der alchinesischen Endkonservativen II, p. 8), though it is by no means unique.

It is necessary here to make a survey of all the most important cases of interchange of final -n with final vowel in Arch. rimes, 亜 sheng characters and kia tsie. I limit the list to those cases that are pre-Han or Han; later examples out of the Ts'ie yün and Tsi yün, concerning words not attested before Liu ch'ao time of course prove nothing about Archaic Chinese. The readings given in this survey are all in Anc. Chinese.

1. This is the already mentioned 1. ná which in Shi (Chu kan) rimes with 2. tsá and yet has nán as phonetic.
2. The word ná 'ample' (Shi, Si sang) is written (xia tsie) 3. nán.
3. The word 4. has two Kuang yün readings t'an and tó; phonetic tó. Rimes as tó in Shi, Pan.
4. Is the already mentioned 5. d'a (Ts'ie yün but not Kuang yün has an alternative reading d'an) with phon. t'an and riming with 6. ngiwomen (Li ki, Yüe ling).
5. 7. Ts'ie yün t'a and t'an (T'ang yün also tó, not in the Ts'ie yün); has phon. tó. Shuo wen quotes Shí, Si mu, as 7; the Mao version has 8. t'an.
6. 9. tó. Shuo wen 'a horse whip', phon. tsán. No pre-Han text example.
10. Anc. 『te 'to measure', phon. 『tu. Used as kia tsie for 11. dʻuʻn in a 』fu written by Kiu Yi († 168 B. C.) in Tsʻien Han shu (k. 48, p. 3 a). Kuo P'o, comm. to Fang yen, reads it 『zjw. 13. 『zjw, phon. 『tu.
14. 『tšw, phon. 『tu, rimes (Shi, Siao yian) with 15. 『tu and 16. 『tšj, and (Chuang-tsi, Tsʻi wu lun) with 17. 『mtn. For 14. in Meng-tsi II (Legge p. 187) the Tong version has 18. read 『tšjw.
19. Yü pʻien 『tu and 『tu, phon. 『tu; Shuo wen says 『read like 20. 『tu (『tjw).
21. bʻuʻn and bʻuʻ, phon. pu. 22. bʻuʻn and bʻuʻ; it occurs in the bisyllabic expression 23. bʻuʻn-sin (Si-ma Siang-ju, Tʻsi-hu fu, Wen stān 7, p. 14 a; Li Shan indicates the reading bʻuʻ, but this is evidently the same as Shi (Tung men chʻi-fen) 24. bʻuʻ-sa (so also Er ya).
25. 『kud 'liberation'. All ancient commentators (Mao Heng, Hū Shen, Cheng Chung, Cheng Hūan) define it as 26. 『kud 'liberation', and it must be etymologically cognate to this; yet it has 27. 『kud as phonetic.
28. 『pʻwvn 'a track', 『pʻwvn 'a turn', bʻuʻn, pʻwvn, bʻuʻ various place-names, pu. 'courageous'. In Shi (Song kuo) it rimes with 29. tān, yān, 『pʻwvn.
30. bʻuʻ, pu. Rimes in Yi king (kua 22) with 31. yān, in Tso chuan (Stān 2) with 32. yān.
33. bʻuʻ a place-name, pu. 'stone used for arrow point', cf. 34. pu.
35. pu.; rimes in Kuan-tsi (Ti tsi chʻi, chapter 59) with 36. bʻuʻn (the present text is corrupted by adding a word which spoils the rhythm and should be eliminated).
36. 『lu, phon. 『lu.
37. 『mu, has phon. mjān and rimes in Shi (Sin tʻai) with 39. Arch. dʻian, there was, however, also a reading 『mu, given by the Tʻang commentator Ting Kung-chu (ap. Sun Shi) to Meng-tsi II (Legge p. 207), and already by Kuo Pʻo († 324 A. D.) in his comm. to Fang yen (k. 3, p. 4 a).
40. 『qwvn 'to dry', Yi king (Shuou kwan); 『qwiv 'fire', Chou li (Shi kuei shi), so read in Kuang yīn and King tien shi wen. Both build on Cheng Hūan, who says it is read like 41. (the Tsʻi dial. word for 42).
43. 『tšg (Kuang yīn, Yü pʻien, King tien shi wen to Li ki Tʻan kung, and Tʻsi lin ap. King tien shi wen). Phonetic 『tān. Shuo wen gives a variant 44. with phon. 『tjw.
45. nēi, phon. nān.
46. frequent in various readings and meanings (many of them kia tsie): tuan, 『tsu competitions, tuan, dʻuʻ, dʻuʻ, tuāi. In Shi (Pei men) it rimes with 47. jw, tsʻuʻ, it is then read tuan by Mao Heng, tuāi by Cheng Hūan.
48. 『tsu (Arch. 『tān, tuan 'a kind of bell', dʻuʻ 'butt of a spear'. As dʻuʻ it rimes in Shi (Siao jung) with 49. 『pʻwvn.

WORD FAMILIES IN CHINESE

50. dʻuʻ with phon. 46. tuan. In Sung Yū, Feng fu (Wen stān 13, p. 2 b), it occurs in a bi-nom 51. dʻuʻ-yuan, which I suspect should be read dʻuʻ-yuan (after the pattern of innumerable such bi-noms) in spite of the dʻuʻ gloss of the commentary.
52. 『tu and 『tu. Rimes in Shi (Tsʻai kʻi) with 53. 『tu, 『jwvn.
54. has a series of Anc. readings: pqg, bʻwvn, bʻu, pʻwvn, bʻu, in the pqg of Yi king (kua 22) Cheng Hūan (ap. King tien shi wen) says: it means 55. pʻwvn, which is evidently a phonetic gloss (the sense explained by an approximate homophone). In the reading pʻwvn it rimes with 56. 『tān (Arch. 『tān) in Tso chuan (Hi 5).
57. 『tān serves as kia tsie for 58. tuāi in Chuang-tsi (Chʻi lo, last section).
59. 『jwvn, phon. k̄w.
60. pu. 'curved handle of a plough'; 『jwvn 'a clothes-peg'.
61. 『jwvn 'light, brightness' rimes in Shi (Tʻing liao) with 62. 『tjwvn (Legge translates it 'smoke' and reads it 『hūdān i.e. Anc. 『tjun and Couvreur translates 'fume' and reads 『hūdān i.e. Anc. 『tjun; they both have followed Chu Hi, who has fabricated a poetic reading; Mao Heng says it means kuan 'brightness', indicating the ordinary sense and reading of the word; Lu Tʻe-ching underlines this by saying: 『read 63. 『jwvn). Other readings given by Kuang yīn and Tsi yīn are 『tjun, 『pwvn, 『tu, for which, however, there are no pre-Han examples. But it is used as kia tsie for 64. 『tjun in Chou li (Shi tsin) and for 65. 『tjun in Li ki (Tsi tʻung).
66. 『nju and 67. 『jwvn in Shi (Ku feng) with 『jwvn.
67. About 68. 『pwvn Shuo wen says: it is read like 69. 『jwvn.
68. 『jwvn rimes in Shi (Tʻang shan) with 71. 『tun (not recognized by Tuan Yū-tʻai, but by both Wang Nien-sun, Kuang Yʻe-kao and Chu Tsʻin-sheng).
69. 72. kái and 73. „t´i both rime in Shi (Tʻi tu) with 74. 『g`wvn.
70. 『jwvn rimes in Ta Tai li (Wu tʻi tē) with 76. 『jwvn.
71. 『g`jw 'to pray' has phon. k`jw.
72. 『g`jw 'name of a herb' read 『g`jw and 『g`jw, has phon. k`jw and is used as kia tsie on the one hand for 77. 『g`jw 'to pray' (so often in bronze inscriptions), on the other hand for 79. 『jwvn in Cheng Heng, Si king fu (Wen stān k. 2, p. 7 a).
73. 80. 『g`jw has phon. k`jw and rimes in Shi (Tʻing liao) and in Tso chuan (Hi 5) with 62. 『tjwvn, and in Shi (Tsʻai shu) with 81. 『g`jw.
74. 82. 『g`jw, which in Shi (Shi jen) rimes with 83. 『g`jw, tsʻi, si, has k`jw as phonetic and is used as kia tsie in Li (Tʻan kung) either for 84. k`jw (so acc. to Lu Tʻe-ning) or rather for 74. 『g`jw (so Chu Tsʻin-sheng, based on Cheng Hūan's gloss: sequal to 85.), and also as kia tsie in Chou li (Kʻão kung ki, Chou jen) for a word 'strong' which Cheng Chung (1 st c. A. D.) reads k`jw.
75. 86. 『g`jw, id. with 87. 『g`jw, is also used for 88. 『nju and has phon. k`jw.
76. 89. 『nju has phon. k`jw and is used as kia tsie for 88. 『nju (Tsʻien Han shu, Sū chuan).
We see that the contacts of -n words with words ending in vowel are quite numerous, and the dialectal nasalization explanation becomes more possible somewhat dubious. But it becomes all the more so if we examine some of these cases more closely; the theory is indeed quite hopeless.

In the first place we should have to have recourse to two different nasalization phenomena:

a. In cases like XXXIX *g'jei with phon. Fr kjon and riming with *sjen, Arch. dyon, we should have to say that the Anc. -n word *g'jei had -n originally: *g'jon and therefore got its phonetic Fr and rimed with the -n word dyon. But dialectally it developed *g'jon > *g'jón > *g'jéi. In other words, a nasalization which did not exist in the Shí language, nor in the hie sheng language nor in the main line of the later High Chinese, occurred dialectally, and from this unknown dialect, penetrated (through a certain number of loan words) in the Ts'ie yén language.

b. On the other hand, in cases like LVIII: *d'si' with *sjen, we should have to suppose that it was the Anc. -n word *sjen which in some Arcadic dialect had been nasalized: *sjen > *sdj > *sjá and therefore could - in a dialectally coloured Shí ode - rimed with the -n word *ts'í. In other words: A Shí ode would have revealed to us a nasalization that has left no trace whatever in later times and has not been mirrored in the Ts'ie yén language.

The necessity for two different nasalization theories is already very disturbing; and we should furthermore have to operate with the whole transitions *g'jon > *g'jéi and *d'ón > *dn > *d > *d functionally already in Shí's time. Whereas *g'jon had its -n:

*g'jon in a dialect which is the base of a rime like Fr kjon (Shí, Ts'ie yén), the originally homophonous Fr *g'jon would already have become g'mei in another dialect which is the base of a like *mh: *mjei (Shí, Shén). Similarly (XLVIII) would have been *sjei in the dialect of the ode Sajón, but *sjei in the dialect of the ode Lui yén. Whereas *sjei was *d'ón in a dialect which is the base of the hie sheng character (phonetic *sjei) and of the rime *nigwén in Li ki, Yé lìng. *ná would have been *ná already in Shí time in the dialect of the ode Chu kan (riming with *tš). All this is extremely unlikely.

In the third place — and worst of all — it is very difficult to imagine the nature of a dialectal nasalization which could explain the -n contacts listed above. It is all very well to say that *sjen had become dialectally sjá > sjá in order to rime with *tš. But what about *lu *son (Arch. sün) riming with *kjwén, or Fr kuan riming with *jei? Here we could not very well postulate dialectal transitions *son > *sai, > *sü = *kaù. And even if we were so bold, it would lead to impossible consequences; for if *kuan > *kai, in order to rime with kjwén (with original -i), how could *ná > *dá, *ná in order to rime with *tš and not ná? All this is plausibly impossible.

We have, then, to abandon the nasalization theory as a means of explaining the totality of these -n contacts and search for other ways.
We could, in the next place, imagine the possibility that we have not to do with a dialectal phenomenon but that is a true Arch.-n word (since it had kjon as phonetic and rimed with -n words) and yet in some way different from kjon; this, then, would explain why the former has become Anc. g'jen and the latter Anc. g'jon. A glance at the cases listed above, in which there is contact between -n words and vowel-ending words, convinces us that it cannot have been a question of the vocalism — there are all types of vowels, all of which simultaneously occur in words with -n preserved to this day. Nor can it have been a question of tone.

For certain words it might be tempting to assume a palatalized -n. *g'jon: g'jon. This would explain very nicely why g'jan has become g'jet but g'jon kept its -n: g'jon. On the other hand, it would furnish a plausible explanation why a supposed *g'jan could rhyme with a *jet — because of its yodiced (t-tasting) final -n. But we realize immediately the impossibility of this explanation. It would explain only a few cases. It could never be applied to cases like Uli Arch. sam riming with kjong, or pjiwe kia tse for pjiwe, for we cannot suppose a palatal -n in sam and pjiwe, which have their -n preserved in Ts'e yin and down to our time; nor would it be applicable to cases like *nå(<*nå?) riming with tsa, b'ud riming with yin. And it is obvious that no explanation is plausible which does not solve all these problems, which are certainly connected and must have a common explanation. It would, moreover, be very bold to construct an Archaic antithesis *g'jan: *g'jon, for then we should have to find a reason why -n in the one case was assimilated — -n, in the other is not — n, simply to say that this is due to unknown early phenomena (in Proto-Chinese) would be very unsatisfactory.

We could, finally, imagine that in all these cases (I—LX) the member ending in Anc. vowel has had an Arch.-n, but an -n that was weaker than -n that was preserved: *g'jan (short -n); *g'jan (long -n); *nå (short -n); *nå (long -n), etc. But this would be, again, to construct an inference that is not possible to prove. 

We see that all these tentative solutions fail. We cannot arrive at a satisfactory explanation so long as we insist upon all these words of types kjon, b'ud, g'jet etc. having really an Arch.-n, which has been lost in one way or another. We shall have to start at another end and look more closely into the big words of groups ending in -t (cat. G) and examine whether their -t cannot have represented something else than -n or -t in Arch. Chinese.

Experience from the guttural groups has taught us that Arch. final -g has to a large extent dropped and given rise to -t, e.g. *log > lāi, *kog > kāi, *tsog > tsāi, *shog > xar > yāi. Similarly -d has become -t, as described above (categories D, E, F): liad > lāi, līet > tēi, g'ad > yāi etc. When we now, in our present

- **GROUPS IN CHINESE**

| a. | Between *jgei 'clothes' and *jjan 'to cover, conceal'; |
| b. | Between *jgei 'a screen', *jgei 'a screen' and *jjan 'to cover, conceal'; |
| c. | Between *jgei 'to lean on' and *jgei 'to lean on' (common expression: yin kin 'to lean on a stool'); |
| d. | Between *jgei 'near to' (common expression ki hu 'near to') and *jjan 'near to'; |
| e. | Between *jgei 'close quarters': 'Royal domain proper' and *jjan 'near to'; |
| f. | Between *jgei 'famine', *jgei 'famine' and *jgei 'famine'; |
| g. | Between *swi 'water' and *jgei (Arch. jyan) 'a water level'; |
| h. | Between *jwej 'to encircle, surround' and *jwej 'to turn round'; |
| i. | Between *tew 'woof' and *jwej 'woof'; |
| j. | Between *jwej 'to fly' and *jwej 'to start flying'. |

Here, still more than in the rimes, the hie sheng and the kia tse, it comes out clearly that -t is the vestige of a lost dental.

When it now comes to determining the nature of this dental final, it will not do at all to pose, as W. Simon (op. cit.) does, the same dental here as in categories D, E, F; cases like *liaj which has *liaj as phonetic (Simon writes *liaj, *liaj); they are absolutely different. In the liaj type (cat. D, E, F) — Arch. -d — there is an interchange with -t in rimes and hie sheng; here, in the lgei type (cat. G) there is an interchange with -n (cases I—LX above). The two types practically never mix.

In the -t words of our cat. G, the dental final cannot have been a -t, as for a rule they do not rhyme with ju sheng -t; we cannot suppose *jgei Arch. g'jet etc.

It cannot have been a -d for the same reason. The -d words are in cat. F, and rimes frequently with the -t words, just as experience from other groups shows us that e.g. *-ok and *ggei rime quite freely. But with cat. F our cat. G here has very few rime connections (see p. 24 below); on the other hand, the -t -d words practically never rhyme with -n words, but we have just seen how our cat. G here has quite considerable -n connections. A -d is therefore just as much excluded as a -t; we cannot construe *jgei Arch. g'jet etc.

It cannot have been an -n. We have already discussed extensively why *ggei cannot have had an -n. To suppose *g'jan (g'jet) *ljen (<-tien), *g'jān
The choice is not difficult. The final in question was -r. An -s in them all is easily excluded. In rimes like 谷 'g'or, 谷 'g'or we cannot pose a 谷 'g'or, nor could 谷 'g'or, if it were an Arch. 谷or, serve as kia tsie for 谷 'g'or -r and -l are equally possible from the point of view of rimes, hie sheng and kia tsie. A rime like 谷 'g'or, 谷 'g'or, a hie sheng like 谷 'g'or, 谷 'g'or and a kia tsie like 谷 'g'or for 谷 'g'or are passable; they are not good, and therefore only occur as exceptions (cases 1--LX above), being indeed makeshift rimes and somewhat poor hie sheng and kia tsie, but still they might occur occasionally; -l would be equally good and equally bad as -r: 谷 'g'or, 谷 'g'or, 谷 'g'or. But my decision for -r and against -l depends upon the fact that it is easier to imagine an evolution Proto-Chinese -s > Arch. -r (e.g. 谷 'g'or, 谷 'g'or) than P.C. -s > Arch. -l (谷 'g'or, 谷 'g'or). The latter would go against all linguistic experience. The former is a common and well-known transformation. I need only recall the Germanic final -s, which generally gives Old Icelandic -r: Got. suns: Iscl. sun; and of the 'rotacism' in Latin (genes- > gener- in generics, es > er in the verb esse). Particularly suggestive, moreover, is the cognate language Tibetan, where there is sometimes an interchange of -s - as final consounant: mdeza-pa 'beautiful': mts-'or-ba 'beautiful'; byus 'misfortune': byur 'misfortune', etc. I conclude, therefore, that the three Proto-Chinese types a s, a l, a r have all become Arch. a r and that the whole of our cat. G ended in -r.

That I am here on the right track seems to me to be confirmed, once we go back to the table of cat. G on p. 11 above and fill in the Arch. values. It turns out that this category with dental final, -r, forms an exact parallel to two other categories with dental finals, -l and -l (-d) studied earlier, categories C and F, and this I consider to be a strong corroboration.
The rime examples of these two lines are very few and have to be considered as exceptional, just as occasional confusions can occur between other regularly distinguished categories. Just as there are irregular rime contacts a: a (categories A: C) e.g. in She, Ch'u ts'ā: 现 (A); 嵐 (A); 顯 (C); in Shei, Siao jang: 漪 (C); 漪 (A); so we have here some occasional a: a contacts: line 12. Arch. 九, 濒, 13. Arch. 九, 九 (rimeing with -war words).

In connection with our table above it is the proper place here for reverting to the question of the Arch. final -d (see p. 7 above). That I have had to abandon my idea of -t in falling tone > -f and go back to my construction -d > f of my Analytic Dictionary is just because the -t theory does not satisfy the general system of the Archate language. I have shown earlier (following up ideas first advanced by W. Simons) that Arch. Chinese had both -k words and very large groups of -g words. It would be strange indeed if it possessed -t words and -r words but no -d words. All probability, then, speaks in favour of -d, not -f, in the -d sections of categories D, E, F above. But probability is not the same as proof. I have obtained the proof in another way. I have stated above that cat. F does not rime, as a rule, with cat. G, i.e. -r words. But there are some exceptions, and these are highly significant. I shall give some examples:


The words to the left of the colon belong to cat. F, those to the right to cat. G (-r). Now, the striking fact is that in one case only (15) have I been able to find a real ju sheng -r rimeing with -r. In all the other cases it is a question of the final dental, which was lost before Anc. Chinese, causing a falling tone, the dental which I had first interpreted as -d and later as -r. It is quite evident here that the former interpretation must be right. For if it had been a -t, there is no reason whatever why -r should rime more with -t than with -r. If, on the other hand, it was a -d, it is but reasonable that -r rimes more easily with -d than with -t. We can then well understand the cases above: as a rule neither -r nor -d rimeing with -r; yet exceptional rimes -d -r could sometimes occur, -d and -r being sufficiently similar phonetically, but hardly ever -t -r.

These are the considerations that have forced me back to my original construction of -d (and of -g in 越 etc.) in my Analytic Dictionary. It is true that it will then be necessary to find an explanation of the phenomena discussed in my Shē king Researches p. 120. I shall revert to that question on another occasion.
Though these rimes, hie sheng and kia tsie are exceptional, yet they are sufficiently numerous to show that the Chinese in Archaic times had a very strong feeling for the close affinity between -n and -r words. This was not only due to the phonetic similarity (a rime like *jar: kwān must be said to be phonetically very poor) but also and above all because they had numerous word pairs in n- r which

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they knew and felt to be cognate, two aspects of the same stem. Here we revert to the examples on p. 20 above:

a) *jar ‘clothes’; *jan, ‘to cover, conceal’;
b) *jar ‘a screen’; *tar ‘a screen’; *jan ‘to cover, conceal’;
c) *jar ‘to lean on’; *jan ‘to lean on’;
d) kjar ‘near to’; gjan ‘near to’;
e) gjar ‘close quarters, Royal domain proper’; gjan ‘near to’;
f) kjar ‘famine’, kjar ‘famine’; gjen ‘famine’;
g) sjwar ‘water’; sjwān ‘a water-level’;
h) gjwar ‘to encircle’, gjwān ‘to turn round’;
i) gjwar ‘a wool’; gjwān ‘a wool’;
j) gjwar ‘to fly’; gjwān ‘to start flying’.

To these cases we can now add the following, out of our cases I—LX above, which are clearly such double aspects of the same stem:

l) 4. tār and tān ‘distressed’;
lIV) 5. dār and dān ‘iguana’;
lV) 7. tār and tān ‘exhausted’;
x) 19. tār and tān ‘hanging ears of grain’;

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The cases are sufficiently numerous to make a seemingly bold theory of an alternation r  r  n within the same word stem plausible. Moreover, we find a very suggestive parallel to this in Tibetan, where there is a frequent alternation both of r  n of l  n and of r  l:

r  n:

shu-’ma ‘chaff’; sūn-’pa, sūn-’pa ‘chaff’;
gler-’ba ‘bare, naked’; rjen-’pa ‘bare, naked’;
‘byon-’ba to arrive’; byon-’ba ‘to arrive’;
dkhor ‘rare, precious’; dkön ‘precious thing’;
gnyer-’ba ‘take pains with’; yen-’pa ‘to be pained, labour hard’;
nyer-’ba ‘to tan, make soft’; mnyen-’pa ‘flexible, soft’;
štār ‘to tie fast’; bryen-’pa ‘firm’, gian ‘to bur (a door)’;
primary (general Sinitic) -k and -t, e.g. * Arch. ħōk (p. 18), * pwar (p. 15) which have their -k and -t in the great majority of the Sinitic languages, and words with Chinese -k and -t, in which these -k and -t must be an invention, some kind of suffix in one or several Sinitic languages but not primary and common to them all. As such examples I have given Arch. pāk 'hundred,' (p. 17), * hēt 'sun' (p. 19), * ngwāt 'moon' (p. 21) - they all have typically vowel-ending Sinitic roots. It is just the same with the final -g in * kūg 'nine,' which must be a special Chinese feature, without correspondence in other Sinitic languages (Tib. dgu etc., op. cit. p. 36). Now, the words 'four' (Tibetan bū etc.), to 'die' (Tib. śi etc.) and 'water' (Tibetan c'ū etc.) are typical vowel-ending Sinitic roots (op. cit. pp. 31, 32) and from the Arch. Ch. * sjad, * sjar, * sjwar I dare not, by any means, conclude any Sinitic dental finals. Their final consonants may be just as particularly Chinese as the -t in * hēt and * ngwāt.

It should be emphasized that it is only because of the contrast with the well-known cases with real Sinitic -k, -t (X, A), in which -k and -t do appear in a great number of Sinitic languages, showing that Sinitic -k, -t should not disappear in all languages except Chinese, that I refuse to see a primary Sinitic -t in cases like * hēt, * ngwāt, and -d in * sjad. If it were not for that contrast, I would not deny the theoretical possibility of a primary Sinitic -d in the latter, having been dropped in all languages except Chinese. This would in itself be theoretically admissible. We must remember that -t, apart from Chinese — for one language only, Tibetan, we know a stage as ancient as the 7th c. A. D.; for Siamese only the 13th c. A. D. Most of the Sinitic languages we know only in their modern and certainly very strongly evolved forms. We could never, from all the modern Germanic languages, reconstruct an Ancient Germanic language in the very least similar to the Anc. Germanic we know thanks to Gothic texts and to comparative Indo-European linguistics. From Icelandic stein, German Stein, Swedish sten, English stone we could never suspect the Anc. Germanic stānaz. The reason for this is obvious. There were inherent in the Germanic peoples certain common psychological tendencies which have caused their languages to evolve — even after the cohabitation of the peoples was broken —  along parallel lines. Hence stānaz has lost its final consonant and its vowel of the ending in these languages independently of each other and by a parallel evolution. Just the same may have taken place in all the Sinitic languages, so that by a parallel evolution they all lost their -d in 'four' except Arch. Chinese (and later on Chinese as well). That is why I say that I conclude against such a wholesale dropping of a final -d in * sjad only because of the contrast with words with preserved Sinitic final consonants.

It is quite necessary to keep in mind this possibility of independent and yet parallel evolutions, once we think of a comparison between e. g. Siamese and Chinese. In his work Le dialecte de Tch'ang-nang sous les Tangs (BEFEO 1920) H. Maspero has given a series of Siamese-Chinese word comparisons, some of which seem quite convincing.)* If we dress a table with the Siamese forms, the Anc. Chinese (6th c. A. D.) and the Arch. Chinese as reconstructed...
by me, the Siamese forms seem to afford crushing evidence against my Archaic reconstructions:

It would seem that Siamese forbids the reconstruction of the Arch. final consonants. And yet, in several of these very words there are absolute proofs of their existence:

It rimes in Sh with _FREQ, which frequently rimes with -k (e. g. Chwang-tsi: Ta tsung shi, Hui-nan-ts: Lan ming, Yi Chou shu: Tu hun etc.);

-rimes in Ch’u ts with _FREQ, which frequently rimes with -k (e. g. Chou: Lu hing, Sün-ts: K’un tao); and it rimes in Sün-ts: Ta lie with 齴, the final -g of which is certain from the element 矢 pok;

-s rimes in Sh with _FREQ, which frequently rimes with -k (e. g. Chwang-tsi: Ta tsung shi and Shan mu etc. and which has the same phonetic as 矢, which latter again regularly rimes with -k and is used for 矢 tsk in Chwang-ts and which regularly rimes with -k (dozens of examples);

has two Arch. readings kau and kuok and regularly rimes with -k (passim); there cannot be the slightest doubt about its Arch. final gutural;

has the same phonetic as 矢 d'ok, and as 矢 i' and o'ok; its phonetic 矢 has phon. 矢 d'ok;

只 is phonetic in 矢 kát and serves as kia tsie for 矢 yát.

Thus, in spite of Siamese, we cannot but acknowledge the Arch. final consonants in these words, and I can see no reason why Proto-T’ai could not have had final consonants as well, lost or changed into -u, -i in the same fashion as in Chinese, and thanks to parallel evolutions.

It is, indeed, interesting, in this context, to observe the parallelism of Tibetan and Chinese sound evolutions during the last millennium on several striking points. Just as the ju sheng -G has been lost in the whole of Northern China: *_pwa > pu, _x t’sèt > t’sè, _f kuo > kù etc., so Tib. final -d has been lost in the Central provinces: n∧t > nâ, bod > b’ò, dyid > dì etc. And just as certain voiced initials, i. e. explosives, affricates and fricatives, have become surd in the whole of Chinese, except the Wu dialects, so certain voiced initials, namely fricatives, have become surd in Tibetan: 1 _zhig, _ši, _ștang > tang. Tib. zha > sa, zia > sa.

Having finished the investigation of the words ending in Arch. dental, I wish to take up once more the question of the words groups ending in -k, -g, -ng, extensively treated in my Shu king Researches. Professor Li Fang-kuei has recently published an article: »Ancient Chinese -ung, -uk, -wong, wok etc. in Arch. Chinese« (Bull. Nat. Research Inst. Hist. Phil. vol. III, pt. 3, 1933), which is largely a polemic against my conclusions and a system of reconstruction of his own. This article is full of interesting observations and ideas, and on some points I can revise my system thanks to his proposals; on the whole, however, I cannot accept his conclusions, and his reconstruction scheme is in my opinion quite impossible.

Among the points which seem to me to be acceptable, I first mention his opinion that the hie sheng characters must be somewhat older than the Shu king odes, a fact which I had doubted earlier. In fact, in the -at category above (F) there are certain phenomena which confirm Li’s opinion. We find there, quite regularly, 矢 and 矢 rimes with -t words, which clearly indicates Shu mewed, twad. But if we had originally a -b is quite certain. The labial final is brought out by 矢 Arch. nap (Anc. náp, Mand. na), originally written simply 矢, and it is obvious that this Arch. nap ‘to bring in’ is mewed ‘interior’; a 矢 ‘to enter’ are but two aspects of the same stem. And 矢 twad ‘to answer, vis-à-vis, etc.’ stands to 矢 tap ‘to answer’ just as mewed ‘interior’ stands to nap ‘to bring in’. In Shu time mewed had become mewed by dissimilation."

Another valuable point in Li’s treatise concerns the words treated on pp. 136-140 in my Shu king Researches, e. g. 矢. This was an original gloc, since it had 矢 kâd for phonetic. And yet it rimes in Shu king with words of type 矢 ko and never with ju sheng tsǎk etc. Li had assumed earlier that it had lost its final -g already between his sheng time and Shu king time. But since type 矢 ko regularly rimes with type kâ, and type 矢 rimes with type ko but not with type kâ, I had concluded 矢 could not be simply glo in Shu, and so I had supposed an implosive final: 矢 kâ: 矢 ko: 矢 glo. Now Li proposes, instead, a final laryngal: 矢 glo’ (gloctal stop), which is an extremely common substitute in modern dialects for an earlier ju sheng -k, and he thus obtains a nice system of rimes: kâ: ko: glo’; but never kâ: glo’, the two being very dissimilar phonetically. This I think is much better than my own explanation. We have therefore to state that final -g was still living, in Shu times, after e, o, o and u (e. g. 矢 lag rimes with -k) but that after the vowel a it very early became’ (gloctal stop) 矢 gloc, 矢 p’oc. 矢 gloc became glo’, p’o’, z’o’ in the Shu language, which explains the rimes in Tuan Yu-ts’ai’s cat, 5, which are otherwise inexplicable.

So far, so good. But for the rest Li’s constructions are very disappointing. He seems to start from an assumption that every Arch. vowel must exist in combination with every Arch. final consonant — if there are gaps, the construction must be wrong. The chess-board of 8 × 8 = 64 squares must have every one of the 64 squares filled; if not, we are on the wrong track. This is a funny axiom, to say
the least of it. I know of no language with such a structure, and I fail to see why Chinese should be one. He finds in Anc. Chinese, in the -ang group:

1. āng  2. wāng  3. ō

4. jāng  5. ō  6. jūng

Since there is no Anc. jwāng and no Anc. -ang (in this Shī rime group), he concludes for Arch. Chinese:

1. āng  2. wāng  3. ō

4. jāng  5. ō  6. jwāng.

This looks very nice indeed, but it is extremely embarrassing, once it has to be applied to the corresponding words with -k and -g:

1. ək  2. kwāk  3. ō

4. jkāk  5. jwāk  6. jūk

7. lāi  8. xuāi  9. mū

10. tsi  11. kjwā  12. kjū

In Anc. Chinese they were:

1. ək  2. kwāk  3. ō

4. jkāk  5. jwāk  6. jūk

7. lāi  8. xuāi  9. mū

10. tsi  11. kjwā  12. kjū

On the analogy of his interpretation of the -ng words, Li has to assume the same Arch. final for 5. and 6.; for 8. and 9.; and for 11. and 12. Thus:

1. ək  2. kwāk  3. ō

4. jkāk  5. jwāk  6. jwāk

7. lāg  8. xuāg  9. mūg

10. tsāg  11. kjwā  12. kjwā

But since it is impossible that an Arch. -jwāk could give sometimes Anc. -jwāk and sometimes -jūk; that an Arch. -wāg could give sometimes Anc. -mū and sometimes -mū; and that an Arch. -wāg could give sometimes -mū and sometimes -mū, he has to find explanations for these divergent treatments.

In the first place (5: 6) he has to deal partly with labial-initialled words, e.g. -p̍, jwāk. These cause no real difficulty, for in p̍jwāk the w is a false ho k'ou (see p. 4 above) and the Arch. form was k'ai k'ou p̍jūk. partly he has to deal with guttural-initialled words: -g̍, jwāk; and here Li has no better way out of the difficulty than to refer to an analogy: -g̍g̍wāk has become Anc. (g̍)jūk by analogy, through influence of other -jūk words in another Shī rime group — but Anc. (g̍)jwāk (Arch. jwāk) has not undergone this analogical influence! And he passes this somewhat severe judgment (p. 391): «We have so far in discussing Chinese phonology made little use of analogy, but such a forceful principle so well attested in many languages cannot leave no trace in Chinese ... Karlberg's reconstructions, I believe, fail because ... he fails to recognize certain analogical processes which are of paramount importance. I am afraid I know sufficiently well the part played by analogy in various languages to be aware that it cannot be drawn upon in Li's haphazard and hazy way: if we explain an evolution by analogy, we have to show which particular word or words have been influenced by which other particular word or words, and why they have done so; and we are certainly not allowed to explain a -g̍wāk (Arch. jwāk) unless we show at the same time why Anc. jwāk has not equally become jūk but remains Anc. jwāk. Li has here left the field of linguistic science).»

In the second place Li has to explain why certain -wāg have become -mū and others -mū (8: 9). Here he has found a very clever explanation. He thinks there is a tone difference: -wāg in shang sheng (rising tone) became -mū, -wāg in p'ing sheng (even tone) became -mū. This would be a brilliant expedient — if it were true. In order to prove it to be so Li gives statistics drawn from the Kuan yün. He serves us a series of characters many of which are of Liu ch'é make and did not exist in Chou, Ta' in or Han times — and consequently prove nothing at all (this is a methodical fault which recurs throughout Li's paper). If we keep to the really pertinent words, above all those existing in the Shī king, we find e.g. 紅 b' yū in p'ing sheng which according to Li should be b' mū, and 紅 mūdī and 紅 in shang sheng, which according to him should be mū, xū. The latter two are particularly important, since they are two of the most common words in the language. Li has to consider these mūdī, xū in shang sheng as «exceptionals»!

If Li's tone theory is thus an obvious failure, I think none the less that I was wrong, in my Shī king Researches, in supposing Arch. mūg. It must be observed that 9. -mū occurs exclusively after labials: p̍mū, b' mū, mū. And on the other hand 7. ò occurs after all kinds of initials: k'āi, lāi, tāi, tśāi, except labials; there are no pāi, b'āi, nāi. I conclude that 9. mū is the labial-initialled class answering to these 7. ò. So the mūg phonic in kūān or vice versa. But here we have mū phonetic in mūdī. Is it then possible to reconstruct Arch. mūg phonetic in mūwāg?
Yes, it is. For the words with labial initials are exceptions from the general rule. A few examples will suffice to show this:

- 1. 魄 b'ai; 2. b'én; 3. ma; 4. m̄i; 5. m̄en; 6. m̄en; 7. b'i (b'én).

Thus a mag can very well serve as phonetic in a mag. Moreover, this same mag is undeniably phonetic, again, in a plainly k'ai k'ou word: 紅 k'ai (k'ou).

In the third place Li has to explain why certain -wag become -wi and others -jou (11: 12). It is true that half of the enigmatic cases in question can be eliminated. There are both guttural-initialled words (k'iw; k'iw) and labial-initialled words (p'iw; p'iw) in our category. The p'iw etc. have not become T'ang (and later) p'i, but have preserved their p̄, which shows the ho k'ou w here to be secondary, a parasitic addition to the initial p̄ (see p. 4 above). Thus they were not Arch. p'iw but p'iw and need cause no trouble. But there always remains the contrast k'iw: k'iu for Li to explain; there he cannot refer to the tones, so he thinks that the contrast is due to a dialectical difference or maybe variations in one dialect. This, then, would be cases of the kind which I have exemplified on p. 12 above: a mixing of dialects, the Ts'ie yin language having obtained, from sister dialects, certain words -wi which have ousted the regular -jou or vice versa.

This last idea is of course not impossible in itself, though we shall see presently that it is not at all necessary. But when we find that Li, in order to surmount the three serious difficulties which obstruct his reconstruction scheme, has to resort to three different explanations: one theory of analogy which is not scientifically founded; one tone theory which is disavowed by the most common of the words in question; and one theory of dialectical variations inside the Ts'ie yin language — then it is impossible to follow him.

The simple truth is that the five Anc. endings -ak, -wag, -jak, -jwag, -juk cannot successfully be reduced to one Arch. final (j;jwag) and the six Anc. endings -ai, -adi, -atu, -wu, -oui, -jou cannot successfully be reduced to one Arch. final (j;jwag). I have every possible reason to remain by my own earlier reconstruction (except for 9):

1. ak 2. wak 3. o
4. jak 5. jwak 6. juk
7. k'ag 8. wag 9. miag

If I do so, however, I have to give an acceptable answer to two questions: why did -jung, -juk, -juk exist in that Shí rime group but no -ung, -uk, -ng? And why does -jung rime with -ung, -jang, why does -juk rime with -ak, -jak, may even with

-ek — an apparently very unsatisfactory rime from the acoustical point of view? I think it is possible to answer both these questions (see p. 43 below).

If Li has been so keen on eliminating my jung, juk, jug in this rime category, it is because he thinks he has found these Arch. finals in quite another Shí rime group cat. 9 of T'uan's, cat. 1 of Wang's. We find in this category words of the five Anc. types:

1. 魄 k'ang; 2. k'ang; 3. k'iu; 4. k'iu; 5. k'iu.

And, correspondingly in the ju sheng:

1. 魄 k'iu; 2. k'iu; 3. k'iu; 4. k'iu; 5. k'iu.

It has been a much debated theme among Chinese philologists, whether Anc. -ang: -ung; -jung; -wong form one rime category in Shí king or two (and whether -ok: -uk: -wok: -jwok form one or two). The two greatest authorities, Tuan Yü-ts'ai and Wang Nien-sun both voted for one category (Wang, however, only as far as the -ng words were concerned), and they were followed by the brilliant linguist Chu Tsün-sheng. But two other great experts, K'ung Kuang-sen and Kiang Yu-kao, thought it possible to distinguish two -ng classes (and two -k classes). One is formed by Anc. -ang, -ung and -jwong; one is formed by Anc. -ang and -jwong. Li Fang-kuei follows the latter. By adding extensive materials he shows that not only in the Shí rimes but also in the hie sheng characters there are frequent and close connections between Anc. -ang: -ung: -jwong (and between -ok: -uk: -jwok) on the one hand, between -wong: -jung (and between -wok: -juk) on the other; but that a mixing of an -wong or an -jwong into the -ang: -ung: -jwong series, or vice versa, of an -ang: -ung or an -jwong into the -wong: -jung series (and similarly in the -k groups) is a comparatively rare phenomenon (though by no means unknown). There cannot be the slightest doubt, to my mind, that he is right. A seeming obstacle, the character 魄 Anc. k'ang, which regularly goes together with -wong, -jung and not with other -ang nor with -ung, -jwong he shrewdly guesses to be a word different from other Anc. k'ang. He draws the perfectly legitimate conclusion that my earlier reconstruction system:

1. 魄 2. 3. 4. 5.

Anc. -ang ong jong wong jwong

is defective, since it does not explain these curious rime and hie sheng interrelations 1: 2: 5 versus 3: 4. He therefore thinks that Anc. -ang: -ung: -jwong had one kind of principal vowel in Arch. Chinese, -wong: -jung another. And since the former series contains -ang, he decides that those were Arch. 1. -ang; 2. -ong; 3. -jong (long becoming Anc. -ung, and jong breaking into -jwong just as jo > jwo,
proved by me), whereas the latter were 4. -ung: 3. -jung (-ung breaking into Anc. -ng). Similarly Anc. 1. -dk: 2. -uk: 5. -jok were Arch. -dk: -ok: -jok, forming one rime group, and Anc. 4. -wok: 3. -juk were Arch. -wuk: -juk forming another rime group.

This looks very nice, and I admit that at first sight I was strongly tempted to accept it. And yet it is inadmissible. There are various obstacles. So far Li is right that the two sub-categories had a difference in principal vowel; but for the rest be is quite off the right track.

In the first place it must be remembered that a stricter distinction between the two groups is not maintained. They are confused often enough to cause Tuan and Wang to join them in one great category (the latter only the -ng words). When Shi (Lie wen) rimes 存: 存 ts' jung and Yi king frequently rimes 存: 存 p'ang; 丑 tjung, then Li's Arch. values: p'ang: ts' jung, p'ang: tjung are not very convincing.

In the second place it might be argued that this goes against the testimony of the ancient dialects. When I proposed, in my Shi king Researches, that Anc. 丑 -ung, 存 -uk and 存 -jung, 存 -juk derived from Arch. -ong: -ok: -jong: -jok, (ung < ong accepted by Li), it was because I could show that even in Ts'ie yin time there were considerable dialects which had an o vocalism. Now, that is true not only of -uk (F, Li Arch. -ok) but also of -juk (F, Li Arch. -juk), which has o regularly in Go-on (see Shi king Researches p. 127): Ts'ie yin yijuk, ts' juk, lijuk, sjuk, sjuk, mjujuk = Go-on kuku, soku, roku, soku, pok, moku, and after labials also in Kan-on and Sino-Corean: Ts'ie yin mjujuk = Kan-on kuku, Core. mok. And even more serious: the Ts'ie yin rime 存, which would have been Arch. -ung according to Li, has perfectly regularly -ong in Sino-Corea and -ou in both Kan-on and Go-on! If we conclude Arch. -ong: -ok for 丑, 存, Ts'ie yin -ung, -uk, because sister dialects of the Ts'ie yin language had o, we seem forced to pose an Arch. -o also for 存 (Ts'ie yin -ong), which shows exactly the same phenomenon. This objection, however, is not very fatal, for as we shall see, I was wrong in supposing Arch. 丑 -ong, 存 -ok for Ts'ie yin -ung, -uk (I shall revert to that presently); indeed, the various Sui time dialects had a most variable pattern answering to these finals in Arch. Chinese, and it is dangerous to draw far-reaching conclusions from them.

In the third place there is an objection which is much more serious. There are certain Arch. rimes which are irreconcilable with Li's interpretation. There crop up, here and there, some freer rimes due to licentia poetica, contacts between different rime categories, and these are often very telling. When we find in Shi (Lie wen) 存 Anc. de' jung; 存 wyang; in Yi king (ken) 存 ksong; 存 ts'ang; in Ch'u's (Kiu chang) 存 tjung; 存 g'ang; 存 yong (< g' ong); and so on, then we can safely say that Arch. -jung for Anc. jing is absolutely excluded. A make-shift rime -ong: -ang, an -ong: -ang: -ang: -ang: -ang might pass, but not an -ung: -ang, an -ung: -ang, an -ung: -ang. No, Anc. -ung was undoubtedly Arch. -jung of some kind; and that Anc. -ung had some kind of o is indisputable.

Now, then, are we to explain the two sub-categories, since my earlier reconstruction obviously fails (see p. 37 above) to account for them? I think we had better start our investigation not from the -ung words but from the -k and -g words for here, as in the -ng category, it turns out that the -ng words are less fully represented in all the possible combinations than the -k and -g words. Let us draw a table of type words, representing the various Anc. finals which fall in the three (for the -ng words only two) categories of the Shi king, which tally very well (it is highly important to observe this) with the distinctions in the hsieh sheng characters. I arrange them in a peculiar way with a view to the following discussion.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ák</td>
<td>2. ao</td>
<td>11. ák</td>
</tr>
<tr>
<td>3. wok</td>
<td>4. au</td>
<td>13. ák</td>
</tr>
<tr>
<td>6. juk</td>
<td>15. wok</td>
<td>16. au</td>
</tr>
<tr>
<td>7. o</td>
<td>8. jau</td>
<td>19. jok</td>
</tr>
<tr>
<td>9. iek</td>
<td>10. ieu</td>
<td>21. iek</td>
</tr>
<tr>
<td>29. ång</td>
<td>32. ång</td>
<td></td>
</tr>
<tr>
<td>30. wong</td>
<td>33. ung</td>
<td></td>
</tr>
<tr>
<td>31. jwing</td>
<td>34. jwong</td>
<td></td>
</tr>
</tbody>
</table>

(24, 26 and 28 are erroneously placed by Tuan in other categories; their phonetics prove them to belong to our cat. III here).

The Anc. values of these type-words were:

I have placed the -k and -u words abreast in the way hsieh sheng characters with double readings show them to belong together. There is e. g. 存 read both hāk (1) and kwā (2); 存 read both kwok (3) and kāu (4); 存 read sējuk (5) and sējū (6) — and so on.

Cat. I is Wang Nien-sun's cat. 21, II his cat. 20 and III his cat. 19 (ju sheng). There are a considerable number of rime contacts between the three categories; and in my Shi king Researches I even called in question the correctness of distinguishing I and II. Prolonged deliberation has convinced me that after all it is necessary to accept such a distinction. It is necessary to keep apart I and II, insignificant though the difference must have been, not only because of the rimes in the Shi and other classics, which in spite of numerous contacts on the whole must be
All this is plainly impossible. We shall have to find ways of approach quite different from those of Li.

Let us start with rime cat. III, and acknowledge at once a fundamental fault committed in Shih king Researches: the endeavour to elucidate it by aid of such late dialects as Sino-Japanese and Sino-Corean. My conclusion that Anc. 25. *kuk was Arch. *kok was devoid of value. Leaving apart, for the moment, 24, 26, 28 and concentrating upon the principal types: 23, 25, 27, Anc. *dok, *uk, *jwok, which, as vindicated by K’un Kung-sen and Kiang Yuc-keo, form a rime category distinguished from I and II, we shall have to judge them in the light of Arch. Chinese itself. There are two salient facts to be taken into account:

1) Whereas the *dok, *uk, *juk of I and II have frequent connections, in rimes and iæ shun, with words of types *Anc. *dok, *jok, *nk, *iu, *iu, words which obviously all had k’ai k’ou, the *dok, *uk, *jwok of III have no such connections (yet see note on p. 40).

2) In irregular rimes, III very often (but I and II never) mixes with Tuan’s cat. 4, which quite certainly was Arch. -en, -en. (Shih king Researches p. 145).

Examples:

1. (Shih, Siao jang) Anc. k’juk: *jwok: *kuk; 2. (Shih, Ch’tu’s) Anc. tsu (<tsu): *lok; 3. (Shih, Kue ku) muk: b’ju: *jwok; 4. (Shih, Sang jou) *kuk: *iuku (<ku); 5. (Li so) *jwok: g’ju; 6. (Yi king, tsing) *b’ju: *iuku (<ju).

Indeed, this phenomenon is so marked that Wang Nien-sun has placed our cat. III (Anc. *dok, *uk, *jwok) as the ju sheng correspondence to Anc. *nu, *nu (Arch. *nu, *nu).

These two facts remove all doubt about the Arch. values of types 25. Anc. *uk, 27, *jwok. They were not, as I supposed in Shih king researches, ok, *jwok; nor were they, as Li supposes, ok, *jok. They were clearly k’ou words: 25 *uk, 27, *juk. Therefore matters are possible as those in the table on p. 41 above: Arch. 1. k’juk: *djiuk: *kuk; 2. *nu: *lok; 3. *muk: b’ju: *jwuk; 4. *kuk: *iuku; 5. *djiuk: g’ju; 6. *b’ju: *iuku. (With Li’s system 1. *k’juk: *djiuk: *nu 2. *nu: *lok etc. would be quite inexplicable).

The Arch. -uk was preserved in the Ts’ai yün dialect, but in other ancient dialects it was broken into *ok (S-Jap. spells *wuku, *wouj; *juk was broken into *jwok. Yet in the corresponding -ng words the Arch. 34. -jurg peeps through in the oldest Arch. dialect we know of, the Wu dialect, which was the base of Go-on. We find (Karlgren, Phono1. Chn. p. 853) Ts’ai yün *jiunjung, *jiunjong, *jiunjung, *jiunjung, *jiunjung, *jiunjung etc. = Go-on *k’u, *nu, *nu, *nu, *nu, *nu etc.

So far all is plain sailing. But type 23. Anc. *dok seems to form a serious obstacle. *dok 25 was Arch. *uk and 27, *juk, what was this 23. *dok?

It is obvious that *dok III (23) had a different Arch. origin from *dok I (1) and *dok II (13), since none of the three types rimes with any of the others. *dok III (23), which
corresponds to the Arch. -g word 24. Anc. -ga, whereas ãk I (1) and ãk II (13) correspond to 2, 14 Anc. a, evidently had a darker vowel than the others. Since it times with 25. Arch. uk and 27. Arch. jak and constantly interacts with them in the line sheng, it must have been some kind of u. But what was the difference? I think the secret lies in the quantity.

H. Maspero was the first to emphasize the great and fundamental difference between long-vowelled (tense-vowelled) and short-vowelled (slack-vowelled) syllables in Anc. (and of course in Arch.) Chinese. This was a focused idea, and it has enabled us to solve a long series of riddles. There was this contrast in nearly every Arch. category. There were ãng: ãng, ãng, ãng, ãng, ãng, ãng; ãn: ãn; ãn: ãn; ãn: ãn; ãn: ãn. If we examine the short-vowelled ones in the a-groups, we find that when having medial i they existed only after gutturals (with laryngals) and labials, but not after palatals and dentals: Anc. types kii, kiiw, kiiw, kiiw, kiiw, kiiw, kiiw, kiiw, etc.; furthermore that when they had no medial i, they existed after the said gutturals and labials, and besides that, in some cases, after l, d, t', s', d', s', t', s', s', s', s', s', s', s'. s': types kii, kiiw, kiiw, etc. Here, in our present categories I, II and III, we find that the three Anc. ãk types (1, 13, 23) had exactly this peculiarity; they existed principally after gutturals and labials (kâk, pâk) and in a few cases like ãk piak etc. Similarly the two Anc. ãng types 29, 32, were kâng, pâng and an occasional kâng etc. I conclude that the types 1, 13, 23, 29, 32 belonged to this class of short-vowelled syllables, and this gives us the key to various distinctions in our tables I, II and III which otherwise would be inexplicable. If we revert, first, to cat. III, we can now fill in the Arch. values:

23. Arch. ãk > ãk > Anc. ãk; 25. Arch. uk > Anc. uk; 27. Arch. jak > Anc. jwok. And, in the corresponding -g series:


In the -ng series:

32. Arch. ãng > ãng > Anc. ãng; 33. Arch. ãng > Anc. ãng; 34. Arch. ãng > Anc. ãng.

And here we obtain quite unexpectedly the solution of the riddle that puzzled us in the a category above (p. 46). In that Arch. category:

<table>
<thead>
<tr>
<th>ãng</th>
<th>wâng</th>
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<tbody>
<tr>
<td>jâng</td>
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<tr>
<td>ãk</td>
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<td>jak</td>
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<tr>
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<tr>
<td>ãg</td>
<td>jwâg</td>
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</tbody>
</table>

we had ãng, ãk, ãg but no jâng, jak, jâg! When we find that in the a category the ãng jâng juk, ãg existed only after gutturals (laryngals) and labials, types kâng, pâng, pâng, pâng, pâng, but after no other initials, and thus clearly agreed with the short-vowelled types in the a-groups (kâk, pâk, pâk, pâk, pâk, pâk, pâk), we can see at a glance that the ãng, ãng, ãng in the a category are the very types (short-vowelled): ãng, ãng, ãng which are missing in our cat. III here.

Why, then, should they rhyme, not with ãng, ãk, ãg in our cat. III here but with the ãng, ãk, ãg in the a category? It stands to reason that the short ã must have been modified, when preceded by an ã, so as to make the sound less labial and less velar than in ãng, ãk, ãg. It must have been something similar to the Swedish ã in king or the English ã in value. This, indeed, stands genetically and acoustically fairly close to a, and we easily understand that in times and his sheng it goes together rather with ã than with a narrowly labialized and strongly velar ã and a. This one said, and this peculiarity in script and times nicely explained, we can be satisfied to write it, etymologically correct, kîng, pîng, pîng, pîng, keeping in mind that the ã in these syllable types had a different and more open timbre than the ã in types kâng, pâng, kâng.

Let us now take up for examination the intricate categories I and II on p. 39 above. If we look at the Anc. values, there is an almost shocking similarity. It would seem to be absolutely futile to endeavoupr to find a difference in quality of the principal vowel for these two Arch. categories. And yet such a difference must have existed, since they are distinguished fairly clearly as time categories — with numerous confusions, it is true. And we have necessarily to solve the riddle.

In the first place we shall somewhat reduce the apparent similarity of the two categories. The table on p. 39 above is correct, yet it is somewhat misleading. For all the types here given are not equally normal and frequent. The normal types in cat. I are 1, 2, 3, 4, 5, 6, 9, 10; the type 8, jîau is hardly existent. It is represented by the word ãng jîau in some times. Moreover, Tuan brings in ãg jîau and ãg jîau in our cat. I, because of their phonetics, but in Shâ they only rhyme with each other once and with other words, so we cannot know exactly whether they belong in I or in II. Among the words with Anc. jîau in the Te's yîm the great majority are obviously words of cat. II, having phonetics belonging to that category; a few words have phonetics belonging to cat. I, but that does not necessarily place those words in the Arch. cat. I, for these characters may be due to contact between the (undoubtedly very similar) categories I and II in the line sheng. Altogether it can be said that the Anc. jîau is regular and frequent in cat. II, as a rule does not exist in cat. I, just as jên (1, 6), regular and frequent in cat. I, does not exist at all in cat. II. Here, then, is a strong and real difference between I and II.
In cat. II the normal types are 11, 13, 14, 15, 16, 19, 20, 21, 22. Types 17 and 18 are represented each only by an isolated word, and these we must disregard, since they cannot be built upon. They may be due to some special conditions in individual cases. We may therefore reduce somewhat our scheme of the normal type words of our three categories, and rewrite it thus:

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<tr>
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<th>I</th>
<th>II</th>
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<tbody>
<tr>
<td>1.</td>
<td>äk</td>
<td>ak</td>
<td>au</td>
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<tr>
<td>2.</td>
<td>au</td>
<td>ak</td>
<td>ak</td>
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<tr>
<td>3.</td>
<td>uok</td>
<td>äu</td>
<td>äu</td>
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<tr>
<td>4.</td>
<td>uok</td>
<td>uok</td>
<td>uok</td>
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<tr>
<td>5.</td>
<td>juk</td>
<td>juk</td>
<td>juk</td>
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<tr>
<td>6.</td>
<td>juk</td>
<td>juk</td>
<td>juk</td>
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<tr>
<td>7.</td>
<td>iek</td>
<td>iek</td>
<td>iek</td>
</tr>
<tr>
<td>8.</td>
<td>ieu</td>
<td>ieu</td>
<td>ieu</td>
</tr>
<tr>
<td>9.</td>
<td>äk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>au&lt;sup&gt;10&lt;/sup&gt;</td>
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<td>10.</td>
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In Anc. Chinese:

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<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
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<tbody>
<tr>
<td>1.</td>
<td>åk</td>
<td>ak</td>
<td>au</td>
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<tr>
<td>2.</td>
<td>au</td>
<td>ak</td>
<td>ak</td>
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<tr>
<td>3.</td>
<td>uok</td>
<td>äu</td>
<td>äu</td>
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<tr>
<td>4.</td>
<td>uok</td>
<td>uok</td>
<td>uok</td>
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<tr>
<td>5.</td>
<td>juk</td>
<td>juk</td>
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<td>6.</td>
<td>juk</td>
<td>juk</td>
<td>juk</td>
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<tr>
<td>7.</td>
<td>iek</td>
<td>iek</td>
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<tr>
<td>8.</td>
<td>ieu</td>
<td>ieu</td>
<td>ieu</td>
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<tr>
<td>9.</td>
<td>åk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>au&lt;sup&gt;10&lt;/sup&gt;</td>
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Since cat. III had 1, II and I cannot possibly have had 1. And since åk, ek, åk, ek are to be found in other Shi king rime categories, nearly distinguished from our categories I and II here, I maintain what I said in my Shi king Researches, against Li Fang-kuei's proposals: these two categories had some kind of ò for principal vowels. But Li is surely right in saying that II must have had a more open principal vowel than I. This gives us closed ò, ó for I, open ö, ó and à for II. And then we have to apply the distinction we have already determined between long-vowelled and short-vowelled syllables: ò as against ö, ó as against ò (for typographical reasons, in order to avoid an ugly ò, I write the short ò thus: ó). And we are finally able to fill in our scheme with Archaic values which will nicely explain both the distinction between the three categories in rimes and hisheng, and the considerable number of exceptional contacts between them, equally in rimes as well as hisheng. Observe that the -eg group is much poorer than the -ak and -ag groups. It has fewer forms with medial å, and it has forms corresponding only to I and III, not to II. Whether the latter is due to confusion of two primarily different groups it is impossible to tell; we can merely state that neither Shi rimes nor hisheng indicate a distinction here similar to that in the -ak and -ag words.

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<th>II</th>
<th>III</th>
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<tbody>
<tr>
<td>1.</td>
<td>åk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>au&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>2.</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>3.</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
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<td>4.</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
<td>uok&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>5.</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>6.</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>juk&lt;sup&gt;10&lt;/sup&gt;</td>
</tr>
<tr>
<td>7.</td>
<td>iek&lt;sup&gt;10&lt;/sup&gt;</td>
<td>iek&lt;sup&gt;10&lt;/sup&gt;</td>
<td>iek&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>8.</td>
<td>ieu&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ieu&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ieu&lt;sup&gt;10&lt;/sup&gt;</td>
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<tr>
<td>9.</td>
<td>åk&lt;sup&gt;10&lt;/sup&gt;</td>
<td>ak&lt;sup&gt;10&lt;/sup&gt;</td>
<td>au&lt;sup&gt;10&lt;/sup&gt;</td>
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There is one more group with guttural finals which needs a few words of elucidation. Tuan's cat. 11, Wang's cat. 6 contains words with Anc. eng, jéng, tén, jéng, and since it never rimes with the eng, jéng, tén etc. of Tuan's cat. 10, we can see that the palatal vowel was Archaic. To this -eg category correspond -ak and -ag words Tuan's cat. 16, Wang's cat. 11, with Anc. 1, 11, 12, 13. The ig of this category should be well distinguished from the ig (= ia) of Tuan's cat. 17, e.g. 甬 Anc. i₉, kad (<₉kw₉), ₉hjig (<₉bi₉), ₉jweg (<₉gvi₉), ₉ka, which had ò open syllable in Arch. Chinese. The -ig in cat. 16, is the -g correspondence to Anc. -jéng.

In Shi king Researches (p. 157) I stated that the Anc. -eng, -ek rimes: 甬 k₉k, 甬 k₉k while in the Shi, the former in the e group, i.e. with -jéng, -tén, the latter in the o group, i.e. with -ak, -ag. This is true, but not the whole truth. Anc. eng (ek) contains characters of two quite different Arch. origins. One of them, with an open, slack å sound: Arch. -eng, -ek, rimes with the neutral slack å: äng, åk; the other, which in Anc. Chinese coincided with the open e (since 甬 eng: 甬 jweg, 甬 jweg are different rimes in the Ts'ie yin) must have been another kind of å or å in Arch. Chinese. On the analogy of cat. B above (pp. 3, 6), where we have Arch. lōm: lōm as rimes, I conclude in our present category that the three principal endings were eng: jéng: tén, and I obtain the following scheme: Archaic e class, rimes in the -eng, -ak category:

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<th>I</th>
<th>II</th>
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<tbody>
<tr>
<td>1.</td>
<td>eng (÷ eng)</td>
<td>ek (÷ ek)</td>
<td>eg (÷ a₁)</td>
</tr>
<tr>
<td>2.</td>
<td>ek (÷ ek)</td>
<td>eg (÷ a₁)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>weng (÷ weng)</td>
<td>wek (÷ wek)</td>
<td>weg (÷ wai)</td>
</tr>
<tr>
<td>5.</td>
<td>wek (÷ wek)</td>
<td>weg (÷ wai)</td>
<td></td>
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<td>6.</td>
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Archaic e and ê class, forming Tuan's categories 11 and 16:

1. ōng (> ung)  
2. ēk (> e<k)  
3. ēg (> ai)  
4. wēng (> weng)  
5. wēk (> wēk)  
6. wēg (> wēi)  
7. jēng (> jång)  
8. jēk (> jêk)  
9. jēg (> ia > iê)  
10. jōng (> jōng)  
11. iōng  
12. o  
13. iēng (> ieng)  
14. iēk (> iēk)  
15. iēg (> iēi)  
16. iwēng (> iwēng)  
17. iwēk (> iwêk)  
18. iwēg (> iwêi).

For 3. ēg > ëi > ai cf. German ei > ai. The transition jêg > ia must have taken place quite early, for the Anc. iê < Arch. jêg (our present cat., Tuan 16) and the Anc. iê < Arch. ia (Tuan cat. 17), which are neatly distinguished in the Shi king, rime quite freely already in Lao-tï and Chiang-tï.

* * *

It might seem bold to reconstruct in its petty details Archaic Chinese, a language of some 2500 years ago, by aid exclusively of internal evidence, without comparative Sinitic materials, nay, on some points even seemingly against the evidence of e. g. Siamese (cf. p. 30 above). It must be observed, however, that in certain important respects we are much better situated for such a reconstruction than the scholar who has to reconstruct an earlier stage of a language exclusively by aid of divergent but later materials. The example adduced on p. 30 above: steim, Stein, sten, stone; stainenaz is very instructive as to the dangers the latter runs. There may be important features in the early language which the late materials never reveal. Our position is very much more favourable in as far as we have sources for Arch. Chinese dating back to the very period of the language (say roughly 1000–600 B.C.), sources which give no concrete sound values, it is true, but which give so to speak the frame to be filled out, the phonological categories which need only be interpreted. And the value of these early sources is enhanced enormously by the fact that they are of two kinds absolutely independent of each other: the Shi rimes and the hie sheng characters. By a very lucky chance these two sources throw light upon a practically identical language. On a few points, it is true, the

hie sheng reveal a slightly older stage of the language (see p. 32 above). But in most categories the accord is astounding good: the same distinctions, the same division of words into phonological groups can be observed in both sources. It is evident that the Shi king odes were given their final form and the standard set of hie sheng (originally kia tsie) were invented in one and the same centre, presumably the Chou court, and that dialectal aberrations were allowed to appear in the rimes and in the script only in sporadic cases.

There is, however, one great deficiency to be pointed out. If we are favourable placed, thanks to the double sources, for the reconstruction of the Arch. vowels and the final consonants, we are greatly handicapped when it comes to the initials, by our having recourse here only to one set of materials, the hie sheng. Here, of course, the poetry fails us entirely. It is true that the hie sheng have made it possible on many important points to discern Arch. initials very different from the Anc. ones (g > 7, d > 6, h > h, t > k, s > s, a > a, gl > j, dl > j etc., see my Analytic Dictionary); but many differences between the Arch. and the Anc. initial system, which do not happen to be revealed by this single source, the hie sheng, are sure to have escaped us. In particular I am afraid that many consonant groups may have existed where we can only discern single consonants. The possibility of such x's in our equations, which can only be filled out in future by Sinitic comparisons, must never be forgotten. To a certain extent they will make the following investigation less reliable than it would appear at first sight. In spite of this we have to attempt it, confident that though a revision may be necessary on isolated points, the system as a whole must be fairly reliable.

There is one point regarding initial consonant groups on which I wish to say a few words. When we have the well-known alternation k- and p- in the hie sheng, e. g. 各 Anc. kāk: ㏜ lák, 各 jīn: ㏞ jǐn, it might seem dubious whether the consonant group existed in the k (p) member or in the l member or in both members. Thus three interpretations seem a priori possible:

A. 各 lák; B. 各 kāk; C. 各 kāk (glák).

There is, of course, no fixed rule to be expected for this, for not all hie sheng characters may have been built on exactly the same principles. But in many cases there is one of these three alternatives which is decidedly the most plausible: the alternative C.

Alt. A. is excluded in several examples where we can build on reliable testimonies. There is, first, the case 各 Anc. ㏞ lām 'indigo', often discussed earlier. Here we have, fortunately, double points d'appréciation, which makes the point of a definite conclusion. When on the one hand we have 各 Anc. kām as phonetic, on the other hand Siamese kām 'indigo' < older kram, then the Arch. guttural before lám is certain: Arch. glām 'indigo'. Again, there is an interesting case in which the guttural before I can be shown to have lived down to early Han time, which Prof. G. Morgenstierne has pointed out to me. The city Lou-lan at Lop-nor, first found and excavated by Sven Hedin, was called 楼蘭 already in Chang K'ien's travel report (2d c. B.C.), and this transcription of the foreign word must be approximately of
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that age. The lou has the same phonetic as 市, g’ju, revealing a guttural, and the city is called Kroraima in Kharaoshi documents (Stein, Serindia p. 41 a). So lou was Han ghu. In both these examples the alt. A is excluded.

H. Maspero (Le dialecte de Tch’ang-ngan sous les T’ang) has identified 市 pji (phon. jhui) with Siamese plien. If this is right, which seems probable, then this is a case where alt. B is excluded. And here again we can find a trace of a kl- in the Anc. k- member (alloc kāk) even down in Han time. Alloc kāk has as homophoneme alloc kāk.

_alloc_ serves as phonetic in alloc gāk (with the g- restituted according to what was said of alt. A. above). Was the Arch. kāk or klāk? It occurs in Shi king, Si kan, in a phrase alloc gāk where alloc kāk ‘chamber’ gives no sense. Mao Heng (middle of 2nd c. B.C.) explains it by a method often resorted to by early commentators. He considers it as a kia tsie for another word with a similar sound, and says alloc kāk is equal to alloc liek liek. This phonetic gloss, impossible and meaningless if alloc were an Arch. kāk, is comprehensible if it was an Arch. klāk: alloc klāk is equal to liek liek (such a measure of phonetic dissimilarity occurs sometimes in the kia tsie). This decidedly speaks in favour of alt. C, and therefore we obtain alloc klāk: alloc gāk etc.

Even if we can obtain a definite answer in this case, and if it seems probable that there are many analogous cases, we must not, on the other hand, generalize too rigidly and conclude that it was always so; there is of course no guarantee that the hie sheng creators did not apply sometimes the A type and sometimes the B type just as well as the C type.

***

We are now, finally, going to dress a series of tables of words which can be accused of being cognate, i.e. of forming word families. In order to be cautious at the start, I shall keep within certain fairly narrow limits in the present paper.

In the first place I leave out entirely words which consist of only two elements, an initial and a vowel (or diphtong). A comparison of words like ku: ko, pā: pia etc. is very risky, because the word bodies are too short. There is infinitely greater chance of hitting the truth in words with three elements: initial, vowel (or diphtong) and final: kān, gian: k’iwen; tāk: dōg and such-like. In the second place, it is quite possible that words with extremely different initials are really cognate especially in the light of other Sinic languages which show us that a simple Chinese initial is often a violent reduction of a long consonant group (Tib. brgyad = Chin. pwat ‘eight’ — and that e.g. Arch. dāg may be in affinity with 市 gāg; 市 dōg with kāg and kōg. But at present I leave all such questions open as a cura posterior. Here I keep within the limits of phonetically cognate groups, and quite arbitrarily I decide not to go outside the following principal categories.

First I divide the words into three great groups according to finals:

1. -ng, -k, -g;
2. -m, -p, -b;
3. -n, -i, -d, -r.

WORD FAMILIES IN CHINESE

Then I divide these principal groups into categories according to Archaic initials:

A. kr, k-, g-, g-, ng, -x, -z;
B. ts, t-, d, d-, t, d, d-, ts, ts-, dz, dz, ts, ts-, dz, dz, ts, ts, dz, dz, dz, dz, dz, dz;
C. n, b, i;
D. p, p, b, m.

(Words with initial consonant groups (kl-, gl- etc.) I consider to be so risky materials that I have only adduced them in a few cases.)

For the vowels, on the contrary, I make no group limitations. Experience from Tibetan teaches us that this language has a richly developed Ableit which allows of the most varied vocalism inside the same word stem. I have come to the conviction that the same phenomenon obtains in Chinese.

Of the tones I take no notice at all. It would not do simply to apply the Anc. tones to the Arch. words, and it is doubtful if we can ever arrive at a detailed knowledge of the Arch. tone system. Hence the phonetic difference between the words of my tables is often greater than it appears from the forms given: there is often a tonal difference as well, which is not marked in my transcriptions. I hope to revert to this question in a future paper.

The purport of the tables should not be misunderstood. I am very far from affirming that all the words in each group are cognate; I only mean to say that they may be suspected of being cognate. In a few cases the affinity is absolutely obvious and certain. In many more it is strongly probable. In the rest it is only possible and at least worth discussion. So each small family groups has to be considered merely as a kind of frame, containing materials from which a choice will have to be made in future. Definite results can only be gained by comparative Sinic researches, for the phonetic similarity can sometimes be very well deceptive. There is, for instance, such a large number of Chinese words which all end in -ng that we may well suspect that many of them derive from Sinic words ending in quite other consonants. Again, the c- and s- series may be a result of a simplification of the most varied Sinic consonant groups. Therefore, at best, only a part of the combinations can be true word families; many similarities must necessarily be due to chance. And yet I do not hesitate to put up these frames, for a start has to be made and I see no other way of tackling the problem.

The present collection of possibly cognate words is not meant to be exhaustive; very many more could be adduced, but at present I only wish to give a few examples.

For an investigation like the present one it is necessary to be critical as to the words adduced. They must be words well known to have been real, living words. If we should draw upon the Kuang yün and Tsi yün, with their tens of thousands of dictionary words, or even if we took all words for granted which are given in the earliest dictionaries, Er ya, Ts’ang kie p’ien, Fang yen, Shuo wen kie tsī,
A. Words of type K-NG

1. k'iüng bright, light, scenery etc.; 2. k'iüng (light-reflector) mirror; 3. kwang light, brightness; 4. g'wang bright; 5. g'wang bright, to blaze; 6. giwang bright; 7. giwang glittering, as a gem; 8. k'ong brilliant; 9. 10. kiweng light, bright; 11. giwang bright, lights; 12. giwang glow-worm, firefly; 13. kog bright; 14. yel burning, brilliant; 15. giok brightness; 16. giok bright; 17. zhang bright; 18. zhang dawn, light; 19. zhang bright.

20. giwang to walk, go, a street: 21. g'wang to go to and fro; 22. giwang to walk, go; 23. giwang to walk, go; 24. kog street; 25. g'wang street, lane; 26. ngog to ramble, stroll.

27. k'ong to speak, explain: 28. k'ok, k'ig to tell.

29. k'ong to change, alter; 30. k'og to change, alter.

31. k'ok leave, yeast; 32. k'ig leave, yeast.

33. ngog to meet, go out to meet: 34. ngog to go out to meet, go against, oppose.

35. k'ong husk of grain; 36. k'ok husk of grain; 37. k'uk (husked things) grain.

38. gi'ung swelling, tumour; 39. jüng carbuncle, ulcer.

40. g'wang wild goose, wild swan; 41. k'ot snow-goose, swan.

42. giuk to bathe; 43. ok to soak, moisten; 44. ok to soak.

45. gi'eng contour, shape, form; 46. giwang to draw a plan, to plan (to build etc.); 47. jüng form, image, shadow.

48. k'ang violent; 49. gi'wang violent, mad, furious; 50. g'üng to be violent, quarrel.

51. g'ang yoke of an ox, horizontal bar of a balance, cross-wise; 52. g'üng cross-wise, horizontal; 53. kiwang door-bar, bolt; 54. k'ang cross-bar.

55. k'ong underground stream; 56. k'ong to flow; 57. g'üng rivulet; 58. giwang rivulet; 59. k'ang river; 60. g'üng accumulated water; 61. giwang water exposition; 62. giwang to wade in water; 63. k'ang flood, inundation; 64. g'üng flood, inundation; 65. g'üng exposition of water; 66. yung exposition of water; 67. yung to flow, rushing water; 68. yung to flow, float; 69. yung exposition of water. 70. yung to flow, float.

71. k'üng to hate, to be annoyed at, abhor; 72. g'üng to be annoyed.

73. k'üng frightened; 74. k'üng (to frighten) to warn; 75. k'üng (awed) respectful; 76. g'üng frightened; 77. k'ungwong frightened; 78. k'ang frightened, respectful; 79. k'ang respectful; 80. k'üng to be frightened, fear; 81. k'iwak frightened looks; 82. k'iwak startled; 83. g'üng frightened; 84. g'üng to fear; 85. 86. ngog to scare, scared; 87. yung troubled; 88. yung frightened; 89. yüng frightened; 90. yüng frightened.

91. k'ong mountain ridge; 92. g'üng to lift; 93. giwang cliff, precipitous; 94. giwang lofty; 95. k'üng to lift; 96. k'üg to raise oneself on the toes; 97. k'og to lift, rise; 98. kog high; 99. k'og to raise oneself on the toes; 100. giwang to lift; 101. k'og hill; 102. k'og hill; 103. ngog high, to raise; 105. ngog to raise the eyes, lift the face, look upwards; 106. ngog cliff, hill-side, edge; 107. ngog top of the head, forehead; 108. ngog mountain, peak; 109. ngog cliff, hill-side, edge; 110. ngog high, precipitous, dangerous; 111. ngog haughty; 112. ngog high, lofty; 113. ngog high, precipitous; 114. yung to lift, raise.

115. yung fragrant; 116. yung musk; 117. yung fragrant.

118. k'ong to dry; 119. k'üng sunburnt, desolate, waste; 120. g'üg to dry up; 121. g'üg a spring drying up, become dry; 122. k'og straw; 123. k'og dry, withered, rotten; 124. k'og dried grass; 125. k'og parched rice, dry provisions; 126. ngog to dry, roast; 127. yung to burn, roast; 128. yel hot, burning.

129. k'ug neck, throat; 130. k'ug to cut the neck, behead; 131. g'üng neck.

132. g'üng shin-bone, shank; 133. yel shin-bone, shank.

134. k'og rich year, prosperity; 135. k'og felicity, blessings, to felicitate.

136. g'üng lucky, fortunate; 137. g'üg felicity; 138. yel joy, to rejoice; 139. yel to find pleasure in, to love.

140. giwang to deceive, cheat; 141. giwang to deceive, lie; 142. g'üg lie, deceive, mislead, doubt; 143. k'üg deceitful, crafty; 144. k'og to deceive; 145. k'ug deceitful, to deceive; 146. k'üg bewilder, astonished; 147. k'og to deceive, to cheat; 148. k'ug traitor; 149. k'og crafty; 150. k'og to flag; 151. ngog doubt, to be in doubt; 152. k'ing to lie.

228. k’ieng wide-hearted, magnanimous: 229. kwang wide, broad, vast: 230. g’wáng spacious, large hall: 231. g’wáng vast, liberal: 232. kwak to widen, enlarge, extend: 233. kwak wide, vast: 234. g’oq vast (as the sky): 235. jixiang vast.

236. g’weq red-coloured precious stone: 237. kóng strong, purple: 238. g’ung red.

239. g’ieng to go down in flying (birds): 240. k’ieng to fall down, prostrate: 241. k’ieng to fall down, tumble over: 242. k’ieng to descend, go down, throw down.

243. g’ieng square raft, two boats lashed together so as to form a square: 244. kwang square.

245. kung sold man, father: 246. k’oq old: 247. g’oq ancient, old: 248. g’oq (sold man) uncle: 249. ung, father, old man. Possibly jiüng “elder brother” belongs here too.

250. kóng hard: 251. kwang steel: 252. kóng stiff, rigid: 253. g’ieng strong: 254. g’ieng strong (see Tso chuan, Hi, 7th year): 255. kóng strong, vigorous: 256. k’oq solid, hard: 257. ngqang hard: 258. ngqang (frozen water) to become hard, solid, congenal.


276. g’ieng emperor, imperial: 277. giweng king, royal.

278. g’ieng to catch, seize: 279. kwak to grasp, seize: 280. k’ieng a handful: 281. k’ieng to hold in both hands: 282. kwak to lay hands on, seize, hold: 283. g’oq to hold by the hand, lead: 284. g’oq right hand: 285. g’oq to hold, have: 286. k’oq to grasp, seize.


295. kiok long lance: 296. eikok to beat, strike, kill: 297. kwew to beat: 298. k’ieng to kill: 299. k’oq large drum (which is beaten): 300. k’oq to beat: 301. k’oq to beat.
B. Words of type T'Ang

1. t'ang to give compensation: 2. diog to give, bequeath; 3. t'ang to give; 4. dz'ang to give, bestow; 5. sjog to give, bestow, reward; 6. sjog to give, bestow.

7. t'ang straight, correct; 8. t'ang (correcting, regulating, adjustment): government, administration; 9. t'ang (to make straight): to adjust; 10. t'ang (to correct): to punish; 11. t'ang to correct, punish; 12. t'ang to correct, govern; 13. t'ajk to direct, govern, office, official; 14. 15. t'ajk to direct, to order; 16. t'ajk ruler, emperor; 17. d'ajg to govern; 18. t'ajk law, rule; 19. sjog to direct, govern, manage.

20. (cf. the preceding) t'ang straight: 21. d'ajk straight, upright: 22. diog door-post, to set upright, to erect, to plant; 23. sjog to put up, establish, place; 24. t'ang to erect, to plant; 25. t'ajg to plant.

26. t'ang a measure, norm, rule; 27. t'ajg measure, to measure (weight, length, volume); 28. t'ang to weigh, steelyard; 29. d'ajg to measure, d'ajg a measure; 30. t'ajg a measure of ten inches; 31. t'ajk to measure, to fathom; 32. t'ang to measure, to appreciate, to deliberate: 33. t'ang a pint.

34. t'ang to pass through, communicate (all through, all etc.): 35. t'ang (tube-formed) tub, barrel; 36. 37. d'ang tube, pipe; 38. d'ang passage, connecting lane; 39. t'ang passage, connecting lane; 40. t'ang hole through the head of an axe: 41. d'uk sluice, drain, gutter, ditch; 42. d'ajg sluice, drain, gutter, ditch; 43. t'ang vent, flue, window.

44. 45. t'ang a post, pole, to pole; 46. d'ang a prop, post; 47. t'ang sceptre; 48. d'ang staff, pole; 49. d'ang a length of ten feet; 50. t'ang sceptre, baton; 51. t'ajg, t'ajk to stick out, stiff; 52. d'ajg stalk, straw, small beam; 53. d'ajg stalk, stick, staff: 54. tjog pole; 55. tjog pillar, column; 56. t'ang pole, post.

64. tiag above: on top, high: ascend: 65. diag high: 66. diang to raise: lift:
67. tiang tossed up by the wind: 68. tiang top of the head: to carry on the head, summit: 69. tang to ascend, rise, mount: 70. diang to ascend, to mount, ride on:
71. tiung ridge-pole, the top: 72. tiung peak, lofty, wound: 73. tiung tumulus, tomb: 74. tiang to carry on the head: 75. tiak to ascend, rise: 76. tiok high, lofty: 77. d'ieg to raise high, lift: 78. d'ieg elevated platform, a lookout, high: 79. d'ieg to raise high, lift, carry: 80. d'ingg lofty, lofty: 81. tong (put on top:) to load (as a car): 82. säng (top of the head): forehead: 83. tiang to ascend, rise: 84. sêng lofty.

85. dieng full: 86. dieng full, ample, surplus: 87. dieng abundant, surplus: 88. dieng to be full of, hold, contain; abundant, overflow: 89. t'îng full, to fill: 90. dieng (to be full of:) contain, hold.

91. tiug vigorous, brave: 92. sêng strong horse: 93. tiangg to encourage: 94. tieng strong, vigorous, robust: 95. tiang to have the force for doing, capable; to be the stronger to conquer.

96. t'îng to find pleasure in; be in favour: 97. diak pleased, happy, joy: 98. t'îng happy, happiness: 99. diak pleased, joy: 100. d'êng pleased, glad, joy.

101. tiug to spy: 102. d'êng to stare: 103. t'ôk to supervise, inspect, examine:
104. d'ôk to see: 105. tiak to look, stare: 106. t'îng to stare: 107. t'ôk to stare:
108. tiangg to gaze, look, consider, regard: 109. sêng (discerning, mentally clear-minded) intelligent, to understand: 110. sêng to watch, look, examine: 111. sêng to watch, spy.

112. tiang to beat: 113. diak a small bell (which is struck): 114. d'êng to dash against: 115. d'êng to strike, beat, knock against: 116. tiak a bell: 117. t'îng rush against: 118. d'ôk a big bell: 119. t'ôk d'êng, wooden knocker used by night guards: 120. d'ôk bell with clapper: 121. d'ôk (beater, propeller) ear, scull:
122. t'ôk to ram, pound, bunl: 123. t'ôk to beat, stroke: 124. d'ôk small bell: 125. t'ôk to butt, knock against, rush against, strike: 126. t'îng to beat, flog: 127. t'ôk to pound: 128. tiang to pound, to ram.

129. tiang (the dialects indicate a d'êng) cavity, hollow, chest, palate: 130. d'êng cave, cavern, grotto: 131. d'êng cave, hole, pit, ravine: 132. tiang a well:
133. d'êng pit, pit-fall, hole.

134. tiang middle, centre, interior, inside: 135. d'êng (the middle one:) second of three (or four) brothers, second of three months.

136. d'êng hall: 137. d'êng court: 138. d'êng hall, court: 139. d'êng hall: 140. tsêng ancestral hall, temple (the last, however, more probably to gr. 542 below).

141. tiang to swell, swallowed, embossed, ropical: 142. tiang swelling water, to flood, to rise: 143. tiang to swell, tumefy, tumour: 144, 145. d'êngg dropsy of leg:
147. tiang to complete, finish, achieve: 148. tiang to finish, end; 149. sêng to finish, end.

150. t'ôk to cleave, split: 151. tiak to hew, chop: 152. t'ôk barb of arrow: 153. t'ôk (to prick:) to blame, criticise: 154. t'ôk to cut asunder: 155. t'ôk to cut, chop,

hew: 156. t'ôk to cut gems: 157. tiak a spinous orange tree, thorn: 158. t'îng tooth, esp. front tooth: 159. t'ôk knife: 160, 161. t'ôk to cut gems, carve: 162. d'êng to wound, kill: 163. tiak a wound, sore: 164. t'îng to wound: 165. tiak to cut off: 166. tiak to thorn: 167. tiak to blame, criticise: 168. t'ôk to thorn, to sting, blame, criticise: 169. d'êng a cut-throat, bandit; to hurt, to wound: 170. tiak a sharp plough share: 171. d'êng chisel, bow: 172. tsêng barb of arrow: 173. t'ôk to spear fish, pierce, stab: 174. t'ôk thorn: 175. t'ôk to blame, criticise: 176. sêng to slaughter: 177. d'êng to cut: 178. tsêng a hoe: 179. tsêng to cut, slice, mince:
180. tsêng to stab: 181. d'êng plough-share: 182. sêng juh-be (thorny): 183. t'ôk to cut off; 184. sêng to wound, injure: 185. tiak to sting: 186. sêng to cut asunder, cleave: 187. sêng to slice off, cut off, to pare: 188, 189. sêng to cleave.

190. tiang to extend, draw out, spread, expanse, surface: 191. tiang become long, grow up: 192. tiang a long day: 193. d'êng (the long ones:) bowels: 194. d'êng area, arena, open space: 195. tiang palm of the hand: 196. d'êng (long:) constant: 197. tiang plateau, high open space.


203. d'êng steps of staircase, ledge, section, degree: 204. d'êng steps, tiers of a hill; 205. sêng (to place layer on layer:) to pile up, accumulate, add, increase: 206. d'êng layer, stratum, storey, degree: 207. d'êngg staircase.

208. sêng fat, smell of raw meat, rank: 209. sêngg fat, smell of raw meat, rank.

PRE-MODERN VARIETIES OF SINITIC

216. d’ông pain, to ache: 217. t’ung pain, to ache: 218. t’ung pained, to suffer, moan.


223. diông to well up (as water): 224. diông overflowing water: 225. d’ogh great waves: 226. t’og swelling and rushing water: 227. diông moving water, waves.

228. d’õk to soak: 229. tiek to drop, drip: 230. t’ök to drip, trickle: 231. de’ük to soak: 232. de’jög to soak: 233. ts’ög to soak: 234. sjök fluid, juice.

235. d’ôk, d’ôg to wash, rinse: 236. d’iök to wash, scour: 237. t’ög to wash, rinse; 238. sjök to bathe; 239. siek to wash rice: 240. sjög to rinse: 241. sjög water in which rice has been washed.


302, 303, 304. de’iök quiet, still: 305. de’iek quiet, still.


324. t’iek to fear, respectul; 325. de’ük bashful; 326, 327. sjög terrified, respectful; 328. sjök terrified, respectful: 329. sjög to fear.


WORD FAMILIES IN CHINESE


338. ts’ông green, blue: 339. ts’ieng green, blue.


344. d’iög spirits.


273. ts’iông ocean: 374. diông ocean.

375. t’iông to hear: 376. ts’iông acute of hearing.


381. de’iông image, shape, form, like: 382. sjög like, resembling: 383. ts’iög like, resembling; 384. sjög like, resembling: 385. sjök like, resembling.

386. d’iông younger, young boy or girl: 387. d’iông hornless calf: 388. d’iük calf.
PRE-MODERN VARIETIES OF SINITIC

389. tōng winter: 390. tōng to freeze; 391. tōng cold: 392. tōng cold: 393. tōng frost.

394. tōng (to have in the mind:) to know: 395. tōng knowledge, wisdom: 396. tōng mind, thought, will, resolution: 397. tōng (to have in the mind:) to remember, a record: 398. tōng to think (of); 399. tōng to think (of): 400. tōng to know: 401. tōng to think (of): 402. tōng a counsel, a plan.


423. dōng to pull out: 424. dōng to draw out, pull out: 425. dōng come out, out from: 426. dōng to draw out, pull out.

427. dōng to taste: 428. dōng to eat: 429. dōng nourishment, food and drink: 430. dōng to eat glutonously; 431. dōng food.

432. dōng remiss, careless: 433. dōng to slacken, indulgent: 434. dōng to unbend, to slacken, release: 435. dōng to slacken the rein, lax, loose; 436. dōng to loosen, let go: 437. dōng to let off: to pardon, amnesty: 438. dōng to let loose, to ease, release: 439. dōng to let loose water: to drain.

440. dōng to fall, slip: 441. tōng to fall.

442. tōng leek flower: 443. tōng leek, onion.

WORD FAMILIES IN CHINESE

444. dōng relay of horses: post: 445. dōng to change, dōng (changeable, mobile): easy: 446. dōng chameleon, lizard: 447. dōng to substitute, take the place of, change: 448. dōng to substitute, take the place of, change: 449. sōng chameleon, lizard.


457. dōng writing tablet, document: 458. dōng writing tablet, list, register, record: 459. dōng, to dōng writing tablet, list, register, record.

460. dōng to lend, to loan (on interest): 462. tsōng, tsōng to lend, to loan: 463. tsōng debt, to owe money.

464. tsōng to wait: 465. dōng to wait, to wait upon, to treat: 466. dōng to wait upon: 467. dōng to wait: 468. sōng water, attendant: 469. sōng to wait, to wait upon.


528. dōng to hold, receive, present: 529. dōng to pick, select: 530. tōng to pick up, take: 531. tōng to take, to pick: 532. dōng to grasp, hold: 533. dōng to receive, pass from hand to hand, transmit, same word: 535. tsōng to take, bring: 536. tsōng to catch, seize: 537. tsōng to take, pick: 538. tsōng to grasp, hold: 539. sōng to harvest: 540. sōng to take: 541. sōng to take, collect, gather, harvest.

542. dōng all: 543. tōng a crowd, many, all: 544. dōng (a group) a clan, family: 545. dōng a group, flock, party; comrade: 546. tsōng a clan; ancestors etc.: 547. tsōng to crowd, crowd: 548. tsōng to accumulate, collect, many; tsōng
provisions: 549. ま's a bundle, crowd, group, clan; 550. ま's a group, lock, partner, plural mark.
551. さ's a small quantity, little; 552. さ's small; 553. さ's little, few.
554. じ's bow case; 555. じ's a sheath of bamboo; 556. じ's a case, sheath; 557.
じ's sword case, sheath; 558. さ's sword case, sheath.
559. じ's bird of prey, kite, falcon: 560. じ's eagle; 561. じ's eagle, vulture.
562. じ's flute: 563, 564. じ's flute; 565. さ's to blow, whistle: 566. さ's flute.
567. し's flag, banner: 568. し's flag, banner.
569. し's to reach, obtain: 570. し's to reach: 571. し's to reach.
572. し's to go to: 573. し's to reach: 574. し's to make, do, act: 575. ま's to make.

576. じ's spoon, ladle: 577. じ's to ladle a cup full: to fill a cup of wine, to pledge: 578. じ's spoon, ladle: 579. じ's ladle: 580. じ's to fill a cup, to pledge (a host pledging a guest): 581. し's to fill a cup, to pledge (a guest pledging the host): 582. し's big ladle: 583. じ's to fill a cup and drink it: 584. じ's (to ladle out wine): libation sacrifice.
585. じ's to drive, expel: 586. じ's to drive, expel.
587. し's island: 588. し's island; 589. し's island.
591. し's far off, distant: 592. じ's far off, distant: 593. じ's far off, distant.
594. じ's to sell: 595. じ's to buy grain: 596. じ's to trade, to deal: 597. じ's market, fair: 598. じ's to sell, to buy: 599. じ's to sell.
600. じ's broom: 601, 602. さ's to sweep.
603. だ's to jump: 604. だ's to jump, leap: 605. だ's to jump, skip, leap: 606.
だ's to jump, skip, leap: 607. じ's to leap, skip.

608. じ's grasshopper: 609. じ's insects, vermin.
610. じ's to request, pray, seek: 611. じ's to pray to: 612, 613. じ's imprications: 614. そうだ to pray: 615. じ's to ask for, to seek.
616. じ's a roller, a pivot: 617. じ's a circle, all round: 618. じ's a circle, a revolution, a year.
619. じ's to laugh: 620. そうだ to deride, to ridicule: 621. だ's to ridicule, to scold: 622. そうだ to laugh.
623. そうだ ugly: 624. そうだ ugly.
そうだ stupid.
630. そうだ this: 631. そうだ him, her, it: 632. そうだ this: 633. そうだ this.
634. じ's to begin: 635. じ's to begin: 636. そうだ to begin.
637. だ's bag, sack: 638. だ's bag, sack.
639. そう's back of a car, box: 640. そうだ square box.
641. き's (a vis-à-vis, a partner, an equal) principal wife: 642. だ's (a vis-à-vis) adversary, opponent, enemy: 643. そうだ (a vis-à-vis) adversary, opponent, enemy; to answer back.
644. そうだ dregs: 645. そうだ dregs.
646. だ's to blacken the eyebrows: 647. そうだ black: 648. そうだ 1st day of the month: North (the fundamental sense, therefore, must be 'dark'): 649. そうだ early morning: 650. そうだ black.
651. だ's rice: 652. そうだ millet: 653. そうだ millet, grain (generally).
654. そうだ twice, a second time: 655. そうだ two, a pair, both.
656. そうだ shame: 657. そうだ shame.
658. そうだ forced labour, expedition: 659. そうだ forced labour, expedition.
660. そうだ great: 661. そうだ great.
662. そうだ; そうだ to shoot with bow and arrow: 663. そうだ arrow with string attached: 664. そうだ arrow with string attached.
665. そうだ to scratch: 666. そうだ nail, claw: 667. そうだ to scratch: a flea: 668. そうだ to scratch with the nails: 669. そうだ to rub a horse.
679. そうだ arm, elbow: 671. そうだ sleeve: 672. そうだ hand, arm.
673. だ's to yesterday: 674. そうだ yesterday, previously, long ago.
675. そうだ then, thereupon: 676. そうだ then, thereupon.
677. そうだ to call, beckon: 678. そうだ to call, summon: 679. そうだ to call, allure, entice.
680. そうだ to verify, prove, testify, evidence: 681. そうだ to verify, prove, testify, evidence.
682. そうだ who, which: 683. そうだ who?
684. そうだ alone, single: 685. そうだ alone, single.
686. そうだ to move: 687. そうだ moved, excited: 688. そうだ to shake: 689. そうだ to shake.
690. そうだ to run, gallop: 691. そうだ to run, to run away: 692. そうだ a run-away, a bandit: 693. そうだ to run, hasten.
C. Words of type \(N-NG\)

1. \(lōk\) veins in stone and mineral: 2. \(lōj\) veins in stone and mineral.

3. \(hjōng\) fertile and arable soil, worked soil: 4. \(nōng\) to work the soil, agriculture.

5. \(nāk\) (like that, thus, \(sī\);) yes, to say yes: 6. \(hjāk\) to resemble, like, as, according to.

7. \(hjōn\) to hear: 8. \(hjōg\) ear.

9. \(hjōng\) to grasp, seize, snatch: 10. \(gjāng\), \(g̃jāk\) to grasp, seize, snatch: 11. \(nāk\) to grasp, seize: 12. \(hjōg\) to seize, take out: 13. \(hjōg\) to grasp, take.

14. \(hjōng\) to measure: 15. \(hjōg\) to measure.

16. \(lānk\) bright, clear: 17. \(gjāng\) bright, clear: 18. \(g̃āg\) to burn: 19. \(lāk\) lustre, brilliancy (of gems): 20. \(hjōg\) bright, clear (said of eyes): 21. \(hjōg\) torch, to blaze, burn, shine, bright.

22. \(lāk\) force, strength: 23. \(hjōg\) to use force, to toil.

24. \(hjōng\) a car (the explanation \(nā\) pair\(\) i.e. two-wheeled car is a folk etymology, as shown by the existence of cognate words \(nā\) pair\): 25. \(gjāng\) a car where there is place to lie down: 26. \(hjōng\) to crush under car wheels: 27. \(hjāk\) to crush under car wheels: 28. \(hjāg\) chariot.

29. \(lāk\) joy: 30. \(lāk\) happiness.

31. \(hjēng\) basket: 32. \(lūng\) basket: 33. \(lūk\) basket.

34. \(nōg\) to disturb, to trouble: 35. \(hjōg\) to disturb, to trouble: 36. \(hjōg\) to trouble, molest.

37. \(hjōng\) to drip, dew: 38. \(hjēng\) dropping rain, to drip: 39. \(lāk\) to drip, soak: 40. \(lāk\) to drip, soak: 41. \(g̃āg\) dew: 42. \(hjōg\) opening in the roof of the ancient house for allowing rain water to drip down; to drip: 43. \(hjōg\) to drip.

44. \(hjōng\) prison: 45. \(hjōg\) a fold, enclosure, prison.

46. \(g̃āg\) to kill: 47. \(hjōg\) to kill, slay.

48. \(hjōg\) to tie, wind round: 49. \(hjōg\) to tie, twist: 50. \(hjōg\) to tie, a knot: 51. \(hjōg\) to tie, twist, coil.

52. \(lōng\) square piece of wood, angle, angular, edge, corner, lozenge-shaped: 53. \(lōng\) (the lozenge-shaped fruit) water-chestnut.

54. \(nōng\) be able to, can: 55. \(nōg\) capable of, to endure, bear (55. sometimes used for 54., e.g. in \(Lī\) \(kī\): \(Lī\) \(yān\)).

D. Words of type \(P-NG\)

56. \(nāng\) of old, anciently: 57. \(hjōng\) as of old, as before.

58. \(hjōng\) good: 59. \(hjōng\) good: 60. \(hjōng\) wonderful, divine.

61. \(hjōng\) mound, tumulus: 62. \(hjōng\) mound, tumulus.

63. \(g̃āng\) cold: 64. \(hjōng\) cold (the dialects point to an Arch. \(lōng\)): 65. \(hjōng\) ice.

66. \(nōng\) (thick fluid): \(pā\), matter: 67. \(nāng\) thick, rich (fluid): 68. \(nāng\) strong, rich (wine).

69. \(lāng\) waves: 70. \(lōg\) torrent, flood: 71. \(hjōg\) to flow.

72. \(nāng\) then, thereupon: 73. \(hjāg\) then, thereupon.)

1. \(bāng\) awning, shelter, shed: 2. \(pēng\) shelter, awning: 3. \(b̃u̯ng\) mat cover, awning, sail: 4. \(p̃jō\) to cover: 5. \(b̃jōg\) cover for the head, head-towel, turban, cap: 6. \(mōng\) blind: 7. \(māng\) (the stupid ones, \(yū\) \(mīn\);) the common people: 8. \(mēng\) (sun covered:) darkness, dark: 9. \(mēng\) to shut the eyes, bad sight: 10. \(māng\) darkened, stupid, ignorant: 11. \(mōng\) to cover; ignorant: 12. \(māng\) a film over the pupil, blind, ignorant: 13. \(māng\) (shut eyes:) to sleep, dream: 14. \(māng\) a cover, head-towel: 15. \(māk\) to cover with a towel: 16. \(māk\) to cover, a veil: 17. \(māk\) to cover with plaster: 18. \(māg\) (a cover:) veil, curtain: 19. \(māg\) membrane covering a muscle: 20. \(mōg\) dim-sighted: 21. \(māg\) to cover, veil, cap: 22. \(māg\) a cap: 23. \(māg\) fog, mist.

24. \(māk\) black, dark, silent: 25. \(māk\) ink (made from soot): 26. \(ỹmāk\) black: 27. \(māg\) soot-black, ink; coal.

28. \(mēng\) drizzle: 29. \(māng\) drizzle.
30. pwang (be at the side of) to assist, help: 31, 32. b'wâng side, beside: 33. b'wang sides of the body, loins: 34. b'wâng to walk beside, accompany: 35. b'wâng (side-walker, crab: 36. b'wang side-room: 37. b'wang crab: 38. p'êng side by side, two together, abreast: 39. b'lêng side by side, two together, abreast: 40. b'ang companion, associate, friend, a pair: 41. p'êk an associate, assistant: 42. b'wôg (to be at the side of) to accompany, to second, aid.

34. mjông bright, luminous, clear: 44. mjîwâng full moon.

45. p'ang to boil, fry: 46. p'êng to blaze, flame, luminous: 47. b'jâng (fever) sickness: 48. p'æng to burn, to blaze, beacon: 49. b'ok to burn: 50. b'ok to dry in the sun: 51. puk to burn tortoise shell for divination: 52. b'ôg scorching heat: 53. b'ôg to fry: 54. b'ôg kitchen: 55. pjôg leaping flames: 56. b'jâg to steam, to heat.

57. b'âk white: 58. b'âk white silk: 59. pâk (the white one, white-haired:) old man, eldest, eldest brother etc.

60. mjîg eye: 61. mjîg pupil of the eye.


72. mjîng long hair: 73. mjîng long-haired: 74. mjîng hair: 75. mjîg yak's tail used as a flag: 76. mjîg grass covering the earth (like hair), herbs edible herbs etc.

77. pâk wide, vast: 78. p'ôg wide, vast, great: 79, 80. mjîng wide, vast: 81. mjîng wide, vast: 82. mjîg vast as sea.

83. b'wâng rampart, embankment, to guard, protect: 84. pjông to screen, protect, b'êng protecting wall, screen: 85. b'êng screened carriage: 86. pông (walled territory:) state, country: 87. pîjîng frontier wall, boundary, fence: 88. b'jêg parapet, wall.

89. b'êng to beat, fustigate: 90. b'êng cudgel, to beat: 91. pâk to beat: 92. p'ük to beat: 93. b'êk to beat the breast: 94. p'uk to beat.

95. pjîng to grasp, hold: 96. pjîng a handle: 97. p'jîng to hold with both hands: 98. b'êng to hold in both hands, receive, present: 99. b'êng (what is received) salary: 100. pâk to grasp: 101, 102. b'ôg to grasp: 103. mjîg to take in the hand, grasp, feel.

104. pêk to cleave, split: 105. p'êk to cleave, split: 106. b'êk to open: 107. p'ôg (to cleave) to bifurcate, to branch (flowing water): 108. p'ôg to cleave, split.


113. pêng to tie, bind, wrap, swaddle: 114. p'êngwâng to bind, twist, spin: 115. b'wâk to tie, bind: 116. pôg (to swaddle:) to protect, guard (the same char. enlarged by rad. 145 means 'swaddling clothes': 117. pôg to wrap: 118. b'ôg (a wrapper:) a long robe: 119. b'ôg to enfold, embrace: 120. mok to bind, a cord.

121. pâk (back side): North: 122. pwâng back; behind: 123, 124. b'ôg to turn the back, turn round: 125. b'jêg to carry on the back.
E. Words of type \( K - N \)

1. kwôn a crank, to turn round, to wind; 2. g'wan rolling object, ball; 3. g'wan revolve, return; 4. g'wan revolve, surround; 5. g'wan surrounding wall; 6. g'wan to wind the hair into a knot; 7. g'wan a ring, to surround; 8. kj'wan a roll, a scroll; 9. g'wan enclosure, k'wan circle, encircle; 10. k'wan round wooden bowl; 8.

11. g'wan curved; 12. g'wan (hand made round); fist; 13. giwan round; 14. giwan jade ring; 14. giwân (enclosure) garden, park; 15. g'wên to encircle, wind round, bind; 16. g'wên tripod handle rings; 17. k'wan surrounded, enclosed; pressed; 18. kwôn dress embroidered with curled dragons; 19. kwôn to revolve smoothly (a wheel); 20. k'wan round granary; 21. kj'wan troupe, army (escorting footmen surrounding the war chariot, so the character); 22. giwan to revolve; 23. giwan a halo round the sun or the moon; 24. giwâd (to surround) to escort, guard; 25. gi'wan to revolve, a circuit, come back, return, a turn; 26. g'wan eddy; 27. kj'wan to return; 28. giwan to surround; 29. ngwân to cut round (cut off corners so as to make a thing round); 30. wân round bowl; 31. 'wâ a crank, to turn round, to wind.

32. kân dry, g'zan (sunshine) Heaven; 33. g'zan drought, dry; 34. g'zan dawn, beginning sunshine: 35. kwân to make fire by a burning mirror; 36. g'wan light, dazzling; 37. g'wan light, fire, flames; 38. k'âr (dry) thirsty; 39. giwan blazing, red as fire; 40. g'ân dry, hot, parched; 41. giwân to dry in the sun, heat, light; 42. giwan dawn, beginning sun-shine; 43. kâr brightness, heat; 44. giwan to make fire by a burning mirror; 45. giwân dawn, to dry in the sun; 46. wân giwân, fire; 47.


182. ‘g’en threshold: 183. ‘k’o’on threshold: 184. ‘k’o’ad threshold.

185. ‘g’o’on bar, bolt: 186. ‘g’o’ad bar, bolt: 187. ‘kwon bar, bolt.


194. ‘k’on interstice, interval: 195. ‘g’o’on (interval in time:) leisure: 196, 197. ‘k’o’ad (to peep through a crevice:) to peep, spy: 198. ‘gswan crevice, interstice, disaccord, feud.


202. ‘k’o’ad to open up new soil: 203. ‘yad opening: 204. ‘l’ar to open: 205. ‘k’ad to open.

206. ‘g’o’ad steelyard, to weigh with a steelyard: 207. ‘gswan equal, even: 208, 209. ‘kwot equal, equalize, in balance.

210. ‘k’ad to reckon, calculate: 211. ‘g’o’ad to reckon, calculate, measure.

212. ‘g’o’ad to train, teach, exercise: 213. ‘gwan to teach.

214. ‘jian to base oneself upon, rely on, because of etc.: 215. ‘jian support, cushion: 216. ‘jian to lean upon: 217. ‘jian to lean upon, rely on.


224. ‘k’o’ad hard-broken soil, hard, difficult: 225. ‘k’o’ad hard, firm.

226. ‘k’o’ad strong-minded, bold, straightforward: 227. ‘g’o’ad energetic, courageous: 228. 229. ‘k’o’ad strong, energetic, martial: 230. ‘g’o’ad strong, robust: 231. ‘k’o’ad energetic, 232. 233. ‘g’o’ad strong, martial, heroic: 234. ‘g’o’ad strong, robust; 235. ‘g’o’ad strong, martial.

236. ‘g’o’ad moist (as opp. to dry), living, to live etc.: 237. ‘g’o’ad slippery.

238. ‘k’o’ad (to pour water over:) to wash the hands: 239. ‘k’o’ad to pour water, to water, to wash: 240. ‘g’o’ad to pour out water, libation: 241, 242. ‘g’o’ad to wash: 243. ‘k’o’ad clean: 244. ‘k’o’ad clean, to cleanse: 245. ‘k’o’ad to pour water, wash: 246. ‘k’o’ad to wash the face.

247. ‘k’o’ad scales, armour: 248. ‘k’o’ad armour.

249. ‘g’o’ad glad, pleased: 250. ‘g’o’ad glad, pleased: 251. ‘g’o’ad glad, pleased.

252. ‘k’o’ad to press down, lay hand on: 253. ‘jian (to press down:) to seal, a seal.

254. ‘k’o’ad to press down under the wheels, to crush: 255. ‘jian to press down, repress (j’o’ad as shown by Shi rimes; the same character is also used for a synonymous word ‘j’o’ad): 256. ‘jwan to press down:) to iron linen: 257. ‘jwan to press down, subdue, pacify: 258. ‘jwan to pacify, soothe, to comfort.

259. ‘jwan rich vegetation, luxuriant: 260. ‘jwan rich vegetation, luxuriant.


263. ‘gswan long robe: 264. ‘g’o’ad skirt.

265. ‘jian aura: 266. ‘jwan aura.


271. ‘k’o’ad shield: 272. ‘g’o’ad to ward off, protect.

273. ‘jwan to investigate, examine: 274. ‘k’o’ad to investigate, examine.

275. ‘g’o’ad famine, hunger: 276. ‘k’o’ad famine: 277. ‘k’o’ad famine.

278. ‘g’o’ad to hate, angry: 279. ‘g’o’ad to hate, angry: 280. ‘g’o’ad to hate, resentment: 282. ‘g’o’ad to hate, resentment.

283. ‘g’o’ad love: 284. ‘g’o’ad love.

285. ‘g’o’ad to destroy, 286. ‘g’o’ad to destroy.

287. ‘g’o’ad throat, to swallow: 288. ‘g’o’ad food sticking in the throat, to choke.

289. ‘k’o’ad all: 290. ‘g’o’ad all together, in union, harmony.

291. 292. ‘g’o’ad to pull out, seize: 293. ‘g’o’ad to pull out, draw, drag, seize: 294. ‘g’o’ad (spudder:) cart shafts: 295. ‘k’o’ad to haul, drag, lead: 296. ‘g’o’ad tow-rope, to haul: 297, 298. ‘g’o’ad to take, pick up, 299. ‘at to pull up.
PRE-MODERN VARIETIES OF SINITIC

300. k'án to cut: 301. k'wán (a cut notch) notch, tally, bond, deed: 302. g'jan to cut, kill (char. used kia tsie): 303. g'an (a cut) scar: 304. kjan (cut): axe: 305. k't to cut: 306. k't lance: 307. kwát cut off, scrape off: 308. giwát halberd: 309. k'it sickle, to cut: 310. giwát to incise: 311. gi'ád (to cut) to injure: 312. kwát to cut meat to pieces, to mince: 313. kwát cut off: 314. kwát, k'jád to cut, to wound: 315. kwát sharp, to cut, to wound: 316, 317. k'jád to cut, a notch: 318. kar, ngor scythe, sharp, to sharpen: 319. ngwá, ngwá, ngwest to amputate, cut off the feet: 320. ngwá to mow: cut: 321. ngwá to amputate, cut off the nose.

322. g'jón close, near: 323. g'jár (close quarters) Royal domain proper: 324. k'jár near (in the common expression n'k háo).

325. giwán to throw away: 326. giwán to drop, to lose: 327. k'jed to throw away: 328. giwá to leave behind, lose.
329. k'sán swallow: 330. 'at swallow.
331. k'són sinew: 332. g'jón ends of a sinew.
333. kwán to perforate, pass through: 334. g'wan to perforate, pass through.

F. Words of type T-N

WORD FAMILIES IN CHINESE

1. djwán border band (on dress), along the edge, along, sequel, cause: 2. djwán silk thread: 3. ti'et band of hemp worn on mourning dress: 4. tiwát, tiwát to tie, fasten, sew; (oánknüpñm) connect, continue: 5. tād band round the waist, girdle: 6. djwá a string, to tie: 7. tsweñ red string, to tie together, compile: 8. tsweñ
PRE-MODERN VARIETIES OF SINITIC

108. tswan to pinch, lay hand on: 109. t'swät to pinch, pick, gather: 110. t'is 'at to snatch, steal: 111. dz'wät to grasp, seize.

112. d'jan to tread, trample: 113. d'jwas heel, to trample; 114. dz'jan to tread, trample: 115. dz'wät to kick, trample: 116. dz'wät to trample: 117. ts'ar to tread, trample.

118. d'jwas to follow, obey, accord with: 119. d'jwas to follow: 120. tjwät to follow after; 121. d'jwsän (following:) to follow in death: 122. tsjwas to follow, obey, accord with: 123. d'jwsän (obeying:) docile, tame (horse): 125. d'jwsän to follow: 126. swan (follower:) grandson: 127, 128. d'jwas to follow; (cause to follow:) to lead: 127, 128. sjwät leader.

129. t'swät to push; 130. dz'wär to push, press, thrust: 131. ts'ar to push, to urge.


139. d'wär pig: 140. t'wär pork fat.

141, 142. d'jwät to let loose, escape, relieve, leisure: 143. tsjwät to let loose, unrestrained, licentious: 144. sjwät to let out water, leak, dispense: 145. sjwät to let out water, leak, relieve, dispense; sjwät to dispense: 146. sjwät to let out water, let loose, relieve, leisure.

147. t'is drizzling from the eye, tears: 148. t'is, d'jwät drooping from the nose, nasal mucus: 149. sjwät nasal mucus.

150. d'wär to collect, to mass; a group of soldiers, a camp, to camp: 151. d'wät a group of soldiers, a regiment: 152. dz'wät to collect, to assemble, accumulate; 153. d'wät to collect, numerous, dense, thicket.

154. js'ar property: 155. tsjwät property.

156. d'jwät broom; 157. sjwät to brush, to scrape clean: 158. sjwät, sjwät towel, kerchief: 159. sjwät towel, kerchief.


169. d'jwät to sew: 170. ts'ar to sew, embroider.

171. jwan to fight, battle: 172. twät to hammer, to forge: 173. ts'ar to beat the head against the floor: 174. d'ien to beat, to drum: 175. t'sän to beat, flog: 176. t'sän to beat, flog: 177. ts'ar to butt, resist: 178. ts'ar to knock against, resist: 179. twät to throw: 180. twät pestle: 181, 182. d'jwät to beat: 183. d'jwät to beat, hammer, pestle.

185. t'sän to extend, spread: 186. d'æn to extend, enlarge, large, exaggerate: 187. t'sän to enlarge, open out: 188. t'sän drawn out, long: 189. d'jwät to extend, spread out, prolong etc.: 190. d'jwät (what is spread out) mat: 191. d'jwät to expand, extend: 192. d'æn to spread out in a row, arrange: 193. d'jwät a troop spread out in a row, array: 194. d'jwät to draw out, stretch: lead etc.: 195. d'jwät (to spread out) make known, exhibit, proclaim, announcement, pressage: 196. sjwät to extend, expand, make known, repeat etc.: 197. sjwät to extend, stretch out: 198. sjwät to extend, spread out, display etc.

199. t'sän to stumble: 200. d'æt to stumble: 201. t'där, 202, 203. ts'ar to stumble.

204. d'wär calf of the leg: 205. d'wär rum, buttocks: 206. d'wär leg, thigh, ham.

207. d'jwät to burn, to cook: 208. t'swan colour of fire, d'wär torch for burning divination shell: 209. t'swän to roast, fry: 210. t'swät to make fire, burn, cook: 211, 212. d'wär cooked food: 213. ts'ar fire-prepared, cooked food: 214. t'swän, t'swän, t'swät to make fire, burn: 215. d'jwät to ignite, draw fire.

216. t'swän firm, solid: 217. t'swän (to make solid:) incalculable.

218. d'jwät coal: 219. t'swän black clothes: 220. t'swän black hair.

221. d'ien cultivated field: 222. t'swän raised borders of the fields.

223. t'swän to calculate, measure: 225. t'swan inch: 226. t'swät to measure, estimate: 227. t'swän to calculate, estimate, reckon.

228, 229. t'swät to tremble, shiver, shake: 230. t'swät to shake: 231. t'swät shock of thunder, shake: 232. d'ien (vibration in atmosphere:) lightning, thunder.

233. t'swan deep: 234, 235. t'swan deep: 236. t'swan deep.

237. d'jwät order, series, degree, rank: 238. d'jwät order, series, sequence, degree.

239. d'jwät (the next one, the second as opp. to the first:) younger brother: 240. d'jwät
327. ǎ jìwòt road, way; method etc.: 328. ǎ jìwòt road, way; tunnel.
329. 330. ǎ wàntó draw back, retire, skulk, flee: 331. ǎ wàntó to draw back, withdraw, retire; 332. ǎ jìwòt to draw back, shrink; 333. swàntó to recede, give way, yield.
334. sjàntó fresh, new: 335. sjéntó new.
336. äftó to break, snap, ǎ jìtó fracture: 337. tsì wàntó easy to break, brittle: 338. ǎ wàntó to break into pieces, fragments.
339. ǎ jìtó tongue: 340. ǎ jìtó a speech, pronouncement, declaration: 341. ǎ jìwòt to speak, explain, swàntó to speak to.
342. ǎ wàntó to fall down, collapse: 343. ǎ wàntó to fall down, collapse.
344. ǎ wàntó metal butt on spear shaft: 345. ǎ wàntó metal butt on spear shaft.
346. ǎ dìtó letters on the feet: 347. ǎ jìtó letters on the feet.
348. tièn sickness, ill: 349. ǎ jìtó sickness, ill: 350. tsìtó sickness, ill.
352. tsìtó to exhaust: 352. tsìtó exhausted, empty.
353. ǎ iètó a car passing another.

G. Words of type N- N

35. lìdó profit, benefit: 36. lìdó profit (probably same stem as the preceding group: the cuttings, the harvest).
37. ǎ jìtó to tread, trample: 39. ǎ jìtó to tread, trample, a shoe.
40. ǎ jìtó near, neighbour: 41. ǎ jìtó clothes nearest to the body: 42, 43. ǎ jìtó near:
44. njèntó near: 45. njèntó near.
46. ǎ jìwòt weak, soft: 47. nìwàn weak, soft
48. lìdó oyster: 49. lìdó oyster.
50. ǎ jìtó cold: 51. lìdó cold.
H. Words of type P-N

1. p’juán to fly: 2. p’ien to fly: 3, 4. p’jwan to fly: 5. p’jiwer to fly.
6. b’juán animal’s foot, paw: 7. b’wek foot, heel, trample, march.
25. b’jen female (of animals): 26. b’jan female (of animals) — possibly cognate to the preceding group: the mate of the male animal.

27. b’jan to separate, distinguish, discriminate: 28. b’jan to divide, distinguish, discriminate: 29. p’jan cleft wood, split, slice, slip, board, tablet: 30. p’jan (cleft wood:) writing tablet: 31. p’wán divide in half, half: 32. p’wán to divide, divide, discriminate: 33. p’wán one half of a victim divided in two parts: 34. p’wán to distribute: 35, 36. p’wán board: 37. p’wen board, tablet, flat: 38. p’wen to divide, b’wen a part: 39. p’wen to separate, separate, divide, separate: 40. b’jiwer to cut, attack: 41. b’jiwer to cut, attack: 42. p’wer to separate, part: 43. b’jiwer to cut off the feet, amputate: 44. p’wen to cut, cut the throat.

60. p’jían to hear, to smell (perceive by the senses): 61. p’jían to taste, taste.
62. p’jían cowry shell, valuables: 63. p’jían (to bring cowry shells as presents, present valuables:) to salute (this primary sense of p’jían is revealed by the earliest bronze inscriptions which show a man presenting strings of cowries).
64. b’jían to give: 65. p’jían to give: 66, 67. p’jían to give: 68. p’jían to give: 69. p’jían mourning hair dress: 70. b’jiwer distressed.
71. b’jían to grasp, seize: 72. p’jían to grasp, seize.

73. b’jían mixed and numerous, multitudinous: 74. p’jían tangled, confused, multitudinous: 75. p’jían tangled, confused, multitudinous: 76. p’jían tangled, confused.
77. p’jían strong-smelling, fragrant: 78. b’jían fragrant wood, aromatic wood:
83. p’juán not (no such reading in the ancient dictionaries, but indicated by all the dialects): 84. p’jían not (with the modal sense of ‘not be able to, not be willing to’): 85. b’jían to say no, contradict: 86. p’jían not: 87. p’jían not: 88. p’jían to speak, to talk.
89. p’juán to speak, to talk.
90. p’jían something in the eye, troubled sight: 110. p’jían to blindly: to confuse, lead astray.


135. p’jían lower part of a tree or a plant, stem, root (as opp. to top, branches, ear of grain): 136. p’jían lower part of a tree or a plant, stem, root; straw (as opp. to ear): 137. b’wek to uproot, pull up: 138. b’wek lowest part of a vertical object, base, foot, heel, trample (as opp. to ear): 139. p’jían (breathers:) lungs: 140. b’jían (breather:) nose.
141. p’jían to gush forth (as a source): 142. p’jían to gush forth.
I. Words of type K-M

1. giám (shutter) gate: 2. g'ém dark, black: 3. k'ám (covering) coverlet: 4. g'áp (shutter) door, to close: 5. kap (shutter) inner door to the harem: 6. 7. g'áp, káh covering, to cover: 8. 9. g'ám covered, obscured, black: 9. g'ám to cover, conceal: 10. g'ám to cover, all-covering: 11. g'ám (the man who covers, shuts, keeps the doors of the harem shut, cf. 132 above) door-keeper, eunuch: 12. g'ám dark, black: 13. 14. g'ám to cover, conceal: 15. 16. g'ám to shut a door, shut, closed, covered, dark: 17. g'ám darkened sun, dark, darkness: 18. g'ám black: 19. g'ám (covering) shade: 20. g'ám darkness, dark, shade. North side etc. For the connection between 'to cover' and 'dark': to shut. gate, cf. group H 111-134 above.

21. g'ám jaws, jowl: 22. g'ám to hold in the mouth: 23. g'ám (what is wawed, bitten) horse's bit, to hold in the mouth: 24. g'ám jaws, jowl: 25. g'ám to hold in the mouth, contain: 26. g'ám objects put in a corpse's mouth: 27. kíáp jaws, jowl, cheeks: 28. g'áp jaws, jowl (possibly cognate to next group: 29. g'ám pinch). pinches: 30. g'ám pinch, pincher) iron collar, gibe; pinches: 31. kap to grasp from both sides, squeeze, pinch: 32. g'áp (pressing from both sides): narrow: 33. g'áp (pressing) close: intumate: 34. g'áp (narrow, pressing from both sides): chasm, pass: 35. kiáp pinches: 36. kiáp pinches, chopsticks: 37. g'áp to press from both sides, hold under the arms, clasp under the arm to support; to press, coerce: 38. k'áp to open the sides, to rifle: 39. k'áp sides of the body, flanks: 40. g'áp sides of the body, flanks: to press from both sides, to press, coerce.

41. giám salt: 41. g'ém salty, salted: 42. ngiám soda (drawn from salty soil).

K. Words of types T-M, N-M, P-M


14. tsám to cut off, decapitate: 15. sám to cut grass, to mow.
16. d'ap layer, to fold: 17. 18. d'ap dress with two layers of stuff, lined, double; put in layers, to fold; 19. d'ap dress with two layers of stuff, lined, double; put in layers, to fold.

20. t'ap to fear, afraid: 21. d'ap afraid; 22. t'ap to fear, afraid; 23. t'ap to fear, afraid.

24. sjam slender, thin, small: 25. sem slender, delicate.

26. d'ém to sink in water, deep water: 27. dz'ém to go down in the deep, go down in water, lie hidden: 28. d'ém deep, deep water, abyss: 29. d'ém to go down in the deep, sink in water: 30. d'ém down in the depths of earth, deep down: 31. sjam deep water, deep.

32. 33. d'ém quiet, peaceful: 34. d'ém quiet, peaceful: 35. t'ip quiet, peaceful.

36. isam swift: 37. ts'jam, ts'jam to gallow, run swiftly: 38. dz'ap swift: 39. sap to gallow, run swiftly.

40. d'ém to burn: 41. dz'jam to blaze, flame: 42. d'ém, dz'ém to burn, to heat: 43. dz'jam stove: 44. sjam fever.

45. sjap moist, wet, damp: 46. dz'ap marsh.

47. t'ap to bind, tie: 48. ts'ap to bind together.

49. sjam to look, see: 50. t'jam to look, see.

51. t'ap to catch, grasp, seize: 52. dz'ap to seize, grasp, pick up: 53. sjap (a seachter): bird of prey: 54. sjap to grasp: 55. dz'ap (to catch): to take booty, quarry, game: 56. sjap to grasp, hold.

57. d'ém to talk, chat: 58. sjam to chatter: 59. d'ém to talk, chat: 60. d'ap to chatter: 61. d'ap to chatter.

62. 63. sjam to soak: 64. 65. tsjam to soak: 66. tsjam to soak: 67. sjam to soak: 68. 69. sjam soaking rain.

70. t'ap to put to shame, disgrace: 71. dz'ém shame, to be ashamed.

72. dz'ém to slander: 73. dz'ém to slander.

74. sem three: 75. ts'ém three (persons or things) together, a triad: 76. sjam (the three-star constellation): Orion.

77. dz'ém of unequal length: 78. ts'ém of unequal length.

79. d'ap mixed: 80. ts'ap to bring together, join: 81. dz'ap collected, mixed: 82. dz'ap to bring together, gather, collect, mix: 83. dz'ap to bring together, gather, harmonize: 84. ts'ap to collect.

85. t'ap to answer: 86. ts'ap (> Shí ts'ap > Anc. t'ap) to answer.

87. 88. t'ap (to cause to enter, causative of 90:) to bring in, to present: 89. maw (> Shí maw > Anc. maw) interior, inside, in: 90. t'ap to enter.

91. b'jwam pattern, rule, law, norm: 92. pijwam pattern, rule law, norm.

**

**Laws of alternations**

At a first glance at the word families established above the reader may well ask: is it not extremely farfetched to imagine an etymological connection between words which are so strongly dissimilar phonetically as many of the cases proposed? Is it not unreasonable to combine e. g. A 213 k'ung: 225 x'ou; B. 64 t'ou: 76 t'og: 79 d'og: E 93 g'at: 94 k'ar; E 142 ngワン: 140 g'wad; F. 66 s'am: 65 d'ar — when in all such cases there is not one consonant or vowel common to the two members of the combination? This objection may seem quite justified. Yet a rash judgment of the kind is not just; all the families proposed must be seen in the light of the general laws of alternations which can be derived from the materials adduced. In the following summary I shall pick out a number of comparatively safe and convincing examples of those various laws.

**The final consonants**

Here we have three undeniable series of alternations:

1. ng – k – g;

2. n – t – d – k;

3. m – p – b – k;

ng – g:


ng – g:


k – g:

The initial consonants

Here we have first four great series of consonants, the members of which interchange freely in the formation of words from one and the same stem:

1. \( k - k' - g - g' \);
2. \( t - t' - d' - d' - i' - i' - d' - d' \);
3. \( ts - ts' - dz - dz' - ts - ts' - dz' - s - s' - z \);
4. \( p - p' - b' \).

Examples:

\( k - k' \):

A 32. kōg: 31. k'ōk; 37. k'uk; 75. k'ung; 80. k'ung; 148. k'wag; 147. k'jag; 191. k'jung; 268. k'jong; 270. k'juk; 331. kek; 330. k'wāk; 342. k'gāg; 344. k'gēg; E 120. kwāt; 119. k'wāt; 129. k'i; 132. kwān; 128. k'ān; 149. kwā; 151. k'wā.

k - g:

A 3. kwāng: 6. gwiaw; 156. kwāng: 158. gwiaw; 176. kwāk; 177. gwiaw; 209. kwāng: 212. gwiaw; 362. kōg; 363. gōg; E 19. kwān; 22. gwiaw; 208. kwāng; E 315. kwād; 308. gwiaw.

k - g' :

A 3. kwāng: 4, 5. g'wāng: 98. kōg: 100. g'jag: 140. k'jag; 141. g'jag; 172. k'ōng: 175. g'jāk; 237. kōng: 238. g'ung: 250. kōng: 253. g'jung; 259. k'jung: 260.
PRE-MODERN VARIETIES OF SINITIC

WORD FAMILIES IN CHINESE

t–d:
B. 69. tang, 75. tjak, 70. d’jang.

t–d:
B. 98. tjag, 99. djag, 312. tjag, 313. djog, 351. tjok, 350. djok, 426. t’jog, 425. djog, 582. t’iog, 579. djog; F 148. t’or and djor; 188. t’jan; 189. djian.

t–d:
B. 34. t’iug, 38. d’iug, 44. t’eg, 46. d’eg, 51. t’ieng and d’ieng; 119. t’ok, 120. d’ok; 192. t’iug, 191. d’iug, 217. t’iug, 216. d’iug, 226. t’eg, 225. d’eg, 237. t’iug, 235. d’iug, 314. t’iok, 315. d’iok, 330. t’ieng; 331. d’ieng; 346. t’ieng, 347. d’ieng, 481. t’iog, 480. d’iog, 599. t’iog, 595. d’iok, 607. t’iog; 606. d’iog; F 140. t’war, 139. d’war, 185. t’iun, 186. d’an, 206. t’war, 205. d’war, 208. t’wen and d’wen, 241. t’or, 238. d’or, 247. t’or and d’or, 283. t’iun, 284. d’an, 314. t’iun, 313. d’iun, 317. t’iur and d’iur, 331. t’war, 329. d’wen.

t–f:
B. 14. t’jok, 13. tjok; K. 50. t’jam, 49. tjam.

t–f:
B. 306. t’iug, 307. tjag, 628. t’iug, 629. tjag; F 97. t’iwar, 96. tjwar.

t–d:
B. 359. t’iog, 598. djog; F 283. t’iun, 285. djian.

a–d:

a–f:
B. 118. tjung, 116. tjung, 250. djog, 253. tjog.

a–d:

a–d:
B. 66. djog, 64. djong, 85. djog, 88. djong, 269. djong, 275. tjok, 594. djok, 596. tjok, 598. djog.

d–d:

a–f:
B. 66. djog, 70. d’iung, 663. djok, 672. d’iak.

d–f:

d–f:
B. 29. d’ok, 30. tjak, 635. d’iog, 634. tjok.

...
PRE-MODERN VARIETIES OF SINITIC


d' - d':
B. 79. d'ag: 70. d'jang.

ī - ī:

ī - ā:

ts - ts:

ts - dz:

ts - dz:

ts - tā:

ts - tā:

ts - s:

ts - s:

ts - s:

ts - z:

ts - dz:
B. 495. ts'jōg: 497. dzjog.

WORD FAMILIES IN CHINESE


ts - ts:
B. 168. ts'jēk: 167. sjēk.

ts - ts:

ts - dz:
B. 319. ts'jog: 321. dz'jog.

ts - s:

ī - ŋ:
K. 75. ts'ām: 76. sjām.

ts - ŋ:
B. 168. ts'jēk: 185. sjēk.

ts - z:
B. 383. ts'jog: 385. sjōg.

ts - tā:
B. 181. dzjog: 180. sjaj.

ts - tā:

ts - s:

ts - s:

ts - s:
B. 671. dzjōg: 672. sjōg: K. 46. dzjap: 45. sjap.

ts - z:
B. 456. dzjāk: 454. sjōg.

ts - tā:
B. 177. dz'āg: 179. tsjāg: K. 82. dz'jāp: 84. tsap.

ts - tā:

ts - dz:
B. 320. dz'jog: 321. dz'jog.
PRE-MODERN VARIETIES OF SINITIC

WORD FAMILIES IN CHINESE

p’ ~ b’;

It is easily seen that whereas some of the alternations in these four series are quite rare, others are extremely common and regular and can be said to be some of the principal instruments of the Chinese language in word derivation. As particularly important and normal I wish to point out two:

The alternation of unaspirated surd and aspirated sonant: t ~ d’, k ~ g’, ts ~ dz’, p ~ b’;

The alternation of aspirated surd and aspirated sonant: t’ ~ d’, k’ ~ g’, ts’ ~ dz’, p’ ~ b’.

We have to take up next a very intricate question: whether these four series of initials can be proved to alternate with certain other initials not yet discussed, and whether some of these latter initials have alternations between themselves. There are here six questions which have to be answered. Is there an etymological connection between:

1. The k series and the laryngeal explosive ‘;
2. The t series and y;
3. The k series and ng;
4. The t series and the ts series;
5. The p series and m;
6. n, ŋ and l.

The first four of these questions I think must decidedly be answered in the affirmative; of the last two the good examples are so few as to leave room for doubt:

k etc. ~ t;
A 1. k’hong: 19. j’hong; 60. g’wông: 69. w’wông; 186. k’jung: 201. j’hong: 245.
b’jung: 249. ‘jung; 259. k’jong: 260. g’lông: 265. ‘lông; 266. giwông: 273. w’lông; 328.
g’jög: 329. j’jög: 353. k’jög: 354. j’jög; E 1. kwàn and w’dì: 10. k’wán: 30. w’dì;
37. g’wèn: 49. wèn: 114. k’wàn: 121. w’dì: 117. g’wèr: 123. j’war: 189. giwèn;
192. j’wèn: 11. j’am: 2. g’jem: 12. ‘en.

k etc. ~ y;
A 64. g’jung: 66. yjung: 76. g’wàng: 87. ywàng: 80. k’jung: 88. yjung: 140.
kjwang: 141. g’jwàng: 152. ywàng: 215. k’hàng: 222. yjwàng: 307. k’jök: 308. yjök;
362. k’jög: 364. yjög: E 32. k’an: 40. yàn: 73. k’jat: 78. yjat: 105. g’jan: 109. yjàn;
126. k’ian: 130. g’jàn: 135. yjàn: 167. giwàn: 168. yjwàn: 174. k’iàk: 175. yjàr: 1
38. yj’àp: 39. yj’àp: 77. g’àp: 80. yj’àp.

k etc. ~ ng;
A 259. k’jáng: 257. ng’jàng: E 2. g’wàn: 29. ng’wàn: 79. k’an: 80. kàn: 86. ngàn;
The medial (intercalary, subordinate) vowels

I shall design here the word type without i, w (type kún etc.) by 0. The theoretically possible alternations are the following:

1. 0 - j; 2. 0 - i; 3. 0 - w; 4. 0 - jw; 5. 0 - iw; 6. j - i; 7. j - w; 8. j - w; 9. i - jw.

Most of them are well represented:

0 - j:

A 4. g'wâng; 6. giwâng; 7. giwâng; 8. k'âng; 1. k'âng; 32. k'âng; 31. k'âng; 66. k'âng; 67. k'âng; 76. g'wâng; 77. k'âng; 83. g'wâng; 84. g'wâng; 89. k'âng; 90. g'wâng; 98. k'âng; 100. g'wâng; 103. ngâng; 105. ngâng; 134. k'âng; 135. k'âng; 143. g'wâng; 145. k'âng; 149. k'âng; 150. k'âng; 153. k'âng; 155. k'âng; 156. k'âng; 158. giwâng; 172. k'âng; 175. g'jâk; 176. k'âng; 184. k'âng; 185. k'âng; 188. k'âng; 190. k'âng; 191. k'âng; 196. k'âng; 197. k'âng; 209. kwâng; 212. giwâng.
WORD FAMILIES IN CHINESE

The principal vowels

By alternations of all the vowels of the Archaic Chinese phonetic system the language has created an Ablian system which is extremely rich and varied, and it is in this respect a true sister language of Tibetan, in which such an Ablian plays a predominant part. I shall exemplify first the alternations of the different varieties of the same principal vowel (d: aː; eː; oː; ːː; eː: uː;), and then the alternations of the different principal vowels.

dː and dːː: G 31. líːː: 32. líːːr; H 21. jíːː; 22. pʰːːr; 30. pʰːːn; 29. pʰːːn; 153. pʰːːn; 152. pʰːːn; I 29. gʰːːm; 37. gʰːːː; 84. kʰːːː; 83. kʰːːn.

iːːː: A 1. kʰːːn; 3. kwːː; 73. kʰːː; 76. gʰːː; 315. kʰːːː; 317. kʰːː; E 52. kʰːː; 53. kwːː; 142. ngːː; 143. j’hːː; 140. g’wːː; 153. j’hːː; 154. wːː; 156. wːː; 186. g’hːː; 187. kwːː; F 105. wːː; 106. d’wːː; 104. j’hːː; 103. dːː; 209. tsʰːː; 210. tsʰːː; 211. 212. dːː; 261. j’hːː; 266. dːː; 311. j’hːː; 312. t’hːː; E 2, 3. j’hːː; 4, 5. mːː; H 21. j’hːː; 24. pʰːːr; 27. b’hːː; 30. p’hːː; 31. kwːː; 32. pʰːː; 45. b’hːː; 48. pʰːː; 68. mːː; 66, 67. mːː; 144–146. b’hːː; 143. b’hːː.

iːːːː: A 93. g’hːː; 94. g’hːː; E 129. k’hːː; 132. kwːː; 309. k’hːː; 316, 317. k’hːː; 307. t’hːː; 312–314. k’hːː; G 32. liːː; 33. hːːr; H 22. p’hːː; 24. p’ilː; 29. p’ilː; 89. mːː; 88. mːː.

jːːː: E 129. k’hːː; 132. k’hːː; 210. k’hːː; 211. g’hːːr; F 30, dːː; 31. dːː; 281. sːː; 278. dːː; H 22. j’hːː; 23. p’hːːr.

The examples given are sufficient to show that the alternations 0–i, 0–w, j–i and quite particularly the first one (type kːːn—kːːm) are among the fundamental means of the Chinese language for creating derivates from one and the same stem.

The principal vowels

By alternations of all the vowels of the Archaic Chinese phonetic system the language has created an Ablian system which is extremely rich and varied, and it is in this respect a true sister language of Tibetan, in which such an Ablian plays a predominant part. I shall exemplify first the alternations of the different varieties of the same principal vowel (dː: aːː; eːː; oːː; ːːː; eːːː; uːː), and then the alternations of the different principal vowels.

dːː:

For the very numerous cases of type dːː: ja (kːːm: kːːn etc.) see alt. 0–j above. For example:

E 2. g’wːː; 3–7. g’wːː; 79. kːːn. 80. kːːn; 121. wːː; 122. wːː; 124. kːːn; 125. g’wːː; 154. wːː; 156. wːː; 178. dːː; 179. ‘eːː; 252. dːː; 254. ‘eːː; 333. kwːː; 334. g’wːː; F 210. tsʰːː; 211. 212. dːː; G 4, 5. mːː; 1. nːː; H 136. pːː; 137. b’hːː; I 71. gːːm; 69. kːː; K 1. tsːː; 2. dːː.

dːːː:

A 76. g’wːː; 73. k’hːː; 134. k’hːː; 135: k’hːː; 184. kːː; 185. kːː; 207. k’wːː; 209. kwːː; 206. k’hːː; 250. k’hːː; 257. mːː; 323. ‘aː; ‘aːː; 324. ‘aːː; D 35. b’wːː; 37. b’hːː; 67. mːː; 70. mːː; 91. p’hːː; 92. p’ilː; 126. pːː; 127. 128. b’hːː; 168. pːː; 169. p’ilː; 226. k’hːː; 227. g’dːː; 228, 229. g’ːn; 230. g’ːn;
Combined alternations

We now revert to the question posed on p. 90 above. Is it reasonable to combine words which offer, not one alternative but two or more? Let us take the third example given there: F 93, g'd 'how now': 94, k'jar 'how now'. Semantically the combination is very good; but we have to accept no less than four alternatives, concerning every element of the two words. We have attested above the indisputable existence of the four alternatives: g' - k' (very common); 0 - j (very common); ð - a (very common); t - r (quite certain and fairly common); are we then authorized to pose the affinity of the two words 'how now': g'd: k'jar, which supposes the four alternatives?

Theoretically, I should say that we are; but I want to emphasize that here, as in all linguistics, the conclusiveness of the argumentation depends upon the question whether we can find many parallel examples, showing the same combination of alternations. If we can, then I think nobody can deny the correctness of our deductions. That is why I wish to give here some fairly extensive examples of coable alternations (in order to simplify matters I limit the demonstration to two elements: principal vowel and final consonant):

Alternations a - e and ng - k - g (ang - ek, ang - eg, ak - eng, ag - eg):


Alternations a - o and ng - k - g (ang - ok, ang - og, ak - og, ag - og):


Alternations a - o and ng - k - g (ang - ok, ang - og, ak - og, ag - ok):

Final remarks

There are two more questions which should be touched upon before finishing this preliminary investigation of Chinese word families.

One of them is this: are all the materials adduced here homogeneous, i.e. do they belong to one and the same language, one Archaic dialect? If not, if there are certain words which come, so to speak, from a side-track, which have been incorporated in literature by picking up dialectal words outside the main branch of the language and in their dialectal phonetic garb, then this would necessarily disturb our circles and endanger our results. I must frankly point out that in a few cases there is a certain risk of such a source of error. Indeed, I have inserted in my tables half a dozen words which the ancient sources directly indicate as being dialect words (such as B 496, B 530, F 243, H 9). But on the whole this risk is very small, since I have operated mainly with the most common words of the language (practically all of them are such as are to be found in Soodhill’s Little Pocket Dictionary).

The second question concerns the grammatical nature of the alternations. We have seen thousands of examples in which the language by their aid has formed parallel words for the same notion or phonetically more are less differentiated words for kindred notions. But do the alternations not sometimes serve as
expressions for purely grammatical functions in a narrower sense? They certainly do, but this is an extremely complicated topic to which I hope to revert in another work. I shall point out here, merely as suggestive examples, a series of cases, in which our alternations studied above are expressions for different parts of speech or similar grammatical distinctions.

A 340. kōxg a school (noun): 340. gōxg to study (verb);
B 122. phwəg back (noun): 123, 124. b'wəg to turn the back (verb);
B 345. tieng (as fixers) anchor (noun): 347. d'ōng to fix (verb);
B 353. ts'joy child, son (noun): 354. d'jōg to breed, beget (verb);
E 271. kōn shield (noun): 272. g'ōn to ward off (verb);
H 38. ḫwəm to divide (verb): 38. b'wəm a part (noun);
B 134. tōm middle, centre (noun): 135. d'ōng the middle one (adj.);
B 191. jōng to become long (verb): 191. d'ōng long (adj.);
B 248. ts'og dawn (noun): d'jōg (with matinal one, adj.) = morning ceremony, audience;
B 649. tōsō early morning (noun): 650. d'ōg black (adj.);
E 32. kōn dry (adj.): 32. g'ōn (heat and light). Heaven (noun);
E 129. kōn to see (active): 129. 300. g'ōn to be seen, appear (passive);
F 325. ts'ōr (equal): mate, wife (noun): 324. d'ōr equal (adj.);
R 152. pōn side (noun): 153. p'ōn oblique (adj.);
K 45. ḫōö moist, wet (adj.): 46. ḫōö marsh (noun);
F 85. tāt to go to (verb): 86. tāt to cause to go to (causative verb to the preceding);
F 96. t'wət to come out, go out (verb): 97. t'wət to eliminate, degrade (causative verb to the preceding);
B 445. ḫōk to change (verb): 445. ḫōg (changeable): easy (adj.);
A 323. ḫōk bad (adj.): 323. ḫōk to hate (verb);
B 127, 128. ḫwət to lead (verb): ḫwət leader (noun);
F 341. ḫwət to speak (vb. trans.): ḫwət to speak to, to address (vb. trans.);
B 29. ḫōk to measure (verb): 29. ḫōk a measure (noun);
B 428. ḫōk to cat (verb): 428, 431. ḫōk food (noun);
D 154. b'ōk to return (verb): 154. b'ōk again (adv.);
A 229. khōng wide (adj.): 232. khōk to widen (verb);
E 139. giwət to say, said (vb. pres., past.): 138. giwət to have said (perfect);
B 552. sjōg small (adj.): 551. sjōg small quantity (noun);
A 129. khōng neck (noun): 130. tieng to behead (verb);
E 142. ngōm to talk (verb): 143. ngōm a saying (noun);
H 138. b'wət base, foot, root (noun): 137. b'wət to uproot (verb);
B 355. sjōng to bear (verb): 356. sjōng (maternity): clan (noun), 357. sjōng innate qualities (noun);
F 216. ḫōk solid, firm: 217. ēwət to make solid) inculcate (verb);
G 7. ḫwət hot (adj.): 8. ēwət to burn, to heat (verb);

Notes

1. In the present paper Arch. means Archais Chinese, the language of the Shih king, and Anc. means Ancient Chinese, the language of the Ts'e yin, time of the Sui dynasty.
2. The two qipg device, always used in my earlier works, is inconvenient, since the apostrophe is easily confused with the aspiration mark, and is particularly clumsy in conjunction with it, e.g. d'yōng, I therefore replace it in the present article, by a bow over the consonant: t, 3.
3. The 7th character not in the Shih, yet belonging to this category.
4. In T'ang time tōsō was at the phonetic sign, which includes the whole disembodied: p. 84 Sian k'ōo is given as equivalent to Chin. tō, p. 86 Sian. k'ōo as equivalent to the same word.
5. When I speak of the age of the hie sheng characters, I should express myself more precisely. Many of the hie sheng characters of later ages were written in early Yaoh time without radicals, i.e. they were properly speaking only kia tse characters to which later on specializing radicals were added. From the linguistic point of view it is of course impossible to determine what the phonetic was used alone or whether it was written with an elucidating sign.
6. It must be remembered that it is not a question of a fluctuation between ēwət and ēwak, such as in Pekinese, where 'to learn' can be read both kāu and kīoak and ēwak, 'horn' both kī and kīoak and ēwak through a mixing of dialects. Here there are certain words which have exclusively ēwak and certain others which have exclusively ēwak.
7. The series d'ōg should be expected to be Arch. ēwak and rime in the ēwak category. But it has quite regularly in the ēwak-ēwak group, which shows that Arch. ēwak has irregularly passed over to the Arch. ēwak rime.
8. The word 72. Anc. nōt, Arch. nōg I have studied in my article The pronoun kāu in the Shih king (Göttinger Högskola Asskrift 1933). In classical script 72. serves
regularly for two words, Anc. ㄈㄩ ‘then, thereupon’ and Anc. ㄈㄩ ‘your’. In the former sense the bronze inscriptions mostly have another character, yet 72. sometimes serves also in this sense of ‘then’ in Archaic script as well, e. g. in the O hou ting inscr. (K’19 kù shì kí kín won shù kū 2, p. 7).

B. Schindler, in Asia Major 1933, has published a kind of criticism of my above-mentioned article. It is really discouraging to find that he studies Arch. grammatical particles by adducing examples right and left from all kinds of texts without discrimination and without suspecting an important fact which I proved a decennium ago (On the authenticity and nature of the Tso chuan): that the use of the grammatical particles was not at all the same in all Arch. texts but that marked differences existed, based on different dialects. Moreover, a good part of his Shù king examples are drawn from the spurious Shù king chapters!

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COGNATE WORDS IN THE CHINESE PHONETIC SERIES

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The fact that the Chinese monosyllabic words are not »isolated« units, each one unaffinite with all the rest, but that they often form groups of two or several, or ever many, which are cognate, i.e. different aspects of one and the same word stem, was already recognized by the scholars of the 19th century, and the problem of such »word families« was taken up for examination by A. Conrady and others. Even a student who is not linguistically trained and who knows the Chinese words only in their modern phonetic garb will easily recognize the fact that, for instance, ㄈㄩ kuan ‘to see’ and ㄈㄩ k¼n ‘to see’ and ㄈㄩ kuan ‘to see’ must be cognate words, or that ㄈㄩ p u ‘not’ and ㄈㄩ t u ‘not’ are affinitive, that ㄨ u ‘I, we’ and ㄨ o ‘I, we’ are allied, or that ㄨ s t ‘to die’ and ㄨ s h t ‘corpses’ must be variants of one word stem. In the BMFAQ 5 (1933) I published a paper: Word Families in Chinese, in which I took up this theme for more comprehensive treatment. At that time I was able to go much further than the early sinologues could do, thank to the fact that the pronunciation of the Chinese words in early Chou time, »Archaic Chinese«, had been reconstructed by linguistic methods in its essential features. Phonetic similarities revealing real and reliable affinitics, which are quite obscured in the modern readings of the words, owing to phonetic changes in the lapse of two and a half millennia, made it possible to establish large groups of words which may be suspected of being cognate (»word families«). My list was, of course, only tentative: in a great many of the cases adduced the affinity is obvious and undeniable, in other cases it is only probable or even merely possible and it was left to future research to determine which of the stem alternations proposed could be proved. Even so, a considerable number of alternations were represented by so many safe examples (e. g. those treated under A – D below) that they could be stated to be established facts. A small selection of such alternations have again been recorded by me in my popular book The Chinese Language, an Essay on its Nature and History (N. Y. 1949, pp. 79–95); a most important result in this context was the fact
A cognate series is, for instance, the first example given above: when they wrote *k'än 夂, *k'än 夂, and *k'än 夂, three characters that are quite dissimilar, they give no hint as to whether they felt those words to be cognate or not. But in a considerable number of other cases they indicated quite unmistakably that they were perfectly aware of the affinity of the words concerned. A fine example of this is the word 夂, deduced above. They have one word *d'ak 夂 'to measure' and another word *d'ak 夂 'a measure', and the script inventors evidently realized their affinity and wrote them both with the same character 夂. When they had *pjwan / pjwm / fen 'to divide' and *b jwvn / b jwm / fen 'a part, a share', they emphatically indicated that they were two variants of one and the same word by writing them both 分.

Examples like these are simple and undeniable, but from them we can proceed to somewhat more complicated cases. To begin with, some general principles have to be made clear.

When we have a phonetic series like this: 夂 *ngd'/ nga / y 'a 'tooth', 夂 *ngd'/ nga / y 'a 'sprout'. 夂 *ngd'/ nga / y 'a 'to welcome', 'receive', it looks at first sight as if the second and third characters are composed in exactly the same way: the second character 'sprout' consists of *gros'; as radical (sense determinant) and *ngd'/ 'tooth' as phonetic and, similarly, the third character 'to welcome' consists of *ngd'/ as radical and *ngd'/ 'tooth' as phonetic. Yet this is quite erroneous. In the former case 夂 'sprout' it is (etymologically) the same word as *ngd'/ 'tooth' (the sprouts being *teeth) shooting forth from the soil). The 夂 in 夂 is not a phonetic but the fundamental, primary graph, the same as 'tooth', and when the word, if its only variants of sense, means the *teeth on the soil, the original graph 夂 has merely been elucidatingly enlarged by the addition of *gros'; on top. The 夂 is quite different. Here the character 夂 *ngd'/ has been borrowed (kia tsie) to signify the homophonous word *ng d' 'to welcome' - the two are in no way cognate; and when it has become too confusing to have 夂 in both these meanings there has been added, in the second case, a radical *g' to speak in order to distinguish them. In the example, then, we have a real case of one radical and one phonetic.

It is now important to remember that the addition of radicals - whether as elucidating enlargements added to the primary graph, as in 夂, or as real distinguishing sense indicators added to phonetic-loan characters, as in 夂 - is on the whole a comparatively late phenomenon. The invention of the radical trick was made quite early, as a few cases in Yin and early Chou inscriptions show, but it was only rarely applied in the early part of the Chou dynasty. In fact, radicals occur with some frequency only in the last centuries of the Chou era. There are still today a number of examples in which radicals were never added: 夂 *lag / lāi / lāi 'a kind of wheat' (Shih king) was borrowed for *lag / lāi / lāi 'to come', and to this day 'to come' is still written 夂 without any distinguishing addition. In the bronze inscriptions of the early Chou centuries this phenomenon (borrowed characters, kia tsie, without radicals) is almost the rule: 夂 serves for 食, 食 for 食, 食 for 乾, so often in the classical texts as well, 食 for 乾 etc. The addition or non-addition of radicals is therefore, from our point of view in this paper, quite unimportant: if there is a radical, there are great chances that it was there originally but was added in late Chou time or (sometimes) even in Han time.

Let us see what this important fact implies for the purpose of our investigation. Reverting to our series *ngd'/ nga / y a above we may take it for granted that at an early stage 夂 alone served both for *ngd'/ 'tooth' and for *ngd'/ 'sprout' and for *ngd'/ 'to welcome', without any additional radicals; in other words that 夂 had its elucidating (specializing) *gros'; and 夂 its distinguishing element *g' to speak in added later on. The problem, from our point of view, is then to decide whether 夂 in 夂 was, not a phonetic, but really the primary graph itself - in which case the script masters first 夂 'tooth' and then 夂 'sprout' to be the same word - or else it was merely a kia tsie phonetic loan for the word *ngd'/ 'sprout' (just as 夂 for 夂 was merely a phonetic loan) - in which case they did not realize the stem identity of *ngd'/ 'tooth' and 夂 'sprout'. Our criterion can here only be an affinity of meaning sufficiently obvious to convince us that the identity was conceived and expressed by the use of the same character 夂, just as 夂 'to divide' and *b jwvn 'a share' were expressed by the use of the same character 分. If we are sufficiently cautious, we can very well find a long series of cases of this identity type, as will be shown below. It will suffice to state here that we need not consider the existence of a radical in the modern compound character as decisive. The case 夂 'tooth' and 夂 'sprout' (primarily 夂 'tooth' and 夂 'sprout') is in principle quite identical with the case 夂 'divide' and 夂 'share'.

We may, however, take one further step. We have three characters: 夂 *pjw / pjw / f' to deliver' and 夂 *b jw / b jw / f' to attach' to adjoin' and 夂 *b jw / b jw / f' 'additional horse' (to a team). The 夂 'to deliver' is here obviously a typical loan character (kia tsie) for both words *b jw, it has no stem affinity with them. But the very fact that the same phonetic (kia tsie) 夂 was used both for *b jw 'to adjoin' and for *b jw 'additional horse' is highly significant. The latter two are evidently one and the same word, in different variants of meaning. When the script masters borrowed 夂 'to deliver' both for *b jw 'to adjoin' (later filled out into 夂) and for *b jw 'additional horse' (later filled out into 夂), it seems evident that they felt the two *b jw to be one and the same word, or, let us say, two variants of the same stem. Here again we draw the conclusion: when two words in the orthodox script have the same phonetic and when their meaning unequivocally indicates stem affinity, we conclude that their affinity has been felt and realized by the script masters, irrespective of the different distinguishing radicals applied at a later date.
After these considerations of a general nature, let us pass on to a selection of illustrating examples. We may first dispose of the cases belonging to the category *ngē: *ngē discussed above (identity of two words). Most of them are so obvious that there is no need to make a list of them: any reader of the Grimmatis Sericea (a new edition of which, with notes recorded, is at present in the press) will after a rapid perusal find scores of such obvious instances. But we had better quote a few examples in which the etymological identity of the two members of a pair is not quite so self-evident: it shows the acumen of the ancient Chinese script masters in realizing their identity and hence placing them together in the script:

1. *ngē / ngē- / y i right, righteous: 2. id. (i.e. same reading and with the same tone) to determine what is right, to discuss, a judgment;
2. *kā / kā house, family: 4. id. (to get a house:) to marry (said of a woman);
3. *ko / ko / kū drum: 6. id. blind (as drummer:) the blind were made musicians;
4. *gō / gō- / h u intertwining, interlacing: 8. id. railings, fence;
5. *tān / tān / t a n single, simple: 10. id. unlined garment;
6. *gō / gō- / h u tiger: 12. id. a tally (tiger-shaped);
7. *dān / dān / y e n extend, spread out: 14. id. (a spool:) a mat;
8. *lān / lān / l e n in a row, consecutively: 16. id. rippling waves;
9. *sēn / sēn / t s' u a n complete, faultless: 18. id. (faultless:) one-coloured sacrificial animal;
10. *wān / wān / b a n round, turn: 20. id. a ring;
11. *niwān / niwān / w a n extended, drawn out: 22. id. ceasing point;
12. *di / di / c i penetrate: 24. id. (penetrable:) limpid;
13. *tāi / tāi / l i divide, separate: 26. id. divide, tear apart;
14. *kā / kā / kū o bond, tie: 28. id. a hair knot;
15. *kā / kā / k e i put together, to add up: 30. id. joining point of the ends of a belt;
16. *lō / lō / i sharp, piercing, cruel: 33. id. a stinging insect;
17. *bā / bā / n / p damage, spoil, worn out: 35. id. to spoil, to ruin, 36. id. to kill, to die;
18. *gān / gān / h u a n dark-coloured, black: 38. id. (darkened:) troubled sight;
19. *jēn / jēn / y i n to rest upon, lean upon, rely upon etc.: 40. id. (what is leaned on:) a mat (the primary graph depicts a man outstretched on a mat);
20. *wān / wān / h u n latrine: 42. id. soiled, disorderly;
21. *xiān / xiān / h u n smoke, fume, fragrance: 45. id. merit;
22. *jē / jē / t s' i (to be paid by:) to hate: 47. id. jealous;
23. *jiā / jiā / c h' u go out, bring in: 49. id. expel, degrade;
24. *jī / jī / s h u road, path: 51. id. (sto path:) go along, follow, bring along, transmit;
25. *jī / jī / z h i to progress, go along, follow: 53. id. channel, path, tunnel;
26. *kē / kē / k i small: 55. id. delicate spring, fine mechanism;

From the preceding categories, in which it is obvious that the early script masters realized the etymological identity, we shall pass on to some more interesting categories, in which the two members are not phonetically identical (the tone inclusive, as in the case *ngē) but show a phonetic contrast.

A simple category is here, first, the one in which the stem variation consists exclusively in a change of tone. A well-known example is 葬 where the character read *yōg / yōg- / h a o (rising tone) means 'fine,' 'good' and read *yōg / yōg- / h a o (falling tone) means 'to love.' In this category as well, the early scribes undoubtably felt that they had to do with one and the same word (word stem). The instances of this stem variation are very numerous, and we shall cite a sufficiently extensive list to show its importance:

27. *tsā / tsā / t s o left, to the left: 83. *tsā / tsā- / t s o to assist;
28. *ka / ka- / k i a to add, apply: 85. *ka / ka- / k i a (to apply horses to:) to yoke;
30. *ko / kau- / k u anterior, ci-devant, premise, cause;
31. *ts' o / ts' o / t s' o to cut: 91. ts' o / ts' o / t s' o to cut small;
32. *kā / kā- / k to sit down: 93. *kā / kā- / k to squat;
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94. *tjo/tjöw, ch'u to dwell, to place: same char. *tjo/tjöw - ch'u a place;
95. *niö/höw - nü woman: same char. *niö/höw - nü to give a wife to;
96. *siu/š, shu number: same char. *siu/š - shu to count;
97. *siu/š, shu tree: same char. *siu/š - shu to plant, place upright;
98. *tsjö/tjöw - tsjöw - tsaö to take: same char. and 98. *tsjö/tjöw - tsjöw - tsaö to take wife;
100. *dön - dän - taö to shoot pellets at: same char. *dön - dän - taö to a pellc;
102. *kwön/kwän - kuö n cap: same char. *kwön/kwän - kuö n to cap, put a cap on.
103. *kien - kien interstate, interval: same char. *kien - kien find it;
105. *djo - djan - chuan to transmit: same char. *djo - djan - chuan (what has been transmitted) a record;
106. *tjaö/tjöw, chuan turn round, transfer, remove: 113. *tjaö/tjöw, chuan (transferring, transmitting place) (relay of post);
107. *gëw, gëw, yuän far, distant: same char. *gëw, gëw - yuän to keep far from, leave;
111. *djuw/djan, tsin in exhaust, consume: 120. *djuw/djen - tsin ashes, combusted;
112. *pijöw/pijöw - piö guest: 122. *pijöw/pijöw - piö guest receiver, to welcome;
113. *djëw/djëw, sün all round, a round, a decade (of days): 124. *djëw/djëw - sün everywhere, all round;
116. *miu - miu to hear: same char. *miu - miu - wën to be heard, fame;
117. *gjan/gjan - kien near: same char. *gjan/gjan - kien to be near to;
118. *sien - sien before: same char. *sien - sien to go before, precede;
119. *kjar/kjar - kjar small: same char. *kjar/kjar - kjar few, (how few) how many;
120. *jö - jö - jö clothes: same char. *jö - jö - jö to wear;
121. *jëw/jëw, lëw to wind round, to be attached to (as a liana): 135. *jëw/jëw - lëw - lëw climbing plant;
122. *pjöw/pjöw - fei it is not: 137. *pjöw/pjöw - fei it is not;
123. *tie - tie root, base, foundation: 159. id. bottom: 140. *tie - tie to lower;

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168. *piâng / piêng / p’iâng to hold, grasp: 169. *piâng / piêng / p’iâng a handle;
170. *giëng / jiëng / j’üng long: 171. *giëng / jiëng / j’üng (to draw
doing long): to chant;
172. *kiêng / kiëng / k’üng reverent, respectful: 173. *kiêng / kiëng / k’üng to
overawe; to warn, admonish;
174. *tjâng / tj’ëng / t’üng to load, to fill: same char. *tiêng / tj’ëng / t’üng (loaded full):
ample, abundant;
175. *tjâng / tj’ëng / t’üng straight, correct, regulate: same char. *tiëng /
tiêng / t’üng (regulating) first (so, month), and 176. id. (a correction): a
punitive expedition;
177. *tiêng / tiêng / t’üng stick, staff: 178. *tiëng / tiêng / t’üng dust, stem;
179. *tiêng / tiêng / t’üng to hear: same char. *tiëng / tiêng / t’üng to listen
to, obey;
180. *tîng / t’iâng / t’i is to know: same char. *tiëng / tiêng / t’i is knowledge, wisdom;
181. *jîng / j’iâng / jiâng to respond, correspond, conform: same char. *jîng
/j’iâng / jiâng (conforming to what it should be): ought, right;
182. *jîng / jiâng / jiâng to vanish, surpass: same char. *jîng /
jiâng / jiâng (capable of);
183. *jîng / j’iâng / jiâng to weigh: same char. *jîng / j’iâng / jiâng
(balancing): equal to, corresponding to;
d’iâng / d’iâng (what is mounted): carriage, and (what is set up, recorded):
records, annals;
185. *tiâng / tiâng / tiâng to call, pluck: same char. *tiâng / tiâng /
tiâng (what is called for income): appanage, and 186. *tiâng /
tiâng / tiâng (called herbs): vegetables;
stimulate;
188. *tij’ung / tj’iâng / t’iâng middle, centre: same char. *tij’ung /
tj’iâng / t’iâng to hit the centre, to hit;
shous to hand over, give;
190. *d’og / d’iâng / s’hou to keep, to guard: same char. *d’og /
d’iâng / hou in somebody’s guard, fist;
191. *t’s’iâng / t’s’iâng / t’s’iâng to grasp, hold: same char. *t’s’iâng /
t’s’iâng / t’s’i is to hold on to: purpose, intent;
192. *log / lâi / lâi to boil: same char. *log / lâi / lâi (acknowledge somebody’s
toil): to compensate;
193. *tiëng / tiëng / tiëng little, small: 194. *tiëng / tiëng / tiëng to be a miniature of)
similar to one’s father, to take after the father;
195. *mioj / mioj / mioj small, minute: 196. *mioj / mioj / mioj (infini-
tesimal, incomprehensible): mysterious, marvellous;

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201. *d’iâng / d’iâng / t’iâng heavy: same char. *d’iâng / d’iâng / t’iâng
double;
202. *tiëng / tiëng / tiëng seed, different kinds of grain: same char. *tiëng
/tiëng / tiëng / t’iâng to sow;
203. *d’iâng / d’iâng / t’iâng / t’s’iâng to follow: same char. *d’iâng / d’iâng /
t’s’iâng / follower;
204. *t’iâng / t’iâng / f’iâng to receive: 205. *t’iâng / t’iâng / f’iâng (what
is received): salary.

In the following categories the answer to our principal question (whether the
early script masters had a feeling of the affinity of two or more *words*) is not so
evident:

A. Stem variation consisting in an alternation of
tenuis and aspirated media as initial

206. *kia / k’iâng / k’i odd (number): same char. *g’iâng / g’iâng / k’i is strange
extraordinary;
207. *p’iâng / p’iâng / p’i to eat: 208. *b’iâng / b’iâng / b’i is to eat;
209. *k’iâng / k’iâng / k’i is frightened glance, anxious: 210. *g’iâng /
g’iâng / k’i is to fear;
211. *p’iâng / p’iâng / p’i (of father): second part of honorific words, e.g. Kia-fu:
same char. *k’iâng / k’iâng / k’i is to provide, make complete, complete;
216. *k’iâng / k’iâng / c’i an shield: 217. *g’iâng / g’iâng / h’an protect, ward off;
to slices;
220. *tja / tja / tja to an half: 221. *b’iâng / b’iâng / p’i an (cleaving):
222. *k’iâng / k’iâng / k’i an interstice, space between: same char. *g’iâng /
g’iâng / h’i an (interstice in time): leisure;
223. *k’iâng / k’iâng / k’i a to roll: same char. *g’iâng / g’iâng / k’i an curved;
224. *tja / tja / tja to a transmitting place, relay (of post etc.): same char.
225. *d’iâng / d’iâng / c’hü a to transmit;

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270. *tsao/ taioi/ ts a i o load: same char. *dz ag/ dz o i- t s a i o load;
271. *pwa/ p u i- p e i the back: same char. *b w a g/ b w a i- p e i to turn the back on;
272. *kaa/ k i k i a full fixed time: *g jaq/ g q i- K i a stipulated time, to expect;
273. *tsaig/ t s i t child: 274. *d jaq/ d t s i t to breed;
274. *kaa/ k i k i e to guard against, warn: 276. *g o g/ y a i- h i e to overawe, frighten;
275. *t o ng/ t u n g/ c h u n g middle: 278. *d j o ng/ d y ung/ c h u n g (the middle one): the 2nd of brothers;
276. *kaa/ k i k i a ng descend: same char. *g o ng/ y a i g h i a ng submit;
277. *p o g/ p a o to wrap: 281. *b o g/ b o a to embrace, carry in the arms;
278. *g j o k/ j u f u double: 283. *b j o k/ b j u f u return, recommence, repeat;
279. *k i o g/ k i o a twist: 285. *g j o g/ g j i u I long and curved, horn-shaped;
280. *tsaig/ t s i u wine, spirits: 287. *d j o g/ d j u a t s i u wine-master;
281. *k i o g/ k i o a proud, arrogant: 289. *g j o g/ g j i u k i o a high;
282. *t o a o/ t h o o morning: same char. *d j o g/ d j i u c h a o (morning ceremony) audience;
283. *tsaig/ t s i a o to roast, burn: 292. *d j o g/ d j i u a t s i a o firewood;
284. *k i o ng/ k i o n g to join the hands: same char. *g j o ng/ g j o n g- k i o n g together, all;
285. *k i o g/ k i o a well-sweep: same char. *g j o g/ g j i u k i o a cross-bar;
Further the following numbers below: 295; 334:335; 345:346; 357; 358:359; 468; 475:476.

The examples are surprisingly numerous, and many of them are so striking that there can be no doubt that the early literary men clearly felt the affinity between the members of each word pair and that they therefore expressed it in the script they created. They must have had quite as real a feeling for the affinity between *piao/ to divide* and (same char.) *b jiao/ a share* as an ordinary Englishman has for the connection between *to bind* and *a bond*, between *clean* and *to cleanse*, between *to lose* and *lost*. The addition (mostly at a later date) of various radicals is indeed of no consequence and cannot invalidate our conclusion. The same conclusion may be drawn in regard to all the categories studied below.

B. Alternation of final tenuis and final media

295. *kaa/ k i k i o cut: 296. *g o d/ y a i - h i a o hurt, damage;
297. *s a o/ s a i s h a to kill: same char. *s a o/ s a i s h a to diminish, reduce;
298. *k i a t/ k i e t k i e i script notches;
300. *s p w a/ s w a s u h o to speak: same char. *s w a d/ s w a i s h u e i to exhort;
301. *p w a t/ p w a i f a to throw out, send forth: 302. *p w a d/ p w a i f e i cast aside;
C. Cognate words in Chinese phonetic series

334. *κα/ka/ kia good, excellent: 335. *γά/γα/ hο congratulate;
339. *κάν/κάν/ κου an to pass a string through, string together, bound together, intimate with: same char. *κών/κών/ κου an intimate with, familiar with;
342. *κά τ/κα τ/ κο το cut: 342. *κατ/κατ/ κο i to castrate;
344. *κλάν/κλάν/ κι εν to see, inspect: 344. *κλάμ/κλάμ/ λαν to see;


D. Alternation of forms with and without medial ḫ

356. *τς/τς/ τς ο u to cause to run: same char. *τις/τις / τς ο u to run, hasten to;
360. *καν/καν/ κο u dry (warmed in the sun): same char. *καν / καν / κι εν heaven (sunny);
359. *καν/καν/ κο u round: 359 *κιων/κιων / κα π το turn round;
362. *καν/καν/ κο u (a cut off) end, to end: 362. *καν/καν- / κο u to cut:
364. *κων/κων/ κο u to assert, select: 364. *κων/κων/ λαν class, category;
365. *κων/κων/ κο u (moritorius) soldier: same char. *κων/κων / κο u to die;
367. *καν/καν/ κο u to bring in: 367. *καν/καν / κο u to enter;
369. *καν/καν/ κο u to give together, mixed: 369. *καν/καν / κο u to come together, assemble;
371. *νγα/νγα/ γα n high, to lift high: 371. *νγαν/νγαν- / γα n to agree, conform to, like;
373. *νγα/νγα/ γα n to agree, say yes: 373. *νγαν/νγα / γα n to agree, conform to, like;
375. *νγα/νγα/ γα n to agree, say yes: 373. *νγαν/νγα / γα n to agree, conform to, like;
375. *νγα/νγα/ γα n to agree, say yes: 373. *νγαν/νγα / γα n to agree, conform to, like;
E. Alternation of voiceless aspirate and voiced aspirate as initial

376. *ts’ju/’ts’ju:/ t’s’ü to take: 377. *de’ju/’de’ju:/ t’se to bring together, collect; 378. *ts’jam/’ts’jam:/ t’s’ien shallow: 379. *de’jam/’de’jam:/ t’sien thin, shallow; 380. *k’juan/k’juan: k’ü a n to bend: curved: 381. *g’juan/g’juan: k’ü a a (rolled hand:) fist; 382. *ts’juan/’ts’juan: t’s’ü a n healed, restored: 383. *de’juan/’de’juan: t’s’ü a n complete, whole; 384. *p’wuán/’p’wuán: p’ü a n to cleave, divide, separate: 385. *b’wuán/b’wuán: p’ü a n to separate, dividing bank between fields; 386. *t’ud/t’ud: tat’ a i great: 387. *d’ud/d’ud: tat a great; 388. *k’ien/k’ien: k’i a n to pull: 389. *g’ien/g’ien: h i e n (the thing that is pulled:) bow string; 390. *p’juwán/p’juwán: f’a n to overflow, inundate: same char. *b’juwán/b’juwán: f’a n to flow out, disperse; 391. *k’wát/k’wát: k’ü a cave, hole: 392. *g’wát/g’jwát/k’ü a to excavate, dig a hole; 393. *t’iari/t’iari: t’i (sequence of steps:) staircase; 394. *d’iari/d’iari: t’i, sequence, order; 395. *t’s’iar/t’s’iar: t’s’ü a (the counterpart, of equal standing:) consort, principal wife: 396. (The Arch. graph of which had the same upper part as 395) *d’e’iar/’d’e’iar: t’s’ü a equal, uniform; 397. *p’jök/p’jök: t’u to turn round: 398. *b’jök/b’jök: t’u to return; 399. *t’jög/t’jög/t’u to take out, pull out: 400. *d’jög/d’jög/ t’u to take out (the outcome:) descendants; 401. *iöq/t’öq/t’i a o to sell grain: 402. *d’iök/d’iök/t’i to buy grain; 403. *p’jung/p’jwong: f e n g to hold with both hands: 404. *b’jung/b’jwong: f e n g to hold with both hands.

F. Alternation of tenuis and voiceless aspirate as initial

405. *pw’d/ p’ud: p o to walk lame: 406. *p’w’d/p’ud: p’o slanting, oblique, partial; 407. *k’o/k’wo:/ k ü chariot, carriage: 408. *k’o/k’wo:/ k ü storehouse for chariots, arsenals; 409. *p’wán/p’wuán/ p’a n half: 410. *p’wán/p’wuán/ p’a n to cleave; 411. *k’wán/k’wán: k’ü a n to roll: same char. *k’jwán/k’jwán/ k’ü a n crooked, rolled up; 412. *k’wát/k’wát: k’ü e to cut off: 413. *k’wát/k’wát: k’ü e to break, splinter, defective; 414. *k’jöp/k’jöp/ k’ü e (to take away:) to rob, plunder: 415. *k’jöp/k’jöp/ k’ü e to go away, take away; 416. *k’wát/k’wát: k’ü a n wide: 417. *k’wát/k’wát: k’ü a n wide (the wide parts:) the wilds; 418. *p’k’k/k’k: p o wide, ample: 419. *p’k’k/p’k’k: p’ü a wide, vast; 420. *k’jöp/k’jöp/ k’ü a n vaulted, vault.

G. Alternation of media and voiced aspirate as initial


H. Alternation of media and tenuis as initial

437. *s’iwan/s’iwan: s h a o a territory, state: 438. *s’iwan/s’iwan: s h a o a state; 439. *s’iwan/s’iwan: s h a o a ladle; 440. *s’iwan/s’iwan: s h a o a ladle; 441. *s’iwan/s’iwan: s h a o a ladle; 442. *s’iwan/s’iwan: s h a o a ladle; 443. *s’iwan/s’iwan: s h a o to summon; 444. *s’iwan/s’iwan: s h a o to summon; 445. *s’iwan/s’iwan: s h a o to summon; 446. *s’iwan/s’iwan: s h a o to summon; 447. *s’iwan/s’iwan: s h a o to summon.

I. Alternation of media and voiceless aspirate as initial

448. *t’juan/t’juan: yü e n to flow out, overflow, go to excess: 449. *t’juan/t’juan: k’ü e n exceed, excess, fault; 450. *t’juan/t’juan: yü e n to flow out, overflow, go to excess; 451. *t’jö/wá/t’jö/wá: s h a o a long (sc. beams); 452. *t’jö/wá/t’jö/wá: s h a o a long (sc. beams).
K. Alternation of o and ā as principal vowel
451. *ko / kuo / k u a merchant: same char. *kā / kā / k i a price;
452. *ngō / ngō / y u to withstand, a match, opponent: 453. *ngā / ngā / y a to meet;
Further: 512:513.

L. Alternation of e and ē as principal vowel
457. *gēp / gēp / h o to join, combine, collect: 458. *gēp / gēp / h i a sacrifice to ancestors unitedly, collectively;
455. *kōm / kōm / k a n pin: 456. *gōm / gōm / h i e n to fall into a pit.
Further: 461:462; 463:464;

M. Alternation of forms with and without medial i
459. *kwāt / kwāt / k u a to divide: 460. *kwāt / kwāt / k u e to cut off;

In the following groups we find an interchange between dental and palatal (t: f etc.) and between dentals and supradentals (ts': ts').

P. a. Alternation of dental and palatal tenuis as initial
468. *tāt / tāt / c h e (breaking through) penetrating, perspicacious: 489. *tiāt / tiāt / c h e to break, decide;
490. *tiāt / tiāt / c h t to cause to come) to convey, transmit, bring about: 491. *tiāt / tiāt / c h t to come;
492. *tiāt / tiāt / c h a pledge, a security given, a hostage: same char. *tiāt / tiāt / c h t substance, substantial matter;
493. *tiāt / tiāt / c h o to burn, brilliant;

P. b. Alternation of dental and supradental affricate as initial
495. ts'a / ts'a / c h a to diverge, discrepancy: same char. ts'la / ts'la / t s' l of different length;
496. *ts'ē / ts'ē / t s' i near, close: 497. ts'ēn / ts'ēn / c h e n inner coffin (nearest to the body);
498. *ts'ēp / ts'ēp / t s i to bring together, hold together: 499. ts'ēp / ts'ēp / c h t to collect;
Q. Alternation between palatal tenuis and dental media aspirata as initial (cf. A above)

500. *tjo / tšwō / c h u many all: 501. *djo / džwō / c h u to collect.

502. *tjo / tšwō / c h o u circle, cycle, all round: 503. *djo / džwō / c h o u bind round, wrap round.

R. Alternation of dental tenuis and palatal voiceless aspirate as initial (cf. F above)

504. *tā / tā / t o much, many: 505. *tā / tā / c h t I large, extravagant.

S. Alternation of palatal media and dental media aspirata (cf. G above)


T. Alternation of dental media and palatal tenuis, or vice versa, as initial (cf. H above)

507. *dijk / juk / y ū to nourish: same char. *dʒik / tʃuk / c h u rice gruel;

508. *dju / dju / s h u to kill: 509. *tju / tʃu / c h u to punish, to kill.

510. *djo / dʒwō / s h u place, position: 511. *tjo / tʃo / c h u place, position.

U. Alternation of palatal media and dental voiceless aspirate as initial (cf. I above)


To sum up, the alternations Q, R, S, T, U are additional examples of the same kinds of stem variation as those we studied under A, F, G, H, I above.

V. Alternation of nasal and tenuis as final consonant

514. *kən / kən / k a n knock against, attack: 515. *kja / kəd / k i e to accuse;

516. *gjlng / lən / l i a n g to rob: same char. *gjik / lək / l u e to rob.

C. What words in Chinese phonetic series

517. *kwong / kwōng / k u a n g wide: 518. *kəd / kəd / k u o to widen, enlarge;

519. *mien / mən / m i n g dark, darkness: same char. *mək / mək / m i e to cover,

520. *tjəm / tʃəm / p i e n to diminish: 521. *pəm / pəm / p i o lack, exhaust;

522. *tsəm / tʃəm / t s a n to hold in the mouth: same char. *tsa / tʃəp / t s a to bite.

X. Alternation of n and r as final consonant

523. *bʰan / bʰən / pʰ i n female: same char. *bʰar / bʰər / pʰ i female;

524. *sian / sən / s i e n to wash: same char. *stə / sət / s i o to wash;

525. *jwən / jən / h i n to sun, to dry in the sun: same char. *jwər / jər / h u e i sunlight;

526. *mən / nrən / n a n difficulty, disaster: same char. *nər / nər / n o to expel malign influences.

So far the fairly rational and regular alternations. Besides those, we find a number of more curious cases which should not be passed in silence. A few examples will illustrate this:

527. *gəwia / gəwia / w e i to make: 528. *ngəwia / ngəwia / w e i to fake, spurious;

529. *kəj / kəj / k u rims, waste: same char. *kəj / kəj / h u o empty;

530. *mək / mək / m o black, ink;

531. *pləm / pləm / p i n rations: 532. *pləm / pləm / l i n granary;

533. *təm / tən / t sən three, triad: same char. *təm / təm / s h e n (the triad star) Orion;

534. *gəp / pəp / h o to join, union: 535. *jəp / jəp / h u i united, harmonious;

536. *dək / dək / d k u archery hall;

537. *dək / dək / s h i to eat: same char. *dək / dək / s h i food;

538. *səg / səg / s o a to swing;

539. *səg / səg / s i a o small: 540. *səg / səg / s h o o few, a little;

541. *səg / səg / t s a n to scratch;

542. *səg / səg / t s a n to know: same char. *səg / səg / c h i to remember, to record.

The conclusion to be drawn from the series of examples adduced above is clear: the early script masters had a surprisingly good idea of which variants in sound constituted natural alternations within one word-stem: they realized that a tān and a dān could not be one and the same word varied within clearly defined limits, and they expressed this knowledge in their choice of graphs. This evidence, furnished by the very Archaic Chinese scholars who lived in the early Chou era, offers strong support to our conclusion that the stem variations studied under A—X above (of which Q—U are mere corollaries to A and F—I) may be considered safely attested alternations in the Archaic Chinese language.
Notes
1. In the following pages the Archaic forms are given in italics with an asterisk, the Ancient forms in italics without asterisk, and the modern Mandarin forms in spaced Roman letters. The tones in Anc. Chin. are indicated by a colon for the shang sheng (rising tone) by a hyphen for the k'fu sheng (falling tone) and by the absence of a tone mark for the ping sheng (even tone): *ko / kuo / ku:; *sa / sa: / sa:; *ka / ku: / ku:.
2. E.g. *ja / si / i / i-four'; *ja / si / i / i-team of four horses'; *ja / smo / ts / d'm / a / triad'; *ja / smo / ts / d'm / a / team of three horses'; *ja / smo / ts / d'm / y / d'round'; *ja / smo / ts / d'm / y / d'round'; etc.

# 37
DERIVATION BY TONE-CHANGE IN CLASSICAL CHINESE
G. B. Downer


I. Introduction
Since Karlsgren's 'Word families' first drew attention to the existence of large groups of cognate words in classical Chinese, efforts have been made to define more closely the principal phonetic contrasts involved, and to find semantic relationships that would correspond regularly to the phonetic contrasts. Karlsgren himself came to the conclusion that in general it was impossible to find any regular semantic or grammatical correlations with the phonetic correspondence, and that Archaic Chinese showed only the last vestiges of a former inflectional system.

With the material at our disposal, such a conclusion is probably inevitable for the majority of phonetic contrasts between cognate words. However, there is one contrast which, because of the large number of examples of it, has given better results. This is tonal contrast, where two cognate words differ only in tone, e.g.

 goed 'to be pretty'; goed 'to love'

including those cases where a ruisheng word contrasts with the chiuisheng corresponding to it by shiayisheng 諮 繪 rules, e.g.

 goed 'to be evil'; goed 'to hate'

In fact, in most cases of tonal contrast, one member of the pair has the chiuisheng; this is so regular that in this article 'tonal contrast', unless otherwise specified, will refer to contrast between ping, shuang, or ruish on the one hand and chiuish on the other. This kind of contrast has been studied by Jou Tzuamu and Jou Fahnau, who have shown that certain grammatical and semantic contrasts are regularly associated with the tonal contrast. Both writers also included another phonetic contrast: contrasting voiceless and voiced initial, as in goed 'to see'; goed 'to appear, to show'. Neither, however, gave a satisfactory explanation for the role
played by the chiu sheng in tonal contrasts; in fact, Jou Tsunmu does not seem to have recognized the special nature of the chiu sheng there. Jou Fahgau gave a 'phonetic' explanation for the occurrence of the chiu sheng, saying that certain tones tended to 'interchange' in use. This does not explain why the tonal contrast should be accompanied by a regular semantic contrast. 

In the present writer's opinion, Wang Lih has found the solution to this problem. He interprets tonal contrast as a system of word-derivation, with words in ping, shuang, and rau as basic forms, and the corresponding chiu sheng words as derived. Indeed, this explanation was given long ago for a few words by Maspéro, and more recently by Haudricourt, and seems to be implicit in some remarks of Jou Tsunmu as well as in Jou Fahgau's arrangement of words, although neither stated it explicitly. The overall effect of the pairs of cognate words listed by Wang Lih is quite convincing, and the solution he offers seems to cover the facts as known.

Nevertheless, sufficient doubtful points remain to justify yet another study of the problem. First, the criteria for determining which of a pair of cognates is 'basic' and which 'derived' have never been discussed. Second, the dating of this derivation-system can with profit be gone into again, and the place it occupies in the general history of the Chinese language can be discussed. Third, previous studies have chiefly relied on traditional dictionary definitions for the semantic side of the problem. As a preliminary step, it seems advisable to find a homogeneous source for the chiu sheng readings, and to tie down the definitions to the uses found in actual texts. For this purpose, an obvious choice is Luh Derming 陸德明, whose collection of readings, Jingdean shihwen 聖典釋文, has the advantages of being early in date (seventh century A.D.), of quoting extensively from earlier commentators, and of providing a large number of readings. An examination of his readings reveals a surprisingly large number of cognate words with minimal chiu sheng/non-chiu sheng contrast, and an examination of the way in which Luh used the contrasting forms reveals a rather more complicated picture of the semantic side of the contrast, and forces one to query some of the conclusions of earlier writers in this field. Finally, a list is given of the clearest examples of chiu sheng derivation, as found in Luh Derming's works. As, however, it can be shown that chiu sheng derivation was not confined to his usage, but was a general feature of early Chinese, examples from other writers are also included.

II. The nature of the so-called 'tonal contrast'

Among the words in a family of apparently cognate words, we may suspect, a priori, that some are dialect forms that have entered the standard language (and, as such, are probably very hard to detect). Where, however, it is possible to show that regular phonetic relationships correlate with regular semantic contrasts, it is legitimate to assume that we are dealing with related forms from a homogeneous dialect.

The material presented in the lists on pp. 152-72 easily satisfies this requirement. In Groups A to G we have large numbers of pairs of words which share a common phonetic contrast and a common semantic contrast of a general nature. There is no reason to doubt that we are dealing with cognate forms which have been differentiated internally, within a homogeneous dialect. Wang Lih and others, however, have gone further and suggested that it is possible to explain the occurrence of these forms historically by assuming that in each pair of words, the non-chiu sheng member is a basic form, while the chiu sheng member is a derivative. The reasons for this assumption have never been made explicit. The present writer shares this assumption, and suggests that justification for it may be found in the following points.

1. The shapes of the characters bear out the theory. In most cases it is clear that the character is constructed to represent the meaning of the basic (non-chiu sheng) word. This is especially obvious in the characters of Groups A and B. Note also that where one member of a pair has an extra radical added, it is usually the chiu sheng member.

2. The above point suggests that the makers of characters regarded the non-chiu sheng form as basic. This is confirmed by Sheu Shenn's definitions in the Shuowen 說文, which give the 'basic' meaning of the character (in Sheu Shenn's opinion). In most cases, this is the meaning of the non-chiu sheng member.

3. Luh Derming, too, takes the non-chiu sheng member as the regular reading (marked ruzh 原字), the chiu sheng reading presumably being a special case (and therefore specially marked).

4. The fact that most of the chiu sheng readings have, with time, been dropped from the standard reading pronunciation, as well as from the colloquial language, suggests that we are dealing with a morphological phenomenon which was always recognized as a special case, and that in time it had outlived its usefulness.

5. The use of special chiu sheng forms in certain disyllabic expressions (Group H) with apparently no change in meaning, can only be explained as a remnant of some morphological process, by which the chiu sheng was used in phrase-forming.

6. In many cases, but especially in Groups A and B, general linguistic experience supports this contention; it seems 'natural' that in these groups the non-chiu sheng forms should be basic, the others derived from them. Note too that the English translations often agree with the Chinese in the distribution of basic and derived (or secondary) forms. Such an impression, based chiefly on translation-meaning, is almost useless by itself, but in conjunction with the other reasons is not without value.

In the end, it is the number of examples that can be found that determines the acceptability of the theory. With over 200 pairs of words showing phonetic and semantic regularity, the present writer believes we have sufficient examples to accept the theory that in early Chinese, the chiu sheng, unlike other tones, had a special function, to create derived words, and that the special nature of these chiu sheng words was realized by early writers, probably up till the time of Luh Derming.
Nevertheless, some problems remain. It may be asked whether, with many other cognates existing, it is possible to posit a one-to-one correspondence between chiu and non-chiu forms? Why pair 餔 yâu ‘to teach’ with 烏 kí ‘to learn’ and not with 烏 kau ‘to teach’? Or 長 kí ‘to leave’ with 烏 kí ‘to get rid of’, and not with 烏 kí ‘to exercise’? While in both cases the latter form is almost certainly cognate, the fact that the pairs here chosen as examples of form contrast are written with the same character (or one close to it) shows that, at least in Han times, when writing settled into its present form, a closer connexion was felt between the members of each pair than with the other words. This argument hinges on the date at which one assumes the tonal contrast to have been a living feature of the language.

It might be objected that it is curious that one morphological feature (chiu-sheng) should have such diverse semantic functions as changing nouns from verbs and vice versa, changing transitive verbs to intransitives and vice versa, etc. This objection has already been disposed of by Karlgegen (speaking of other sound-changes), who pointed out that this is a common phenomenon found in many languages. Nevertheless, some doubts may remain, especially if chiu-sheng derivation is regarded as something akin to word-formation in Indo-European and other language-families. The present writer holds the opinion that with the present knowledge of Classical Chinese, it is better to regard chiu-sheng derivation not as a remnant of a former intransitional system of the Indo-European type, but simply as a system of derivation and nothing more. When new words were needed, they were created by pronouncing the basic word in the chiu-sheng. The grammatical regularity found in many cases would then be in a way fortuitous, being the result not of grammatical inflection, but of the need to create new words. This is a very ‘mentalistic’ explanation, but if an explanation for features of an ancient language such as this is being sought, it is unavoidable.

There are, however, other possibilities. A multiple origin for the phenomenon is not out of the question. The presence of chiu-sheng forms as the first element in certain compounds suggests that it might once have been used in a subordinating capacity. Another possibility is that the chiu-sheng found in these words is the relic of a former suffix, since dropped. This has been suggested by Haudricourt for a few words, and is quite plausible; but with our present knowledge all explanations for the origin of the derivation-system are purely conjectural.

A few words must be said about those characters which seem to show chiu-sheng derivative forms, but in which no perceptible distinction in meaning can be found. Quite large numbers of these are to be found. Assuming that in these cases we have not simply missed the semantic distinction, these contrasting forms must be ascribed to differences of dialect (of either spatial or temporal nature), although it is possible that once the derivational process has been established, parallel forms might be created by analogy, without change in meaning. An interesting feature of these characters is that in most cases the modern reading is the chiu-sheng form, the non-chiu form having become obsolete. This contrasts with the real chiu-sheng derivation where it is usually the chiu member that is now lost.

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DERIVATION BY TONE-CHANGE IN CLASSICAL CHINESE

Naturally, it is not claimed that all chiu-sheng words are derivative forms. Only a small proportion of the total number can be shown to be so: the majority are basic forms. For instance, there is no evidence to show that such words as 朋友, 前, 後, or 大 were ever anything but chiu-sheng. Therefore, under the rubric ‘chiu-sheng’ there are in fact two morphologically different kinds of words, (a) those like 大, etc., basically chiu-sheng words, and (b) words like 朋友, etc., which are chiu-sheng by derivation from words of other tones.

This raises the question of what method, if any, was used to form derived words from basically chiu-sheng words.

A likely answer is that in this case the ancient language had recourse to voiced/voiceless initial alternation. This is the only other alternation, besides chiu/non-chiu contrast, which occurs in considerable numbers. A few examples found in the Liji and Tsuojian are:

見 kien’ to see 顯 yien’ to be seen; to show
繋 kie’ to attach, tie 係 yei’ to be attached
破 kwar’ to destroy, to ruin 破 bwar’ to be defeated, ruined
背 paq’ the back 背 b’dii’ to turn the back on
帶 tsang’ to bury 報 de’ang’ a grave (L, Tarong, 1.22a) (659) (reading by Shyu Moh)

This voiced/voiceless alternation is not confined to words with chiu-sheng. Examples with other tones are also to be found.

The semantic relationships between the voiced/voiceless forms seem in general to be identical with those found in chiu-sheng derivation. Moreover, in many cases, there seem to be some grounds for taking the voiceless form as basic.

There are also some examples of words with both chiu-sheng derivation and voiced/voiceless contrast, e.g.:

賣 d’iek to buy grain 買 t’ieu’ to sell grain
分 p’ian’ to separate 為 b’jian’ a share
切 kát to cut 切 yad’ to injure
感 kám to move, affect 感 yám’ to be resentful

From the point of view of chiu-sheng derivation these examples seem to be perfect semantically, but it is difficult to account for the incidence of voiced and voiceless initials. It seems that here there is only alternation, no system of derivation being demonstrable.
III. The date of chiuhsheng derivation

The pairs of tonally-contrasted words in the lists on pp. 152–72 may be roughly divided into two groups: those (the majority) in which the two members are usually written with the same character, and the few that are written with different characters. No problem is caused by the latter group, whose validity has never been questioned. However, especially since the rise of the study of historical phonology in the sixteenth century A.D., many scholars such as Guh Yanwu 古嚴武, Chyan Daoshun 辰大順, Duan Yuhtsair 段玉裁, and others have agreed that the tonal distinctions in the former group of characters were late in date, probably the creations of teachers of the fifth and sixth centuries A.D.25

This contention is not supported by the facts. Even if no other information was available, it is inherently unlikely that if these distinctions were in fact the creations of late pedants they would have been accepted by the majority of scholars. Yet, to give only a few examples of Tāng times and earlier, the principle of semantic distinction by tone-contrast was accepted by Yan Yüshin 言之仁,26 by Lu Fahian 魯法顯 and the compilers of rime-books that succeeded him, and by Yang Shuōyue 楊授月.27 Moreover, the statement that these distinctions were created by teachers suggests that these are special pronunciations to be used in reading the classics. In fact, the phenomenon was not confined to classical readings. Non-classical examples occur quite early, for which there would be no pedants' tradition to follow;28 and it has recently been demonstrated that the Tāng poets regularly observed the chiuhsheng distinction semantically in many words in poetry.29 These facts, and the occasional survival of chiuhsheng derivatives in modern dialects, formed on the same principles as the learned forms, such as Pekingese30 suggest not that the Six Dynasties' pedants were creating new and eccentric pronunciations, but that their readings simply reflected a feature of ordinary speech, already existing.

On a priori grounds, therefore, the assumption that tonal contrast appeared late in the history of the language is not very satisfactory. Now, however, Jou Tzuann has demonstrated convincingly that many of these chiuhsheng distinctions were in existence in Han times.31 This pushes back the date of their first appearance a few centuries. One can go further, for there is no reason for supposing that the system of deriving words by tone-change was a creation of that time; the Han dynasty is merely the earliest time in which we may expect to find explicit statements about the pronunciation of words.32 In fact, there is additional evidence as to the date of the sound-change. This is the evidence afforded by the phonological relationships between ruhseng words and their chiuhsheng derivatives. In the lists of words on pp. 152–72, the following words in which the basic form is ruhseng have33

<table>
<thead>
<tr>
<th>Basic form</th>
<th>Derived form</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.1. 味 kōk/kuok</td>
<td>कोक/cakak</td>
</tr>
<tr>
<td>G.3. 復 b'jok/b'juk</td>
<td>बजोक/bajuk</td>
</tr>
<tr>
<td>(similarly A.54, A.57, B.39, D.10, H.15) 組高</td>
<td>tsjatk/tsjuk</td>
</tr>
<tr>
<td>C.7 足 tsjuk/tsjewok</td>
<td>tsjuk/tsjuk</td>
</tr>
<tr>
<td>(similarly A.64) 故</td>
<td>tsjuk/tsjuk</td>
</tr>
<tr>
<td>A.28 黃 tsjiek/tsjek</td>
<td>tsjek/tsjek</td>
</tr>
<tr>
<td>(similarly A.62) 重</td>
<td>tsjek/tsjek</td>
</tr>
<tr>
<td>A.61 繼 g'wók/g'wok</td>
<td>ग्छोक/घ्छोक</td>
</tr>
<tr>
<td>A.14 砭 d'ák/d'ák</td>
<td>द्याक/द्याक</td>
</tr>
<tr>
<td>(similarly C.14) 發</td>
<td>द्याक/द्याक</td>
</tr>
<tr>
<td>A.40 船 dz'ák/dz'ák</td>
<td>ज्याक/ज्याक</td>
</tr>
<tr>
<td>F.1 基 kíkk/kík</td>
<td>कोक/cakak</td>
</tr>
<tr>
<td>(similarly C.19, H.7) 学験</td>
<td>sjog/sjau</td>
</tr>
<tr>
<td>A.48 筆 sjok/sjak</td>
<td>sjog/sjau</td>
</tr>
<tr>
<td>A.24 結 b'jwik/b'jwik</td>
<td>स्स्सान्न</td>
</tr>
<tr>
<td>F.8 爆 d'ják/d'ják</td>
<td>द्याक/द्याक</td>
</tr>
<tr>
<td>(similarly A.30, C.6, C.10) 羽豐</td>
<td>tsjog/tsjog</td>
</tr>
<tr>
<td>A.29 摃 tsjék/tsfak</td>
<td>tsjog/tsjog</td>
</tr>
<tr>
<td>(similarly A.35) 鳥</td>
<td>tsjog/tsjog</td>
</tr>
<tr>
<td>A.31 設 sjak/sjak</td>
<td>tsjog/tsjog</td>
</tr>
<tr>
<td>(similarly C.11, E.5) 堅</td>
<td>tsjog/tsjog</td>
</tr>
<tr>
<td>A.16 管 d'jök/d'jök</td>
<td>द्याक/द्याक</td>
</tr>
<tr>
<td>A.45 改 sak/sak</td>
<td>sog/sa'</td>
</tr>
<tr>
<td>D.3 管 k'ák/k'ák</td>
<td>काक/काक</td>
</tr>
<tr>
<td>C.8 煉 f'jwat/f'sjub</td>
<td>घ्चौहु वर्य</td>
</tr>
<tr>
<td>(similarly A.53) 羽</td>
<td>k'ák/k'ák</td>
</tr>
<tr>
<td>C.2 市 k'jat/k'jat</td>
<td>घ्चौहु वर्य</td>
</tr>
<tr>
<td>A.67 烏 ljuj/ljat</td>
<td>ljuj/ljat</td>
</tr>
<tr>
<td>A.7 線 kiet/kiet</td>
<td>kiet/kiet</td>
</tr>
<tr>
<td>A.20 糧 nap/náp</td>
<td>nap/náp</td>
</tr>
<tr>
<td>(similarly D.6) 萬</td>
<td>घ्चौहु वर्य</td>
</tr>
<tr>
<td>A.32 市 ïjap/ïjap</td>
<td>ïjap/ïjap</td>
</tr>
</tbody>
</table>
In almost every instance the phonological relationship between the basic and derived forms in the Archaic readings fits the Archaic shihsheng system, going back to Chyn 聲 or earlier times.30

The present writer’s view is that although the appearance of chiuhseng derivation cannot be dated with precision, the likelihood is that it took place in late Archaic, possibly Chyn, times. Indeed, it may be the latest of the morphological processes of word-derivation in the Archaic language, since it occurs in the early commentaries in such large numbers and with such regular semantic correlation, in this way markedly different from most other phonetic contrasts, which may represent remnants of earlier derivational processes, their productive life long past.31 In Hann times the system of chiuhseng derivation was still very much alive, and was much more extensively and in Luh Derming’s time five centuries later. After the Hann dynasty, a progressive loss of the chiuhseng forms may be seen. In Swéi and Tarrg, many readings were still current, but others survived only as special readings to be used in classical texts. This is suggested by the special attention drawn to them by scholars of the time (such as those mentioned above),32 and by the special mention accorded them by Luh Derming in his Introduction to his Jingdean shihwen. By Song times so few of the chiuhseng readings survived that concern was felt for their preservation, as may be seen from the publication of special lists and notations of them that took place then.33 Ju Shí’s 華史 commentaries, which appeared at this time, gave very few of the chiuhseng forms that are to be found in Luh Derming’s work. At the present day, only a handful of the variant pronunciations occur in the reading of non-classical texts.

IV. Luh Derming’s use of chiuhseng derivation

The categories into which the examples of chiuhseng derivation are arranged in the lists on pp. 152–72 are chosen primarily to illustrate the derivative nature of the tonal contrast. They are notional categories, corresponding to well-known grammatical distinctions found in many languages, and in most cases are probably valid for Classical Chinese, although no rigorous grammatical analysis of this language has yet been made. These categories are as follows:

A. Basic form verbal—derived form nominal

This is the commonest kind of derivation. From the basic verbs are derived nouns of agency,34 nouns of means,35 nouns denoting the results of acts,36 abstract nouns,37 and so on. An interesting group is found in Nos. A.1, A.5, A.17, A.49, and A.60. With these the derived form is regularly used when followed by the amount measured. e.g.,38

“the earthworks were 10 feet thick and 20 feet high”

B. Basic form nominal—derived form verbal

Most of the denominative verbs are transitive, though a few intransitives occur. Note that fully half of the characters are ideographs (jiyshih 吉, shiaysheng 虢, and huayshih 賴) representing the basic meaning—an argument for derivation as opposed to mere contrast.

C. Derived form causative

In addition to the usual kind of causative verb, this category includes a well-defined sub-group of words, in which the basic form signifies ‘receiving’ and the derived form ‘giving’ of some kind.39

D. Derived form ‘effective’

This group is rather hard to define. The principal feature that the characters have in common is that in each of the derived members there is action on an object. This is clear enough when the basic member is transitive, the derived form transitive; when both basic and derived members are transitive, the difference lies in the fact that the basic form refers to a specific act, whereas the derived form is used to denote the effect this act has on the (usually personal) object. I have therefore tentatively given the label ‘effective’ to cover this group.

Some of the pairs of words are only dubiously placed in this category. In fact, the boundaries between this group and the Groups C and E are somewhat nebulous.

E. Derived form with restricted meaning

In this group the derived form has a more specialized meaning than the basic form. A few honorifics are placed here too. Many of the derived words are notionally reminiscent of the derived intensive and meditative verbs of the Indo-European languages.40 Again, some words in the two previous groups could have been placed here.

F. Derived form passive or neuter

This group is quite well-defined notionally, and seems to be the converse of Group C.

G. Derived form as adverb

This category contains five examples of the derived form used adverbially. The basic form is verbal.

H. Derived form used in compounds

This group is very interesting. In most cases there seems to be no semantic distinction involved. This is especially true of the examples in which the derived form is the first word in the compound. Where the derived word is the last element of the
compound, it could have been entered in one of the other groups if it had occurred
alone. Where, however, the first is the derived form, the lack of semantic distinction
suggests that the chiuhsheung was used (at least in some cases) to show subordination.

The examples of chiuhsheung derivation presented in the lists do not by any means
exhaust the number of cases to be found. Generally speaking, the principle used in
selecting characters for inclusion in the lists was to pick out those with unequivocal
readings and meanings. This was not always possible, so in some cases words with
alternative readings for the derived form are given. Since Luh Deming includes
readings by earlier commentators, these are probably mostly due to real differences
of interpretation of the text concerned. There are, however, grounds for believing
that the tradition of chiuhsheung derivation was obsolescent by Luh's time. This
probably accounts for those cases where Luh prefers the basic form, but notes that
erlier commentators have chiuhsheung readings. This is in contrast to those cases
of characters used in their basic sense, when no reading is usually given at all.
There remain some characters, not in the lists, which are noted by Luh in so many
different ways, or with so many alternative pronunciations, that I have been unable
to disentangle the functions of the chiuhsheung readings, and have left them for later
work. Other omissions from the lists were caused by insufficient evidence of the
semantic distinction. An example is the character *kiem* 聚, which in one phrase
only is noted as having a variant pronunciation with chiuhsheung. Since other
occurrences of the character with apparently the same meaning are given no vari-
ant, an explanation of this reading must await study of other texts.

There remains a substantial body of characters with two regular readings, dif-
ferring only in tone, in which no perceptible difference of meaning occurs. A few
examples are given below.

<table>
<thead>
<tr>
<th>Character</th>
<th>Meaning</th>
<th>Tones</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>在</td>
<td>old age, long life</td>
<td>&quot;zǐn, &quot;zigu&quot;</td>
<td>C, Yin 11, comm., j.4.12b (888)</td>
</tr>
<tr>
<td>互</td>
<td>mutually</td>
<td>&quot;yóu, &quot;yuo&quot;</td>
<td>L, Wangyih, comm., j.4.9b (687)</td>
</tr>
<tr>
<td>獨</td>
<td>park</td>
<td>&quot;jīu (old reading)&quot;, &quot;jīu&quot;</td>
<td>C, Jau 9, Jing, j.45.1a (1109)</td>
</tr>
<tr>
<td>淡</td>
<td>mild, insipid</td>
<td>&quot;d'ám, d'ám&quot;</td>
<td>L, Jongyong, j.16.15a (832)</td>
</tr>
<tr>
<td>陽</td>
<td>to give</td>
<td>&quot;síek, &quot;sig&quot;</td>
<td>C, Wen 1, Jing, j.18.1b (951)</td>
</tr>
<tr>
<td>酗</td>
<td>to club together for drinks</td>
<td>&quot;g'jak, g'jwo&quot;</td>
<td>L, Lüchih, j.7.18b (726)</td>
</tr>
<tr>
<td>酃</td>
<td>small net</td>
<td>&quot;jwet, &quot;jwet&quot;</td>
<td>L, Wangyih, j.4.7a (686)</td>
</tr>
<tr>
<td>醅</td>
<td>to shake</td>
<td>&quot;jāu, &quot;jāu&quot;</td>
<td>L, Sangdahih, comm., j.13.14b (803)</td>
</tr>
<tr>
<td>朋</td>
<td>to shut, close</td>
<td>&quot;piet, &quot;piet&quot;</td>
<td>C, Cherng 6, j.26.12a (999)</td>
</tr>
</tbody>
</table>

These have already been discussed. More extended work may reveal semantic
differences here, too.

In assigning names to the categories in the lists, an effort has been made to
avoid as far as possible grammatical terms implying syntactic uses. In the absence
of a grammatical analysis of Classical Chinese, the use of such terms would be
meaningless, and could in fact invalidate the thesis of this article. Even terms such
as 'transitive' and 'intransitive', without rigorous definition, can only mislead,
although they would be very welcome in discussing the uses of derived words
in Groups C, D, and E. For instance, it would be very tempting to take *jwem
(basic form)* as intransitive, *jwem* (derived form) as transitive; but, like many
words of its kind, the basic form may also be used transitively, meaning 'to regard
as distant', as in Mencius' 不遠千里而來. However, even if a satisfactory
grammatical analysis of Classical Chinese existed, it is doubtful if chiuhsheung
derivation could be treated at the grammatical level, except only incidentally. Even
'noun' and 'verb', as word classes, are dubious terms, although they have been
used as labels of the categories in the lists, *foute de mieux*. For instance, B.1 确, *ka*
(basic form) is usually nominal, and the derived form *ka* is usually verbal; but the
basic form is occasionally verbal too:

When 酤 發毛縁書, 則終身不棄矣

"If you wait for a Shishy or Mauchyang to be your wife, you will never be
married."

In some cases the derived form has (notionally) both nominal and verbal uses.
Although it is possible to imagine an evolution

- simple verb > derived verb > noun

as in D.15 to cause > to send on mission > envoy,

in other cases it is equally plausible to suggest

- simple verb > derived noun > derived verb

as in E.3 to line up > line of battle > to form line of battle.
**Pre-Modern Varieties of Sinitic**

In fact, there is no evidence to support either of the suggested evolutions. If the former seems more likely in some cases, the latter in others, the decision is probably influenced by the translation-meaning of the words. Another possible treatment of such forms is to assume that the two uses of the derived form are simply two aspects of one word-class. This would probably be overambitious at this stage. Accordingly all such forms have been arbitrarily placed in the lists in the appropriate place for the derived verbal, except where there seems to be only a remote connexion between the verbal and nominal notion, in which case they have been listed twice.

Many other uses of the *chiuhsheng* derivatives might be noticed. The use of tonal contrast in at least two cases to distinguish honorific from humble verbs may be a relic of a former, more widespread phenomenon. It may also be connected with the use of derived forms as passives, which, by an evolution not unknown elsewhere, eventually acquired a connotation of status-differentiation. The use of the basic form both as verb and as ‘classifier’ in the case of A.21 and A.22, and the use of the basic form as verb and ‘number’ in the case of A.52, in all three cases in contrast to the derived form, which is nominal, suggests that a more extended survey of Luh’s use of *chiuhsheng* derivation, and of his readings in general, would be of great value for the understanding of Classical Chinese grammar.

**Lists**

*Group A. Basic form verbal—derived form nominal*

1. 高 *kău* to be high *kău*
   - height
   - C. Yin 1, comm., j.2.10a (879)

2. 監 *kam* to oversee *kam*
   - an overseer
   - C. Shiu 12, j.22.3b (976)

3. 過 *kūā* to pass *kūā*
   - C. Shiu 16, j.14.8a (929)

4. 看 *kūān* to look at *kūān*
   - C. Shiu 12, j.23.10b (894)
   - L. Liu 12, j.7.1a (717)

5. 看 *kwāng* to be wide *kwāng*
   - (1) width
   - C. Shiu 12, j.23.10b (894)

6. 量 *kiëng* to pass through *kiëng*
   - C. Shiu 12, j.23.10b (894)

7. 結 *kiet* to tie *kiet*
   - C. Shiu 12, j.23.10b (894)

8. 瘦 *'kiwān* to roll up *'kiwān*
   - C. Shiu 12, j.23.10b (894)

9. 騎 *g'ie* to ride *g'ie*
   - (see also H.4)

10. 研 *ngien* to grind *ngien*
    - C. Shiu 12, j.23.10b (894)

11. 輪 *tām* to carry *tām*
    - C. Shiu 12, j.23.10b (894)

12. 轟 *tóng* to mount *tóng*
    - C. Shiu 12, j.23.10b (894)

13. 瘦 *jiăng* to stretch, extend *jiăng*
    - (see also F.4)

14. 度 *d'āk* to measure *d'āk*
    - C. Shiu 12, j.23.10b (894)

15. 瘦 * depreciate * depreciate*
    - C. Shiu 12, j.23.10b (894)

16. 瘦 *d'iek* to wash, cleanse *d'iek*
    - C. Shiu 12, j.23.10b (894)

17. 瘦 *d'jang* to be long *d'jang*
    - C. Shiu 12, j.23.10b (894)
18. 传, 传, 双jwön, to transmit 双jwön' a record
difficulty, hardship
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

19. 鬲, 鬲, 王nän, to be difficult 王nän' handle
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

20. 仕, 般, 王nök, to bring in 王nök' inside
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

21. 仕, 般, 王pa, to grasp 王pa' handle
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

22. 仕, 般, 王pjwön, to grasp 王pjwön' handle
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

23. 仕, 般, 王pjwön, to enfeoff 王pjwön' feof
(Shyu Moh) Shuiping, Tsaylong-yu
Shuiping (SBYY ed.), j.17.2a (187)

24. 鬲, 鬲, 王b'jwak, to bind 王b'jwak' bonds
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

25. 仕, 王b'jwem, to eat 王b'jwem' food
L, Chüli, comm., j.1.11b (646)
L, Shouyi, comm., j.10.18a (767)

26. 仕, 王b'jwem, to mend, stitch 王b'jwem' a seam in cloth
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

27. 仕, 王mud, to grind 王mud' grindstone
debt
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

28. 仕, 王tsék, to exact, demand payment 王tsék' hoard, stores
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

29. 仕, 王tsják, to pile up, amass 王tsják' roost meat
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

30. 仕, 王tsják, to roast 王tsják' roost meat
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.13a (648)
L, Shouyi, comm., j.10.18a (767)

31. 仕, 王tëjik, to weave 王tëjik' patterned cloth
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

32. 仕, 王tsjip, to pick up, catch 王tsjip' gift, offering
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

33. 仕, 王ts'ai, to pluck, pick 王ts'ai' herbs
C, Hwan 5, comm., j.6.9a (893)
L, Chüli, comm., j.1.11b (646)
L, Shouyi, comm., j.10.18a (767)

34. 仕, 王ts'âu, to grasp, hold 王ts'âu' thorn
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

35. 仕, 王ts'ják, to prick, stab 王ts'ják' thorn
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

36. 仕, 王t'ë jang, to name, to claim 王t'ë jang' appellation
C, Hwan 5, comm., j.6.9a (893)
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

37. 仕, 王t's'jwo, to live at, dwel 王t's'jwo' place
C, Hwan 5, comm., j.6.9a (893)
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

38. 仕, 王t's'wëg, to blow 王t's'wëg' music
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

39. 仕, 王t's'ë, to cut (cloth) 王t's'ë' cut, fashion
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

40. 仕, 王t'ë, to bore, drill 王t'ë' a hole
C, Hwan 5, comm., j.6.9a (893)
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)

41. 仕, 王t's'ë, to hide, store 王t's'ë' storehouse
C, Hwan 5, comm., j.6.9a (893)
L, Chuilii, comm., j.1.19b (645)
L, Yuhtzao, comm., j.9.5b (750)
L, Shouyi, comm., j.10.13a (764)
42. 睚, "dē'jông" to ride "dē'jông" chariot C, Yin 1, j.2.11a (879)
(1) collection, stores C, Shiang 9, j.30.18a (1024)
(2) masses, group C, Chien 13, j.27.7b (1004)
43. 塑 "dë'jù" to collect, gather "dë'jù" seat C, Shiang 27, comm., j.38.6a (1064)
(1) border, frontier C, Juang 28, j.10.7b (911)
44. 職 "sē'dà" to sit "sē'dà" thought C, Shiang 29, j.39.7b (1070)
(1) border, frontier C, Jau 1, comm., j.41.14b (1087)
45. 松 sak to block "sā" dagger L, Chekii, j.1.12b (647)
(see also H.15)
46. 算 "suān" to count, reckon "suān" a tally L, Shaw ei, j.10.18a (767)
(1) border, frontier L, Tangong, j.3.17a (680)
47. 想 "sì" to think "sì" harvest C, Wen 2, comm., j.18.5a (952)
(1) border, frontier L, Yuehliang, j.5.20b (703)
48. 削 sjak to pare "sjāw" (altern.) C, Chen 7, comm., j.26.8b (997)
(2) border, frontier L, Chekii, j.1.27a (656)
49. 深 "shām" to be deep "shām" (1) governor C, Shi 24, j.15.9a (936)
(2) territory L, Wangyih, j.4.5a (685)
cf. also Mencius, Liang Huyu, j.16.2a (826)
50. 收 "sjōu" to gather, receive "sjōu" (altern.) C, Shi 26, comm., j.16.3b, no note by Luh
51. 守 "sjōu" to guard, maintain "sjōu" (see also F.12, H.14)
(1) governor C, Shi 24, j.15.9a (936)
(2) territory L, Wangyih, j.4.5a (685)
cf. also Mencius, Liang Huyu, j.16.2a (826)
52. 數 "sū" to count "sū" number C, Pref., j.1.12b (876)
53. 傍, 率 sjiwēi to lead sji to lead C, Shiang 10, j.31.3a, no note by Luh
54. 宿 sjuk to stay overnight sjuk" celestial' mansion' C, Hwan 6, j.6.12a (894)
(1) border, frontier C, Ai 17, j.60.5a (1202)
55. 上 "zān" to ascend "zān" above, top C, Juang 10, j.45.6b (1111)
(1) border, frontier C, Chien 16, j.28.4b (1008)
56. 䁟 "zū" to stand up, set upright, to plant "zē" tree L, Jihyi, j.14.14a, no note by Luh
57. 蒡 xjuk to rear, raise "xjōu" farmyard animal C, Shi 19, j.14.12a (931)
(see also H.15)
58. 合, "yām" to hold in the mouth "yām" pearl put in mouth of corpse C, Wen 5, Jiu, j.19.a1 (955)
59. 鍾 yāu to call, cry "yāw" (1) title, appellation C, Shen 7, comm., j.16.3b, no note by Luh
(2) slogan, command L, Yuehliang, j.5.20b (703)
60. 厚 "yāw" to be thick "yāw" thickness L, Yuehliang, comm., j.5.22b (704)
61. 捕 ywek to catch, get "ywek" trap L, Jiongyoung, j.16.2a (826)
PRE-MODERN VARIETIES OF SINITIC

62. 畫 ywek to draw, demarcate
C, Shiang 4,
J.29.13b (1018)

63. 行 yong to walk, proceed;
(see also D.18)
to practise, carry out
C, Shiang 2, comm.,
J.29.3b (1015)

64. 欲 jwook to want, desire
lust
(alternative reading)
L, Chiduali, j.1a (637)
L, Shuyenji, comm.,
j.11.3b (773)

65. 綴, 綴 jiwân to follow, go along
rim, border
C, Wen j.19a.13a (960)
L, Yuehiji, j.11.6b (779)

66. 證 liwêng to measure
measurement, amount
C, Yin j.4.13b (888)
C, Yen j.3.1a (881)

67. 綴 ljad to arrange in line
usage, rule
C, Pref., j.1.15b (877)
L, Liyunn, comm.,
j.7.4a (719)

68. 證 ljum to discuss
theory
C, Shiang 4,
J.21.10b (974)

69. 染 ndjâm to dip, dye
kind of cloth
C, Shiang 4,
J.21.10b (974)

Group B. Basic form nominal—derived form verbal

1. 家 jã to marry (of a woman)
to be (of a place)
C, Yin j.3.4a (881)

2. 前 kâ to be (of a place)
C, Yin j.3.4a (881)

3. 職 kau to be (of a place)
C, Pref.,
j.1.7b (876)

4. 藝 kuân to be (of a place)
C, Shi j.16.10a (942)

5. 姓 kuân to cap (manhood ceremony)
C, Shi 9, Jing comm.,
J.13.4b (921)

6. 貫 ngiwo fish
C, Shi 9, Jing comm.,
J.13.4b (921)

7. 中 jüng middle
(see also H.6)
(1) to hit the middle
C, Cheng j.28.5a (1008)
(2) to be of middle length
Shuying, Taedean (135)

8. 種 jîwong seed, kind
C, Shi j.33, comm.,
J.17.9a (950)

9. 路 dâu road, way
to lead the way
C, Yin j.3.15b (884)

10. 弟 dëi better brother
to act as a younger
brother should act
C, Liyunn, j.7.7a (721)

11. 殿 dëi hoof
to trample; to kick?
C, Yen j.5.13a (699)

12. 田 dæn field
to work fields
Shuying, 'Futyan' (257)

13. 泥 nei mud
C, Shi j.16.10a (942)

14. 女 nîjwo daughter
to give a daughter in marriage
C, Hwan j.7.6a (896)

15. 酬 pjên guest
to receive guests; to pay respects to
C, Liyunn, j.7.5b (720)

16. 冰 pjang ice
to freeze, congeal
Taranshu 2, Wei
Sychian juann

17. 風 pjung wind
(1) to blow on (used of the wind)
PRE-MODERN VARIETIES OF SINITIC

18. 風

b’jem sail

b’jem’
to raise wind by fanning?

Shy. guanjiu pref. (202)

C. Shihian 12, comm., j.23.10a (983)

19. 旁

b’wang side

b’wang’
to be or go beside

C. Ai 27, comm., j.60.13b (1209)

20. 名

miàng name

miàng’
to name

C. Hwan 2, j.5.11a (891)

21. 文

mjuàn marks, literature mjuàn’
to gloss over

L. Tungyong, j.2.2a (659)

22. 左

tsà left (side) tsà’
to assist

C. Yin 6, comm., j.4.2a (885)

23. 子

tsi child, son tsi’
(1) to treat as a child

Shy. L. Jangyong, j.16.8b (829)

C. Shiang 10, j.31.7b (1027)

(2) to act as a child

L. Yuelihh, j.11.23a (784)

24. 枕

tshunj pillow tshunj’
to pillow oneself on

C. Shi 28, j.16.15a (945)

25. 妻

ts‘ei wife ts‘ei’
to give as wife

C. Yin 7, j.4.4a (886)

26. 光

sien before, front sien’
to put first

C. Pref., j.1.6b (875)

L. Yuelihh, j.9.11a (753)

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27. 首

ṣ’gú head ṣ’gú’
to point head towards

L. Tungyong, j.2.7b (664)

28. 衣

jéi clothing jéi’
(1) to wear (clothes)

L. Yuelihh, j.11.23b (783)

(2) to clothe

C. Min 2, j.11.7a (915)

29. 帝

ṣ’jwèg banner ṣ’jwèg’
to wave

C. Hwan 5, comm., j.6.6a (893)

(alternative C. Yin 11, reading) j.4.12b (888)

30. 下

ya below ya’
to put down, lower

C. Jau 25, comm., j.51.9b (1098)

31. 後

ṣ’gu behind ṣ’gu’
to put afterwards

C. Pref., j.1.6b (875)

L. Yuelihh, j.9.11a (753)

32. 圈

ṣ’wan circle, ring ṣ’wan’
(1) to encircle

Shy. C. Shiang 10, j.31.6b (1026)

(2) to encircle oneself with, put on

C. Chirung 2, j.25.6a (991)

33. 漬

ṣ’am salt ṣ’am’
to salt, pickle

L. Neyzer, j.8.24b (744)

34. 油

ṣ’gu oil ṣ’gu’
to oil, anoint

Tsaw Shiang, Charlih 蔡粳 (Sonq period), 珍貴油其面

35. 右

ṣ’jiu right (side) ṣ’jiu’
to assist

C. Shiang 10, j.31.6b (1026)

36. 雨

ṣ’jiu rain ṣ’jiu’
to rain (transitive: as, ‘to rain grain’)
### Group C. Derived form causative

1. 看 "kuán" to look at "kuán" to show
   (see also A.4, H.3) C, Jiau 5, j.43.8a (1101)
   L, Huehling, j.5.8a (679)
2. 求 "k'at" to beg "k'at" to give
   Jinsiu 睡, Shhieh An juan 謹安集 to approach
   C, Hwan 2, comm., j.5.9b (891)
3. 近 "g'jon" to be near "g'jon" to IMI
   L, Chilii, comm., j.1.10b (645)
4. 沉 "á'jom" to sink "á'jom" to drown, immerse
   C, Cherng 11, j.27.1b (1001)
   C, Shiang 18, j.33.6b (1040)
5. 賣 "mai" to buy "mai" to sell
   L, Wangyih, comm., j.4.10a (687)
6. 借 "tsiak" to borrow "tsiak" to lend
   L, Wangyih, comm., j.4.10a (687)
   C, Juang 18, comm., j.9.8b (907)
7. 是 "tsjwok" to be sufficient "tsjwok" to complete, to form
   C, Shiang 11, comm., j.31.9a (1027)

8. 出 "tš'juét" to emerge "tš'wi" to put out
   (see also H.10)
   C, Pref., j.1.13b (876)
9. 套 "dz'iet" to be level "dz'iet" to put in equal proportions
   Shuying. Kanggaw (SBBY ed.), j.14.4a (179)
   C, Jiau 20, j.49.7b (1136)
   L, Chilii, comm., j.1.27a (657)
10. 借 "dz'jak" to borrow "dz'jak" to lend
    L, Wangyih, j.4.10a (687)
11. 要 "sjök" to know, recognize "sjök" (1) to show, mark
    L, Tarnpeng, j.3.4a (674)
    (2) banner
    C, Shian 12, comm., j.23.3b (980)
12. 看 "tzjan" to be good "tzjan" to repair
    C, Jiau 1, j.2.11a (879)
13. 受 "dziu" to receive "dziu" to give
    C, Jiau 2, comm., j.5.9b (891)
14. 畏 "džu" to be evil "'wo" to hate
    C, Jiau 16, j.7.12b (898)
15. 欠 "dzam" to drink "dzam" to give to drink
    C, Jiau 16, j.7.12b (898)
16. 棗 "dzam" to be dark "dzam" to give shelter
    C, Jiau 7, j.19.7a (958)
17. 好 "xâu" to be pretty "xâu" to love
    (1) to feast; to present
    C, Cherng 12, j.27.4a (1002)
    L, Chilii, j.1.24b (655)
18. 好 "xiao" to enjoy "xian" to teach
    C, Shiang 11, comm., j.1.1b (638)
    L, Tarnpeng, j.3.21a (682)
20. 和 'yuā' to be harmonious  'yuā'
to harmonize: to rime
C, Jau 12,
j.45.17b (1115)

21. 永 'jiwōng' to be long, eternal  'jiwōng'
to lengthen (words); to sing
Shuying, Shuennde
j.3.15b (141)

22. 遠 'jiwōn' to be far, distant  'jiwōn'
to keep at a distance
C, Min 2, comm.,
j.11.6b (915)

23. 家 'lāi' to come  "lāi" to cause to come; to encourage
C, Min 1, comm.,
j.11.1b (913)

24. 賞 'lāi' to toil; merit  "lāi" to recompense
C, Hwan 5,
j.6.6b (893)

25. 任 'nījām' to undertake, sustain  "nījām'
(1) to employ
C, Yin 3, comm.,
j.3.3b (881)
L, Tzy-i, comm.,
j.17.12a (839)
(2) job, official position
"Group D. Derived form 'effective'
1. 懲 'kjōm' to overcome  "kjōm" to prohibit
C, Yin 1,
j.2.10a (879)
L, Tsengzsy Wemm,
j.6.5a (710)
L, Dōhijuun,
j.10.10a (773)

3. 厭 k'āt to be thirsty  "k'āt" to long for
C, Jau 1,
j.41.10a (1085)

4. 聻 'ngiāng' to face upwards  "ngiāng" (Shyu Moh)
C, Shiang 19,
j.34.2a (1043)

5. 俗 'ngiōw' to speak, to speak of  "ngiōw" to tell
C, Yin 1,
j.2.12a (879)

6. 答 'tāp' to respond to (a greeting, etc.)  "tāp" to reply (a person)
C, Shi 24,
j.15.9b (937)

7. 聽 'tēiōng' to listen to  "tēiōng" to obey
C, Cheng 5,
j.26.4b (996)
L, Dōhijuun,
j.10.9b (762)

8. 分 'piān' to divide  "piān" to distribute, give relief
C, Shi 1,
j.12.2b (916)
C, Jau 14,
j.47.2a (1122)

9. 看 'b'jwōn' to hold in the two hands
L, Chhulli,
j.1.5b (641)

10. 親 'tsjuk' to pray, prayer master
L, Jīhīh, comm.,
j.14.8a (807)
C, Cheng 17,
j.28.11b (1011)

11. 刺 'ts'jē' to stab, prick  "ts'jē" (see also A.35)
C, Shiang 28,
j.38.15a (1068)

12. 槍 'tsjāng' to lead; to send off  "tsjāng" (1) to lead, be in command of
C, Jau 10, Jīng,
j.8.12b (903)
(2) a general
C, Shiang 31, Jīng
comm.,
j.1.10b (912)

13. 取 'ts'jū' to take  "ts'jū" to marry (a woman)
L, Chhulli,
j.1.9b (644)

14. 徵 'dzjwōn' to follow  "dzjwōn" to be in attendance
L, Chhulli,
j.1.5b (641)
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15. 疾 "ši" to use, cause
L, Chihlii, j.1.20a (653)
(1) to send on a mission
L, Chihlii, j.1.26a (656)
(2) ambassador
C, Wen 10, j.19a.13a (960)

16. 请 "šie" to put into practice
C, Shi 24, j.15.11b (937)
L, Jihih, j.14.14b (810)
C, Jia 16, j.55a.1a (1169)

17. 喜 "jījī" to be glad
(Shyu Moh) "jījī" hexagram (91)
L, Jihih, j.14.14b (810)
C, Wen 16, j.19a.5a (956)

18. 行 "jiong" to walk, proceed; to put into practice
(see also A.63)
C, Shiang 31, comm., j.40.9a (1078)
C, Qing 5, j.55a.1a (1169)
C, Shiang 18, j.33.8a (1042)

19. 回 "yuát" to return
C, Shiang 18, j.33.8a (1042)
C, Shiang 18, j.19a.5a (956)

20. 退 "jwi" to lose, abandon, leave behind
L, Jihih, j.14.15b (810)
L, Chihlii, j.1.10a (876)
C, Qing 5, j.55a.1a (1169)

21. 舞 "jwo" to be with
C, Pref., j.1.10a (876)
C, Qing 1, Jing comm., j.2.7a (878)

22. 擊 "jjwöm" to draw, pull
C, Qing 1, Jing comm., j.2.7a (878)
(1) to help
C, Shiang 12, j.31.13a (1029)
(2) mourning chamber
L, Chihlii, j.1.15b (650)

23. 爲 "jwèg" to do, make, be
C, Shiang 12, j.31.13a (1029)
(1) to be for, on behalf of
C, Shiang 12, j.31.13a (1029)
(2) mourning chamber
L, Chihlii, j.1.15b (650)

24. 際 "jłôm" to overlook, be on the brink of
C, Shiang 12, j.31.13a (1029)
C, Shi 9, j.13.7a (922)

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Group E. Derived form with restricted meaning

1. 告 "kuok" to tell (superiors)
L, Chihlii, j.1.4a (640)
(1) to announce (to inferiors)
L, Lihyam, j.7.3a, no note by Luh

2. 無 "k'yém" to be light (in weight)
L, Chihlii, j.1.4a (640)
(2) to be careless
C, Yin 9, j.4.8b (887)
C, Shiang 18, j.33.7b (1041)

3. 練 "d'jén" to line up, arrange
(1) to line up in battle order
C, Shiang 18, j.33.7b (1041)
(2) line of battle
C, Shiang 18, j.33.7b (1041)

4. 少 "šjú" to be few
(1) to be young
C, Shiang 18, j.33.7b (1041)
(2) line of battle
C, Shiang 18, j.33.7b (1041)

5. 當 "jok" to remember
(1) to think
C, Shiang 18, j.33.7b (1041)
(2) thought, idea
C, Shiang 18, j.33.7b (1041)

6. 呼 "xwo" to call, name
C, Qing 1, Jing comm., j.2.7a (878)
L, Chihlii, j.1.5b (641)

7. 賦 "jém" to be satisfied, replete
C, Jau 13, j.46.5a (1119)
(1) to be oversatisfied, tired of
C, Jau 13, j.46.5a (1119)
(2) thought, idea
C, Qing 1, Jing comm., j.2.7a (878)
C, Jau 13, j.46.5a (1119)

8. 梃 "jwòng" to be horizontal, cross-wise
C, Jau 13, j.46.5a (1119)
(1) to be cross-grained, hard to deal with
C, Jau 13, j.46.5a (1119)
(2) thought, idea
C, Qing 1, Jing comm., j.2.7a (878)
C, Jau 13, j.46.5a (1119)

9. 賓 "jéng" to bring up, nourish
C, Qing 1, Jing comm., j.2.7a (878)
(1) to take care of
C, Jau 13, j.46.5a (1119)
(2) thought, idea
C, Qing 1, Jing comm., j.2.7a (878)
C, Jau 13, j.46.5a (1119)

10. 行 "jéng" to draw, drag
(1) to pull coffin ropes
C, Qing 1, Jing comm., j.2.7a (878)
C, Jau 13, j.46.5a (1119)
<table>
<thead>
<tr>
<th>No.</th>
<th>Character</th>
<th>Pinyin</th>
<th>Meaning</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>欲</td>
<td>&quot;jām&quot;</td>
<td>to cover</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) ropes for pulling hearse</td>
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<td></td>
<td>L. Tsangtng, j.3.1b (673)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to dress a corpse</td>
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<td></td>
<td>C. Yin 1, Jing comm., j.2.7b (878)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>to be as good as</td>
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<td></td>
<td>C. Shi 4, j.12.8a (918)</td>
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<td>C. Ai 11, j.58.1b (1192)</td>
</tr>
<tr>
<td>12.</td>
<td>如</td>
<td>&quot;ńʲwo&quot;</td>
<td>to resemble, be like</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) ropes for pulling hearse</td>
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<td>to dress a corpse</td>
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<td>C. Shi 4, j.12.8a (918)</td>
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<td>C. Ai 11, j.58.1b (1192)</td>
</tr>
</tbody>
</table>

**Group F. Derived form passive or neuter**

<table>
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<tr>
<th>No.</th>
<th>Character</th>
<th>Pinyin</th>
<th>Meaning</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>翻</td>
<td>&quot;käk&quot;</td>
<td>to be conscious of, to kau</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>make clear</td>
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<td>C. Wen 4, j.18.12a (955)</td>
</tr>
<tr>
<td>2.</td>
<td>去</td>
<td>&quot;k'jwo&quot;</td>
<td>to get rid of</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<td></td>
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<td></td>
<td></td>
<td>leave</td>
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<td></td>
<td>C. Shi 4, j.12.8a (918)</td>
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<td>C. Ai 11, j.58.1b (1192)</td>
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<td>3.</td>
<td>知</td>
<td>&quot;ń'g&quot;</td>
<td>to know</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) to be wise</td>
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<td>C. Shi 4, j.12.8a (918)</td>
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<td>C. Ai 11, j.58.1b (1192)</td>
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<tr>
<td>4.</td>
<td>強</td>
<td>&quot;ńjʊ̃ŋ&quot;</td>
<td>to stretch, draw</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<td>(2) knowledge</td>
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<td></td>
<td></td>
<td>to be stretched, distended</td>
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<td></td>
<td>C. Shi 4, j.12.8a (918)</td>
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<td></td>
<td>C. Ai 11, j.58.1b (1192)</td>
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<tr>
<td>5.</td>
<td>求</td>
<td>&quot;ńōi&quot;</td>
<td>to govern</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) to be well-governed</td>
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<td></td>
<td>L. Daktshihw, j.19.9b (858)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) government</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to be moved emotionally</td>
</tr>
<tr>
<td>6.</td>
<td>勤</td>
<td>&quot;ń'ung&quot;</td>
<td>to move</td>
<td>L. Tsengtzyw Wnn. j.6.10a (711)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) to be different from</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C. Shi 4, j.12.8a (918)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C. Ai 11, j.58.1b (1192)</td>
</tr>
</tbody>
</table>
Group G. Derived form as adverb

1. 更 (kong) to change kong again; even more
2. 重 (hieng) to place side by side hieng together, even, also
3. 墘 (h'juk) to return h'juk again
   L. Yuehling, j.11.22a (783)
4. 三 (sâm) three sâm thrice
   (alternative reading)
   C. Yuin 1, j.2.9b (879)
5. 有 (jigu) to have, exist jigu moreover, also

Group II. Derived form used in compounds

1. 昧 (k'o) to be clever, crafty k'o extravagant toys
   L. Yuehling, j.5.8b (697)
2. 報 (k'Ian) to send k'Ian carriage for carrying sacrifices to the grave
   L. Tarqong, j.3.7a (675)
3. 觀 (kuän) to see, regard kuän sacrificial food
   L. Lihuyun, comm., j.7.3a (718)
4. 嘀 (g'jieg) to ride g'jieg mounted bandits
   C. Shiu 12, comm., j.23.3b (980)
5. 至 (n'góng) to go to meet n'góng to meet a bride
   L. Yuehling, j.5.2b, no note by Luh
6. 中 (jiung) middle jiung to divide in the middle
   C. Shiu 14, comm., j.32.5b (1031)

In the middle of the night
L. Yuehling, j.5.8a (901)

Dirty water left from washing
L. Sangalih, j.13.6a (798)

Hunting-beasts, fierce beasts
L. Chitae, j.1.16a (650)

Relatives by marriage
(I. Goangyunn)

The rising sun
Shuiping, Y赓 (135)

Mother's sisters
L. Tarqong, j.2.16a (668)

Cousins
C. Jau 29, j.51.9b (1147)

Twins
C. Jau 11, comm., j.45.10b (1112)

Cooking-stones
L. Lihuyun, j.7.3a (718)

Officer-in-charge
C. Jau 14, comm., j.9.5a (905)

Sence of tradition
C. Shiu 12, comm., j.23.13a (985)
PRE-MODERN VARIETIES OF SINITIC

Notes

1 Abbreviations:
- MSLP Mémoires de la Société de Linguistique de Paris.
- YCJ Yanching Journal.

5 Unless otherwise stated, throughout this paper these words are given in Karlsgren’s Ancient Chinese transcription, as found in his ‘Grammatica Serica recens’, BMFEA, No. 29, 1957.

Tone is indicated by a small circle placed at the corner of the reconstructed form thus:

\[ \text{shaung} \quad \text{chih} \]

\[ 'x' \]

No sign is needed for ruksheng words, which are characterized by a final stop consonant.


7 Jou Fahgau (op. cit., 211), who treats the rub/chiuh and pyng, shaung/chiuh contrasts separately, explains the appearance of chiuh/chiuh in both contrasts by assuming that Archaic Chinese chiuh and rub differed in final but were alike in tone, whereas chiuh, pyng, and shaung differed in tone but were alike in final; thus, pyng, shaung, and rub all tended to ‘interchange’ with the chiuh/chiuh. This does not explain why pyng and shaung do not interchange in the same way.

8 Wang Lih 王力, Han menyuuen luehjen 古漢字論, Pecking, 1958, pp. 213 ff.
PRE-MODERN VARIETIES OF SINITIC

34 The Archaic and Ancient readings are taken from Grammata Serica. In the few cases where Gram. Ser. does not include the derived form, the chiásheng pronunciation may be seen in homonyms.

35 Gram. Ser. No. 784, notes that several characters in this series are irregular in Ancient Chinese. Here the derived form is regular, the basic form is irregular.

36 There seems to be no comparable form from which to deduce the Archiac reading.

37 This reading, also found in the Googography, seems very aberrant in the Chiehhoen system.

38 Karlgren reconstructs an Archiac labial semivowel in the chiáh form of A.20 and D.6. This is also found in a few other similar pairs (not included because of the irregular initial):

\[ k' \text{ or } k \text{ to weep} \quad [\text{lhw}\.\text{lt}\.\text{lt}] \text{ tears} \]

\[ \text{giap} \text{ or } \text{gapiap} \text{ to stand} \quad [\text{giw}\.\text{w}\.\text{w}] \text{ position} \]

In all these cases it is possible to take the labial semivowel in the form ending in \( \text{d} \) as the last trace of an original final labial stop, and thus reconstruct the semivowel in the original form, i.e. \( \text{nu} \) > \( \text{mad}\.\text{ma} \).

However, the labial semivowel does not survive as a trace of the original labial stop in all cases, as A.32 shows. Whether its occurrence is random or whether it can be determined from other data remains to be seen. (Note the occasional appearance in Mandarin of a hēnhua vowel in a few words, as the only trace of an Ancient final labial consonant, e.g. 晋 shiau, 晋 jiau, 晋 rhu.)

39 The writer realizes that the so-called chiásheng derivations to Archiac times raise the difficulty that in the cases listed above the contrast, according to Karlgren's reconstruction, is not between tenses but between voiced and voiceless final stops. This would not affect the argument for a system of derivation, but would add to the complexity of the phonological description of it. However, the writer believes that even in Archiac times these words may be better explained as cases of tonal contrast, but reserves discussion of this problem to a later article.

40 See e.g. the lists in Karlgren, The Chinese language. Another indication of the relative lateness of chiásheng derivations is found in the use of the same character for both simple and derived forms, where other pairs of cognate words are usually written with different characters.

41 See above, p. 146.

42 The fullest lists may be found in the Chiaining inlai (ieh) 纖織編目 by Jea Changchaur 嘉昌洪 (finished by Baoyuan 保原, A.D. 1039), a really large collection of characters with two or more readings, from the Jiaening shihwen. Other lists of these words, from the Song and Yuan periods, are to be found in the Inlai shihwen 纖織篇目, compiled by Ouyang Derinong 欧陽德仁, revised by Gwo Jenqii 章基 in the year of Jiaening 康定 (A.D. 1064). See especially the Introduction. Also in the Chiaiifu li 耄老記 (full), by Yuwen Daw 白文大, Peking, 1938, p. 72.

43 e.g. A.9, A.2, and A.51 (1).

44 e.g. A.10, A.15, A.42.

45 e.g. A.7, A.31, A.29, and A.50.

46 e.g. A.19, A.47, and A.64.

47 Chiuening tsiaojuan 素倫卷 (A), comm., p. 57.1b (1180).


49 cf. Latin jactā/jacent, vetā/vacant, etc.

50 See above, p. 147.

51 i.e. those marked 'alternative reading' or 'Shyu Mob' in the lists.

52 e.g. 轉, 轉, 轉, 轉.

53 轉職 詳 They might combine their functions"，J. Neyer, comm., p. 8.14a (735).

DERIVATION BY TONE-CHANGE IN CLASSICAL CHINESE

54 Jou Tzuun, in another context, takes the ruaheng reading (given by Shyu Mob) as an artificial reading to agree with a rhyme. In the Chuenchou reference, however, there are no rhyming words involved, so the reading is probably legitimate. See his Tungching 楊氏 in Tzuanwen kao 告天聲信案 (p. 1 in his Hanwen inyuan 韓文引用).

55 C.22.

56 Hwaiaoyuyts, p. 11, p. 13b (SBBY edition).

57 E.1 and E.9. The Chuenchou inlai (see above, p. 148, n. 42) has many more examples.

58 Japanese is an example.

59 e.g. C.72, p. 110a (1151), (also commentary), where both words are used in their basic tone as 'handful'.

60 e.g. C.16, p. 471.16 (1126), where it means 'several'. Here modern usage differs from Luh's.

61 Many of his readings are very puzzling. The character 裏, for example, is often given the reading ngāk when it would seem that the meaning is clearly 'joy', not 'music'.

62 The references are to be read as follows:

L.—Lujuh Jenjch jenysh 經記解 (SBBY edition), followed by name of the chapter, jiau and page numbers.

C.—Chuenchou Tzuoujuan 景碳卷 (SBBY ed.), followed by reignine duke and year, jiau and page.

Comm.—in the commentary.

St.—in the Chuenchou, not the Tzuoujuan.

The figure in brackets refers to the name of the page of the Jiaening shihwen (TSJC ed.). Other references are given in full.

Where the above appears regular, I have generally given only one reference. In more problematic cases, two or three references may be given. When both members of a pair lack references, it may be taken that the contrast is commonly found in all texts, i.e. it is part of general Chinese. ‘Alternative’ means that Luh gives both basic and derived form. ‘Shyu Mob’ indicates a reading of Shyu Mob's 請找 quoted by Luh. The characters in each group are all arranged in order of the traditional 36 zyhum 早木.

63 See references in Jou Tzuun, Sysheng bee yshlybn, p. 52.

64 In the Wuchauushuaho daojuan 五車新書大觀, Bk. 336 (Shanghai, 1926).

65 See Jou Tzuun, op. cit., p. 65.

66 See also Kaoing Yinghj's 釱慈通 commentary on this passage (same reference).

67 Grammata Serica gives muk for this character, following the Chiehhoen. Luh Daining in the above reference says it is pronounced like 質，which seems to agree with the Chiehhoen. However, elsewhere (e.g. L. Wengjsh 翁, p. 4.3b (864)) he says it is pronounced like * muk. This would agree better with the derived word.
TONES AND PROSODY IN MIDDLE CHINESE AND THE ORIGIN OF THE RISING TONE

Mei Tsu-lin

The purpose of this paper is to show that the rising tone developed through the loss of a final glottal stop, and to discuss two related topics: the phonetic features of the four tones in Middle Chinese and the criterion for the Level-Oblique distinction. A brief review of the current theories seems a convenient point at which to begin.

One of the statements often made about the Chinese language is that tonal distinctions are intrinsic to its morphemes. But "the Chinese language" is too inclusive a term, and the question naturally arises as to whether at every stage of its long history Chinese had a tonal system similar to those exemplified in its modern dialects. From Middle Chinese on, the answer is quite clear. All modern dialects have tones composed of pitch and contour. From the fact that in the seventh and eighth centuries tonal difference was utilized to simulate the length contrast in Sanskrit, and the additional fact that a ninth-century Buddhist work describes the four tones in terms of pitch and contour and length (see below), we know that the tones of Middle Chinese were composed of these three features. Old Chinese, however, poses a more serious problem. It is known that in the Book of Odes rhyming words show a strong tendency to belong to the same tone-category, but this only tells us that Old Chinese words fall into three or four categories and that these categories are intimately related to the four tones of Middle Chinese; it tells us very little about the phonetic basis of these categories in Old Chinese. (Hence the non-committal term "tone-category.") If one makes the further assumption that tonal contrast is an intrinsic characteristic of the language, not derivable from any non-tonal contrast, one can of course conclude that tones are coeval with the Chinese language. Tung Tung-ho, for example, has stated, "Ever since the beginning of the Chinese language, we not only distinguish tones, but [we find] a tonal system not much different from the four tones of Middle Chinese."

This prevalent view was challenged in 1954 by Haudecourt. He proposed that, as in Vietnamese, the Chinese tonal system developed in historical times through the loss of certain final consonants. The departing tone of Middle Chinese corresponds to the ho and nga tones of Vietnamese, which, as Maspero has shown, are reflexes of an earlier -h representing an original -s. Moreover, some Chinese words in the departing tone were borrowed into Vietnamese as early as the Han dynasty, at a time when the ho and nga tones were presumably still represented by an -s. Arguing from this fact and from analogy, Haudecourt then interprets morphological derivation in Old Chinese involving the departing tone as alternation between a final -s and its absence. For example, he posits dāī for the verbal form "to measure," and dākš for the nominal form "a measure"; dē for the adjetival form "bad," and dākš for the transitive verbal form "to dislike." (The second member of these pairs is in the departing tone.) This idea was taken up by Forrest, who equates the reconstructed -s of Old Chinese with the -s suffix of Classical Tibetan, and Pulleyblank in 1963 provides further evidence in the form of foreign words ending in -s whose Chinese transcriptions, dated the third century A.D., are in the departing tone—in his theory, -s < -ts.

In the same 1963 paper, Pulleyblank proposes antecedents for two other tones: -f and -t for later level tone, and -i for later rising tone. In his view, Old Chinese has no open syllables. And having reconstructed ō and ō as initial phonemes, he reasons that by symmetry they are also likely to occur in final position. Thus a level tone syllable, open in Middle Chinese, has -f or -t in Old Chinese depending on whether it shows contact with a velar or dental final consonant. Pulleyblank's reason for connecting -i and later rising tone is mainly based upon analogy with Vietnamese. There is, he argues, a high degree of parallelism between the Vietnamese and Chinese tonal systems. The steady accumulation of evidence for the -s theory suggests that specific analogies may even be valid. Now, since the vac and ōn of Vietnamese developed through the loss of an earlier -h, it is quite likely that the Chinese rising tone was similarly derived. Pulleyblank also cites transcriptions of foreign words as evidence, but they are few in number and not uniformly convincing.

Argument from analogy is at best suggestive, and without testimony from more direct sources, the theory will remain as one of the many possibilities. Fortunately, three kinds of evidence can now be presented: modern dialects, Buddhist sources bearing upon Middle Chinese, and old Sino-Vietnamese loans.

Several dialects of the southeastern coastal area preserve a glottal stop in the rising tone, and the Buddhist sources indicate that the rising tone of Middle Chinese is high, short, and level. Our thesis, then, is that the final glottal stop of Old Chinese is retained intact in the coastal dialects and developed into a high and short syllable in Middle Chinese. We know from acoustic studies that a syllable is high and short if it ends in a voiceless stop, low and long if it ends in a voiced stop, and medium in pitch and duration if it is open. It is also reasonable to assume that when a final stop is lost, the tonal features are retained as reflexes. Therefore, if the final glottal stop (which is voiceless) indeed existed in Old Chinese, its descendant should have precisely the features we said the rising tone did have in Middle Chinese.
The dialects that have a final glottal stop in the rising tone are: Wen-chou 盪州 of Chekiang, Pu-ch'eng 漢緒 and Chien-yang 廣陽 of Fukien, Ting-an 靈安 and Wen-ch'ang 阮安 of Hainan Island. In Ting-an, the glottalization is so pronounced that the final nasal in this tone sound as if they are followed by a homorganic stop. As to the pitch level of the rising tones, Chien-yang and Ting-an are low (both being 21), Wen-ch'ang has a high one (yang-shang) and a low one (yin-shang), but Pu-ch'eng is high, and Wen-chou is high in the sense that both of its rising tones are higher than the other tones in the same register, thus:

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>R</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>yin</strong></td>
<td>44</td>
<td>45</td>
<td>42</td>
<td>23</td>
</tr>
<tr>
<td><strong>yang</strong></td>
<td>31</td>
<td>24</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

Pu-ch'eng is adjacent to Chien-yang, both situated at the northwestern corner of Fukien. Wen-chou is at the extreme southeastern of Chekiang, about two hundred miles away from Pu-ch'eng. Since Hainan Island is small, this gives us altogether two or three non-adjacent areas. Except for Wen-chou, which has been classified as Wu, the others are Min dialects, and the generally accepted view that Min branched off directly from Old Chinese makes it easy to understand why the final glottal stop stops up in these dialects but hardly anywhere else.

I should now explain how the features of the rising tone in Middle Chinese are ascertained. Contrast in length is a phonetic feature of Sanskrit, and several Buddhist texts, written between the seventh and ninth centuries, recommended ways to represent this contrast. In I-ching's Nan-hai chi-kei nei-fa ch'unn 我佛, 南海vehicle法傳, the method suggested is as follows: "The twenty-five characters, etc., mentioned above and the eight characters following them—thirty-three characters altogether—are called the first group [varga]. They should all be read in the rising tone. Do not just look at the characters and pronounce them in the level, departing, and entering tones." The fact that the thirty-three characters all represent Sanskrit short syllables (ka, k'a, ga, g'a, etc.) and that each of the four tones appears at least once in this set of characters makes I-ching's meaning clear: when representing Sanskrit short syllables, all characters are to be pronounced in the rising tone, irrespective of the tones they are originally in.

I-ching's statement is also corroborated by the transcriptional practice recorded half a century later but almost certainly used at the time of I-ching. Eight pairs of the Sanskrit basic syllabary—ä, ä, i, l, u, ü, r, t, l, e, ò, o, ō—show the most prominent contrast in length. But in several Buddhist texts, both members of a pair are represented by the same character, with the length contrast indicated by some other means. Of special interest to us are the texts which introduce subscripts to specify the desired tone. In all five texts that use this method, whenever the shortness of a Sanskrit syllable is simulated via a tone subscript, the subscript invariably consists of shang or shang-sheng "rising tone." The attached table, listing the transcriptions of the firstfour pairs of Sanskrit basic syllabary, will illustrate what I mean.

This table is adapted from Lo Chi'ang-p'ei 梁常培, 佛文聲音五義之 魔漢新音研究, CUNY 3 (1931), after p. 276, which lists transcriptions in nineteen texts. Lo's table also appears in Chou Fa-kao, 中國佛文 音義, after p. 22. Several of these texts are discussed in Mabuchi Kazuo (see citation in note 14 below), p. 36ff. The first two items, not directly relevant to our discussion, are included for the sake of comparison. (Consult table on p. 180.)

The conclusion to be drawn is that the rising tone of Middle Chinese, because of its shortness, is thought to be the most appropriate equivalent for the Sanskrit short syllable. Later, we shall return to consider why the above interpretation is more plausible than the one proposed by Chou Fa-kao, that is, the Level tone is long and the Oblique tones are short.

A second source of information on Middle Chinese tones is the Hsi-t'an tsang by the Japanese monk, Annén, written in the year 880 A.D.; in fact it is the most valuable record now extant. Annén's work contains a description of the tones in four traditions successively brought back to Japan. The oldest of these, reflecting the pronunciation of the early eighth century, is most relevant for our purpose.

... Of the two readings that originally came to us in Japan, that of Piao was as follows: the level tone was level and low, with both the light and the heavy [allophones]; the rising tone was level and high, with only the light but not the heavy; the departing tone was slightly drawn out, with no [distinction between] the light and the heavy; the entering tone stops abruptly, having neither the inner nor the outer; the level tone [carried by syllables] with nasal or lateral initials was indistinguishable from the heavy [allophone]; and the heavy [allophone] of the rising tone was no different from the departing tone.

Let me defer a more complete exegesis to a later section and for the present concentrate on what Annén says about the rising tone. The key phrases are 平常, ..., 上常, which I have translated as "the level tone is level and low... the rising tone is level and high." Chih, literally "straight," can refer to a level contour or a rising contour with a constant slope. But p'ing-sheng means "level tone." Hence chih in the first phrase means "level" and should mean the same in the second phrase. Ti means "low" and ang, its antonym in this context, means "high."

Ti and ang also occur as antithetical terms in lines 38-39: 入有 輕重, 重則輕. Later we shall see that chih "light" means the allomorph induced by voiceless initials, and chung "heavy," the allomorph induced by voiced initials. In modern dialects such as Wu, the first is low and the second is high. The fact that ti and ang mean "low" and "high" in this context confirms the interpretation given in the last paragraph. On the other hand, even if ang means "rising" our theory still
articulation (不變之者)” (lines 30, 34, 35). The last phrase implies that the rising tone was short for Chin, but its heavy allotone did not have this feature for Cheng. In other words, Annen’s account also tells us that the rising tone is short in a certain Chinese dialect, probably the Wu dialect corresponding to Go-on.

Our third source of information is the Japanese tradition of bombai 筆頌—Sanskrit psalmody translated into Chinese, and brought over in this form to Japan, probably during the Tang dynasty. The tradition prescribes explicit rules for the pronunciation of the tones, although these rules are not always followed in actual recitation. Since the history of the transmission of bombai has not been traced as clearly as we might wish, this evidence needs to be handled with caution. On the other hand, the report on the rules of the Shingon sect, given in the Hobogirin, is the clearest and most complete description of a tonal system which may reflect the Tang pronunciation.15

(1) The level tone is level and relatively low; words having this tone are chanted in the 1st, 2nd, 3rd (or 4th) degree; (2) the rising tone is the highest and the shortest, it is chanted in the 5th or 6th degree; (3) the departing tone is characterized by a prolonged rise of the voice, either from the 4th to the 5th degree or from the 5th to the 6th degree, (4) as for the entering tone for words ending in a consonant, it is short and forced and chanted with a drop, either from the 6th to the 5th degree or from the 5th to the 4th degree.

Some remarks about the reliability of these sources and their interrelationship are now in order. As we shall soon see, Annen describes several developments that are well authenticated by modern dialect data and other philological sources. His reliability is beyond reasonable doubt; the problem lies mainly in understanding his terminology. The equivalence between shortness and the rising tone, deduced from I-ching’s statement and the five Buddhist texts, also seems to be on firm ground. And now, what we learned from these sources is confirmed by the Hobogirin statement: “The rising tone is the highest and shortest; it is chanted in the 5th or 6th degree,” which further implies a level contour. In addition, the Hobogirin describes the level tone the same way that Annen did, low and level. Such convergence of evidence not only enhances our confidence in the bombai tradition, but also increases the likelihood that Annen and I-ching were talking about similar dialects.

In using Buddhist sources to argue for our thesis, we of course had to assume that the features of the MC rising tone thus ascertained are relevant, but this assumption needs to be examined. Let us consider the question of date. If the hypothesized glottal stop was lost early and the date of our sources is late, the case is unfavorable. For in that event, there would be ample time for the features of the rising tone to change—from the immediate reflexes of the lost glottal stop to those of a much later date. I-ching’s work is 690–692 A.D. and Piao’s reading is probably early eighth century, both fairly late for the study of tones in their primordial state.
On the other hand, among the hypothesized final consonants, the glottal stop is the only one preserved in some modern dialects, and this fact seems to indicate that its disappearance from the other OC or MC dialects was of a relatively late date.

No matter how the problem of date may be eventually decided, it does not affect our argument based upon shortness. The fact that the length contrast is sub-phonemic in all modern dialects implies that this contrast tends to disappear in time; specifically, a long tone and a short tone, when left to themselves, would both gravitate towards a non-distinctive length. Hence, from the fact that the rising tone is short in the seventh century, we can infer that it has been short up to the presumed disappearance of the final glottal stop and beyond.

A third kind of evidence consists of old Sino-Vietnamese loans. In Sino-Vietnamese (Chinese words borrowed into Vietnamese during the T'ang dynasty), MC initials and tones uniquely determine the resultant Vietnamese tones in the following way.¹⁶

<table>
<thead>
<tr>
<th>Voiceless</th>
<th>Level</th>
<th>Rising</th>
<th>Departing</th>
<th>Entering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bang</td>
<td>hoi</td>
<td>sac</td>
<td>sac</td>
</tr>
<tr>
<td>Voiced</td>
<td>huyen</td>
<td>nang</td>
<td>sac</td>
<td>nang</td>
</tr>
<tr>
<td>Nasals and laterals</td>
<td>bang</td>
<td>nga</td>
<td>nang</td>
<td>nang</td>
</tr>
</tbody>
</table>

This scheme, however, does not hold for the old Sino-Vietnamese loans (words borrowed into Vietnamese during the Han dynasty). Here the rising tone behaves as follows:

<table>
<thead>
<tr>
<th>Voiceless</th>
<th>Rising</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sac</td>
</tr>
<tr>
<td>Voiced</td>
<td>nang</td>
</tr>
<tr>
<td>Nasals and laterals</td>
<td>sac</td>
</tr>
</tbody>
</table>

According to Haudricourt's theory, the sac and nang tones of Vietnamese originated from the loss of a final glottal stop. This is shown by the fact that the final glottal stop is still preserved in many dialects of the Palaung-Wa group.¹⁷

fish    | kaʔ (Khmw, Riang) | ca (VN, sac tone) |
leaf    | hlaʔ (Khmw) laʔ (Riang) | la (VN, sac tone) |
dog     | soʔ (Khmw, Riang) | cho (VN, sac tone) |
rice    | rankoʔ (Khmw), koʔ (Riang) | gao (VN, nang tone) |

He also points out that this could be deduced from internal evidence, since these two tones were the only ones noted for words which preserved the final stops -c, -t, -p.

Since the rising tone corresponds to the sac and nang tones in old Sino-Vietnamese loans and at the time of borrowing these two VN tones had a final glottal stop, it is reasonable to infer that the Chinese rising tone also had a final glottal stop at that time. The following list, whose Chinese entries are all in the rising tone, will illustrate what has been said in the last few paragraphs.

<table>
<thead>
<tr>
<th>S-V (hó)</th>
<th>Old S-V (sac)</th>
<th>S-V (hó)</th>
<th>Old S-V (sac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>聲 tran</td>
<td>chem</td>
<td>聲 diém</td>
<td>chám</td>
</tr>
<tr>
<td>País chu</td>
<td>chua</td>
<td>País chi</td>
<td>giây</td>
</tr>
<tr>
<td>翁 quyén</td>
<td>cuón</td>
<td>翁 dê</td>
<td>day</td>
</tr>
<tr>
<td>映 camé</td>
<td>cam</td>
<td>映 chung</td>
<td>giông</td>
</tr>
<tr>
<td>聲 cảm</td>
<td>cảm</td>
<td>聲 cảm</td>
<td>gâm</td>
</tr>
</tbody>
</table>

S-V (nang) | Old S-V (nang) | S-V (nga) | Old S-V (sac) |
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>声 bố</td>
<td>ba</td>
<td>声 vu</td>
<td>mua</td>
</tr>
<tr>
<td>攀 thí</td>
<td>cho</td>
<td>攀 ngâu</td>
<td>ngoi</td>
</tr>
<tr>
<td>需 nhu</td>
<td>ñga</td>
<td>需 ngoa</td>
<td>ngoi</td>
</tr>
</tbody>
</table>

A further point to be noted is that the development of a tone from a final glottal stop is not an altogether uncommon phenomenon. The case for Vietnamese has just been summarized above. The high tone of Modern Burmese, which corresponds to -ʔ in Ching-p’o (雍緯, also called Kachin), is probably derived in a similar manner.¹⁸ In the Lolo dialect of Lahu (a branch of Lolo-Burmese), according to Matisoff, the "high rising tone" developed through glottal dissimilation, that is, first ?-ʔ and then ?-ʔ with a "high rising tone."¹⁹ Closer to home, we may cite the fact that in many Chinese dialects -p, -t, -k first collapsed into -ʔ, and when -ʔ disappeared, it left behind a pitch-and-contour tone.

So far the following evidence has been presented to support the thesis that the rising tone developed through the loss of a final glottal stop. First, in five dialects of the southeastern coastal area, the rising tone has a final glottal stop. Especially noteworthy is the dialect of Ting-an, in which rising tone syllables end in a nasal sound as if they were followed by a homorganic stop—a fact not easily explained by the contrary hypothesis that the glottal stop was a secondary development. Secondly, Buddhist sources indicate that the rising tone in Middle Chinese had the features short and high, where high means either a level high pitch or a rising contour. We know from acoustical studies that a syllable is high and short if it ends in a voiceless stop. Thus, if the final glottal stop indeed existed in Old Chinese, its reflex should have precisely the features short and high in Middle Chinese. Thirdly, in old Sino-Vietnamese loans, the rising tone corresponds to the sac and nang tones, which, according to Haudricourt's theory, were derived from a final glottal stop. Finally, it was pointed out that the development of a tone from a glottal stop had occurred in several Southeast Asian languages.

The evidence from Min dialects and from old Sino-Vietnamese loans both point to the Han dynasty as the time when the final glottal stop was still preserved. The situation is, however, much less clear for the pre-Han period. According to Chang Hih-sheng, whenever the rhyming words in the Book of Odes belong to both the rising and entering tone categories, the rhyme-categories involved invariably end...
in a velar, specifically -ak, -ug, -ok, -uk in Karlsgren’s reconstruction (之大, 之小, 职五, 楚大; Karlsgren’s Category 19, 20, 25, 30). By this, Chang means that (a) the Book of Odes has rhymes predominantly in the rising tone category (-ak, -ug) which also include words in the rising tone category (respectively -ag, -ug, -ug), and rhymes predominantly in the rising tone category (-ag) which also include words in the entering tone category (-ak), and (b) these rhyme categories are the only ones in which the rising and entering tone categories co-occur. Since -k is phonetically similar to -g, it is tempting to regard Chang’s observation as indicating that the rising tone had -g during the Shih ching period. However, complications set in because there is no agreement on the use of a tone of a character in OC, nor on the rhyme scheme of a given poem. A close examination of Chang’s examples yields only eight clear-cut cases—too few to support our thesis.

The existence of -g is even more uncertain in the case of Sino-Tibetan. On the one hand, studies in acoustic phonetics and Southeast Asian languages both seem to indicate that tones are developed from segmental features. On the other hand, we are as yet unable to establish correspondences for tones in the Sino-Tibetan family, nor can we find any final consonants in the Tibetan cognates of Chinese rising tone words, for example, “five,” OC yo φ, Written Tibetan /*pa/; “nine,” OC kīṣg φ, Written Tibetan /*ga/; “bitter,” OC k’a φ, Written Tibetan /*ka/; Hence as the absence of further evidence, it seems best to regard the existence of -g in the pre-Han period as probable but not proven. The ultimate origin of -g must be left open; it could have developed from some other consonant(s) or from prosodic features.

The next item on our agenda is to consider Amen’s statement. I shall present the text and a translation first. The exegetical notes follow immediately after.

(安熙彌藏卷五 (大正新修大藏卷入頁四四)

1 ...我于佛國元傳二音。... Of the two readings that originally came to us in Japan, that of Piao was as follows: the level tone was level and low, with both the light and the heavy [allotone]; the rising tone was level and high, with only the light [allotone] but not the heavy; the departing tone was slightly drawn out, with no [distinction between] the light and heavy [allotone]; the entering tone stopped abruptly, having neither the inner nor the outer; the level tone carried by syllables with nasal or lateral initials was indistinguishable from one having the heavy [allotone]; and the heavy [allotone] of the rising tone was no different from the departing tone.

15 金聲勢低昂
與玉不殊
惟以上聲之重
欲似相合
平聲輕重
始重終輕呼之為異
舌音之間亦有差

20 承和之末
正法師來初習洛陽
中聽太息
終詠長安
聲勢大奇

25 四聲之中各有輕重
平有輕重
輕亦有輕
輕之重者
金聲勢也

30 上有輕重
輕亦有重

35 不變呼之
去有輕重
長重短短
入有輕重
重低輕昂

The reading according to Chin did not differ from that of Piao with respect to pitch and contour. However, [Chin’s] heavy [allotone] of the rising tone was somewhat like a combination of the light and heavy [allotone] of the level tone, beginning with the heavy and ending with the light. Excluding them makes the difference. In the process of articulating [Chin’s rising tone] there is also a differential rise.

At the end of the Chi’eng-ho era (847), the Reverend Cheng came, having first learned the Lo-yang dialect, then listened to the T’ai-yuan dialect, and finally studied the Chi’an dialect. The pitch and contour have become quite strange. Each of the four tones has the light and heavy [allotone].

The level tone has the light and heavy [allotone]. The light is further [distinguished into] the heavy and the light. The heavy of the light corresponds to the tone carried by the syllables with nasals and lateral initials in Chin’s reading. The rising tone has the light and heavy [allotone]; the light [allotone] is like combining the light [allotone] of the level tone and the light [allotone] of the rising tone in Chin’s reading, beginning with the level tone and ending with the rising tone; the heavy [allotone] is like the heavy [allotone] of Chin’s rising tone, without, however, the abrupt articulation. The departing tone has the light and heavy [allotone]; the heavy is long and the light is short. The entering tone has the light and heavy [allotone]; the heavy is low and the light is high.
Whenever a modern dialect has both the voiced-voiceless distinction in the initials and the *yin-yang* (high-low) distinction in one or more of its tones, the voiced initials in general co-occur with the *yang* tone, and the voiceless initials with the *yin* tone. The nasal and lateral initials belong to the *yang* group for the level, departing, and entering tones; this is a fact true for all Chinese dialects. The behavior of these initials in the rising tone, however, varies from dialect to dialect; in some dialects they belong to the *yin* group (such as Mandarin), and in others (such as Cantonese and Wu), they belong to the *yang* group. The noteworthy exception is Kan-on, in which the nasal and lateral initials of both the rising and entering tones belong to the *yin* group.

With these facts as background, we can now turn to an examination of lines 0-11, which I have translated: "the level tone carried by syllables with nasal and lateral initials (*呉*/*呂*) was indistinguishable from [one having] the heavy [allotone]; and the heavy [allotone] of the rising tone was no different from the departing tone." The term *mu-sheng* was used by Annen in another place to refer to the two voiced series of Sanskrit: *g, j, d, b* and *gh, jh, dh, bh*. But in this context, as Arisaka has pointed out, it refers to the nasal and lateral initials of MC. We know that Sanskrit voiced initials were transliterated by MC nasal initials. And since the dialect described here is Kan-on, Annen probably intended to call attention to the fact that whereas the nasal and lateral initials belong to the *yin* group for the rising and entering tones, these initials belong to the *yang* group for the level tone. Thus, his first statement describes the co-occurrence of voiced initials (including nasals and laterals) and the *yang* level tone. His second statement refers to the merger of the voiced rising tone with the departing tone—a fact we also know from the following sources: (1) in many modern dialects the same development has taken place, (2) in these two tones sometimes rhyme in the poetry of Po Chu-i and Yuan Chen, and (3) Li P'ei complained at the end of the ninth century that the distinction between these two tones in the *Ch'êh-yin* is based upon the peculiarities of the Wu dialects, the implication being that this distinction was no longer maintained in his standard Lo-yang dialect.

Given a system in which the two contrasts voiced-voiceless and *yin-yang* (high-low) regularly co-occur, we can regard the first as the determining feature and the second as the determined feature. In other words, a tone is regarded as consisting of two allomorphs whose selective realization is conditioned by voicing. This explains why in the translation the word "allotone" is sometimes inserted after "light" or "heavy."

Ammen's account is arranged according to the order of transmission of the four readings, which also seems to imply that the proliferation of tones follows a definite sequence: splitting occurs first in the level tone, then in the rising tone, and finally in all tones, thus yielding successively five tones for Piao, six for Chin, and eight for Cheng and Ts'ung. As a closer analysis, this view is implausible, for once the voiced rising tone was merged with the departing tone (which Annen stated for the first reading, Piao's), the rising tone had no voiced initials and could no longer split into two allophones under the condition of voicing. A more plausible view is this: in the common ancestor of Piao's dialect and Chin's dialect, splitting took place in
Piao's but not in Chin's; and as Annen implied by his repeated comparisons, the six tones of Chin developed successively into the eight tones of Cheng and Ts'ung.

The five-tone system of Piao, with two alltones in the level tone, is typical of Mandarin dialects before the disappearance of the entering tone; so is the merger of the voiced rising tone and the departing tone. The relation of the other three dialects described by Annen to modern dialects is less certain. The six-tone system of Chin is rarely encountered nowadays. The eight-tone system of Cheng and Ts'ung bears some resemblance to Cantonese and Proto-Hakka, but no positive identification can be made on the basis of our present knowledge.

In a recent article, Chou Fa-kao pointed out that the three entering tones of Cantonese can be explained in terms of two pairs of oppositions: voiced versus voiceless and nei-chuan内转 versus wai-chuan外转, which oppose short vowel against long vowel.28 The voiced initials give rise to yang-ju (lower entering tone). For the yin-ju, developed from voiceless initials, the tone is kua yin-ju (the lower of the upper entering tone) if the final belongs to wai-chuan, and shang yin-ju (the upper of the entering tone) if the final belongs to nei-chuan. This theory throws some light upon lines 8–9: 入声母去, 去声母入. What these lines say is that in Piao's dialect, the entering tone is short and the distinction between nei (short vowel) and wai (long vowel) is neutralized.

There are several terms and passages which resist the exegetic efforts. I shall list them with brief comments. Line 19 says either that the voice is affected by the tone or that the rising contour extends all the way to the (initial) segment successively articulated by the lip and the tongue, whatever that means. Lines 14–17 and lines 31–33: these are statements that describe a tone, X, as a combination of tone Y and Z. The most plausible explanation is that Annen was trying to approximate these tones (X) with rising contour by specifying their end points; it is less plausible that tone X begins with the level contour (tone Y) and then jumps to another level contour (tone Z). If so, lines 14–17 and 31–33 show that Annen has a standard phraseology for contoured tones. Since he did not use it for Piao's rising tone, that tone is probably high and level, as we have argued. Lines 45, 54, 62: the meaning of the term 草治 is unclear. Line 57: the term 草治 can be explained in two ways. One, yin means "prolong, draw out" and chiao is its modifier; and here chiao is either a corruption or refers to a note in the musical scale. Two, chiao yin as an established compound, is a technical term borrowed from musical terminology.26 But in either case, the meaning cannot be determined with greater precision.

Let us now form a synthetic picture of the four tones, using Annen's account of Piao's reading as the primary source and the rest as supplementary evidence.

(1) Level tone: long, level, and low, with a higher and a lower alltone. The first feature is inferred from the tradition associated with the monk I-ching.
(2) Rising tone: short, level, and high, its lower alltone having merged with the departing tone.
(3) Departing tone: slightly drawn out and hence longish. This feature is described both by Annen and the Hobogirin.
(4) Entering tone: short.

The above summarizes what I think can be reasonably inferred from the evidence now available. It will be noted that I have not included the pitch and contour of either the departing tone or the entering tone, although the Hobogirin has something to say about both. The entering tone is high according to the Hobogirin and according to our theory that a voiceless final stops induces a high pitch. This is almost certainly true, reliable but until more evidence becomes available, it seems prudent to suspend our judgment. In the case of the departing tone, I should like to mention a plausible, if not conclusive, argument for believing that the Hobogirin is essentially right. If the rising tone and the departing tone are respectively 55 and 45 as the Hobogirin says, then under the assumption that a voiceless initial lowers the pitch of the initial segment, say, from 5 to 4, the merger of the voiced rising tone into the departing tone immediately follows as a kind of phonetic corollary.

A word also needs to be said about the "drawn out" articulation of the departing tone. Four terms in the previously presented table—the earliest dated 746–774—have 引引, 引, 引, 引 引, 引 引, 引 引 "drawn out departing tone," "departing tone lengthy drawn out," and "departing tone also drawn out" as subtitles for characters simulating Sanskrit long syllables. If the departing tone is intrinsically and unambiguously long, why is it necessary to add the redundant instruction "drawn out" or "lengthily drawn out"? The explanation we propose is that by mid or late eighth century, in some dialects and in some speakers, the departing tone had left its longishness, and the subtitles are there to make sure that the departing tone is pronounced in the conservative fashion. There are other reasons for believing in this explanation: in Piao's pronunciation, the departing tone is described as "slightly drawn out" (Piao went to Japan in 735); the length contrast in Chinese tends to get neutralized; and if Old Chinese indeed has an -t, it may have left a long and contoured syllable as its reflex.

There are many other kinds of evidence that bear upon this problem, the most important being the data on modern dialects. But in the absence of a generally accepted theory that explains diachronic regularities of tone change, the comparative method cannot be applied, and consequently, the dialect data must be temporarily held in abeyance.27 The second kind of evidence consists of the formulas in which scholars and monks from the T’ang dynasty on record their observed or inferred impressions of tones. The two earliest ones are of some value.28


These two formulas confirm that the level tone is level, the rising tone is high, and the entering tone is short. The third kind of evidence sometimes used is the names of these four tones.29 But clearly, these slippery terms can hardly lead us to any firm conclusions. It is also sometimes said that the Chinese phonetic terms tend to be their own exemplars, but that shang (rising tone, "up, high!") is an exception. Hence the character should be read in the rising tone, and in this reading, it means
"to go up, to rise." Here the explanation could be that shang was originally in the rising tone, but because of its voiced initial (MC -z), later shifted to the departing tone. The fourth kind of evidence consists of Kan-on sōmyō, the Japanese tradition of reading the sutras in the Kan-on pronunciation (which is somewhat different from bombai, chanting Sanskrit psalmody). Rai Tsutsumi, who made a detailed study of this tradition, came to the conclusion that (a) since the tones are interwoven with the musical setting, their phonetic values cannot always be extracted, and (b) but insofar as the values can be determined, they coincide with what Amen said in the Hsi-i-t'an tsan.

I shall now discuss, as promised, Chou Fak-sao's thesis that the Level tone is long and the Oblique tones are short (see note 13 above). The evidence, according to him, consists of the following three kinds. (1) In Hsiian-yung's 玄環 J ch'ieh ching yin-i 一切音字 (ca. A.D. 649), seven pairs from the Sanskrit syllable (a, ã, i, e, etc.) are represented thus: long (chong sheng, 沖生) and one is entering (je). (2) In I-ching's work, thirty-three short syllables are represented by Oblique tone characters. (This we discussed earlier, pointing out that all thirty-three are to be pronounced in the rising tone.) In addition, six pairs (ka, ka, ki, ki, etc.) are represented thus: long always corresponds to Level, and short to Oblique; of the latter, two characters are rising (û, ฤ), two are departing (許, 丐), and one is entering (鬻). (3) When the length contrast affects the meaning of a pair of Sanskrit words, it is reflected in Chinese transliterations by means of tonal differences. Four pairs are cited.

<table>
<thead>
<tr>
<th>Long</th>
<th>Short</th>
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<tbody>
<tr>
<td>a. sārāputra 薩利頻多羅</td>
<td>sarā 舍利子</td>
</tr>
<tr>
<td>b. sīla 色</td>
<td>sīlā 色</td>
</tr>
<tr>
<td>c. purusāh 普伽沙</td>
<td>purusāh 普伽沙</td>
</tr>
<tr>
<td>d. purusāh 普伽沙</td>
<td>purusāh 普伽沙</td>
</tr>
</tbody>
</table>

The tones of the relevant characters are: level, ວ, ຊ, ກ, ກ, all representing long syllables; rising, ຖ, departing, ສ, ື, entering, ດ, are representing short syllables.

The issue is whether shortness is supposed to be represented by the rising tone only or by all Oblique tones. Thus an Oblique character not in the rising tone would count as a vote for Chou's thesis if it also represented a short syllable. I-ching's statement that "they should all be read in the rising tone..." disqualifies in one fell swoop all thirty-three characters as votes for Chou's thesis. The rest of Hsiian-yung and I-ching combined only yields four syllables that fulfill the above qualification, two each in the departing tone and the entering tone. Of these, three in I-ching's list are suspect; since the character ຍ appears in both the thirty-three character set and the six pair set, I-ching's statement almost certainly is meant to apply to all the characters concerned. As for (3), the Kuang yin has another reacing for ດ in the rising tone, and ສ is in the rising tone anyway. This leaves only three votes for Chou's thesis.

While the evidence is insufficient, Chou's thesis may still be true, for in order to simulate the length contrast, the Oblique tones need not be short, but only shorter than the Level tone, and from the available evidence, this indeed seems to be the case. (Level is the longest; departing is the next longest; rising and entering are short.) Furthermore, the reason why the other Oblique tones are regarded as inappropriate simulators of the Sanskrit short syllable may be other than the fact that they are not short enough: the entering tone may have been disqualified by its final stop, and the departing tone by its dynamic contour. In other words, the only clear conclusion to be drawn from Chou's data is that the rising tone is short. The remaining issues will have to be left undecided for the present.

We are now drawn inexorably to a consideration of the Level-Oblique distinction in prosody. And my aim here is not so much to offer a solution but rather to delineate the issues and suggest some ways to approach them.

By the time of Shen Ch'ian-ch'í 謝俆 (650-c. 715) and Sung Chih-wen 宋之問 (656-712), the Level-Oblique distinction is firmly established in prosodic practice. Earlier, Shen Yüeh (441-513) and his friends had theorized about the use of four tones in poetry, but it has yet to be shown that any of the Six Dynasty poets consistently applied the Level-Oblique distinction in their poetry. The period between 500 and 650 might then be conveniently regarded as the focal point of our problem.

In order to find out why and how the four tones became classified into two prosodic categories, we need to consider three questions: (1) How were the four tones pronounced at that time? This we do not know exactly, but Piao's reading (early eighth century) seems to be the only firm base for extrapolation. (2) Which phonetic features did the poets pay attention to? This is an important point, but one often neglected in discussions on prosody. For example, the length contrast is present in modern English, but except for a few experimental poets, never used in poetry. It is perhaps significant that in the key texts on literary criticism of this period, there is clear mention of the high-low contrast, but never, as far as I know, of the long-short contrast. (3) What tonal patterns can we find in Proto-Recent Style poetry, that is, poems written between 500 and 650? In what follows, I shall suggest some questions that we can put to that yet unexplored corpus.

The Level-Oblique distinction is based either on length or on pitch; these two features are the leading candidates by common consensus. Poets around Shen Yüeh's time apparently operated with four prosodic categories, that is, the four tones. Later there are only two. The process of change may have been gradual or sudden. Thus, we have altogether four models to consider.

(1) Sudden change based upon long-short: The evidence against it are (a) the long-short contrast is not mentioned in literary criticism, and (b) the departing tone, by our extrapolation, must be fairly long around the sixth and seventh centuries.
One of the functions of prosody is to define how the various slots are to be filled by prosodic categories, and what a study of Proto-Recent Style poetry can tell us is whether its prosodic categories consist of (I) and (R, D, E) as in (1) and (2), or (L, D) and (R, E) as in (3), or (L, R, D), and (E) as in (4). My favorite model is (4), but at present this view is based upon nothing more reputable than a hunch. The conclusions of this paper are these: on the basis of Annen's account, the tonal system of Middle Chinese around the eighth century is found to be (1) level tone: long, level, and low; (2) rising tone: short, level, and high; (3) departing tone: longish about to be lost and probably high in pitch and rising in contour; and (4) entering tone: short, with uncertain pitch and contour. Anneh also allows us to infer that the proliferation of tones under the condition of voiceless follows a definite sequence, whose intermediate stages may represent the ancestors of several modern dialects; also that the merger of the voiced rising tone with the departing tone has already been accomplished by the late eighth century. Reasons have been stated for the thesis that the rising tone of Middle Chinese developed through the loss of a final glottal stop. -2 is a feature in several coastal dialects, the rising tone of MC is short and high, and in old Sino-Vietnamese loans, the rising tone corresponds to the sae and rong tones, at a time when these tones presumably had -2. It also seems probable that one reason why the Six Dynasties poets were so fascinated by the four tones was that the loss of final consonants, according to our conjecture, was not completed until a fairly late date late enough so that those poets were excited by its novelty. (They could have been aware of this novelty if they had also known some dialects that still preserved the final consonants.) As the tonal evolution proceeded further, it made possible the emergence of the Level-Oblique distinction, and the remaining problem is to find out how exactly that happened.3

This paper was begun during 1967–1968, when I was with the Chinese Linguistics Project of Princeton University. I am especially indebted to Jerry Norman, Mantaro Hashimoto, and Bruce Brooks for their suggestions and encouragement.
SOME NEW HYPOTHESES CONCERNING WORD FAMILIES IN CHINESE*

E. G. Pulleyblank


It has long been apparent that Old Chinese had sets of words which were related in meaning and similar, but not identical, in sound. E. Karlén conjectured that such ‘word families’ represented the relics of morphological processes but concluded that it was impossible to reconstruct what these processes had been. Advances in the reconstruction of Old Chinese allow us to see the nature of at least some of these processes. The best established affix is (a) the suffix *-e, which left its reflex in Middle Chinese as the departing tone. One may also recognize: (b) prefix *k, cognate to Tibetan ka-chang, giving rise to alternations of voiced and voiceless aspirated initials, (c) prefix *r, (d) prefix *y. There were also (e) ablaut between close and open vowel nuclei (a/a), (f) alternation between accent on the first half or the second half of the syllable. More remote word family relationships, which cannot easily be accounted for by such morphological processes, may reflect a stage in which there were uniconsonantal root morphemes which could combine to form syllabic units. Comparisons are made to Northwest Caucasian and Indo-European.

The recognition of cognate relationships among the so-called ‘isolating’ morphemes of Chinese goes back a long time, but as with so many other aspects of Chinese language studies, the problem received a new definition from the work of Bernhard Karlén and is still commonly thought of in terms which he used to describe it. In his seminal article ‘Word Families in Chinese’ (1934) Karlén gathered together a large number of sets of apparently cognate words. He designated these words which seemed to be related both in sound and meaning by the term ‘word families’. He classified the phonetic alternations, as they appeared in his ‘Archaic Chinese’ reconstruction under a number of headings but did not attempt to analyze the nature of the morphological processes involved. In The Chinese Language (1949) he isolated three of the commonest alternations, but, noting that the same alternation sometimes derived nouns from verbs and sometimes derived verbs from nouns, he concluded that the situation as found at the earliest accessible period must already have been the result of a long evolution and held out little hope of being able to discover the original underlying morphological processes. A further contribution was made in the article ‘Cognate words in the Chinese phonetic series’ (1956).

While we are still far from being able to achieve the ultimate goal of analyzing the processes which have given rise to word families in a thoroughgoing way, some progress has been made. Karlén at first ignored the question of tone in this matter. It is, however, in that area that the first solid breakthrough has been achieved. A frequent alternation in word pairs is that between the ‘departing tone’ and some other tone, ‘level’, ‘rising’, or ‘entering’. Several scholars have had the idea that this might involve a regular morphological process. The first thorough treatment, however, was no doubt that of Downer (1959), who collected a large body of examples of such tonally related word pairs from Lu De-ming’s Zhong-wu jing-chu shihun chiu (Collected Commentaries on the Classics, early 7th century) and classified them into eight categories according to the semantic alternations involved.

While the variety of these shifts—verb to noun, noun to verb, causative formation, passive or neuter formation, etc.—is somewhat disconcerting, Downer was able to show quite convincingly that in general the non-departing tone form must be regarded as basic and the departing tone form as derived. As far as the phonetic aspect of the matter was concerned, Downer was content to regard the process involved simply as a change of tone. It is probable that he had the ‘change tones’ (*t) of Cantonese in mind. This might be satisfactory for the change of level or rising tone to departing tone, as in *-'king' (level tone), ‘to be king’ (departing tone), or *"good’ (rising tone), ‘love’ (departing tone), but is less convincing when the basic tone was the entering tone, as in *-‘bad’ (entering tone, ending in -k), ‘hate’ (departing tone, non-sonorant final). Though words with final stop consonants are conventionally treated in Chinese as belonging to a distinct ru-sheng or departing tone, this clearly something different from what is meant by ‘tone’ as a term in modern phonetic theory. In other words, the change from entering tone to departing tone necessarily involved a change in final segmental phoneme, not merely in pitch or contour. (This may have been true of earlier Middle Chinese ‘tones’ as well but is most obvious in the case of the ru-sheng.)

An alternative phonetic explanation had, in fact, already been suggested by Haudricourt (1954) who had shown that in Vietnamese the corresponding tone to Chinese departing tone could be derived from a final *-h, going back to an earlier *-s, on the basis of cognates in Mon-Khmer languages. Haudricourt further suggested that the same had been true of Chinese and furthermore that *-s had been a derivative suffix in Chinese. Since that time evidence has accumulated from a variety of sources giving support to Haudricourt’s conjecture. On the one hand one can compare the role of departing tone derivation in Chinese with that of the suffix *-s of Classical Tibetan. In Tibetan *-s is a suffix which (1) sometimes characterizes the perfect of verbs, as in byas, perfect of bleyad-po ‘to make’, or dhyugs, perfect of...
PRE-MODERN VARIETIES OF SINITIC

... appears in the present, as in hgebs-pa, perf. bkal, 'to cover', (3) sometimes appears in nouns derived from verbs, as in ges 'clothing' from bgo-bo 'to wear'. There is even a parallel phonetic evolution in the fact that the last final -s has given rise to a sharply falling tone in the Lhasa dialect. From quite a different angle it has been shown (Pulleyblenk 1961) that there is clear evidence of the survival of a final sibilant in certain rhymes in Chinese as late as the third at fourth century A.D. in transcriptions of non-Chinese place names and in the earliest strata of Buddhist translations. Examples of the former are: (1) *sDaw in EMC to-laj < *ta-las, for the name of the River Talas in Central Asia (Han shu 70.6b), (2) *shk in EMC k'yun < *kias-pin for Kashgar = Kasmir, cf. Greek kāspera (Han shu 96.23a), (3) *rEj in EMC reh-mar < *tes- for Tsushima, earlier *Tusina, (San-kau chih, Wei-chih 50.44a). Examples of the latter are: (1) & EMC pah-wel < *wias, for Prakrt *Prakrt *svarā < Sanskrit *svarā, (2) *shk in EMC pa-la-naj < *na- for Prakrt *varānasī < Sanskrit *Vārānasī, (3) *shk in EMC sam-bal < *sam-ba < *sambha for Prakrt *samādi < Sanskrit *samādhi. These Prakrt forms are taken from Bailey 1946 who, it is interesting to note, already conjectured a relation between the final glide of Chinese -i dipthongs and the representation of foreign sibilants or dental fricatives, without, however, noting that in all cases the syllables involved had the departing tone. Further examples of the same kind are given in Pulleyblank 1961-62. All these examples come from rhymes where Kárlgren reconstructed -u in his Archaic system and wherever such words occur in transcriptions down to about A.D. 300 or a little later, one finds that the final sibilant is relevant to the interpretation (though, of course, there are cases in which the foreign original cannot be identified).

This convergence of evidence from a variety of quite independent directions makes it extremely probable that we are on the right track and that not only is the departing tone, as a tone, derived from a final sibilant in Chinese, as in Vietnamese, but also, as a morphological category, it represents an *s suffix cognate to the -s of Classical Tibetan. The identification of Chinese *s with Tibetan *u is extremely important, for it opens up for the first time a clear possibility of relating Chinese and Tibetan not merely by isolated lexical correspondences but by morphological paradigms in the manner of Indo-European. It also encourages us to look for other Chinese cognate among Tibetan affixes and to be more confident in using Tibetan as a typological model for reconstructing Old and proto-Chinese.

Another promising possibility of recognizing the cognate of a Tibetan affix in Chinese is in the rather common alternation in Chinese between voiced and voiceless initials. The frequency of such alternations has already been noted by Kárlgren and others. As in the case of qu-sheng derivation, the alternation of voiced and voiceless initials is associated with a variety of semantic differences. One common type has a transitive verb with voiceless initial contrasting with an intransitive or stative verb with voiced initial, as in the following examples (readings are those of LMC as given in Pulleyblank 1970-71):
in Min, on the other hand, there was no merger. The clear-muddy distinction was replaced by one of tonal register as in the other dialects but the original distinction between nonaspirate and aspirate was maintained, thus:

\[ \text{fp} \rightarrow \text{p} \]

It may be possible to test this hypothesis for Min if we can find cases where the modern form agrees with the form we should expect from morphological considerations. Since only genuinely colloquial material is relevant for this purpose, examples are not too easy to find. One interesting case is, however, the word \( \text{k} \) 'to cover' which appears in colloquial Min forms with initial \( \text{p} \). As we have seen above, this word appears to be a derivative with 'muddy' initial of a word with initial \( p \) meaning 'to cover oneself'. This is the more significant in that words with original voiceless aspirate initials are considerably rarer than those with voiceless nonaspirate initials. Other words with Middle Chinese initial \( \text{ph} \) which appear in Min with \( \text{p} \) and can plausibly be connected with cognates with original \( \text{p} \) are \( \text{ph} \) 'sail' (cf. \( \text{ph} \) 'to float') and \( \text{bh} \) 'to float' (cf. \( \text{bh} \) 'raft'). Such cases, where the morphological pattern is less clear, are less probative, unfortunately, since there is evidence that, both in Chinese and Tibetan, alternation between aspirate and nonaspirate initials could also occur in derivational processes.

The \( \text{h} \)-prefix in Tibetan occurs in verbs related to nouns, such as in \( \text{h} \) 'to carry', cf. \( \text{h} \) 'burden, load', or \( \text{bh} \) 'to smear, anoint', cf. \( \text{bh} \) 'unguent, salve'. It can also occur with nouns, e.g. \( \text{h} \) 'staff' (and many others), and in place, whether there would seem to be a free variation between prefixed and unprefixed forms, as in \( \text{t} \) 'to bear, bring forth', perf. \( \text{th} \), imperfect. \( \text{th} \). In other words, though it sometimes seems to be a clear function, in other cases whatever function it may have had has become obscured. This is also true of the Tibetan suffix \( \text{s} \). This may be compared with the versatility of both the qu-sheng derivation and the clear-muddy
in the perfect, and ő in the present is no doubt for *řl. Compare ḥidr < *řhr, as proposed by F. K. Li (1959). It is true that we also have slog-pa ‘turn’ (trans.), but there are good indications that I and ḥ could alternate in word families, just as unaspirated and aspirated stops could sometimes alternate, in which case slog-pa could be derived from and unattested *thod-pa. Note that lod-pa and glad-pa are given as alternative forms of thod-pa and in Chinese the corresponding word family has words that imply *l as well as *řl, ḥ, ḥu, read ḥut (= *š, snatch, rob) as t řa, ḥu jvier ‘pleased’, ḥu ḥawaj ‘čavut gřad’, etc.

Though Yakhontov’s theory of Old Chinese ő cannot be accepted, there are no doubt other places where one can look for traces of ő-clusters in Old Chinese. In my 1962 article I suggested a number of possibilities of this kind (pp. 126ff), in which Middle Chinese sibilants appear in xie-sheng series of other categories. Specifically causative meaning does not show itself in many of these cases. The best example (not quoted in 1962) is perhaps: ő EMC čř ‘feed’, food’, from ő EMC čüğ ‘eat’. On the correction of Karlgren’s dře to ő see Pulleyblank 1962, p. 68. This initial sometimes seems to be an alternative to Middle Chinese j as the palatalized form of Old Chinese ő but the conditions under which one or the other appears are not clear. Note that Middle Chinese j itself seems to have had the phonetic value of a palatal fricative in early Buddhist transcriptions and that in Middle Chinese double readings in j and ő are quite common. The character itself has a reading ǭ in the sense of a proper name. We may tentatively reconstruct the Old Chinese forms as *tšč and *tščks respectively. The derivative in its attested form has a suffix as well as a pre-fix. Possibly there were originally two forms, *tšč ‘feed’ and *tščks ‘food’.

In Chinese word formation there are also two very good examples of what appears to be an –ř- infix associated with causative meaning: ő EMC čř ‘cause to arrive’, from ő EMC čř muř ‘arrive’; ő EMC čř trwit ‘expel’ from ő EMC čř trwit ‘go out’. This could well reflect an original ř prefix which has left its trace as retroflexion of the following dental initial. In Tibetan ř is a verbal prefix. From morphologically related sets like the following it would appear to have an active, intensifying meaning: rřog-pa ‘overthrow, pervert’, cf. ldog-pa ‘change, turn away, return’, etc.; rřus-pa ‘purge’, cf. lug-pa ‘give way, fall down’; rřbad-pa ‘incite’, cf. ḥbad-pa ‘endeavor, exert oneself’; řdš-pa, also ḥdš-pa, ‘throw down to the ground’, cf. ḥdeš-pa ‘throw, strike’, rygän-ba ‘extend, stretch’, cf. ḥans-pa ‘wide, broad, large’, also ḥyan-ba ‘stretch, extend’. In Chinese there are certainly many other examples of ř as an affix in word building besides the two cited above but I shall reserve a further discussion for another occasion.

Another morphological alternation found in Tibetan which can be paralleled in Chinese, as I have shown elsewhere, is close/open vowel alternation or ablaut.

If my interpretation is correct, the alternation between forms with close nuclear vowel ř- and open nuclear vowel –ř- was associated with a semantic alternation which can be called ‘extravert’ vs. ‘introvert’ and which can be paralleled both phonologically and semantically in Northwest Caucasian languages such as Kabardian and in Indo-European ‘qualitative ablaut’. A good example, in
prosodic feature than by a segmental interpretation. This is particularly clear in the case of alternative forms of grammatical particles such as: abbreviation:趴 ‘how, where’, abbreviation:  ‘to, in, at’,  abbreviation:  ‘to, in, at’. These are indistinguishable in meaning and differ, if at all, in the particular collocations, probably determined by prosodic considerations, in which they occur. Slightly less synonymous:  abbreviation:  ‘then, thereupon’,  abbreviation:  ‘then, thereupon’,  abbreviation:  ‘then, thereupon’. The latter seems to differ from the former chiefly in being an unstressed form. Note also such pairs as  abbreviation:  ‘there is no one’,  abbreviation:  ‘there is no one’. In other cases we have synonymous variants of the same lexical item:  abbreviation:  ‘push’,  abbreviation:  ‘push’,  abbreviation:  ‘push’,  abbreviation:  ‘push’.  abbreviation:  ‘rive’,  abbreviation:  ‘rive’,  abbreviation:  ‘rive’. It is noteworthy that many of these words have an onomatopoetic or expressive flavour that would help to account for the variation in accentuation which we posit as the source of the phonetic differentiation.

There are, of course, also many cases where this type of phonetic alternation goes with a variation in meaning, e.g.  abbreviation:  ‘assemble’,  abbreviation:  ‘be like, thus, so’,  abbreviation:  ‘side’,  abbreviation:  ‘direction, region’. Further study will no doubt reveal patterns of semantic contrast between such related forms.

Of relevance to the proposed phonetic interpretation is the fact that this kind of variation is one of the most common distinctions between totally unrelated words written with the same character; e.g.  abbreviation:  ‘in, at, to’. This hypothesis can only be adumbrated briefly here. What correlates, if any, could be found in Tibetan is not yet clear.

The various morphological processes that have been discussed and other similar processes of affixation, etc., can certainly account for a great deal of the ‘word family’ phenomenon. There are, however, other cases of apparently cognate relationships that seem to require a quite different and more radical type of explanation. In collecting his word families Karlgren was quite strict in insisting that the items should all have finals of the same kind. Tödö Askiyama, whose etymological dictionary (1963) is an attempt to develop the ‘word family’ concept both more fully and more rigorously, is even stricter and insists that one should confine oneself to the same Shih jing rhyme category.

We have already discussed one kind of cognitive relationship which goes beyond the rhyme categories, namely that involved in close/open ablaut. This is still within the limits of similar final consonants. There are, however, many other cases of apparent word family relationships that go quite outside even this restriction. One can easily find sets of words with the same initial consonant and closely similar meanings but quite different finals that are at least as plausible as the word families collected by Karlgren and Tödö.

Thus, besides the ablaut pair  朝 ‘succeed, inherit’,  朝 ‘succession, inheritance’ ( = 朝 ‘arrange in order, succession’), we have 朝 ‘continue’.
influences. Thus among the negatives beginning in m, which must surely all be related to one another, we find: roperties, roperties, roperties, roperties, roperties, roperties, roperties, roperties, etc. If one personal pronoun beginning with (properties) we have: roperties, roperties, roperties, roperties, roperties, roperties, roperties, roperties, etc. Such sets of grammatical words have been studied to a certain extent. The tendency has been to try to account for them in terms of 'fusion,' that is, as resulting from the combining of two morphemes in one syllable. That such fusions existed has long been recognized in such cases as roperties -k or roperties-k. In other cases, where particles, though monosyllabic, are clearly bimorphemic in meaning, e.g., roperties, roperties, roperties, roperties, roperties, roperties, roperties, roperties, etc., the fusion explanation seems plausible even though it is impossible to identify the second of the two fusion elements as an independent form. Compare also the pronominal particles all ending in -k and all used to specify the subject: roperties, roperties, roperties, roperties, roperties, roperties, roperties, roperties, etc. It is tempting to isolate a morpheme -k and to say that these words have been formed by adding it to roperties 'there is,' roperties 'there are,' roperties 'who,' roperties 'all,' etc. Is this fusion or is it a more primitive kind of word formation that would be better described as composition? What is, at any rate clear is that there is no clear demarcation line between particles and 'full' words in this respect. For example, as Karlgen noted, the verb roperties 'assent' is clearly cognate to roperties 'like' included in the above list. Another similar case is roperties 'to conquer' but is also used in early texts as a verbal auxiliary 'to be capable of.' It must be cognate to roperties -k 'is capable of.' Other related words are no doubt roperties 'be capable of,' bear, and roperties 'consent to.' Furthermore roperties is also used in the sense of 'to carry,' a word which must surely be cognate to roperties 'carry,' which has roperties as its phonetic.

The idea that we may have to look for meaningful elements below the level of the syllable will no doubt seem startling. There may however be parallels in other languages which will help to make the suggestion more plausible.

One of the fascinating features of the Northwest Caucasian languages, to which reference has already been made in connection with the close/open ablaut, is the extreme transparency of their word formation. In Kabardian as described by A. H. Kuipers (1960) the great majority of words are made up of unsegmental morphemes either singly or in combination. Segments in turn consist only of a single consonant or one of a limited variety of possible consonant combinations plus a following vowel, or better, feature of syllability. And since there are only two possibilities for the latter—close and open—and the alternation between them has a morphological function, defining the extrovert/introvert opposition, the morphemes are in effect defined by their consonantism. Kabardian has a very large number of distinct consonants but even single consonants and their possible combinations only yield about 200 unsegmental morphemes (many of which, of course, have more than one meaning). From this limited stock longer words are built up by transparent processes of compounding. Many notions for which more familiar languages have simple, unanalyzable, words are expressed in this way. Thus 'tear' is 'eye-water,' 'finger' is 'hand-nose,' 'joy' is 'heart-good,' and so on.

In Indo-European too it looks very much as if there may once have been uniconsonantal roots. As reconstructed by comparative philologists, the 'roots' of Indo-European consist predominately of two consonants separated by a vowel which is mostly e. The vocalism of Indo-European seems to have been similar to that in the Northwest Caucasian languages, that is, for any syllable there were two possibilities in an ablaut relation to one another. These alternating vowels are usually reconstructed as e and o but were probably close vs. open, i.e. a and a, rather than front vs. back. Because of the ablaut relationship of the two vowels (which, incidentally, can also be defined semantically as introvert/extrovert) the roots are defined by the consonants and have the form C-C. When one looks further into the question, however, one often finds that even many of these simple roots look as if they were related to one another. For example, S. Pokorny's etymological dictionary of Indo-European lists a large number of roots beginning with a, all of which have the meaning 'to turn': (1) ysqli (= yelit according to the laryngeal theory), with extensions in -u1 (Latin vagor), -k (Latin vacillare), -r (Latin verus and verus 'various'), -s; (2) yel-, with extensions in -b, -d, -g, -yt-1, -k, -r (Eng. witty), -m, -n, -p, -r (Eng. wire), -s, -t (Eng. withy); (3) yek-, yek- (Latin convexus); (4) yel- (Latin volvo), with extensions in -d (German waltzen), -g, -is, etc.; (5) yendh- (Eng. wind); (6) yeng- (Eng. winch); (7) yengh-; (8) yer-, with extensions in -b (Eng. warp), -d, -ny- (Eng. wrench), -nyng- (Eng. wink), -nyke-, -m (Eng. worm), -p, -r (Lat. venter), and also -x with various further extensions in -n, -ad, -q, -k, -p (Eng. reath); (9) yes-, to these may be added certain roots in ysp, since s can be a prefix in Indo-European: (1) yesit-, with extensions in -b, -d, -g, -k (Eng. sway), -p (Eng. swift from Old English swifian 'turn'); (2) yseg- or ysgen- (Eng. swing). It looks as if the basic meaning of 'turning' was expressed in the single consonant y, which was then extended by additional elements.

If we suppose that Sino-Tibetan too once had uniconsonantal roots which were then extended by additional elements which defined their meaning more precisely, we can see how the 'word family' situation would have arisen. In the course of time what had once been transparent compounds would have become fixed, unanalyzed expressions and phonetic changes would have gradually obscured the connections leaving only the tantalizing hints that we can discern today. I am not suggesting that we are yet in a position to unravel the tangled strands. Much more progress will have to be made in recovering the history of the old Sino-Tibetan languages and in comparing them with one another before that becomes even thinkable, and perhaps we shall never reach that stage—so much of the evidence has been irretrievably lost. Nevertheless I think it may be interesting and worthwhile to try to imagine how things might have been and to set up, in tentative and speculative ways, heuristic models to guide our researches. It has become more respectable than it was a few years ago to ask fundamental questions about the nature and origins of language.
Meanwhile I hope that I have shown that progress in understanding Chinese historical phonology is already leading to new insights into the morphology of Old Chinese and that, conversely, study of the morphology will help in putting historical phonology on surer footing.

**Notes**


2. Forrest (1960) noted the functional correspondence of Tibetan -a and the alternation between Chinese -e and -a and -b (as reconstructed by Karlsgren) and proposed, like Haudricourt, as *-a suffix for Chinese. He did not, however, take into account the question of tone.

3. Reconstructed forms in this article are given either as Early Middle Chinese EMC (Shu dynasty) or Late Middle Chinese LMC (Middle and Late Tang). For the latter see Pulleyblank 1979-81. The new reconstruction of Early Middle Chinese will be published shortly.


5. Pulleyblank 1963, 1965 (1) and (2).


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SOME FURTHER EVIDENCE REGARDING OLD CHINESE -s AND ITS TIME OF DISAPPEARANCE

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In 1962 I published some evidence based on Han and early post-Han transcriptions to show that Chinese still had a sibilant final in certain departing tone rhymes at that period. I can now add some still later examples which bring the date down to the beginning of the sixth century, at least in the south. As will be shown below, the transcription evidence is also supported by contemporaneous rhyming practice, which still allowed contacts between Middle Chinese -j < -s and -t.

The value of cross-linguistic evidence for historical reconstruction of pronunciation is well recognized in European studies. When, for example, we find the Greek letter φ transcribed in Latin first by p or pb but later as f, there is little doubt that the change reflects a shift in Greek pronunciation and can help us date that shift. One cannot, of course, draw inferences like this in a mechanical way. Otherwise one might make the contradictory inference that because the Greeks from the beginning transcribed Latin f as φ, φ was already a fricative at that time. We have, as in all types of historical investigation, to judge each piece of evidence in the light of all the other relevant evidence. In particular we have to take into account the over-all phonological systems of the languages concerned at the time in question. When we do this, it becomes clear that, since in the earlier stage Greek had no labial fricative the aspirated stop φ [ph] was simply the closest sound available to transcribe f (Allen, 1968, 20).

The same principles have to be applied in the case of Chinese and have indeed been so applied, sometimes skilfully, sometimes not, by scholars in the past. Unfortunately any use of transcription evidence seems to be in dispute in some quarters. This is no doubt partly because the philological problems involved are unfamiliar territory for many linguists. It is also, however, due to exaggerated and sweeping doubts that have been expressed about the validity of this kind of material. In particular it is said that using Buddhist transcriptions is a risky business since these are likely to be based on Central Asian Prakrit forms rather than Classical Sanskrit (Karlgren, 1954, 225). This is perfectly true. What is not true is that the fact that Prakrit rather than Sanskrit was the basis of many early Buddhist transcriptions prevents us from being able to control our material. A good deal is known about Prakrits and specifically about the north-west Indian Prakrit, called Gāndhārī by H. W. Bailey, which was spread into Central Asia by the expansion of the Kusāna empire and became the vehicle for Buddhist missionary activities in the Far East (Bailey, 1946; Brough, 1962).

It is ironical, for example, that Professor Karlgren was prepared to argue that the transcription of Sanskrit dhyāma by ch'an EMC ḍām (Karlgren ḍām) was a justification of his reconstruction of a stop initial ḍ- in Archaic (Old) Chinese as the source for Ancient ẓ-, while rejecting as irrelevant the massive evidence brought forward by Lo Ch' ang-p'ei (1931) showing that the Middle Chinese 'tongue up' (jhe-thang) initials were used to represent Indian retroflex stops. The Chinese transcription for dhyāma was undoubtedly based on a Prakrit form in which ḍh- had been palatalized to ḍh or jh- (cf. Pali jhana, Gāndhārī jana, jana; Brough, 1962). On the other hand, not only is the dental/retroflex distinction well maintained in Prakrit, as in modern Indian languages, but the transcription practice which Lo discovered is consistently maintained up to T'ang times when Sanskrit had long since replaced Prakrit as the language of Buddhism in the Far East. Unfortunately Karlgren's rejection of Lo's hypothesis that the 'tongue up' initials were retroflex rather than palatal led to its being largely forgotten for many years. It has now been revived and is receiving a belated acceptance (Pulleyblank, 1962-3; see also Li, 1971). The evidence of Sino-Vietnamese, which, for example, has retroflex r- for the first of the 'tongue up' initials (Karlgren's ḍ) as well as for the first of the retroflex affricates (Karlgren's ts-) but palatal ch- for the corresponding palatal affricate (Karlgren's ts-) was also ignored by Karlgren and other scholars.

It would not be fair to regard the delay in recognizing the correctness of Lo's hypothesis as entirely wilful and arbitrary. The revision of the palatal stops to retroflex stops has far-reaching implications for the whole system of Middle Chinese reconstruction and neither Karlgren nor any other scholar at the time was prepared to work out these implications (Pulleyblank, 1970-1). Nevertheless it is a pity that the awkward counter-evidence was merely swept under the carpet and a still greater pity that the rejection was turned into a blanket dismissal of transcription evidence of all kinds.

The use of transcription evidence is certainly fraught with difficulties, but so are all methods employed in historical reconstruction of pronunciation. One can only put together all the evidence, whether derived from internal reconstruction of the system underlying the rhyme tables and rhyme dictionaries, from rhymes in poetry, from comparisons of dialects and cognate languages, or from any other source and, using the best available linguistic theory, try to build the most coherent and consistent picture possible. We know at the outset that the evidence will never be sufficient to solve all our problems: All the more reason why we should not deliberately refuse to consider any category of material that may help.

The theory that the departing tone originated in a final -s in Chinese is a good example of one in which theoretical, comparative, and philological arguments
combine to give a happy solution to many otherwise unco-ordinated facts. First put forward by A. G. Haudricourt in 1954, it was based primarily on the analogy of the tonal system in Vietnamese, where the corresponding tone can be shown by comparisons with Mon-Khmer to come from a final -h, earlier -s. Haudricourt also noted that his hypothesis would allow one to explain cognate pairs like 誇 EMC kwo 'good', khaw 'love', or 誇 EMC zok 'bad', 8s 'hat' of which there are many in Chinese, as reflecting a suffix -s in the departing tone forms. He might also have noticed that there is a close parallel in Tibetan, which also has a -s suf- fix with various meanings (cf. Forrest, 1960). There is even a parallel in tonal development, since the -s of written Tibetan develops into a sharply falling tone in the Lhasa dialect.

Haudricourt further noted the fact that in Middle Chinese certain rhymes ending in i-diphthongs occurred only in the departing tone and conjectured that the disappearance of the final sibilant may have been not long before the time of the Ch'i'en-yin. He also drew attention to the Thai forms in -t of the duodenary sign 素 EMC muj (e.g. Ahom nudi) (cf. Li, 1945; Egerod, 1957).

The date of the Thai borrowing of the duodenary cycle is unfortunately not known. There is, however, as I showed in 1962, abundant evidence from transcriptions for the persistence of -s, from Old Chinese -ts, at least until the third century A.D. The transcriptions involve various non-Chinese languages and extend over several centuries. The pattern is also very consistent. That is, whenever we find words from such rhymes used in transcriptions and it is possible to determine the underlying foreign word, we find that the foreign word has s, or some other appropriate phoneme, in the position corresponding to our hypothetical Chinese -s. There are, of course, a good many transcriptions, especially in the earlier centuries, for which the foreign original is unknown or is more or less conjectural. Among the more certain examples of -s from the Han period are: 誇 EMC koi (< kus)-sian = Kusan, 誇 EMC koi (< klas)-sian = Kashi-mar, EMC to-ha (< to-sa) = Talas. From the third century A.D. comes 誇 EMC to (< to-sa) = Tusima, i.e. the island of Tsushima. Early Buddhist transcriptions of the second and third centuries A.D. provide many examples. Besides cases like 誇 EMC pa-la-mo (< nas) = Prakrit sVaranasi (for Sanskrit Varanasi), in which Chinese -s corresponds to Sanskrit s (voiced [z] in intervocalic position in Prakrit), there are cases in which it stands for Sanskrit -th- or -dh-, both of which became a voiced fricative [s] and eventually [z] in intervocalic position in Gândhâra Prakrit (Bailey, 1946; Brough, 1962, 94). Hence 認 EMC sam-mo (< mns, or mas) = tassadi or tassami, for Sanskrit samādhy.

A similar example, not previously discussed, is chi 認 EMC gie (< gias) = gada or gaza, for Sanskrit gāthā 'song', a word which was borrowed into Chinese in the sense of 'Buddhist hymn' and has remained part of the language.

By the beginning of the fourth century there is evidence of a shift from -s to -y in the north. Though the situation in Kumarajiva's transcriptions remains to be thoroughly investigated, a preliminary examination of his versions of the 'Lotus Sūtra' (T. 262) and the Mahāmāyāyī (T. 988) shows clear evidence that the shift must have occurred. Thus I find 認 EMC jie (< yas) for ye in kyasa and 認 EMC dyie for yva in jvala, among many other examples of departing tone words that would have had -s previously.

In the south, however, the sibilant final persisted much longer. This can be illustrated from dhāraṇī transcribed by Sanghabhara (or -varman?) who worked at Nanking in the period 506–20 under the Liang dynasty. By this time Sanskrit had replaced Prakrit as the language of Buddhist texts. A portion of his version of the Mahāmāyāyī (T. 984) was published by Sylvain Lévi (1915). In this we find the character 素 EMC he (< has used for -has in 認 EMC he = Brhaspati. There is one other occurrence of the same character, this time for -had- in 認 EMC he = Brhadra. The equivalence is less exact in this case but at least -s is used for another dental consonant. There are no other words from the same rhyme in the material published by Lévi. In another dhāraṇī transcribed by Sanghabhara, however, I find 認 EMC la (< las used for -ra) in 認 EMC la = vijnārāma.

A few examples of this kind at such a late date would be too little in themselves to justify the conclusion that -s still survived at that period. As mentioned above, however, there is confirmatory evidence from rhyming practice. Occasional rhyming of Middle Chinese -j with -t in the 'Book ofodes' was one of the principal reasons which led Karlberg to reconstruct his Archaic -d (which must now be emended to -s, later -s). Such rhyming contacts do not, however, cease in the Chou period. They are still very common in Han (Lo and Chou, 1959) and continue through the southern dynasties. This was noted as long ago as 1936 by Wang Li. Wang went so far as to include the departing tone rhymes 認 EMC -y, 認 EMC -t, 認 EMC -y, 認 EMC -t, etc., in the same over-all category as the corresponding entering tone rhymes in t. Examples of this kind of rhyming are: 認 EMC pa (< nas) = to-ti (K'ung Chin-k'ai 稲稚, 447–501); 認 EMC jie (< jia) ket (Ke Li 稲稚, 507–83); 認 EMC par (< pari) mor (Emperor Wu of Liang) (K'ang, 464–549). Chou Tsu-mo, whose study of post-Han rhyming done in conjunction with Lo Ch'ang-p'ei remains unpublished, also noted this tendency for rhymes like -y and -t to rhyme (Malmsjö, 1968, 37).

If -s survived in the south in some departing tone rhymes as late as the beginning of the sixth century, it obviously has a bearing on the question of what was meant by the 'departing tone' at the time it was given this name by Shen Yüeh 聖 (411–513). Evidently the 'departing tone' had a sibilant final in some words in his day but not in others. How can we reconcile this with the fact that the whole category must have had a definite feature to distinguish it from the other three 'tones'? The most likely explanation is that the other departing tone rhymes were still characterized by final -h, -aw, -ah, etc. This -h would not have manifested itself in transcriptions nor would it have rhymed with stop consonants in the way that -s could occasionally do with -t. It did, however, share with -t the feature + fricative, just as the 'entering tone' finals shared the feature + stop. If this surmise is correct, it helps to account for the choice of the terms 'entering' and 'departing', which obviously stand in opposition to one another while forming a related set in contrast to the other two tones, 'level' and 'rising'.
Chou Tso-mo refers to the rhyming of departing and entering tones in relation to the statement in Lu Fa-yen's preface to the Ch'ieh-yüin that in Ch'in and Lung, i.e. Shensi and Kansu, the 'departing tone' is the same as the 'entering tone'. This could possibly mean that even in 601-s was still heard in those regions but, if taken literally, seems to indicate rather a dialectal merger of -s with -t. This is the most natural interpretation of the statement which he cites from Hsiian-yung's L-ch'i eh-ch'ing yin-yin 18, that in Kuan-chung the term 車反 chiao-kua 'mischievous', EMC karw-kwarf, was rendered as 車反 chiao-kua. EMC karw-kwarf. Chou also cites two examples of barbarian rulers from whom whose personal names each had two variants, one in -s and one in -t. These provide less clear-cut evidence, since we do not know the foreign originals on which the Chinese forms were based.

There is still further evidence to support the view that there may have been a pre-T'ang shift of -s to -t in a north-western dialect region. Karlgren (1940, 258) notes that the Ch'ieh-yüin has a reading 聯 (sic, this should be corrected to 尾) for the number '4' EMC st, and it calls this a Kuan-chung pronunciation. Karlgren supposed that this showed a persistence of Archaic 聯, but it is more likely that it reflects the dialectal shift of seis to sit instead of standard EMC st.

The same dialectal shift of -s to -t probably accounts for the modern forms of the word for 'nose' in northern dialects. In EMC this was 聯, a form from which the current pronunciation in Cantonese and some other dialects is descended. In Mandarin generally, and to some extent elsewhere, however, the current forms imply Middle Chinese 会议. Early evidence for such a form is provided by a bilingual Chinese-Khitanese glossary from Tun-huang, where we find 條 Elem, evidently transcribing 聯 k'o (Bailey, 1954, p. 1, l. 11). Khitanese -r for Chinese -r is regular. The peculiar categorization of the word for 'nose' as 'lower level tone from departing tone' in the Ch'ung-yüan yin-yüan also reflects such a Middle Chinese form, since lower level tone would be the normal reflex of entering tone for word with this type of initial but is quite anomalous for a Middle Chinese word with departing tone.

What seems to have happened is that the form 会议 < 聯 was borrowed from its north-western dialect source into the standard colloquial of T'ang, spreading to other parts of China and replacing 聯 < 聯 except in outlying regions. This is more likely than the alternative view that 聯 and 聯 were variants that had existed side by side in Chinese generally from early times. It is interesting to note that in Amoy the literary form is 聯, while the colloquial form is 聯.
I. Introduction

The FY occupies a unique position among early Chinese lexicographical works in that it specifically collects and annotates regional or dialectal words and expressions. The potential value of the text as a source of information on late WH Chinese dialects has long been recognized and has been exploited in various ways; in a number of traditional and modern studies. The possibility that the FY may contain dialect cognates which could be compared and used to reconstruct earlier ancestral forms has been extensively explored by Serruys in a book (1959) and a number of articles.1 The work of Serruys has been severely criticised by Miller (1975: 122–23), who has argued that the dialect forms compared by Serruys cannot be assumed to be historically cognate simply because they are associated in the FY text. Many may, he feels, be unrelated dialect synonyms.

In considering the different stances of Serruys and Miller we may begin by noting that the criteria underlying the selection of dialect words in FY are nowhere specified in the work itself. My own belief, based on close inspection of the text, is that many or most of the entries are of the ‘bucket/pail’ type and are not genetically related. If this is so then it would suggest that the FY compiler was primarily interested in assembling and determining the regional origins of what he felt to be ‘different’ words for the same things. This assumption would seem to support Miller’s indictment of Serruys’ approach to the FY text and discourage further comparative phonological studies. But the matter is not so easily resolved, for there can in fact be little doubt that the FY does contain a number of true cognate sets of the type envisaged by Serruys. A well-known and generally accepted example is the pair of words in FY 11/12 meaning ‘fly’ (see # 37 in section V below). Such cases, few though they may be, are worthy of our attention.

It is probable that everyone who has worked with FY has his own list of positive cognates. What is presented in section V below is my list. It is, I believe, fairly conservative; but at certain points I have made bold to include doubtful cases on the ground that in future it may be easier to exclude false cognate sets than to retrieve lost ones. MC and WH reconstructions are given for all entries in section V, and in section VI some rudimentary comparisons are attempted. Nothing so ambitious as an actual reconstruction of proto-forms has been undertaken. It is hoped that the gleanings assembled here may, after pruning and emendation, in some way advance our understanding of Han dialectology.

II. Authorship and composition of FY

2.1 The FY is traditionally attributed to Yang Xiong (c. 53 B.C.–18 A.D.; his biography, HS 87A, B, C: 3513–3587) was a native of Chengdu in Shu 順, He was over forty when he left this area and went to Chang-an (HS 87C: 3583), where he spent the rest of his life. Yang must have spoken the dialect of his native place, and it is probable that he was also familiar with the language of the capital.

2.2 The nature and content of the FY text have been thoroughly discussed by Serruys (1955, Chap. 1).2 Here we need only note that, in addition to those passages which specifically deal with dialect material, there are others which are ‘non-dialectal’ in content. Most of these occur in chapters 12 and 13 of the text, but they occasionally appear in other sections as well.

The primary evidence regarding the way in which the FY was compiled comes from Yang Xiong’s famous letter to Liu Xin (HS 88), appended to most current editions of the text. The passage in question is translated by Knechtges (1977–8: 316–17) as follows:

... whenever Presenters of Annual Accounts and the ‘Fidial and Incorrect’ from the various parts of the empire as well as the interior commandery military officers convened at the capital, I always took my three-inch soft brush, [“and”? WSC] provided myself with a four-foot piece of oiled white silk in order to ask them about unusual expressions. As soon as I returned home I used lead to make extracts and arrange them on tablets. It has now been twenty-seven years that I have been doing this. Occasionally expressions and words were mixed up or contradicted each other, and then I repeatedly discussed them and mulled them over, and collected all I could in detail to settle any doubts.

From this account we may form a picture of how Yang Xiong worked on his dialect studies. First of all it is clear that he worked with ‘informants,’ and we can conclude that these people were for the most part educated upper-class speakers. How he proceeded in his inquiries about ‘unusual expressions’ is uncertain. It is entirely possible that he simply asked ‘what character’ an informant used for a certain thing and was shown in reply a particular graph, in some cases a familiar one and in others an ‘unusual’ one, perhaps the informant’s own invention or some locally current script form. It is equally possible that in many cases Yang received as his answer a spoken form, either because he had asked how his informant ‘said’ a particular thing, or because the informant knew no graph for the word he was attempting to convey. The fact that in FY we find a considerable number of
common graphs used in senses which are elsewhere unattested strongly suggests that Yang’s collecting of dialect words sometimes involved “transcription” of spoken forms, either on his own part or that of his informants. As an example we may cite FY 2/8 (§ 81 below) where 來 (MC si), usual meaning ‘private’, is glossed as ‘small’ and is probably a western dialect form of 精 (MC si-si) ‘small, minute’.

A question of considerable interest is that of how Yang Xiong formulated the word lists which served as the basis for his “survey” of dialect forms. There is evidence that in many cases he took available lexicographical works, commentaries, etc. as his point of departure. For example, there are unmistakably close links between FY and EY. FY ¼ 精, 精, 錫 “can be seen” is identical with EY 1B/103, with the exception that, after the basic word equation is given, FY adds dialect notes on 精 and 精. An example of a more extensive correspondence, involving several FY and EY entries, is the following:

<table>
<thead>
<tr>
<th>FY</th>
<th>EY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/12</td>
<td>殷, 惟, 菱, 靈, 麥, 麥, 英, 形, 英, 形, 恭, 大也…</td>
</tr>
<tr>
<td>1/13</td>
<td>鄭, 惟, 應, 應, 形, 形, 麥, 至也…</td>
</tr>
<tr>
<td>2/14</td>
<td>精, 菱, 惟, 應, 形, 麥, 至也…</td>
</tr>
</tbody>
</table>

(The original EY passage is quite long, containing thirty-nine glossed words.)

1/13 感, 惟, 應, 應, 形, 形, 麼, 取也…
1/16 來, 精, 錫, 形, 恭, 大也…

Examples of this type suggest that Yang Xiong’s concern with dialect words may have been intimately connected with his interest in lists of glossed words such as those found in EY. He may, at the outset, have suspected that these contained many dialect synonyms. It is possible that he began his work on FY by investigating passages such as EY 1A/3. Having identified all dialect material in the list, he may then have supplemented his findings with further dialect synonyms which were not part of the original EY passage. Close correspondences of the type exemplified here can also be found between FY and the Mao commentary on Shijing 詩經. It is highly probable that a detailed investigation of the relationships between FY and other texts of WH or earlier times would yield much of interest regarding the way in which the FY text was compiled. Such a study unfortunately lies beyond the scope of the present paper.

III. Phonological reconstructions

MC reconstructions used in this paper follow Karlsgren (1954 and GSR) as emended by Li (1971: 4–7), with the following further revisions:

1. 會 will be written as 以—.
2. a·a and a·a will be written as a.

WJ reconstructions follow Coblin (1974–5) for the initials and Ting (1975) for the finals, with the exception that all labialized (i.e. hekou 合口) syllables will be written with *w-. OC forms are reconstructed according to Li (1971 and 1976).

MC reconstructions are given for all dialect forms listed in section V. However, it is clear that what is needed for a cogent discussion of phonological questions in the data is a Han-time reconstruction. This raises the question of what sort of sound system underlies the “transcriptions” used in FY. If, as we have hypothesized, Yang Xiong may sometimes have “transcribed” in characters the spoken forms elicited from his “informants,” then what did he adopt as the “basic readings” of these characters? Did he take the sound system of his own dialect as basis? Or did he rely on some sort of WH standard with which all educated individuals in the capital area might be expected to be familiar? These are questions which we cannot now answer and which may never be resolved. But, such uncertainties notwithstanding, it still seems worthwhile to utilize a Han reconstruction in dealing with the data in section V. The reconstruction to be used here is one developed for the dialect of Yang Xiong himself. This system, along with certain departures which will be made from it, will now be briefly outlined.

Materials from the works of Yang Xiong have been used, along with data from many other sources, to make a provisional reconstruction of the initials of the WH period (Coblin 1982). The following system of initials can be reconstructed for Yang’s dialect:

<table>
<thead>
<tr>
<th>Labials</th>
<th>p ph b m hm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentals</td>
<td>t th d n l</td>
</tr>
<tr>
<td>Sibilants</td>
<td>ts tsh dz s sh z</td>
</tr>
<tr>
<td>Gutturals</td>
<td>k kh g ng h ?</td>
</tr>
</tbody>
</table>

Due to the paucity of data on the WH initials this system is necessarily sketchy. Several comments on it seem necessary here. MC jh-interchanges with sibilants in the Yang Xiong materials and in certain other late WH sources. I restore it for these dialects as WH *k-, followed directly by vowels or by medial *-w-. Where *w- is followed by medial *-j- it yields MC z-. In other WH materials MC jh-interchanges primarily with dental stops, and I reconstruct it there as *s-, modelled on Li’s OC *s-—, a dental flapped consonant. I think it possible that Yang adhered to his own “sibilant reading” for this initial in compiling FY. MC š-interchanges with sibilants in the Yang Xiong data. It was probably a voiceless fricative of some sort and must have differed from WH *s- (> MC s-). My guess is that it was an aspirated s- (transcribed here as *sh-) of the sort found in contrast with plain s- in various Southeast Asian languages and in certain types of Amdo Tibetan. In other WH materials, MC š-interchanges with dental stops; and
I have consequently restored it there as *herj- (< Li's OC *herj-). Whether Yang preferred the "sibilant reading" or the "stop reading" in his dialect work seems uncertain and is a question which must be considered in dealing with the FY data.

A cluster, *sx- (MC sx), can be reconstructed for Yang's language. In other WH dialects one can also posit *gl- (> MC l), but there is no evidence for this cluster in the Yang Xiong data. There is support for the reconstruction of *gl- in a number of EH dialects (Coblin 1977–8; 1978); and I believe it may have been present in Yang Xiong's language, in spite of the lack of direct evidence for it. Words for which this cluster might be reconstructed in other dialects will be written with *gl- here. Where the MC palatals, ti-, etc., interchange with velars in the WH data I reconstruct the former as *k(r)j-, etc. There are no such interchanges in the Yang Xiong data. It seems uncertain whether such earlier velars had merged with the WH dentals in Yang's language or were still distinct and are simply not reflected in the data.

A general reconstruction for the finals of the WH period, based on the rime data of Luo and Zhou (1958), has been proposed by Ting (1975). Rime, loan-graph, and paronomastic data have been used to reconstruct the finals of Yang Xiong's language (Coblin, 1984). The following is a summary of the final consonants, vowels, and medials reconstructed for Yang's dialect:

---

**A. Consonants**

<table>
<thead>
<tr>
<th>Velars</th>
<th>k</th>
<th>h</th>
<th>ng</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labiovelars</td>
<td>kw</td>
<td>hw</td>
<td>ngw</td>
</tr>
<tr>
<td>Dental</td>
<td>t</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**B. Vowels**

<table>
<thead>
<tr>
<th>Oral</th>
<th>Nasalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>a</td>
</tr>
<tr>
<td>u</td>
<td>ã</td>
</tr>
<tr>
<td>a</td>
<td>ã</td>
</tr>
</tbody>
</table>

**C. Medials**

| -j | -w | -r |

Final *-p and *-m are absent from this system. Where MC has *-p and *-m Yang's language may have had *-k and *-ng. This was a peculiarity of the Shu dialect which seems to have distinguished this language from other WH dialects including, presumably, the WH standard language. All words reconstructed in section V with the finals in question are also given alternate *-p and *-m reconstructions based on Ting's WH system. Open nasalized finals are reconstructed here for syllables having MC -n. Preliminary studies of several other WH dialects indicate that these probably had final -n in the syllables in question. Whether we should read *-v or *-vn for the FY examples seems uncertain.

The MC tone categories will be represented as follows in the MC, WJ, and Han reconstructions:

<table>
<thead>
<tr>
<th>Ping 平</th>
<th>Shang 上</th>
<th>Qu 阳</th>
<th>Ru 入</th>
</tr>
</thead>
<tbody>
<tr>
<td>no symbol</td>
<td>:</td>
<td>-</td>
<td>no symbol</td>
</tr>
</tbody>
</table>

---

**IV. The WH dialects**

FY is an invaluable source of information on late WH dialects. By analyzing the geographical terminology in the text it is possible to ascertain with surprising precision what the dialect areas of the early first century were. Then, on the basis of shared vocabulary items, one can determine which areas represented subdialects within the major dialect groupings. Luo and Zhou (1958: 72) have briefly discussed the FY terminology, but the definitive treatment of it is that of Serruys (1959: 77–100). We shall now summarize and slightly modify his proposal (pp. 98–9) for a six-group division of FY dialect areas:

1. Western Dialects: Guanxi 襄西–Qin 秦, Jin 晉, Liang-Yi 梁益, Shu-Han 蜀漢
2. Central Dialects: Guangdong 廣東 in general
   (a) Western Group: Zhou 周, Zheng 營, Luo 劉, Han 韓, Wei 魏, Zhao 智
   (b) Eastern Group: Song-Wei 宋魏, Lu 魯, Qi 齊
3. Northern Dialects: Yan 燕, Dai 戰, Bei Yan 北燕
4. Eastern Dialects: Dong Qi 東齊, Haidai 海岱, Huai 庖, (Xu 縣)
5. Southeastern Dialects: Wu 吳, Yang 楊, Yue 越
6. Southern Dialects:
   (a) Northern Type: Chen 上, north part of Chu 楚
   (b) Eastern Type: Jiang-Huai 江淮
   (c) Southern Type: southern part of Chu, Nan Chu 南楚

The geographical locations of the FY dialect areas can be seen in Map 1, which is a much simplified and slightly modified version of Serruys (1959: Endpaper). Map 2 shows the approximate boundaries of the six major dialect groups.

In addition to the regional names discussed above, the following terms also appear in the examples cited in section V:

Bin 彬: A place located approximately 115 kilometers north-west of Chang-an, in the Qin area.
Chaoyuan 潮源: An area corresponding approximately to the northern part of modern Korea.
Daye 大野: A swampy region in the west-central part of the Song area.
Former Capitals of Qin and Jin: The areas around Fufeng 樊城, Shaanxi and
Taiyuan 太原, Shanxi respectively.
He Ji 何姬: The area between the Yellow and Ji rivers; a strip of territory
stretching from Wei through Qi to the Bohai.
Heng 恆: The area around Mt. Heng, approximately 100 kilometers south of
modern Changsha.
Ji 緬: An area roughly encompassing Zhao and Wei.
Jiang Mian 江面: The area between the Yangtze and Min rivers; the latter
is a western tributary of the Han River and flows roughly parallel to the
Yangtze through the southern part of Shaanxi.
Jiang Xiang 江湘: The area between the Yangtze and Xiang rivers.
Jing 江: A poorly defined area in Chu, stretching both north and south of the
Jiuyi 九儀: The area around the Jiuyi Mts., approximately 250 kilometers
south of Changsha.
Lieshui 溯水: A river in Chaoxian. Exact location disputed. See Serruys
(1959: 83).
Ru 河: The Ru River and its watershed; northern part of the Chu area.
Ruying 濂陽: The region between the Ru and Ying rivers; northern part of the
Chu area.
Tang 蕃: A place near modern Taiyuan, Shanxi.
Xi Long 西陵: Western Long, an area in the eastern part of modern GanSu.
Yanh 晉: An area encompassing Wei, Song, and perhaps also Chen.
Yuan Xiang 竹湘: The area between the Yuan and Xiang rivers; central part
of Hunan.

V. The data

The examples in this section have been selected because they may throw light on
characteristics which distinguished the various WH dialects. For this reason, with
one exception, only sets containing words from different dialects are cited. There
are in FY a number of sets which consist exclusively of two or more synonyms
from the same dialect area. These are worthy of study in their own right but lie
beyond the scope of the present paper. 13

As a working hypothesis it has been assumed that the glossing words in the
various FY entries are themselves representative of a "dialect," which may
have been the WH standard language. In a number of cases there is direct evidence
for this in the FY text. The following two occur in our data: #s 41 and
73. In nine cases (i.e. #s 5, 6, 14, 58, 64, 69, 74, 81, 88) words not mentioned in
the FY passage but known to be current in WH texts are suggested as possible
"standard" cognates.

Entries in the data are arranged alphabetically by English gloss and numbered consecutively. Each English gloss is followed by the chapter and section number
1. 'abundant, luxuriant' 2/2
   A. G: 香 phjang < *phjang
   B. Gnx, Qin: (1) 香 mung, mung: < *muang, muang; (2) (alt.) 陽 màng < *muang

2. 'to aid' 6/7
   A. Wu Yue: 萊 sjwo < *sjah
   B. Bei Yan: 例 jiao < *zahw

3. 'angry' 2/20
   A. Chu: 色 yà- < *griat-
   B. Chem: 色 yà < *gai

4. 'to arrive' 1/13
   A. Bin Tang Ji Yanh: (1) 起 ka: < *krah; (2) (alt.) 起 kke < *kraik
   B. Qi and Chu (intermediate area): (alt.) 起 wāi < *gwāi
   C. Song: 起 kái- < *kraik-

5. 'basket' 13/142
   A. NChu, Jiang Mian: 香 beng < *brang
   B. possible St. cognate: 萬 lung, lung: < *(g)luang, (g)luang:

6. 'basket for silkworms' 13/141
   A. G: 香 kjo: < *kjah:
   B. Jiang Mian: 香 jiwo < *zah
   C. Zhao Dai: 陽 thâu < *thahw
   D. NChu: 棄 lou, lju: < *ljuah; ljuah:
   E. possible St. cognate: 香 kjo: < *l(l)jah:

   1) Guo reads WJ *jiwo (> MC jiwo), and this reading is also given in JY.

7. 'beautiful (sc. physical appearance)' 2/4
   A. SgWeih: 亜 jiap < *zak/WH St. zap
   B. ChChu, Ruying: 色 jiap < *zak

8. 'bed' 5/36
   A. Qi Lu: 香 tsak < *tsriak
   B. ChChu: (alt.) 色 tši; tši: < *tsrijah; tšrijoi:

9. 'beverage, liquid' 3/7
   A. G, Gnx: *tʃaj < *tʃak/WH St. tjap (< *k(r)j-)?
   B. Gndng: 亜 yiep < *giak/WH St. giap
   C. Bei Yan, Chaoxian, Liashui: 亜 tʃom < *tʃong/WH St. tjam (< *k(r)j-)?

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Map 2 Major EH dialect groups according to FY

Guo  Guo Pu 郭璞 (276–324), author of the earliest extant FY commentary.
HD  Haidai 海岱
NChu  Nan Chu 南楚
Qln  Qin Jin 秦晋
SgLu  Song Lu 汶魯
SgWeih  Song Weih 宋魏
St. Standard language form. These forms are referred to as tong yu 通語, tong ming 語名, etc. in the text.

224
10. 'big' 1/2
A. St. 扈 ju < *gjwah
B. Qi Song: 卒 jwyo: < *gjiah:
C. Central Qi, Western Chu: 稷 xjw < *hjwah
11. 'big (sc. human frame)' 1/2
A. Qin: (1) 縱 djang: < *djang; (2) (alt.) and tsjang- < *tsjang-
B. Yan (northern part), Qi and Chu (intermediate areas): 稷 tsjang, tsjang-
<C. tsjang, tsjang-
12. 'big, long (sc. human head)' 2/2
A. Yan: 茶 djwoc, dżwoc, dżwo < *drjah, djah, djak-
B. Chu: 仔 djwo < *zah
1) Guo reads WJ *zivo (MC zivo) for which we posit WH *zijw:
13. 'big, to boast (< make big)' 1/2
A. Gnxi, Qin: 夏 ya: < *grah:
B. Zhou Zheng: 夏 ka < *krjah:
14. 'broken, smashed (sc. a vessel)' 6/34
A. DgQi: 仗 phje, phje- < *phjiah, phjiah-
B. NCChu: át phi, bi < *phjiah, bijiah
C. possible St. cognate: 茶 phwārh < *phai-
15. 'cheerful, pleased' 3/13
A. Gndng: (alt.) 廣 xue < *hiahw:
B. Song Zheng Zhou Luo Han Wei: 萬 khow < *kiah:
C. DgQi, HD: 仗 yau < *grynkw:
16. 'chess-like game' 5/41
A. G, Qin: 種 pâk < *pak
B. Wu Chu: (alt.) 種 pjiâi < *pjiat-
17. 'chicken' 8/4
A. G: 鸡 kie < *kiai
B. ChChu, Song Wei: 茶 biak gie < *biak giai
18. 'cicada' 11/2
A. G: 啸 zjâi < *djiah:
B. SgWei: 像 jâng dieu < *dang diahw
C. Chen Zheng: 像 sang dieu < *lang diahw
19. 'clever' 1/2
A. G: 種 yiwei < *gwat-
B. Gndng, Zhao Wei: (1) 種 yâit < *griat; (2) (alt.) 種 kwei < *kjiwai:
20. 'to cover up' 6/43
A. Jing Chu: 排 têm < *tem/WH St. tement:
B. Wu Yang: 排 žâm < *žam/WH St. žiam:
21. 'crepper' 9/17
A. Gndng, Zhou Luo Han Zheng, Ruying: (alt.) 種 kjwok dâu < kjuak dâu
B. Gnxi: 仔 djwoc < *drjahw:
22. 'cuckoo' (1) 8/6
A. G, Gnxi: 百奴 pwo- kük < *pak- kwaak
B. Zhou Wei: 捕奴 kiekk kük < *kiaak kuak
C. Gndng, Liang Chu: 捕奴 kiet kau < *kiet kaka-
23. 'cuckoo' (2) 8/9
A. Gndng: 種 tai- žjâm < *tok- njang/WH St. njam:
B. DgQi, HD: 種 tai- nom < *tok- njang/WH St. nam
C. DgQi, Wu Yang: 種 žjâm < *njang/WH St. njam
24. 'difficulty; to worry about (< consider difficult)' 6/6
A. area east and west of the Taihang Mts., Jing Wu: 覆 žjâm: < *trjâ:
B. Qin: 種 dâm < *dâm-
C. Qi Lu: 捕 žjâm, thjâm < *ţjâ, thjam:
25. 'dove, pigeon' 8/8
A. G: 鸽 kjau < *kjaw
B. Gndng, outskirts of Zhou and Zheng, capitals of Han and Wei: 鸽 kjaw < *lang kaw
C. Gnxi, area between Qin and the Han River: 鸽 kjuk-gjuk kjau < *kjawk-gjawk kjawk
26. 'to draw out, extend' 6/45
A. Qin: 種 miên < *mjia
B. Zhao: 種 mjîn < *mjâ:
27. 'to end, come to an end' 6/47
A. G, Qin (alt.): 鸽 kjiang: < *kjiang:
B. Qin: 鸽 kâng < *kâng
28. 'to exaggerate, brag' 1/21
   A. Gnx, Qin: *shjam < *shjam/WH St. *shjam (< **shfljg))
   B. DgQi: *kjam- < *kjam/WH St. *kjam- (< **kjam)
   C. CQ: *pshjam < *pshjam/WH St. *phjam (< **phjam)

29. 'to expose' 7/15
   A. G: *buak < *buak
   B. DgQi, Qin (western border areas), Yan (outer environs), Chaoxian, Liaoshun: *phak < *phak

30. 'far, distant' 7/24
   A. Yan (northern outskirts): *kiw, tjaj < *khw, tjajw (< *k(r)i-?)
   B. DgQi: *thiaw < *thiaw

31. 'to feed, raise' 1/5
   A. Jin Wei, Yan Wei: *ju < *zah:
   B. Qin (alt.): *tak < *tah:
   C. Ruying, Liang Song: *thai < *thai
      1) Reading after Guo: WJ *jja < *jia

32. 'fierce' (1) 2/23
   A. G: *mrang < *mrang:
   B. Qi Jin: *sju < *smjng:

33. 'fierce' (2) 2/23
   A. Jin Wei: *yan < *gr:
   B. Han Zhao: *kre < *kre:

34. 'fire' 10/6
   A. G: *xw < *xwai:
   B. Chu: *xwai, kwai < *xwai, kwai:
   C. CQ: *xwai < *xwai:

35. 'firm, solid' 2/28
   A. Gnx, Qin: *khai < *khrai:
   B. Wu Yang, Jiang Hui: *khai < *khai:

36. 'flail' 5/29
   A. Gnx, (alt.) *pjar < *pjar
   B. Qi Chu, Jiang Hui: (alt.) *pjar < *pjar

37. 'fly' 11/12
   A. DgQi: *.iangj < *zang
   B. Gnx, Qin, Ch Chu: *.iangj < *zang

38. 'frame for silkworms' 5/31
   Song Wei, Ch Chu, Jiang Hui: (1) *khjwok < *khjwok; (2) (alt.) *khjwak < *khjwak
      1) Guo identifies this word as the Chu dialect form in his day. It is thus possible that it should be compared with form (1).

39. 'to frighten, startle' 2/13
   A. Gnx, Qin: *thik < *thik
   B. Sg Wei, N Chu: (1) *jak < *shjwak (2) (alt.) *jak < *shjwak
      (also read thuaw < *thuaw (?), sense of 'to jump')

40. 'to go' 1/14
   A. Qin: *ji < *dja:
   B. Sg Lu: *jik < *shjwak

41. 'good, nice' (1) 1/3
   A. G, St.: *haw: < *haw:
   B. Gndh, He Ji: (alt.) *ka < *kra:

42. 'good, nice' (2) 1/3
   A. Qin: *ng < *ngai
   B. Gnx, former capitals of Qin and Jin: *ng < *ngai

43. 'gossip, slander' 10/9
   A. St, D Qi, Zhou and Jin (intermediate area): *lj < *(g)la lahw
   B. N Chu: (alt.) *lj < *(g)la lahw

44. 'grass, weeds' 3/8
   A. Gnx, (alt.): *kwi < *krit:
   B. south of the Yunnan and Xiang rivers: *yat < *griq

45. 'greedy, covetous' (1) 1/16
   A. G: *lam < *(g)ljam/WH St. *(g)ljam
   B. Chu: *tham < *(g)ljam/WH St. *(g)ljam
   C. N Chu, Jiang Xiang: *kham < *kham/WH St. *kham:
      1) Current FY versions write *kham; here emended after FYSZ. Cf. SW (SWGL 4739b) which states that north of Henei 集内 is the name of the place for rich food.
      2) Current FY versions write *kham; here emended after FYSZ.

46. 'greedy, covetous' (2) 10/10
   A. G: *tham < *(g)ljam/WH St. *(g)ljam
   B. Jing Ru, Jiang Xiang: (alt.) *ljam < *ljam
47. 'heavy' 6/9
   A. DgQi: 鬆 tien: < *tjih-
   B. SgLu: 鬆 djwe, djwe- < *drjwai, drjwai-

48. 'hook' 5/26
   A. G, Gnx: 養 kau < *kuah-
   B. Song Chu Chen Wei: (1) 養 juk kæk < *luak kraak; (2) (alt.) 養 kau kæk < *kuah kraak

49. 'to hurt, pain' 2/21
   A. Gnx, QJin: 養 tshëk < *tshriak-
   B. possible St. cognate: 刺 'to prick' tsje-, tshëk < *tshjiai, tshjia (Cf. 'to
   prick, stick' below.)

50. 'to jump' 1/27
   A. G, Gnx, QJin: (1) 養 dieu < *dashw-(2) (alt.) 養 tap < *tk/W St. tap
   B. Chen Zheng: 養 jiljau < *zahw
   C. Chu: (1) 養 tissják < *tjiak; (2) 養 thjáii- < *thjia-

51. 'kneel' 4/42
   A. Gnx, QJin: 養 lük dou < *(g)laak duah
   B. NChu, Jiang Xiang: 養 mek dou < *mek duah

52. 'knee covers' 4/5
   A. Jiang Huai: (alt.) 養 pijwat < *pjiet
   B. east and west of the Hangu Pass: 養 pijia- sjet < *pjiaat- sjet

53. 'licentious, lewd' 10/11
   A. Jiuyi, Jing area: 養 jiljau < *zahw
   B. Yuan Xiang: 養 dieu: < *dashw-

54. 'locust' 11/7
   A. Song Wei: 養 dak, thsi- < *dak, thak-
   B. area beyond NChu: (alt.) 養 deng < *dang
   1) This reading is attested only in JY.
   2) Guo reads WJ *thai- (> MC thati-). This reading is also found in JI.

55. 'long' 1/19
   A. Gnx, QJin, Liang Yi, HD, Daye: 養 zjam < *zjaa/W St. zjam
   B. SgWeih, Jing Wu: 養 jiuj < *zangw

56. 'to look at, peek' 10/45
   A. north of the Yangtze River, NChu (alt.): 養 thjam < *thjran/-WH St. thjam-
   B. NChu: (alt.) 養 tissjäm < *tjaa/W St. tjäm

57. 'to love, pity' 1/6
   A. Han Zheng: 惠 mjwoi, xwo < *miah, hmah
   B. SgLu: 惠 mjau < *miah

58. 'many, exaggerate (< make many)' 1/21
   A. Qi Song border area: 惠 ywa - < *gwa-
   B. Gnx, QJin: 惠 ywa: < *gwa-
   C. possible St. cognate: 惠 kwai- < *kwai-
   1) GY also reads MC ywa-. The reading may reflect a MC dialect which preserved WH *-wa in this word.
   2) GY identifies this as a northwestern dialect word for guo 過 'to pass, exceed, exaggerate'.

59. 'mat (bamboo)' 5/35
   A. G, Gnx: 菟 yăng dăng < *gang dang
   B. Gndng, Zhou Luo Chu Wei: 菟 jia: jiang < *jai: zang
   C. beyond NChu: 菟 dăng < *dang

60. 'to meet, encounter' 1/29
   A. Gndng: 養 ngjëk < *ngjia-
   B. Gnx: 養 ngiang, ngjëng- < *ngiang, ngjiang-

61. 'mound' 13/154
   A. QJin: (alt.) 養 jiu < zahw
   B. Gndng: 養 jau: < luah:

62. 'odd, uneven' 2/12
   A. G: 養 gje < *gjai
   B. Gnx, QJin: 養 jje: < *jai-
   C. Liang Chu: 養 khje < *khjai

63. 'old' 1/18
   A. G: 養 lâu: < *(g)lahw-
   B. QJin, Chen Yank: 養 kau- thai < *kuah: thau 10/40
   C. NChu, Jiang Xiang: (1) 養 kau: < kuah; (2) 養 kek < *kek; (3) 養 käi-
   -kjak soi < *kraak--kjak sah

64. 'one, single' 12/111
   A. NChu: 周 zjwok < *djuk
   B. possible St. cognate: 周 duk < *dik

65. 'to open' 6/50
   A. G: 周 khai < khai
   B. Chu: 周 khai, khai; khai- < *khai, khai:, khait-
66. ‘pained, anxious, sad’ 1/9
   A. Ru: དག ཡུན < *niakw
   B. Qin: ཨ དག ཡུན < *dakw-

67. ‘pig’ (1) 8/5
   A. G: ཐོག རྟག བ སྣ < *trjaj
   B. Gndng: (alt.) སྣ སྣ < *drjaj-

68. ‘pig’ (2) 8/5
   A. Gndng: (alt.) སྣ སྣ < *shjai: (< *hrj-?
   B. NChu: སྣ སྣ སྣ < *shjai, shjai:

69. ‘to pity’ 1/7
   A. Qi Lu: སྣ སྣ སྣ, སྣ སྣ < *giis, kjang
   B. Zhao Wei Yan Dai: སྣ སྣ སྣ < *ljag
   C. possible St. cognate: སྣ སྣ སྣ < *lijii

70. ‘pole for suspending a silkworm frame’ (1) 5/33
   A. G, Gnd, Xian: སྣ སྣ སྣ སྣ < *drjwai
   B. Song Wei, ChChu, Jiang Huai: སྣ སྣ སྣ, སྣ སྣ < *djak, djak-

71. ‘pole for suspending a silkworm frame (horizontal type)’ (2) 5/33
   A. Song Wei, ChChu, Jiang Huai: སྣ སྣ སྣ < *tat-
   B. Qi: སྣ སྣ སྣ < *trak

72. ‘to prick, stick’ 3/11
   A. G, Gndx: སྣ སྣ སྣ, སྣ སྣ སྣ < *shjiai-, shjiai
   B. Bei Yan, Chaoxian: སྣ སྣ སྣ < *shriak (Cf. ‘to hurt, pain’ above.)

73. ‘to receive, hold, contain’ 6/10
   A. Qi Chu: སྣ སྣ སྣ སྣ < *gang/WH St. gam
   B. Yang Yue: སྣ སྣ སྣ སྣ < *khang/WH St. kam
   C. possible St. cognate: སྣ སྣ སྣ སྣ < *gang/WH St. gam ‘to envelop, contain’

74. ‘to receive, hold, contain’ 6/10
   A. Qi Chu: སྣ སྣ སྣ སྣ < *gang/WH St. gam
   B. Yang Yue: སྣ སྣ སྣ སྣ < *khang/WH St. kam
   C. possible St. cognate: སྣ སྣ སྣ < *gang/WH St. gam ‘to envelop, contain’

75. ‘ripe, well-cooked’ 7/17
   A. Gnd, QJin: སྣ སྣ < *njaj:
   B. Xu Yang: སྣ སྣ སྣ < *njaj: < *mjaj: /WH St. njam:

76. ‘roof covering of a carriage’ (1) 9/11
   A. Song Wei, ChChu: སྣ སྣ giwong-khiwmg lung-lung; < *gjwaang-khjuang
   (g)lung-< (g)ljuang:
   B. Gnd, QJin: སྣ སྣ སྣ སྣ < *kjiaw: (g)lwaw-< (g)ljuang:
   C. NChu: (alt.) སྣ སྣ ljung khjwat < *(g)ljangw kjhvat

77. ‘roof covering of a carriage’ (2) 9/11
   A. Xi Long: སྣ སྣ སྣ སྣ < *bjaj:
   B. NChu: སྣ སྣ སྣ < *buang

78. ‘to separate, divide’ 6/33
   A. QJin: སྣ སྣ སྣ སྣ < *lijai
   B. Chu: སྣ སྣ སྣ སྣ < *lijai, lii:

1) Guo reads WJ *liet- (> MC liet-), which we would reconstruct as WH *liet-

79. ‘sickle’ 5/30
   A. G, Gndx: སྣ སྣ < *koua
   B. Jiang Huai, Eastern Chu: སྣ སྣ སྣ, kwâ-< *kwai., kwai-

80. ‘skirt, lower garment’ 4/4
   A. Chen Wei: སྣ སྣ སྣ སྣ < *phjaiai, phjaiai-
   B. Gndng: (alt.) སྣ སྣ སྣ < *phjaiai, phjaiai-

81. ‘small’ 2/8
   A. Gndx, QJin, Liang Yi: སྣ སྣ སྣ < *sjaiai
   B. possible St. cognate: སྣ སྣ སྣ < *siaia

82. ‘son’ 10/4
   A. G: སྣ སྣ < *tsjah:
   B. possible St. cognate: སྣ སྣ < *siaia

1) Guo reads WJ *sjaia (MC siiw), which I reconstruct as WH *siaia:

83. ‘spider’ 11/16
   A. G, Gndx, QJin: སྣ སྣ སྣ སྣ < *trjajai mjjaw
   B. Gndng, Zhao Wei: (1) སྣ སྣ སྣ སྣ < *trjai mjjaw; (2) (alt.) སྣ སྣ སྣ སྣ < *sijwok mjjaw
   C. Bei Yan, Chaoxian, Lieshui: སྣ སྣ duok jiwo < *dakw zah

84. ‘stupid, confused’ 10/31
   A. G: སྣ སྣ སྣ སྣ < *hmâ
   B. Chu Yang: སྣ སྣ སྣ སྣ < *kwâ, kwâ;
   C. Jiang Xiang: སྣ སྣ སྣ སྣ < *twâ-mjâia:
VI. Some preliminary comparisons

6.1 The data presented in this paper have been assembled with the hope that they may throw light on phonological features which distinguished the WH dialects. It is possible, even probable, that individual examples in the corpus contain evidence of this type. However, it is only when we find groups of two or more examples that we can begin to identify dialect features with any degree of confidence. Isolated examples, interesting though they may be, are of minimal value until some sort of corroboration for them can be found. It is with these points in mind that some preliminary comparisons are attempted in the present section.

6.2 In examining the FY text it becomes immediately apparent that the western dialects play a dominant role there. In gloss after gloss, where words from hither and yon are brought together, there is more often than not a western form given for comparison. Now, as we have seen in section IV (note 8), the western dialects seem to have formed a uniform and closely related group; and it is possible that comparisons between them and other dialects further east naturally suggested themselves to people of Yang Xiong’s time. On the other hand, there can be little doubt that the presence in the west of the city of Chang-an, capital of China for over two centuries and cultural center for almost as long, had a great deal to do with the prominence given to western dialects in Yang Xiong’s work. Indeed, it seems highly probable that the standard language of late WH times was in fact based on a dialect of the Qin Jin area.

In section V the possibility has been raised that the FY glossing words may in many cases represent the standard language of WH times. If this is so then many of these words may reflect current western usage as well. There are in fact a number of cases where this can be shown to be true (cf., for example, §8 9, 27, 48, 50, 59, 70, 72, 79, 83, and 95 in the data). In such instances the gloss words in question could, for the sake of argument, be taken as “pseudo-western” forms and compared with words from non-western areas. On the other hand, there are clearly cases where gloss words are different from the current western forms. Here one could consider them to be non-western words and compare them with the corresponding western forms. Both of these procedures will be used below. In all cases the gloss words will of course be identified as such.

Examples will be identified by number and English gloss and will be cited in a somewhat reduced form. MC forms are not given and WH forms are unstressed.
6.3 Initial Correspondences.
Western and "Gloss-Standard" voiceless consonants frequently correspond to voiced consonants in corresponding non-Western forms:

<table>
<thead>
<tr>
<th>Western</th>
<th>Central and Southern</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. beverage</td>
<td>茶</td>
</tr>
<tr>
<td>36. flail</td>
<td>蓼</td>
</tr>
<tr>
<td>44. grass</td>
<td>茅</td>
</tr>
</tbody>
</table>
| 92. twins (2) 子 (l̚aj) tsjaj: | 萄 | 萄 (l̚aj) dzjak-
| 95. wily 猫 | 猫 | 猫 giwai: |
| Western | Northern |
| 83. spider 蛇 | 蛇 | 蛇 dokw (zah) |
| Western | Gloss |
| 63. old | 老 | 老 (g) jaw: |
| Gloss | Central and Southern |
| 17. chicken 饊 | 饊 | 饊 (biat) giwai |
| 67. pig (1) 饊 | 饊 | 饊 dzjak-
| 89. true 饊 | 饊 | 饊 zwa-

Western *z- corresponds to Central and Eastern *l- in two examples:

<table>
<thead>
<tr>
<th>Western</th>
<th>Central and Eastern</th>
</tr>
</thead>
</table>
| 61. mound 饊 | 饊 | 饊 ziat-
| 85. surplus 饊 | 饊 | 饊 ziat- |

On the other hand, Central *z- corresponds to "peripheral" (i.e. Southern, Western, and Northern) dental stops:

<table>
<thead>
<tr>
<th>Central</th>
<th>Peripheral</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Central and Northern</td>
<td>thathw</td>
</tr>
<tr>
<td>6. basket 舢</td>
<td>舢</td>
</tr>
<tr>
<td>31. feed 舢</td>
<td>舢</td>
</tr>
<tr>
<td>50. jump 舢</td>
<td>舢</td>
</tr>
<tr>
<td>59. mat 舢 (ziat) zang</td>
<td>舢</td>
</tr>
</tbody>
</table>

6.4 Medial Correspondences.
Western *r- corresponds to non-Western "r-" in a number of examples:

<table>
<thead>
<tr>
<th>Western</th>
<th>Central, Southern, and Northern</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. beverage 茶</td>
<td>茶 giak/ɡiap</td>
</tr>
</tbody>
</table>
| 11. big | 萄 tsjang-
| 21. crupper | 髃 (khjua) daw |
| 35. irm | 髃 khroj |
| 39. frighten | 髃 thrakw |
| 68. pig (2) 胴 | 胴 (khrj-) hjai |
| 83. spider 蛇 | 蛇 trujah (mjhaw) |
| Western | Possible Standard Cognate |
| 49. hurt 胴 | 胴 tshriak |

Gloss-Standard *hm- corresponds to Southern velar *w- initial configurations in the following examples:

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Southern</th>
</tr>
</thead>
<tbody>
<tr>
<td>34. fire</td>
<td>火 hmai:</td>
</tr>
<tr>
<td>84. stupid</td>
<td>聽 kwai, kwai</td>
</tr>
</tbody>
</table>

Western and Gloss-Standard *k- sometimes corresponds to *g/l- or *l- of other areas:

<table>
<thead>
<tr>
<th>Western</th>
<th>Central and Southern</th>
</tr>
</thead>
<tbody>
<tr>
<td>48. hook 舢</td>
<td>舢 (g) jaw:</td>
</tr>
</tbody>
</table>

Gloss |

| 63. old | 老 (g) jaw: |

On the other hand, Western and Standard *g/l- sometimes corresponds to non-Western labial stops:

<table>
<thead>
<tr>
<th>Western</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>94. wildcat</td>
<td>象 (g) jaw:</td>
</tr>
</tbody>
</table>

Possible Standard Cognate |

| 5. basket | 象 (g) jaw: |

Possible Standard Cognate |

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PRE-MODERN VARIETIES OF SINITIC

In recent studies Mei (1979: 128; 1980) and Bodman (1980: 178) have suggested that the modern Min dialects can be suspected of having lost OC *r- at a very early period. The examples cited above may indicate that "*r-"-losing" dialects already existed in eastern China during the late WH period.

Western *-r- corresponds to non-Western *-u- in the following cases:

Western Central and Southern
21. crupper _chat (khaat) dahw-
25. dove jok kohw
36. flail  chat (lang) kahw
78. separate  chat liiai-

81. small  chat sjiai
83. spider trjua (mjohw) dakh (zah)

Here we may note Bodman's observation (1980: 178) that Proto-Min lost earlier *-r- in some cases.

6.5 Vowel Correspondences.

Western and Standard *a corresponds to non-Western *a in a number of cases:

Western Other Central
26. draw out mjaa
50. jump dakh
55. long zjang/zhjam
85. surplus ziat-

9. beverage tjak/jtep (< *krij-?) gik/njap
27. end zang
37. fly  izt-
50. jump  tak/tap

Standard Northern
73. reach dot-

FANGYAN GLEANINGS

On the other hand, Western *a sometimes corresponds to non-Western *o:

Western Other
28. esaggerate tsjhang (tsjhan (< *sh(h)j?)) thjarg (thjarn (< *shjarn))
52. knee covers pjaat (siyat)
61. old koah (thah)
66. paired dakw-
92. twins liia: (tsjoh-

83. spider trjua (mjohw) Possible Standard Cognate
Northern

14. 'broken' phai-

Several of the Western forms in this list have the diphthong *ua rather than simple *a. Examining Western *-ua - in the data, we find that words with this diphthong have a number of correspondences with non-Western syllables having WH *o or *a followed by final labio-velar consonants:

Western Other
22. cuckoo (1) (pak-) knk
83. spider trjua (mjohw)

63. old koah (thah)

Southern *-ua - vowel words can also be seen to have correspondences with non-Southern syllables having *a and *o:

Southern Other
43. gossip (ijia) luah,-luah:
33. want sjuan
77. roof (2) buan
63 old koah:

Bodman: (3) lahw

Gloss

Mand (kjia:; cf. possible standard cognate: k(l)jah:

Old (g)lahw:
Western Final Velars

79. sickle 粳 kuah:  
Gloss 赩 tebjaah:

Here we may also mention the word 直 (tāng; < *tānɡ) which is identified in FY 1/1 as a Chu dialect word meaning "to know, understand". This may be cognate to the modern dialect form 东 (tōn) "to understand". 直 does not occur in early texts, but hypothetical earlier reconstructions for it would be: MC tānɡ; < WH *tāuŋ: < OC **tāuŋ. Examples such as this bring to mind certain Min dialects where words with the MC final - ńg (< * - ńuŋ) regularly have unrounded vowels derived from Proto-Min *a, e.g. ńg.

6.6 Final Consonant Correspondences.
Western * - ŋ corresponds to Central and Southern * - k in the following examples:

Western  
Central and Southern  

48. hook 纲 kuah  
儒 luah (krak):

63. old 爱 kuah: (thāh)  
革 krok - krok-(soh)

83. spider 爱 trjuah (mjahw)  
儒 tijuah (zuih); cf. also Northern 篱 dēk (zhāh)

92. twins 子 (jā): tsjah:  
儒 (jāj) djēdk-

In several cases Western final consonants correspond to non-Western * - ń:

Western  
Southern and Central  

95. wily 晰 kwat-, kwat-

Gloss  
Central  

19. clever 粳 giwai-

In the following cases Western open, nasalized finals correspond to non-Western finals ending in * - ng:

Western  
Southern and Central  

77. roof (2) 榦 bję  
Interlinear: 榦 bję

36. take 粳 dzrijvā-  
儒 dzjiŋ/zhām, dzām

Western and Northwest  
Central  

33. fierce 疇 nā:  
儒 knāng:

18. cicada 粳 djā:  
儒 dang (dīhəw)

Central  

69. pīy 粳 ljiā  
儒 ljiā:

6.7 Tone Correspondences.
The following tendencies appear among tone correspondences in the data:

6.7.1 Western and Gloss Standard ping : Non-Western shang

<table>
<thead>
<tr>
<th>Western</th>
<th>Southern and Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td>75. ripe</td>
<td>腎 njah</td>
</tr>
<tr>
<td>79. sickle</td>
<td>僲 kuah</td>
</tr>
<tr>
<td>27. end</td>
<td>短 kăng</td>
</tr>
<tr>
<td>Gloss</td>
<td>議 kjiang:</td>
</tr>
</tbody>
</table>
| Southern | 南 khai: (khai, khot-)
| 65. open | 開 kai: |
| 84. stupid | 愚 hum3 |

Cf. also,

<table>
<thead>
<tr>
<th>Central (Western Part)</th>
<th>Central (Eastern Part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57. true</td>
<td>鬼 sjiah:</td>
</tr>
</tbody>
</table>

6.7.2 Western and Gloss Standard shang : Non-Western ping

<table>
<thead>
<tr>
<th>Western</th>
<th>Southern and Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. crupper</td>
<td>紹 drjiah:</td>
</tr>
<tr>
<td>62. odd</td>
<td>胴 jiai:</td>
</tr>
<tr>
<td>Gloss</td>
<td>議 khiai</td>
</tr>
<tr>
<td>Southern and Central</td>
<td>毫 dang (diahw)</td>
</tr>
<tr>
<td>18. cicada</td>
<td>桔 dja:</td>
</tr>
<tr>
<td>82. son</td>
<td>單 tsiah:</td>
</tr>
<tr>
<td>87. take</td>
<td>取 tsjiah:</td>
</tr>
</tbody>
</table>

Compare also,

<table>
<thead>
<tr>
<th>Central (Western Part)</th>
<th>Central (Eastern Part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57. love</td>
<td>喜 mjiah: (himah)</td>
</tr>
</tbody>
</table>

6.7.3 Western and Gloss Standard ping : Non-Western gu

<table>
<thead>
<tr>
<th>Western</th>
<th>Southern</th>
</tr>
</thead>
<tbody>
<tr>
<td>78. separate</td>
<td>聚 lijai</td>
</tr>
<tr>
<td>Gloss</td>
<td>議 liai-</td>
</tr>
<tr>
<td>81. small</td>
<td>侏 sjiai</td>
</tr>
<tr>
<td>Central and Eastern</td>
<td>取 siah-</td>
</tr>
<tr>
<td>67. pig</td>
<td>養 trjiah</td>
</tr>
</tbody>
</table>

6.7.4 Western and Gloss-Standard gu : Non-Western shang

<table>
<thead>
<tr>
<th>Western</th>
<th>Southern and Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. worry about</td>
<td>帶 dà-</td>
</tr>
<tr>
<td>95. wily</td>
<td>煺 kwat-, kwat-</td>
</tr>
<tr>
<td>Gloss</td>
<td>講 giwai:</td>
</tr>
<tr>
<td>Central</td>
<td>鬼 kiai</td>
</tr>
<tr>
<td>19. clever</td>
<td>惡 giwai-</td>
</tr>
<tr>
<td>89. true</td>
<td>決 sjiah-</td>
</tr>
</tbody>
</table>

6.7.5 Western and Gloss-Standard gu : Non-Western ru

<table>
<thead>
<tr>
<th>Western</th>
<th>Southern</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. grass</td>
<td>草 kriat-</td>
</tr>
<tr>
<td>52. knee covers</td>
<td>莳 piat- (sjiat)</td>
</tr>
<tr>
<td>66. painted, sad</td>
<td>塩 dakhw-</td>
</tr>
<tr>
<td>Central</td>
<td>尼 niakw</td>
</tr>
<tr>
<td>Western</td>
<td>聚 lijat</td>
</tr>
<tr>
<td>Gloss</td>
<td>惡 giwai-</td>
</tr>
</tbody>
</table>

VII. Concluding remarks

In this paper a number of suspected FY cognates have been brought together in what is hopefully a convenient format. The comparisons in section VI are offered as indications of the sorts of studies which might be carried out on the FY data. Whether or not such comparisons can ultimately lead to phonological reconstructions seems uncertain. We must not forget that (1) the WH reconstructions arrived at for the various FY examples are already projections of projections (i.e. projections of the reconstructed MC system) and not “real” dialect forms, and (2) we are unable to say with certainty how the compilation of FY was done or what sort of phonological criteria Yang Xiong used in collecting and committing to writing the various dialect synonyms in the text. On the positive side, however, we may take heart in the fact that certain words in the data appear several times in the various tables in section VI, providing comparisons of more than one of the elements in the syllables in question and suggesting that real rather than imagined or fortuitous dialect correspondences are involved. The identification of such correspondences, while not necessarily leading to the reconstruction of proto-forms, may ultimately give rise to a comparative Lautlehre for Han and perhaps even earlier dialects. Tools of this type have enabled scholars in other areas, such as Indic and Germanic studies, to identify with considerable precision the temporal and regional origins of their texts. It is to be hoped that a better understanding of ancient dialectology
will eventually bring to sinology a similar level of philological control over early Chinese sources.18

Notes
1) A list of these studies will be found in the bibliography of the present paper.
2) The problem has also been reviewed by Knechtges (1977–8).
3) This discussion does not appear in Serruys (1959) and has unfortunately never been published.
4) Considerable controversy surrounds the authenticity of the “appended letters.” Serruys (1955) and Knechtges (1977–8) argue convincingly that they are genuine.
5) For je Knechtges (op. cit., note 44) translates “provided myself” from the word’s basic sense, “to furnish.” I prefer to take it in the sense “to hold, take along with,” which occurs in various Han texts. It is of course possible that the latter sense is derived etymologically from the former one.
6) The syllables gian and jie here may be identifiable with the term qianche which occurs in Six Dynasties texts meaning “to correct with lead.” Lead was used as a correcting and erasing medium in Han times. On the use of jie in the sense “to correct, put in order (< to pluck, prune?)” see SW (SWEL 5430n-b).
7) The following conventional spellings are adopted for the names of two dialect areas: Wei, or Yan. Serruys (1959: 80–81) remarks that the western dialects designated by the general term Guanxi, “West of the (Hangu) Pass,” form a fairly uniform block. On the other hand, the term Guangdong, “East of the (Hangu) Pass” does not imply a unity of this sort, for it can refer either to the non-western dialects as a group or to smaller units limited by other eastern areas.
8) Serruys (1959: 86–87) notes that the position of Jin in the classification is somewhat ambiguous. Though it had been almost completely absorbed by the Qin dialect, occasional contacts reveal affinities with the northern and the northeastern dialects. For this reason he places it in both the western and northern groups. Luo and Zhao assign it exclusively to the western group, and I follow them.
9) Serruys (1959: 88) remarks that Wei has close affinities with the Zhou Zheng Luo Han group of central dialects.
10) Zhao seems to have been a pivotal area. Serruys groups it with the northeastern dialects, while Luo and Zhao place it with Wei. In Serruys’ tabulation (1959: 87) it has eighteen contacts with Wei and the central dialects and thirteen with the northern and northeastern group. For this reason I tentatively place it with Wei among the central dialects. The point is problematic.
11) Huai and Xu seem to have occupied very much the same area. See Serruys (1959: 20, Map 4, and Endpaper).
12) One example of this type, #38, is cited in the data on the grounds that it may be possible to distinguish areally the forms cited in it.
13) This need not be viewed as contradictory. It would in fact be odd if the WH uan and the uan envisaged here contained no non-western elements at all, particularly in view of the cultural and political importance of eastern China in late Zhou times.
14) Guo Pu’s reading.
15) I am grateful to Professor Jerry Norman for supplying these Proto-Min forms.
16) Guo Pu’s reading.
17) As examples of the application of such methods to the study of early Chinese texts, see Luo and Zhou’s discussion of the authorship of the Rituals (1958: 69–77) and Long Hui’s study of previously unknown texts from Mawangdui (Long 1975: 28–31).

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A NEW APPROACH TO CHINESE HISTORICAL LINGUISTICS

Jerry L. Norman and W. South Coblin


The received model of Chinese linguistic history, and its associated historical linguistic methodologies, are found wanting in various respects. In particular, the latter field has become divorced from the study of actual spoken forms of Chinese of various places and periods, and has instead focused almost exclusively on the exegesis of abstract sets or “systems” of philological data. A call is therefore issued for a new approach which refocuses the field on its appropriate object—the comparative and historical study of human speech in China.

Introduction

A STRIKING FEATURE OF SPOKEN Chinese is the large number of diverse forms in which it manifests itself. The historical record indicates that these divergent entities, called Fangyan 方言 in China and usually referred to as “dialects” in the West, have been present since at least the first millennium B.C. They have been the warp and woof of Chinese linguistic history for over three thousand years. Indeed, a history of spoken language in China would be by definition an accounting of the development of the phonology, grammar, and lexicon of the Chinese dialects, from their earliest recoverable stages to the present.

The story of the dialects is intimately connected with the political and social history of the Chinese people. In particular, the complex process through which the Chinese have moved out of their original base areas in north China to settle in other regions has left an indelible stamp on linguistic history. In order to study dialect history it is necessary to develop and refine a historical model for language movement and change in China.

The traditional model of Chinese linguistic history

The first full-blown model for Chinese linguistic history was propounded by Berhard Karlgren. This scheme has been enormously influential among Sinologists.
during the last seventy years, it is therefore worthwhile to examine carefully both its explicit propositions and its implied assumptions. It reached its final and most mature form in Karlsgren's *Compendium of Phonetics in Ancient and Archaic Chinese* (1954), and it is to this source that we shall now turn.

The centerpiece of Karlsgren's model is his "Ancient Chinese." On this topic he says (p. 212):

> By "Ancient Chinese" we designate the language around 600 A.D. codified in the dictionary Ts'ie yin, essentially the dialect of Ch'ang-an in Shensi; during the lapse of the T'ang era it became a kind of Koine, the language spoken by the educated circles of the leading cities and centres all over the country, except the coastal province of Fukien.

In a footnote this is elaborated as follows:

> It stands to reason that the lowest strata of the population in various provinces to a large extent preserved their vulgar dialects and that traces of these "pre-T'ang" dialects are still discernible in various t'u-hua vernaculars. But the Koine was sufficiently widespread and accepted by a sufficiently large proportion of the population, from the highest officials down to the lower middle class, to have become the ancestor of nearly all the present dialects (except the Min dialects in Fukien and adjacent regions). The remarkably close correspondence between the sound categories in the Ts'ie yin and those in each modern dialect conclusively shows that the Ts'ie yin depicts a real living and homogeneous language and was not an artificial product, a compromise and *mixture compositum*, made up of heterogeneous elements from various dialects, as stated by many recent writers.

Moving backward, we have at an earlier stage "Archaic Chinese," about which Karlsgren remarks (loc. cit.):

> Archaic Chinese... means the language of the Honan region during the first Chou centuries (from 1028 B.C.). It is revealed partly by the rimes in the Book of Odes (Shi king) and other early texts, partly by the hsing characters...

And further we find (p. 271):

> In going back to Archaic Chinese in order to attempt to reconstruct its sound system, we naturally have to base ourselves on the Ancient Chinese just reconstructed. The modern dialects do not on the whole reveal anything which is prior to the Ts'ie yin in the Suci dynasty (the Min dialects alone sometimes point further backwards).

To begin, we note Karlsgren's deep concern with phonology. Though he views his Archaic Chinese and Ancient Chinese as real, spoken dialects, for him it is phonological systems that define these dialects and give them their real identity in his work. What Karlsgren thought about the grammars and lexicons of these particular dialects we do not know, because he seldom mentioned such questions. In any case, practically speaking, Ancient Chinese and Archaic Chinese were for Karlsgren phonological systems in the abstract rather than "languages" in the concrete sense of the word.

Karlsgren clearly states that his Ancient Chinese is the dialect of the city of Ch'ang-an 車安 in southern Shaanhsii in ca. 600 A.D. Archaic Chinese, on the other hand, is the language of the Hernan area in ca. 1000 B.C. The former is treated as directly descended from the latter. Or, more literally, the sound system of the medieval Ch'ang-an dialect is "naturally" to be taken as the basis for reconstructing the sound system of the Ju-time Hernan dialect. Thus, the two are viewed by Karlsgren as if they were different stages in the history of the same dialect.

Karlsgren held that contemporaneous with Ancient Chinese there were outside of Ch'ang-an "vulgar dialects" in other areas, but the pre-T'ang history of these dialects does not form part of his historical model. He flatly states that the Ch'ang-an dialect became a koine during the T'ang period. It is important to note here that this supposition does not seem to be based on historical accounts concerning such a koine, contemporary or later references to it in early sources, etc. On the contrary, its existence is inferred from correspondences between the reading pronunciations of characters in the modern dialects and the sound categories of the *Chieh-yun* 明會. And again it is worth noting that, practically speaking, this koine seems to be viewed by Karlsgren as a sound system rather than a full language. The grammar of the koine is never mentioned, and its lexicon is apparently indistinguishable from the large corpus of characters in the *Chieh-yun* dictionary.

Karlsgren's discussion of the T'ang koine involves a number of sociological and sociolinguistic assumptions that deserve notice here. For example, he explicitly states that Chinese society of T'ang times possessed an upper class, consisting of the "highest officials," and a "lower middle class." Between these he presumably also assumed at least a middle and/or an upper-middle class, and below the lower-middle class there were, at the least, the "lowest strata of the population." And there is in his treatment of these matters an implicit assumption that these social classes possessed unique speech habits. The picture he envisions is therefore not unlike what one might encounter in a northern European country in the late nineteenth century. How well it corresponds to historical and sociological reality in T'ang China remains problematical.

Karlsgren states that the T'ang koine was adopted by everyone down to the lower-middle class, while the lowest strata "to a large extent preserved their vulgar dialects." Eventually, however, the koine would seem to have somehow overcome and supplanted the "vulgar dialects" so that now only "traces of these 'pre-T'ang' dialects are still discernible in various t'u-hua vernaculars."
"Discernible," it would seem, because they are irregular, i.e., they do not agree with the sound classes of the Chiehynun system. What is "regular" is what agrees with the Chiehynun system. This regular material is derived from the koine; and the existence of the koine is itself predicated on the existence of the regular material.

In summary, then, Karlgren's historical model posits Archaic Chinese as the dialect of Hernan in 1000 B.C. This language is viewed as the direct origin of the Chang'an dialect of 600 A.D., called Ancient Chinese. Ancient Chinese became the Tung koine, which then supplanted most other current vernaculars, first in the lower-middle and higher classes and later more generally. The study of Chinese historical phonology is then the study of the development of Archaic Chinese to Ancient Chinese and of Ancient Chinese to the "non-vulgar" elements of the modern dialects.

Modifications and reformulations of the traditional model

Karlgren's model has undergone certain modifications during the four decades after it reached its final form. First, the view of Archaic Chinese, now more often called "Old Chinese," has been broadened from its originally rather narrow base. For example, F. K. Li suggested that it was the language of the north China plain in Jin times (Li 1983), which would presumably allow it to be ancestral to a fairly large number of subsequent speech forms used in this broader geographical area. More recently, Baxter (1992: 24) defines Old Chinese as "any variety of the Chinese of early and mid Zhou" and remarks that "we can speak of dialects and stages of Old Chinese." This view of Archaic/Old Chinese is, of course, much broader than that of Karlgren. But in the same passage Baxter speaks of "the reconstruction of Old Chinese" as a task specifically and exclusively concerned with phonological studies, indicating that Karlgren's primary concern with phonology still holds sway in current models of Chinese linguistic history.

Karlgren's concept of Ancient Chinese has been directly challenged by later authorities. First of all, it is now universally accepted that the Chiehynun cannot reflect the Chang'an dialect of 600 A.D. On the contrary, it seems to be associated with the dialects of several different cultural centers of east central China, namely Luoyang 蓮陽, Yeh 隰, and Jingling 金陵 (modern Nanjing). A small minority of scholars believes that the Luoyang dialect is the specific basis for the system. Most others view it as a maximally differentiated compromise between the reading traditions of all three areas, further complicated by the inclusion of distinctions attested in various earlier rime dictionaries. As they stand, these views seriously contradict the flow of the Karlgrenian model, because, if the Tung koine is presumed to derive from Chang'an, then the Chiehynun system cannot be the basis for the Tung koine.

This point in turn leads us to a more detailed consideration of Karlgren's position and involves the famous rime tables of Song times. Karlgren was primarily interested in only one of these, about which he has the following to say (p. 215):

... a brilliant Sung scholar, the famous Si-ma Kuoang, has given a fine survey of the sound system in his own language in the form of a series of Sound tables, called Ts'ie yin ch'i ch'eng [sic] tu' (A.D. 1069). The language which these tables reveal is far advanced, in the evolution, from that of the Ts'ie yin; above all, a great simplification has taken place, so that e.g. two or several Ts'ie yin finals (well distinguished both by rimes and by fan-ts'ie) have coincided in Si-ma's language. But the tables are very valuable indeed, for when the same distinctions in categories are observable in them as in the Ts'ie yin, we may reasonably expect that the phonetic ground for these distinctions is the same for both.

Karlgren's ascription of the Chiehynun Jyiaangtwu 切施指掌構 to Syma Guang 春播公 is not accepted today, but this is really beside the point here. What is important is his general view of rime tables. First, he considered a rime table to be a "survey of the sound system" of the author's own language, rather than an analysis of the Chiehynun system per se. Secondly, however, he felt that, where the same distinctions are found in a rime table as in the Chiehynun, "the phonetic ground for these distinctions is the same for both" (emphasis added). That the phonological systems revealed in the rime tables should be directly descended from the Chiehynun system is a reasonable assumption from Karlgren's standpoint, because later dialects are held by him to derive from the Tung koine, which in turn comes from Ancient Chinese. But why the same phonetic grounds should necessarily be assumed for parallel distinctions in different periods remains unclear. Nevertheless, this was Karlgren's position, and he held to it in his reconstructive work.

Subsequent generations of Chinese historical phonologists have replaced the Chiehynun Jyiaangtwu with the Yunnjina 山水. The earliest known editions of this work date from the late twelfth century, or nearly 600 years after the Chiehynun. The authorship, age, and place of origin of the Yunnjina are unknown. In general, the text has been used by subsequent workers in Ancient (now usually called "Middle") Chinese studies in much the same way that Karlgren prescribed for the Chiehynun Jyiaangtwu. Karlgren's idea that the sound tables were, in reality, based on their authors' own languages rather than on the "Chiehynun language" tends to be passed over in virtual silence in favor of a tacit position that the Yunnjina may serve as a sort of guide to the Chiehynun system. But this does no harm to the general Karlgrenian approach because Karlgren himself had said that distinctions common to both sources should represent the same phonetic realities. Thus, those who utilize the Yunnjina as a sort of latticework through which to view the Chiehynun have tended to forge ahead with little or no comment on the actual historical relationship between the two systems. An exception to this, however, is E. G. Pulleyblank, who has attempted a reformulation of the
Karlsgrenian position (1984). With just about everyone else today, Pulleyblank rejects the notion that the *Chiehyyun* system reflects the Chang'an dialect at any period. But he accepts Karlsgren's hypothesis that there was in fact a Tang koine and that it derived from Chang'an. And he further holds that the *Yuming* is based on this Tang koine and thus on the Chang'an dialect. Indeed, he fully adopts Karlsgren's original stance that the rime tables are a phonetic analysis of this dialect (p. 68). And finally, he believes that, although the *Chiehyyun* system, which he calls "Early Middle Chinese," and the *Yuming* system, which he calls "Late Middle Chinese," had different dialect bases and different times of historical development, they can nonetheless be treated as if the latter had evolved directly from the former (p. 130). Thus, Karlsgren's original link between the *Chiehyyun* and the rime tables is maintained and the rime tables in turn are enlisted to provide the crucial connection to the Tang koine. To this is then added an endorsement of the role of the koine as ancestor of all modern dialects save Min (p. 63). Thus, in Pulleyblank's work the basic structure of the Karlsgrenian model is rescued from its historical and geographical inaccuracies, buttressed with some of Pulleyblank's own theories, and in the end preserved in all its essentials. In its new reformulation it can justifiably be called the neo-Karlsgrenian or even the Karlsgren/Pulleyblank model.

Problems in the neo-Karlsgrenian model and its associated methodology

The neo-Karlsgrenian Model can be broken down into a number of discrete claims (A through D, below) concerning the nature of the *Chiehyyun* system and the origin of the Chinese dialects.

**A. There was in early medieval China a real, living language (Ancient Chinese or Early Middle Chinese), which was essentially identical to that codified by Luh Faayan in the *Chiehyyun* dictionary.**

What did Luh Faayan actually codify in the *Chiehyyun*? The *Chiehyyun*, as is abundantly clear from its preface, was chiefly based on earlier dictionaries. These dictionaries were in turn based on the glossing tradition of the post-Hann period. Although all the rime books mentioned in Luh Faayan's preface are now lost, they were undoubtedly, for the most part, practical handlists of character readings employed by teachers and students of the time. In working over this material, Luh Faayan probably took into account the elegant reading pronunciations employed in the north and the south. The result was naturally a composite phonological inventory containing elements from earlier periods as well as elements from different regions of China.

It is interesting to note that such a view has prevailed in China for a long time, as the following citations illustrate.

Luo Ch'ang-tei, in his 1933 work *Ts'ang wu-t'ien shihwei fangsin* (第五代西北方言), expresses himself in this way:

Moreover, by nature the *Chiehyyun* was originally a phonological inventory that lumped together elements from north and south and early and contemporary sources. Although it was comprehensive as regards contemporary dialects there was no single dialect with which it agreed completely.

(Luo 1933: 1)

Luh Jyhwei (1947), in his book *Gwain sholiteh* (古音拾畸), said the following:

Karlsgren has a third defect. He resolutely maintains that the *Chiehyyun* represents a koine *[guannua] of Luh Faayan's time, and that moreover it was the dialect of Chang'an. It is abundantly clear from the *Chiehyyun* preface that this book is a composite of north and south and of ancient and contemporary elements and that it was not based on Luh Faayan's individual views. The *faanchieleh* were copied from rime books of the Six Dynasties period.

(p. 2)

A few pages later he adds,

The *Chiehyyun* represents a summa of Nanbeeichaur Chinese and does not represent any single dialect.

(p. 3)

The next citation is from Chen Yen-hsii's 1949 article "Ts'orng shysyshyr liun *Chiehyyun*" (都史實論初探):

Luh Faayan himself relates that his book was written using the record of his discussions with Liou Jen and seven other people as a criterion for selecting among the rimes of various authors and determining the merits of older and more recent dictionaries. For this reason, the phonological system of this book [*Chiehyyun*] was certainly not a dialect in current use at one particular time and place.

(1949 [1974]: 574)

Later, Kun Chang and Betty Shefts, speaking from the same intellectual tradition, observe:

The *Chiehyyun* does not represent the Ch'ang-an dialect, nor did its author intend that it should. They aimed not at representing one coherent, natural system but rather at synthesizing a number of systems set forth.
Earlier in such varied dictionaries as those of Lü Ching, Hsia-hou Yung, Lü Chi-chieh, and Tu T'ai-ch'ing.

(1972: 2)

Finally, let us quote Wang Lih 王力 in his last published work, Hanyueu yean-shyy 語語音史:

The Chiehynum does not represent at all the phonological system of a single place and time. Lu Huaan himself said, "the rimes accepted in Jiangdong and Herbeci are different; so we discussed the merits of north and south and what was permissible formerly and at the present time; we wished to select what was refined and precise and to eliminate what was coarse and imprecise. Most decisions were made by Yan [Jytuei] and Shiao [Gai]." Very clearly the Chiehynum is by nature a book concerned with preserving ancient elements.

(1985: 5)

Later in the same work he says,

Formerly some said that the Chiehynum phonological system was the system of the Swelig-Tang period. In fact, the Chiehynum does not represent the system of a single place and time.

(p. 165)

From these quotes it is evident that, for more than fifty years, a strong current of thought in China has viewed the Chiehynum, not as the record of a dialect of a particular place and time, but as a kind of composite phonological inventory based on earlier works and different regional usages.

It would appear then that the Chiehynum represents the culmination of a tradition, the phonological glossing tradition of the northern and southern dynasties. It was a canonization of tradition and not a new departure. It was, in fact, a profoundly conservative work. It may well be, as Jou Tsumo 呂習謨 has suggested, that the late Nambeiaurch reading pronunciation taught in Jinling was a particularly influential factor in the compilation of the Chiehynum, but this does not rule out the strong likelihood that it depended extensively on earlier rime books. In fact there may well be something to the view espoused by Chen Yenke and later by Shao Shongfen 高僧訥 that in some sense the Chiehynum represents the dialect of Luoyang. After all, the scholars of sixth-century Jinling, it is generally agreed, were descendants of the officials and scholars who fled from Luoyang at the end of the Western Jin. Luoyang, the old capital, as W. J. F. Jenner has pointed out, "conjured up images of splendor and high civilization" long after it had ceased to be a capital and had become no more than a country town. "Like Jerusalem or Rome, Loyang was as much a symbol as a real place" (1981: 45). Thus, when Yan Jytuei 晏季應 in the "Intsyr" 習章 chapter of his Yanshuh jihshihun 聞氏家訓 referred to Luoyang and Jinling as the two standards of refined usage, it was not the real Luoyang of his day but this symbolic Luoyang which lived on as a norm of cultural judgement and ideal of refined usage long after its destruction in 311. The Jinling dialect he referred to was not the common everyday language of the man on the street but a learned book pronunciation taught in schools.

It seems clear that the Chiehynum does not represent a record of any spoken dialect of a certain place or time; it is rather an inventory of a tradition of phonological glossing. As such, the Chiehynum system is not really a language in any common sense of the term. Not only does it not provide us with a consistent phonological system that can be pinpointed in time or space, it is not the lexicon of any particular dialect. It includes together, indiscriminately, words from texts of all periods without any indication of which of them were actually current in any living form of speech. Furthermore, there are no texts in anything that we could call "Ancient Chinese," if by this we mean texts that reflect even in a remotely complete way the form of any contemporary language. In the absence of such texts, "Ancient Chinese" has no linguistic structure.

The conclusion must be that Ancient Chinese (or Early Middle Chinese, which is only another name for the same thing) has no proper phonology of its own, no lexicon and no grammar. It is not a language.

B. A later, redefined Ancient Chinese (Late Middle Chinese), was the dialect of the Tang capital Chang'an and was codified in the Yunnijing sound tables.

There seems to be no historical basis for this claim at all. The temporal and regional origins of the Yunnijing are obscure in the extreme. We have no "Yunnijing Preface" to tell us who wrote the text or why. No contemporary or later Chinese source has ever associated the Yunnijing with either Chang'an or the early northwest dialects in general. The dialectal foundation of this text, if indeed such a thing can ever be determined, is a topic for future research rather than an established fact on which assumptions about the dialect of the Tang capital can be based.

C. The Tang Chang'an dialect in the course of the dynasty became a koine which spread to all parts of the empire and, by large, replaced the pre-Tang dialects.

As shown above, the Chiehynum system was not based on the dialect of Chang'an. Pulleyblank, who agrees with this position, nonetheless still contends that all modern Chinese dialects with the exception of Mian derive from a Tang koine based on the dialect of Chang'an, but that this dialect is reflected not in the Chiehynum but in later sources, chiefly the rime tables. In his view, the present dialectalization of China can be traced back to a Chang'an-based koine of the eighth and ninth centuries.
Curiously no one ever adduces any historical evidence for either of these views. In Chinese historical linguistics there has been a strong tendency to assume that the administrative lingua franca (called guanzhoun beginning in the Ming dynasty) was necessarily based on the dialect of the capital. But, as an interesting case in point, recent work by Lui Gwynau (1985) and Paul Yang (1989) has shown that the Ming and Ching guanzhoun was actually not based on the local dialect of the capital, Beijing, but was a variety of Southern (Jiang-Huai) Mandarin. In fact, the common administrative languages of the past are what we might call "floating norms" that derive their cohesiveness only from the practical requirement that they allow officials from various parts of the country to communicate with one another. Furthermore, even if the Chang'an dialect of Tang times enjoyed considerable prestige, being the dialect of the capital city, this does not mean that it replaced all the other regional dialects of the time. Chang'an was capital of China for a period of 326 years in the Swi-Tang period. Beijing was capital for 490 uninterrupted years in the Ming and Ching dynasties, yet despite a policy of strong centralization in both the Ming and Ching periods, the dialect of Beijing seems to have had very little influence on local dialects. Now, compared to the Ming or Ching, the Tang was probably not really all that strong a dynasty for a significant portion of its history. After the An Lushan rebellion it was in fact somewhat sickly (Twitchett 1979: chap. 8). The question of how greatly the Chang'an dialect influenced local vernaculars in the Swi-Tang period is in need of serious re-evaluation.

And at this point one might well ask how apt Karlsgren's koine analogy is in the first place. In his Etudes sur la phonologie chinoises (1915-26: 693, note 2) he says:

Chinese thus offers an interesting parallel to Greek, almost all of whose modern dialects derive from the Hellenistic koine, while virtually all the dialects of the classical period had disappeared.

Subsequently Karlsgren uses this analogy in several of his writings. But is the Greek koine really an appropriate model for Chinese linguistic history? We believe it fails on several accounts. The Greek koine was formed in the fourth century B.C. and spread by the armies of Alexander the Great in the same century. In the cities, dialectal Greek disappeared in the two centuries before the Christian era. In Greece proper (but not in the diaspora), and particularly in remote areas of the Peloponnesse, dialect speech, or a form of koine heavily colored by dialectal features, persisted for several centuries (Browning 1983). Karlsgren posits a Chinese koine based on the dialect of Chang'an, spreading through China in the seventh century A.D.; Pulleyblank's model dates the koine's spread even later—after the eighth century. In both these models modern Chinese dialectal diversity develops in a time frame of eleven or twelve centuries, while in the much better documented Greek case, modern dialect diversity has come about in a time frame of more than twenty centuries. Moreover, modern Greek dialects are said to be by and large mutually intelligible (Browning 1983: 2). On the other hand, modern Chinese dialects, even when Min dialects are excluded from consideration, are highly diverse and by no means all mutually intelligible. Could all this diversity really have developed in the short time span allowed by Karlsgren and Pulleyblank? One wonders, in the light of these considerations, how valid and pertinent the koine analogy really is.

Another aspect of this problem has, to our knowledge, never been discussed seriously. It may be that the phonological categories of the vast majority of non-Min dialects can be organically derived from the Chiehynum categories, as Karlsgren claimed. It may also be true that they can be derived from what Pulleyblank calls Late Middle Chinese, which he has reconstituted on the basis of the rhyme tables. Thus, the crux of Pulleyblank's criticism of Karlsgren's model would seem to be the observation that the phonological categories of most modern dialects can in actuality be derived from a system simpler and presumably later than that codified in the Chiehynum. But why stop with the phonological inventory deduced from the rhyme tables? The modern dialects can in fact be derived from a still simpler inventory, something very similar to Y. R. Chao's "General Chinese," a system constructed by a working back from the dialectal categories themselves (Chao 1983). To be sure, Chao probably never intended his General Chinese to be viewed as the reconstructed ancestor of the mainline Chinese dialects, but in the end it turns out to be a better candidate for this role than either Karlsgren's Ancient Chinese or Pulleyblank's Late Middle Chinese. The real question then is, if most Chinese dialects derive from a relatively simple phonological system, simpler than either Karlsgren's Ancient Chinese or Pulleyblank's Late Middle Chinese, when did this simplified system first come into being? Written sources like the Chiehynum and the rhyme tables are not very helpful here because of their archaising tendencies. They will always cause us to date many important phonological shifts later than the time when they actually occurred.

D. The modern Chinese dialects, with the exception of the Min dialects, are the organic descendants of "Ancient Chinese" (or some later, simplified version of it).

It will now be clear that we reject this claim. Modern spoken forms of Chinese come from an earlier spoken popular form of Chinese, but, as we have seen, the Chiehynum inventory does not in any way represent a spoken dialect of a particular time or locality; moreover, there are no documents contemporary with the Chiehynum that give a reliable picture of a current living form of speech.

The fact that the phonological categories of a very large number of Chinese dialects can be shown to have a definite and, by and large, regular relationship to the Chiehynum system, does not mean that it is the origin of the modern Chinese dialects. The Romance languages show a similar relationship to Classical Latin, yet there is universal agreement that the Romance languages descend not from this classical literary language but from a form of spoken or "vulgar" Latin. The same is true of Chinese: the modern vernacular forms of Chinese come
not from the codified phonological inventory of the Chiehjyunn but from a living, spoken form of early Chinese. Since there is no written record of this language, it will have to be reconstructed inductively from modern dialect forms.

The new historical model and its methodological implications

The new historical model required for a balanced and realistic study of Chinese dialect history is a dynamic one. Its major themes are evolution and growth in northern base areas, accompanied by movement out of these areas into new ones, primarily to the south. The ultimate origin of Chinese, as interesting as this question is, is not of immediate concern to us here. For the study of historical dialectology we require a model for the development of Chinese after the inception of its history. In early periods Chinese of various types was spoken in an area stretching from the north China plain westward into the more rugged areas covered by modern Shanhsii and Shaanhsi. And we are by no means ignorant of the dialectal divisions in this base area, at least as they existed around the beginning of our era. Areas to the south are thought to have originally been inhabited by speakers of non-Chinese languages, but from very early times the Chinese, bringing with them their dense and intensive settlement and land-use patterns, were pressing towards these southern areas. And, after the great Chyn-Hamm imperial unification there began the first of what would be many large-scale migrations from north to south. We may assume that the earliest such penetrations implanted Chinese from the north in areas where the language had not been spoken before. But each subsequent movement into the same area would have brought later forms of more northerly dialects into contact with new well-established earlier importations. And the process would have continued century by century, as the frontiers were pushed further and further into new areas. Developments in each area would have been unique, but the ultimate effect of this process of accretion would have been the development of multiple vocabulary layers reflecting waves of influence from different regions and periods.

Let us now consider the methodological implications of this model. To begin, it seems clear that we must at the outset develop a detailed, finely etched picture of northern dialect history. Every effort must be made to identify and trace linguistic developments in the north, with processes of internal migration, mutual influence and convergence given special attention. If the north was the springboard for the Chinese movement into the south, then it is essential that we clarify wherever possible the detailed linguistic make-up of this springboard in successive periods. Throughout history, the north, with its succession of capitals and cultural centers, has produced written materials that may in one way or another reflect linguistic history. But, at the same time, strong literary traditions have had a tendency to collapse linguistic features of different periods and areas into chronologically and geographically anomalous “standard” entities which, by their very nature, have tended to efface the true lines of dialectal development. In our work, we must seek a carefully balanced blending of the classical comparative method with the judicious use of written materials.

Wherever we can identify temporally and geographically reliable pre-modern dialect materials, we should use these sources to the fullest. But we must also ruthlessly exclude anything whose periodization and areal origins are suspect.

Moving from the north to the southern dialects will be a complex and difficult step. Here, written materials are few and late, and we must rely heavily on the comparative method, combined with the study of migration patterns and settlement history. And the work will be severely burdened and complicated by the presence of the large-scale vocabulary layering mentioned above. But in dealing with these problems we will have at hand a powerful tool in our newly gained understanding of northern dialect history. For the picture we will have developed for the north will give us firm standards by which to evaluate what we find in the complex layers of the southern dialect lexicons. Our task will be similar to that of establishing stratigraphy in archaeological excavations or of using dendrochronology to identify and periodize climatic changes.

Further methodological considerations concern the nature and goals of our selection and analysis of dialect data. In this connection there has for some time now been a feeling of frustration among many who work in the area of Chinese historical linguistics. What purport to be studies of Chinese linguistic history are generally no more than mechanistic statements of correspondences between alleged stages of Chinese as codified in traditional dictionaries and name tables. While such studies do tell us a number of important things about the overall drift of linguistic evolution in Chinese, one has the feeling that they are too far removed from real linguistic and philological data and that a great deal of the vast richness and complexity of Chinese linguistic history is simply being ignored or swept under the carpet. The Karlgenrian and neo-Karlgenrian approaches, if we pursue further, will lead only to endless hashing and rehashing of the same old ingredients, with few if any new insights into the real development of Chinese.

A particularly unfortunate effect of the Karlgenrian approach has been the trivialization of Chinese dialect studies. Since the Chiehjyunn system (or some later version of it) is supposed to account for everything in the dialects, once one has reconstructed the Chiehjyunn system, dialects tend to become uninteresting. If they are to be studied at all, it is merely to see how they derive in a more or less mechanistic fashion from the Chiehjyunn system. Since the Chiehjyunn essentially consists of a set of graphs, this is done by collecting a predetermined list of graphs from the dialect in question. Little attention is paid to the actual popular lexic of the dialect and almost none is given to its grammatical structure. It seems curious that the Karlgenrian approach has also impeded a more serious consideration of philological sources, especially various types of transcriptional data. The view that such material can play only an ancillary role in Chinese linguistic history is still widely held. But once one frees himself from the view that the Chiehjyunn system represents a real stage in the development of Chinese, such materials as the Tibetan transcriptions studied by Lho Changsige, Csongor, Lakata and others begin to bristle with interest, not because they can be used to justify or refute
some elements of a *Chiehpyun* or rime-table reconstruction, but because they can at least be seen as real, independent witnesses of an actual stage of the language, all the more valuable because they allow us to stand outside the rime-book tradition and look at an earlier stage of the language afresh. The same can be said of the immense corpus of Buddhist transcriptions dating back to the Eastern Han. It is largely because of Karlgen's attitude toward such material that it has never been fully exploited, and we are all the poorer for it.

There is an immense amount of work to be done in Chinese comparative dialectology. First of all we need a better classification of the dialects. This is important because a classification based on rigorous principles is in fact a theory about the origin of the things being classified. Armed with a better classification, we can begin to develop a better understanding of the major groups. In Karlgen's model of linguistic development, only vertical comparisons of dialect data with Ancient Chinese were envisioned. This neglected almost completely horizontal comparisons, that is, the comparison of dialects with sister dialects of the same group. In the past the few people who attempted such comparisons were criticized as "dogmatic comparatists" and lectured not for seeing that the only valid comparisons were those that traced dialectical categories back to some alleged ancestral form found in philological research. But surely the comparison of dialects with other closely related forms will allow us to make interesting generalizations about whole groups of dialects rather than treating them all in isolation. In this way we will eventually come to realize that such dialect groupings as Wu, Gan, Kejia, and Min are very old. As we work our way backward inductively from modern dialect data, we will slowly develop a richer, more realistic, and more exciting picture of China's linguistic past.

References


A CASE OF RADICAL AMBIGUITY IN OLD CHINESE

Some notes toward a discourse-based grammar

Derek D. Herforth

Introduction

This discussion starts from an unarguable premise: the accurate interpretation of Old Chinese (OC) text requires close attention to various kinds of contextual cues to sentence meaning. The aim here will be to isolate and describe one such cue and then to explore some implications of discourse-based analysis for the unified description of OC syntax. The examples to be discussed here may strike competent readers of OC as unproblematic, even trivial. However, I am less interested in the fact that such sentences are, in context, unlikely to be misinterpreted than in the mechanism of correct interpretation.

In the written form in which it has survived, OC is widely and accurately reputed to be non-redundant (i.e., context-dependent) to a degree unknown among familiar Western languages, classical or modern. It is easy to compile a list of grammatical categories which, though deeply familiar to us from our knowledge of English, etc., generally lack overt marking in OC: tense (nonexistent), number in nouns (very rare), definiteness (as marked by articles, for instance: rare), argument-verb coindexing (nonexistent), the distinction between finite and nonfinite verb forms (non-existent) and, occasionally, the distinction between the subordination and coordination of clauses. These distinctions, marked obligatorily in English, are often simply implicit in the contexts created by the organization of OC prose. It is thus an intriguing fact that competent translators of OC into English never hesitate about which article to place in front of the translation of a given OC noun, or about whether to render a sequence of two unmarked clauses as coordinate (C1 and [then] C2), where C=clause) or subordinate-main ("If/When C1, C2"). OC text functions effectively as a medium of communication without a great deal of
isolation from context, (1) is accordingly open to the interpretations rendered in English above as (A), (B), and (C).

English distinguishes between (A) and (B) by means of overt markers in the following way. (A) has a definite subject with which the speaker refers to a specific king in the (possibly fictional) universe of discourse. "The king" refers to a king who can, if necessary, be identified uniquely by the speaker. The choice of verb tense signals that the two activities in which the king is involved, hunting and not-taking, occurred from start to finish once at a point anterior to the speaker's present. Thus, like the subject noun, the verb forms in (A) can be said to be "definite in the sense that they are used to refer to specific acts identifiable through their unique occurrence and temporal orientation within the universe of discourse. Also we have uncovered some redundancy in the threefold marking of both the subject and the two verbs for definiteness. "Pack", the object of "not-take", is non-referential in all three readings. It lies well within the scope of the negative verb "not-take" and thus does not refer to any identifiable entity within or without the universe of discourse.

I will refer to the kind of discourse made up declarative sentences like (A) as basic narrative. English-language text-casts have shown that the subjects of basic narrative sentences are overwhelmingly definite (Givon 1979:52), so that a narrative context alone might be expected to imply definiteness of the subject in languages like OC where this category typically goes unmarked. Consider for a moment the unlikelihood of a sentence like "A king hunted but did not take a pack", where an indefinite subject is coupled with a pair of narrative clauses.

(B) contrasts with (A) in the marking of both the subject noun and the two verbs. "A king" refers to no specific king in the world, nor do "hunts" and "does not take" refer to specific instances of hunting and not-taking. The statement is generic and tenseless. Although we refer to the form "hunts", etc., as "in the present tense", its grammatical use here, the form clearly does not label an activity in progress in, or directly relevant to, the speaker's here-and-now (Lyons 1977:194). Again, we find markers of a single grammatical category, in this case definiteness, appearing three times in the same sentence: "a king", "hunts" and "does not take". As an assertion, (B) lacks the uniquely identifiable subject argument and the discrete, temporally-defined activity which characterize basic narrative. (B) is a more abstract, general statement, less grounded in a moment-by-moment account of phenomena. The sort of discourse which expresses this generalizing grasp of the world, I will refer to as evaluative.

(C) is a cross between (A) and (B) as it contains features of both discourse types. In (C) a definite subject, likely to have been evoked in the context, is coupled with assertions of non-discrete activity. The result is a statement about a specific individual's recurrent pattern of behavior. The sentence is evaluative in that it asserts non-discrete, temporally undefined activity of an individual.

All natural languages can be expected to maintain strategies for distinguishing narrative from evaluative discourse. Some of the strategies OC employs for this purpose will be examined below and it will become clear that, though serving the same function as the use of articles and tenses in English, the OC devices are formally quite different. In (1), however, all such devices happen to be lacking. But surely, (1) in context means (A) or (B) or (C), and not all three. Leaving aside (C) for the moment, it is virtually impossible to imagine a context which would not in some way or other favor reading (A) over (B), or vice versa. What then determines the contextually appropriate (=correct) interpretation?

2. Its local solution. Here, then, is the context to (1).

(2) 儒王知於山中；君王公 後 有三女 弁
PN king rumble LO PN above; PN PN elder attend; exist three woman dash
三
3P. 3P.PS

母曰：必柔之於王。夫股，三女芭；入
mother declare: must bring 3P LO king TP beast, three make pack; person,
三
three

胞者：女，三者風，不持，今會；今
make crowd; woman three make bevy. king hunt, NE take pack. elder go
下
beneath crowd;

王 ① 不 惜 三女 三女 三女 三女 ① ③ GY:8
king concubine NE triplet one clan

"King Gong took his pleasure on the upper reaches of the Jing [River]; Elder Kang of Mi was in attendance; there was [an occasion when] three women dashed up to [=threw themselves at] him. His mother commented, "[You] must take them to [the] king. [Let me tell you something about] beast[s]: three make [a] pack; [as for] human being[s], three make [a] crowd; [when it comes to] women, three make [a] bevy. [When a/the] king hunts, [he] does not take [a] pack; [When] elder[s] [=those of high rank] move, [they] beneath [behind] the crowd [=they yield the way to crowds of commoners]. [As for the] king[s] concubine[s], he never triplicates one clan [=never has three concubines from the same clan, i.e. social tolerance of sororal polygamy is limited]. . . ."

The above passage is prima facie narrative. The subjects of the first two sentences are proper nouns, which, of course, refer to definite individuals. The third sentence contains a presentative construction, # x, which introduces new characters to the developing scenario. Needless to say, these new characters cannot on first mention accommodate the definite article. ("There was an occasion when the three women . . . " "What three women?".)

Note that the entire cast of characters (king, elder, three women and mother) as well as the single physical property mentioned in this episode (the Jing River) are all what John Lyons refers to as "first-order entities". He describes this category of entity as consisting of "individual persons, animals and more or less discrete
physical objects", in other words, the animate and inanimate furniture of the material world. Lyons continues: "under normal conditions, [first-order entities] are relatively constant as to their perceptual properties, ... are located, at any point in time, in what is, psychologically at least, a three-dimensional space, and ... are publicly observable" (1977: 442-3). On Lyons' analysis, basic narrative could well be renamed "first-order discourse".

The narrative in (2) continues with a transcript of exactly what Matron Kang had to say about the going-ons on the upper reaches of the river. However, embedded within the scope of the narrative verb "declare", there are a number of clearly non-narrative statements. The first sentence in the woman's admonition is a declarative modal statement which does not belong to either of the (non-modal) discourse-types I have distinguished above. With the use of the particle 然, however, we cross over into the evaluative mode of discourse in which generalities are asserted of non-first-order entities.

English has no close equivalent for the topic-marker 物 (Graham 1972) and it requires a fair amount of exegesis to make explicit the particle's discourse function. 物 物 means something like "I'm going to tell you something about (my interpretation of) the nature of x". In this first sentence, marked by the 其 as an evaluative statement, note that the NP which bears the relation of subject to the verb 境, make, constitutes, is not 然, 'beast' but 然, 'three [of them]. The function of 然 is rather different from that of subject. 然 specifies the range of reference or "range of things about which it makes sense to assert" 然. Informally stated, the nature of beasts is what this sentence is about (Barr 1975:3, Chafe 1976:50, Reinhart 1981). In using this sentence, the speaker ascribes the attribute "three-make-a-pack" to beasts in general. This example plainly demonstrates that OC sentences with topics can also have subjects, as is the case in other well-known "topic-prominent" languages (Li and Thompson 1976).

The next two sentences in the text are perfectly parallel in both structure and meaning to 然 等 have and have the cumulative effect of ascertaining the reader's in a regular cadence of evaluative assertion: topic-comment, topic-comment, topic-comment (T:C). The next trio of sentences sets up another cadence, but without a signal to counteract the inertia of T:C; T:C; T:C, we simply continue interpreting in the evaluative mode, in spite of the lack of any overt marking of the discourse as evaluative. So we read 然 等 as an assertion about the general nature of a king's (or perhaps, the king's) hunting practice, namely that it does not involve the bagging of entire packs of game.

On this evaluative reading of 然 等, the marking of the English equivalent of 然 as a subordinate clause by means of a subordinating conjunction such as "when (ever)," or "if" is obligatory. This obligatory subordination, however, is simply a language-specific fact about the structure of English; it certainly does not convert 然 into a "subordinate clause" in OC. It is more important to recognize that in terms of what it accomplishes in the ongoing discourse, 然 is very close in function to the topic nouns (夫, 人, and 女) of the three preceding sentences. In evaluative discourse, a topic, whether NP or clause, names an entity or state-of-affairs the nature of which is commented on in the rest of the sentence; the comment makes an assertion about the general nature of the phenomenon referred to by the topic.

The fact that both NPs and bare clauses can function as topics is clearly illustrated in the second series of parallel sentences we are now considering. 王田 [NP-VP] is surely a clause, as is 然 等, 'whenever' elders go'. The third sentence in the series, however, has an NP topic, 然, 'the king's concubine[s]'. As in the examples just examined, the topic names a domain about which the comment, 然 等, is asserted. Once again, in the unanalyzable ex dentis which makes explicit the discourse function of the topic constituent, "There's some information about the nature of the king's concubine(s) (or perhaps, 'concubines as practiced by the king', the distinction is trivial in this context): he never takes three women from the same clan".

One of the typologically significant features of OC syntax is that, unlike the situation in languages such as English, a bare clause may function as the topic of an evaluative sentence. The notorious "parataxis" (from the standpoint of English) of OC evaluative discourse is simply topic-comment articulation. Such topic clauses are sometimes non-modalized (by 否, 然 or a-affixation; numerous examples cited in Harbsmeier 1983:96-112, where, however, the topic status of such constituents goes unrecognized). The important point, however, is that topics need not be marked as NPs by such devices. To claim that both NPs and clauses may function as topics in OC is, of course, not to claim that the internal structure of any topic is fuzzy or indeterminate. The presence of a predication within the topic distinguishes prima facie clause from nominal tokens of the category. That the rules of OC syntax generalize over such distinctions of internal form in favor of the discourse function shared by all topics in evaluative discourse (the function of setting the domain for a general assertion) is a significant typological fact about the language.

Returning to the analysis of passage (2), note that Matron Kang's speech continues to the end in the evaluative mode.

(3) A. "...其父, 美之物也。大氏以美物賜女, 其何能以女之? 王妻不疑; 吾 小亦德, 燕必亦亡。"
B. 燕亦不疑。一年, 王誘殺。
A. "... [This] bevy (=three women) are beautiful creatures. If the multitude were to entrust you with beautiful creatures [like these], what virtue would make you worthy of them? The king himself would not be worthy; let alone [the] lowly likes of you! [When] lowly types keep [fine] creatures to themselves, [the] end [of the story] is certain destruction."
B. Lord Kang [did] not present [the women to the king]. One year [later], [the] king destroyed MI.

Detailed analysis is omitted for reasons of space (and readers' patience). After the matron's moralizing lecture, we are abruptly reintroduced to the narrative.
have the form \{S V O/C\} due to the existence of a few lexical verbs of extremely general "linking" function like copular be, involve ("Hunting involves a number of skills.") and mean ("Carelessness just means you'll have to do it all over again," = "If you're careless, . . ."). Such verbs do not exist in OC.

3. The tentative nature of these observations. The claims advanced in (3) above clearly require further testing, not only on historical texts but on more "philosophical" material as well. We can expect to find a greater preponderance of evaluative discourse in texts like Mengzi and Xunzi, with perhaps the balance between narrative and evaluative partially redistributed in such anecdotal compilations as Hanfeizi and Lu shih chung. In any case, not inconsiderable space has been spent here in order to make (painfully) explicit many things all competent readers of OC know intuitively about textual interpretation. I believe that such explicitness about mental processes can be instructive and hope I have demonstrated that there remain many things to be said about how OC functions as a communicative system. That many of the hypotheses I have proposed here could not have been formulated on the basis of a sentence-based treatment of OC should be self-evident.

Notes

1 The distinction between "discourse-oriented" and "sentence-oriented" languages is drawn by Tsoa who also points out the limitations of single-sentence grammar in the description of discourse-oriented languages (1977: 89-98).

2 Abbreviations used in this paper: C=clause, GY=Guoyu \[\text{neg}]. LO=locative particle, NE=negative particle, NP=nominal phrase, O=object, OC=object or complement, OC=Old Chinese, P=person, PN=proper noun, PS=possessive, TC=topic-comment, TP=topical particle, VP=verb phrase, ZZ=zuozhuan \[\text{sep}].

3 The "redundancy count" could be increased to four by changing the unmarked 'when' to 'whenever', the latter marked for indefiniteness. Alternatively, indefiniteness could be encoded a fourth time by use of the categorical, generic negative 'never' to translate \(\mathcal{X}\). (It is interesting to note that OC has no morpheme equivalent for 'never'.) Note further that by using 'whenever' together with 'never' in the same sentence we finally achieve an unacceptable degree of redundancy in English: ?Whenever a king hunts, he never takes a pack.

4 It is clear that we are dealing with a continuum of features along which sentences can be contrasted and described as more or less narrative or evaluative, such that a place can be found for phenomena which fall between the two poles. This fact, however, does not invalidate the use of the basic distinction, narrative/evaluative, as a metric in discussing the discourse function of individual sentences and passages of text.

5 Punctuation has been augmented to reflect the pauses in contemporary native reading practice.

6 The influence of P.F. Strawson's "descriptive metaphysics" (Strawson 1959) on this characterization of first-order entity is acknowledged by Lyons.

7 Lyons characterizes second-order entities as "events, processes, states-of-affairs, etc. which are located in time and which, in English, are said to occur or take place, rather than to exist". (Compare, however, the use of OC \# existential in a sentence we have already observed: 有三女, literally, 'exist three-woman-dash-[at-]him', where
existence is predicated of an event.) The third order includes “such abstract entities as propositions, which are outside space and time” (1977:443). Although Lyons does not discuss the entity-status of the generic use of first-order nominals such as 8, it seems plain that when a first-order noun like 8, “beast”, is used generically, the entity it refers to is no longer of the first order. Since statements about “beasts in general” lie outside space and time, as already suggested in our discussion of (1B), we may tentatively conclude that such generics refer perhaps to third-order entities in Lyons’s scheme. (For the correlation between order of entity and order of nominal, see 1977:445–7.) There is an interesting parallel between Lyons’s ordering of entities/nominals and the distinction drawn in Van Oosten’s recent dissertation between basic-level and superordinate topics (1986:Chapter 2). Van Oosten’s conceptualization was inspired by psychologists Eleanor Rosch’s well-known work on human categorization, conventionally summarized in Lakoff (1982:144–8). Van Oosten’s basic-level topics (individual participants in elements inside the scene”, 1986:23) are essentially equivalent to Lyons’s first-order entities. Her “superordinate topics,” characterized as “cognitive schemas, actualized scenes, generalizations, and evaluative judgments”, correspond, by and large, to Lyons’s second-and third-order entities and to many of the entity-referencing expressions, both nominal and clausal, which serve as topics in OC evaluative discourse.

8 Compare the impossible, “mixed” reading of 天使, 三頭怪 which respects the fact that the 天使 is used to introduce a generalized topic for evaluation, but then interprets the comment as a narrative statement: “Now about the nature of these angels, three of them made a pact.”

9 The correlation between generic (non-cognitive) statements and the use of the topic particle 了 in Japanese has long been observed (Kuro 1972:270, among many others). Compare, for example, the following two sentences, the first generic and the other narrative-descriptive: 聖書は に坤の先に、All the fires are red and A. 次の木は木の木だ ‘Him! The western sky is bright red!’ The distinction between 了 and に as used in discourse is, of course, much more complex than these two examples suggest, but part of that distinction involves the difference between the evaluative and narrative use of sentences.

10 In their work on the topic particle 了 Japanese linguists have long recognized its function of establishing a domain for the assertion made in the rest of the sentence. (1972:180).

11 The situation is somewhat different in the Zouzuan. Although the text is at least in part a commentary on the Chuangtzu, evaluative sentences are still quite rare in the unquoted material in the Zouzuan and are restricted in their occurrence to specific expansion or explication of events recorded in the Chuangtzu, e.g. 常于, 常, ‘Shenbo of Wu’ going to Jia (as recorded in the Chuangtzu) [was to] welcome someone back to Lui, ZZ 226:Cheng 8.3., or for purposes of quick identification of characters in the Chuangtzu narrative (e.g. 魏相, 常伯, 常, 常). The Marquis of Jin asked him about a successor. (Qi Xian) spoke highly of Jie Hu [who was] his rival. ZZ 255: Xiang Zi).

12 It bears remarking that the evaluative reading of 天使, 天使 seems less odd than the same interpretation of 天使. This fact, of course, correlates with the frequent marking in narrative of the temporal setting as topic (e.g. 天使). In narrative, the temporal setting occurs in narrative discourse and in two only two functions: that of referring to a temporal setting (as just illustrated) and that of contrastive expression, of an argument within a narrative clause.

13 Shen Xiaolong, in an original and largely persuasive typology of topic-comment sentences in the Zouzuan, remarks in passing on the “deliberative and explanatory” function of T.C articulation (1986:130). His extremely useful study, however, deals primarily with the structure of T.C sentences, rather than with their discourse functions.

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Other sources

THE ADPOSITION YI AND WORD ORDER IN CLASSICAL CHINESE¹

Chaofen Sun


Abstract

Linguists seem to have a different opinion on the syntactic properties of the PP's in Classical Chinese. While many assume that Classical Chinese had predominantly postverbal prepositions, many others believe otherwise. This study finds that the latter view is perhaps correct and that the PP's in Classical Chinese could be either postverbal or preverbal. On text-count level, PP's of the two types are about equally divided. Furthermore, this paper shows that the adposition yi 介 can be used as a preverbal preposition, a postverbal preposition, or a preverbal postposition in Classical Chinese. Evidence will be given to contend that the variation between the preverbal and postverbal uses of yi seems to be motivated by discourse factors. The nominals following the preverbal yi seem to be much closer to their antecedents than those after the postverbal yi. In addition, the high degree of variability of yi may follow from an earlier grammatical change, i.e., changing from postpositional to prepositional. Thus, it is hypothesized that the postpositional use of yi perhaps was simply a vestige of earlier Sino-Tibetan syntax.

1. Introduction

This paper attempts to show that the adposition yi 介 can be used as a preverbal preposition, a postverbal preposition, or a preverbal postposition in Classical Chinese. Moreover, it is hypothesized that the postpositions could be a vestige of earlier Sino-Tibetan syntax.

However, in the last ten years or so, many linguists (Li & Thompson 1974, Travis 1984) have assumed that Classical Chinese had predominantly postverbal prepositions. On the other hand, many others believe (Liu 1958, Chou 1962, Y-C Li 1980) that the PP's in Classical Chinese could be either postverbal or preverbal.

In the following, I will first of all present data demonstrating that the postverbal...
hypothesis is incorrect. Furthermore, analysis of the PP’s in classical texts reveals that it is equally incorrect to treat the classical PP’s simply as preverbal because of the large number of postverbal PP’s. Finally, I will discuss the peculiar syntactic distribution of the most frequently occurring adposition, yi.

Linguists working within different theoretical frameworks all agree that in modern Chinese there is a set of elements which behave more or less like prepositions in other languages. Yet these prepositions still retain some properties of verbs from which they derive historically. Therefore, they are also known as coverbs (Chao 1968, Y-C Li 1980, Li & Thompson 1981), although some argue (Li & Thompson 1974) that theoretically they are better treated as prepositions. However, such theoretical concern is beyond the scope of the current study. For the sake of convenience, I label them as prepositions. Given the existence of postpositions, the term adposition is used for Classical Chinese.

2. Adpositional phrases in Classical Chinese

Li & Thompson observe (1974) that between the 11th and 4th centuries BC the PP’s of Classical Chinese were all postverbal, thus V+PP, even though in modern Mandarin the PP’s are mostly preverbal, S+V+PP. For example, in (1) the PP you gu ‘from dark valley’ follows the verb chu ‘emerge’ (The example is from Li & Thompson 1974, p.201).

(1) 形容你you gu 走出山谷 chu yu you gu ‘emerge from dark valley.’

Li & Thompson further claim (1976 p.486):

‘...the classical literature up to the twelfth century A.D. leaves little doubt that the predominant sentential position of the prepositional phrase is postverbal rather than preverbal. ... It was not until the fifteenth or sixteenth century A.D. that the new prepositions with preverbal prepositional phrases became prevalent.’

However, this thesis is contradicted by the observation of many others. He Leshi observe (1984, 1985) that an overwhelming majority of the adpositions in Zuo zhuan 左传 and Shiji 史記 occurred in preverbal position. His findings (1985) concerning the distribution of the PP’s in Classical Chinese are presented in (2).

(2) The distribution of PP’s in Classical Chinese:

<table>
<thead>
<tr>
<th></th>
<th>optional</th>
<th>postverbal</th>
<th>preverbal</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zuozhuan (500 BC)</td>
<td>5</td>
<td>22%</td>
<td>3</td>
<td>14%</td>
</tr>
<tr>
<td>Shiji (100 BC)</td>
<td>7</td>
<td>14%</td>
<td>3</td>
<td>6%</td>
</tr>
</tbody>
</table>

In both texts, there are adpositions which can occur optionally in either preverbal or postverbal positions. Although in terms of the total number of adpositions the percentage of obligatory preverbal PP’s in Shiji is 80%, 16% higher than its counterpart in Zuo zhuan, significantly in both texts the absolute majority of the adpositions occurred obligatorily in preverbal positions. Therefore, if He’s analysis is valid, her findings still strongly falsify the postverbal hypothesis for the adpositions in Classical Chinese.

While the emphasis of He’s analysis is on the types, i.e. the numbers of possible adpositions, Sun (1987) emphasizes the frequency of occurrences of the adpositions. The PP’s in two passages of Classical Chinese texts have been counted; one is Liang Fei’s 鄧至’s Mengzi 孟子 (300 BC), and the other is Tongtong 通通’s Shiji 史記 (500 BC). The findings are presented in (3) and (4). In support of He’s observation, the PP’s in Classical Chinese did not occur exclusively at the postverbal position. As a matter of fact the preverbal uses in actual texts outnumber the postverbal.

(3) The frequency of occurrences of PP’s in different positions in Zuo zhuan (500 BC):

<table>
<thead>
<tr>
<th></th>
<th>preverbal</th>
<th>postverbal</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>力 dui</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>從 cong</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>拜 wei</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>起 ji</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>在 zai</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>自 zi</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>與 yu</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>子 yu</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>於 yu</td>
<td>21</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>以 yi</td>
<td>37</td>
<td>4</td>
<td>42</td>
</tr>
<tr>
<td>total</td>
<td>46</td>
<td>50%</td>
<td>46</td>
</tr>
</tbody>
</table>

(4) The frequency of occurrences of PP’s at different positions in Mengzi (300 BC):

<table>
<thead>
<tr>
<th></th>
<th>preverbal</th>
<th>postverbal</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>力 dui</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>在 zai</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>起 yu</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>於 yu</td>
<td>21</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>與 yu</td>
<td>37</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>54</td>
<td>55%</td>
<td>47</td>
</tr>
</tbody>
</table>

At first glance, the frequency count between preverbal and postverbal PP’s is about half and half in both texts. Moreover, given the fact that most adpositions
occurred at least once in preverbal position and only half occurred in postverbal position, it is highly implausible to take postverbal position as the dominant position for PP’s. Furthermore, given that 50% (for ZuChuan) and 45% (for Mengzi) of the PP’s occur postverbally, it is then equally incorrect to assume preverbal position as dominant. It would seem as if there were no dominant position for PP’s as a whole in Classical Chinese. In order to explore further the question of dominant word order position, I will now discuss the syntactic distribution of the most frequently used adposition, yi bǐ, in Classical Chinese.

3. The adposition yi

The adposition yi bǐ is the most frequently occurring example in (3) and (4) making up 47% (90 out of 193) of the total frequency count. Furthermore, it can occur in both preverbal and postverbal positions, although only 12% of them (11 out of 90) occur in postverbal position. In example (5) there is a postverbal use of yi, while in (6) there is a preverbal use of the same form. If we ignore the context, the two clauses which contain yi phrases almost constitute a minimal pair. In both cases, the meaning of the yi is close to the preposition ‘with’ in English translation.

(5) 借步受其事而之乎也子也 (Mengzi Liang Huiwang Shang)
Wu fei ‘ai qi cai er
I Neg love its fortune CONJ
yi zhi yi yang ye
trade it PP sheep EXCL
‘I did not grudge the expense of it and changed it with a sheep.’

(6) 佇無對面之學, 待以等命之 (ibidem)
ruo wu zuì er jiu si di,
as if Neg crime CONJ go dead place,
gu yi yang yi zhi
thus with sheep trade it
‘As if (it were an) innocent person going to the place of death, therefore, I changed it with a sheep.’

Furthermore, the object of the preverbal yi is commonly absent as in (7).

(7) 王師師以誨世, 聚未有對對 (Mengzi Liang Huiwang Xia)
wang yu bao yi hao yue,
king tell NAME PP fond music,
bai wei you yi dui
NAME Neg. have PP respond
‘His Majesty told Bao (me) with (his) fondness of music, (yet) Bao (I) have nothing ready to answer with.’

Typically the antecedents of the absent objects of such preverbal yi PP’s exist in the immediately preceding context. For instance, in (7) there are two PP’s with the same form yi. The logical object of the second yi, which is preverbal, is the same as the object of the first yi, which is postverbal, namely hao yue ‘the fondness of music’. The second yi, which occurs in preverbal position, has a zero anaphor as its object. In both cases the yi’s indicate an associative meaning. Sun observes (1987) that the objects (including zero anaphor) of preverbal yi’s on average are 2.81 clauses away from their antecedents while the objects of postverbal yi’s on average are 17.64 clauses away from their antecedents (for methodology please refer to Givón 1983). The examples in (8) is a piece of continuous discourse. In the first line of (8), the underlined xiao ti zhong xin, ‘piety, fraternity, sincerity, truthfulness’ actually should be analyzed as the object of the adposition yi’s in the immediately following (8a & 8b). However, in (8a & 8b) they do not exist in surface. Yet the antecedents of the absent objects of the yi exist in the immediately preceding discourse, thus constituting no problem in information recovery.

(8) 要者不能自饗其學也 (Mengzi Liang Huiwang Shang)
zhuang zhe yi xia ri xiu qi
strong Nom. PP leisure day cultivate POS.
xiao ti zhong xin
piety fraternity sincerity truthfulness
‘The strong people, during their days of leisure, shall cultivate their filial piety, fraternal respectfulness, sincerity, and truthfulness.’

a. 入事其父兄
ru yi yī shì qi fū xióng
enter PP practise POS. father brother
‘At home, serve their fathers and elder brothers with (it).’

b. 出事其長長
chu yi yī shì qi zhāng shāng
exit PP practise POS. elder superior
‘Outside, serve their elders and superiors with (it).’

Therefore, discourse pragmatics may be an important contributing factor in the selection of a particular position of a yi phrase. Preverbal yi’s, including those with a zero anaphor, are more likely to be used if the coreferential entity exists in the immediately preceding contexts.

But there are also other factors which may affect the word order. They should include factors like sentence type and the highlighting of different information. The example in (9) is a WH-question, and the WH word he goes before yi in the original text. The example in (10) has a proform shé before the adposition yi.
(9) 從我的國
he yi li wu guo
what PP profit my kingdom
'From what my Kingdom can be profited.'

(10) 無所不往見也
shi yi bu wang jian ye
Pron. PP Neg. toward see Part.
'For this (I) do not go to see (him).'

Moreover, in preverbal position yi is frequently used as a postposition. While the yi's in (5) and (11) are a postverbal preposition, and the yi in (6) is a preverbal preposition, the yi's in (12) are preverbal postpositions. Semantically all the yi's in (12) indicate an instrumental case. Interestingly, there is no postpositional use of yi in postverbal position.

(11) Zhao yuren yi gong
call officer with bow
'Call an officer with a bow.'
(12) a. 鳥取召大夫
zhai yi zhao dafu
flag with call senior official
'call a senior with a flag.'
b. 可兒召主
gong yi zhao shi
bow with call junior official
'call a junior with a bow.'
c. 皮韋召士
pi-guan yi zhao yuren
leather-hat with call officer
'call an officer with a leather-hat.'

Other than the postpositional phrases which are made up of NP+P like (12a-c), there are postpositional phrases made up of Pronoun+P (13) and postpositional phrases occurring in serial verb constructions (14). The yi's in (13) and (14) both indicate an instrumental meaning. The preform shi when used with the adposition yi appeared to allow postpositional use only.

(13) 無所不往見也
shi yi zheng ping
this with politics peace
'With this the political state should be at peace.'

(14) 順建王傳
er cheng zhoulai yi tiao wu
then cite NAME with provoke NAME
'(You) then cited Zhoulai (by building up the walls) to provoke the State of WU.'

The table in (15) characterizes the distribution of the yi's in two passages of classical texts, Zuochnan (Shaocong 19-20) and Mengzi (Liang Huiwang Shang & Xie). The findings presented in (15) show that in preverbal position yi is frequently used either as a preposition (19%) or as a postposition (18%) in Zuochnan; in Mengzi postposition accounts for 14% of its uses, and preposition for 25%. However, the form which has the highest frequency count in both texts is the preverbal yi which takes a zero anaphora as its object, 30% for Zuochnan and 39% for Mengzi. In addition, yi also occurs in a serial verb construction in a fairly common fashion, 22% for Zuochnan and 8% for Mengzi. Typically in the serial verb construction the nom of the V N sequence immediately preceding yi can be analyzed as the object of the yi; thus the yi is also postpositional. This is exemplified by (14) where the underlined zhoulai functions as the object of the preceding verb cheng as well as the logical object of the following adposition yi.

(15) The distribution of the adposition yi in Classical Chinese

<table>
<thead>
<tr>
<th></th>
<th>Zuochnan</th>
<th></th>
<th>%</th>
<th>Mengzi</th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preverbal:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>postposition (N yi V)</td>
<td>16</td>
<td>19</td>
<td>15</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>preposition (yi N V)</td>
<td>16</td>
<td>19</td>
<td>26</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>zero anaphora (yi N V)</td>
<td>25</td>
<td>30</td>
<td>41</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial verb:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>postposition (V N yi V)</td>
<td>19</td>
<td>22</td>
<td>9</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postverbal:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>preposition (V yi N)</td>
<td>8</td>
<td>10</td>
<td>15</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>84</td>
<td>100</td>
<td>106</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. The issue of word order

The existence of postpositions poses a question for us, i.e. where did they come from and what kind of function did they serve in Classical Chinese? Yu first hypothesizes (1987) that the existence of postpositions was a vestige of Sino-Tibetan syntax. It is interesting to note that Delancey observes (1987) that 'with the exception of Karen, all of the Tibeto-Burman languages are postpositional SOV languages . . . ' Therefore, it follows to assume that the proto-Sino-Tibetan was postpositional SOV as well. While Classical Chinese is predominantly
prepositional SVO, it does have vestiges of postpositional SOV word order. For example, in (16a), in a positive statement the object pronoun zhi occurs postverbally; but in a negative statement, it has to occur preverbally as in (16b). It is very difficult to attribute the word order variation in (16a-b) to any discourse factor. The most plausible solution is to treat the preverbal zhi in negation as a kind of residue from earlier SOV order.

(16)  

a. 前世來之

jiang yi yu zhi  
intend with stupid PRON

'(They) intended to use (it) to keep them stupid.'

b. 非聖人之靈蕃

fei shengren mo zhi neng wei
Neg. sage Neg. PRON can do

'Only a sage can do this.'

Finally the examples in (17) demonstrate that yi is not the only possible postposition in Classical Chinese. The three instances of yi as a postposition were first observed by Yu (1987). All the yi’s in (17) are used as a kind of locative marker. However, unlike yi, which is commonly used as a postposition, yi is rarely used as a postposition. Recall that from the tables in (3) and (4) yi is a very common adposition, second only to yi. yi is not only a preposition but also a predominantly postverbal preposition. Out of 58 yi’s only one is preverbal. Therefore, yi PP’s are postverbal, and their postpositional use is extremely rare.

(17)  

a. 吾用韶言於御也

yan suo wei shi yi nu shi yi se
saying as say room at angry market at color

'As the saying goes: one becomes angry at home and shows his angry look in public.'

b. 私之於

si zu yi mou
privately consult (members) of the clan.

The situation for yi is more complicated as demonstrated by tables (3) and (4). While the majority of its uses are preverbal, it also commonly occurs in postverbal position. Consequently, yi and yi are two different classes of adpositions. yi is a preposition with a relatively rigid postverbal position. In preverbal position it is rarely used as a postposition. But as a preposition yi can be preverbal or postverbal depending on discourse pragmatics. Furthermore, in preverbal position it is also commonly used as a postposition.

Appendix

The postpositional use of yi in Mengzi

1. 何以利吾國
2. 何以利吾家
3. 何以利吾身
4. 斧斤以時入山林
5. 是以後世無備焉
6. 何以能鼓樂也
7. 何以能田賦也
8. 吾可以休
9. 吾可以助
10. 吾可以養其不才而命之
The postpositional use of yi in Zuo zhu
Shaogong 19-20

Notes

1. An earlier version of this paper was presented at the 1987 LSA Conference in San Francisco and appeared in the Working Papers in Languages & Linguistics No.1 (1990) of the City Polytechnic of Hong Kong. I would like to express my gratitude to the anonymous referee of JCL for his valuable comments and suggestions.

2. Even though in both cases, he and shi are not regular nouns, grammatically they function as the object of the adposition yi in forming a PP.

3. The referee of the Journal suggests that the yi here may be a conjunction, meaning ‘in order to’. However, I still believe that this yi should be probably treated as an adposition. First, if it is a conjunction, we may have to analyze the nouns before yi in (12 a,b,c) as verbs, but they are really nouns in the original text. Second, if the yi’s in (12 a,b,c) are conjunction, in what way the yi in (11), where the PP phrase is postverbal and almost in complementary distribution with the yi phrase in (12b), should be treated as a conjunction? If we cannot, the yi’s in (12) are probably adpositions rather than conjunctions.

4. At the request of the referee of the JCL all the examples of the postpositional use of yi’s in the two texts concerned are given in the appendix.

5. Among the 15 cases, No. 12 and 14 (the same sentence appeared twice in the original text) listed above may allow a different analysis. If dan ‘basket’ and lu ‘bottle’ are analyzed as verbs instead of nouns, yi should then be treated as an adposition occurring in a serial verb construction without a surface object.

References

LEGGE, James. 1872. The Chinese Classics. Hong Kong: Lane, Crawford & Co.
Part 2

MODERN VARIETIES
A SYSTEM OF TONE "LETTERS"

Yuen-Ren Chao


*a sistim av "toun-letaz"

*wid e vju:* ta kontbau aiskurs, elegans, end kanvinnjas fa primita, ai av divaizd do folouj sistim av "toun-letaz" fa do konsidoreifn av felou tounitjuz.

*itj toun-leta kansists av do vartik refrens lain, av do hait av an n, to mitj a simplifhad tam-pitj koav av do toun reprivizid iz zenta, fa toun i mz ta do left av do lain, end fa toun-varljuj iz its rait. do thiknis av do lainiz iz to bi do seim az do hirizeul (fim) elimans av a roumaa karikta.

-do toutl reindiz iz divididit intu far i kwal pats, dis mekip sjalv points, nambad 1, 2, 3, 4, 5, karispandjg ta lou, hoo l-lou, mi djam, hoo haai, hat, rispektivli, in a do no ta meik distinkfjuz, tu: sain, points 2 an 4 a juxz aibor aloun e: wid itj a o, bat 11 in kombineifn wid 1, 3, 5, wid dis ristikfia, do toutl nambar av toun-letaz mitj aip propouz iz afolouj:

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<tr>
<th></th>
<th>streit tounz.</th>
<th>neim.</th>
<th></th>
<th>so komfleks tounz.</th>
<th>toun-lota.</th>
<th>neim.</th>
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<th>foit tounz.</th>
<th>toun-lota.</th>
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MODERN VARIETIES OF SINITIC

A SYSTEM OF TONE "LETTERS"

(1) trenaqltsareijn. (a vaisais ini] goul wîd ò ci houin 3 and wai sti] goul wîd ò ci houin a, ail ues makd tò de kontril.)

san la koaw-tehamaapa
eemal-iyi tmos-mao lap-gi sonL
kholke sempa teon khil
lype wo jai kamaL sonL
jina-thup kouL ou sonL
moteUa tsiyiL en sonL
pho-mo thunL-segmentma
mi'laam la khoa sonL

(2) ò de seim zt aktasLali pronaunst:

janv-lo lao, koaaw-tehamaL-bet
ceen-daz tynL-mat lap-gi sonL
koL-teaL sem'ber teon khil
hu-bek eat-jang kamb sonL
niip-tupp kuj lao-cot sonL
moL-teaL tsef-bulxen sonL
pho-maL thunL-sam'ceenL
mi'lam lao khoL sonL.

Do praktikL varLju av eni sstion vonouteinj dipendz on de possibilite av is wakalL
boul wai, az a test fo dis rikwaLsamt, ai ju:zd ò de sistim in rikdixigx diktu:
*teikm folk-song spouKoL (not saaj) tu a diktouFou, fann aitj ò de transcripiwax
meid. òen, a fite livink dé biL alou fè saFrai deiz, ai piik ap ma menuskiw ogen
an red ò de houin transcripiw, houin a oL, beik int diktouFoun reko dz. an pleiL
bri aridjL and mai feik *tibetan pranansiw on tu magrar, an kamparin dâm
sentam biL sentam in klouL saksjL, fo rizembLsN biLw on tu waiF bijndi mai
akspekLwizh. òis klLsli jous dét it in pasobL tu trer wanself in saaj ò de sstion sou as
mikL it wok bakwadz az wel az eywadz.

Notes
1 si: Daniel Jones and Kwing Tong Woo, A Cantonese Phonetic Reader, p. 17.
2 Stay-two Tibeton Folk-songs of Bhan-dbyons-rgya-tho, translated into *'tajinLz* by
Yu Dwebyuyun and transcribed by Jaw Yuanren, te bi pabl'L sun baI The Institute of
History and Philology of Academia Sinica.

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different words such as *army, archer, art, argue* one concludes, after due examination, that the first sound in these words are 'the same', which is then 'an abstract sound of the second degree'.

Taking Palmer's own system, we note that he finds it more convenient to replace the term *abstract speech-sound* by the term *phone*. His system of phones is then as follows:

\[\text{Phones} \begin{cases} \text{Monophones} \\ \text{Metaphones} \end{cases} \begin{cases} (1) \text{Contactual phonemes} \\ (2) \text{Free phonemes} \\ (3) \text{Dynamophones} \\ (4) \text{Diaphones} \\ (5) \text{Phonogenes} \end{cases}\]

A Monophone is 'any phone of the first or second degree of abstraction of which the concrete members are so similar in point of production and of acoustic effect even when observed by a competent observer, that it may be regarded as a minimal unit of pronunciation (i.e. practically insusceptible of subdivision)', (We may add: 'or of further differentiation'). 'Contrasted with monophones we have metaphones, which we may define as two or more phones which serve jointly as units of meaning within the limits of a given linguistic community.'

(1) Palmer goes on to identify Jones's definition of a phoneme with his idea of a contactual phoneme: 'A phoneme is a group of sounds consisting of an important sound of the language (i.e. the most frequently used member of that group) together with others which take its place in particular sound-groups... The use of subsidiary members of phonemes is, in most languages, determined by simple principles which can be stated once for all, and which can be taken for granted in reading phonetic texts.'

(2) A free phoneme is like a contactual phoneme except that it is impossible to say in what phonetic circumstances one or another of its members will be actually used. We can give the apparently random use of the tip or back of the tongue in the nasal ending of words like *as* '[iːn — iːj]', *is* '[im — iːn]' in Nanking as an example of free phonemes. This is the same as Jones's *variphone*.

(3) A dynamophone is a metaphone which contains two or more phones differing not only in quality, but also in regard to the intensity or force of the articulation that produces them. Palmer cites the first phone in the word *as* as an example which shades from the first phone of *act* to the obscure sound of the first phone of *about*, and even to zero value.

It would seem convenient also to include under this heading those metaphones whose members differ according to conditions of length and intonation (in which case a term wider than *dynamophone* will have to be used). Thus, the vowel in French *bete* and *bebe* is a metaphone whose members differ slightly in quality according to the conditions of length.
Those who transcribe *eat* as [it] or [i:t] are also considering the vowel in these words as forming one metaphone whose members differ in quality according to conditions of length. Again, the vowel in the Foohow words *š* [ka:j5:] and *š* [ko:j12:] is a metaphone whose members differ in quality according to the intonation belonging to one or the other of two sets of tones.

Before taking up the next two terms, it will be well to examine a later definition of a phoneme given by Jones: 'Definition of a phoneme: a family of sounds in a given language which are related in character and are such that no one of them ever occurs in the same surroundings as any other in words.' (The term 'language' here means the pronunciation of one individual speaking in a definite style. 'In the same surroundings' means surrounded by the same sounds and in the same condition as regards length, stress and intonation.) 3 This definition differs from the earlier one quoted above in that it no longer mentions a 'principal member', but specifies that the different members should be 'related in character' and that no two of them should occur 'in the same surroundings as regards length, stress and intonation'. It seems therefore that Jones's concept of a phoneme includes not only Palmer's contactual phonemes, but also some at least of his dynamophones.

(4) The term *diphone* is used by Palmer following the usage of Jones: 'The diophone is a family of sounds heard when we compare the speech of one person with that of another.' Jones cites [o], [ou], [au], [au] as members of the diophone occurring in words like *cost*, *road*, *home*. Similarly, we can cite [ou], [ou], [au], [r], [u], [dy], [ei], [i] as members of the diophone occurring in words like *Europe*, *dog*, *of*, *after*.

(5) The *phoneme*, a term also proposed by Jones, is 'a given phone together with its ancestral forms,' thus the vowel [ou] in *stone*, together with [o], [a], [i] form a phoneme. Similarly, [o], [æ], [i], [i], [i], [i], [n], [ni], [ni] form one phoneme in words like *child* 'a', 'ear' 'a', 'two'.

Bloomfield gives no formal definition of a phoneme. He begins by distinguishing the 'gross acoustic features' of language (limb's 'concrete sounds' or sounds of low degrees of abstraction) and 'distinctive' or 'significant features'. By comparing the partial identities and differences between words like *pin*, *tin*, *tan*, *tack*, he succeeds in analyzing the distinctive features of words like *pin* into indivisible units which cannot be analyzed any further (from the standpoint of the language under investigation); each of these units is a 'minimum unit of distinctive sound feature, a phoneme', which phrase is the nearest Bloomfield comes to a formal definition of a phoneme.

Differences of quality conditioned by length are grouped by Bloomfield under the same phoneme, as German *Beet* [bet], *Bett* [bet]. He also writes *huts* [hate], where the stress on the first syllable indicates sufficiently the weakened and obscure value of the second vowel. Bloomfield's phoneme therefore also includes Palmer's dynamophones.

Bloomfield makes no explicit mention of free phonemes or variphones. In cases like the apparently random use of final *n* and *g* in some Chinese dialects for the same word in the same phonetic surroundings, we would probably consider simple nasality as being the distinctive feature and the place of articulation as among the gross acoustical features. In other words, variphones are also phonemes, except that the choice of the exact shade of the sound used is determined by psychological and physiological factors other than those of phonetic environment. Since, however, whether variation of sounds determined by non-phonetic conditions are wide enough to be called two or more 'different' sounds or simply inevitable small 'accidental' variations depends upon the degree of narrowness of the phonetician's scale of division, Bloomfield is within his rights in neglecting the existence of variphones.

From the preceding, it may seem that Bloomfield has a different conception of the phoneme from that of Jones and Palmer. For Jones and Palmer, a phoneme is a group of sounds, while for Bloomfield it is a sound-feature. If, however, we examine the two ideas more closely, we shall find that they amount to the same thing. Take for example the English phoneme [h]. From one point of view, we may say that it is a group of different sounds [h], [h], [h], [h], etc., where the subscripts are an indication of the tongue and lip positions during the pronunciation of the consonant. But from the other point of view we may just as well say that the phoneme [h] is simply the feature of voiceless glottal friction and leave the other non-significant features unspecified. There is therefore no real difference in the use of the term phoneme by those writers, so far as this point is concerned.

For the present discussion, we shall group together Palmer's contactual phoneme, free phoneme, and dynamophone, all under the term phoneme, to be defined as follows:

A phoneme is one of an exhaustive list of classes of sounds in a language, such that every word in the language can be given as an ordered series of one or more of these classes and such that two different words which are not considered as having the same pronunciation differ in the order or in the constituency of the classes which make up the word.

Observations:

(1) This definition presupposes that it is possible to enumerate exhaustively the total number of phonemes for any language.

(2) It does not exclude the possibility of the same sound belonging to more than one class (Cf. II 2 (f), (g) below).

(3) It is non-committal as to whether given a language, there is one unique way for grouping its sounds into phonemes or there are other possible ways.

(4) It leaves unspecified the scope of the word 'sound' as regards size and kind, i.e., the degree of analysis into successive elements and the degree of differentiation into kinds.
(5) It includes both the cases where, given the phonemes in a word and its phonetic environment, it is possible to determine the actual pronunciation of the word by a set of 'rules of pronunciation' (i.e. to know which member-sounds of sound-classes will actually be used) and those cases where a given word in a given phonetic environment may still contain a phoneme of which one or another member may be used. The former will be a contextual phoneme or a dynamophone and the latter a free phoneme. (This remark, however, would be superfluous if we repudiate the validity of descriptive phonetics, with its narrow transcriptions.)

(6) The clause that every word consists of a series of 'classes' may sound a little strange. But if, as is convenient in the study of languages, we speak of recognizable words consisting of recognizable phonemes, then such phonemes are usually classes of sounds, which a trained ear would distinguish as different sounds. The statement sounds no more strange than that 1, 2, 3, 4 are a series of classes, which is what mathematicians define numbers as.

(7) If each phoneme is written with one definite symbol, then every word will have a definite form of transcription. Homophones, or different words having the same pronunciation, will be transcribed alike. It should be noted, however, that the boundary between a homophone and a word with variations in meaning is often hard to determine.

(8) A phonemic transcription is pronounceable without reference to grammatical or lexical consideration. Thus, the Chinese National Phonetic Script and the National Romanization are phonemic transcriptions in a sense which English or even German orthography is not.

II. Factors which influence the phonemic solutions of phonetic systems

As the grouping of sounds in a language into phonemes as defined above does not necessarily lead to one unique solution, we shall now consider the various factors which influence the form of the solutions.

1. Size of unit in time

(a) Under-analysis

In the early days of phonetic transcription, the slogan was 'one sound, one symbol'. In these days of phonemic transcription, this has been changed to 'one phoneme, one symbol', so that it is now permissible to represent more than one sound by one symbol.

But there are two aspects to the idea 'one sound'. From the point of view of differentiation of quality, 'one sound' is one kind of sound, which is what one usually has in mind when using the phrase in discussions about phonemes.

But from the point of view of analysis in time, 'one sound' is one piece of sound, such that its quality is homogeneous throughout its duration. Discussions about phonemes do not seem to have been very explicit about the change of quality in time which may be included within the scope of one phoneme. We recall that Palmer defines a monophone as a minimal unit of pronunciation (i.e. practically insusceptible of further subdivision). All the preceding discussions in the passage quoted have to do with the question of differentiation, but as the words 'minimal' and 'subdivision' can also be taken in the temporal sense, it would seem that a monophone should be both one kind of sound and one piece of sound.

Now if it is convenient to group into classes and call phonemes different kinds of sounds in a language which go together in a certain way, it would also be convenient to join into compounds successive pieces of sounds which act as units in a language. This is by no means new practice. Our point here is only to make it explicit and put it on a par with the differential aspect of phonemes.

All kinetic speech-sounds, diphthongs, affricates, aspirates, and other sounds with their usual glides are compounds which act as units and can be treated as phonemes. Thus, Bloomfield considers the English affricates [tʃ] and [f] as independent phonemes; the English plosives [p], [t], [k] are treated by all writers as single phonemes, although in initial stressed positions they have a slight aspiration and have a larger size than in unstressed positions or after [s] (in [sp]-, [st]-, [sk]-). In the former case, the inclusion of [t] and [f] is optional, for these could be resolved into the phonemes [tʃ] and [f] respectively. In cases like he cheers [hɪrˈtʃɪrs], heat sheets [hɪtˈʃɪrs]: What can each add? [... itʃ] [ʃɛd], What can eat shad? [... itʃ] [ʃæd], the distinction may either be made by considering [tʃ] and [ʃ] as different phonemes, as with Bloomfield, or simply by the difference in the position of the minimum point, as with most other writers; that is to say, since the [t] in each add and the [tʃ] in eat shed never occur under the same conditions as regards stress, [tʃ] need not be considered as a separate phoneme. In many Chinese dialects, the initial [t], always occurs before low front vowels or central or back vowels, and initials of the [ts] type always occur before high front vowels. The two may therefore be taken as the same phoneme, although the latter is an affricate. Similarly, the [tʃ] in [ts] or, the [ts] in [tsi] and the [ts] in [tsi] in Japanese may be taken as belonging to one phoneme.

Kinetic sounds of the diphthong type need special consideration. While affricates, aspirates and sounds with characteristic glides can usually be analyzed, if desired, into two or three recognizable elements, kinetic vowels and quasi-vowels are sounds with even more gradual change in quality. The usual method of representing these sounds is simply to indicate the two end-positions of the whole movement, as [ei], or to indicate the open position and the extreme close position even though never actually reached, as [ai] for what is actually never wider than [æ]. In the case of movement not by the most direct line, the turning point is indicated by inserting an additional symbol, as [uɛi], but not [ou], as [ou] means [ou] or [ou]
Now by our definition of a phoneme, there is nothing to prevent us from regarding characteristic kinetic open sounds in a language as independent phonemes, which is in fact the practice of the designers of the Chinese National Phonetic Script, who represent [ui], [ei], [iu], [au] by the single symbols ʊ, e, a, and even [an], [on], [un], [an] by ʊ. It may seem unorthodox to take the National Phonetic Script as serious phonemic transcription, but we should be less sure of ourselves when we come to cases of narrow-range kinetic sounds. There is a real difference in practice, if not of opinion, between Bloomfield's use of [i] and [uw] for English and other writers' use of [i] and [u], or as contrasted with [i] and [u] (with implied relative length) as contrasted with [i] and [u]. Again, in many American dialects, it is a toss-up whether to write bet, bet as [bet], [beɪt] or as [bet], [bet], or [bet], [bet] (with implied length). The most interesting case of the size-of-unit question is that of the Fooniew dialect, where a whole series of vowels in the same words are static or kinetic according to the tone in which each is pronounced. Thus, k [kɛi 12:] 'aair', vr [tɔy kɔɔ 23:] 'bamboo', b [bou 242:] 'protect', take on the following sounds when they are pronounced in the following combinations of tonal environment: kik [kɛi ma ha 23:] 'air pressure', \*b [bou 242:] 'bamboo section', and b [bou 55:] 'guards (protecting soldiers), respectively. We have therefore on our hands the question of choice between (1) admitting phonemes of which some members are static and other members kinetic vowels, or diphthongs, and (2) regarding the static members as forming one phoneme and the corresponding kinetic vowels as two phonemes in succession, thus allowing the same word to have two forms. The presence and absence of the aspiration in English [p], [t], [k] mentioned above is also a similar case, though not so striking.

Another very peculiar case is that of a vowel in a concave circumflex tone in a number of Chinese dialects, such as the yangshaoing tone of Hwagian, Chekiang, where the valley is so low or simply so narrow that the voice is lost into a glottal stop in the middle of the syllable, so that [a₁ 30:] actually becomes [a₁ 72]:. Phonetically, it sounds like three sounds forming two syllables. But phonemically, it is much more natural to consider it as a form of [a₁] in a certain tone.

On the whole, the usual practice allows a great deal of latitude in taking kinetic consonants as single phonemes, but is not so free in giving single symbols for kinetic vowels. Bloomfield gives a list of eight diphthongs and one trillphone for English, and calls them 'compound primary phonemes', all their elements occurring also as single primary phonemes. [1955 note: The word 'primary' does not affect this discussion; it was simply Bloomfield's word for our 'segmental' phonemes – the vowels and consonants.]

The chief point we wish to emphasize here is that it is not always advisable or convenient to take the smallest static unit of sound analyzable by the trained ear as the unit of phonemic members ('one piece sound, one symbol'), and that according as we take a smaller or a larger unit for our phonemic members, we sometimes arrive at different forms of phonemic pattern for the same language, which are equally valid, though they may not be equally suitable for this or that purpose.
Jones and Camilli do another thing along the same line. Without mentioning the saving of a series of modified letters under any of the principles, they also use the device of representing one piece sound by two piece symbols in transcribing the Russian palatalized consonants, where the explanatory note says, "it is used as the sign of palatalization, that is, \(ij = i n, nj = n i, sj = s i, tj = t i, lj = l i, mj = m i, etc." This [i] is therefore a significant feature, but it does not necessarily occupy any area of its own.

Another important case is that of the 'voiced h', which plays a very important part in the Wu-dialects in China. These dialects usually have an ordinary [h], which has different values according to the vowel following and may therefore be taken as one phoneme, as in the case of German or English, so that instead of having two symbols for [h], [h], we need only one symbol for [h]. But in the case of the voiced [h], not only the vowel quality (or the vowel articulation) begins at the very beginning of the breathing, but the breathlessness also lasts till the very last moment of the vowel, so as to form one homogenous breathy vowel, and there is neither question of order of succession nor question of substantive and adjective. If we must have one piece symbol for one piece sound, we should have to have a series of different voiced [h] symbols for different vowels, or an extra series of breathy vowels have to be recognized. The only practical thing to do here is to consider voiced [h] as one phoneme and write the vowel symbols after it as [ha], [ha], [ho], etc., although we know that these digraphs represent perfectly homogenous sounds.

There are also borderline cases where it is open to question whether certain sound-elements are simultaneous or successive. According to ordinary transcriptions, the English word 'swell' is transcribed as [swel], while the Chinese word [ؤ] 'year' is transcribed as [suel], from which it would seem that the first two elements in Chinese would be separated more clearly than in English swell. As a matter of fact, the contrary is the case. While the [s] in English swell is not at all labialized for most of its duration, the [s] in Chinese is completely labialized. Moreover, the diphthong [ε] starts almost as soon as the tongue leaves the [s]-position without leaving any appreciable duration for the [ε] or [w] to stand alone, so that a narrow transcription might give [swel] or [swel], or as the vowel element is rather weak in this type of word, as [εel]. But in similar syllables in other tones or with other initials consonants, there is more independence in the [u]-element. It would be contrary to the spirit of phonemic transcription to write [swel] as [swel] and [εel] as [swel]. Consequently, we must allow as a possible phonemic 'solution' the over-analysis of [ε] into two phonemes [sε] or [swε], and so long as our universe of discourse is Chinese (Mandarin) phonemes, we should not be disturbed by the fact that [swel] in English is a succession of two sounds in which [s] is little or not at all [w]-lized.

From the consideration of these cases of under-analysis and over-analysis, we see the great advantage of Bloomfield's speaking of sound-features instead of sounds. If we consider a sound as made of a number of features, then a phoneme is a combination of certain simultaneous features and/or successive features, leaving other features unspecified. The English [t]-phoneme, for instance, consists of the features of voicelessness, apico-alveolar articulation of a certain range (eighth, tea, tray), and complete stop of breath, while the exact position of articulation, the force of stopping, the nature of on- glides (heat, hook) and off-glides (far, star, too, little, button, but) are left unspecified. The Chinese [u]-phoneme consists of the features of lip-narrowing, a slight velar action, and voice, and as the position of the tip of the tongue is left unspecified, it is perfectly free to form the [u]-articulation while the [u]-articulation is being held, so that we can entertain the idea of two phonemes [s] and [u] being telescoped into one single sound [us] without necessarily considering the sound [u] as one new phoneme or as one member of a new phoneme. Similarly, the [i]-phoneme in the Wu-dialects consists of the feature of emitting more air than usual in producing voice, and as it does not specify anything about the oral or nasal features of articulation, the speaker is free to do all kinds of articulatory tricks at the same time with [i], so that there is an [a] type of [i], an [e] type of [i], etc., and even an [m] type of [i], as [hm] 'have not', as contrasted with [m] in [m-ma] 'mother', and yet all this does not prevent us from considering the [i] and [u] in [i-a] as two theoretically separate phonemes.

(c) Zero symbols. 

As limiting cases of the variation in size of unit, we have the possibility of using zero symbol for sounds or sound-features and of counting absence of sound as a phoneme or as one member of a phoneme.

Where there are several degrees of significant stress, significant length, or kinds of significant intonation, it is the usual practice to represent one of them by zero symbol. Thus, unmarked syllables in polysyllabic English words are understood to have the low degrees of stress. Vowels without length marks are understood to be short. In most systems of tone-marking, the first tone in Chinese is marked by not marking it.

In the Chinese syllables [tse], [tsê], [sê], [tsê], the [s] is a vowel which is a vocalized prolongation of the preceding consonant, and it is understood to be present when these syllables are written in the standard way, that is with the consonantal symbols standing alone: [θ, t, s, p, s, k, J, ] in the National Phonetic Script. This is therefore a way of representing actual sounds by zero symbol.

In German stressed syllables beginning orthographically with a vowel, there is normally a glottal stop. Some writers give the symbol [ʔ] for this sound, but others omit the symbol, and in internal positions, as in Verein, a stress mark suffices to indicate the presence of the [ʔ], as [fer ain]. It would be perfectly possible, though hardly conventional, for us to favor some other phoneme with the saving of a symbol, say [h], and transcribe Hauch as [aux] and such as [aux].

Readers of Bloomfield's Language who are used to ordinary types of transcriptions of English must be impressed by forms like these on pages 111, 112, 121, 122:

gentleman [ˈgentlɛmən]
atom [ˈætəm]
maintenance [ˈmeɪntənəns]

<table>
<thead>
<tr>
<th>[ə] compulsory or preferred</th>
<th>[ə] optional</th>
<th>Absence of [ə] compulsory or preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>arbor [-bar] vs. club rate</td>
<td>happen [-p(ə)n]</td>
<td>able [-b]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>upper [-por] vs. upright</td>
<td>often [-f(ə)n]</td>
<td>simple [-s]</td>
</tr>
<tr>
<td>gentleman [-man] vs. autumnal</td>
<td>even [-v(ə)n]</td>
<td>dismal [-m]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>humor [-mar] vs. am ready</td>
<td>bacon [-k(ə)m]</td>
<td>careful [-f]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>kingdom [-dam] vs. bed-mate</td>
<td>Winkum [-k(ə)m]</td>
<td>devil [-d]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>London [-don] vs. kindness</td>
<td>Beauchamp [-b(ə)m]</td>
<td>sudden [-d]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>under [-dar] vs. shad roe</td>
<td>Gresham [-g(ə)m]</td>
<td>middle [-d]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>atom [-oam] vs. met me</td>
<td>patron [-t\text{\textsuperscript{\textasteriskcentered}}(ə)m]</td>
<td>colonel [-n]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>pattern [-tem] vs. outright</td>
<td>Durham [-r(ə)m]</td>
<td>wiggle [-g]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>maintenance [-tions] vs. main news</td>
<td>coral [-r(ə)m]</td>
<td>engine [-\text{\textsuperscript{\textasteriskcentered}}\text{\textasteriskcentered}}</td>
</tr>
<tr>
<td>Barnum [-barn] vs. on me</td>
<td>handsme [-s(ə)m]</td>
<td>cordial [-c]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>corner [-kor] vs. Heavenly</td>
<td>bosom [-b(ə)m]</td>
<td>luncheon [-\text{\textsuperscript{\textasteriskcentered}}\text{\textasteriskcentered}}</td>
</tr>
<tr>
<td>Helen [-lan] vs. hell no</td>
<td>Bentham [-b\text{\textsuperscript{\textasteriskcentered}}(ə)m]</td>
<td>celestial [-c]\text{\textsuperscript{\textasteriskcentered}}</td>
</tr>
<tr>
<td>alum [-\text{\textsuperscript{\textasteriskcentered}}(ə)m] vs. elm (but also [elam])</td>
<td>fathom [-f(ə)m]</td>
<td>nation [-\text{\textsuperscript{\textasteriskcentered}}\text{\textasteriskcentered}}</td>
</tr>
</tbody>
</table>

Opinions may differ as to the placing of particular cases under each heading, but there seems to be no doubt as to the presence of [ə] in gentleman [-m\text{\textsuperscript{\textasteriskcentered}}] or its absence in able [-b]. Historically, as the orthography indicates, many of these words had clear vowels. Now some of them have an obscure vowel even in deliberate speech, which does not however entirely disappear in some cases. Since the presence, option, or absence of the [ə]-sound are more or less determined by the nature of the sounds preceding and following, and sometimes by concisons of syllabication, we can regard this as one phoneme of which one member is the obscure vowel [ə], a second member is a variable (or dynamic) consisting of [ə] and zero, and a third member is zero. Bloomfield has therefore as much right to represent this phoneme by zero symbol as one has to represent German [ə] by zero symbol. Apparent ambiguities as in the case of string and stirring may be avoided by marking the syllabication: [\textsuperscript{\textasteriskcentered}str\textsuperscript{\textasteriskcentered}i\textsuperscript{\textasteriskcentered}j\textsuperscript{\textasteriskcentered}n], which will remind us to explode the [\textsuperscript{\textasteriskcentered}i\textsuperscript{\textasteriskcentered}] before the [ə], as it is a case of the first member of the phoneme.

It should be noted that our discussion above is to find a methodological justification for Bloomfield's use of zero symbol for an actual sound. There are other considerations from which this avoidance of the symbol [ə] seems rather incoherent. Thus, when there is no final consonant like [l], [n], etc., to act as a syllable carrier, as in America, suppose, jealousy, he is obliged to use exclusively strong forms like [\textsuperscript{\textasteriskcentered}us\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}] or [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}] or [\textsuperscript{\textasteriskcentered}o\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}], which are rarely heard even in deliberate speech (understanding of course that [\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}] is the 'short u'). The definite article the will have to be either [\textsuperscript{\textasteriskcentered}æ\textsuperscript{\textasteriskcentered}n\textsuperscript{\textasteriskcentered}] or [\textsuperscript{\textasteriskcentered}ə\textsuperscript{\textasteriskcentered}], with no middle ground. Those who favor Bloomfield's system for English will find that he is simply carrying the omission of [ə] to its logical conclusion. Those who do not will consider forms like [\textsuperscript{\textasteriskcentered}str\textsuperscript{\textasteriskcentered}i\textsuperscript{\textasteriskcentered}n\textsuperscript{\textasteriskcentered}], [\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}n\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}], [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}m\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}k\textsuperscript{\textasteriskcentered}] a reductio ad absurdum.

Larger cases of under-analysis, we considered the representation of affricates, aspirates, and narrow-range diphthongs by single symbols. Now if the symbol used is obviously one of the elements in the compound, as [p] for [p\textsuperscript{\textasteriskcentered}j\textsuperscript{\textasteriskcentered}], [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}] (instead of [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}]), [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}] (instead of [\textsuperscript{\textasteriskcentered}j\textsuperscript{\textasteriskcentered}]) for [\textsuperscript{\textasteriskcentered}e\textsuperscript{\textasteriskcentered}j\textsuperscript{\textasteriskcentered}], or [\textsuperscript{\textasteriskcentered}a\textsuperscript{\textasteriskcentered}] for [ou], then we can regard that element which is understood but not represented as having zero
symbol. For instance, in the Soochow dialect, labials go with [u], velars and dentals go with [a], and alveolars go with an apical vowel with protruding lips, for which the writer has proposed the symbol $\#$, as $\#$ [p$\#$, b$\#$, k$\#$], $\#$ [t$\#$, k$\#$, p$\#$]. All these can be considered as members of one phoneme [u], in which case the [a] in [au] would be a sound with zero symbol. Again, in the Soochow vowels [u] ~ [ou], [i] ~ [ei], [y] ~ [ey] according to tone, as cited above, it is common practice to consider the first tone, which goes with [i], [u], [y], as basic, so that it is convenient to write these phonemes as [u], [i], [y], in which case a tone mark would suffice to remind one of the addition of [-], [-], [-] (by no means weak and parasitic), though these elements still have no symbol to themselves except as implied by the tone.

(d) Zero sound

In the cases of over-analysis, as in [fia], we had two features representing separate phonemes which together make one single sound. But if we take the series [u], [au], [u] in Soochow and consider them as varieties of [au], of which the [a] is absent after labials and alveolars, then under the latter conditions the phoneme [a] will have zero as a member. Similarly, if we write in the symbol [y] for maintenance [-ens], happen [-pan], button [-tan] all alike, then the [a] will be a symbol for a phoneme, of which one member (in words of the type in the third column in the preceding table) has the value zero. Again, Bloomfield's use of [ii] and [ow] in unstressed positions may be regarded as cases of [i] and [w] with zero sound. In Passy's 'orthographic' notation referred to above, he spelt out the 'mute e' as [a] in all cases, letting the 'rule of three consonants' take care of the presence or absence of the actual sound. From our point of view, [a] would then be a phoneme with zero as a possible member. In the system of Ancient Chinese initials, there are two called yi$\#$ and yuh ($\ast$) which have been reconstructed by Karlgen as [$\#$] and smooth vowel respectively. Those are of course only the names of the initials. But Jang Tayan ($\ast \ast$) has devised an alphabet with a symbol for each of the 36 initials, so that his symbol for yuh would be a symbol with zero value, very much like the 'symbol for the smooth ingress of vowels in Greek.'

In the theory of shell ($\#$) or 'rim-emes' in traditional Chinese phonology, the use of a symbol for zero is extremely useful. Taking again the National Phonetic Script, which is constructed very much in the spirit of traditional phonology, we have the rimemes $\$, $\$, $\$, $\$ which, like the other rimemes, may be preceded by the medials $\$, $\$, or $\$ so as to form the following complete finals (i.e. syllables minus initial consonant, if any) which actually occur in words:

<table>
<thead>
<tr>
<th>without medial</th>
<th>$$</th>
<th>$$</th>
<th>$$</th>
</tr>
</thead>
<tbody>
<tr>
<td>with medial $$</td>
<td>$$</td>
<td>$$</td>
<td>$$</td>
</tr>
<tr>
<td>with medial $$</td>
<td>$$</td>
<td>$$</td>
<td>$$</td>
</tr>
</tbody>
</table>

A simple phonemic transcription in the IPA would be

\[
\begin{array}{llll}
i & a & u & \gamma \\
\text{i} & \text{u} & \text{i} & \text{u} \\
\text{u} & \text{i} & \text{a} & \text{u} \\
y & \text{a} & \gamma & \text{a} \\
\end{array}
\]

In these twelve finals, the [a] in [iæ], [iø], and [yø] always has value zero (in [yan], the [y] is broken up into an intermediate value between [i] and [yu], just like the [a] in [bærdon] for German barden. In the case of [iæ] and [iø], the [a] has zero sound in the first and second tones and has some sound in the third and fourth tones, except that in [iæ] not preceded by an initial consonant, [a] does not entirely disappear in any tone. In [yan] the [a] has zero sound in the first and second tones when there is an initial consonant, is fully sounded when there is no initial, and is very weak in other cases. With [iæ], [iø], the [a] is sounded only when there is no initial consonant. With [yan], the [a] is sounded (with the value [i]) when there is a palatal initial or no initial, but has zero sound with other initials. With such a complicated group of facts, where each case is a law unto itself, we should still fail to attain perfect phonetic accuracy by writing something like:

\[
\begin{array}{llll}
i & o & u & a \\
i & u & i & a \\
\text{w} & \text{i} & \text{u} & \text{a} \\
y & \text{i} & \text{a} & \text{n} \\
\end{array}
\]

although this may be a useful form of transcription for certain purposes. The paradoxical appearance of a symbol with widely different values, including zero, would disappear if we stuck to the National Phonetic Script or used some non-committal symbol such as 'o' for the phoneme in question, thus:

\[
\begin{array}{llll}
i & o & u & o \\
i & o & i & o \\
\text{w} & \text{o} & \text{u} & \text{a} \\
y & \text{o} & \text{a} & \text{n} \\
\end{array}
\]

This is of course not the only or even the best phonemic treatment of these finals, but by allowing the possibility of zero members of phonemes, we do gain a number of advantages. 16
are actually being done in current transcriptions, and that according to the way in which we treat the time unit of phonemes in a language we may arrive at one or another of various possible solutions for that language.

2. The Grouping of Sounds into Phonemes

So long as we confine ourselves to the consideration of stock examples like keep, call, cool, our construction of phonemic systems is smooth-sailing. We need only to disregard slight variations of what is generally regarded as the 'same sound' and call it a phoneme. But on many questions of the identification of sounds in a language, we are not favored with such general consensus of opinion. Is the second element of the English 'long i' to be identified with the first element in yes (Bloomfield's [aɪ]), or with the first element in i (iː or by many writers), or with the final element in very (Palmer's [aɪ]), or with the undistinguished [i] in it [ɪt], sat [aɪt], very ['verɪ] (iː) by many writers, or with the first element in eight ([æɪ] in certain 'narrow' transcriptions)? Is the palatal series [te], [teʰ], [tʃ] in words like sir, sir [stɪr], sir [stɪr] (occurring only before high front vowels) to be identified with the velar series [k], [kʰ], [x] or with the retroflex series [ts], [tsʰ], [s] (none of either series ever occurring before high front vowels)? As we emphasize this or that motive, we should arrive at a different system of organization of elements into phonemes. We may desire to have (a) phonetic accuracy, or smallness of range of phonemes, (b) simplicity or symmetry of phonetic pattern for the whole language, (c) parsimony in the total number of phonemes, (d) regard for the feeling of the native speaker, (e) regard for etymology, (f) mutual exclusiveness between phonemes, (g) symbolic reversibility, and these motives are often conflicting.

(a) A minimum degree of phonetic accuracy is provided for by the 'similar in character' clause contained in Jones's later definition. By our purely logical definition, we should have the possibility of regarding English [h] and [k] as members of one phoneme, which never occur in the same phonetic environment, and we could write forms like [hɛt], [bi kev], [səh], [silks] for hat, behave, song, sing, and learn very quickly when to say [h] and when to say [k]. Such practice, however, would not be favored by either the phonetician or the phonologist. Now the automaticity of variation within a phoneme has two senses. (1) The variation of [h] of the shades [h], [h], and [h] etc., according to the following vowel is automatic practically in all languages which have these sounds. So is the variation of the [a] in [ts] and [tʃ] in all languages which have these affricates, that is, if we take affricates as successions of two phonemes. But such cases are much rarer than we are inclined to think. (2) In most cases, the automaticity of variation holds only for the particular language in question, although familiarity with the language may give one the impression of its universality. Thus, speakers of the language, e.g. Japanese, would find the change of [h] into [ɕ] before [i] so natural as to be something inherent in the nature of speech sounds, while in
another language, e.g. German, [i] can be followed by [j] without becoming [ɪ],
which belongs to another phoneme. The variation of Foochow [a] and [e] as 'to
be able to', according to tonal environment, is so natural to the native speaker
that he refuses to admit that he is not pronouncing it always in one and the same
way, while in many languages these are widely different phonemes. Since, there-
fore, the automaticity of variation is mostly of conditional nature, we shall have
to allow a good deal of latitude in the interpretation of the 'similar in character'
clause. For the sake of phonetic accuracy, it would be an advantage to construct
our phonemes with as narrow ranges of variation as possible (though it is never
desirable to limit ourselves to universally automatic groups of the type (1) men-
tioned above), but this one desideratum may have to be sacrificed to some extent
for other motives.

(b) Simplicity or symmetry of phonetic pattern is a factor which greatly influ-
ences our organization of phonemes. Bloomfield wishes to say that there are no
long vowels in English, a statement which, from our standpoint, is neither true
nor false, but may be estimated as methodologically desirable or not desirable.
He has eight vowels:

\[
i, u \\
e, o \\
\]

and eight diphthongs or triphones:

\[
a, o, w \\
\]

It would seem that he could gain phonetic accuracy by writing [ai], [ei], [ou], even
without the addition of special symbols like [i] and [u], but then he could not very
well go on and write [ii], [ua], and if he indicated the diphthongal character of these
vowels by [ii], [uw], the system would look much less symmetrical. The table would
also look less symmetrical if he wrote [i], [u], with the American narrow-range [e]
and [e] lurking around for recognition, while [i], [aw], and [g] still remain
as diphthongs. The use of the nonce phoneme 'a' for Chinese (see 1 (d) above) with
zero as a possible member of the phoneme, gives great symmetry to the system.
Again, the series [i, ɪ, ʊ, ʌ, ə, ə] may be symmetrically rendered as [a, [a, [u, [u],
[y] instead of the usual [an], [ien], [an], [yan] which is phonetically more
accurate but by no means necessary. When symmetry runs parallel to structural or
eymological considerations, so that the phonemes also agree with diaphones or
phonemes, its claim for consideration will of course be greatly increased.

(c) Parsimony or entities in the spirit of 'Occam’s razor' is of course the hobby of
symbolologists. We have already noted the admission of digraphs for single sounds

for the saving of a whole series of new letters. The use of [ij] and [uw] or intro-
duction of length saves the use of the letters [i], [u], and [w] for English. Palmer
deplores this 'exaggerated compliance with the principle of symbol economy';
because, among other reasons, the symbol for length, e.g. in although [pæl].
does not necessarily indicate length. The writer can recognize the uselessness of
the letters [i], [u], and [w] from motives of phonetic accuracy, but the objection to the
length mark does not seem to be fatal, for the symbol [w] may also be taken
phonemically in such a way that it is long in stressed positions, less long before
voiceless consonants, and short (without change of quality) in unstressed positions, while [w]
can still be considered a separate phoneme. Bloomfield’s avoidance of [w] and his
identification of the vowel in son with the first vowel in own (instead of writing the
former [w] or [x]) also effects a saving of ‘queer symbols’.

The extent to which one could go in the parsimony of symbols can best be
illustrated by Liu Fu’s numerical code for the Peiping syllables. He used only
six symbols in six positions (or ‘plus’ six positions, if we count positions as
part of the set of symbols) as shown by the table below. Thus ㄦ [kan] would
be 312241, where 31 stands for [k], 224 is [kan] and the last figure ‘1’ means
the first tone. 000042 would be the nasal interjection meaning ‘What did you
say?’. This system is extremely symmetrical in structure, economical in the
number of kinds of symbols used, and very illuminating as to the phonetic
pattern of the language, but it can hardly be used as a system of transcription
and was never intended to be. It may be noted here that his ‘Abdomen No. 1’
includes [x], [n], [m], [l], [r], and zero as members, and corresponds to our
‘a’. In the body of the table, he gave also a somewhat narrow transcription of
all the syllables.

<table>
<thead>
<tr>
<th>Position</th>
<th>I. HEAD</th>
<th>II. FACE</th>
<th>III. NECK</th>
<th>IV. ABDOMEN</th>
<th>V. TAIL</th>
<th>VI. EXPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place of articulation</td>
<td>Place of articulation</td>
<td>Manner of articulation</td>
<td>Medical vowel</td>
<td>Principal vowel</td>
<td>Final vowel or consonant</td>
<td>Tone</td>
</tr>
<tr>
<td>0</td>
<td>zero</td>
<td>zero</td>
<td>zero</td>
<td>zero</td>
<td>zero</td>
<td>—</td>
</tr>
<tr>
<td>1</td>
<td>labial</td>
<td>unaspirated</td>
<td>i</td>
<td>a</td>
<td>u</td>
<td>1st</td>
</tr>
<tr>
<td>2</td>
<td>dental</td>
<td>aspirated</td>
<td>u</td>
<td>a</td>
<td>u</td>
<td>2nd</td>
</tr>
<tr>
<td>3</td>
<td>velar or palatal</td>
<td>nasal</td>
<td>y</td>
<td>n</td>
<td>n</td>
<td>3rd</td>
</tr>
<tr>
<td>4</td>
<td>retroflex</td>
<td>voiceless continuant</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>4th</td>
</tr>
<tr>
<td>5</td>
<td>dental advanced</td>
<td>voiceless continuant</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>4th</td>
</tr>
</tbody>
</table>

(d) The feeling of the native speaker is a factor which is greatly emphasized by
Sapir. Where the feeling comes from obvious misconceptions, arising often from
orthographic considerations, such as the idea that principal and principle have
different pronunciations, or that me = n + g, we need not take it very seriously.
But when there is no question of misconception, but one of preference of choice
between alternate manners of organization of phonemes, then the feeling of the
native should be given due consideration, though it need not be taken as the decid-
ing factor. Thus, while the phonetician would write Chinese <tbody> and  as [ss], [zi], [su], [yu], the speaker of the dialect of Peiping feels that they all belong
to the same rimee with different modals. This is further supported by the fact that when the [n] is dropped when the syllable is amalgamated with a following
retroflex vowel, [en] does not become [ier], but [iar], as in—.§[he] i ten arl > [iar]
'a little'. Most speakers of the Foochow dialect feel that among the vowels in
the following words,

| foochow | peiping
|---------|---------|
| a  | a
| e  | i
| o  | o
| u  | u

those in the same row are tonal variations of the same vowel, while refusing to
recognize that the vowels in §[eip242:] and §[eip55:] or those in §[oun242:]
and §[oun55:] are the same. As there are very definite rules for the diphthongi-
ation of single vowels (or opening of close vowels, as [a] — [a]), it is quite possible
to arrange the Foochow vowel phonemes according to the native conception as
an alternate and for some reasons a better way of grouping the phonemes. On the
ambiguity of the phonemic membership of Peiping 4, 5, 7, the native speaker will
also have something to say. The distribution or patterning of these sounds and
related sounds is as follows:

1. §/t/ is always before [i] or [y]
2. §/k/ is never before [i] or [y]
3. §/s/ is not §/s/
4. §/ŋ/ is §/ŋ/

It is therefore possible to identify the series 'I' phonemically with any one of
the other three series. Wade identifies it partially with '4': he writes ch, ch’, sh
for 'I', and ch, ch', sh for '4'. The National Romanization identifies 'I' with '4'
completely by writing j, ch, sh for both. The French system of romanization
for Chinese has '2' or '3', according to etymology, which was what '1' came from, and
overzealous adopters of the French system identify '1' with '3' completely, and
write forms like Sien Sien for §[sh], although both belonged to series '2'. Now as
to the feeling of the native, the favored series is '2'. For he feels [ka, tai, ku, uen]
or [xa, ei, xu, ey] to be alliterative series with only different vowels. Moreover,
in the system of a secret language which breaks every syllable with initial-final-F
into lal + KF, (e.g. §[pei] = [pni-kei]), the [k] becomes [ta] when the final begins
with a high front vowel, as §[mi] = [mi-tei].

(c) Regard for etymology is properly not within the scope of our present study,
which is concerned only with the descriptive study of one language of one period.
two or more phonemes may be taken in two senses. In a conditional sense, 'the same sound' never occurs under the same conditions as to contiguous sounds or as to conditions of stress, length, and tone. The [ei] in the Foochow [ei] phoneme occurs always in the tones [12:], [24:], [23], while the [ei] in the [ei] - [ai] phoneme occurs always in the tones [55], [53], [22], [5]. The English [ei] and [i] also occur under different conditions of stress from combinations like heat sheets and sad Jeanne. In an absolute sense, on the other hand, Palmer's 'multiple identity' implies that two phonemes will have in common one member identical in all respects. Thus, there is absolutely no difference between the initial in [ei] and the initial in [ei], discussed above under (c). It could be that any sound or symbol or both under the [s] phoneme, but if we write [x] and [s], then the identical [e] would belong to two phonemes under the same conditions. This treatment brings up the question of (g) Symbolic Reversibility. The use of symbols has two aspects, the aspect of reading, or the determination of the object from the given symbol, and the aspect of writing, or the determination of the symbol from the object. The reading aspect of phonemic symbols is always determinate with respect to the language in question. Given a phonemic symbol, the range of sounds is determined, and the choice within the range is usually further determined by phonetic conditions. It would also be a desirable thing to make this reversible, so as to include the aspect of writing; that is, given any sound in the language, its phonemic symbol is also determined. If phonemes do not overlap, this is obvious. If they overlap, and the common members occur under different phonetic conditions, the reversibility still obtains. For instance, although [i] is normally pronounced [tema], so that the m sounds exactly like the m in [man], yet we can tell that it is only a member of the phoneme n, as the phoneme m never occurs in this position in standard Chinese. Again, in the dialect of Foochow, if we had the symbol A for the [ei] - [ei] phoneme and the symbol B for the [ei] - [ai] phoneme, we could still tell whether a given case of the sound [ei] is to be written A or B from the tone. But if the identity of a common member between phonemes is unconditional, as the distinction of [x] and [s] for the Peiping dialect, then it would be impossible to go from the sound to the symbol even for the native speaker. Strictly, a non-reversable symbolization of sounds based on etymological or other considerations becomes an orthography and ceases to be a transcription, and the French system of romanization of Chinese, which distinguishes [e], [i], [k], [k], [l], [m], [n], [n], [t], [t], [l], [t], [t], [ts], [ts], [ts], [ts], [ts] (also favored by Bernhard Karlgren) is a case of this kind. In other words, homonyms should not have different transcriptions. There is, however, a class of intermediate cases, where the common member between two phonemes occurs under exactly the same phonetic conditions, but at other times becomes differentiated in some way under other sets of identical conditions. Thus, for example, when followed by a consonant. The reversibility is therefore only partial. Usage is by no means uniform in such cases. Sometimes, symbolic reversibility is secured at the expense of word identity, the same word appearing in two forms [pouko] and [pouko], considered as different sets of phonemes. At other times, identity of word form is secured at the expense of reversibility, the same word Fo: espèce always appearing as [espèce], where the final [s] is pronounced [z] when followed by a voiced consonant, so that given the final sound [z], one cannot tell whether it is a member of the [z]-phoneme or a member of the [s]-phoneme. 3. Choice of symbols

It is one problem to group the sounds of a language into such and such phonemes and another thing to assign such and such symbols or letters to these phonemes. As a phonemic transcription has reference to one language, there is a great degree of freedom in our use of symbols. The freedom, however, is not so unlimited as in the case of mathematics, where the same symbol changes value not only from problem to problem, but also within the same problem. From purely logical considerations, it would seem that once the phonemes themselves are agreed upon, it is only a matter of form as to the symbols used for them. What's in a letter? Who ever heard of one mathematician writing 1, 2, 3, and another insisting that the same items shall be written as a, b, c? In phonetic symbols, however, there is tradition, or rather, what is more unfortunate, a number of conflicting traditions in the use of symbols. Consequently, there arise frequent controversies with as much vehemence as can be shown by the use of words. We shall feel the importance of the use of symbols when we realize that it often has an influence on our actual organization of phonemes. Some of the factors which influence our choice of symbols run parallel to those which influence the organization of phonemes. Thus, symmetry and simplicity of phonetic pattern corresponds to a certain degree of symmetry and simplicity in the symbols. Parsimony in the number of phonemes implies also parsimony in the number of symbols. The feeling of the native as to sounds will also apply to the choice of the symbol if the language already has an alphabet, although this is often less dependable than his feeling for the pattern in the abstract. In addition to these, we have following questions especially concerned with the choice of symbols.

(i) The desire to keep within the limits of the ordinary 26 letters of the roman alphabet is such a powerful one that transcribers yield to it at great cost to other considerations. Thus, if a language has [a], [e], or [e] but no [a], [o], or [e], then the latter symbols will be used as a rule. If a language has only [e], but no [e], then [e] would be used, although phonetically it would be taking as much liberty as writing [i] for [x]. Bloomfield's use of [o] in the phoneme [o] and the diphthong [ow] avowedly comes from the desire to avoid ' queer symbols'. So far as parsimony of number of phonemes and symbols is concerned, [x] would do just as well as [o], but would be even more appropriate, as it is more natural to say that the [x]-phoneme is rounded in the diphthong [ow], on account of the labial [w],
than to say that the vowel [o] in American English is an unrounded vowel except in the diphthong [ow]. This avoidance of queer letters means that while theoretical phonetics tells us that there are such and such sounds, or at least advises us to recognize conveniently such and such distinguishable sounds in the main, yet we feel inclined to identify the phonemes of a language with those sounds which happen to be favored with ‘lower case’ letters.

(b) Of those symbols which are not the ordinary letters of the alphabet some are considered less “queer” than others, either on account of old standing or on account of the importance of their position in the scheme of general phonetics. Thus, [ŋ], [ʃ], [θ], [s], [ɔ] are usually considered much less queer, and less effort is usually made to avoid them than in the case of symbols like [s], [ʃ], [u], [x]. Again, in the abstract scheme of cardinal vowels, a special symbol for the part between [e] and [a] would be of less importance than the eight main positions. And since it is possible to group all the [ɛ]-[ɛ]-region sounds in English under the phoneme [e], the symbol [ɛ] is left free for indicating the phoneme between cardinal [ɛ] and [a], which is what Bloomfield does: using the less queer symbol [ɛ] instead of the symbol [æ], which is ‘queer’ in that it occupies a less strategic position.

(c) The scale of division into which a variable range of sounds is supposed to be divided will have a great influence on the choice of the symbols. Thus, the traditional triangular scale

\[
\begin{array}{c}
\text{i} \\
\text{e} \\
\text{o} \\
\text{u}
\end{array}
\]

and the cardinal scale

\[
\begin{array}{c}
\text{i} \\
\text{e} \\
\text{ø} \\
\text{u} \\
\text{a} \\
\text{o}
\end{array}
\]

differ in the number of intervals into which the vowels are divided. The difference would be less confusing if we had non-conflicting symbols in the new scale, something like:

\[
\begin{array}{c}
\text{i} \\
\text{x} \\
\text{y} \\
\text{p} \\
\text{q} \\
\text{z} \\
\text{a} \\
\text{r}
\end{array}
\]

As a matter of fact, one does find a partiality for using [ɛ] for [e] and [o] for [ɔ] (Cf. (a) above), and, less frequently, [a] for [u], which shows the influence of the

III. Phonetic and phonemic transcriptions

It is the usual practice to distinguish between phonetic, or narrow, transcriptions and phonemic, or broad, transcriptions. The former express the actual sounds [tʃ], [tʃ], [v], [θ], [θ], [s], [æ], [æ], while the latter only indicate the distinctive classes of sounds [tʃ], [tʃ], [v], [θ], [θ], [s], [æ] (or [æ]). From the previous discussions, however, we have seen that there is no such thing as the correct phonemic transcription for any given language. According as we emphasize one or another factor in the size of the unit, method of phonemic grouping, and choice of symbols, we arrive at one or another form of phonemic solution. There is nothing in our definition of a phoneme or any other of the definitions quoted that can decide for us, for example, whether the Chinese [z] shall be a member of [s] or [z], or how the [l] in [la], the [l] in [ll], the [l] in [ll], and the [l] in [ll] should be grouped into phonemic classes. The definition permits us to devise ways and means of grouping together distinguishable sounds that are not distinctive with respect to the particular system of phonemic grouping. It also implies that certain sounds in a language are never distinctive in that language by any reasonable manner of symbolic juggling, e.g. the difference between the [k]’s in keep, call, cool, etc., or the [b]’s in heap, hall, who, etc., can never be considered as being distinctive, unless we should do the very unnatural thing of considering all
the vowels [i], [o], [u], etc., as non-distinctive members of one vowel pheme X, the value to be determined by the nature of the preceding consonant k, k̂, etc., h, ĥ, h̄, etc., or zero, zero, zero, etc. (i.e. in words like eat, all, ooez). But many sounds in a language are neither distinctive nor non-distinctive per se, but depend upon our particular manner of phonemic treatment. Thus, by writing up, owe, ill as [op], [ow], [il], Bloomfield considers the difference between the first two elements as in up and owe as non-distinctive and the difference between elements in owe and ill as distinctive. But precisely the reverse thing will have to be said if we treat the same sounds as [o], [sw], [s]χ, a modification which would do no damage to Bloomfield's system as a whole either by way of compromising the parsimony of letters, or by way of introducing queer symbols. Again, in most of the W. dialects, in words of the type [te], [se], [se], etc., as against [ke], [xe], [ne], the [e] is so short that it can be considered as a glide of the preceding consonant and can be left out of the transcription, in which case the difference between [ke], [xe], [ne] and [te], [se], [ne] would be considered distinctive. On the other hand, if we write the [e] in the line then we could consider the [te]-series as members of the [ke]-series phonemes: [ke], [xe], [ne], and it is now the difference between [a] and [i] that is distinctive. In practice, no phonetic transcription is so narrow and concrete as to distinguish between the [h] 's in [he], [he], [ha] in any language, and no phonetic transcription is so broad and so purely abstract as to group English [h] and [n] under the same phoneme [h]. Between these extremes, there are all intermediate proportions of phoneticity and phonemicity. On the whole, we may say that a phonetic transcription is one which makes use of all the usual distinctions which the majorities of phoneticians are expected to be familiar with, irrespective of their distinctiveness in the language, and that a phonemic transcription is one which, given a particular set of directions of approach, makes only such distinctions as are necessary in distinguishing words from that particular set of directions.

The reader will notice the unsatisfactory nature of the phrase 'the usual distinctions which the majority of phoneticians are expected to be familiar with.' This comes from the unsatisfactory nature of the actual state of affairs. In the field of descriptive phonetics, there is nothing like the near unanimity of opinion which exists among physicists, either as to the organization of facts or as to the use of symbols for referring to them. Thus, Bloomfield says: 'The phonetician's equipment is personal and accidental; he bears those acoustic features which are discriminated in the languages he has observed... He should remember that his hearing of non-distinguishable features depends upon the accident of his personal equipment, and that the most elaborate account cannot remotely approach the value of a mechanical record.' This is all true to a great extent, but in the opinion of the writer, Bloomfield is going too far in saying further: 'Only two kinds of linguistic records are scientifically relevant. One is a mechanical record of the gross acoustic features, such as is produced in the phonetic laboratory. The other is a record in terms of phonemes, ignoring all features that are not distinctive in the language. Until our knowledge of acoustics has progressed far beyond its present state, only the latter kind of record can be used for any study that takes into consideration the meaning of what is spoken.' We need not, however, be worried if we cannot read or copy the grooves of a phonograph record. The phonograph record is at best an icon, or a picture, not a symbol in the usual sense of something that we can 'read' and 'write'. Nor need we be worried that the number of sounds in human speech is infinite. The number of distinguishable sounds in human speech is relatively small, limited by the condition of oral-auditory transmission of phonemic distinctions from one generation to the next. When the average actual difference falls below a certain finite limit, the distinction becomes unstable, and the two phonemes soon coalesce into one later phonemic member. We cannot say, as Bloomfield seems to imply, that phonetic transcriptions are mostly subjective and that phonemic transcriptions are mostly objective. We have already seen how phonetic transcriptions are not unique and to that extent subjective. On the other hand, there is also a certain degree of practical agreement as to the non-phonemic use of symbols in general phonetics. For purpose of (1) citation of forms where a feature which is non-distinctive in the language cited is relevant to the point under discussion, (2) giving forms of words or sounds in comparative dialectology, (3) noting incipient or vestigial traces of sound-change, (4) impartial consideration of the gross features of a language before a good phonemic system has been worked out for it, and (5) as a less worthy purpose, for pedagogical use—for all these a narrow phonetic transcription is sometimes very useful and sometimes quite indispensable. One should not do the worst of narrow transcriptions all the time, but one should be prepared for the worst at any time. The dialect alphabet of Lundell, used by Karlgren in his Phonologie Chinoise, both in his main discussions and in the appended dialect dictionary, is a very narrow and non-phonemic transcription. The writer has nevertheless found the system thoroughly usable and understandable, and although for typographical reasons he has changed it into the IPA form in the Chinese translation, he has been able to equate the symbols of the systems with relatively few additions and few doubtful points of classification arising from the number of scale-steps problem. In the writer's own experience in the recording of Chinese dialects, he found that besides the matching and comparison of words with related sounds, a very important procedure is to give a reasonably narrow phonetic transcription at the start, so that we have materials base our decisions upon when we come to questions of choice among alternate treatments.

Bloomfield observes rightly that phonetic transcriptions are often inconsistent as to what features to include and what features to neglect. This difficulty can be met in two ways. In the first place, we can lay down as a principle of symbolology that the position of a symbol in its context may be considered to be one constituent of the symbol. Thus, there is no inconsistency in the figure 1 meaning '1 × 10 and 2 meaning '1 × 10 in the form '17', as the symbol 1 is not just '1', but '1 in the second position'. Similarly, there is no inconsistency in the symbol '>2 meaning 'greater than' in '19 > 17' and meaning 'changes into' in 'p > f', or even between the two uses of '=>' in 'a > σ' according as the formula occurs in an article on phonetics or in one on mathematics. So in discussions on diphthongs, we may need to mention forms like [œu], [œe], [œr], etc., while in discussions on affricates, we may refer
to [təi], [tʃai], [tʃai], etc., just as Bolling finds it perfectly in order to write 
Enrough the eyes are coming, so long as the discussion is 
about the forms of the plural. But if our discussion should turn on the 
forms of the indefinite article, it would then be necessary to write [en 'eg], but [e] 'daei' 
(usually pronounced with the name Enrough according to Bolling), so it 
would not bring out the point at all if we wrote an egg but a Enroughly.

For avoiding too much intricacy in the citation of forms, both Karlgen and 
users of the IPA have resorted to the distinction between broad and narrow transcriptions 
apt to considerations of significant distinction. Karlgen's practice, as 
carried out in his Phonologie (pp. 260 ff.), is very consistent. He has a set of bold-faced 
labels for a broad transcription, under each of which he puts a number of the Lundell 
letters, which are always in italics. Thus, what corresponds to the [e] and [æ] in the 
IPA are grouped under ə, what corresponds to [s], [z], [t], [d], etc., in the IPA are grouped under ə, and so on. There are a few cases of overlapping groups, but on the whole the 
groups are mutually exclusive. The relation between the two sets is therefore very 
much like that between phonemes and members except that no reference is made to 
word distinction. A similar tendency is noticeable among users of the IPA, so 
that systematic division has been made between a narrow and a broad transcription.

Nevertheless, there are certain nonsystematic traditions among phoneticians which 
are based on the whole, on the identity of the letters in the roman alphabet. Thus, ə is 
sometimes recognized as a broad form covering [r] and [l], whereas [l] and [3] are not 
covered by any broad form. Similarly [e] and [æ] are felt as members of a group of the 
g-type in a way that [l] and [æ] do not seem to be. All this points to a conception 
which no one consciously recognizes, but which seems to be assumed by many, that 
there are such things as phonemes in general, apart from reference to any particular 
language, and that all we need to do either for the study of one language or for 
comparative work is to use one consistent phonemic transcription for all languages. 
This would of course be recognized by anyone as an impossible illusion as soon as the 
situation is made explicit, as we may be called upon at any time to make phonemic 
distinctions between shades of sounds whose differentiation we never anticipated 
in either our narrow or broad system of phonetic symbols. The existence of the 
tradition of usage, however, is real. It is true that the existence of only one common 
letter r for [r] and [l] but two common letters t and k for [t] and [k] (or [k]) is a matter 
of historical accident. But we shall see the significance of this accident when we note 
that as a matter of fact most of the languages which phoneticians, or at least European 
phoneticians, have studied, do take [t] and [k] as separate phonemes, while [r] and [l] 
rarely, if ever, occur as separate phonemes. The idea of general phonemes, which we 
have just proposed and condemned in the same breath, is therefore not entirely base-
less. Without entertaining the idea of general phonemes as such, the writer wishes 
to propose the term typical phoneme, to be defined as those groups of sounds which 
very often go together to form phonemes in many of the major languages studied by 
phoneticians. This definition of course makes the idea of a typical phoneme depend 
again on historical accident, the fact that most contemporary phoneticians are speakers of the Germanic and Romance languages. Thus, for a broad transcription using 
typical phonemes, a European would group [p] and [p′] under one typical phoneme, 
as against [b], while an unsophisticated Chinese phonetician would most likely group [p] and [b] under one typical phoneme as against [p′].

The troublesome part of the transcription problem comes from the inconsistency 
in using the same symbol sometimes in a general and sometimes in a particular 
way. In the citations in this article, the writer has found it hard to do better, 
and has tried to manipulate the context (taken as part of the symbolic system) 
in such a way as to eliminate ambiguity. But there is always the danger of slips. 
When we refer to the English [t], one may not know whether it is narrow [t] or [l] 
that is meant. This is very similar to the old practice of referring to the ancient 
Chinese initials ㄑ, ㄒ, ㄕ, ㄖ in this way:

General names: ㄌ, ㄒ, ㄕ, ㄖ
For the dorsal series: ㄘ [tʃ] ㄆ [dʒ] ㄫ [dr]

so that when ㄖ is mentioned, one is at a loss as to whether it is the ㄕ, in general 
(including both [tʃ] and [tʃ]) that is meant, or only ㄖ [tʃ] as against ㄕ [ts]. He has 
therefore proposed the following names for the differentiated series, reserving the 
traditional names for the general sense, incidentally also using an inclusive broad 
transcription for the general series, thus:

General names: ㄌ, ㄒ, ㄕ, ㄖ
For the apical series: ㄑ [tʃ] ㄒ [tʃ] ㄕ [dz] ㄖ [r]
For the dorsal series: ㄘ [tʃ] ㄆ [dʒ] ㄫ [dr]

Karlgen's use of a special series of boldfaced types is based on the same principle. 
Symbols may be as general and inclusive as we may have use for, but must 
not be vague and ambiguous. An approach to this method of having both general 
and particular use of symbols is made in connection with the usage of a few symbols 
in the IPA. Thus, the symbol [ts] is usually understood to be a general form for 
[ts] (half-close) and [t∫] (half-open). [tʃ] and [dʒ] may be used either for [ʃ] and [x] or 
for [ts] and [dz], respectively. This latter, however, is less satisfactory, as in the 
dialect of Linyi (ㄐㄝ, ㄒㄝ), Shandong, [g], [ʃ], [c], all three exist as separate phonemes, 
which the [ʃ] series is intermediate between apical and dorsal articulations of 
the tongue and is identical with English [ʃ] except that there is no protrusion 
of the lips. [ts] and [dz] would be better general symbols, though they are not properly 
IPA letters.

Summary

We have proposed a new definition of a phoneme and have endeavored to show 
that given a language, there is not necessarily one unique solution for the 
problem of reducing its sounds into elements. We have considered what factors can
influence, and have influenced, the phonemic treatment of languages: the variability of the size of the phonemic unit, including the admission of zero symbols and zero sounds, the grouping of phonemic membership, and the choice of actual symbols. Because phonemic solutions are not unique, it is necessary, before arriving at solutions, to have recourse to considerations of descriptive phonetics and the use of phonemic transcriptions. These are also necessary for other purposes, such as the comparative study of dialects. We have also noted that there is a tendency among phon nicologists to group together sounds under broad symbols, which form phonemes in a number of languages, and we have called them "typical phonemes", although there is no consistency in the use of symbols for these. It is hoped that a more consistent system of symbols be devised for indicating both narrow shades of sounds and typical phonemes for the purpose of phonetic and phonemic transcriptions, but for the time being, we have to let the context serve as part of the symbol to inform us as to shade (if particular) or scope (if general). It is not necessary to make serious exception to anyone's transcription so long as it is self-consistent and its interpretation is clear to the extent it is meant for, and so long as it does not claim unique correctness to the exclusion of other possible treatments. Usage may in time become unified, but problems will always vary. Our motto must be: Write, and let write!

Notes

* Since this was written at a time when the differences between transcription and phonemicization and between phonemes and morphophonemes were not as clear as they are today, the article would have to be reworded in many places if these differences were to be taken into account. In this reprint no attempt was made to make such changes, except to correct minor errors of fact.—Y. R. C.

1 H. E. Palmer, The Principles of Romanization, 1931, Tokyo, pp. 52 ff.

2 That is, determined by psychological or physiological conditions other than those which usually are considered to be phonetic.


4 Leonard Bloomfield, Language, 1933, New York, p. 79.

5 See however III below on the finiteness of the number of distinguishable speech sounds.

6 Taken in the sense of the pronunciation of a homogenous speech community, such that members of the same community will find absolutely no "accent" in one another's speech.

7 Fondamenti di Grafa Fonetica, by Daniel Jones and Amerindo Camilli, 1933, Aute and London, 11-12.

8 G. M. Bolling must have overlooked such cases when he said, 'At least I can recall no example of... a digraph for a non-compound phoneme,' in an editorial note on R. G. Kent's review of Bloomfield's Language in the journal Language, X, 1, 1934, pp. 51-52.

9 Fondamenti, p. 11, section 15.

10 Fondamenti, p. 4, section 3.

11 Fondamenti, p. 17.

12 There is a trick recitation in one of the dialects near Nanking in the form of a story consisting mostly of phrases like ʂə ʂə [pə tʃi ʂə?] 'goose versus duck', in which

13 Under this heading, we are not including cases like ancient Hebrew, in which the vowels were not written. For in this system of writing, the vowels cannot be deduced from the phonetic environment alone by any set of phonetic rules. The writing is therefore an orthography and not a transcription.

14 The symbols I and  are Karlsgren's.

15 A combination of Karlsgren's [t] and [u].

16 Bloomfield, Language, p. 113.

17 In this article, we are limiting ourselves to the discussion of phonemes of single languages. If we extend our universe of discourse to diaphones, say about 100 miles south of Peking, the advantage of the above form will be enormously increased.

18 One type of Southern British English.

19 'Puisque ce n'est pas à moi et n'est point à vous, je ne sais pas à qu'est-ce.' From Passy's Christomathes.

20 The case of English  as is somewhat doubtful. If English never had a system of writing, or if its orthography had come to writing for uncle: to mothers, just like an uncle: a mother, we might then be inclined to treat the indefinite article as one word (as it was) and provide a special phoneme [++] as its second element, a phoneme which occurs only in one word. Cf. II(e) below on word identity.

21 Not to include cases of high vowels, which involve other questions.

22 Regard for 'similarity in character' probably prompted him to identify the first element of off with the first element of or, rather than the first element of up. He would gain still greater symmetry if he wrote [u], [ow], or still better [o], [aw], as the first elements in off is much nearer the first element in or than the first element in up.


24 'A Table of the Analytical Numbers of the Beestonge Dialect,' The Kwohlyy Dukhan, III, 3, 1932, pp. 533 ff.

25 Except when the former is pronounced [prinsi pel], which is merely an abbreviated way of saying, 'the word which ends in p-a-I.'

26 Language is open to question, if we take a broader linguistic (as contrasted with phonetic or phonemic) point of view. Cf. Sapir's discussion on this point in 'Sound patterns in language,' Lang. 1.49 (1925) (25).


28 C. F. Bloomfield's distinction between phonetic alternation and formal alternation, 'A set of postulates for the science of language,' Lang. 3.160 (1926) (29).


30 A pure phonetician would therefore prefer to take [i] as one phoneme (or succession of two phonemes) in seven tones, although this would be against the 'feeling of the native'.

31 This is not as complicated as the description looks on paper. The native speaker is not even aware of the vocale identity or similarity of the [i] in the two sets of tones.

32 Jones and Camilli, Fondamenti, p. 3.

33 The writer once heard a piece of music and interpreted it as being here in major and there in minor and its notes as being do, re, mi, etc., only slightly 'off', but
subsequently learned to his surprise that it was a scale of seven equal steps in the octave. The illusion persisted even after he was told. He had forced his own intervals into the new scale, just as we all tend to force the 4-step I-e-o-u scale into the 7-step cardinal scale.

34 Bernhard Karlgren, Études sur la phonologie chinoise, p. 316.
35 As for instance by Daniel Jones.
36 Bloomfield, Language, pp. 84–85.
37 次文を用いた四声研究, Changsha, 1940.
38 In discussions like the present, where there may be a call for ‘narrow symbols’, one could use ‘<’ for ‘changes into’ and ‘>’ for ‘greater than’, thus making peace among mathematics, phonetics, and chemistry.
40 Except speakers of certain German dialects.
41 On the principle of non-uniqueness of phonemic transcriptions, we cannot prohibit the writing of the vowels in cat, a as [], [], and insist on the writing of [u], [u] or of [u], [u].

PEIPING PHONOLOGY

Charles F. Hockett


The phonetics and phonology of Peiping Chinese have been extensively studied.

The justification for yet another discussion is the approach, which is in some respects new. A detailed presentation of this approach would be out of place here, but brief mention of its major points will render the body of the paper more readily intelligible.

(1) Any articulatory event which occurs in a certain position in some utterances of a language, but not in all, is distinctive. Any feature which characterizes all the utterances of the language is non-distinctive. Likewise, a feature which does not regularly occur at least in all repetitions of one particular utterance, is non-distinctive. This is a somewhat wider definition of “distinctive” than has been customary. For example, in English the difference between the aspirated ’of till’ and the unaspirated ’of still’ has usually been termed non-distinctive (or “non-phonemic”); we cannot so classify it, since whenever one says still the aspiration is absent, and whenever one says till the aspiration is present. Any such feature must be accounted for in our phonological description. It is true, as Bloomfield points out, that in our examination of a language we may miss some such features, because of the accidents of our training; such difficulties are encountered in many branches of science; we do the best we can.

(2) Within the total mass of distinctive material in a language, we find a relatively small set of determining features, characterized as follows: (a) if two articulatory events (or what might be described in purely phonetic terms as two articulatory events), a and b, are so distributed that a occurs only and always in conjunction with b, they constitute a single determining feature; (b) two articulatory events, a and b, so distributed that a occurs only when b occurs, but that b occurs also without a, are two determining features; (c) if a occurs both with and without b, and vice versa, a and b are two determining features. But an articulatory event b is not a determining feature at all, nor part of one, if its occurrence is predictable in terms of the occurrence and arrangement of
those events which are determining features; for example, if a is found
with b, with c, and with d, but nowhere else, and neither b, c, nor d is found
without a, then a is not a determining feature. Distinctive features which
are not determining are determined features. Often one may divide the
whole stock of
distinctive material into determining and determined, and it is
the determining
features, in more than one way; such differences of statement are stili-
listic, in no way reflecting facts about the language being described.6

(3) In the examination of the raw data, we avoid the (usually unstated)
linearity
assumption to which our tradition of linear orthography renders us susceptible.
Two features, that is, may occur successively (dental closure and labial closure in
hapatin), or simultaneously (labial and velar closure in some African languages),
or in various overlapping sequences. Bundles of simultaneous or immediate
adjacent features are given no priority, save precisely for the purpose of deriving
an essentially linear notation; this process is phonologically irrelevant, though
such a notation is useful, if not unavoidable, in making phonological statements.

(4) We ignore all considerations of grammatical structure, including such matters
as morpheme or word borders. The purpose of this is to avoid circularity: if
phonology is dependent on grammatical analysis, then phonology is just so
much the less useful as a tool in grammatical analysis. Suppose, for example,
that following the procedure here recommended we find in a particular
language a type of open juncture, and then, when grammatical examination has
been carried to the point of identification of words (minimum free forms),
discovers that word-boundary coincides always, or usually, with this type of
open juncture. Such a correlation is of importance; in some languages it does
not exist. But if we had merely assumed that word-boundaries are phonolog-
ically relevant, the discovery of the juncture, and thus of the correlation
between open juncture and word-boundary, would have been impossible.

(5) Phonological description thus consists of: (a) a list of the determining
features (with alternative statements if alternatives exist); (b) a statement
of the arrangements in which determining features occur in utterances; (c) a
statement of the circumstances under which each determined feature occurs.
This itemization is logical; the actual arrangement of one’s statements will of
course depend on the specific problem.

The body of this paper will serve as an example of the principles
just listed.

We describe a dialect with a maximum number of phonemic distinctions.4 Sim-
pier patterns, perhaps more common in Peiping, are more easily dealt with in
terms of the complex type than vice versa.

1. Segmentation

A Chinese utterance has two simultaneous components: a register-contour, and a
sequence of one or more macrosegments.7

A macrosegment is bounded by macrojuncatures, and has two simultaneous
components: an intonation and a sequence of one or more mesosegments.

A mesosegment is bounded by mesojuncatures, and has two simultaneous com-
ponents: a stress-contour and a sequence of one or more microsegments.

A microsegment is bounded by microjuncatures and has as its simultaneous
components a stress, a tone, and a residual structure (of vowels and consonants).8

2. Juncatures

All the junctures to which names are assigned above are open. We need no need
to postulate also a close juncture; in terms of the present system, close juncture is
the absence of all open junctures.

Microjuncture is a zero-point of sonority,9 a clear and unambiguous point of
syllable division; symbol // (space).

Mesojuncture is a slight pause. It occurs only in combination with microjunc-
ture, and the combination is symbolized //.

Macrojuncture is a pause, often no longer than mesojuncture, but sometimes long
enough for a breath to be taken. The constant distinction is that macrojuncture falls
in the juxtaposition of two intonations, whereas mesojuncture without macrojuncture
falls within a single intonation. Macrojuncture occurs only in combination with the
two less open types; symbol for the combination of the three //; except that at the end
of an utterance we write // or /// (the choice dependent on intonation) instead of ///.

3. Register-contours and intonations

The analysis of these features is as yet incomplete; we try to supply categories
equal to take care of the maximum number of distinctive features of the kind
that may be discovered.

By “register” is meant the range of pitch at any particular place in an utterance,
within which the ups and downs of pitch which constitute intonations and tones
take place. The most typical, and best identified, of the register-contours is found
in utterances of at least four or five macrosegments’ length: wide at first, narrow-
er and with a lower average pitch in the interior, and wider again, but still somewhat
lower than at the beginning, in the terminal macrosegment.9

However, this and other register-contours may be, not independent features, but
rather automatic results of the sequence of intonations on successive macroseg-
grants, and of the number of macrosegments in the utterance.

The clearest thing about intonations is their scope: there is usually little doubt
as to where a particular intonation begins and ends. The exact nature and number
of the intonations is less clear. For the last macrosegment of an utterance, we indi-
cate by terminal // a lowering of pitch from the nuclear stress (§ 4) to the end, and
by //? the absence of such a fall in pitch; thus, in short utterances: //? /'tue1/ me//? /'is
that right?//? /'tue1/ le//? /'that’s right.” Under //? we are probably lumping together
several phonemically distinct types; possibly also several are covered by //.

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A third clearly recognizable intonation, for which no symbol is here provided, consists of a squeezing of the pitch-range into a narrow band at median level, with only slight variations of stress (probably no nuclear stress) and relatively rapid articulation. This occurs, for example, in short introductory phrases before a direct quotation: /tha/ 'same'; /hau/.

He said "OK.”

4. Stress-Contours and stresses

The stress-contour of a mesosegment consists of varying degrees of prominence (produced largely by volume, but partly by length and speed) of its constituent microsegments. The position within the mesosegment of the microsegment of greatest prominence is not predictable, nor, given the position of this, are the degrees of prominence of the remaining microsegments. Therefore the degree of stress of each component microsegment has to be recognized as phonemically primary, and the stress-contour of the mesosegment is an automatic resultant thereof.

The most prominent microsegment in a mesosegment bears loud stress (/\) before the microsegment). The remaining microsegments bear quiet stress (/), or no stress at all (unmarked; “zero stress” if that terminology is preferred).

In addition, in microsegments bearing certain intonations (e. g., /), it is necessary to specify one of the loud stresses in the macrosegment as the nuclear stress, the stressed element at which the intonation turns. The nuclear stress is often, but not always, the last loud stress in the macrosegment. Since its location is not predictable, nuclear stress must be recognized as phonemically distinct from loud stress. No separate symbol is here provided, however, because none of the forms cited require distinctive marking of the nuclear stress in contrast to high stresses.

Finally, in some cases one finds an extra-loud contrastive stress (/\) instead of a loud stress; further intonational analysis may eliminate this as a separate stress-level.

5. Tones

The tones are contrasting contours of pitch, volume, glottalization, and length. There are six tones; we number five of them, indicating them by superscript numerals after the microsegment; the sixth is indicated by the absence of such marking, and a microsegment bearing it is referred to in the discussion as “toneless.”

Toneless microsegments are staccato; microsegments with a tone are legato. Staccato microsegments have an observable pitch (“high,” “low,” etc.), but only legato microsegments have a discernible pitch-contour (“level,” “rising,” “falling”).

Pitch: /\ and /\ are usually level, and have contrasting pitches as their distinguishing features: /\ is high, /\ low, /\, and /\ have contrasting pitch-contrasts as their distinguishing features: /\ and /\ are rising, /\ falling. The rise for /\ begins and ends somewhat higher than that for /\.

Volume: With loud stress (or nuclear or contrastive stress), /\ and /\ are crescendo, /\, and /\ diminuendo. With quiet stress this contrast is sometimes audible; with no stress, never.

Glottalization: With loud stress, /\ and /\ often have glottal friction during the lowest-pitched phase of the contour.

Length: With loud stress, /\ is longest, /\ half-long, and the other three relatively short.

/\ and /\, though usually level, are on occasion not level. When /\ is accompanied by loud stress and followed by /\ (possibly by /\), there is sometimes a slight fall in pitch at the end; this variant is in some circles considered “elegant.” When /\ is accompanied by contrastive stress, it starts relatively high, but immediately dips to extra low; when /\ bears any loud stress and is followed by /\, there is usually a terminal rise. The combination of these occasional features on a single microsegment with third tone cited in isolation is the source of the customary description of the third tone as “dipping.”

With quiet stress or no stress, certain tonal distinctions are lost or facultatively lost, /\ is often not distinguishable in these circumstances from /\, In postonic position in the mesosegment, with no stress, /\ and /\ are in free alternation. In the transcription we maintain the distinctions despite their optional loss (morphophonemically, on the basis of lexical identifications).

The pitch-range within which the contour constituting a tone is placed depends, of course, on the position of the microsegment relative to intonations and register-contours. It is also affected by the stress-level: with higher stresses the range is wider, with lower stresses narrower. The dynamic range for the cresendo or diminuendo contour of a tone is similarly affected by stress-level: greater range with higher stress, less with lower (tone with no stress). For unstressed microsegments, with or without tone, the pitch-range is also conditioned by the terminal pitch of a preceding stressed microsegment in the same mesosegment, if any, and the initial pitch of a following stressed microsegment within the mesosegment, if any.

This last factor operates as follows: initially in a mesosegment, an unstressed microsegment tends towards mid or lower mid pitch. Finally in a mesosegment, such a microsegment has lower mid pitch if /\, /\, or /\ precedes, higher mid pitch after /\, and low pitch after /\, Flanked on both sides by stressed microsegments, within a single mesosegment, the pitch of the unstressed microsegment is a compromise between the terminal pitch of the preceding and the initial pitch of the following.

The phonemic status of the contrast between the first four tones can be demonstrated abundantly by lexical citation of free forms one microsegment in length, e.g.: /hau/ ‘to exit; /hau/ ‘divided into’; /\ ‘main; /\ ‘to go bail for’; /\ ‘nine, wine’; /\ ‘thereupon.’ The fifth tone does not appear on such elements, but can be demonstrated in free forms of two microsegments’ length; one example contrast it with the second and third tones, which are most similar: /\ ‘make-up; /\ ‘annoying; /\ ‘time, /\ ‘one
(dollars): /mai2 mai/ ‘business,’ /tu3 khua1/ ‘five (dollars).’ In all these examples, the second microsegments are facultively toneless (see below).

Toneless microsegments cannot be demonstrated by direct lexical citation at all. There is a distinction, however, between the utterances /han2/ ‘OK’ in answer to a question, and /han/ ‘Yes, go on’ said quietly over the telephone as an indication to the other party that one is following what is being said; the latter utterance has the intonation indicated by /\, but no tone. In longer utterances, toneless microsegments are common. Certain forms, such as the particle /te/ (mark of attribution), /le/ (completive aspect), /c/ (continuative aspect), /me, ne/ (question), are always toneless, even when stressed: /xie1 te, ‘pheng2 ieu/ ‘I said my friend’ using the attributive particle, not without the particle. For some of these particles there are formal citation forms, /ʃi/ for /te/, /liang3/ for /le/, with differing phonemic structures, based, as it happens, on the shape of morphemically distinct elements that are written with the same characters; this does not affect the present discussion. Many elements other than the particles listed above, for example, the second microsegments in the two-microsegment free forms cited in the last paragraph above, are regularly without stress, and optionally retain or lose their tones.

6. Residual structure: determining features

Under constant conditions of register, intonation, stress, tone, and placement in utterance, microsegment, and mesosegment, microsegments contrast on the basis of the occurrence or non-occurrence, and the arrangement, of the following fifteen determining features:

- p bilabial position
- t apico-alveolar position
- k dorso-velar position
- c tongue-front position with sibilance or with affricate release
- f labiodental position
- q glottal position (for which g is always substitutable, though not vice versa)
- S unaspirated complete closure without nasalization
- F fricative spirant contact
- N nasalization, with stop closure or approximation thereof
- l lateral frictionless continuant
- i high-front tongue position
- u lip rounding
- r tongue retroflexion
- e mid tongue height
- a low tongue height.

The total stock of determining features in the language, therefore, consists of the register contours(?), intonations, junctures, stresses, tones, and the fifteen features just enumerated. Every linguistically relevant event in the speaking of Chinese is either one of these features arranged in a particular way relative to others, or a mechanically determined and predictable product of a particular arrangement of these features.

7. Residual structure: notation and terminology

Some of the features listed above occur only in simultaneous bundles. Since it is inconvenient to transcribe other than linearly, we derive the symbols for inclusion between solides from the symbols defined above in such a way as to eliminate the need for non-linear notation:

\[ /ptk\text{i}= /ptke, \]
\[ /si\text{h}= /feq, \]
\[ /mn\text{g}= /ptk, \]

and, for the others, simply
\[ /liure\text{a}= /liurea. \]

The digraph “ng” saves a type-face, and leads to no ambiguity since “g” is not otherwise used.

“f” is used, when needed, for zero.

The following cover terms are used: /a e/ are vowels; /u u/ are semivowels; /s/ are semiconsonants; /ptk f h m ng l/ are full consonants. Both the semiconsonants, and all but one of the full consonants, are simultaneous clusters; it is convenient to classify the successive cluster /ch/ also as a semiconsonant, and the successive clusters /ph th kh/ also as full consonants.

8. Residual structure: arrangements

The above definitions of the symbols for use between solides are statements of phonetic structure; the definition of /p/, for example, at the same time states that the simultaneous bundle of /p/ and /S/ occurs as one arrangement of distinctive features a utterance.

Statements of arrangement still to be made are made in terms of the elements and simultaneous bundles described above, on the convenient assumption that all the remaining arrangements are linear successions of these elements or simultaneous bundles; later on we indicate at what points this assumption is false.
8.1. Types of microsegments

Microsegments are monosyllabic, containing a single peak of sonority, or disyllabic, containing two peaks, the first much more prominent than the second. The latter type is much the rarer, and (probably) does not occur toneless.

8.2. Monosyllabic microsegments

For the description of these we recognize four successive position for elements, symbolized as [1], [2], etc. Elements in position [1] are initials; the remainder is a final.\(^{14}\)

8.2.1. Initials

These fall into the following classes: /#/, /c ch s/, /n l/, /t th/, /p ph m/, /\#/, /kh h/, /ng/, /cr chr sr/, /\#/.\(^{15}\)

8.2.2. Finals

In position [2] occur /\# u i u/ in [3], /\# e a/ in [4], /\# i n g u m r ir ng u/ /\#. The finals are listed in the Table.

Table of finals

<table>
<thead>
<tr>
<th>Group 1</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>ei</td>
</tr>
<tr>
<td>a</td>
<td>ai</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 2</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>u ng</td>
</tr>
<tr>
<td>uc</td>
<td>uc u</td>
</tr>
<tr>
<td>ua</td>
<td>uai</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 3</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>in</td>
</tr>
<tr>
<td>je</td>
<td>jai</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 4</th>
<th>in</th>
</tr>
</thead>
<tbody>
<tr>
<td>in</td>
<td>iu</td>
</tr>
<tr>
<td>iuc</td>
<td>iuan</td>
</tr>
</tbody>
</table>

In the top row of each group, [3] is /\#/ in intermediate row, /c/ in the bottom row, /u/. The finals of a single group have the same element in [2]; those in a single column have the same element in [4]. The three parenthesized finals are morphologically to be expected but are not attested.

8.2.3. Combinations of initial and final

For combinations of an initial and a final which does not contain /\#/f, we say that the combination occurs if (1) there exists a morpheme consisting of such a shape (plus a tone), or part of which consists thereof (e.g., the first microsegment of a two-microsegment morpheme has the required shape), or if, there being no such morpheme, (2) there is clear evidence that the shape in question, with some tone, is pronounceable as a nonsense-element. Such a combination is termed literary if the required pronunciation is assigned to a character in character-dictionaries, but the element does not occur in ordinary colloquial speech (and thus not at all in the speech of many individuals). For combinations of an initial and a final which does contain /\#/f, we say that the combination occurs if (1) there exists a morpheme or group of morphemes of the required shape, or (2) the existence of such is morphologically to be expected, even if it has not been heard.\(^{17}\)

Finals with /m/ as [4] are ignored until (12) below.

(1) Final /\#/ occurs only with initials /c ch s/, /cr chr sr/, /\#/.
(2) Initial /\#/ occurs with all finals except /ang ungr/, /ang\#/ has been heard as an alternative pronunciation of the surname usually pronounced /ang\#/; this is probably a non-Peiping or even non-Mandarin feature.\(^{16}\)
(3) Finals /ueng ueng/ occur only with initial /\#/; /ueng/ and /ang/, likewise /ueng/ and /angr/, may thus be in complementary distribution. /ai/ seems to occur only with the initials /\#/ /ch/; both are literary.
(4) Initials /c ch s/ do not occur with finals /ua uai uang uangr/; nor do the combinations /chei, chen, sen, seng, sengr/ occur.
(5) Initials /u l/ do not occur with finals /nei uai uangr iun iungr ier iier/.

The only case of /len/ is in a recently given personal name, where the use of a “non-occurrence” micro-segment was premeditated;\(^{18}\) but the name is pronounced without difficulty by native speakers. /nien, iie, liuen, luen/ occur only in literary context; /ne/ occurs only toneless; /nang/ is questionable; /nen, neu, men, luen, nia, niuen/ are not attested.

Finals of group 4 do not occur with any of the initials yet to be discussed, save for a peculiar occurrence of /u/ (and possibly /uar/) after /\#/: /chuei/ “kiuy” is the form assumed in a variety of “Pig-Latin” by ordinary /chuei/ “to go.”\(^{20}\)
is unstressed and toneless or optionally toneless: /puəns/ — /puə sr/ — /isən/; /siəsi/ — /siə sə/ — /thəns/; possibly /tənu/ — /tə nu/ ‘cluster’ (as of grapes).21
A few disyllabic microsegments occur in either rapid speech or normal-speed speech, but in the latter case are paralleled by groups of two monosyllabic microsegments. All the cases citable have, also, in fast speech only, still shorter alternants consisting of a single monosyllabic microsegment: /crem/, /cem/ — /creme/, /cem/ — /cre me/ ‘thus, this way’; /nəm/ — /nəme/, /nəm/ — /nə me/ ‘thus, that way’.
There are two disyllabic microsegments which have the shorter alternate just mentioned, in rapid speech, but no two-microsegment replacement except as a highly artificial reading-intonation: /srem/ — /srem/ — (reading-intonations) /srem/ mar/; /srem/ mə/; /srem/ mə/; /srem/ mə/ ‘what’; /cem/ — /cem/ — (reading-intonations) /cem/ mə/; /cem/ mə/ ‘how’.

9. Residual structure: determined features

The statements of arrangement just made were based on the assumption that features or bundles of features represented in the transcription by single letters (or the digraph ‘ng’) occur only in linear sequence (§ 8, beginning). As we proceed with the presentation of determined features, we also note at the present of what assumption that was false.

9.1. Features dependent on placement

9.1.1. Release and onset

Consonants initial in a microsegment have distinctive release; final in a microsegment, distinctive onset; medial in a disyllabic microsegment (position [4]), both.

- /l/ is now completely described. Examples: /lə/ ‘always’; /tənu/ (?) ‘cluster’.22

- /m/ is completely described on the addition of the following: the simultaneous occurrence of determining features p and N involves, as a determined feature, complete closure, the alternant possibility covered by the definition of N (approximation) being eliminated. Examples: /mə/ ‘horse’; /θə/ ‘they’; /srem/ ‘what’.

9.1.2. Voicing and voicelessness

Microsegments are voiced throughout unless they begin with /p t k c ph th kh f s h/. Microsegments beginning with one of these are voiceless except for an initial voiceless phase (the phase indicated by the symbols listed), except as follows: Initial /p t k c/ are usually voiced in an unstressed microsegment, rarely elsewhere. /h/ in initial position often has a glottal stop onset (constituting an initial voiceless phase); this is rarer in unstressed microsegments.


8.3. Disyllabic microsegments

In these there are five positions for elements: [1], [2], and [3] as for monosyllabic microsegments, save that [2] and [3] are not both empty; [4] not of these have been observed, but the nature of the alternation between two-microsegment sequence and single disyllabic microsegment [see below] is such as to suggest that the list is correct; [5] /i i u u/. The limitations of sequence in the first three positions are as for monosyllabic microsegments; if [5] /i i u u/, the same limitations apply to positions [4] — [5] as to [1] — [2] in all microsegments.

Most disyllabic microsegments occur only in fast speech, being replaced at slower speeds by sequences of two monosyllabic microsegments, the first of which is stressed and has the tone of the disyllabic alternant, the second of which
9.1.3. Peaks of sonority

By definition, one peak of sonority occurs in each monosyllabic microsegment, two in each disyllabic microsegment.

If a monosyllabic microsegment contains a vowel, there is a peak of sonority simultaneous with the vowel. If it contains no vowel, but contains a semivowel /\ or the cluster /\'w/ in position 2, there is a peak of sonority simultaneous with the /\ or /\ or /\ or with the second phase of the cluster /\u/. If it contains no vowel and no semivowel /\, the peak of sonority is simultaneous with the last phase of the microsegment, whatever it may be (e. g., with the /\ of /\'st/ ‘is,’ with the terminal vocalic phase [§ 9.2] of /\'e/ ‘four’).

The major peak of sonority in a disyllabic microsegment is simultaneous with a vowel or semivowel in position 3 or 2, as the case may be. The minor peak is simultaneous with the element /e i u ə/ in position 5.

9.2. The semiconsonants

/\ or /\ as the only residual constituent of a microsegment has two successive phases. Phase one is, in each case, consonantal (simultaneous bundle of c and S, or of e and F), with the added determined feature of lowering of the central part of the tongue, raising of the dorsal part, and often some tension of the throat muscles. The second phase is vocalic, identical for /\c/ and /\, and composed entirely of determined features: an unrounded high back vowel, with tongue as for the consonantal phase and the throat muscles still tense. Examples: /\'c/ ‘word,’ /\‘1/ ‘four.’

When the only residual constituent of a microsegment is /\hi/ /\c/ has the two phases just described, but the /\ falls between them, after the consonantal phase of /\c/ and before the vocalic phase; the determined features of tongue-position and throat tension are maintained during the /\: /\c/ ‘time, occurrence.’

In all other circumstances, /c, s/ have only a single phase. When this phase is not simultaneous with palatalization or retroflexion (§ 9.3), the tongue position is as described above.

→ /c ch s/ are now completely described.

9.3. /u/ not in position [4].

We take up separately /i u ɨ/ in position 2 and /i/ in position 1 or in the [1]-clusters /cr ch ʃ/.

9.3.1 /i/.

In the arrangement symbolized /CiV/ (‘C’=consonant, ‘V’=vowel), our assumption of linearity is false. The /i/ begins at the beginning of the microsegment, as palatalization of the consonant, and continues after the consonant as a high-front-unrounded glide. The palatalization of the consonant is clearest in the case of /c ch s/; these consonants with palatalization are articulated with the tip of the tongue behind the lower teeth, the frontal surface of the tongue in contact with the upper teeth and the alveolar ridge to produce the closure or friction. Samples: /sɪŋ/ ‘think,’ /ˈkʰiən/ ‘bridge,’ /ˈbʰiən/ ‘side.’

In the arrangement /CiV (no vowel), /i/ begins with the consonant as palatalization (as above), continues after the consonant optionally as high-front-unrounded glide, then in all cases as high-front-unrounded vowel simultaneous with the peak of sonority. If /u/ follows, the glide phase is usually present, and the vocalic phase is lower than otherwise. Examples: /sɪ/ ‘west,’ /sɪŋ/ ‘star,’ /sɪn/ ‘new,’ /ˈpʰiən/ ‘to spell out.’

In the arrangement /iV (no initial consonant), /i/ is a high-front-unrounded glide (and our assumption of linearity is correct): /ˈsɪŋ/ ‘ocean,’ /ˈiən/ ‘smoke.’

In the arrangement /i (no initial consonant and no vowel), /i/ begins as a high-front-unrounded glide and continues as a high-front-unrounded vowel simultaneous with the peak of sonority. The vowel is slightly lower if /u/ follows than otherwise. /i/ ‘one,’ /i/ ‘sound,’ /ˈiŋ/ ‘should.’

9.3.2 /u/.

All cases of /u/, save when /i/ overlaps (§ 9.33), add high-back tongue position as a determined feature.

In the arrangements /CiV, /u/ is a high-back-rounded vowel: /ˈkʰuən/ ‘bowl,’ /ˈkʰuən/ ‘officer.’

In the arrangement /CiV, /u/ is a high-back-rounded vowel: /ˈpʰuə/ ‘store,’ /ˈtʰuə/ ‘eat.’

In the arrangement /u, /u/ begins as a high-back-rounded glide and continues as a high-back-rounded vowel: /u/ ‘five,’ /u/ ‘(small) room.’

9.3.3 /u/.

(1) When /ŋ/ follows immediately, /i/ has the varieties described in § 9.32 for the arrangements /CiV, and /iV, and the /u/ is a high-back-rounded vowel: /ˈsɪŋ/ ‘fierce,’ /ˈtʰuə/ ‘use.’

(2) When /ŋ/ does not follow immediately, four cases must be distinguished in, or /i/ alone:

In the arrangement /CiV, /i/ begins with the consonant as palatalization thereof, /u/ begins after the consonant, the /i/ continuing, the two together constituting a high-front-rounded glide: /ˈkʰuən/ ‘together.’

In the arrangement /CiV, /i/ begins with the consonant as palatalization; /u/ begins after the consonant, the /i/ continuing, the combination constituting (a) if /u/ follows, a high-front-rounded glide followed by a slightly lower high-front-rounded vowel; (b) otherwise, just a high-front-rounded vowel: /ˈkʰuən/ ‘army,’ /ˈkʰuən/ ‘to go.’
In the arrangement /iuV/, /i/ begins first, as high-front-unrounded glide; then the /u/ begins, the /i/ continuing, the combination forming a high-front-rounded glide: /juan/ 'court,' /hue/ 'month.'

In the arrangement /ia/, /i/ begins first, as high-front-unrounded glide; then the /a/ begins as the /i/ continues, the combination constituting (a) if /a/ follows, a high-front-rounded glide followed by a slightly lower high-front-rounded vowel; (b) otherwise, just a high-front-rounded vowel: /ium/ 'to ship,' /iu/ 'rain.'

9.3.4 /i/.

In the arrangements /CrV/ and /Cru/, /i/ begins and ends with the consonant, as retroflexion thereof. The consonants /ch s/ with simultaneous /i/ have as position of articulation, therefore, the tongue retracted and lifted to the roof of the mouth, so that the tip is behind the alveolar ridge, the contact being between an area of the tongue including tip and blade and the roof of the mouth behind the alveolar ridge. Examples: /chr/ 'exit,' /sr/ 'few.'

In the arrangement /Cr/ (with no vowel nor following /u/), /i/ begins with the consonant as retroflexion thereof (as above), and continues after the consonant as retroflex vowel simultaneous with the peak of sonority. The tongue position for the vowel is identical with the position described above for /ch s/ with simultaneous /i/. Examples: /er/ 'point,' /chr/ 'eat,' /scr/ 'is.'

In the arrangements /rV/ and /ru/, /i/ is a retroflex glide, often with some friction: /re/ 'hot,' /ru/ 'enter.'

In the arrangement /i/ (no consonant and nothing following), /i/ begins as a fricative retroflex glide and continues as retroflex vowel simultaneous with the peak of sonority: /it/ 'day, sun' (bound form).

9.4. Position [4].

/m/ has already been covered in this position and elsewhere (§ 9.11). The remaining elements in position [4] are discussed in the order /u i n r g r ng r'.

/i/ is a glide towards (not necessarily to) the high front tongue position: /hal/ 'sea,' /kel/ 'give.'

/u/ is a glide towards (not necessarily to) the back high tongue position with concomitant increasing lip rounding: /hau/ 'OK,' /keu/ 'dog.'

/i/ is motion of the tongue to or towards the apico-alveolar position, with concomitant nasalization. If the following microsegment in the same mesosegment begins with /i/, the apico-dental closure is often not completed; in this case the nasalization begins with the peak of sonority or even immediately after an initial consonant, if any; thus in /man i/ 'tian i' a little shower.' If the following microsegment in the same mesosegment begins with /p ph m/, the closure of the lips for that consonant is often made simultaneously with the final /i/ of the preceding microsegment; similarly for the dorso-velar closure for an initial /kh h/ of a following microsegment. Because the features constituting /i/ are still present, this is not a morphophonemic replacement of /i/ by /i/ and /ng/. Thus: /chian/ 'pi' 'pencil,' /nuan/ 'he' 'warm.'

/ŋ/ in this position involves no determined features: /pang/ 'mang' 'to give help.'

/i/ is a glide to the retroflex position, frictionless, the tongue approaching the roof of the mouth less closely than for /i/ in other positions: /far/ 'method,' /ier/ 'leaf,' /her/ 'small box,' /uer/ 'nest.'

/i/ and /i/ are simultaneous, constituting a glide to palatalized retroflex position: the front and central portions of the tongue are raised, and the tip slightly curied: /tair/ 'a little,' /tiier/ 'bottom.'

/ŋi/ the nasalization begins with the peak of sonority, or even immediately after an initial consonant, if any. After the peak of sonority there are, simultaneously, a glide of the front part of the tongue to the retroflex position (as with /i/ alone in [4]), and motion of the dorsal part of the tongue towards, but not to contact with the velum; the nasalization increases throughout. Examples: /heng/ 'horizontal stroke,' /pieng/ 'cakes.'

/u/ is a combination of /u/ and /i/, each as described above for position [4]; the two glides come in any arrangement relative to each other—/i/ first, /i/ first, simultaneous, or overlapping with either starting first: /phar/ 'bulb' and /i/ /a/ are now completed described, /a/ /ng/ are completely described once we add that, save as specified above, /i/ /ng/ involve closure, not approximation. There remain to be treated only the vowels, /e a/.

9.5. Vowels.

Microsegments with otherwise identical residual structure (as here analyzed) often occur in triads, in which a prominent feature of the contrasts between them is the height of the tongue at the peak of sonority. Thus: /i: i/ 'coconut: to press down,' /i: u/ 'tea: five: 1: tile,' /e: e:/ 'purple: duty: variegated.' Sometimes there are only two terms: /i&: 'sound: smoke,' /o&: 'ton: segment.' And sometimes there is only one: /i&: 'use.'

Vowel-sounds at the peaks of sonority of such microsegments differ in more than tongue-height: that of /i/ is front, that of /e/ is back and rounded. The vowel-sound at a peak of sonority in some cases has several simultaneous components. For high vowel-sounds, the only components are parts of determining features written with symbols other than /e a/; thus in /i/ 'one,' /u/ 'five,' /ch/ 'eat,' /e/ 'word,' /i/ 'rain,' and the like (§ 9.2.3). In other cases, such components are often present, but there is in addition the component of mid or low tongue-height, symbolized by /a/. For example, the mid-front-unrounded vowel-sound of /i/ has two components: the front position is part of /i/, the mid tongue-height is the /e/ the mid-back-rounded vowel-sound of /u/ has three components: the roundness is part of /u/, the mid tongue-height is the /e/, and the back position is a determined feature occurring whenever this concatenation of determining features is found.
In what follows statements of the kind just made are greatly abbreviated: when nothing is said to the contrary, /e/ (plus whatever other simultaneous components may be involved) is to be taken as having its “normal” value, mid-back-unrounded; /a/, similarly, its “normal” value low-central-unrounded.

9.5.1. Triads

Three-way contrasts occur in the following frames (“C” = consonant, #, or a cluster /chr st/; “W” = # e a/; /CV/#, CuV#, CuVr, CuVng, CuVnr, CiV#/.

/CVr/: /e/ has its normal value or, optionally, is a glide downwards and forwards from a fairly high back position, the peak of sonority near the beginning of the glide. /ere/: cèi/ ‘to cover up; to jab’.

/CuV#: /e/ is rounded (otherwise “normal”), often with a glide after the peak of sonority towards mid-central-unrounded. /a/ is sometimes slightly retracted and rounded; /a#: u: ‘nest; to vomit;’ /siau ‘aer;’ /siau ‘aer;’ ‘small nest; small stockings.’

/CuVng, CuVnr/: /a/ is often a bit retracted and rounded; /aŋg/ ‘uang (surname), /khuang/ ‘basket.’

/CiV#: /e/ is mid-front-unrounded, often with a centering glide after the peak of sonority; /a/ is sometimes slightly fronted; /i/ ‘ia/ ‘coconut: duck.’

9.5.2. Pairs

Two-way contrasts occur as follows:

9.5.2.1 /e/ versus /a/, in frames /CV/ CiV, CuV, CVn, CVng, CVnr, CVr, CVm, CuV, CuVr, CuVng, CuVnr, CiVr, CiVng, CiVnr, /CV/: as in frame /CV#/; /chr#: siau ‘cher/’ ‘X-mark; small cart.’

/CiV/: /e/ is mid-front-unrounded; /a/ slightly fronted and raised; /ke#:/ kai/ ‘to give; to alter.’

/CVnr, CVm/: /e/ higher-mid-central-unrounded, even more fronted in the specific frames /Vr, Vnr/, /a/ slightly fronted and raised; /ke#: kai/ ‘root; dried stuff,’ /er#: cèn/ ‘to give relief; to stand,’ /en#: ‘people.’

/CVng, CVnr/: /a/ is often a bit retracted. /aŋ#: rang/ ‘to throw; to call out,’

/ñ#: ñang ‘small envelope; small house.’

/CVnr, CVr/: both /e/ and /a/ are optionally rounded, /e/ usually so; /a/ is optionally a bit retracted; /ke#: kau/ ‘dog; pick (tool),’ /te#: taur/ ‘pocket; small knife.’

/CVnr/: /e/ is slightly fronted; /sien#: tham/ ‘what; they.’

/Cuv#: with /kh h cr chr sr r/ # in position [1], /e/ is higher-mid-central-unrounded; with anything else in [1], higher-mid-back-rounded; /ke#: kau/ ‘tao/ to pertain to; to pat with a flat instrument,’ /te#: ‘correct.’

9.5.3. Unmatched items

In the following frames there are no contrasts: with #/CiV, CiVnr, CiVng, with /a/#: CuV, CuVnr; with /a/#: CuVr.

/CVr/: /e/ is rounded; /te#: ‘we.’

/CuV#: /e/ is slightly fronted and raised; /hau ‘hau/ ‘flower garden.’

9.5.4. Unstressed and dissyllabic microsegments

Unstressed monosyllabic microsegments are in general the same in their residual characteristics as those bearing stress. However, final /e/ in an unstressed monosyllabic microsegment, and /e/ in position 5 of dissyllabic microsegments, are centered and lowered, and alternate freely with a slightly raised variety of /a/. In unstressed monosyllabic microsegments, though not in position 5 of dissyllabic microsegments, there is a morphophonemically distinct /a/ (slightly raised) which does not alternate with /e/. The transcription on this score morphophonemic: /äm/ ‘ne? ‘What?;’ but /kau/ ‘pat with a flat instrument.’
In position [3] of a disyllabic microsegment, /e/ has the same quality that it has with the same elements in position [1] and [2], and /u/ in position [4], in a monosyllabic microsegment: /šreːmə/ /šemə/ 'what, how'.
→ /a/, /e/ are now completely described.

9.5.5. Alternative treatments

Our analysis above selects in a few cases one rather than the other of two apparently equally acceptable choices, the reasons for our choice being irrelevant to the phonological facts:

In the frame /CIVn/, the vowel quality interpreted as /a/ has higher tongue-position than any other vowel quality so interpreted; there is no contrasting /e/ in this frame, and the vowel quality in question could also be interpreted as /e/; e.g., /tien/ 'a little,' instead of /tian/. This alternative choice is reflected in the Wade Romanization.

In the frames /CuVi, CuVir, CiVu, CiVur/, and in frame /CuVn/ when C is not zero, only /e/ and /u/ occur. The vowel qualities interpreted as /e/ are quite high, and could also be interpreted as zero; thus /kui/ for /kuei/ 'expensive,' /khuə/ for /kuxiə/ 'spool,' /uə/ for /iuə/ 'oil,' /chiə/ for /chiə/ 'ball,' and /tun/ for /tien/ 'pause,' /tian/ 'to ask' would not be altered, for in this case the vowel quality is clearly in the mid-tongue-height range. Since the symbolism /iu/ would thus become ambiguous for our present /iu/ (as in /iuv/ 'rain') and /iuə/, another orthographic convention would have to be introduced: simultaneous or overlapping /i/ (I) and /u/ (u) would have to be written with a single symbol, say /i/, giving /iuə/ 'to have,' /i/ 'rain.'

Had the alternative choices been in these cases, the arrangement of our descriptive statements would have been modified slightly; neither this nor the necessity of introducing /i/ militates against this treatment.

10. Limitations on sequence of microsegments

A microsegment with initial /ng/ occurs only in macrosegment-final, preceded in the same mesosegment by a microsegment ending in /ng/; i.e., /lau/ 'uáng' 'nghí/ 'O friend Wang'

Within a macrosegment: the third tone does not occur on two successive microsegments; neither does the fifth tone; the fifth tone does not fall on the terminal microsegment; a mesosegment with an initial pretonic toneless and stressless microsegment does not occur initially.

11. Comparison with Hartman's analysis

The formulation just completed above of Peiping phonology is based on and supported by the writer's own observations; but both observations and formulation were guided by the work of predecessors. In the late thirties George L. Trager, working with George A. Kennedy, developed the theories of: three basic vowels (high, mid, low); the biphonemic status (/iu/ in our notation) of high-front rounded vowels or glide; and the analysis of retroflex initials /sr/ or /ch/ into non-retroflex initials /s/ or /c/ and a retroflex semivowel /r/. The results were not published by either Trager or Kennedy; Hartman later took up the investigation, carried it further, and published.26 The present analysis is also, so to speak, in the same "tradition": but there are differences, and these differences are worth discussion.

(1) Hartman posits three vowels, /a/ and /i/; he writes the semivowels as /j/ and /w/ to each syllable one of these three vowels is assigned.27 Monosyllabic microsegments which here are taken as having no vowel at all are by Hartman taken to contain the high vowel. Thus he writes /n/wi/ for our /niu/, and so on.

It turns out, upon inspection, that if Hartman's high vowel is omitted, the remaining set of symbols with which such a microsegment is written, together with the fact that they constitute a single microsegment, defines unambiguously both the location of the peak of sonority and the vowel-quality which occurs there. It is therefore redundant to indicate, with a separate symbol, the location and high-vowel nature of the peak of sonority in such microsegments.

Of paramount importance in the statement just made are the words "together with the fact that they constitute a single microsegment." Hartman assumes this fact, not discussing (save in one footnote) phenomena in sequences larger than a single monosyllabic microsegment. Until such phenomena have been observed, however, we cannot know for sure whether Hartman's "syllable," the structure of which is his topic, is a unit defined phonologically by the fact that it has a peak of sonority, or by the fact that a phonemically relevant syllable-juncture occurs between each two successive syllables. If the former should turn out to be the case, then the presence of a peak of sonority is necessarily a primary factor (a determining feature, in our terminology); but if the latter is the case, then at least so long as we confine our attention to monosyllabic microsegments (as Hartman did), the presence of a peak of sonority is not a primary factor, but a resultant of the arrangement of other factors. Furthermore, if the former is the case, we cannot legitimately discuss segmental structure in terms of "syllables," but must instead take as our larger units, within which certain arrangements of features occur, whatever unit happens to be marked off by successive occurrences of the closest phonemic variety of open juncture—perhaps, for example, whole phrases.

Within Hartman's range of discussion, therefore, with arrangement of material within what we here call monosyllabic microsegments as the topic, the high vowel, the "syllabic" vowel with no other distinguishing characteristic of its own, is clearly a resultant rather than a determining feature in its own right. In the present discussion we have explicitly introduced the determining feature (microjuncture) which enables us to discuss arrangement of material within microsegments, and are led a fortiori to exclude the high vowel as a separate entity. However, we also see that there are disyllabic microsegments, not discussed by Hartman, the structure of which must also be accounted for in our complete analysis. It might have
turned out, quite easily, that in this special and rare type of microsegment the high vowel would be necessary; and, if that had been the case, it would of course have had to be used throughout. Since syllabic microsegments are hard to observe, further familiarity with allegro speech may still necessitate a return from the two-vowel system to Hartman's, but at the present writing this does not seem likely.

(2) Hartman reports a smaller variety of finals containing /n/ than are recognized herein. Thus he recognizes the contrast here transcribed as /ai/ versus /ar/, providing the microsegment bears first or second tone, but not with any of the other tones, and no comparable distinction between /ai/ and /ar/. This, of course, may well be the situation for some speakers.

Hartman's analysis of /ai/ and /ar/ takes the first as /er/, the second as /e/ with the mid vowel doubled; this is based on a reputed difference in length of the vocalic phase of the final, which he takes, instead of the qualitative difference, as primary. This could be extended to the cases he does not distinguish: /er, er, er, ar, ar/, respectively, with all tones, instead of my /er, er, er, ar, ar/. There is perhaps little basis for choice; I hear distinct palatalization in the second of each pair, and have interpreted accordingly.

(3) Hartman, § 7, says "there is . . . nothing in the distribution to suggest that the aspirates [ph th ch kh] are anything but unit consonants." Here our phonemic working assumptions differ. Hartman is analyzing occurring material into phonemes, I analyze into determining (and determined) features; Hartman uses distributional facts as the basis for phonemic conclusions, I find the determining features and then state the distributions. The aspiration of [ph th ch kh] sounds like the independent aspiration /h/; so I take it to be the same thing.

(4) Hartman does not, in his paper, recognize tone /3/ ("raised third") as phonemically distinct; but it was Hartman who, after publication of his paper, discovered cases of minimal contrast which establish /3/ as different from both /i/ and /n/.

Addenda

Since this report was submitted several facts have come to light (mainly through the courtesy of Yuenren Chao) which bear on the discussion.

(1) (To § 8.23) The following monosyllabic microsegments, excluded in the text, are attested: /sen, seng, seng, liun, nen, nel, tiang, tank, thei, pia, phia, rauv, len/. /len/ occurs elsewhere than in the name referred to (§ 8.23, (5)). Many of the above additions are from comatopoetic forms.

(2) (To §§ 9.31, 9.33) In the sequence /Cl. I, / if /Cl. is /th n/ the consonant is not palatalized; rather, the /i/ is a rather low high-front glide or vowel, not overlapping the consonant.

(3) There are a number of interjections having vocalic structure not subsumable under the system here set up. In addition, there is a minimum contrast between /i/ "sing"/oil wells" and what we would here transcribe identically in the meaning "there are wells," where the first syllable of the latter might also bear tone /3/, /keui/ in the first of this pair has a relatively high back rounded vowel; in the second of the pair, a considerably lower vowel (identical with that of /i/ or /le/). In the light of this phenomenon there is serious doubt as to whether the two-vowel system, or its three-vowel predecessor, can be maintained. Perhaps it can, if we accept the modification suggested in § 9.55, writing /i/ /i/ "swing, oil," and /i/ /i/ for "there is [three forms], again."

Notes

1 Study of Chinese was begun in connection with the preparation of teaching materials for members of the Armed Forces, as part of the Program of the Language Section, Education Branch, Information and Education Division, ASF. The present paper was drafted during the tenure of a Grant-in-Aid from the Intensive Language Program, ACLS, Spring-Summer 1946. Of the dozen or more Chinese with whom the writer has worked, special mention is due Mr. Chaoying Fang, his collaborator, transcribing informant, and a great friend in the technical phases of phonology. "What are we doing?" analysis for several years. A number of colleagues read the earlier version of this paper, and many constructive criticisms were received (not always acted on), especially from Yuenren Chao, Robert A. Hall, Jr., Zellig S. Harris, George L. Trager, and William Freeman Twaddell. To all the individuals and agencies just mentioned, and to numerous others, the writer is deeply indebted.

2 Each of the alphabetizations of Chinese (Wide, Wade-Giles, Latinxua, Chinese National Romanization, Yale, and the usual Cyrillicization) reflects a more or less superficial phonological analysis. The following is a partial list of discussions not ancillary to the devising of an alphabetization (those the writer was not able to consult in preparing this report are in brackets):

[Y. R. Chao, Singing in Chinese, Le Maître Phonétique, 3.39.9-10 (1924).]
[Daniel Jones, Chinese tones, Le Maître Phonétique 28.95-96 (1913).]
Jos. Muller, The structural principles of the Chinese language, Anthropos Linguistische Bibliothek vols. 5, 6; Peiping 1932, 37.
Morris Swadesh, A conditioned account of Mandarin phonetics, TCLP 8.213-6 (1939).
[. . . ., Whispering in Chinese, Le Maître Phonétique, 3.40.4 (1935).]

3 See also the writer's earlier discussion, A system of descriptive phonology, Language 18.3-41 (1942) (except §§ 6-7, now superseded).

4 Leonard Bloomfield, Language (New York, 1933), 84 and elsewhere.

An analogy may be helpful. In stating the law of gravitation, one says that the force of attraction between two bodies varies, among other things, inversely as the square of the distance between them. It would be just as accurate to say, "inversely as the 1.99997 power of the distance between them," or "inversely as the 2.0003 power of the distance between them," our techniques of measurement do not allow of sufficient
precision to judge between these alternatives. In such a case we choose, for simplicity's sake, the nearest "round number," keeping clearly before us the degree of relative accuracy thereby attained. The analogy breaks down, however, in that, as yet, we do not know how to decide which of two phonological descriptions is the "rounder." Apparently the only legitimate use of the criterion of economy in science is in matters of this kind: where applicable, it gives us nearer statements, but not necessarily more accurate ones.

6 Essentially that of Chaoying Fang (b. Tientsin, educated Peiping) and Victor Ch'iu (b. Paris, educated Peiping); where these differ, the more complex type is chosen.

7 This systematic, though somewhat unwieldy, terminology is introduced here primarily because it seems inadvisable to extend the meaning of the term syllabic so as to cover segments which, in the traditional meaning, may be "disyllabic" (i.e., have two peaks of sonority); see § 8.1.

8 Residual structure is what has heretofore been called linear or segmental structure. The latter terms are unsatisfactory because the structure referred to (in Chinese, at least) is not linear. "Residual" is also not too fortunate, but it will serve until a better expression has been found.

8a Paul Benedict (private conversation).

9 George A. Kennedy (private conversation).

10 The numbering // through // is as in Wade-Giles Romanization; // is the so-called "raised-third" tone (usually not considered phonemically distinct from the second tone).

11 Yuenren Chao (private correspondence).

12 /ma\ fan/ is written with a sequence of two characters, read individually as /ma/ and /fan/; this has afforded the basis of a protest against the present treatment. If the writer's hearing has not been at fault, then either (a) the morphemic identification reflected by the orthographic convention is incorrect, or (b) the morphophonemics of tone must be considered more complex than has been customary. More probably (a) is the case. Chinese characters serve about as well as an indication of morphemic identities as the letters in English orthography serve as an indication of phonemic identities.

13 There are probably a number of alternative possibilities here; we may mention one. Instead of writing /ci/, we could write /ci/; given a slightly different definition of /ci/, we would define /si/ as simultaneous t and F, and make the necessary minor modifications of wording in ensuing sections. This would eliminate s as a separate determining feature. The difference seems trivial.

14 Almost all earlier treatments of Chinese syllables (= our monosyllabic microsegments) make use of this initial-final division. The convenience of the device, however, seems not to reflect anything of a fundamental nature about the structure of the language (to the contrary: Bloomfield, Language, 182).

15 An alternative is to eliminate the initial classes /cr/ ch sr/ and /hi/, and to add two further groups of finals, one with /ru/ and one with /ni/ in position [2].

16 /ti\in/ /a\in/ "precipice" has an alternative form with /ta\in/; /chi\in/ (Hartman, loc. cit., 39) has the alternative pronunciation /ka\in/.

17 Most elements with a retroflex final are bimorphemic, consisting of a first constituent without retroflexion in its final and a second constituent of retroflexion added to a fairly complex pattern. The first constituents fall into certain grammatical classes; if an element of such a class exists having a certain phonemic shape, one may legitimately expect the existence of the corresponding bimorphemic form with retroflexion, whether one has heard it or not.

18 Hartman, loc. cit., fn. 18, reports this presumably from a Peiping speaker.

19 Information from Chaoying Fang.

20 Victor Ch'iu (see fn. 6 above) speaks this jargon; Yuenren Chao, Eight varieties of secret language [in Chinese], Bull. of Inst. of Hist. and Philol. of Academia Sinica, 2.3:312-53 (1931).
In 1948, Y. R. Chao suggested that the voiced velar fricative of Mandarin might be regarded as an initial; but since he found that there was little chance of minimal contrasts, we might, for practical purposes, leave this phoneme unmarked. In the present paper I intend to list additional examples of contrast involving this initial and to comment on its patterning with other initials.

The velar fricative occurs before the low vowel /a/ and before the mid vowel /e/ in both stressed and unstressed syllables. Most speakers use it, though some have variants. The fricative quality is not strong; as Chao suggested (op. cit.), it may be considered a semivocalic constriction. Two types of the weak velar fricative can be recognized: a bright-colored [ʃ] before /e/ and a dark-colored [ʃ] before /a/.

No examples need be given of monosyllables. In dissyllables, the semivocalic constriction prevents the second syllable from joining smoothly to the final element of the first, and often causes a preceding final nasal to be incompletely closed. Examples:5

1. Both syllables stressed:
   p'ing an 'peaceful' [pʰิง แง] or [pʰิง แง]
   chíao do ‘proud’ [ชิ่อา แง]
   ãn ãi ‘to love fondly’ [แง แง]
   më ân dèn ‘saddle’ [ม่แง ด่ำ]
   ãi â ‘to suffer hunger’ [แง แง]
   pão ãn ‘to return a favor’ [ป่ำ แง]
   ãin ãu ‘lotus stem’ [แิง แง]

2. Second syllable unstressed:
   ân an (a baby’s name) [แง แง]
   dò ao ‘just simmer’ [ด้่า แง]

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The unstressed type here is to be sharply distinguished from the final particle, which has no initial. Examples:

1. With high-pitched a (marked by a raised dot):
   pán a ‘move away’ [ป่าน 
   màng a ‘I’m busy’ [มางا]
   shéi a ‘who is it?’ [ศี่า]
   tào a ‘go!’ [สอง]

4. With low-pitched a (marked by a full-stop):
   mâi a ‘going to buy it?’ [มาี]
   màng a ‘buy!’ [มาง]
   fān a ‘is it rice?’ [ฟาน]
   c’òu a ‘going to run?’ [คู]
   mâ a ‘is it a horse?’ [มา]

There is no difficulty in isolating a morpheme [a], which alternates freely with [e] and conditionally with [i], but which has no initial. This feature distinguishes it from the cases in sections 1 and 2 above, where the second syllable is generally assumed to have a zero initial. For this zero initial, Martin follows Chao in introducing the phoneme /r/, but he extends its range to include two allophones ([r] and [k]), predictable from the following vowel—thus /r+i/ [ร่ี] ‘one’, /r+k/ [รุ่] ‘five’. Hockett recognizes a zero position for all syllables beginning with the vowels /a/ and /u/ and /u/, but seems not to recognize a vowel with no initial. He treats the final particle as a syllable with consonant initial, its nature determined by the last element of the preceding syllable. Thereby he cuts the interocclusal nasals and semivowels (as in section 3 above) into two parts: the first as the final of the preceding syllable, the second as the initial of the particle. This practice can be defended if one insists that every syllable in Mandarin must have an initial, even though it may be zero (Martin’s [ɾ]).

While Martin and Hockett provide us with a number of vowels—especially Martin, who adds several marginal vowel phonemes and a syllabic /ɾ/-—Hartman assumes the semivowels or nonsyllables /ɪ/ w jw r, thus making the syllables /i u ə j r/ completely dependent on the preceding semivowel or consonant. For these syllables he assumes a single high vowel /i/. It has been suggested that a better name for it would be ‘zero syllabic’, since all its features are predictable from the preceding segment. Hockett regards syllabic /r/ and /ɾ/ as zero syllables after /s t s t/, etc., but he recognizes /i u ə/ in the same positions. If we follow Hartman’s lead and assume not only /i w jw r/ but also Chao and Martin’s /ɾ/, we may wish to set up two varieties /r/ and /ɾ/. At this point we are fast approaching a stage where
no vowel distinctions need to be made. In such a system we have the nonsyllabic initials /t k p l m n ŋ h/, the semivowels or syllables /s r j w y/, and the finals /m n ŋ j w r/. The system differs very little from Martin's (though he also uses vowels), except in the treatment of /y/ and the addition of /j/. It is admittedly awkward, but I can imagine that an orthography with no vowels might readily adopt such an analysis.

These various systems of phonemicizing seem to indicate that there is simply no distinction in Mandarin between semivowels and vowels. The systems are different statements arising from the nature of the language, a continua of segments blurred together, with the distinctive features overlapping. The various attempts to systematize the data are important, perhaps necessary, for the purpose of probing the structure of the language; but the adoption of one system over another is often influenced by factors that are not necessarily structural.

Notes

1. Y. R. Chao, 'The voiced velar fricative as an initial in Mandarin', *La maitre phonétique* no. 89 (1948).
2. In the phonetic transcriptions, tone marks have been omitted for typographical reason.
3. They are in every case the same as in the immediately preceding italic notation.

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A SYSTEMIC INTERPRETATION OF PEKING SYLLABLE FINALS

M. A. K. Halliday


This study presents one part of a systemic interpretation of the syllable in modern standard Chinese, as represented by the Peking variety of Mandarin. It is based on my own observations, made very many years ago, (i) of Peking speech in general and (ii) of one particular speaker in detail. I shall always be deeply indebted to Mr Lien Shihmin for his thoughtful collaboration in this research. Recently I have had the opportunity of partially checking these observations; I think they were largely valid, though I would now interpret them differently, in certain respects, from the way I did in a summary presentation at the time (1959).

The study covers the syllable as a whole, but it is too long to be presented here in full. Here I propose to treat only the finals, and to shorten the treatment still further by leaving out what would otherwise be a long account of investigating vowel variation and showing why such variation provides the key to Mandarin phonology. Instead I shall simply present the observed phonetic variation in tabular form, using a moderately narrow transcription. My aim is to suggest what I understand by a systemic approach to phonology. It is perhaps appropriate to add, in view of the rather one-sided picture of twentieth-century linguistics that is generally prevalent today, that the theoretical foundations for this study derive from two sources: traditional Chinese phonology, as interpreted by Luo Changpei and Wang Li, and prosodic phonology as developed by J. R. Firth and his colleagues in London. These two approaches are entirely compatible and share a highly abstract view of phonology based on paradigms of (nonsegmental) features (Wang 1936, 1981; Firth 1948; Hill 1966).

Chart 1 shows the total syllabary of modern Pekingese; almost exactly 400 syllables, with less than half a dozen fringe syllables which are admitted by some speakers and not others (like den in denqi 'knock straight', run in ruqiu 'gone soft'). They are written in Pinyin, the authorized roman transcription; but since I am not here dealing with tone, tonal diacritics are omitted. The format is designed to make it easy to refer to in the discussion; again, of course, it is the result of lengthy phonological analysis, not something that is 'given' in advance. For a
prosodic analysis of a complete syllabary of a language, compare Henderson's (1966) investigation of Vietnamese.

Let us begin by noting all those syllables which contain the vowel symbol a in their spelling:

1. those where it is the only vowel symbol and ends the syllable (row 2);
2. those where it is the only vowel symbol but is followed by -n or -ng (rows 8 and 10);
3. those where it is followed by another vowel symbol (rows 4 and 6);
4. those where it is preceded by another vowel symbol (rows 13 and 22);
5. those where it is both preceded and followed by another vowel symbol (rows 15 and 24);
6. those where it is preceded by another vowel symbol and followed by -n or -ng (rows 17, 19, 26, 28 and 32).

The phonetic quality of the vowel represented as a in the spelling varies in two respects. First, it varies from one syllable to another, if we consider just the environments in (1) and (3) above, it is most open when final, fronted before -i and backed before -o. [The spellings -ai, -ao are anomalous; for consistency they should be either -ai, -a or else -ae, -ao.) Second, for any given syllable the quality of the a vowel varies both among different speakers and within the speech of the individual speaker.

There is nothing surprising in this; variation of both these kinds is familiar in all languages and will be found in Mandarin occurring throughout the syllabary. But whereas the former, allophonic variation is assumed to be fundamental to the phonological analysis, and the only question is how best to take account of it (the phonemic interpretation embodied in the Pinyin transcription may or may not turn out to be effective in theory), we usually treat the latter, lexical type of variation as something to be attended to after the phonological system has been established. I would argue, however, not only that the lexical variation is an inherent feature of the system but also that, in the case of the Pekingese syllable, it is a major source of insight into the way the system works (cf. Lock, 1989).

I shall not attempt here to describe all the phonetic variations that are heard in Peking speech. What I have done is to take the syllables listed in two columns in Chart 1, columns 12 and 15, and present in a systematicized form the variations that are typically associated with each one. There are 34 syllables in all, and these are set out as Chart 2. In Chart 2, however, I have used a different order to make them easier to refer to in the subsequent discussion; from now on, row numbers cited will be those of Chart 2 unless otherwise announced. These 34 syllables can be taken to stand for the full range of ‘finals’ (roughly, the rhyming part of the syllable) in the Mandarin phonological system. The pattern of realization, including the variability, is more or less constant across the whole of each of the rows in Chart 1 (with some exceptions in column 22, Block VII, which will be brought in at the end).

It will be clear from Chart 2 that, if we postulate an /a/ phoneme where there is a in the spelling, there are regular patterns of allophonic variation that could be constructed from what comes before and after it: the /a/ nucleus is rather strongly affected by the periphery. If we consider just the vowel environments, leaving out final -n, -ng for the moment, the phonetic value of a depends on whether it is preceded, and whether it is followed, by (i) no other vowel symbol, (ii) i, or

| Chart 1 Mandarin Chinese syllabary [in Pinyin spelling] |
|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| bu | pu | mu | fu | da | ta | na | la | ga | ka | ha |
| ba | pa | ma | fa | de | te | (ne) | le | ge | ke | he |
| bo | po | mo | fo | dai | tai | (nei) | lai | gai | kai | hai |
| tai | pai | mai | fei | dei | nei | le | gai | hei |
| bao | bao | mao | mao | dao | tao | nai | lao | gao | kai | hao |
| ban | pan | man | fan | dan | tan | nan | lan | gan | kan | han |
| ben | pen | men | fen | (den) | nen | gai | ken | heng |
| bang | pang | mang | fang | dang | tang | nang | lang | gai | kai | hao |
| beng | peng | meng | feng | deng | teng | neng | leng | gai | kai | hao |

(Continued)
### Chart 1 (continued)

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### Chart 2

#### Phonetic realization of syllables with palatoalveolar (j- and retroflex (zh-) initials, showing variation in rendering of the finals.

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</tbody>
</table>

#### Notes:

1. On-line phonetic symbols are those of the IPA, except that ı has been used here instead of CE for the open front rounded vowel, ə instead of a for the open front spread, with a used for maximally open position.
2. Raised phonetic symbols represent generalized positions towards which, through which or away from which the vowel moves in its glide.

If we then consider the syllables zhan, zhang (rows 10 and 13), we find that the final nasal has the same effect on the /a/ as the final vowel: zhan pairs with zhai and zhang pairs with zha. This can best be explained in prosodic terms: -n and -i are both 'y-prosodic' (yotizing), -ng and -o are both 'w-prosodic' (labiovelarizing).
MODERN VARIETIES OF SINITIC

A SYSTEMIC INTERPRETATION OF PEKING SYLLABLE FINALS

(zhang. The pair zhan/zhai may have identical vowel quality, differing only in that one is nasal, the other oral. On the other hand, the pair zhan/zhang may have identical nasal resonance (no tongue contact, hence no segmental realization of alveolar velar), differing only in that one has a front vowel, the other a backed vowel. Likewise, zhou/zhao have the same posture with different resonance; zhou/zhao have the same resonance with different posture. It is difficult to explain this is segmental terms, with a segment /a/ followed by the four distinct segments /i/, /o/, /u/, /n/. But it becomes predictable if we explain these four as the product of two intersecting two-term prosodic systems: posture (y-prosody or w-prosody) and resonance (nasal or oral).

Returning to Chart 2, however, we have also to accommodate the syllables ending in a, namely jia zha zhuu (rows 2, 12, 23). Here the vowel written a attains its most open quality; and there is very little variation, either within the syllable or even across all three. What variation there is, however, turns out to be similar to that represented in Chart 2. For the alternation zhizh see below.) We therefore need to modify the prosodic system of posture in two respects. In the first place, we need to add a third term representing the open posture, neither y-prosody nor w-prosody: let us call this 'a-prosody'. These give us the three basic postures out of which our human speech has evolved and which can be observed in young children's protolanguage: tongue lowered, lips open (a-prosodic); front of tongue raised to front, lips spread (y-prosodic); back of tongue raised to back, lips rounded (w-prosodic).

In the second place, we need to recast this in terms of movement through the syllable, so that instead of one choice of posture we need two, one for the beginning of the syllable and another for the end.

This means that we now have eighteen possible syllable types, defined by the prosodic systems encountered so far: three initial postures by three final postures by two resonances. Table 2 shows these 18 prosodic patterns. It also indicates that, of these 18 possibilities, 13 actually occur. Table 3 shows these 13 syllable types in Pinyin spelling, using the initial consonants from Chart 2. The five syllable types that are excluded are:

(i) nasal resonance with open (a-prosodic) posture (three types);
(ii) oral resonance with stable front (y-y) or back (w-w) posture (two types).

Table 1 The nine possible environments of /a/ [in phonemic notation]

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<td>open</td>
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</tr>
<tr>
<td>front</td>
<td>i</td>
</tr>
<tr>
<td>back</td>
<td>u</td>
</tr>
</tbody>
</table>

(i) nasal resonance with open (a-prosodic) posture (three types);
(ii) oral resonance with stable front (y-y) or back (w-w) posture (two types).

Table 2 The eighteen possible syllable types with vowel a, showing the thirteen which actually occur [in prosodic notation]

<p>| | | | | | |</p>
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<td></td>
<td>y-a</td>
<td>y-w</td>
<td>a-y</td>
<td>a-a</td>
<td>a-w</td>
</tr>
<tr>
<td>Oral</td>
<td>w-y</td>
<td>w-a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>y-y</td>
<td>y-w</td>
<td>a-y</td>
<td>a-a</td>
<td>a-w</td>
</tr>
</tbody>
</table>

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Table 3 The thirteen syllable types with vowel a (open aperture) [in Pinyin spelling]

|  
|---|---|---|---|---|---|---|
| | y | y-y-a | y-w | a-y | a-a | w-y | w-a | w-w |
| Oral | jia | jiao | zhai | zha | zha | zhuai | zhua |
| Nasal | jian | jiang | zhan | zhang | zhan | zhuang |

Figure 1 Network specifying eighteen theoretically possible syllable types with vowel a

The prosodic profile of each of the thirteen syllable types that do occur describes the phonetic space-time co-ordinates within which it is found to vary.

Figure 1 gives a simple network for generating this paradigm, using as entry conditions elements corresponding to initial and final in the Chinese phonological analysis. However, it generates all the eighteen syllables envisaged as possible in Table 2, whereas as we have seen only thirteen of these occur. We therefore rewrite Figure 1 in the form of Figure 2, which specifies just the required thirteen. These are all the possible syllable types that have an a in the spelling, but without taking account of initial consonants — that is, corresponding to one column (or two half-columns) in Chart 2. In terms of Chart 2, they are the first four in Block i, the ji-block; the first five in Block ii, the zh-block; and the first four in Block iii, the zhu-block.

But although Figure 2 gets the right answer, it is somewhat arbitrary; there seems no pattern in its constraints. We can therefore replace it, in turn, with Figure 3. By introducing the system ‘stable/shifting’ this shows the gaps to be systematic: you can choose between nasal and oral resonance only if you shift, either from non-y (a or w) posture to y, or from non-w (a or y) posture to w. Otherwise,
you have either oral only or nasal only: oral if ending with open posture (there is no a-prosodic final nasal), nasal if the posture is stable at y - y or w - w (that is, if you maintain the posture you must change the resonance; note in this connection that the initial nasals n-, m- operate in a different system, not one of resonance). It is natural to ask whether in those dialects which have preserved the three nasal finals -n-, -ng-, -m- the -m- carries the a-prosodic 'open' posture. But as far as I know none of these dialects shares this Mandarin pattern by which nasal and oral finals are posturally matched.

The network combines four principles of analysis. One is the Chinese phonological principle whereby all syllables are structured simply as initial plus final. The second is the Firthian prosodic principle whereby features such as posture (y/s/w) and resonance (nasal/oral) are treated non-sequentially. The third is the paradigmatic principle whereby features are interpreted as terms in systems, each system having a specified condition of entry. [Note that in Firthian system-structure theory the entry condition is specified syntagmatically, whereas in a system network it is specified paradigmatically: entry to one system depends on selecting a certain term in (at least one) other.] The fourth is the dynamic principle whereby the syllable is envisaged as a wave, a periodic pattern of movement characterized by a kind of 'flow-and-return'. What this last means is that the syllable is construed as a movement from an initial state to a final state, each of these states is specified as a 'selection expression' (a cluster of features from different prosodic systems); and there is variation both temporally, in the extent to which a particular feature persists across the syllable, and spatially, in the route that is traversed from the initial to the final state. The evidence so far, on the basis of the vowel written as a, suggests that the final state exerts the greater force: the shape of the syllable at its peak tends to anticipate where it is going. This is of course implied by saying that all syllables have CV structure, and it will turn out to be true of the Pekingese syllable as a whole. [It is not true, however, of all Chinese dialects, in Cantonese, for example, the features selected at syllable final have little effect on the quality of the vowel.]

So far, however, I have considered only those syllables whose trajectory passes through an open, a-like intermediate position. We must now explore the other finals in the Pekingese syllabary, those that have no a in their spelling in the Pinyin transcription. These syllables display a variety of different spellings: see rows 5-9, 13-20 and 25-29 in Chart 2. But if we apply the same principles of analysis, we shall find that all except those in the last row of each block (ji, zhi, zhu) have one and the same vowel nucleus.

The phonetic value for each syllable type is shown as before in Chart 2, together with the observed range of variation. For quicker reference, a typical value for each of the different syllable finals is shown in Table 4, with Pinyin spelling above the line and phonetic representation below.

The phonetic range covered by these syllables is considerable; they range over most of the upper half of the traditionally recognized vocalic space. This is reflected in the Pinyin spellings, which use e, i, o and u, both singly and in digraph combinations. Some other transcriptions also use trigraphs such as uei and iou.

but we can interpret all this variety in terms of the same prosodic systems as we used to explain the values of the a vowel, recognizing one and the same vowel nucleus in different prosodic environments.

There are three syllable types which end as a monophthong at a height which we can call half close (Cattell 1982: 176): front spread [e], back rounded [o] and back spread [y]. These show no tendency to move towards a 'close' position; in this they are parallel to final -a, having neither y-prosodic nor w-prosodic posture at syllable final. The distinction among the three is determined by initial posture alone, which has a much greater effect here than with the open vowel: the y-prosodic initial gives [e], as in jie; the a-prosodic initial gives [x], as in zhe; the w-prosodic initial gives [o], as in zhou. This simply reflects the greater possible variety of tongue and lip configurations available at this degree of vowel closure (cf. the shape of the 'vowel triangle / quadrilateral'); there is more space in which to move.

Four syllables, those spelt -ei, -en, -ou, -eng, have a half-close vowel as the nucleus. The spelling suggests that two of them form closing diphthongs while the other two are monophthongs followed by nasal consonant. In fact, however, the nasal syllables closely parallel those with the a vowel: the nasality may begin at any point, and there may or may not be consonantal closure (obstruction) at the end — again, it is more common with -ng than with -n. The vowel of the nasal syllables is more central than those of the oral syllables; but it is clearly fronted before -n, often with a glide towards close front, and backed before -ng, sometimes with a (slighter) glide towards close back. Thus the nasals have exactly the same prosodic values as those of the a syllables; the final part of the syllable does not consist of two segments, vowel plus nasal, but is a combination of two final prosodies, nasal resonance with y or w posture. The oral finals tend to begin less centrally, but they show considerable variation towards the centre: -ou, in particular, is often heard as [oa], curiously like its British English analogue. Thus zhei, zhen, zhou, zhang are prosodically identical with zia, zhan, zhang, and with half-close vowel instead of open: they begin with open posture (a-prosody) and end with y or w, oral or nasal.

This leaves the six finals -in, -iu, -ing, -ui, -un, -ong. Of these, the oral pair -iu and -ui are the half-close analogues of the open oral pair -iao and -uai. Both pairs move prosodically from y to w, or from w to y — that is, they shift to the opposite posture; but while -iao and -uai follow a trajectory via the 'open' region of vocalic space, -iu and -ui make the same postural shift but with the trajectory through the 'half-close' region. There is obviously a broad band through which such a traverse
Table 5 Typical pattern of tonally-correlated variation in the phonetic realization of y - w and w - y finals with half-close aperture [Pinyin and variant spelling on the left, IPA on the right]

<table>
<thead>
<tr>
<th>Tone</th>
<th>-iu</th>
<th>-iou</th>
<th>iao</th>
<th>iao</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-iu</td>
<td>iao</td>
<td>iao</td>
<td>iao</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

can be made; interestingly, the route taken tends to depend on the tone, and -iu and -ui are in fact the only syllable types in Mandarin that display tonally regulated variation, as shown in Table 5. [The spellings -iou and -ui are not used in Pinyin, but this systematic tonal variation is recognized in some other transcriptions.]

The nasal finals form two sharply distinct pairs. Two of them, -in and -ang (in jin, zhong), show almost no movement and no variation in vowel quality; they are somewhat opened-up versions of the two close cardinal vowels. The only variation they display is in the nasality: when it sets in, and whether or not there is obstruction; in other words the pattern is the same as we have found with nasality throughout. There is perhaps slightly greater tendency for final tongue contact here than with the -an, -ang nasals, but it is still by no means categorical. The other two nasal finals, -ing and -un, are very different. Here there is both movement and variation. There is the same variation in the nasality as elsewhere; but there is also variation in the transition to the final posture. The vowel in -un is opened (lowered) and then fronted, in varying degrees, so that it sounds more like the vowel in English jewell, or even ruin, than like that in full or ruin. Likewise the vowel in -ing is opened (lowered) and then backed, like English young but with the diphthong falling instead of rising (Castfield 1982: 216).

It is not difficult to see what is happening here, once we interpret in terms of the prosodic system of posture. As always, final -in is y-prosodic nasality, and final -ing is w-prosodic nasality. In zheng, zheng the postural transition is a - y, a - w. In the four syllables jin, zhong, zhun, on the other hand, the initial posture is either y or w; hence with nasality there is the possibility of either stabilizing the posture (y - y, as in jin; w - w, as in zhong) or shifting (y - w, as in jing; w - y, as in zhun). When the posture is stable, the transition is simple, with little movement or variation. When it is shifting, the transition is complex; there is considerable movement, and hence great latitude for variation in the trajectory adopted. But the initial and final states are what constitute the essence of the syllable. Thus, whereas in English the peak of resonance in the syllable - the vowel nucleus - is also the most 'fixed' part, so that in a set like seen, soon, sing, soong, the vowel posture is projected onwards to the initial and final consonants, in the Mandarin syllable it is the other way round: the vowel nucleus is simply a degree of aperture, and the initial and final postures of the syllable are projected towards to create a movement within this broad band of phonetic space.

Table 6 shows the syllable finals with 'half-close' aperture together with their prosodic values for resonance and posture; note the identity between this and Table 1. It is not difficult to accommodate the half-close series within the same system framework. All we need to do is to modify Figure 1 as Figure 4.

We have now accounted for the finals in all rows in Chart 14.2 except the last one in each block, namely ji, zhi, zhu (rows 9, 20, 29). There is almost no variation in the pronunciation of these syllables (at least among people brought up in Peking - there is a great deal of variation among non-Pekingeese speakers in their rendering of the 'vowel' in zhi!). Here there are three entirely distinct vowel qualities: [i] in ji, [u] in zhi, both very close; and [e] in zhi. It is the last of these, in fact, that provides the clue to their phonological status (see Table 7).

A SYSTEMIC INTERPRETATION OF PEKING SYLLABLE FINALS

We have thus recognized a multiple proportionality,

1. within the half-close vowel:
   u:i : i : un : ung :: [both w - y : y - w]
   ei : ou : en : eng :: [both a - y : a - w]

2. and between all of these and those with open vowel:
   uai :iao : ian : uang :: [both w - y : y - w]
   ai : ao : an : ang :: [both a - y : a - w]

What is striking is that this same proportionality extends right throughout the system; the half-close vowel series show the same five finals remaining unpaired in respect of nasal/oral resonance:

3. oral only:
   ji : ao :: [y - a : a - w]
   ia : a : va :: [y - a : a - w]

4. nasal only:
   in : oun :: [y - y : w - w]
   ian : uang :: [y - y : w - w]

Thus out of the 18 finals that are theoretically possible as combinations of initial posture, final posture and resonance, exactly the same 13 occur with half-close vowel as with open vowel; moreover the realization of the several terms in both these prosodic systems is entirely analogous throughout. If we represent the two vowel spaces, the open and the half-close, as a third prosodic system of aperture, using V for open and 3 for half close, then for all the 13, prosodic profiles of initial posture, final posture and resonance there would be a constant proportionality such that

\[ V_1 : V_2 : V_3 : V_4 : V_5 : \ldots \]
the start of the syllable and remain unchanged throughout. Since zhi chi shi ri are retroflex, while zi ci si are dental, the acoustic effect of this vowel in the two series is very different; but its prosodic profile is the same in both.

If we now consider the vowel in ji qi xi (row 12 in Chart 1), we can describe it by exactly the same formula. These consonants are palatoalveolar, so the vowel cannot be called apical; but it is entirely analogous to an apical vowel, since it is the vowel that is produced by minimally relaxing the tongue away from the initial consonantal position. When this vowel follows the other initials in that row, in bi, di, ni etc., there is of course movement away from the place of obstruction; but the vocalic posture of tongue and lips is established at the beginning of the syllable. In other words, all syllables with [i] (that is, those written with -i in Pinyin except the retroflexes and dentals zhi chi shi ri, zi ci si) are y-prosodic from the start.

Likewise in all -u syllables (row 21 in Chart 1), the w-prosodic posture, with back of the tongue raised and lips rounded, is established at the beginning of the syllable. The articulatory organs simply remain in place to produce the close back vowel.

We can now account for the remaining three finals of Chart 2, namely -i as in ji, -a as in zhi, and -u, in terms of our prosodic systems. In syllables with these finals, there is no prosodic movement: the initial posture is maintained throughout. So instead of nine possibilities there are only three, a, y and w (ie a-a, y-y, w-w). Moreover there is no prosodic system of resonance; such syllables are oral only.

The vowel represents a third term in the system of aperture, namely ‘close’, which we can write as ‘I’. One could interpret these syllables as having no vowel in their structure; but, apart from destroying the powerful generalization that all syllables have identical structure CV (initial + final), this would lead us to predict that such syllables would be toneless, whereas in fact they display the same system of tone as all the other syllables.

More interestingly, we could treat the finals of ji and zhu as the missing y-y and w-w terms in the half-close system, with the idea of eliminating the need for a close vowel altogether. But it would not in fact do that because we could not account for zhi in this way as there is already an a-a final in both the half-close and the open series (zhe, zhu). It would also distort the analogy between the half-close and the open series (Tables 3 and 6) because (as we have seen) there are no comparable y-y or w-w oral syllables in the latter; and it would make the wrong predictions phonetically — the one kind of variation that is found in the I-series is a slight increase or decrease in the amount of friction generated; here -i (palatoalveolar) or -u clearly belong with apical -i, in that they can have considerable friction (especially in the syllables yi and wu), whereas friction is never found elsewhere in the i series.

So the finals of ji, zhi, zhu constitute a third subsystem, having close vowel but no further prosodic paradigm beyond their initial selection of posture y, a or w (Table 8). The system is now as shown in Figure 14.5. Note that syllables with close finals (the I-series) select only in the initial posture system; they can enter no other system in the network — but they pick up the feature ‘oral’ in the resonance
Table 8: The three syllable types with close aperture [in Pinyin spelling]

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>y-</td>
<td>a-</td>
</tr>
<tr>
<td>Oral</td>
<td>j</td>
<td>zhi</td>
</tr>
</tbody>
</table>

Figure 5: Revised version of Figure 4, including syllables with close aperture.

The question arises, however, of how to interpret the j- q- x- y- series of palatal-velar initials in prosodic terms. Assuming that they carry a y-prosody, is this inherent in their consonantal make-up, or are they to be interpreted as a variant of one of the other consonantal series in a syllable with y initial posture? Historically, they are a mixed group, partly related to the retroflex (affricate/fricative)
need to be explained by postulating a complex initial prosody Cyw we have to bear in mind two factors:

(1) Finals occurring with Cyw include only those which would be permitted both by Cy and by Cw [jia is excluded because (like jia) it would be O/y-y; jiao is excluded because (like jiaoo) it would be O/w-w].

(2) Finals occurring with Cyw are always realized phonetically as either one or the other (that is, like those with Cy or those with Cw), not in some distinct phonetic shape of their own. [But not always the same one: the type with A aperture is Cw-like (juan is like zhuu, N/w-y); whereas the type with E aperture is Cy-like (jie is like jie, O/y-a), although there is a Cy-like variant joo (like zhuu, O/w-a) used by some speakers with some morphemes only — i.e. the variation has a dialectal basis.]

It seems therefore that we should prefer a three-term system of posture both at C (initial) and at V (final), rather than adding a fourth term for initial position only. Furthermore, since the ju- qu-uru- series exclude Vw marginally more strongly than they exclude Vw (juan, quan, xuan, yuan occur; while juang, quang, xuang, yang do not), it would seem better to treat them as having Cw (initial w-prosody) mapped on to an inherently y-prosodic consonant rather than the other way round. [This is in fact borne out by the detailed investigation of the initials, which also allows n and l to be accounted for in the same way (note the occurrence of Cyw with n and l in Chart 1, Block II.iv).]

A network for generating the entire syllabary is shown as Figure 6. This takes account of all the points raised in the present study. But it should be made clear that it is not the network I would offer as the optimum systemic solution, because it does not take account of all the problems raised by the initials in their own right, and it leaves unexplained some gaps in initial + final (including tonal) combinations which can be shown to be systematic. There are of course some random gaps in the syllabary; I know of no way to explain the absence of syllables at shou or tin, and I would not want to exclude them from the network. But it is clear that there is a suspicious similarity among some of the ‘defective’ boxes in Chart 1 (especially I.i, II.i, II.ii and VI.iii), and patterns of this kind seem to call for some explanation.

Firth once remarked that if modern phonology had developed out of the tradition in China, we should never have heard of the phoneme — with the implication that the world would have been a better place. I think there is an important place for the phoneme, as a potential member of a phonological rank scale; and the fact that speakers of certain languages chose to write them with an alphabet suggests that they also felt the same. But the Chinese did not; they developed a charchery instead; and the phonology of their language, while it has very clearly defined syllables with remarkably little indeterminacy, shows no real trace of phonemic structure. It should be said that this last is less true of some of the southern dialects — most notably Cantonese, where there is far less distance between a
prosodic and a phonemic interpretation than there is with Mandarin. In Mandarin
the two approaches give very different pictures; here, instead of taking the mini-
imum articulatory segment as prototypical and reducing everything to that, we can
take tone as our prototype and explain the entire system as a network of tone-like
features. This is, in essence, what the prosodic analysis does: and it is what the
Chinese phonologists were starting about two thousand years ago – even
though it was another five centuries before they took account of tone itself as a

The system network that has been being built up in the course of this study,
up to and including Figure 5, generates the total set of finals for the syllabary of
modern Pekingese, other than the tonal variants. That in Figure 6 incorporates
the remaining features of the syllabic system but in a sketchy and provisional form.
Let me try to summarize the theoretical principles on which this systemic inter-
pretation is based.

1. In accordance with Chinese phonological theory, the syllable consists of two
loci, initial and final. As these (English) names imply, the two are linearly
ordered, but they are not segmental. Rather, the syllable has an initial state,
characterized by a syndrome of features; and a final state, characterized by
another such syndrome – the movement from one state to the other is con-
tinuous throughout. [The Chinese terms do not embody the notion of linear
ordering. The word for ‘final’ is ‘rhyme’. The word for the initial is usually
regarded as opaque; it meant ‘twist’ (like the twist in a cord to make a Chi-
inese button), but also ‘handle’ for lifting with – perhaps a metaphor either of
lift-off or of configuration.]

2. There is considerable variation in the elaboration of the syllable, both among
different speakers and within one and the same individual speaker. This
variation is explained as a spatiotemporal dynamic: (i) initial, opening fea-
tures may be more, or less, prolonged; (ii) final, closing features may start
earlier or later; and (iii) there may be more than one route from the one to
the other.

3. The initial prosodic systems have been presented only in outline, without
explanation, to enable the network to be completed. The systems are:
(a) ALIGNMENT (PLACE): pointed: labial / velar / alveolar // flattened: dental /
cerebral (‘retroflex’)/ palatal;
(b) MANNER: obstructive / continuant: fricative // approximant: nasal / lateral;
(c) VOICE ONSET: early (‘unaspirated’) / late (‘aspirated’);
(d) POSTURE: y-prosodic / a-prosodic / w-prosodic;

4. The final prosodic systems are:
(w) APERIURE: close [i] / half close [ε] / open [a];
(x) POSTURE: y-prosodic / a-prosodic / w-prosodic;
(y) RESONANCE: nasal [n] / oral [o];

5. The system of posture figures both at initial and at final; hence a syllable may
either retain the same posture throughout or shift from one posture to another.
It turns out that this option, in the context of the opposed postures y and w, is
best interpreted as itself forming a prosodic system: (V) POSTURE SHIFT: stable
/ shifting.

6. Not all features are equally variable, in the ways described in (2) above. But
it is not misleading to represent even the apparently segmental features of the
initial consonants in these prosodic terms. For example, it is often noted that
in Mandarin the aspiratedyllables ‘may be very heavily aspirated’ which
means there is variation in the timing of the onset of voice, and the evolution
of the apical vowel seems to suggest a tendency to prolong the tongue contact
at the place of articulation.

7. It is not suggested that in every language the syllable would be best inter-
preted in entirely ‘prosodic’ (non-segmental) terms. In English, for example,
there seems no convincing argument for saying that all syllables have the
same structure or for trying to specify all consonant and vowel features as
syllabic prosodies. Matthiessen (1987) presents a systemic interpretation of
Akan phonology which includes separate networks for the syllable and the
phoneme, with the latter further subdivided into consonant and vowel. It is to
be expected that for some languages there would be networks at both syllable
and phoneme rank.

In Chinese, however (at least in Mandarin), all syllables have the same general-
ized structure, and there is no value in setting up the phoneme as a separate unit.
The one syllable I have not discussed is the maverick syllable er, phonetically
[ɛ], which appears as vowel plus consonant, the ‘consonant’ being a (very) ret-
roflex frictionless continuant. At one stage in its history this was a palatoalveolar
nasal with close aperture, systemically where ni is today; now, however, it has
no trace of either nasality or palatality and might be interpreted systemically in
one of two ways: either as the ‘close’ member of the a-prosodic series with initial
semivowel (going with yi, wu and ye, this is how it is located in Chart 1) or as the
occupant of the empty ra slot. In fact in typical Pekingese speech its vowel tends
to be open, rather than close or even half close, which suggests that it is felt more
akin to the latter. It is actually quite like ra pronounced backwards – a variant
which is presumably within the limits of what we should expect, if the syllable is
interpreted as having no linear segmentation.

One major variable among phonological systems that is foregrounded in a
prosodic and systemic perspective is where they make contact with the grammar
(cf. Hill 1966). The phonological rank scale may include tonal and/or rhythmic
units which may be mapped more or less consistently on to clauses or phrases;
and in many languages the word is the point of origin for certain phonological
systems, either with or without being fully integrated into the overall phonolog-
icl structure (Matthiessen, 1987; Prakasam 1987; and cf. the phonological
hierarchy of tagmemic theory). In Chinese the word has hardly any phonological
A SYSTEMIC INTERPRETATION OF PEKING SYLLABLE FINALS

Notes to Figure 6: The initials as represented in Pinyin spelling are specified by the systems in the network as follows (roman numerals refer to blocks in Chart 6):

<table>
<thead>
<tr>
<th></th>
<th>obstruent</th>
<th>continuant</th>
<th>nasals</th>
<th>lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>early</td>
<td>late</td>
<td>early</td>
<td>late</td>
</tr>
<tr>
<td>flattened</td>
<td>dental VI</td>
<td>cerebral V</td>
<td>palatal IV, II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>z</td>
<td>c</td>
<td>s</td>
<td>a</td>
</tr>
<tr>
<td></td>
<td>zh</td>
<td>ch</td>
<td>r</td>
<td>sh</td>
</tr>
<tr>
<td></td>
<td>j</td>
<td>q</td>
<td>y</td>
<td>x</td>
</tr>
<tr>
<td>pointed</td>
<td>labial I</td>
<td>velar III</td>
<td>alveolar II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>p</td>
<td>w</td>
<td>VII</td>
</tr>
<tr>
<td></td>
<td>g</td>
<td>k</td>
<td>o</td>
<td>h</td>
</tr>
<tr>
<td></td>
<td>d</td>
<td>t</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initials n.1 are interpreted as alveolar in Blocks I and II, palatal in Blocks II and IV. (Hence n.1, II-are palatal with a-posture, not alveolar with y-posture; and n.1, II-are palatal with w-posture.) Block VII are interpreted as voiced fricatives. With those in VII, the fricative may be considerable friction, especially with close aperture. Those in VII, n.1 have voiced glottalic initials, the variant with velar nasal, which I observed frequently in my original investigation, seems to be much less common today.

Notes regarding unmarked (default) options:
- All "voiced" (early voice onset) continuants are fricative unless palatal, labial or alveolar, which may be fricative or approximant.
- Initials 1 and 2 "flanted" initials, and also the velars, if selecting "narrow" posture can take only y-prosody, not w (they are labial already). Thus, from 1-2 and 3-4 together, only alveolar initials can select either y- or w-prosody.
- All syllables which retain the same narrow posture throughout (y-y or w-w) must have nasal resonance.
- All syllables with close aperture, and all non-close with final a-prosody, must have nasal resonance. Thus, from n.2 and n.4 together, only those syllables which shift into y- or w-prosody from somewhere else can select either nasal or oral resonance.

Table 10: The five syllable types with yw posture in Pinyin spelling

<table>
<thead>
<tr>
<th></th>
<th>yw</th>
<th>yw</th>
<th>yw</th>
</tr>
</thead>
<tbody>
<tr>
<td>V,</td>
<td>Oral</td>
<td>yw-y</td>
<td>yw-a</td>
</tr>
<tr>
<td>V,</td>
<td>Nasal</td>
<td>juan</td>
<td></td>
</tr>
<tr>
<td>V,</td>
<td>Oral</td>
<td></td>
<td>ju</td>
</tr>
<tr>
<td>E,</td>
<td>nasal</td>
<td>jian</td>
<td>jiong</td>
</tr>
<tr>
<td>E,</td>
<td>Oral</td>
<td></td>
<td>ju</td>
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</tbody>
</table>
significance: none at all in many dialects, a little in Mandarin because it defines
an environment within which the tonal system may be neutralized. But through-
out the known history of the language there has always been an overwhelming
association of the syllable with the morpheme, and this gives an added signifi-
cance to the syllabary as the basis of the phonological system. It should be pos-
sible to synthesize the Mandarin syllabary from a systemic-prosodic description,
with the prosodic features as the parameters and provision for varying their dura-
tion and the traversal between one setting and another. It would be interesting
to compare these results with those obtained by synthesizing in phonemic and
allophonic terms.

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TONAL DEVELOPMENT IN MIN

Jerry Norman

Cantonese has a handful of rising tone words which had voiced stop initials in the Qieyun language which are lower rising (13) in Cantonese; these words all have "irregular" aspirated initials. The split in the upper entering tone is conditioned by vowel length.

Hitherto in a number of analyses of the Min dialects it has been assumed that Min tones can all be explained on the basis of the same Qieyun (hereafter QY) initial distinctions. Indeed, Southern Min on the whole can be accounted for quite neatly using such a scheme. But with the northern and western dialects matters are quite different.

The thesis I hope to prove in this paper is that the QY language is an inadequate basis for explaining the tonal evolution of a part of the Min dialects; additional initial features must be assumed. I further hope to demonstrate that, although it has appeared possible in earlier analyses to account for Southern Min using the QY distinctions, it is nevertheless now necessary to attribute to Southern Min some of the additional distinctions needed to explain Min tonal behavior as a whole.

I assume that Proto-Min had a four-term tonal system which later underwent splitting conditioned by features of the initial consonants. In this, the Min dialects are not different from other Chinese dialects. The difference between Min and the other dialect groups is found in the number of the features affecting tone which have to be postulated for initial consonants. Whereas the tonal evolution of other dialects is influenced by only a three-way division of the initials, I propose to demonstrate that a six-way division must be postulated to explain the tones of the Min dialects.

1. Introduction

Chinese shares with certain other languages of Southeast Asia a remarkably similar tonal history. In Tai, Miao-Yao and Vietnamese, much as in Chinese, a basic four tone system is found which in most (if not all) modern dialects have been elaborated into more complex systems. This has come about because of splits in the original four-way tonal distinction which have been conditioned by various features of the initials; these include voicing, glottality, aspiration and prenasalization. A. G. Haudricourt (1961) and G. B. Downer (1963) have described this type of tonal development in some detail.

1.1. Initial types

Although the number of distinct initial types necessary to explain the tonal development of Tai and Miao-Yao is quite large, for Chinese a three-way distinction is sufficient for the great majority of dialects. In traditional terminology the three types were called qing (qing), quanzhuo (zhuo), and cizhuo (zhuo), literally "clear", "fully muddy" and "partially muddy". Many interpret these terms to mean voiceless, voiced obstruent, and voiced sonorant respectively. Cantonese illustrates this sort of scheme very well.

<table>
<thead>
<tr>
<th>Qieyun tone class</th>
<th>initial</th>
<th>ping</th>
<th>shang</th>
<th>qu</th>
<th>ru</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>qing</td>
<td>53</td>
<td>35</td>
<td>33</td>
<td>55, 33</td>
</tr>
<tr>
<td></td>
<td>cizhuo</td>
<td>21</td>
<td>13</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>quanzhuo</td>
<td>21</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

The transcription used for dialect forms is mostly broad phonetic. Tones are indicated by numerals to the right of the syllables in question. The numerals correlate with the traditional tonal categories in the following manner:

Foochow (Fc) & H McAlary and Baldwin (1871), Maclay and Baldwin revised (1929), Peking University (1962), Chen and Norman (1965)

Amon (Am) & M Douglas (1899), Campbell (1917), Bodman (1955, 1958), Peking University (1962)

Chaochow (Cc) & H Huiji yangshuiyu (1916), Li (1959), Peking University (1962)

Kienyang (Ky) & H Gospel of St. Matthew (1900), Norman (1969)

Kienow (Ko) & S. Seng-i chiling-sy (1922), Huang (1957), Norman (1969)

Shaowu (Sw) & H Norman (1969)
MODERN VARIETIES OF SINITIC

<table>
<thead>
<tr>
<th>ping</th>
<th>shang</th>
<th>qu</th>
<th>ru</th>
</tr>
</thead>
<tbody>
<tr>
<td>yin</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>yang</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

The ninth tone of Kienyang does not correspond exactly to any of the traditional categories. The table below shows the phonetic values of the tones of the dialects cited in this paper:

<table>
<thead>
<tr>
<th>Fe</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55</td>
<td>44</td>
<td>33</td>
<td>53</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>52</td>
<td>24</td>
<td>55</td>
<td>33</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>52</td>
<td>53</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>-</td>
<td>35</td>
<td>-</td>
<td>42</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>11</td>
<td>213</td>
<td>32</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>242</td>
<td>33</td>
<td>11</td>
<td>43</td>
<td>44</td>
</tr>
<tr>
<td>7</td>
<td>24</td>
<td>21</td>
<td>22</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>8</td>
<td>55</td>
<td>44</td>
<td>55</td>
<td>43</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>-</td>
<td>31</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Ky tones two, five and six are considerably longer in duration than the other tones. All underlined tones are short, ending either in -p, -t, -k or -ʔ. For Fe, I have written those words which in Macleay’s dictionary have final -h as open syllables, and those words which have final -k I have written with -ʔ: in fact both types end in glottal stop phonetically when pronounced in isolation, but they are kept distinct morphophonemically (Yuan 1960: 298).

2.1. Voiced stops in Proto-Min

When one examines the Min correspondences to the QY voiced stops, it is evident that they cannot be considered descendants of the QY forms. The following comparisons to words with QY b- illustrate this:

<table>
<thead>
<tr>
<th>QY</th>
<th>Fe</th>
<th>Am</th>
<th>Ky</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>ba</td>
<td>pa²</td>
<td>pe²</td>
<td>pa²</td>
<td>pʰa²</td>
</tr>
<tr>
<td>bi</td>
<td>pʰa⁶</td>
<td>pʰa⁶</td>
<td>pʰia⁶</td>
<td>pʰi⁶</td>
</tr>
<tr>
<td>b'</td>
<td>pe²</td>
<td>pʰa⁶</td>
<td>pʰa⁶</td>
<td>‘white’</td>
</tr>
<tr>
<td>b'</td>
<td>pʰi⁶</td>
<td>pʰi⁶</td>
<td>pʰi⁶</td>
<td>‘skin’</td>
</tr>
<tr>
<td>b'</td>
<td>pʰe⁶</td>
<td>pʰe⁶</td>
<td>pʰei²</td>
<td>‘skein’</td>
</tr>
<tr>
<td>pʰei²</td>
<td>pʰei²</td>
<td>pʰei²</td>
<td>‘nose’</td>
<td></td>
</tr>
<tr>
<td>b'</td>
<td>pʰau²</td>
<td>pʰau²</td>
<td>pʰau²</td>
<td>‘nail’</td>
</tr>
<tr>
<td>pʰau²</td>
<td>pʰau²</td>
<td>pʰau²</td>
<td>‘nail’</td>
<td></td>
</tr>
</tbody>
</table>

It would be premature to speculate about the real phonetic properties of these three series; what I am more interested in here is identifying the number and interrelations of the final features which influence tonal development. At this stage, then, I will remain content to project those features prevalent in the modern dialects back to the proto-language. These three series are assumed to have been voiced in some sense on general typological grounds: complicated tonal systems like those found in the Min dialects have developed out of a simpler system as a result of the loss of a major initial feature such as voicing; furthermore, the neighboring Wu dialects spoken just to the north of the Min speaking area still retain voiced initials in those words for which I posit voiced initials in PM. The first series (*b, *d, *g) become voiceless unaspirated stops in the modern dialects; provisionally, they can be described as voiced unaspirated stops. In like manner, the second series (*bh, *dh, *gh) can be designated voiced aspirates since they become voiceless aspirated stops in the dialects. The third series (*-b, *-d, *-g) is kept separate from the first only in the northwestern dialects of Kienyang and Kienow; in Kienyang their reflexes are voiced sonorants or zero. This third set arose, I suggest, from the influence of some type of voiced prefix; the root consonant following the prefix underwent a process of lenition which led to the present situation in Kienyang. From this process, the third series can be described as softened stops. The table below shows the correspondences of these proto-phonemes in the modern dialects.

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*b</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p'</td>
</tr>
<tr>
<td>*d</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t'</td>
</tr>
<tr>
<td>*g</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k/h</td>
</tr>
<tr>
<td>*bh</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
</tr>
</tbody>
</table>
## Tonal Development in Min

### PM Tone *3

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*b</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>*bh</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>*-b</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### PM Tone *4

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*b</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>*bh</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>*-b</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

### 2.3. Examples of stops in lower register words

- **PM *b**
  - climb: Fe pa⁵; Am pe⁵; Ce pe⁵; Ky pa⁵; Ko pa⁵; Sw p'⁵
  - hammer: Fe pa⁵; Am pe⁵; Ky pa⁵; Sw p'⁵
  - dish: Fe puu⁵; Am puu⁵; Ce puu⁵; Ky puu⁵; Sw p'⁵
  - rice: Fe puu⁵; Am puu⁵; Ce puu⁵; Ky puu⁵; Sw p'⁵
  - white: Fe pu³; Am pe⁵; Sw p'⁵; Ko pa⁵; Sw p'⁵
  - sick: Fe pu³; Am p³; Ce p³; Ky p'³; Sw p'³

- **PM *bh**
  - skin: Fe puu³; Am p³; Ce puu³; Ky p³; Sw p'³
  - cover: Fe puu³; Am p³; Ce puu³; Ky p³; Sw p'³
  - nose: Fe puu³; Am p³; Sw p'³
  - dust: Fe p'³; Am pu³; Ce pu³; Ky p³; Sw p'³
  - escort: Fe puu³; Am p³; Ce puu³; Ky p'³; Sw p'³
  - hail: Fe puu³; Am p³; Ce pu³; Ky p³; Sw p'³
  - shine: Fe puu³; Am p³; Ce pu³; Ky p³; Sw p'³

- **PM *-b**
  - raft: Fe p³; Sw p'³
  - bark: Fe p⁵; Am p⁵; Ce p⁵; Sw p'⁵
  - pull: Fe puu³; Am puu³; Ce puu³; Ky puu³; Sw p'³

---

The reflex of *-g in Ky is either k or ə (zero), or both in free variation. The rule appears to be that Ky has ə in forms lacking a palatal medial; words having a palatal medial usually show k and ə in free variation. PM *g, *gh, and *-g all become Sw k' when they occur before a palatal medial; otherwise they become Sw h (in Sw, h regularly becomes f before u; if the u was a medial it is lost: Sw fat < *huai, Sw fu < *hu).

### 2.2. Tonal development in words with voiced initials

Tonal development in words which had voiced initials has been conditioned by the three different manners of articulation reconstructed for PM. In the following tables the bilabials *p, *ph, *bh, *-h etc. are used as cover symbols for the whole set of sounds having the same manner of articulation; thus *p stands for *p, *t, and *k. The four tones of PM will be designated by the four numerals *1, *2, *3, *4. These four numerically marked tones correspond respectively to the classical tonal categories ping, shong, gu and ru. The development of these tones in words which had voiced initials is shown in the following table:

### PM Tone *1

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*b</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>*bh</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>*-b</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

### PM Tone *2

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*b</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>*bh</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>*-b</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
thin #: Fc po²; Am po²; Ce po²; Ky vo³; Ko po⁵; Sw p'⁰
vase #: Fc p'ing³; Am pan²; Ce p'ing²; Ky vai⁵; Ko p'ing⁵; Sw p'en³
In Ky v < PM *-h and *-p disappears before y and ioin; see bark above and maple
and fly below.

PM _FREQUENCY_M 

tea #: Fc ta³; Am te³; Ce te³; Ky ta³; Ko ta³; Sw t'⁵
bean #: Fc tau³; Am tau³; Ce tau³; Ky teu³; Ko te³; Sw ta'⁵
step on #: Fc ta³; Am ta³; Ce ta³; Ky ta³; Ko ta³
straight #: Fc ti³; Am tit³; Ce tik³; Ky te³; Ko te³; Sw t'³
heavy #: Fc toj³; Am taj³; Ce ta³; Ky tjoy³; Ko toj³; Sw t'⁵

PM _FREQUENCY_U 

pillar #: Fc t'iu³; Am t'iu³; Ce t'iu³; Ky hia³; Ko t'i³
hammer #: Fc t'iu³; Am t'iu³; Ce t'iu³; Ky hy³; Ko t'y³; Sw t'ei³
weep #: Fc t'ie³; Am t'e³; Ce t'ie³; Ky hie³; Ko t'i³; Sw t'î³
peach #: Fc t'o³; Am t'o³; Ce t'o³; Ky haur³; Ko t'un³; Sw t'au³
head #: Fc t'au³; Am t'aur³; Ce t'au³; Ky heu³; Ko t'ei³; Sw t's³
staff #: Fc t'o³; Am t'au³; Ce t'au³; Ky hioj³; Ko t'ion³
bug #: Fc t'oi³; Am t'anj³; Ce t'anj³; Ky hoor³; Ko t'oj³; Sw t'uj³

PM _FREQUENCY_S 

rudder #: Fc tu³; Am tu³; Ce tu³; Ko tuo³
long #: Fc tou³; Am tij³; Ce tij³; Ky lyan³; Ko top³; Sw t'oj³
worth #: Fc ti³; Am tat³; Ce tak³; Ky lo³; Sw t'ô³
bronzeg #: Fc t'oj³; Am taj³; Ce taj³; Ky lo³; Sw t'uj³
move #: Fc toj³; Am taj³; Ce taj³; Ky lo³; Ko toj³; Sw t'uj³

PM _FREQUENCY_G 

eggplant #: Fc kio³; Am kio³; Ce kie³; Ky kio³; Ko kio³; Sw k'io³
knee #: Fc knu³; Am knu³; Ce knu³; Ky ku³; Ko ku³; Sw k'nu³
bridge #: Fc kio³; Am kio³; Ce kie³; Ky kio³; Ko knu³; Sw k'iao³
old #: Fc kiou³; Am ku³; Ce ku³; Ky ku³; Ko ki¹; Sw k'ya³
aunt #: Fc kej³; Am kim³; Ce kim³; Ky ken³; Ko kej³; Sw k'a³
sweat #: Fc ka³; Am ku³; Ce ku³; Ky kou³; Ko kwe³; Sw hon³

PM _FREQUENCY_H 

persimmon #: Fc k'e³; Am k'î³; Ky k'i³; Ko k'î³
mortar #: Fc k'ou³; Am k'u³; Ce k'u³; Ky k'iu³; Ko k'iu³; Sw k'y³
3.3. Examples of stops in upper register tones

**PM *p**

share #: Fe puoj; Am pun^1; Cc pun^2; Ky puoj; Ko puoj; Sw p^u

board #: Fe peij; Am pan^1; Cc pan^2; Ky peij; Ko pan^1; Sw pan^i

half #: Fe puoj; Am pui; Cc puoi; Ky pui; Ko pui; Sw pon^i

eight #: Fe pai^2; Am pue^i; Cc poi^2; Ky pai^2; Ko pai^2; Sw pie^i

**PM *ph**

break #: Fe puai^2; Am p'ua^i; Cc p'ua^i; Ky p'oi^2; Ko p'ue; Sw p'ai^i

register #: Fe p'uo^i; Am p'ao; Cc p'ou; Ky p'oi^1; Sw p'au

hit #: Fe p'ai^2; Am p'ai^2; Cc p'ai^2; Ky p'ai^2; Sw p'au

bee #: Fe p'ui^1; Am p'ui^1; Cc p'ai^1; Ky p'oi^2; Ko p'on^i; Sw p'iu^1

**PM *p**

fly #: Fe pu^i; Am pe^i; Cc pue^i; Ky ye^i; Ko ye^i; Sw p'e^i

reverse #: Fe peij; Am pun^1; Ky vui^1

emit #: Fe puoj^2; Am pui^2; Ky voi^1; Sw p'a^i

maple #: Am p'oj; Cc puoj; Ky toj^1; Sw p'iu^1

**PM *t**

belt #: Fe tai^2; Am tua^2; Cc tua^2; Ky tue^2; Ko tua^2; Sw tai^2

list #: Fe taj; Am tua^i; Cc tuai^i; Ky tuen^1; Ko tuen^1; Sw tan^1

short #: Fe tui; Am te^i; Cc to^i; Ky tu^i; Ko to^i; Sw ton^i

table #: Fe to^i; Am to^i; Cc to^i; Ky to^i; Ko to^i

**PM *th**

leg #: Fe t'hi^2; Am t'ui^2; Cc t'ui^2; Ky hui^2; Ko t'o^2; Sw t'ei^2

sky #: Fe t'en^1; Am t'en^1; Cc t'en^1; Ky t'en^1; Sw t'en^1

inn #: Fe t'en^2; Am t'en^2; Cc t'en^2; Ky hie^2; Ko t'ie^2; Sw t'ie^2

diary #: Fe t'au^2; Am t'au^2; Cc t'au^2; Ky huen^1; Ko t'uen^1; Sw t'au^2

**PM *t**

turn #: Fe to^i^2; Am tp^2; Cc tp^2; Ky tye^3; Ko tye^3; Sw t'ien^3

**PM *k**

melon #: Fe kua^3; Am kue^1; Cc kue^1; Ky kua^3; Ko kua^3; Sw kua^3

remember #: Fe kei^2; Am ki^2; Cc ki^2; Ky ki^2; Ko ki^2; Sw kw^2
MODERN VARIETIES OF SINITIC

cocoon #: Fe kên j; Am kên j; Cc kô j; Ky kên j; Sw kên j
horn #: Fe kô j; Am kak; Cc kâ j; Ky kô j; Ko kû j; Sw kô j

PM *kh

bitter #: Fe k'ô j; Am k'ô j; Cc k'ô j; Ky k'ô j; Sw k'ô j
foot #: Fe k'ô j; Am k'ô j; Cc k'ô j; Ky k'ô j; Ko k'ô j; Sw k'ô j
advice #: Fe k'âu j; Am k'ân j; Cc k'ân j; Ky k'ân j; Ko k'ân j; Sw k'ân j
guest #: Fe k'ê j; Am k'ê j; Cc k'ê j; Ky k'ê j; Ko k'ê j; Sw k'ê j

PM *k

dog #: Am kau j; Cc kau j; Ky eù j; Ko eù j; Sw kô u j
jar #: Fe kou j; Am kî j; Cc kî j; Ky kî j; Ko kî j; Sw kô u j
cut #: Fe kî j; Am kau j; Cc kau j; Ky uá j

4.1. Sonorant initials

Every Chinese dialect has a small number of words with sonorant initials which are found in the upper register of one of the tonal categories. These words for the most part are either onomatopoeic, etymologically obscure, or expressive; although various explanations have been offered for the tones of such words, to my knowledge, no one has ever made a convincing case for a two-way distinction of sonorants in earlier stages of Chinese. I believe, nonetheless, that there is incontrovertible evidence in the Min dialects for just such a distinction at the stage of the proto-language. Since the tonal development of one of the series exactly parallels that of the voiced aspirated stops, I will symbolize the distinction thus:

voiced m m ȵ n j l
voiceless mh nh nj nh lh

4.2. Laterals

Because the case of the laterals is clearer than that of the other sonorants, I will describe it first; in the process, the tonal development triggered by the two different series will be made clear.

The initial correspondences for *l and *lh in the modern dialects are shown in the following chart:

<table>
<thead>
<tr>
<th>PM</th>
<th>Fc</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*l</td>
<td>1</td>
<td>l/n</td>
<td>l/n</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>*lh</td>
<td>1</td>
<td>l/n</td>
<td>l/n</td>
<td>s</td>
<td>s</td>
<td>s</td>
</tr>
</tbody>
</table>

TONGU TONAL DEVELOPMENT IN MIN

In the eastern dialects the evolution of *l and *lh is the same. In Am and Ce *l and *lh have become n before those PM finals that have become nasalized vowels in these two dialects and l before other finals. (In Am n and l are in complementary distribution: l occurs only before oral finals and n only before nasalized vowels. In Cc they contrast in a limited number of environments: naŋ 'person' and laŋ 'dead', but a tendency similar to that found in Am can be observed.) In the western dialects the reflexes of *l and *lh are quite distinct, and the two types of sonorants have left their traces in the tones of the modern dialects, especially in Sw, but also to a lesser degree in Fc. The tonal reflexes (as seen in words with *l and *lh) are shown in the tables below; reflexes of *lh are given to illustrate the parallel development of the aspirated voiced stops and the voiceless sonorants:

PM tone *1

<table>
<thead>
<tr>
<th>Fc</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*l</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>*lh</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>*dh</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

PM tone *2

<table>
<thead>
<tr>
<th>Fc</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*l</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>*lh</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>*dh</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Judging from the reflexes of words with initial *l and *lh, no particular tonal behavior is associated with voiceless sonorants in this tone except in the case of Ko. There is in fact considerable irregularity associated with words having initial sonorants in tone *2. A significant number of words are found with upper register tones in all dialects; others are found with the upper register in the east but with a lower register tone in the west:

I, me #: Fe nuai; Am gau; Cc uai; Ky nüei; Ko uüei
horse #: Fe ma; Am be; Cc be; Ky ma; Ko ma; Sw ma
incite #: Fe nia; Am dia; Cc dia; Ky nia; Ko nia
buy #: Fe me; Am buê; Cc bui; Ky maï; Ko maï; Sw mie
rice #: Fe mi; Am bi; Cc bi; Ky moii; Ko mi; Sw mi
tail #: Fe mui; Am be; Cc bui; Ky mui; Ko mui; Sw mei
dye #: Fe nienj; Am džlaij; Cc džlaij; Ky nienj; Ko nienj
saliva: Fe lanj; Am nau; Cc nauj; Ky luaij; Ko luaij
collar #: Fe liaj; Am niä; Cc niä; Ky liaj; Ko liaj; Sw liaj
Are we to consider these upper register reflexes as evidence for voiceless initials? There are two reasons to think that this is not so: (1) It is well known that in many Chinese dialects the sonorant initials (cizhio ) of QY, unlike the voiced obstruents, went to the upper rising tone; some of the Min words cited above may be influenced by such dialects. (2) In the other tones the tonal behavior of words with voiceless sonorant initials is the same as that of words with initial voiced aspirated stops; this is not the case with any of the above examples.

**PM tone *3**

<table>
<thead>
<tr>
<th></th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*l</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>*lh</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>*dh</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

There are no examples of this tone in Sw for words with initial *lh or *dh, but we know the expected reflex from words sharing the same manners of articulation.

**PM tone *4**

<table>
<thead>
<tr>
<th></th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*l</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>*lh</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>*dh</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Sw has a different tonal reflex for words with initial voiceless sonorants except in PM tone *2. Ko ostensibly has a different tonal reflex for such words both it tones *2 and *4; this is clearly true for words which had *lh but I have not found any examples of similar behavior for words with the other sonorant initials. (This perhaps reflects different origins for the two sets. I suspect that *lh comes from an earlier cluster consisting of a voiceless stop plus *, and that the voiceless rasals are the reflexes of a voiceless fricative plus a nasal.) This means that except for *lh, there is now no clear tonal evidence for voiceless sonorants in PM tone *2.

**4.3. Examples of *L and *LH**

**PM *1**

come #: Fe la2; Am lai2; Ce lai2; Ky le2; Ko le2; Sw li2
plow #: Fe le2; Am lu2; Ce lo2; Ky lai2; Ko lai2; Sw lie2
flow #: Fe lau2; Am laur2; Ce laur2; Ky laur2; Ko laur2; Sw luar2
wax #: Fe la2; Am la2; Ce la2; Ky la2; Ko la2; Sw la2
pungent #: Fe la2; Am la2; Ce la2; Ky la2; Ko la2; Sw la2
cage #: Fe lai2; Am la2; Ce la2; Ky lo2; Ko lo2; Sw luj2

**4.4. The modern reflexes of *M and *MH**

PM

<table>
<thead>
<tr>
<th></th>
<th>Fe</th>
<th>Am</th>
<th>Ce</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*m</td>
<td>m</td>
<td>m/b</td>
<td>m/b</td>
<td>m</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>*mh</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
</tr>
</tbody>
</table>

The conditions for the split of PM *m in the southern dialects is the same, ceteris paribus, as for PM *l. There is a very definite tendency for words for which I have reconstructed *mh on the basis of Sw and Fe tones to retain nasal initials in the southern Min dialects even where the PM final would regularly evolve to an oral final in these dialects. Examples of PM *m and *mh:

**PM *m**

come #: Fe me2; Am me2; Ce me2; Ky me2; Ko me2; Sw mai2
sell #: Fe ma2; Am bu2; Ce bo2; Ky mai2; Ko mai2; Sw mii2
cold #: Fe mi2; Am bu2; Ce bu2; Ky mi2; Ko mi2; Sw mi2
plum #: Fe mi2; Am bu2; Ce bu2; Ky mi2; Ko mi2; Sw mi2
slow #: Fe mi2; Am bu2; Ce bu2; Ky mi2; Ko mi2; Sw mi2
honey #: Fe mi2; Am bu2; Ce bu2; Ky mi2; Ko mi2; Sw mi2
blind #: Fe mi2; Am bu2; Ce bu2; Ky mi2; Ko mi2; Sw mi2

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MODERN VARIETIES OF SINITIC

wheat: Fe ma⁷; Am be⁵; Cc be⁵; Ky ma⁷; Ko ma⁷; Sw ma⁷
life: Fe mian⁴; Am miat⁴; Cc miat⁴; Ky miyan⁴; Ko miyan⁴

PM *mh

hemp: Fe muai⁴; Am muai⁴; Cc muai⁴; Ky moï⁴; Ko mue⁴; Sw muï⁴
scold: Fe muai⁴; Am muai⁴; Cc muai⁴; Ky maï⁴; Ko maï⁴; Sw maï⁴
sister: Fe muï⁴; Am muï⁴; Cc muï⁴; Ky muï⁴; Ko nyê⁵; Sw meï⁵
cat: Fe maï⁴; Am maï⁴; Ky maï⁴; Ko maï⁴; Sw mau⁴
face: Fe mian⁴; Am bin⁴; Cc mian⁴; Ky mian⁴; Ko mian⁴; Sw min⁴
mosquito: Fe muñ⁴; Am muñ⁴; Cc mun⁴; Ky mian⁴; Sw muñ⁴
ask: Fe muñ⁴; Am muñ⁴; Cc muñ⁴; Ky muñ⁴; Ko muñ⁴; Sw muñ⁴
name: Fe mian⁴; Am miat⁴; Cc miat⁴; Ky mian⁴; Ko miat⁴; Sw miat⁴
dream: Fe moï⁴; Am ban⁴; Cc maï⁴; Ky moï⁴; Ko moï⁴; Sw muï⁴
eye: Fe méi⁴; Am bak⁴; Cc miak⁴; Ky moï⁴; Ko mu⁴; Sw muï⁴

4.5. Reflexes of PM *N and *NH in modern dialects

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>*nh</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

The paucity of forms for which we can confidently reconstruct voiceless sonorant initials (especially *nh and *nh) makes it extremely difficult to say what the regular development of these phonemes has been in the Southern Min dialects. The process of denasalization that has affected the nasal sonorants of Southern Min is very irregular: it would seem that as the distinction between voiced and voiceless sonorants broke down, the Southern Min dialects entered a period of great instability with respect to these sounds. We can only hope that as more data become available the process will become somewhat clearer. In the case of *nh, there is a clear tendency for it to become h when it occurs before a high front vowel. Both Am and Cc have n in the word for ‘year’, but it is interesting to note that in at least one expression Cc preserves this word with an initial h: *nei⁷ kâ⁷ ‘the first three days of the New Year’. The initial n of the word for ‘meat’ in Cc can be explained by assuming that the word originally had a high front vowel and that the voiceless nasal persisted until after the vowel was lowered. Examples of *n and *nh:

PM *n

south: Fe naŋ⁵; Am lam⁵; Cc lam⁵; Ky naŋ⁵; Ko naŋ⁵; Sw naŋ⁵
read: Fe naŋ⁵; Am liam⁵; Cc liam⁵; Ky naŋ⁵; Ko naŋ⁵; Sw niem⁵

TONAL DEVELOPMENT IN MIN

PM *nh

year: Fe nei⁷; Am ni⁷; Cc ni⁷-hi⁷; Ky ni⁷; Ko ni⁷; Sw nî⁷
leaf: Fe nie⁷; Am hio⁷; Cc hie⁷; Ky ni⁷; Ko nie⁷; Sw nî⁷
pus: Fe nei⁷; Am lan⁷; Cc laŋ⁷; Ky ni⁷; Sw nî⁷
meat: Fe ny⁷; Cc nek⁷; Ky ny⁷; Ko ny⁷; Sw ny⁷

4.6. Reflexes of *N in modern dialects

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n</td>
<td>n</td>
<td>dz</td>
<td>dz</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

Only one rather doubtful case of *nh was found: FFE neï⁷, Am dzï⁷. It is perhaps significant that the word for ‘meat’ can be reconstructed with initial *nh, even though it has a palatal initial in QY; this may mean that original *nh merged with *nh before the period of common Min. Examples of PM *n:

PM *n

two: Fe nei⁷; Am dzï⁷; Cc dzï⁷; Ky noi⁷; Ko ni⁷; Sw nî⁷
recognize: Fe nei⁷; Am dzï⁷; Cc dzï⁷; Ky noi⁷; Ko nei⁷; Sw nî⁷
day: Fe nei⁷; Am dzï⁷; Cc dzï⁷; Ky noi⁷; Ko ni⁷; Sw nî⁷
intercalary: Fe noi⁷; Am dzun⁷; Cc dzun⁷; Ky noi⁷; Ko noi⁷

4.7. Reflexes of *N and *NH in modern dialects

<table>
<thead>
<tr>
<th>PM</th>
<th>Fe</th>
<th>Am</th>
<th>Cc</th>
<th>Ky</th>
<th>Ko</th>
<th>Sw</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>*nh</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td>h</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

The denasalization of these sounds in southern Min, although in general outline like that for the other nasal initials, is exceedingly difficult to understand. With so few forms it is impossible to see much of a pattern. In Sw *n and *nh become n before high front vowels. In a few words, all containing rounded medials, initial *n drops in some dialects but is preserved in others; e.g. ‘I’, ‘me’, ‘outside’ and ‘tile’. Examples of *n and *nh:

PM *n

goose: Fe nie⁷; Am gia⁷; Cc gie⁷; Ky nje⁷; Ko nje⁷; Sw nô⁵
fish: Fe n̂y⁷; Am hie⁷; Cc hie⁷; Ky n̂y⁷; Ko n̂y⁷; Sw n̂y⁷
outside: Fe nie⁷; Am gau⁷; Cc gau⁷; Ky nje⁷; Ko nje⁷; Sw uai³
five: Fe n̂ou⁷; Am gâ⁷; Cc gôu⁷; Ky nô⁷; Ko nô⁷; Sw nô⁷
5.2. Conclusion

In this paper I have demonstrated that the initial system which must be postulated to explain Min tonal development is more complex than that of QY. Min tonal evolution is determined in part by a five-way division of the initials as shown in the following scheme:

1. voiceless stops  
2. softened voiceless stops  
3. aspirated voice sounds  
4. plain voiced stops  
5. plain nasals  
6. softened voiced stops

The initials thus reconstructed represent an eight-way manner distinction at each point of articulation. It seems unlikely that a language could bear such a large number of distinctions simply as differences of manner. I have suggested that what I have called here softened stops may in fact be the reflexes of some kind of lost voiced prefix; it also seems likely that some of the other distinctions originated from the reduction of initial clusters of some type. It is not difficult to imagine possible systems, but with the available data it is impossible to substantiate any particular scheme. For that reason, I have not proposed anything of the sort and have rather chosen to symbolize the various distinctions in ways which I think are suggestive of the values in the modern dialects; in the one case of the voiceless or aspirated sonorants I symbolize the distinction so as to focus on its parallelism to one of the other sets.

The Shaowu dialect, while exhibiting traits ordinarily associated with the Kan-Hakka dialects (particularly the evolution of voiced stops to aspirstates in all tones) is seen to be fundamentally a Min dialect, since the Min initial system is reflected in its tonal evolution, and indeed, the Shaowu tones can only be understood in light of PM phonology. But since Shaowu deviates from the typical Min dialects in so many other respects, perhaps it should be called a quasi-Min dialect. This dialect is an excellent example of how the conventional division of the Chinese dialects into five or six groups fails to account for real historical connections in all cases. It also points up the usefulness of doing comparative work on individual dialect groups.

Notes

1. Work for this paper was supported by the U.S. Office of Education, contract number OEC-0-9-097734-4516(014) and by the Chinese Linguistics Project at Princeton University.
2. Qiuyun forms are cited in Karlgren's (1954) transcription except that the aspiration mark has been omitted after the voiced stops.

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1. Introduction

Among the five major dialect-groups of modern Chinese:
1. Northern Mandarin, e.g. Peikinese;
2. Wu, e.g. the Suzhou dialect and, more recently, Shanghainese;
3. Hakka, e.g. the Moiyen (Meixian) dialect;
4. Min, e.g. the Fuzhou and Amoy dialect;
5. Yue, e.g. Cantonese;

the Hakka dialects usually draw the least attention of modern linguists. Thus, studies on the Hakka are often only added toward the very end of a list of papers at conferences or in collected essays on Chinese dialects, apparently in order to complete the coverage of the major dialect-groups of Chinese.

Yet, the Hakka dialects offer copious, highly valuable data of the utmost interest to modern linguists, because of the unique formation of these dialects and their speakers’ exceptionally long migration and firm ethnic unity. In particular, phonological data these dialects offer have some unusual, direct relevance to the study of Ancient and Archaic Chinese, because:

a) since the time of Bernhard Karlgren, these old Chinese sound systems have not been reconstructed merely through the comparison of modern dialects, but by filling out the slots of sound categories (established by examining the construction of Chinese characters coined in the north, or found and determined in the old rime dictionaries and rime tables, compiled mainly in the north) with the sound values corresponding to these categories in modern dialects, and;

b) these Hakka speakers are believed to be the direct descendants of northerners who migrated to the south from the so-called Central Plains. This relevance is all the more valued, when one takes into consideration the systematic departure of Min

sound categories from the Qieyun / Guangyun system and the curious non-Chinese aspects of Yue dialect sound values (despite the beautiful correspondences of sound categories between the Qieyun system and, for instance, Cantonese).

In the past, Hakka phonological information has not been systematically utilized in reconstructing Ancient and Archaic Chinese, mainly because data from these dialects were not readily available in a well sorted-out form.

There have been quite a few developments in Hakka dialect studies since an extensive critical survey by the present author in the early 1970s.1 Publications of book or monograph length include:

1. a classified lexicon of three major Hakka dialects, Moiyen (Meixian), Shiyen (Sixian) and Hoilu (Haihu) (1972) with a multilingual index (1973);2
2. the first comprehensive phonological description of a Hakka dialect spoken in the New Territory of Hong Kong (1982);3
3. a traditional description of Shiyen (Sixian) Hakka grammar (1984);4 and
4. a phonetic description of a related Gan dialect, the Fengxin dialect (1975).5

Comprehensive descriptions of either representative speech forms or individual dialects of Hakka are yet so meager that photo offset reprints of such dated works as Donald Maciver and M. C. MacKenzie’s Moiyen (Meixian) dictionary of the early years of this century,6 and Jian Xiangrong’s Shiyen (Sixian) grammar of the prewar period are still commercially feasible in Taiwan. Information on southern coastal Hakka is so scarce that an English translation of Simon H. Schanck’s Het Lush-foeng Dialect of 1897 is still useful.

Instead of offering a critical evaluation of these recent publications,7 this paper endeavors to point out some of the interesting aspects of Hakka dialect studies as well as the current, most urgent tasks which have not been noted before and thus need immediate attention by modern linguists for the further development of Chinese linguistics.

2. Hakka as a major dialect group

The label “Hakka people” as used here refers to a limited group of southern Chinese residents who, after the initial move from the north, migrated toward the south into Guangdong Province from Jiangxi Province beyond the Five Ridges and then to various other parts of South China including Sichuan and Taiwan Provinces.

One of the most conspicuous features of the Hakka dialect is this label itself. Among the five major dialect-groups of Chinese, it is only Hakka, or kejia (the meaning ‘guest’ and jia ‘a people’), that does not adopt an areal term as the group’s label.8 One naturally suspects that this is not a regional dialect, yet not strictly a social one either. In any event, no systematic reexamination on the scientific nature of the Hakka dialect as a major dialect-group of Chinese has so far been explicitly attempted.

Being newcomers among the ‘natives’ in the Lingnan (South of the Five Ridges) area, Hakka speakers have endured much discrimination and group fights which often ended in a large-scale rebellion or local uprising, as typified by the
Taiping Rebellion. Even in China proper, a complaint against treating the Hakka as a national minority had been raised as late as 1958.12 Discrimination such as this has thus kept the Hakka speakers' self-identity unusually clear and their ethnic ties extraordinarily firm and lasting among the Han Chinese. A report, as recent as this year, on the Hakka dialect of Jiangxi mentions this feeling of ethnic awareness on the part of the Hakka speakers there.13

The Hakka dialect exhibits conspicuous phonetic features, such as the often mentioned fact that in Hakka all the Ancient *quanxiao* ("completely muddy"—voiced obstructed) initials are pronounced as voiceless aspirated consonants. During the early period of modern Chinese history, when detailed information on the dialectal situation in China was not yet available, this fact was enough to set up a single dialect group for Hakka, comparable to the other major groups of modern Chinese dialects. However, with increased knowledge of modern Chinese dialects, particularly after the data and results of the 1957-1958 general survey of dialects in China were gradually published and became available to general public in various forms, it is now generally accepted that this phonetic feature, aspiration of all Ancient *quanxiao* initials, is not unique to Hakka dialects. For instance, this feature is also found in a group of dialects spoken in northern Jiangsu, a relatively small group of dialects spoken in the border area of Hubei and Hunan,14 several typical Hunan dialects, and the so-called “Hakka subgroup” of dialects of Fujian15 to say nothing of the major dialects of Jiangxi.17 Yet, the more we learn about the entire linguistic structure of the Shao Wu dialect, one of the “Hakka subgroup”, the clearer it becomes that this so-called “Hakka feature” is a very superficial one in Shao Wu, and the dialect itself should definitely belong to the Min group.18

The clear division of Hakka from Gan, the dialects of Jiangxi, has always been disputed and some linguists simply put these two together to form a single group Gan-Hakka. It is thus that a single phonological feature of the historical origin of a tone category (namely, some of the Ancient *sheng* (rising) tones carried by the syllables whose initial consonant happened to be a nasal, liquid or glide merged with the Ancient *ping* (level) tones carried by the syllables having a voiceless initial consonant) uniquely determines the Hakka dialects. This single feature characterization of the Hakka dialect was first mentioned more than a decade ago19 had remained unchallenged until very recently.

This piece of Hakka linguistic history is quite unique with respect to the other dialect groups of Chinese, but the merger itself is nothing extraordinary in its phonetic-phonological nature. Contemporary tones corresponding to the Ancient *sheng* (rising) tones in some Jiangxi dialects maintain phonetic values of relatively higher falling tones (e.g. Nan Ching and Wannian) or higher level tones (e.g. Lianyuan and Qianshan) (even though these tones are carried by syllables having a nasal or liquid initial), while those corresponding to the Ancient *ping* (level) tones maintain phonetic values of lower falling tones (e.g. Nan Ching and Wannian) or lower level tones (e.g. Lianyuan and Qianshan) respectively (even though these tones are all carried by syllables having a voiceless initial consonant).20 In such a situation, a merger could easily take place between these tones. Small wonder that the present author himself recently—indeed, in fact much belatedly—realized that Yuen Ren Chao had already reported the presence of such a merger in the literary layer of the two Wu dialects, Yixing and Wuxi, over half a century ago.21 In addition, Prof. Kim Chang kindly drew the present author's attention to a recent report on an Anhui dialect, i.e. Taiping (Xinyuan), in which the Ancient *sheng* (rising) tones are carried by syllables having a nasal, liquid, or glide initial, merged with those *ping* (level) tones carried by syllables having a voiceless initial consonant, unless the present Taiping dialect (Xinyuan) initial happens to be a palatalized [j].22 The uniqueness of the Hakka change under consideration can now be questioned, though it is more than a coincidence that these similar changes mentioned above have so far been found only in the dialects spoken in those areas through which, or at least near which, the Hakka speakers passed in order to migrate further beyond the Five Ridges toward to south.

Another phonetic feature, namely that some Hakka labial and dental stops correspond to the other major dialect groups' labiodental fricatives and dental retroflex affricates respectively, is often pointed out as one of the characteristics of the Hakka dialect. But these phenomena are too well known for Min and some Gan dialects, which are, in fact, more thorough and systematic in these dialects. Thus, this can hardly be defined as a genuine Hakka feature. If there is anything quite characteristic of Hakka, it would have to be some unique lexical elements, such as *k'ioθ* ‘sired’, etc. which can be found throughout Hakka dialects but not in dialects of any other major groups. But such lexical items are too fragmentary to uniquely define a major dialect group. The linguistic validity for isolating the Hakka group as one comparable to the major groups is yet to be scientifically established.

5. Hakka as a dialect wave

The Hakka people are widely believed to have migrated to South China “from the north”—from the Central Plains of China continent in particular. Numerous family records have been utilized to “prove” this legend or ethnic saga. But very clearly this is to a large extent nothing more than a popular belief. The orthodoxy of being former residents in the Central Plains—the main stage for the major political and cultural events in the entire history of ancient China—was indispensable and desideram in order for the Hakka people to fight against the local southerners’ prejudice.

3.1. Hakka homeland in the north

Very few studies have ever questioned this legend—to say nothing of publicly challenging this popular belief. Quite to the contrary some linguists were obsessed by this belief, and were determined to find linguistic evidence to support the theory of the northern origins of Hakka.

For instance, Ting Pang-hsin in his article on Northern Chinese dialects, contributed to Languages and Dialects of China, searches for the homeland of Hakka in the north, asking himself why not a single modern Mandarin dialect maintains aspirations for all the voiced stop and affricate initials of Ancient Chinese, if indeed the Hakka people migrated from Shannxi, Shanxi, and Henan. He was therefore very excited, when Gong Hwang-heng discovered that voiced stop and affricate initials of a twelfth century Northwestern Chinese dialect were utilized, regardless
of the tone of syllables these initials belong to, in order to transcribe aspirated voiceless initial consonants of the Tangut language described in Gule Msoi's pocket Tangut-Chinese dictionary, *Fan-Harpu Heshi Zhangzhengshu* ['Barbarian-Chinese Simultaneous Pearl in the Palm'].

Although more fragmentary and sporadic, a similar phenomenon can be found in the Tibetan transcription of the same northwestern Chinese dialect from the eighth to ninth centuries, and Ting himself notes it. Yet, he does not seem to be bothered by the fact that less than a few decades later in the same northwestern Chinese dialect, unaspirated initials correspond, again regardless of the tones of syllables these initials belong to, to Ancient voiced stop and affricate initials. Ting mentions the presence of aspirated initials, throughout the four tones of Ancient Chinese, in modern dialects of Anhui and Jiangsu, pointed out by Kun Chang more than a decade ago, which, ironically enough, include Ting's own dialect of Ruguo.

Yet, he appears not to be aware that these modern dialects constitute a beautiful wave ring in the periphery of the Central Plains, a fact to which we will return.

### 3.2. Resemblances to the Jin dialect

The present author has also pointed out a "striking resemblance" of the Hakka tonal system to that of some Shanxi (Jin) dialects, the Central Shanxi (Jinzhong) dialects in particular, in this connection. The tones of the Fenyang dialect from the Jinzhong subgroup are hardly distinguishable from those of the Ng-yen subgroup of Hakka. The resemblance includes the number, the historical origin, and the actual tone values (pitch contours) of these corresponding tones. The similarity of the tonal system even involves the sharing of the same set of morphemes carrying exceptional rasheng ('entering-tone') correspondents between Moiyan (Meixian) and Taiyuan, a representative of Shanxi dialects:

<table>
<thead>
<tr>
<th>Tone</th>
<th>Ng-yen (Hakk e)</th>
<th>Fenyang (Shanxi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+legato</td>
<td>+legato</td>
</tr>
<tr>
<td></td>
<td>-high</td>
<td>-high</td>
</tr>
<tr>
<td></td>
<td>-low</td>
<td>-low</td>
</tr>
<tr>
<td></td>
<td>+falling</td>
<td>+falling</td>
</tr>
<tr>
<td>2</td>
<td>+legato</td>
<td>+legato</td>
</tr>
<tr>
<td></td>
<td>+high</td>
<td>+high</td>
</tr>
<tr>
<td></td>
<td>+low</td>
<td>+low</td>
</tr>
<tr>
<td></td>
<td>+falling</td>
<td>+falling</td>
</tr>
<tr>
<td>3</td>
<td>+legato</td>
<td>+legato</td>
</tr>
<tr>
<td></td>
<td>+falling</td>
<td>+falling</td>
</tr>
<tr>
<td>4=5=6</td>
<td>+legato</td>
<td>+legato</td>
</tr>
<tr>
<td></td>
<td>+high</td>
<td>+high</td>
</tr>
<tr>
<td></td>
<td>-falling</td>
<td>-falling</td>
</tr>
</tbody>
</table>

In other words, Hakka shows a striking similarity of the upper/lower (yin-/yang) split of entering-tone to the Taiyuan dialect even with respect to some exceptional words—a kind of correspondence which can not be dismissed as fortuitous.

The chart below shows the nineteen commonly used morphemes which constitute exceptional correspondences (a plus indicates the item is shared, and minus not shared):
a single dialect-group with Hakka) shared only eleven [or ten], and the shared exceptions in other dialects are limited to four [or three] with Cantonese of the Yue group, two [or one] with Suzhou of the Wu group, and zero with Amoy of the Min group.

3.3. Distribution in a wave form

In pointing out the unquestionable similarities or resemblances between Hakka and Taiyuan mentioned in the preceding section, it was never taken into consideration until very recently that all of this might be due to the simple fact that Hakka and Shangxi constitute the southern and northern portions respectively of the same dialect wave or waves which spread toward the peripheral regions of China, with the Central Plains as the center of all of these waves.

3.3.1. Nonaspirates in a wave form distribution

As was already reported by Yuen Ren Chao and his colleagues in the late 1940s, in some Chinese dialects spoken in a narrow, southern peripheral zone of the great North China plains, i.e. the mountainous, southeastern corner of Hubei Province in the southern side of the Yangzi River [see Map 1]. Ancient Chinese voiced stop and affricate initials went, regardless of the tones of the syllables, these initials belong to:

1) entirely to voiceless aspirates (thus merging with the descendants of Ancient voiceless aspirates, as for instance in the dialect spoken in the eastern half of Yangxin Prefecture of Hubei), as shown below:

<table>
<thead>
<tr>
<th>Ancient Chinese</th>
<th>Yangxin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ping</td>
<td>p</td>
</tr>
<tr>
<td>shang</td>
<td>p</td>
</tr>
<tr>
<td>qu</td>
<td>p</td>
</tr>
<tr>
<td>ru</td>
<td>p</td>
</tr>
<tr>
<td>ping</td>
<td>p</td>
</tr>
<tr>
<td>shang</td>
<td>p</td>
</tr>
<tr>
<td>qu</td>
<td>p</td>
</tr>
<tr>
<td>ru</td>
<td>p</td>
</tr>
</tbody>
</table>

or:

2) entirely to voiced aspirates (with which, curiously enough, the descendants of Ancient voiceless aspirates completely merged, perhaps after having become voiced, as for instance in the Puqi dialect, as shown below:

<table>
<thead>
<tr>
<th>Ancient Chinese</th>
<th>Puqi</th>
</tr>
</thead>
<tbody>
<tr>
<td>ping</td>
<td>p</td>
</tr>
<tr>
<td>shang</td>
<td>p</td>
</tr>
<tr>
<td>qu</td>
<td>b</td>
</tr>
<tr>
<td>ru</td>
<td>p</td>
</tr>
<tr>
<td>ping</td>
<td>p</td>
</tr>
<tr>
<td>shang</td>
<td>p</td>
</tr>
<tr>
<td>qu</td>
<td>b</td>
</tr>
</tbody>
</table>

3) in a dialect spoken right next to those having voiceless or voiced aspirates, the same initials went entirely to voiceless nonaspirates (thus merging with
This kind of drastic contrast of sound changes puzzled linguists for quite some time. As reported elsewhere, during his field survey undertaken specifically to solve this puzzle, the present author realized that (see Map 2):

1) as reported by Yang Shi-feng of Academia Sinica, dialects having voiceless non-aspirates throughout the tones as in Tongshan are spoken in the basins of three major rivers of Hunan, i.e. Xiang, Zi and Ruan, in the thirteen prefectures or cities of Hunan, i.e. Changsha, Ningxiang, Yueyang, Nanxian, Ruanjiang, Xiangyu, Xiangtan, Xiangxiang, Anhua, Qianying, Huitong, Tongdao,

Map 1: Southeastern corner of Hubei

the descendants of Ancient voiceless non-aspirates, as for instance in the Tongshan dialect), as shown below:

<table>
<thead>
<tr>
<th>Ancient Chinese</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ping</td>
<td>shang</td>
<td>qu</td>
<td>ru</td>
<td>ping</td>
<td>shang</td>
<td>qu</td>
<td>ru</td>
</tr>
<tr>
<td>p</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>p</td>
<td>b</td>
<td>b</td>
<td>b</td>
</tr>
<tr>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
<td>p'</td>
</tr>
</tbody>
</table>

Map 2: Nonaspirates in the Central Plains
and, perhaps a dialect island, Anren (despite its appearance, Rucheng does not belong here);

2) Tongshan and the western half of Yangxin perhaps constitutes an isolated dialect island, separated by later waves of newer dialects from the above group located just beyond the southeastern edge of the Central Plains;

3) the same type of changes are found, this time in the northwestern corner of the Central Plains, in the colloquial layer of a group of Shanxi dialects distributed in the seven prefectures around the central part of Shanxi Province, i.e. Taiyuan, Qinxu, Yuci, Wenshui, Pingyao, and Jieju;

4) in the northeastern end of the Central Plains the same type of initials can be found in the two dialects spoken at the very tip of Shandong Peninsula, i.e. Rongcheng and Wendeng. The case of Rongcheng is very interesting; the same change can be found only in the dialect spoken in the surrounding suburban area, not in the city itself [the situation in the latter is already much influenced by standard Mandarin and these un aspirated initials all went to aspirates when carried by syllables having the ping ('level') tone].

This clearly shows that the change in question is under constant assimilation to standard Mandarin in the Central Plains.

The distribution in the north of the Yangzi River only in the peripheral zones of the Central Plains clearly shows that the said change reflects a wave prevalent in the north before the standard Mandarin type (in which those ancient voiced stops and affricates went to voiceless aspirates in case these initials belonged to syllables having the ping ('level') tone but, otherwise, to voiceless non-aspirates) spread all over the Central Plains. It is well known that the same type of non-aspirate initials with the ping ('level') tone occurs in Min⁴⁰ and some Yue dialects. Thus there is the possibility that these dialects listed above constitute a larger wave as shown in Map 3.

3.3.2. Aspirates in a wave form distribution

What has been neglected is the fact that Northern Chinese dialects having aspirates for all ancient voiced stops and affricates are also distributed in a belt surrounding the Central Plains [see Map 4]. We now recall and realize that:

1) During his survey of Shanxi dialects, the present author noticed some sporadic occurrence of aspirates in words having non-ping ('level') tones—in the colloquial layer in particular—for which the other dialects, including standard Mandarin, have nonaspirates, as for example, *[teʰh]n*, instead of *[teʰh]*, in the Anyt dialect in the northwestern corner of the Central Plains—though a little bit closer to the center of the Plains;⁴⁸

2) Yang Shi-feng and Eugene Ching reports the same type of sporadic occurrence in the Lingbao dialect in the northwestern corner of Henan Province;⁴⁹

3) Ting Pung-hsin reports that his dialect, Rugao of Jiangsu, has such aspirates only in the colloquial words; in Wang Jun's dialect, Nantong, aspirates in both literary and colloquial layers;⁴⁰

4) The 1957-58 general survey of dialects in Jiangsu made clear that toward the very southeastern corner of Northern China north of the Yangzi River, dialects of the five coastal prefectures, i.e. Nantong, Rudong, Rugao, Taixing, and Xinghua, and one city, i.e. Nantong, most modern initials corresponding to Ancient voiced stops and affricates turn out to be aspirates, even though they belong to syllables having tones other than ping ('level'); in five other coastal prefectures, i.e. Taizhou, Hai'an, Dongtai, Dafeng, and Yangzhou, part, though not all, of the same type of initials turn out to be aspirates.⁴¹
See Map 4.

If all of these dialects really belonged to the same wave or waves surrounding the Central Plains, there may be some validity in the idea of a northern Chinese origin for the Hakka speakers, since after all, both Hakka and Shanxi dialects belong to the same wave from the Central Plains. However, this fact does not necessarily mean that the Hakka people literally migrated from where the Shanxi people nowadays reside. All one can theoretically conclude from this is that both of them should have a common origin somewhere in North China where they constituted the southern and the northern portions of the same wave or waves.

The time has come for Chinese dialectologists to carry out extensive, unbiased reexamination on the geographical distribution of various dialectal phonological, morphological and syntactic features, beyond the conventional boundaries of the so-called major dialect-groups. Only on the basis of such observations can one understand the nature of certain historical data on Northern Chinese in a new perspective. For instance, the occurrences of nonaspirates regardless of tones in the phonetic annotations for the Kansong Yaxun ([W]apport [W]riters [W]for [W]Beginners] of AD 929 in the extreme northwest of China (Dunhuang), which must have puzzled the late Luo Changpei very much, can now be understood as belonging to the earlier wave, a portion of which still survives in the central dialects of Shanxi Province, while the occurrence of aspirates throughout four Ancient tones in the Tacong-Chinese sound equations found in Guo Maocai's Fan Hia Yu [W]ang [W]he [W]zhou [W]of two centuries later, AD 1190, in the central part of northwest China (Xingqing, the present-day Yinchuan) should be affiliated with the later wave, a very small portion of which still survives in the colloquial words of the Lingbao dialect of Henan and of the Anyu dialect of Shanxi. Only with this perspective can we correctly understand the mutually conflicting phonological information these two historical documents provide us with.

4. Contacts with other groups

While the sound system of Hakka dialects remains fairly homogeneous so that sound correspondences among Hakka dialects are relatively easily established, those spoken in the peripheral parts of the Hakka speaking area underwent certain drastic changes.

4.1. With northwestern Mandarin

Practically all Hakka dialects maintain the phonological distinction between -m, -n, -ng (and their corresponding homorganic stops, -p, -t, -k). Students of Chinese linguistics all know that a very clear parallelism between the loss of nasal and homorganic stop endings is observed with respect to practically all modern Chinese dialects (except perhaps for Mandarin). Thus, when Ancient -ng went to -n in Mojain (Meixian), in case, it occurred with a high-front syllabic vowel, -k also went to -t, when Fuzhou lost the distinction between Ancient -m, -n, and -ng altogether and all the nasal endings went to -ng, the homorganic stop counterparts all coalesced with each other and yielded -?). Among numerous Hakka dialects, the only exception is the Huayang dialect of Sichuan, which is spoken toward the northwestern end of the Hakka speaking area; this dialect underwent a complete change of the ending consonants, as reported by Dong Tonghe in the 1940s. Huayang maintains the distinction between -n (from -m and -n) and -ng, even though the stop counterparts merged completely and ended up as -t, a distinctly Mandarin merger of ending segments.
Exactly how Huayang Hakka, to adopt the conventional way of speaking ‘underwent change’, has never been seriously explored. These Sichuan Hakka have been among Northern Chinese, more specifically Southwestern Mandarin speakers for several centuries; thus, the Mandarin ‘influence’ behind these changes is undisputable. Yet, how that ‘influence’ actually took effect on the formation or transformation of Sichuan Hakka dialects has never been explicitly and systematically studied. Was it the case that the surrounding Mandarin speakers, at least those who came under the direct thought perhaps a really limited Hakka domination within a speech community, accepted Hakka lexicon, morphology and syntax, even though they maintained their own phonology and, to some extent, phonotactics? Or did Hakka speakers simply imitate Southwestern Mandarin phonology and phonotactics, while they maintained their own lexicon, morphology and syntax?

Any inquiry into the actual mechanism of this structural transition will inevitably lead to theories of language change or transmission. The first explanation looks more reasonable for understanding what happened in the sound system of Sichuan Hakka, and yet seems highly unlikely, while the second explanation seems to be less reasonable yet very likely.

During the course of this kind of academic inquiry, one encounters certain highly intriguing questions. Why did Sichuan Hakka totally surrender to Southwestern Mandarin as far as its segmental phonemes are concerned, yet maintain its tonal system practically untouched? Does human language really evolve these overlapping phases from gestures to suprasegmentals to segments, as William S-Y. Wang argues, since suprasegmentals persist to this day in every known language, most prominently in the form of intonation systems? We ask these questions, because answers to these questions will shed much light on the disputes for the formation of Mandarin Chinese. Mandarin Chinese segmentals look clearly determined by those of Manchu, while it seems to maintain the typical ‘Chinese’ tones. For instance, only Mandarin Chinese constitutes an exception to the clear parallelism between the loss of nasal and homorganic stop endings mentioned above: Mandarin Chinese lost all stops and *m, yet maintained *n and *ng. Is this imbalance because the only possible ending consonants in Manchu are *n and *ng?

A fresh view will be required to solve all these puzzles.

4.2. With Cantonese

Toward the southern end of the Hakka speaking area, Wuhua Hakka exhibits an unusual complication in tonal correspondences. In order to avoid unnecessary complication in presentation, let us for the time being exclude from our discussion the tones carried by Hakka syllables having Ancient nasal, liquid, or semivowel initials.

We start with the situation in Ancient Chinese before it underwent a tonal split, as shown in Table 1.

Shortly after this period, it is believed that these tones split into two, in Late Ancient Chinese, conditioned by the voicing in the initials whose syllables these tones were carried by, and a situation was brought about as shown in Table 2, in which both rising and departing tones underwent a bifurcation; thus the original two columns, 1 and 2, are now each subdivided into two:

1) intersections of Column 1 and Row A (upper rising) and of Column 1 and Row B (lower rising) for the shang (‘rising’) tone; and
2) intersections of Column 2 and Row A (upper departing) and of Column 2 and Row B (lower departing) for the qu (‘departing’) tone.

In the majority of Hakka dialects, the rising-tone syllables having Ancient voiced initials (hereafter ‘voiced rising-tone’ for short), namely, the intersection of Column 1 and Row B, all merged with the voiced departing tone, intersection of Column 2 and Row B, as shown in Table 3. We believe that Column 2 also once underwent a bifurcation and split into two portions, the intersections of Column 2 and Row A, and of Column 2 and Row B, but in the majority of Hakka dialects they later coalesced to form a single column, the same as the original Column 2, as shown in Table 4.

In Wuhua, half of the voiced rising tone syllables, the upper half of the intersection of Column 1 and Row B, namely the intersection of Column 1 and Row B, remained in the voiced rising-tone (and eventually merged with the rising-tone syllables having Ancient voiceless initials [hereafter, ‘voiceless rising-tone’ for short]. However, the other half, the intersection of Column 1 and Row A, merged with the departing-tone as in any other Hakka dialect. In addition, while the voiceless departing-tone syllables, the intersection of Column 2 and Row A, remained in the departing-tone, the voiced departing-tone, the intersection of Column 2 and Row B, all merged with the rising-tone, as shown in Table 5. Thus the lower half...
of the intersection of Column 1 and Row B, i.e. the intersection of Column 1 and Row B, merged with the departing-tone, while the intersection of Column 2 and Row B merged with the rising tone.

Through the bifurcation of the voiced rising-tone syllables in Wuhua, one can clearly see that Wuhua has two distinct layers for morphemes having a voiced rising-tone—namely:

1) the Mandarin-type layer, in which the voiced departing-tone merged with the voiced rising-tone, i.e. the merger of the intersections of Column 2, Row B, with Column 1, Row B, as shown in Table 6, with difference: in Mandarin, the intersection of Column 1 and Row B merged with Column 2 and Row B. Subsequently, a change took place so that the distinction between upper and lower tones was lost, as shown in Table 7.

2) the Cantonese-type layer, in which no merger took place between the voiced rising-tone and the voiced departing-tone as shown in Table 8; but when the whole system underwent the loss of the upper vs. lower distinction, the voiced rising-tone, lower rising-tone, was paired with the voiceless departing-tone, upper departing-tone, and the voiced departing-tone was paired with the upper rising-tone, as shown in Table 9. This case of cross-pairing may sound quite unusual, but André-Georges Haudricourt reports abundant cases of such pairing, e.g. Man-Yao of North Vietnam (in which Upper Tone B merged with Lower Tone C, while Upper Tone C merged with Lower Tone B) or the Tai dialect of Liushan, Yunnan (in which Upper Tone A merged with Lower Tone C, but Upper Tone C merged with Lower Tone B). Even in the Baoding dialect of Mandarin, spoken less than one hundred miles to the south of Peking, the lower rising-tone merges with the lower departing-tone in the final syllable of phonemic phrases, while it merges with the upper rising-tone in the final syllables.**

<table>
<thead>
<tr>
<th>Table 3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>u. rising</td>
<td>u. departing</td>
</tr>
<tr>
<td>b, d, g, etc. (&gt; p', t', k', etc.)</td>
<td>l. departing</td>
<td>l. departing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>rising</td>
<td>departing</td>
</tr>
<tr>
<td>b, d, g, etc. (&gt; p', t', k', etc.)</td>
<td>departing</td>
<td>departing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>rising</td>
<td>departing</td>
</tr>
<tr>
<td>b, d, g, etc.</td>
<td>(rising)</td>
<td>(rising)</td>
</tr>
<tr>
<td>(&gt; p', t', k', etc.)</td>
<td>departing</td>
<td>departing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 6</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>u. rising</td>
<td>u. departing</td>
</tr>
<tr>
<td>b, d, g, etc.</td>
<td>l. rising</td>
<td>l. rising</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 7</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>rising</td>
<td>departing</td>
</tr>
<tr>
<td>b, d, g, etc.</td>
<td>rising</td>
<td>rising</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 8</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>u. rising</td>
<td>u. departing</td>
</tr>
<tr>
<td>b, d, g, etc. (&gt; p', t', k', etc.)</td>
<td>l. rising</td>
<td>l. departing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 9</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ancient initial</strong></td>
<td><strong>rising-tone</strong></td>
<td><strong>departing-tone</strong></td>
</tr>
<tr>
<td>p, t, k, etc.</td>
<td>rising</td>
<td>departing</td>
</tr>
<tr>
<td>b, d, g, etc. (&gt; p', t', k', etc.)</td>
<td>departing</td>
<td>rising</td>
</tr>
</tbody>
</table>
If we put these two types together to construct a diatonic system, the result will be what is shown in Table 10—namely, half of voiced rising-tone, the intersection of Column 1 and Row B, turns out to be rising, just as in present-day Cantonese, though Cantonese still maintains the upper vs. lower distinction, and the other half, the intersection of Column 1 and Row B, turns out to be departing, just as in present-day Mandarin. This is what we saw in Table 1. We will return in the linguistic-geographical implications of this merger between the rising and departing tones.

5. The northern connection

Can we then define Wuhua as a variant of Hakka whose tonal characteristics were derived basically through contact with the Yue dialects, notably Cantonese? This is not entirely satisfactory.

Although basically a Hakka dialect, Wuhua Hakka maintains a clear connection with some of the northern Chinese dialects, the Wu dialects in particular, which can be seen in the intricate tonal sandhi system of the Suzhou dialect whose implications became known only very recently.10

5.1. Developments of Hakka tones

The tonal correspondences of three major Hakka dialects, Moiyam (Meixian), Dabu, and Wuhua, with Ancient Chinese, as summarized by Yuan et al. 1960,11 include three sets of unusual cases of correspondence for the departing-tone:

a) those merged with the upper level-tone, and
b) those merged with the upper rising-tone, and
c) those merged with the lower level-tone.

The first two correspond to the upper departing-tone (the ‘voiceless’ departing tone) and the last to the lower departing-tone (the ‘voiced’ departing-tone).

In fact, the similar type of ‘unusual’ merger with the level-tone can be observed with respect to the Hakka rising-tone. Furthermore, the merger is quite consistent throughout these three (and actually most other) Hakka dialects. In order to avoid unnecessary complication in the presentation in this paper, these mergers with the level-tone on the part of both rising and departing tones were intentionally excluded from the tonal correspondence tables in the preceding section.

It is not feasible in a discussion of this scope to examine the precise reasons underlying the historical fact that the rising-tone merger with the level-tone (though very regular and utterly consistent in most known dialects of Hakka) is limited to those syllables having Ancient nasal, liquid, or semivowel initials. Again, these mergers will be excluded from our discussion below in order to avoid unnecessary complication. The tonal correspondences we are going to discuss can be charted in Table 11.

What we witness here is a clear case of merger, at least in one layer of Moiyam, Dabu and Wuhua, between:

a) the upper level and (upper) departing tones,
b) the lower level and (lower) departing tones, and
c) the (upper) rising and (upper) departing tones,12

in addition to the wide-spread merger of the voiced rising-tone with the voiced departing-tone which can be observed in almost any dialect of modern Chinese.

The above-mentioned unusual but consistent merger between the level and departing tones, and between the rising and departing tones has been regarded as one of the unique features of Hakka.13 Recently, however, it was discovered that the same type of merger between the level and departing tones and between the rising and departing tones were behind the Shanghai-type dominance of initial syllable tones within polysyllabic words and phrases.14 The phenomenon is most evident in the tone sandhi of the disyllabic words in the Suzhou dialect, as the latter constitutes a step before the Shanghai-type initial syllable dominance takes place.

5.2. Tone alternations in Suzhou

According to Wang Ping’s data and analysis,15 on the surface the Suzhou dialect has the following seven tones (Tone 6 represents the merger of Tones 4 and 6):
<table>
<thead>
<tr>
<th>tone category</th>
<th>tonal value</th>
<th>numerical notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 upper level</td>
<td>high-level</td>
<td>[44]</td>
</tr>
<tr>
<td>2 lower level</td>
<td>low-rising</td>
<td>[13]</td>
</tr>
<tr>
<td>3 (upper) rising</td>
<td>low-falling</td>
<td>[41]</td>
</tr>
<tr>
<td>5 upper departing</td>
<td>falling-rising</td>
<td>[523]</td>
</tr>
<tr>
<td>6 lower departing</td>
<td>rising-falling</td>
<td>[231]</td>
</tr>
<tr>
<td>7 upper entering</td>
<td>(glottal) falling</td>
<td>[437]</td>
</tr>
<tr>
<td>8 lower entering</td>
<td>(glottal) rising</td>
<td>[237]</td>
</tr>
</tbody>
</table>

Since Tones 7 and 8 constitute a unique group of their own in the sandhi phenomena, we will exclude them from our discussion below.

Now, the way in which traditional Chinese linguistics analyzes and describes tonal sandhi phenomena (Wang's report being no exception) is to assume that these five tones appear in real phrases and sentences in the following "changed"-form:

<table>
<thead>
<tr>
<th>tone category</th>
<th>original tone</th>
<th>&quot;changed&quot; tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 upper level</td>
<td>[44]</td>
<td>[44]</td>
</tr>
<tr>
<td>2 lower level</td>
<td>[13]</td>
<td>[13]</td>
</tr>
<tr>
<td>3 (upper) rising</td>
<td>[41]</td>
<td>[41]</td>
</tr>
<tr>
<td>5 upper departing</td>
<td>[523]</td>
<td>[52]</td>
</tr>
<tr>
<td>6 lower departing</td>
<td>[231]</td>
<td>[23]</td>
</tr>
</tbody>
</table>

It is obvious that what is described as "changed tones" above are in fact the tones we encounter most often in ordinary sentences and that what is described as "original tones" are those found only in the final syllables of phrases and sentences or in isolation. These "changed" tones may be regarded as the underlying forms of these tonemes and the "original" tones as derived forms which function to mark the end of a phrase or sentence.55 The real difference in pitch contours between the so-called "changed" and "original" tones consists in the slight rising contour toward the end of a syllable having Tone 5 and the falling coda of Tone 6, both of which can be analyzed as parasitic codas to end an intonation with a neutral pitch.56

Now, in disyllabic words in Suzhou, the tone of the initial syllable has to be one of these five; the tone of the second syllable is always predictable in the following way, if it constitutes part of a compound word:

Rule 1

$X \rightarrow $ \begin{align*}
[b&igh\ (-level)]/\text{Tones } 2 \text{ and } 5, \\
[low\ (-level)]/\text{Otherwise}
\end{align*}

Thus the tone sandhi phenomena in Suzhou look very simple and straightforward.

In other words, Suzhou disyllabic words maintain the five tones in their initial syllables, but overall show only five basic patterns in tone sandhi groups:

<table>
<thead>
<tr>
<th>tone category</th>
<th>tonal value</th>
<th>numerical notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tone 1 + Tone n</td>
<td>high-level + low-level</td>
<td>[44]-[11]</td>
</tr>
<tr>
<td>2. Tone 2 + Tone n</td>
<td>low-rising + high-level</td>
<td>[13]-[44]</td>
</tr>
<tr>
<td>3. Tone 3 + Tone n</td>
<td>low-falling + low-level</td>
<td>[41]-[11]</td>
</tr>
<tr>
<td>4. Tone 5 + Tone n</td>
<td>high-falling + high-level</td>
<td>[52]-[44]</td>
</tr>
<tr>
<td>5. Tone 6 + Tone n</td>
<td>low-falling + low-level</td>
<td>[23]-[11]</td>
</tr>
</tbody>
</table>

Thus this is only on the surface. If one examines the actual morphemes which are subsumed by the various types of toneme combinations listed above, Suzhou tone sandhi turns out to be both very interesting and highly puzzling. Upon close examination, one realizes that the five types of combination listed above in fact contain additional tone combinations, as follows:

1. Surface Tone 1 + Tone n [44]-[11] in fact includes not only:
   
   Tone 1 + Tone n ex. fu-li-‘husband’ and wife’
   
   but also:
   
   Tone 5 + Tone n ex. kue-hua ‘a fragrant olive’

2. Surface Tone 2 + Tone n [11]-[44] in fact includes both:
   
   Tone 2 + Tone n ex. di-ci ‘field chicken (frog)’
   
   and:
   
   Tone 6 + Tone n ex. lao-shi ‘old’ ginger’

3. Surface Tone 3 + Tone n [41]-[11] in fact includes both:
   
   Tone 3 + Tone n ex. ci-shi ‘how many sheets?’
   
   and:
   
   Tone 5 + Tone n ex. pe-ci ‘background scene’

4. Surface Tone 5 + Tone n [52]-[44] in fact includes both:
   
   Tone 3 + Tone n ex. do-se ‘short cloth’
   
   and:
   
   Tone 5 + Tone n ex. pe-ci ‘half a pound’

5. Surface Tone 6 + Tone n [23]-[11] in fact includes both:
   
   Tone 2 + Tone n ex. min-ci ‘famous home’
   
   and:
   
   Tone 6 + Tone n ex. ag-shi ‘five sheets’

Note that on the surface Tone 5, for instance, merges sometimes with Tone 1 (the underlying kue-hua [52]-[44] ‘a fragrant olive’ goes to kue-hua [44]-[11] on the surface), and sometimes with Tone 3 (the underlying pe-ci [52]-[41] ‘background’ goes to pe-ci [41]-[11] on the surface). But this does not mean that what is labeled Tone 5 can, and in fact should, be subdivided into two, Tones...
5a and 5b for instance, since different mergers take place with respect to one and the same morpheme depending upon the environment in ways which are not phonologically definable. For instance, with respect to the same morpheme ('pe') 'the back', Tone 5 of this morpheme merges with Tone 1 when it occurs in pe'-hy' (44)-(11) 'back rear (=behind)' but with Tone 3 when it occurs in pe'-cin' (41)-(11) 'back scene (=background').

Since this has been clarified elsewhere, it is not necessary to discuss in detail here how and why Suzhou shows this kind of extensive merger among its tones on the surface and what the implications of these mergers are. We will simply illustrate these mergers with Table 12, in which the tones linked by arrows undergo a synchronic merger in the direction of the arrow.

**Table 12**

<table>
<thead>
<tr>
<th>ping</th>
<th>shang</th>
<th>qu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

These mergers are in fact what we have seen in the three Hakka dialects discussed above, though in these Hakka dialects the mergers are not synchronic but historical.

Thus, what has been regarded as a unique tonal correspondence in Hakka now turns out to be what unites Hakka with the Wu dialects. What is of paramount interest is this: these mergers, synchronic and diachronic, should constitute part of a single dialect wave which surrounds the Central Plains, namely the same type of tone merger takes place in Chinese dialects spoken in the peripheral parts of the Central Plains, as shown in Map 5—just as in the case of the geographical distribution of those aspirates which correspond to Ancient voiced stops and affricates throughout the four tones and nonaspirates which correspond to Ancient voiced stops and affricates only when they carry the ping ('level') tone. This time the wave is not as round as in the case of those aspirates and nonaspirates mentioned above, but we know the reason:

1) the northeastern horn, the Hulin dialect of Heilongjiang is spoken by fairly recent immigrants from Liaoning; one should recall here that the Chinese were not allowed to migrate into Manchuria until the middle of the Qing dynasty.
2) the southern bulge is obviously caused by the southern migration of Hakka.

### 6. Concluding remarks

As was pointed out almost half a century ago by Willem A. Grootaers, studies of the Chinese dialects in this century have been on the whole focused on the phonetic laws which relate all these dialects to Ancient Chinese. Chinese linguistics
has thus been concentrated on establishing hierarchical relationships among
dialects in the field of dialect studies, and areal classification of dialects was one of
the major concerns in relating these dialectal data with historical information. It is
obvious that behind all of this is some bias from the Stammbaumthese on dialects
and cognate languages. Linguists felt their primary task lay in identifying the
unique feature or those feature combinations which define each dialectal group
and which could point to the origin of the given dialect or dialect group.

During the earlier days of Chinese dialect studies, this was inevitable, as our
knowledge of the contemporary situation of dialects in China was limited. With
the increased knowledge obtained in the past few decades, we are now in a position
to examine the dialectal situation in China primarily from the viewpoint of
Wellentheorie. Even in the field of Indo-European studies, this kind of view or
understanding on the principles for the development of languages came much later
in the West European tradition of linguistic sciences—in fact only after ling-
guists concerned themselves with the reality of linguistic developments in
the Romance languages. The implication is that the case for Indo-European
developments before the Christian era was special, with the well-known large-scale
migration, for example, of the Germanic people or the far-reaching travels of
Iado Aryans, etc. etc. When languages develop in a relatively stable environment,
we need a different model for studying their developments. With the increased
knowledge obtained in the past few decades, we are now in a position to examine
the dialectal situation in China primarily from the viewpoint of Wellentheorie. We
believe this is one of the most urgent tasks of modern Chinese linguistics. A very
good example of new light to shed through examining regional transitions in
linguistic structure in Chinese was recently presented by Zhu Dexi, who demon-
strated that this research can be applied not only to phonology but also to syntax.

He thus opened an entirely new field of syntactic studies, and increased our vistas
for the future of Chinese linguistics.

Notes

* The paper was presented at the Conference on the Languages and Dialects of China,
Oakland, California, in January 1986 (see JCL Monograph 3). The preparation of
the present version is the work of Patrick Chew. [WSYW]

The original version of this paper was read at the Conference on Chinese Language
and Dialects, organized by William S-Y. Wang with the support of the Wang Institute of
Graduate Studies Chinese Studies Program, with the title “Current tasks of Hakka stud-
estes”. Thanks are due to those who gave the author this chance, and to those who offered
constructive comments and criticisms. Kun Chang, Hsi-men Hsieh, and William Laow
were quick in recognizing the importance and “grandeur” of Hakka dialectal waves and
offered particularly encouraging comments; Tsai-fa Cheng’s speculation, offered in a
written form, was thought-provoking. The author also much benefited from talking to
Ting Pang-hsin and Wang Jun, whose information on the sound of their own dialects
enabled the present author to rewrite the original paper. William L. Ballard, Sicoji
Hirata and Michael L. Sherrard went through the original version and offered numerous
comments and improvements, most of which are with much appreciation

incorporated into the present version, together with all the additional comments from
Ballard who red the rewritten version also. Chinese examples in this paper are given
pseudo-phonetic/phonemic notation. Tones are marked with raised Arabic numerals
given to the end of each morpheme. The ending segments of the so-called entering-
tone syllables were originally given in their phonemic transcription, as entering-tones
are marked as such throughout this paper. As anxiety was repeatedly expressed at the
Conference, we followed the contemporary Chinese practice of marking both tones
and stop endings for such syllables, even though we know that this is a typical case of
overdifferentiation of sounds. [MUH]

1 Hashimoto 1973a, 15-34, together with the bibliography, 565-580.
2 Hashimoto 1972b.
3 Hashimoto 1973b.
4 Sagart 1982.
5 Luo 1984.
6 Yu 1975.
7 Maciver 1905.
8 Jian 1933.
9 Schaan 1979.
10 For Luo 1984, see Lamarr 1985.
11 Tsai-fa Cheng suggested the etymology of “Xia (summer, an ancient name for China),”
“Hua (magnificent, a name for China),” and “Yu (elegant)” for Hak (Ke) of Hakka
(Koja), reconstituting the ancient pronunciations of these characters as *gogho,
*gegrage, and *grek respectively and seeing “a striking resemblance in the phonetic
shape[s].” He will have to establish a sound law with which the loss of the voicing can be
reasonably explained, as the morpheme Hak (Ke) occurs with the upper tone throughout
modern Hakka dialects; the ascension of the initial consonant for Hak (Ke) ought to be
reasonably introduced. However, even with a perfect sound law, etymologies like this are
very difficult to prove. On the contrary, some syntactic evidence detracts this etymology.
For instance, Hakka words for ‘Hakka people’ and ‘guest’ are [hak-nyin] and [nyin-hak]
respectively, among which the word for ‘guest’ maintains the older word order of “head
noun + attributive word”, but not the word for ‘Hakka people’.

12 Yin 1958.
13 Jiangsu sheng 1960, map 2.
14 Chao et al 1948 and the present author’s own survey in the autumn of 1984.
17 Yan 1986.
18 Norman 1974.
19 Hashimoto 1973a, 439-441.
20 Yan 1986, 37-38.
21 Chao 1928, 76.
22 Zhang 1983, 97-98.
23 Gong 1981.
24 Luo 1983, 75-94.
26 Hashimoto 1973a, 434-436.
27 Hashimoto 1973a, 431.
28 Hashimoto 1973a, 435.
29 Hashimoto 1983 and 1984, though waves in these studies are all for suprasegmentals.
30 Chao 1928, 76.
31 Chao et al 1948.
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33 Presence of the nonaspirates corresponding to ancient voiced stops and affricates with 
the ping ('level') tone in the western half of the dialects spoken in Yangxin Prefecture 
was discovered during the present author's survey in the autumn of 1984.

35 Qian 1981.

36 Li 1937, 123 and Li 1973, 4; Yue 1976a, 4, Yue 1976b, 5, and Yue 1985, 32-44.
37 Yue 1976a, 4 and Yue 1976b, 6-7.
38 The present author's survey of Mr. Qu Xue-li's An-yi dialect of Shaxi in the autumn 
of 1956.

40 Personal communication, January 1986.
41 Jiangsusheng 1960, map 2.
42 Luo 1933, 94.
44 Hashimoto 1976.
45 Dong 1945.
48 Haudricourt 1961, 171 and 172; Haudricourt 1972, 72 and 73.
50 Hashimoto to appear.
52 The definition 'upper' here has to be put in parentheses, as most Hakka dialects, with 
the exception of some Huilu (Taihu) dialects, underwent the merger of upper and 
lower gw ('departing') tones.
56 Hashimoto 1982.
58 Hashimoto to appear.
59 Grootaers 1945-1945.
60 Zhu 1985.

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THE LEXICON IN SYNTACTIC CHANGE
Lexical diffusion in Chinese syntax

Anne Yue-Hashimoto


Abstract
Both documented and ongoing evidence in Pekinese, the Southern Min dialects and the Yue dialects of Chinese were presented as examples for language contact as a major actuation factor of syntactic change and for lexical diffusion as a major type of syntactic change. The emergence of the V-NEG-V(P) question form in these dialects since as early as the mid 16th century (S. Min), late 19th century (Yue) or early 20th century (Pekinese) follows the route of first appearing with high-frequency verbs such as the copula, and/or the existential/possessive verb, then gradually spreading to the optative verbs, and finally to other types of verbs. While the exit of the old form may follow different routes, a revised two-dimensional view of ‘competing change’ can easily account for the differences.

1. Background
It has often been claimed that the process of syntactic change in the Chinese language is mainly the process of grammaticalization. In traditional linguistic terms, many “full words” have become “empty words” or function words, creating new syntactic structures with “co-verbs” or “prepositions”. The cases of the passive be1 and the disposal ba2 construction are two famous examples. Although linguistic diffusion as a result of language contact has been discussed in the context of Chinese in the past decade, there has been no conclusive evidence in the realm of syntax that linguistic diffusion is a major contributing factor of the change. The controversies centering around the issues of word order change as well as the emergence of the be1 passive and the ba2 construction are notable examples of how the same syntactic change may be argued either as an internal process of grammaticalization or an externally motivated process of linguistic borrowing. Unlike our predecessors who argued exclusively for one process over another, we
believe that both processes are important forces in shaping the development of the Chinese language. More important, however, is the understanding of how grammaticalization and linguistic diffusion work as forces of syntactic change.

In this paper, linguistic diffusion through the lexicon, or lexical diffusion, is explored as a major factor of syntactic change.

In the past century-and-a-half, linguists have been probing into the rules or "laws" of phonetic and phonological change, resulting in the famous neo-grammarians' law that "sound change takes place without exception." It was not until two decades ago that this view was challenged, and it was challenged in a most significant way for Chinese linguistics. For it was through research in Chinese dialects that the challenge was first launched. This is the theory of lexical diffusion proposed by W. S.-Y. Wang for phonological change that sound change, though phonetically abrupt, occurs gradually and spreads from one lexical item to another, contrary to the neogrammarians' claim that sound change occurs abruptly and applies at once without exception. Since then, many examples have been drawn from various languages supporting this new theory. However, they all relate to phonology; as yet there is sparse conclusive evidence presented from syntax to support the theory, although it was as early as 1980 that the theory of lexical diffusion was first applied to historicalsyntax. It was not until the past three years that there appeared a renewed interest in applying the lexical diffusion theory to syntax.

Bennet 1981 attempted to find syntactic parallels to the lexical gradualness of a sound change. He defined a change as gradual "if logically possible intermediate stages between its endpoints are attested," and a syntactic change as gradual if stages 'between' (quotes are his) the old and new forms are attested. His conclusion is that evidence for an S-curve type of change in syntax is meager and that "it remains to be shown whether syntactic change has analogues of competing changes and residues." Kroch 1989, taking mainly the rise of the periphrastic auxiliary do in late Middle English as example, argued that syntactic change seems to proceed at the same rate in all contexts. Tottie 1991, using the development of negation in English as his main example, supports the view that syntactic change proceeds gradually across the lexicon and argues that the high frequency of a lexical item or construction is a factor for linguistic conservatism. In other words, high frequency lexical items or constructions will undergo syntactic changes last.

In this paper, I want to present four separate examples of both documented evidence and ongoing evidence from Pekinese, the Southern Min dialects and the Yue dialects — especially Cantonese, for language contact as a major actuation factor of syntactic change and for lexical diffusion as a major type of syntactic change. In addition, our evidence supports the hypothesis of the gradualness of syntactic change as well as for the differential rate of syntactic change depending on grammatical categories, lexical classification or frequency of usage.

2. Recent developments in theory and dialectology

The Chinese mainland has seen the conglomeration of peoples for thousands of years. The Chinese language, manifested in its various dialectal forms, has exhibited features that reflect the results of both external and internal contacts — contacts with non-Sinitic languages and contacts among Sinitic languages or dialects. In this paper, I shall limit my discussion to internal contacts and their effect on syntactic change.

In his epoch-making article of 1985, Zhu Dexi explored the syntactic typology of the A-not-A or neutral question forms among the Chinese dialects and found two major patterns mutually exclusive in distribution in contemporary dialects: the V-not-V form which occurs in Northern Mandarin, most dialects of Southwestern Mandarin, Yue, Min and most Wu dialects and the F-VP form which occurs in certain Southern Mandarin, Southwestern Mandarin and certain Wu dialects. However, counter evidence was soon presented, pointing out that there are dialects in which both types of question forms exist. Lien Chinh aptly captured the situation as one in which "Zhu's observation is obviously based on an assumption that linguistic systems are homogeneous. His insight makes sense only if it refers to a stage in the past when the two types of dialects bearing the two said types of neutral question forms respectively had not come into contact." The actual reality is of course a picture of constant linguistic interaction among the dialects. As a result, more often than not, we witness the coexistence of various systems within a single dialect. I have tried to explain this phenomenon in a wider perspective through the concept of syntactic stratification and view the complexities in the interweaving of subsystems as merger from different linguistic strata formed along a temporal and spatial scale through linguistic contacts. In short, to explain the coexistence of different systems, one has to assume language contact as the cause and linguistic stratification as the result. What I had not observed at that time is the mechanism of linguistic change that relates the cause to the result.

Wang & Lien recently proposed a bidirectional diffusion among the coexisting systems in a language as an extension of the theory of lexical diffusion. They argue that "there is no conflict of lexical diffusion and a multi-layered linguistic system. This interactive model of sound change integrates internal change and contact-induced change. Contact-induced change involves a two-step process: (1) coexistence between native and borrowed elements and (2) interaction between two strata." Their new insight provides just the right model for describing a major type of syntactic change that relates language contact to the stratification of syntactic structure mentioned above.

In the following section, I shall present evidence in syntax that demonstrates how, under the impetus of language contact, a new syntactic pattern is introduced, spread and absorbed into a language through the lexicon.

3. Neutral question forms

Zhu 1985 advocates two major types of neutral question forms while elsewhere I argue for three major types, considering VP-neg as a major type on a par with V-not-V and F-VP or what I call ADV-VP and not subsumed under V-not-V.
The present paper will follow this latter typological classification. V-not-V may have variants such as V-neg-V, VP-neg-VP, VP-neg-V or V-neg-VP. We may call VP-neg-VP the full form, in which the two VP's are identical, for example: *chi fen bu chi fan *吃飯不吃飯? 'do you eat rice or not?'; or *xiang bu xiang qu *想不想到 *want go not want go - *do you want to go or not? VP-neg-V is what Zhu 1990 calls VO-neg-V. Since it includes questions of the type *chi fen bu chi fan *吃飯不吃飯? 'are you eating rice or not?' and of the type *xiang bu xiang qu *想不想到 *want go not want go - *do you want to go or not? it is perhaps more appropriate to call VP-neg-V. Similarly, our V-neg-VP corresponds to Zhu's V-neg-VO and it includes both the type *chi fen bu chi fan *吃飯不吃飯? 'are you eating rice or not?' and the type *xiang bu xiang qu *想不想到 *want go not want go - *do you want to go or not?'

3.1 VP-neg-V versus V-neg-VP

Contrary to common belief that the patterns VP-neg-V and V-neg-VP are free variants for the V-not-V question form, a recent study by Zhu Dexi 1990 established that these two patterns are of typological significance: the former type occurs largely in Northern Mandarin (except Shandong and Northeastern Mandarin) and the latter in Southwestern Mandarin, Hakka, Yue and Min. Before proceeding to discussion of these two patterns, a few words about the full form is in order. The full form seems to be on the road to extinction. We do not find any dialect that uses the full form exclusively. According to Zhang 1990, Old Pekinese and the Lanzhou dialect use both the full form and the VP-neg-V form but with higher frequency for the former; while the Huaiyang dialect of Henan uses the full form and the VP-neg-V form with equal frequency. There must have been a time when the full form was the exclusive form in some dialects in Northern Mandarin but was later replaced by the VP-neg-V form. The full form occurring in a handful of dialects is residue. The fact that this residual form occurs only in dialects that also employ the VP-neg-V form suggests that the latter may be an abbreviated form of the full form.

To return to the VP-neg-V and the V-neg-VP forms, there are many cases where both patterns co-occur within the same dialect - for example, Pekinese, Lanzhou, Taiyuan, Wuhan, Weihai, Liancheng (Hakka). This phenomenon can be explained as a result of syntactic borrowing via lexical diffusion. I shall first cite the example of Pekinese and illustrate the process of lexical diffusion.

3.1.1 The Pekinese case

According to research carried out by Zhang Min through interviewing speakers of Pekinese and examining earlier as well as contemporary texts, at the beginning of this century, only the VP-neg-V form is used in what he called Old Pekinese. Gradually, the V-neg-VP form from Southern Mandarin crept in and by now the new generation aged under 35 speaking what he called New Pekinese has completely incorporated the latter form into their syntax. How did this change come about? Did it happen overnight? What is the significance of this transformation? Zhang 1990 cited some textual samples of the V-not-V question forms in Old Pekinese spoken around the beginning of this century, as exemplified in the conversations of the novel Chun-A-eh published in 1914. Although the full form VP-neg-VP has the highest frequency of occurrence in the text, he also found many examples of VP-neg-V:

1. 你去的公众，認識，亦不亦在？ (82)
   ni-de gonggong, ren-ke, yi bu yi zai?
   your public, recognize, not not be
   your dod-in-law, mon-in-law, love you not love
   'do your father-in-law and mother-in-law love you?'

2. 你的無誠哉？ (123)
   ni-de wu cheng zai?
   your not true
   after all be relative not be
   'after all, is (he) a relative?'

As pointed out in Zhang 1990, of particular significance are the following two examples with disyllabic verbs:

3. 你想念不呢？ (115)
   ni xiandian bu xiao-?
   you know not
   'do you know or not?'

4. 可以告訴我們不呢？ (119)
   keyi gao su men bu ke-?
   may tell us not
   'can you tell us?'

showing the strong tendency of a VP-neg-V pattern which even splits disyllabic verbs in exactly the same way it dissects a VO structure. In the entire text, only two examples bear the form V-neg-VP and both have the copula verb shi 是 :

5. 你想著不呢？ (80)
   ni xiang shi bu shi zhe ge dao li?
   you think not be this CL(assifier) reason
   'do you think it is this reason?'

6. 趙英之死不亦梁氏誣呢？ (115)
   Chuying zi si shi bu shi Liang shi wu hai?
   Chuying's death be not be Fan REL-PRO persecute
   'is Chuying's death due to Fan's persecution?'

We can safely conclude that at the beginning of this century, the most popular V-not-V question form in Pekinese is the full form but the VP-neg-V form has
also established itself. Moreover, one can observe the beginning of a new pattern V-neg-VP creeping into the language in questions with the copula verb.

As pointed out in Zhu 1990, the V-neg-VP form is native to the South. The invasion of this form into Old Pekinese is clearly due to language contact. With Beijing as the capital of the nation, there are at all times people from all over the country. Southern influence is nothing new or surprising.

Thus, the syntactic change in question is actuated by language contact. It started in questions with one of the most frequently used verbs, the copula, contrary to Tottie's claim that a high frequency lexical item may be deterrent to change.

How did this change proceed? Zhang 1990 examined 6 dramas written by Lao She (totalling 350,000 characters) during the 'fifties and found 45 examples of V-not-V questions with nominal objects. Thirty-eight of these are in the form of VP-neg-V and only 7 are V-neg-VP. In addition, 6 out of these 7 contain either the copula or the verb you 你. For example:

7. 孟先生知道这件事不知道？
Meng xiansheng zhida zhe hui shi bu zhidao
Meng Mr. know this CL matter not know
'does Mr. Meng know about this matter?'

8. 你看过新小说吗？
you wawa daie de xiao-laohu maor meiyou?
have baby wear REL-MKR small-tiger hat not-have
(REL-MKR = relative clause marker)
'do you have a small-tiger hat for baby?'

9. 說愛情的女人呀，是不是白日夢?
shi bu yao zou nüren ya? shi bu shi Bai er-shu?
who want hit woman F.P. be not be Bai second-uncle?
(F.P. = final particle)
'who wants to beat women? Is it second uncle Bai?'

10. 想看電影有沒有認識的人？
xueyuanshi xianzai haoyou meiyou renshi ta de ren?
school-in now still have not-have know he REL-MKR person
‘is there someone at school who knows him?’

There are 19 examples with verbal objects in the form of V-neg-VP, among which 12 contain the copula and 7 contain optative verbs. For example:

11. 你學會了做飯嗎？
shi bu shi qian-le shei de zhai?
be not be owe-PERF-ASP someone REL-MKR debt
(PERF-ASP = perfective aspect)
‘is it the case of owing debts to someone?’

Within a span of 40 years, the syntactic change in question gradually spread from questions with the copula to those with the existential/possessive verb and optative verbs, all high frequency daily vocabulary items. Its next step was creeping into other lexical items, as illustrated by the one example with the verb xin 信 above.

What is the current situation with respect to this change? Zhang 1990 examined 3 contemporary novels and dramas (totalling 610,000 characters) written in modern Pekinese, which contain 169 examples of V-not-V questions with object NP. Among these examples, only 9 are in the form of VP-neg-V; moreover, 8 out of these 9 examples have either the copula shi 时 or the existential/possessive verb you 你, which means that there is only one example with other kinds of verb. In less than 40 years, the V-neg-VP pattern is completely absorbed and has won the battle over the VP-neg-V pattern. One important point to note here is the fact that although shi 时 and you 你 are the first verbs to occur in the new pattern, they are also the last ones to survive in the old pattern.

Zhang 1990 also conducted a small-scale survey with 24 native speakers of Pekinese, 16 of whom were under 35 years old and 8 were above. Ten sample V-not-V question forms were used, with 4 VP-neg-V forms (1a. ni he shui bu he meiyou yao? 'you drink water not drink = do you want to drink water?' 2a. ni xin wo-de hua bu xin meiyou you meiyou yao? 'you trust my words not trust = do you trust my words?' 3a. ni yuan yi qu bu yuan yi ni yuan yi yao? 'you be-willing go not be-willing = are you willing to go?' 4a. ni xiang kan dianying bu liang yao? 'you want see movie not want = do you want to go to the movies?'), 4 V-neg-VP forms without aspects (1b. ni he shui bu shui you meiyou yao? 'you drink not drink water = do you want to drink water?' 2b. ni xin bu xin wo de hua bu yuan yi yao? 'you trust my words not trust = do you trust my words?' 3b. ni yuan yi qu bu yuan yi ni yuan yi yao? 'you be-willing not be-willing go = are you willing to go?' 4b. ni xiang bu xiang kan dianying...
clearly follows the path of lexical diffusion: it occurs gradually and spreads from one type of grammatical category to another until all types are covered. Moreover, the change began with patterns with the most familiar and frequently used words, such as the copular sentence marked with shi 他 and the existential sentence marked with you 你.

3.1.2 A two-dimensional view of 'competing change'

Another important point already mentioned in the last section is that the very same high-frequency verbs are also the ones to linger in the old pattern, which is exactly what Tottie 1997 claims. Yet, our Pekinese case both contradicts and supports his claim. It may seem contradictory to have the very same forms both at the forefront and at the rear of one and the same syntactic change, if we view syntactic change or change in general as one form or one pattern replacing another form or another pattern.

The notion of "competing change" may help us solve the problem if some revision is incorporated. Within the current theory, "competing change" implies the coexistence and competition of at least two choices. This coexisting and competing stage continues until the change is complete when one choice replaces the other. However, not all changes complete their course and there may be residues. So far we have only seen examples where residues are those forms that have never accepted the new change. So far our view is limited to the possibility that a change must necessarily imply replacement. In other words, our notion of "competing change" is limited to one dimension.

With the Pekinese case, we want to argue for a different, two-dimensional view of "competing change" where a new form or a new pattern enters the language and runs its own course of gradual victory and at the same time the old form or the old pattern independently runs its own course of gradual disappearance. Given the lexicon of a language, the new form or the new pattern will first attack a certain portion, which is mostly likely the most familiar and high-frequency items as exemplified in the Pekinese case, competing with the old form or old pattern at all times along the way and gradually widening its scope of application over the rest of the lexicon. At the same time, the old form or the old pattern meets the challenge and tries to wage a battle of resistance, competing all along with the newcomer and trying to hold on to its old territory in the lexicon. There is evidently a long period of coexistence of both the old and the new over the same lexical items; so that forms like shi xue sheng bu shi 他学生不 "be student not" and you qian yin yu 叔叔 "have money not have = have money or not", chi fan bu chi 他不吃 "eat rice not eat = eat rice or not" and shi bu shi xue sheng 他不是学生 "be not be student = be a student or not", you mei you qian 叔叔 "have not have money or not", chi bu chi fan 他不吃 "eat rice not eat = eat rice or not" are all acceptable, though each pair may at different times.

Now, when the old form or old pattern is losing ground, it may reoccur first from the familiar, high-frequency items or from the unfamiliar, low-frequency items. The
former is seen in the Yilan dialect of Taiwan which will be discussed in section 3.2.1 and the latter is probably the case of Pekinese where we find 89% of the last examples of the old VP-neg-V pattern in contemporary texts to contain the high-frequency verbs shì and you. This latter process of loss with the high-frequency items holding on to the very last seems to be in agreement with aphasic loss, in which high-frequency items and the items first acquired in a language are the last retained.

In conclusion, we view 'competing change' as consisting of two dimensions: the dimension of the incoming, winning new pattern following its own route across the lexicon and the dimension of the outgoing, losing old pattern also following its own route across the lexicon. These two routes may merge and we have step-by-step replacement in the process of change. However, they may be different and we have two processes happening independently with overlap sometimes. They may be illustrated in the following diagrams - (1) for the former type and (2) for the latter.

(N = new pattern, O = old pattern; X, Y, Z = different portions of the lexicon; a, b, c, ... = different periods of time for completion of the process; + = occurring, - = non-occurring)

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**Diagram 1: Replacement**

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**Diagram 2: Independent development**

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Diagram 2 represents only one of many possibilities that independent development may take. The main difference between the two diagrams is that for Diagram 1, each change is a replacement but for Diagram 2, it is not necessarily so.

With this new, two-dimensional view of 'competing change,' both the type of change described in Tottie 1991 and the type described in this section can easily be accommodated and accounted for.

### 3.2 VP-neg versus V-not-V

#### 3.2.1 Southern Min

The V-not-V form, which is characteristic of Northern Chinese, is gaining ground in the Southern dialects where the predominant neutral question form is VP-neg. I shall now turn to the Southern Min dialects. In general, the modern Southern Min dialects use the ADVP-VP form or the VP-neg form for neutral questions. For example, in the Yilan dialect of Taiwan we may have:

15a. li be k'i bo? you want go NEG = 'are you going?'

or:

15b. li kam be k'i? you ADV want go = 'are you going?'

However, the V-neg-VP form is permitted in some dialects, especially when the verb is the copula, as for example in Yilan:

16. i si m si gilag nan? he be not be Yilan person = 'is he from Yilan?'

Evidently the V-neg-VP form is working its way into the neutral questions in Southern Min. Is the process of syntactic change similar to the Pekinese case?

There is evidence that by the middle of the 16th century, the V-not-V form had already started to infiltrate Southern Min. The earliest extant colloquial document for the Southern Min dialects are the four versions of the Litchi Mirror Tale. In these early documents, there are a total of 226 neutral questions, all but three have the structure of VP-neg. The three exceptions have the form of VP-neg-VP and two of them contain the verb you while one has the copula. These three examples are from the Shijing edition (1566), also the earliest extant edition:

17a. (Elder Brother) have official-document not have 'is there an official document?'

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found the V-neg-VP form. This indicates that the donor dialect in the 16th century is from Northern Mandarin while that in modern time is from Southern Mandarin. Another possibility is that the V-neg-VP form is of a late origin and did not exist in the 16th century. More documentary evidence is needed before conclusions can be made one way or another. However, the latter may seem more plausible for two reasons: the colloquial texts were supposed to be written in the style of the Chaozhou 鎮 and the Quanzhou 鎮 dialect, which are geographically far from the standard dialect of the capital (present-day Beijing) of the time. If there had been a distinction of VP-neg-V versus V-neg-VP correlating with the North versus the South, the Southern form, due to geographical proximity, should have been of greater influence. Another reason is that we found a similar situation in Cantonese at the beginning of this century — no V-neg-VP form but VP-neg-V form —, as we shall see in section 3.2.2.

The last example of Southern Min to be discussed is Jieyang 广东 in this dialect, the predominant neutral question form is VP-neg. However, among some 80 examples investigated, there were not a few V-neg-V forms. All 6 examples with the copula were in the V-neg-VP form, just like in Yilan; and 9 of the 14 examples with optative verbs were also in the V-neg-VP form. There were even examples with other classes of verbs; half of the 14 examples with V-O were in the V-neg-VP form; 5 of the 12 examples with action verbs were in the V-neg-VP form while 2 of the 14 examples with adjectives were also in the V-neg-V form. However, none of the 10 examples with the existential/possessive verb appeared with the V-neg-VP form. Thus, while the Jieyang case confirms the stages of lexical diffusion of the said syntactic change in the Pekingese as far as the copula and the optative verbs are concerned, there is a major departure with regard to the existential/possessive verb, which seems to be resistant to change in all of the Min dialects observed so far. As to why the existential/possessive verb, also a high-frequency lexical item in Southern Min, constitutes an exception needs further investigation.

3.2.2 Yue

Unlike the Southern Min dialects which have dramas and stories written in the colloquial language as early as the 16th century, no such documents are known to exist in the Yue dialects. The earliest extant colloquial materials are all textbooks compiled by missionaries learning the dialects. Most of these textbooks are written for standard Cantonese. Although the native neutral question form for the Yue dialects is VP-neg, many modern dialects, particularly those around the delta area, favor the V-neg-V and V-neg-VP patterns of the North except where aspects are employed. I shall take standard Cantonese as an example and trace the syntactic change from the last quarter of the last century through various textbooks compiled for learners of Cantonese, such as Forty Chapters of Random Prose 广州新刊 of 1877, Ball's Readings in Cantonese Colloquial of 1894 and Cantonese Made Easy of 1924,
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</table>

([m] = general negative marker; S = sentence; Aux = optative verbs; numerals indicate number of occurrences in the text)

The 1877 textbook distinguishes itself from the rest by having almost half of the neutral questions – 18 out of a total of 39 – in the VP-neg form. In addition, two-thirds of the VP-neg forms have the pattern [m] [m] [m], a pattern native to the Yue dialects but gradually declining as time progressed. An example is:

20. 你是不是喜欢喝饮料？

The V-not-V form had already established itself with the patterns of VP-neg-V and V-neg-V. With the VP-neg-V pattern, three-fourths of the examples involve the possessive/existential/aspectual verb, for example:

21. 我有蚊帐没？

There is one example with an optative verb and one with a disyllabic verb treated like a VO structure, just as the cases in Pekinese discussed in 3.1.1:

22. 你有没有灯？

Example (23) shows that the VP-neg-V pattern not only entered the language but had firmly established itself. The only anomaly is that no example with the copula verb is found in the neutral question forms, which may be accidental, since the textbook does not seem to be compiled in a graded manner for beginners.

Examples from Ball 1894 are scanty. However, the pattern seems to be akin to Wisner 1906. By this time, already more than half of the neutral questions – nearly
two-third in Wisner – were in the V-not-V form, which means that by this time, the Northern pattern was already getting an upper hand.

Ball 1894 does not have examples with aspect markers. The VP-neg form has two major patterns: one where neg consists of the general negative marker [m] plus the question particle [ni] and the other where neg consists of a composite form of the merger of the general negative marker [m] plus the question particle [x] or [z], yielding [ma] or [me] respectively. For example:

24. nei ying tak cha'at m ni? 你会不认识呢？ (123) you recognize can out not F.P. 'can you recognize?'

25. 好来你看我呢？ (163) seng loi ngo sha mai-tis'iu ma? want come my place show-off beauty F.P. 'do you wish to come to woo me?'

Among the 26 VP-neg forms in Wisner 1906, almost half involve the aspect marker [x] and half contain other kinds of verbs. Some examples are:

26. 你有食未呢？ (lesson 15, p.11, henceforth 15.11) nei shih faam m ts'ang ni you eat rice not yet F.P. 'have you eaten yet?'

27. 你食完未呢？ (34.23) nei wa kom toh kau m ni you say this much enough not F.P. 'do you think this much is enough?'

Among the V-not-V forms, the 11 examples that contain the verb functioning either as the possessive verb or as the past tense marker:

28. 你有几本书呢？ (2.2) k'ui yau shue mo ni he have book not-have F.P. 'does he have books?'

29. 你有几本书呢？ (3.3) nei yau hai k'ui shue mo ni you have go his place not-have F.P. 'did you go to his place?'

may be interpreted as of the VP-neg form if we take [x] as parallel to [mi], on the other hand, [m] is also a composite form of neg plus the existential/possessive verb [x] and so the pattern fits in with V-neg-V. In this paper, we shall take the second interpretation, and treat [x] as a verb. Among the VP-neg-V forms, 7 have the copula [x] and 7 contain optative verbs and only 4 involve other kinds of verbs. For example:

30. 你想继续做呢？ (20.14) k'ui hai ngoiwo kwoyan m hai ni he be foreigner not be F.P. = 'is he a foreigner?'

31. 你到那里去呢？ (9.6) shai kong ka m shai ni need talk price not need F.P. = 'do you need to bargain?'

32. 你到那个去呢？ (18.13) sen naai hai shue m hai ni lady-of-the-house locate place not locate F.P. = 'is the lady of the house m?'

The 19 V-neg-V forms contain some 7 instances of tags such as 你有 [x] (not a tag) 'yes or not', 在呢 'okay or not'.

It is evident that by this time, the V-not-V form has entered Cantonese in the parts of the lexicon that contain high-frequency items such as the copula, the optative verbs, the possessive verb/past-tense marker as well as other parts of the vocabulary too.

Since Ball 1924 is a revised and enlarged edition of his original book of 1883, it is expected to include examples of both the late 19th and the early 20th century. However, it lacks the VP + [m] + Final-Particle type of VP-neg question form (that is, the VP-neg form containing no aspect marker, such as VP [m] found in Ball 1894 and Wisner 1906 and lacks an important new form (V-neg-VP) displayed in Jones & Woo 1912). Therefore, it is best placed in a time span between Wisner 1906 and Jones & Woo 1912. In this textbook, some four-fifth of the examples of neutral questions are of the V-not-V form, and no example of the imperfective VP-neg form is found, which means that by that time, Cantonese was already very much like Mandarin, using the V-neg-V form for neutral questions and the VP-neg form only for questions in the perfective. In other respects, the types of neutral question forms found in the textbook in question are very similar to those found in Wisner.

Up to this point, of special notice is the fact that the V-neg-V form has not appeared at all.

It was in Jones & Woo’s A Cantonese Phonetic Reader of 1912 that we found 2 examples of the V-neg-VP form among a total of 24 neutral questions occurring in the text. Both contain the copula:

33. 你到外国吗？ (IV,20) hai m hai tsoi wok syn tsai tsoi kau a be not be China count most big REL-MKR city F.P. = 'is it considered the biggest city in China?'
To sum up, the introduction of the V-not-V question form into Cantonese, first the V(P)-neg-V and next the V(VP)-neg-V form, follows more or less the same route and the same stages of lexical diffusion that we observed in Pekinese or in the Southern Min dialects.

At this point one might pose the question: did the syntactic change described in the three different cases above proceed via lexical item or was it determined by grammatical category – from copula to existential/possessive to optative, etc.? Can one explain the process of change by grammatical category alone? Both the copula and the possessive/possessive in Chinese are one-item categories of high frequency usage. The optative verbs contain a small number of items, all of high frequency usage. The conditioning factor for change can be assigned to grammatical category alone if no other factor is involved at the same time and if one can show that the change proceeds in such a manner subsequently too. There is no evidence that when the change occurred, ALL optative verbs were affected at once or ALL transitive verbs of action, for example, were affected at once with no exceptions. Recalling the Jieyang dialect of Southern Min discussed at the end of section 3.2.1, none of the groups of examples categorized by verb classes in the V-not-V question forms occur without exceptions. Therefore, the more plausible, in fact, the only reasonable claim is that the change proceeded via lexical diffusion, beginning with high frequency verbs.

4. The comparative construction

Another example of lexical diffusion in progress is the recent change observed in the comparative construction in a socially determined variety of Cantonese spoken in Hong Kong. For the comparative degree of comparison, the form A + ADJ + B (where ADJ stands for a comparative predicate and A, B the two terms for comparison) is used in colloquial speech; for example:

36. k’oei kou kuo 30 談論高
   he tall surpass I = ‘he is taller than I am’

However, recently the pattern A + pei ie + B + ADJ of Northern Chinese has begun to creep into the literary stratum of Hong Kong Cantonese, beginning with structures with less colloquial expressions and with speakers who are more educated. Among a small number of speakers whom I investigated, those with less than high school education rarely use the pei ie form, while those educated beyond middle school level use the pei ie form typically within their circle but not with speakers below their educational level – for example, not with children or blue-collar workers. Or, within the speech of the same speaker, expressions with colloquial or vulgar words will prefer the use of kuo 30, for example:

37. k’oei konj e lek kuo 30 謝我會 30
   he speak smart surpass I = ‘he speaks better than I do’
5. Concluding remarks

Syntactic change is lexically gradual, with analogues of competing changes and residue. The rate of change varies, depending on individual dialects and individual speakers, and is hard to generalize. The higher the frequency of use of a lexical item the more susceptible is it to syntactic change and at the same time may also be the more resistant to extinction. Evidence for lexical diffusion abounds in the syntax of many dialects. I have selected here the most obvious cases supported either by historical documents or witnessed in its process as the beginning of further research into lexical diffusion in Chinese grammar.

Notes

1. The writing of this paper and the collection of dialectal information on which this paper is based, are supported by research grants from the National Endowment for the Humanities (grant RO-22033-90) and the Chiang Ching-kuo Foundation. An earlier version was read at the Third International Symposium on Chinese Languages and Linguistics at the National Tsing Hua University in Hsinchu, Taiwan, July 1-3, 1982. I am indebted to Professor William S-Y. Wang for his suggestions while revising this paper.

2. All standard Mandarin forms are given in Pinyin romanization without tone marks.


4. For an overview of the controversies, see Peyraube 1988.


7. Very recently, the theory is being applied to historical lexicology, or changes in the (total) lexicon of a language. See Fischer 1989.

8. See Mei 1980 and Bennett 1981.


10. See Bennett 1981, especially pp. 115, 120, 130.

11. A-notes/A question forms refer to the so-called fangju wenyu 與語 or zhangfen wenyu 正分語 in Chinese, which are generally regarded as a kind of disjunctive question with the two disjuncts being the affirmative and the negative of a proposition. See for example W. Wang 1987. A different view is expressed in Huang 1988. Since there is confusion regarding the use of the term 'V-not-V' or 'A-not-A' to cover Zhu's two major types of questions, VP-bu(f)+VP and VP-bu(f)+VP, we prefer to use the term 'neutral question' as suggested in Yee-Hashimoto 1988.

12. Zhu terms it 'VP-bu(f)+VP'. Since his VP-bu(f)+VP covers V-neg-VP (e.g. chi bu chi neg'eat rice not eat' = 'are you eating rice or not?'), VP-neg-VP (e.g. chi fan bu chi fan neg 'eat rice neg eat rice' = 'are you eating rice or not eating rice?'), VP-neg-VP (e.g. chi fan bu chi neg 'eat rice not eat rice' = 'are you eating rice or not eating rice?') and V-neg-VP (e.g. chi bu chi fan neg neg 'eat rice neg eat rice' = 'are you eating rice or not?'), as we shall see in the following sections, we shall use 'V-not-V form' as the cover term to avoid confusion.

13. See for example S. Wang 1985 and Shi 1990. Actually among the majority of dialects we investigated, more than one type of neutral question forms coexist, as we shall see in section 3.

14. Quotations from personal communication.


16. Quotations from personal communication with Lien Chi-fu.


20. Examples are all taken from dialects that either I myself or my colleagues of the Comparative Chinese Dialectal Grammar Project (supported by the NEH and the CCK) investigated in detail. More examples can be found in Zhang 1990.

21. Information is taken from Zhang Min's unpublished dissertation. At the time when he wrote the dissertation, he was not aware how important his data were in providing what I consider decisive evidence supporting lexical diffusion in syntax. Discussions of this section are entirely based on his account. See Zhang 1990, especially pp. 72-76.

22. It is beyond the scope of the present paper to bring up arguments concerning the probable homology of the V-neg-VP form, which is discussed in Yee-Hashimoto 1992b. The encroachment of the V-neg-VP form into New Pekinese is mostly likely from contact with Southern Mandarin.

23. The V-not-V form with adverbs, as with the great majority of dialects, is VP-moyou sh which can be considered either a VP-neg-VP form (if one considers aspects to be derived from verbs) or a VP-neg-VP form (if one allows moyou to include cases of the combination or merger of the negative marker and aspects or final particles). Either analysis does not affect our main contention in this paper.


25. We can cite a very recent example of borrowing a Verb + Destination word order which is characteristic of the South, into standard Mandarin which native word order is
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Due mention, "New, Heshan, "Enping F." — indicates an overwhelming preference for the V-neg-V and V-neg-VP forms. However, there are still strongholds of the VP-neg form, as observed in the Kaiping, Taishan (both investigated by myself) and the Yulin (information due to Zhou Liying) dialect, for example.

Recently a text dated 1841 was discovered by Prof. Benjamin P. Cun, but I have not seen it yet.

The author of this book is unknown, the book which was published by the St. Paul's College in Hong Kong, remains unknown until an alumnus of this college ran across it accidentally at the library of the Nankai University in Tianjin. A photo-copy was presented to the college in 1983. A statement on the cover of the book described it as a translation into the Cantonese colloquial from a collection called "Imperfect was (From Nearby)."

The first edition of J.D. Ball's Cantonese Made Easy of 1883 was not available when I wrote this article, however, the 4th edition (revised and enlarged) was accessible through the generous help of Zhang Min. The lesson text of the 4th edition is essentially the same as that of the 3rd edition, which I recently checked at the library of the Chinese University of Hong Kong.

Thanks are due to Zhang Min for drawing my attention to this book and for providing me with a copy.

The text is written entirely in characters; therefore, no transcriptions will be given for the examples.

Justification for this interpretation was given in Yus-Hashimoto 1988. The main argument is that questions with [ma] in the Yue dialects can only be in the affirmative: "is he?" you go F. P.  = are you going?" is grammatical but not "is he?" you not go F. P. = are you not going?" The most reasonable explanation is that [ma] is the contraction of [ma] + [a]. Since [ma] already contains the negative marker [m], it is natural that [m] would not occur again before the verb.

The examples are given in Ball's transcription.

See O'Malia 1938, pp. 31-32.

See Chao 1947, pp. 91-92.

See Huang & Ko 1960, p. 11.

Although not discussed in this paper, an intermediate stage can be attested in dialects with a native ADV-VP form and a borrowed V-Neg-V form where a fused form of the two can also be found. An example is the Shantung dialect where the following forms (taken from Shi 1990, p. 182) are all acceptable:

a. k a? s w? ADV have come — did (he) come?

b. k a? s w? ADV have come or not-have = 'hid'

c. k a? s w? ADV have come or not-have = 'hid'

The fused form (c) can be regarded as a product of an intermediate stage.

Currently, with the support of a grant from the Chiang Ching-kuo Foundation, an in-depth synchronic-diachronic study of lexical diffusion in syntax in several dialects is being undertaken by Lien Chih-fen on Taiwanese neutral question forms as well as the comparative construction, by Zhang Min on neutral question forms in Mandarin and by myself on the comparative construction in Cantonese. It is hoped that the Wu dialects will be covered soon.

References

ANONYMOUS. 1877. "Some V.-V. (Forty Chapters of Random Prose). Hong Kong: St Paul's College.


---. 1992a. 我懂幸福 (Neutral questions in the Kaiping dialect of Guangdong).


ARGUMENTS AGAINST 'SUBJECT' AND 'DIRECT OBJECT' AS VAILABLE CONCEPTS IN CHINESE*

Randy J. LaPolla


1.0 Introduction

Thirty-one years ago Tsu-lin Mei (1961) argued against the traditional doctrine that saw the subject-predicate distinction in grammar as parallel to the particular-universal distinction in logic, as he said it was a reflex of an Indo-European bias, and could not be valid, as 'Chinese ... does not admit a distinction into subject and predicate' (p. 153). This has not stopped linguists working on Chinese from attempting to define 'subject' (and 'object') in Chinese. Though a number of linguists have lamented the difficulties in trying to define these concepts for Chinese (see below), most work done on Chinese still assumes that Chinese must have the same grammatical features as Indo-European, such as having a subject and a direct object, though no attempt is made to justify that view. This paper challenges that view and argues that there has been no grammaticalization of syntactic functions in Chinese. The correct assignment of semantic roles to the constituents of a discourse is done by the listener on the basis of the discourse structure and pragmatics (information flow, inference, relevance, and real world knowledge) (cf. Li & Thompson 1978, 1979; LaPolla 1990).

1.1.0 Syntactic functions

Subject and direct object are generally referred to in the literature as 'grammatical relations'. I will break with tradition and use GRAMMATICAL RELATIONS to refer to all of the relational systems that might be involved in a grammar: syntactic relations, semantic relations, and pragmatic relations. In this paper I will be discussing syntactic relations, and I will use the term SYNTACTIC FUNCTION to refer to the concepts 'subject', 'direct object', and 'indirect object'. These terms represent particular restricted neutralizations of semantic roles in particular syntactic environments (see below). In order for us to say that a language has a 'subject', etc., we need to find that in most syntactic environments (i.e., in most constructions) in the language, there is such a restricted neutralization. In fact we need to find THE SAME restricted neutralization in all or most of the constructions in the language for the concept of, for example, 'subject' to make any sense. It is especially important when working with non-Indo-European languages that we not assume the existence of particular grammatical categories, such as 'subject', 'object', 'definiteness', etc., in those languages without proper justification. Cumming puts it well in the following quote:

... if a number of independent properties converge on one construction or linguistic unit, then they can be said to define a category which is real for that language. Thus, the category 'subject' can be said to be a useful one for English, since the properties of preverbal position and government of verb agreement converge on the same NPs. However, if there is only one property (or a cluster of interdependent properties) which is unique to the construction or unit in question, then the use of a higher level term is not justified. Thus in a language in which preverbal NPs have no other unique properties, it is not useful to refer to these NPs as 'subject', since that term imputes properties which go beyond simple word order. (1984: 365)

As 'subject' is the most important syntactic function cross-linguistically, the lion's share of the discussion in this paper will deal with determining if Chinese has grammaticalized this syntactic function.

Comrie, in beginning his discussion of 'subject' (1981, Chapter 5), lays down the following preliminaries, which apply equally well to the present work:

First, we are not committed a priori to the view that subject is a necessary descriptive category in the grammar of every language; there may well be languages where it is not appropriate, though equally there are languages (including English) where it is appropriate. Secondly, we are not committed to the view that, even in a language where subject is generally valid, every sentence will have a subject. Thirdly, we are not committed to the view that the translation of a sentence from language X where a certain noun phrase is subject will necessarily have the same noun phrase as subject in language Y.

There is no universal notion of 'subject' (Platt 1971; Johnson 1977, Van Valin 1977, 1981; Foley & Van Valin 1977, 1984; Gary & Keenan 1977; Comrie 1981); it is impossible to discuss the notion of 'subject' outside of a particular grammatical theory. As Marantz has pointed out, 'There can be no right definition of "subject" ... only a correct (or better) syntactic theory' (1984: 3). (See also Marantz 1982, 1984 for arguments why syntactic functions should not be seen as...
primitives or tied to semantic roles.) Sanders (1984: 222) states it more generally: 'it is simply true in general that empirically significant concepts are inherently incompatible with rigorous definition, i.e. in terms of necessary and sufficient conditions, except within the specific context of a particular scientific theory'.

In this paper, I will define 'subject' as an NP that can be shown to have special GRAMMATICALIZED referential properties, beyond the prominence that might be associated with its semantic role, as evidenced by a restricted neutralization of semantic roles in various syntactic environments. With this as our definition of subject, we can say that subjects are not universal, as not all languages show this type of restricted neutralization (see S. Anderson 1976, Van Valin 1977, 1981, Faarlund 1989, and Bhat 1991).

In order to determine if a language has such a grammaticalized subject, we can follow the methodology used, for example, in S. Anderson 1976, Van Valin 1981, and Faarlund 1989, of examining various constructions in the language to determine which argument of the verb, if any, figures as the syntactic pivot in each of the constructions. Essentially, a pivot is 'any NP type to which a particular grammatical process is sensitive, either as controller or target' (Foley & Van Valin 1985: 305). To determine if there is a pivot for a particular construction, we will look for restricted neutralizations among the semantic roles of the arguments of the verb. For ease of discussion, we will use what Dixon (1979: 59) has called 'universal semantic syntactic primitives' to refer to the three major types of argument. These are, the single argument of an intransitive verb, the argument which prototypically would be the agent of a transitive verb; and the argument which prototypically would be the patient of a transitive verb. In a given language, if S and P function in the same way in a particular syntactic construction, and differently from A (and any other possible roles), then we can say that there is a neutralization of the distinction between S and P, and so the syntactic pivot for that construction is [S, P]. If on the other hand S and A function in the same way in a particular syntactic construction, and differently from P (and any other possible roles), then we can say there is a neutralization of the distinction between S and A, and so the syntactic pivot for that construction is [S, A]. In a language where all or most of the constructions in a language have [S, P] pivots, [S, P] can be said to be the subject of that language, and the language can be said to be syntactically ergative (e.g. Dyirbal, which has an [S, P] pivot for coordination and subordination, indispensability, and relative clauses). If, on the other hand, [S, A] is the major pivot pattern for all or most of the syntactic constructions of the language, then that grouping can be said to be the subject, and the language can be said to be syntactically accusative (e.g. English, which has an [S, A] pivot for coreferentiality between conjoined clauses, 'raising', and indispensability). If no consistent pattern emerges, then it is hard to say what the subject should be (e.g. Jacelue, which has an [S, P] pivot for relativization, wh-question formation, and clefting, and an [S, A] pivot for clause-clause coreference). If there is no neutralization in any construction of the language, or unrestricted neutralization, then that language has no syntactic pivots, and it makes no sense to talk of grammatical subjects, ergativity or accusativity (e.g. Archi—see Kilik 1979, Van Valin 1981).

The question then is what constructions should we look at in determining whether or not there are pivots in Chinese? Paul Schachtler (1977) has shown that a distinction must be made between the semantic role-related properties and the reference-related properties of what we call 'subjects' in Indo-European languages. Dixon (1979) also points out that what he terms 'universal syntactic phenomena' (imperatives, jussive complements, etc.) are of no use in determining syntactic relations. Therefore, I will not discuss imperatives, jussive complements, or other role-related grammatical structures. We will look only at reference-related constructions such as 'raising', cross-clause coreference, relative clauses, reflexives, and certain Chinese-specific constructions (Section 2).

1.2. Syntactic functions in Chinese

We saw above that many scholars believe it is impossible to define 'subject' cross-linguistically (universally), but many do try to define subjects for individual languages. There have been a number of attempts to define a subject for Chinese, though no one has succeeded in this venture (see S. Li 1979, Li & Thompson 1977, 1981, and L. Li 1985 on the difficulties of trying to define 'subject' for Chinese). In their attempts to define 'subject' in Chinese, scholars can be roughly divided into three camps: those who define 'subject' as the agent (possibly actor) (e.g. L. Wang 1956, T. Tang 1989), those who define it as the topic or whatever comes first in the sentence (e.g. Chao 1968), and those who believe both are right (S. Li 1979, L. Li 1985). Several authors have also argued that though there is a 'subject' in Chinese, it does not play an important role in Chinese grammar (e.g. L. Li 1982, Li & Thompson 1981).

Those authors who define subjecthood simply on the basis of selectional restrictions vis-à-vis the verb are confusing semantics and syntax. They claim that subjects have such a selectional restriction, while topics do not. This definition would imply that subjects are not topics, though some that hold this view do say that the subject can also be a topic. That an NP has a selectional restriction vis-à-vis the verb simply means that that NP is an argument of the verb. This is a necessary condition for subjecthood, but not a sufficient one. Chinese syntax is sensitive to semantics in that the actor of a transitive verb will precede that verb, while an undergoer can either precede or follow the verb, depending on the pragmatic status (topicality) of the referent of the NP (see LaPolla 1993), but distinguishing actor from undergoer is not the same as distinguishing subject and object (cf. the comments to this regard by S. Li 1979: 72). A simple intersection of actor and topic in a particular sentence also does not a subject make. In Chinese there is no restriction on what semantic role can be the topic, though as actors are cross-linguistically more often within the presupposition (and the speaker, possibly the most common actor, is ALWAYS within the presupposition), they are very often topics, and this is what seems to have led to the confusion. Word order is to the
largest extent controlled by the nature of information flow (see LaPolla 1990, Chapter 3, LaPolla 1993), and secondarily by semantics. Syntactic functions play no part in the determination of the order of constituents in a sentence.

Shibatani (1988) claims that Chinese has an [S, A] ‘subject’, without giving much evidence. The methodology in that paper is flawed, in that Shibatani takes Japanese wa and go marked NP’s as prototypical topics and subjects, respectively, and uses the Japanese translations of sentences in other languages to determine whether that language has topics or subjects. Shibatani states that ‘[b]ecause of the merger between topic and subject in Western languages, the discussion of the grammatical subject in the West has been confounded by two basically distinct notions—an actor (or agent) and an entity which is being talked about.’ (1988: 2). In Japanese, on the other hand, according to Shibatani, these two distinct notions have distinct markings, go and wa respectively. It seems then that Shibatani is equating actor with subject.

Tan 1988 also argues for the existence of a grammatical subject in Chinese, but the argumentation is again quite flawed, in that Tan attempts to use an NP’s ability to appear in cleft constructions or to be questioned, etc. as proof of subjecthood. The problem is that Tan is not trying to prove the clefted or questioned NP is a ‘subject’ as opposed to some other syntactic function, but as opposed to being a ‘topic’, i.e., she feels that simply showing some argument not to be a ‘topic’ will prove that it is a ‘subject’. As the clefted or questioned NP is a focused constituent, of course it could not be a ‘topic’, but that does not automatically prove it is a ‘subject’ (a methodological error also made in Tsao 1979).

Those who define ‘subject’ as whatever NP is sentence-initial are making almost the opposite mistake. Topichood is a pragmatic relation, not a syntactic one. Though the subject in languages that have this syntactic function is often also a topic, it need not be, as can be seen in sentence focus sequences in English with ‘dummy’ subjects, such as It’s raining. On the view of those who define ‘subject’ as topic (e.g. S. Lü 1979, L. Li 1985), a patient NP becomes a subject anytime it appears before the agent. There are then no ‘topicalized’ structures, since the ‘topicalized’ NP becomes the subject, as in the following examples from L. Li 1985: 70:

(1) a. Wo yi jing zhidao zhe jian shi le.
   1sg already know this CL affair ASP
   I already know about this affair.

b. Zhe jian shi wo yi jing zhidao le.
   this CL affair 1sg already know ASP
   This affair, I already know about.

On Li’s analysis, in (1a) zhe jian shi ‘this affair’ is an object, while in (1b) it is a subject. At the same time, Li (following S. Lü 1979) says that ‘subject’ in Chinese has two natures: as the topic and as whatever role it is. S. Lü’s original idea (1979: 72–73) was that since ‘subject’ and ‘object’ can both be filled by any semantic role, and are to a certain extent interchangeable, then we can say that subject is simply one of the objects of the verb that happens to be in topic position. One of the examples of what he means by ‘interchangeable’ is (2) (S. Lü 1979: 73):

(2) a. Chuangxiu yi jing hu le zhi.
   window already paste ASP paper
   The window has already been pasted with paper.

b. Zhi yi jing hu le chu stage.
   paper already paste ASP window
   The paper has already been pasted on the window.

S. Lü gives the analogy of a committee where each member has his own duties, but each member can also take turns being chairman of the committee. Some members will get to be chairman more than others, and some may never get to be chairman, but each has the possibility of filling both roles. This concept of the dual nature of ‘subject’ is S. Lü’s (and L. Li’s) solution to the problem of defining the concept of ‘subject’ in Chinese. It is clear that this definition does not give us a consistent definition for ‘subject’; it simply states that the subject is the topic, and can be any semantic role.

In his monumental grammar, Y. R. Chao (1968) spoke of ‘subjects’, but not in the rigorous sense defined here. He loosely defined them as whatever came first in the sentence, and understood them more as topics than the kind of ‘subjects’ found for example in most Indo-European languages.

Li & Thompson (1974b, 1976a) argue persuasively for analyzing Chinese as a topic-prominent language. They also point out that ‘[t]here is simply no noun phrase in Mandarin sentences which has what E. L. Keenan (1976) has termed “subject properties”’ (1976: 479). Aside from this, though, they give only one explicit argument, of that of ‘pseudo-passives’ (see §2.7 below), to support the idea that there is no identifiable subject. In their later Mandarin Chinese: A Functional Grammar (1981), they do recognize a ‘subject’ for Chinese, but it ‘is not a structurally [i.e. syntactically—RJL] definable notion’ (1981: 19), and not very important structurally. For this reason they regard Chinese as a topic-prominent language rather than a subject-prominent language.

The ‘subject’ that Li & Thompson speak of is distinguished from ‘topic’ because it has a ‘direct semantic relationship with the verb as the one that performs the action or exists in the state named by the verb’ (p. 15), whereas the ‘topic’ need not necessarily have such a relationship with the verb. If this is the only criterion for determining a ‘subject’, though, then we are again simply substituting semantic relations for syntactic relations, and there is no subject that can be defined in syntactic terms.
In section 2, below, I will try to support Li & Thompson's earlier subjectless analysis of Chinese by presenting further arguments. Following the methodology outlined in §1.1, we will look at various reference-related constructions in Chinese with the intention of determining the pivot, if there is one, in each construction. We will see that there is no syntactic pivot in any of these constructions, so the concept of 'subject' as a syntactic function beyond semantic role simply does not exist in Chinese.

Section 3 deals with the question of whether there is a syntactic function 'direct object' in Chinese. As with the question of 'subject', there has been much discussion, but little resolution, often for the same reasons: confusion of semantics for syntax, or pragmatics for syntax. Again as with 'subject', 'object' is not a universal phenomenon (see for example Gil 1984, Collins 1984), so we need to find a restricted neutralization of semantic roles in terms of behavioral and coding properties in order to say there is a grammaticalized direct object in Chinese.

J. Anderson (1984: 47) argues that the concept of 'object' is 'necessarily associated with subject-forming languages ... unless the notion can be generalized over all second-ranking derived relations, if any other such there be'. If this is the case, then showing that there has been no grammaticalization of 'subject' should obviate the need for a lengthy discussion of 'object', but as there are other opinions on the connection between 'subject' and 'object' (see for example S. Li 1979; 71, Gil 1984), and as the ba construction (see §3.2) figures crucially in many analyses of Chinese grammar, I will assume it is necessary to delineate the arguments against the syntactic function of 'object' in Chinese.

2.0 The question of 'subject' in Chinese

2.1.0 Cross-clause coreference

Our first test for subjecthood is to determine whether there are any constraints on deletion and coreference in complex constructions in Chinese. In a language with an [S, A] pivot for coordination (the accusative pattern), such as English, an argument shared by two conjoined clauses can be represented by a zero pronoun in the second clause only if it is in the S or A role in both clauses, as in (3a).

(3a) a. The man went downhill and a saw the dog.
    b. The dog went downhill and a was seen by the man.
    c. *The dog went downhill and the man saw a.

If instead the argument the two clauses have in common is in the P role in the second clause, in order for the two clauses to be conjoined, the representation of the argument (here the zero pronoun) must appear as the derived S of a PASSIVE construction, as in (3b). It is not possible to have the A role NP of the

(4) a. balan yuda bugan baqul yarangu buran
    she+ABS dog+ABS descend+PAST he+ERG man+ERG see+PAST
    The dog went downhill, and was seen by the man.
    (Lit.: The dog went downhill and the man saw a.)

b. bayi yara bugan buligailu baqul gudaq
    he+ABS man+ABS descend+PAST see+PAST+ANTIhe+ABS dog+DAT
    The man went downhill and saw the dog (with antipassive indicator ga-y on the second verb).

c. *bayi yara bugan buran baqul guda
    he+ABS man+ABS descend+PAST see+PAST he+ERG dog+ABS
    The man went downhill and saw the dog (with transitive verb and A argument (yarangu) unexpressed).

In Chinese we don't find either the English or the Dyirbal type of restriction on cross-clause coreference. In Chinese it is possible for the shared argument of a conjoined structure to appear as a zero pronoun regardless of whether it is in the A or P role; there is no need for a passive or antipassive construction:

(5) a. Xiao gou zou dao shan dixia, nei ge ren jiu kanjian le
    little dog walk to mountain bottom that CL person then saw ASP
    The little dog went downhill and was seen by the man.
    (Lit.: The little dog went downhill and the man saw a)

b. Nei ge ren zou dao shan dixia, jiu kanjian le xiao gou
    that CL person walk to mountain bottom then saw ASP little dog
    The man went downhill and saw the little dog.

In (5a) the shared argument of the two conjoined clauses appears as an S role NP in the first clause, and a P role NP (here, a zero pronoun) in the second of the two clauses, without appearing in any type of passive construction (cf. 3c)). In (5b) the shared argument of the two conjoined clauses appears as an S role NP in the first clause and an A role NP in the second clause, without appearing in any type of anti-passive construction (cf. 4c)).
Comrie (1988: 191) points out that 'in any given language, there is necessarily interplay between the strictly grammatical factors and the extra-linguistic factors that help in determining anaphoric relations', but then goes on (p. 193) to show how, in English, grammatical constraints on the control of anaphor can force a particular interpretation of a sentence, even though the result is nonsensical, as in (6):

(6) The man dropped the melon and burst.

Because of the grammatical constraints on conjunction reduction in English, this sentence has to be interpreted as saying that the man burst after dropping the melon. In Chinese there are no such grammatical constraints, so the Chinese equivalent of (6) would be interpreted as saying that the melon burst after the man dropped it.

(7) Nei ge ren ba xigua diao zai dishang, sui le.

That CL person BA watermelon drop LOC ground broke-to-pieces ASP
That man dropped the watermelon on the ground, (and it) burst.

The same structure, but with different semantics, yields different results:

(8) Nei ge ren ba xigua diao zai dishang, huang le.

That CL person BA watermelon drop LOC ground get-flustered ASP
That man dropped the watermelon on the ground, (and he) got flustered.

It is semantics (real world knowledge) that determines coreference in these examples, not syntactic function.

Coreference in Chinese is in fact quite free. In the following three examples we have A=A (and P=P) coreference, S=P coreference, and A=S coreference respectively:

(9) Wo na le ta de qian, 5 jiu reng 5 le.

1sg pick-up ASP 3sg money then throw ASP
I picked up his money and threw it.

(10) Yi zhi xiao-jir bu jian le, laoying zhuo zou le 5.

one CL chicken not see ASP eat grab go ASP
One chicken disappeared, an eagle carried it away.

(11) Nei ge ren na-zhe guanzi 5 pao le.

That CL person holding stick run ASP
That person ran away holding a stick.

In examples (12) and (13), the zero anaphor in the second clause corefers with the topic of the first clause, and not what is usually referred to as the 'subject'. In example (14a) the zero anaphor cannot corefer with fire brigade, as the fire brigade is not the primary topic of the clause, even though it is what many linguists would call the 'subject' of the verb in the first clause and a logical candidate for 'subject' of the second clause. The zero anaphor also cannot corefer with the topic because the inanimacy of the topic is not compatible with the semantics of the verb hai 'tired'. Only in (14b) can we have the topic as the controller of the zero anaphor. The evidence in these examples is consonant with Givon's statement that 'the main behavioral manifestation of important topics in discourse is continuity, as expressed by frequency of occurrence and participation in equi-topic chains (1984a: 138), but as the topic that is participating in the cross-clause coreference is not an argument of the verb, no case can be made for subject control of cross-clause coreference, and the idea that 'subject' and 'topic' are one and the same (as argued, for example, in Givon 1984a) is also then questionable. To sum up, we can see from these examples that cross-clause coreference is dependent on a complex interplay of semantic and pragmatic factors, but does not depend on syntactic factors such as syntactic relations.

2.2.0 Relativization

Keenan & Comrie (1979a) give the following hierarchy of accessibility to relativization (p. 650) and constraints on that accessibility (p. 653):

ACCESSIBILITY HIERARCHY (AH)
SU > DO > IO > OBL > GEN > OCOMP
ACCESSIBILITY HIERARCHY CONSTRAINT
a. If a language can relativize any position on the AH with a primary strategy, then it can relativize all higher positions with that strategy.

b. For each position on the AH, there are possible languages which can relativize that position with a primary strategy, but cannot relativize any lower position with that strategy.

By 'primary strategy' is meant the 'unmarked' type of relative, the type where no pronoun is retained (if there are both types). The basic import of these constraints is that if a language has a primary form of relativization, it will relativize subjects, as 'in absolute terms Subjects are the most relativizable of NP's . . . Subject is . . . the most relativizable position on the AH' (p. 653). We can then use this hierarchy in our search for a subject in Chinese. If only one NP type is relativizable, then based on Keenan and Comrie's generalizations, that NP will be a subject. Keenan and Comrie 1979b presents data from a number of languages, such as Aoban (Melanesian) and Arabic, showing a strict [S, A] pivot for relativization. That is, only S and A can be relativized on without a pronoun being retained.

In a language with an [S, P] pivot for relativization, such as Dyirbal, an NP to be relativized on must be in the S (naturally or derived by antipassivization) or P role in the subordinate clause (Dixon 1980: 463). In Yidiny, another Australian language, the NP must be in the S (again, either naturally or derived by antipassivization) or P role in both the subordinate and the matrix clause (Dixon 1980: 462). (15) is an example of a Yidiny relative construction (from Dixon 1980: 459):

(15) wagujangu bunya wawal gudaagangu bajalnym.
man+ERG woman+ABS see+PRES dog+ERG bite+CAUS-SUBORD
The man is looking at the woman who had been bitten by the dog.

The two clauses of this sentence share the absolute argument bunya 'the woman'. If instead we wanted to say the equivalent of 'The man is looking at the dog which had bitten the woman', then the relative clause must first be antipassivized, so that the A role NP appears in the absolute (derived-S) case (from Dixon 1980: 463):

(16) wagujangu gudaag wawal bajarajinyun bunyaanda.
man+ERG dog+ABS see+PRES bite+ANTIPASS=TNS woman+DAT
The man is looking at the dog which had bitten the woman.

In Chinese, though, we find that an NP in any semantic role can be relativized upon. Consider the following examples (see the explanations of relevant semantic roles below; exx. (17i) and (17m) are adapted from Shi 1989: 246–47; the indexed zero in each example indicates the position the referent would have in a non-relative clause structure):

The man who has just hired and who works for only a few days, and was fired by his (Lisi's) father has come again.
From these examples we can see that it is possible not only to relativize on A (17a), S (17b), and P (17c), but also to relativize on a locative (17d), a goal (17e, f), a benefactive (17g), an instrument (17h), a possessor (17i), either argument in a comparative structure (17j, k), and a topic (whether an argument of the verb or not) (17m). It is even possible for the referent to fill two different semantic roles (P and S) within the same relative clause, as in (17m). Keenan & Comrie (1979b: 334) claim (citing Harlow 1973) that in all but subject and object relativizations in Chinese a pronoun must be retained. If we compare (17e), (17g), and (17j), we can see that only in (17e) is the pronoun retained, possibly because of the nature of this particular serial verb construction: the verb mai 'buy' in Chinese is ditransitive, so if there is a goal argument it must be coded in a serial construction with the verb gei 'give'. In (17k) there are also pronouns, for the same reason: to express the 'object' of comparison, the verb/preposition bi 'compared-to' must be added to a topic-plus-stative verb construction (see §2.2.3, below, for details). In both of these constructions, the secondary verb (gei or bi) would not be added unless it was needed to add an argument, and this is probably why they require the pronoun in the arguments they are adding are relativized. In (17f, g) the goal/beneficiary does not require a pronoun, as gei here is the main verb; in fact (17f) would be less acceptable with the plural pronoun added. This question is secondary, though, since there is clearly no restriction on the neutralization of semantic roles such that we could determine a single pivot for this construction.

As relativization is referential by definition, a language that has no grammatical encoding of pragmatic referentiality (i.e., has no syntactic functions) should be free of restrictions on relativization (Foley & Van Valin 1977). We can see from the above that this is in fact the situation in Chinese.

### 2.3.0 Comparatives

Descriptions of the structure of the bi comparative in Chinese (see ex. (18) below) often refer to the ‘subject’. For example, Li & Thompson (1981) state that the item being compared ‘... must be the subject of the Topic ... of the verb phrase that expresses the [comparative] dimension’ (p. 569). McCawley (1989) criticizes the inclusion of topics in Li & Thompson’s analysis because sentences with comparison of a fronted object, as in (19a, b), are ungrammatical. Yet there are examples where the topic can be compared. Li & Thompson give sentence (20):

(18) Wo bi John gao.
1sg compared-to John be-tall
I am taller than John.

(19) a. *Gou bi mao wo xihuan.
dog compared-to cat 1sg like
I like cats more than (I do) dogs.

In general, though, in Chinese the problem is that the constituent that expresses the comparative dimension is an INHERENTLY comparative single argument PREDICATION (stative verb), unlike English, where the constituent expressing the comparative dimension is a ‘gradable’ ADJECTIVE or ADVERB (Leech & Svartvik 1975). Because of this, to compare two ‘objects’ of a verb such as xihuan ‘like’, the whole clause must be repeated, with the comparative bi coming between the two clauses, as in (21):

(20) Xiang bi xiong zhi zhan.
elephant comp-to bear nose be-long
Elephants have longer noses than bears.

There is a very real difference between the topic-comment structure of (20), which is a ‘double nominative’ (Leng 1974) structure, and a structure such as that in (19). In the former, the nominal bist ‘nose’ is part of the predication, whereas in the latter, wu ‘1sg’ is not part of the predication. In the comparative construction there is always a topic about which a comment is being made, but there can only be one (this does not include the ‘object’ of the comparative verb/preposition bi).

The examples in (19) are bad because there are two topics outside the predication. A. Y. Hashimoto (1971) says that compared constituents ‘need not be subject NP’s ...; they may be NP’s dominated by Time or Place expressions or prepositional phrases; however, they cannot be the object NP’s’ (p. 34).

Tsao (1990: 278ff) argues that ‘direct objects’ can be compared, as long as they appear in the secondary topic position (following the primary topic) or the tertiary topic position (following the secondary topic), and the comparison is done on two NPs at the same level of topicality, either both secondary or both tertiary topics. For him (19) would not be completely ungrammatical as long as wo ‘1sg’ appears before the items being compared:

(19’) a. ?Wo gou bi mao xihuan.
1sg dog compared-to cat like
I like cats more than (I do) dogs.

In general, though, in Chinese the problem is that the constituent that expresses the comparative dimension is an INHERENTLY comparative single argument PREDICATION (stative verb), unlike English, where the constituent expressing the comparative dimension is a ‘gradable’ ADJECTIVE or ADVERB (Leech & Svartvik 1975). Because of this, to compare two ‘objects’ of a verb such as xihuan ‘like’, the whole clause must be repeated, with the comparative bi coming between the two clauses, as in (21):

(21) Wo xihuan bi wo xihuan ni duo.
1sg like 3sg compared-to 1sg like 2sg be-more
I like him more than I like you.

Ho is a single argument verb, so the structure of a sentence that compares ‘objects’ must be the same as one that compares ‘subjects’, i.e. $X PP VP$, where $X$ is the constituent being compared (a simple NP, or a whole clause as in $[21]$), and PP includes bi and the constituent $X$ is being compared to. The $X$ constituent is the topic about which an assertion is being made. The restriction on comparatives in Chinese then is not a function of ‘subject’ control, but is due to the nature of information structure and the class of verbs used in comparatives: a one argument
verb, such as a verb used in a comparative construction, can take only one direct argument (the topic), so it is irrelevant to talk of 'subject' vs. 'non-subject'. A second factor is that the items being compared must be topical at the same level (i.e. must both be primary, secondary, or tertiary topics).

2.4.0 Raising to subject

Raising is seen by many (e.g. Chomsky 1981, Bresnan 1982) as a subject controlled construction, that is, only the subject of an embedded clause can be 'raised' to the subject of a verb such as seem (22):

(22) a. It seems Paul bought the car.
   b. Paul seems to have bought the car.
   c. *The car seems Paul to have bought.
   d. It seems Paul is happy.
   e. Paul seems to be happy.
   f. The car seems to have been bought by Paul.

There is no problem 'raising' the A role or the S role NP of an embedded clause, as in (22b) and (22e), but 'raising' the P role NP results in the ungrammatical (22c). For the P role NP to be raised, it must first be passivized, and thereby become a derived-S, as in (22f). English then has an [S, A] pivot for this construction.

I was unable to find an example of 'raising' in any clearly ergative language (that is, a language where I would expect to find an [S, P] pivot for 'raising'), though as mentioned earlier, Dyirbal has an [S, P] pivot for all constructions involving subordinate clauses (see Dixon 1972, 1980).

If we are to find a pivot for this construction in Chinese, we would need to find either an [S, A] or [S, P] restriction, yet in Chinese the equivalents of (22c), with the P role NP raised, and (22b), with the A role NP raised, are both perfectly acceptable:

(22) a'. Haoxiang Paul mai le chezi.
   seem buy ASP vehicle
   It seems Paul bought the car.
   b'. Paul haoxiang mai le chezi.
   seem buy ASP vehicle
   Paul seems to have bought the car.
   c'. Chezi haoxiang Paul mai le.
   vehicle seem buy ASP
   The car seems Paul to have bought.

As we can see from these examples, either of the referential constituents, or neither, can appear before haoxiang 'seem' in Chinese, no matter what the semantic role, and there is no need for any passive construction. As there is no restriction on the semantic roles which can be involved in raising, no evidence can be found for identifying a pivot for this construction, and thus there is no evidence from raising for establishing a subject in Chinese.

2.5.0 Indispensability

Keenan (1976) gives indispensability as one of the properties of his Subject Properties List. He says, 'A non-subject may often simply be eliminated from a sentence with the result still being a complete sentence. But this is usually not true of [asie]-subjects (p. 313), Connolly (1989: 1) also defines 'subject' as 'a NP which is required in (almost) every sentence and is some how distinguished from all other NPs'. In terms of looking for a restricted neutralization, if we found one NP type which could not be eliminated from the clause without the clause being incomplete, we would have possible evidence of a subject. For example, consider the following sentences:

(23) a. Mark eats pizza when he is happy.
   b. Mark eats when he is happy.
   c. *Eats when he is happy.

In (23b) the P role NP can be deleted without affecting the acceptability of the sentence, though (23c), with the A role NP deleted, is unacceptable. It is also the case that the single NP of intransitive clauses is also indispensable in English:

(24) a. Mark is sleeping.
   b. *Is sleeping.

There is then an [S, A] pivot for indispensability in English. In Dyirbal, ellipsis is quite common, though according to Dixon (1972: 70) every sentence must contain an NP in the absolutive case. As the absolutive case is the unmarked case for the P role NP in a transitive sentence, in what Dixon calls a 'simple' sentence (i.e., one where there is no marked case assignment) the A role NP (for which the unmarked form is the ergative case) can be left unspecified (25b), but not the P role NP (25c) (examples from Dixon 1972: 59, 70):

(25) a. balan dugumbil bangul yarangu balgan.
   she+ABS woman+ABS he+ERG man+ERG hit
   Man is hitting woman.
   b. balan dugumbil balgan.
   she+ABS woman+ABS hit
   woman is being hit [by someone].
   c. *bangul yarangu balgan.
      he+ERG man+ERG hit

The verb in these examples is not inflected to agree with either NP, and though Dixon uses a passive to translate (25b), the verb form is the same in both (25a)
and (25b). Absolutive is also the case of the single direct argument of intransitive clauses (26a), and this argument cannot be ellided (26b):  

(26) a. balan dugumbil banju.  
   she+ABS woman+ABS come  
   Woman is coming.
   b. *banju.  
   come

We then have a clear [S, P] pivot pattern for indispensability in Dyirbal. In Chinese, on the other hand, the verb phrase alone can be a complete sentence, as in (27):

(27) Chi le.  
   eat ASP  
   I(you/he/she ate.

There are also no ‘dummy’ subjects in Chinese, as are found for example in English sentences dealing with weather phenomena such as ‘It’s raining:

(28) Xia yu le.  
   fall rain ASP  
   (It’s) raining.

In discussing ‘subjectless’ verbal expressions, Chao (1968: 61) states that ‘although it is possible to supply subjects to such verbal expressions … they should be regarded as sufficient by themselves, because (a) there is not always one specific form of a subject that can be supplied, and (b) sometimes no subject can be supplied.’

We can see from this that there is no indispensable NP in the Chinese clause, and therefore indispensability also can not be evidence for a ‘subject’ in Chinese.

2.6. Reflexives

The control of reflexives is often said to be a property of subjects (Tan 1988, C. Tang 1989). C. Tang (1989: 99) formalizes this for Chinese with a categorical rule that states that ‘The antecedent of a reflexive must be a subject’. As the following examples show, this is not descriptively adequate ([29a] is from Sun 1989):

(29) a. Mama bu neng yongyuàn tī nǐ zhaogu (nǐ)zhījī.  
   Mom not able forever for you look-after yourself
   Mom won’t be able to look after you (lit. ‘(yourself)’ forever.
   b. Wò zhe fèn, bǔguān wò zài nǎlǐ, zōng yǒu rén rèn lái  
   1sg very annoy not-matter 1sg LOC where always have people come  
   gànshè zhījī de shì.

In none of the above cases could the antecedent of ‘自己’ ‘self’ be said to be in an immediately preceding ‘subject’ slot.

In general, reflexives in Chinese are pragmatically or semantically controlled. That is, the nature of the discourse situation, the semantics of the verb used, the topicality/referentiality of the participants, or the psychological perspective will determine the antecedent of the reflexive pronoun. The concept of psychological perspective is from Zubin, Chun, & Li 1990 and Li & Zubin 1990; it refers to the degree of access to the perceptual thought processes of the character in the text under examination. This is comparable to Kuno’s (1976, 1987) ‘empathy’ hierarchies, which Van Valin (1990: 212) reduces to a single principle ‘E (more topical NP) > E (less topical NP)’, i.e., empathy is with the more topical NP. The topicality of the controller of the reflexive anaphor then seems to be the key factor.

The influence of context is especially clear from a comparison of (30a) and (30b), below, in which the clause containing ‘自己’ (Lào Zhāng … gōnghuó Lào Wáng zhījī de erzi zài tou dongxī) is the same in both examples, but the antecedent which controls ‘自己’ is different because of the different contexts:

(30) a. Lào Zhāng minmínghuá zhídào Wàng Huán (Lào Wáng de erzi)  
   Old Zhang clearly know Wang Huan old Wang GEN son  
   ba neixie lingjìan názoule, keshì yáo zōugōu de zhēngjìu  
   BA those spare-parts take: leave-ASP but want sufficient REL proof  
   cái nēng gōnghuó Lào Wáng zhījī de erzi zài tou dongxī.  
   then can tell old Wang self GEN son DUR steal thing(s)  
   Old Zhang clearly knew that Wang Huan (Old Wang’s son) took those  
   spare parts, but he needed sufficient proof before he could tell Old Wang  
   that self’s (Old Wang’s) son was stealing things.
   b. Lào Zhāng, minmínghuá zhídào erzi ba neixie lingjìan názoule,  
   Old Zhang clearly know 3sg son BA those spare-parts take: go
MODERN VARIETIES OF SINITIC

keshi gaosu Lao Wang ziji, de erzi zai tou dongxi,
but tell old Wang self GEN son DUR steal thing(s)
Lao Zhang ye daomei le.
old Zhang also in-trouble ASP.
Old Zhang clearly knew his son took those spare parts, but (if he) told
Old Wang that self’s (Old Zhang’s) son was stealing things, he would
also be in trouble.

In the two examples, ziji refers to either Lao Wang (30a) or Lao Zhang (30b)
because it is known from the respective preceding contexts whose son is doing
the stealing. The antecedent of ziji is determined by the semantics the whole utterance,
not the syntactic function of the antecedent or its position in the sentence. This being
the case, reflexives also give us no evidence for establishing a subject in Chinese.

2.7.0 Pseudo-passives

A common sentence type in Mandarin is where no A role is expressed, and the P
role NP is in initial position, as in (31):

(31) Jiu he le.
wine drink ASP
I/youdrinked the wine.

These are often called passives and given passive translations in English (e.g.,
(31) would be translated as ‘The wine was drunk’) by those wishing to establish
syntactic relations for Chinese (e.g. Tan 1988), and the initial NP is seen as the
subject. This type of ‘passive’ is only felicitous with inanimate patients; as there
is no passive morphology, an animate noun in preverbal position would have to be
interpreted as the agent of the verb unless intonation or some other clue informs
the listener that it is the patient of the verb (cf. Teng 1975). An example of when
it is logically clear that the sentence initial animate NP could not possibly be the
agent is (32) (from L. Li 1986: 347):

(32) Ta qiechü le liouzi le.
2sg cut-out ASP tumor ASP
He cut out (his) tumor. (i.e., He had his tumor cut out.)

An ambiguous case would be (33), the meaning of which only becomes clear
when we know that Michael is only six years old.

(33) Michael zoujin mei qu zhaoh-xiang.
M. recently N-A go take-pictures
a. Michael hasn’t taken pictures recently.
   b. Michael hasn’t had his picture taken recently.

ARGUMENTS AGAINST ‘SUBJECT’ & ‘DIRECT OBJECT’

It is clear from this that there really is no innate passive sense to the verb in
this type of construction, and that in (31), Jiu he le, jiu cannot be a subject. It must
then be a topical theme in an active sentence without an agent. A similar analysis
is given in Li & Thompson 1976: 479-450, and Li & Thompson 1981: 498-499.

A good example to show that this type of construction is not passive is (34),
which could be said if two old friends pass in the street and one does not notice
the other. The person who was not noticed could call out?

(34) Eh, Lao pengyou dou bu renshi la?
hey old friend all not recognize ASP
Hey, (you) don’t recognize (your) old friend! ?

To read this as a passive sentence would be inappropriate to the situation,
as the emphasis is on the person addressed not recognizing the speaker rather than
it being on the speaker not being recognized by someone.

Another example is the first two parts of the famous saying in (35), below,
which would not make sense if considered to be passivized.

(35) Tian bu pa, di bu pa (zhi pa Guangdongren shuo Guanhua).
heaven not fear, earth not fear (only fear Cantonese speak Mandarin)
(I’m) not afraid of heaven or earth, (just afraid of a Cantonese speaking Mandarin).

Looking at (36), below, we can see another problem with the ‘passive’ analysis,
pointed out by Lü Shuxiang (1986: 340):

(36) a. Wo bu he jiu, yi di ye bu he.
1sg not drink wine one drop even not drink
I don’t drink wine, not even one drop.

b. (Ni) bie guan wo, ni shi ye bie guan.
2sg don’t pay-attention 1sg 2sg who also don’t pay-attention
Don’t pay attention to me, don’t pay attention to anyone.

If we were to say that the first clause of (36a) is active, but the second clause is
passive because the P role NP occurs in initial position, then the parallelism is
thrown off. In (36b) the topic is animate, and so the actor (ni) must be expressed
in the second clause or shei ‘anyone’ would be seen as the actor, and the meaning
would be ‘Don’t anyone bother me’ (or ‘Nobody bother me’). Comparing the
two examples, we can see that they are both meant to be parallel structures, and
both clauses of both sentences are active. The preverbal position of the P role NP
is obligatory with ye ‘also; even’ (Derek Herforth, p.c.), and not related to any
optional ‘repackaging’ (Foley & Van Valin 1985) strategy such as passivization.

One last argument against establishing a subject in Chinese also involves this type
of topic-comment structure. Givón (1984a: 145) states that ‘one may . . . view the
grammar of subjectization as, in large part, the grammar of differentiating the subject.
from the direct object case-role. If we look at the example below, we can see that as there are two topic positions in Chinese, first and second (after the A-role NP) position in the sentence. The A and P roles are differentiated solely on the basis of semantics; there is no marking for which NP is the 'subject' and which is the 'object'.

(37) a. Zhangsan fan dou chi le.
   Zhangsan rice all eat ASP
Zhangsan ate all the rice.
   b. Fan Zhangsan dou chi le.
   rice Zhangsan all eat ASP
   Zhangsan ate all the rice.

Y. R. Chao (1968: 325) gives the following ambiguous example:

(38) Zhe ge ren shei dou bu rendre.
   this CL man who all not know
a. Nobody knows this man.
   b. This man doesn’t know anybody.

If we accept Givón’s statement, then since ‘subject’ and ‘object’ are not differentiated by the grammar, no subjectization has taken place.

To summarize this section briefly, we have looked at cross-clause coreference, relativization, bi comparatives, raising to subject, indispensability, reflexives, and pseudo-passives, and have found no restricted neutralizations of semantic roles in any of these constructions that would support the recognition of a subject in Chinese.

3.0 The question of ‘direct object’

As with the question of ‘subject’, we would need to find restricted neutralizations in behavior or marking of semantic roles for us to be able to say there is a syntactic direct object in Chinese.

3.1.0 Behavioral properties

In terms of behavioral properties, many of the same tests we used for ‘subject’ above, such as relativization and indispensability, apply equally well to the question of ‘object’. As we found no restricted neutralizations in any of the constructions considered above, such as relativization, we have no behavioral evidence from those tests for a direct object in Chinese. One type of behavioral property unique to grammaticalized objects is what is known as ‘dative shifting’ (promotion to direct object), a construction with marked (less usual) assignment of direct object status, that is, where an otherwise non-cannonical direct object argument of a three argument verb is marked or behaves as (is ‘promoted’ to) a direct object (Givon 1984b). The contrast between marked and unmarked assignment of direct object status can be seen from the examples in (39):

(39) a. John gave a dog to the boy.
   b. John gave the boy a dog.

In (39a) the NP in the immediate post-verbal direct object position is the theme a dog, and this is the unmarked assignment to direct object. In (39b) it is the recipient the boy which is the immediate post-verbal direct object position, and this is a marked assignment of direct object position. These two possibilities are referred to as ‘alternate syntactic frames’ in Dixon 1989. Chinese does not allow such alternate syntactic frames, as is pointed out by Dixon (1989: 99). With a small number of ditransitive verbs (those expressing ‘giving’ or ‘sending’), it is possible to have the goal argument in other than immediate post-verbal position by putting it in a second clause with gei ‘give’, but this breaks the sending and giving into two clauses/actions:

(40) a. Wo song hai zi shu.
   1sg send child book(s)
   I sent the child(ren) (a) book(s).
   b. Wo song shu gei hai zi le.
   1sg send book(s) give child ASP
   I sent (a) book(s) to the child(ren).

This alternate form is not possible with ditransitives where there is no actual giving, and is not possible with gei ‘give’ itself:

(41) a. *Wo gao su yi jian shi gei ni.
   1sg tell one CL affair give you
   (I’ll tell you about something.)
   b. *Wo gei yi zhi you gei hai zi.
   1sg give one CL dog give child(ren)
   (I gave a dog to the child(ren)).

There is also an alternate where the gei clause is placed before the verb, and this can be done with a wider range of verbs, but in this case the reading is a benefactive one:

(42) Wu gei hai zi song shu.
   1sg give child(ren) send book(s)
   I sent (a) book(s) for the children.

In each of these cases the goal or beneficiary remains in immediate post-verbal (including gei as a verb) position, and does not take on the position (or markings) of a direct object.
A second behavioral property claimed for 'objects' in Chinese is inability to appear in the shi . . . (de) cleft construction. T-C. Tang (1983: 190) claims that objects, whether direct or indirect, cannot be clefted, that is, they 'cannot alone become the informational focus' (see also Teng 1979: 105). Examples of the shi . . . (de) cleft construction are given in (43b, c):

(43) a. Ta jì gěi wǒ liwù.
He sent me a present.
3sg mail give 1sg present
b. Ta shì jì gěi wǒ liwù de.
He sent me a present.
3sg COP mail give 1sg present NOM
c. Shì ta jì gěi wǒ liwù (de).
He sent me a present.
3sg COP mail give 1sg present NOM
This construction places a focal NP in the immediate post-copula focus position and nominalizes the main verb. As evidence that objects cannot become the informational focus, Tang (p. 190) gives the following sentences:

(44) a. *Ta jì gěi wǒ shì liwù de.
b. *Ta jì shì gěi wǒ liwù de.
c. *Ta jì gěi shì wǒ liwù de.

All grammatical examples of the shi . . . (de) cleft construction have the verb within the shi . . . (de) phrase. As the function of de, when it appears, is to nominalize the verb, of course the verb must be within the nominalized phrase, and this excludes post-verbal arguments if the copula shi is to appear before de. The restriction then is not on ‘objects’ per se, or on any particular semantic role, but on post-verbal position. This can be seen from the fact that post-verbal arguments other than ‘objects’ and ‘indirect objects’ are also barred from appearing in this construction, such as the locative argument in (45):

(45) a. Wo ba neì běn shu fāng zài zhūo zì shāng.
I put that book on the table.
1sg BA that CL book place LOC table on
b. *Wo ba neì běn shu fāng shì zài zhūo zì shāng de.

Other evidence that it is factor and not semantic role that is the limiting factor is the fact that a ‘fronded’ P role NP CAN be the informational focus in a cleft construction, as in (46):

(46) Shi pīngguō wǒ méi mai.
COP apples 1sg N-A buy
It was APPLES I didn’t buy.

3.2.0 Marking properties

In terms of marking properties, as undergoers (P role and non-actor role arguments) can occur either preverbally or postverbally, and there is no agreement of any argument with the verb, to prove the grammaticalization of a direct object, we would need to find some type of unique marking that distinguishes the argument said to be the direct object. It is often considered that the ba construction in Mandarin provides just this type of unique marking (see for example Sun & Givon 1985, in which ba is referred to as the OM [‘object marker’]). In the ba construction, the particle ba occurs between two NPs and (most often) before a resultative verb complex:

(48) NP1 ba NP2 V1 (V2) le

In this construction, V1 is most often transitive, and V2 is always intransitive or a movement/locative verb. NP2 is then said to be the direct object of V1, or the complex verb made up of V1 and V2, if there is a resultative complement, as in (49):

(49) Zhāngsān ba yǐ fú xi huái le.
Zhāngsān BA clothes wash broken ASP
Zhāngsān ruined the clothes washing them.

In this case, yǐfú ‘clothes’ is the P of the verb xi ‘wash’, and is the S of the stative verb huái ‘broken’. This configuration is said to have developed out of a serial verb construction where the first verb (ba—which means ‘hold’ when it acts as a full verb) grammaticalized into a direct object-marking preposition or particle (Y.C. Li 1974; Li & Thompson 1974a, 1974b, 1976; 1981; Peyraube 1987, 1989). We need to look more carefully, though, at the grammatical and semantic relations that hold between the constituents of a ba construction.

As has been pointed out elsewhere (than 1983; Z. Ma 1985), the post-ba position can be filled not only by a patient, but also by an agent, a locative, an
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instrument, or an NP that has no selectional relation to the verb, but is involved in the action. Consider the examples below (from X. Ma 1987: 428-29):

(50) a. Luofo ba dao qie dun le.
radish BA knife cut dull ASP
The radish made the knife dull (when I/you/he cut it).

b. Ta ba bi xi le.
3sg BA pen(cil) write blunt ASP
He made the pen(cil) blunt from writing with it.

c. Zhe bao yishang ba wo xi le.
this package clothes BA 1sg wash tired ASP
Washing this pack of clothes has made me tired.

d. Zhe xie shi ba toufu shan hai le.
this few affair BA hair worry white ASP
Worrying about these affairs has made (my/your/his/her) hair turn white.

e. Xiao Wang ba laizi dong bing le.
Little Wang BA child freeze sick ASP
Little Wang (did something such that his) child got sick from being too cold.

The examples above show several different possible relationships between the constituents of the ba construction: (50a) has the P of V, in initial position, the S of V, in the post-ba position, and no A argument specified; (50b) has the A of V, in initial position, the instrument of V, which is also the S of V, in post-ba position, and no P argument specified; (50c) has the P of V in initial position, and the A of V, which is also the S of V, in post-ba position; (50d) has a non-argument topic in initial position, the S of V, in post-ba position, and no core argument of V, anywhere in the sentence; (50e) has the possessor of the S of both V, and V, in initial position and the S of both verbs in post-ba position.

As can be seen from these examples, there is no consistent relationship between the post-ba NP and the P of V. The only consistent relationship holding in these ba constructions is that between the post-ba argument and the S of V.

It might be argued that these verb complexes should be treated as single verbs, so the post-ba argument would then be the object of that single complex verb. This would be incorrect since one can see from the fact that there cannot be for example, a complex verb xi-lei ‘to wash-tired’, with clothes as the subject and a person as the object, as would have to be the case in (50c).

A second point is that the relationship between the post-ba NP and the S of V only holds when there IS a V, in the following examples there is no V:

(51) a. Wo ba ni de qian mai le she le.
1sg BA 2sg GEN money buy ASP book ASP
I bought books with your money.

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b. Ta ba diren dang pengyou.
3sg BA enemy act-as friend
He takes enemies to be friends.

In each of these examples there is only one verb, and there is no regularity to the semantics of the post-ba NP: in (51a), the post-ba NP is an instrument; in (51b), the post-ba NP is a locative. The use of ba in (51b) changes a non-causative verb into a causative one by adding an extra argument to an otherwise equational construction. (See also exx. (55a), (b) for similar semantics.)

This lack of relationship with a specific semantic role is in concord with Tsao’s (1987) analysis of the post-ba NP as a ‘secondary topic’, and one of the functions of ba itself as clarifying the transitivity relation between the primary topic (the clause-initial NP) and this secondary topic (cf. Chao 1968: 702). I believe Thompson (1973) is correct in being more explicit about the transitive function of the ba construction. She does call the post-ba NP the ‘direct object’, but of the whole sentence, not the verb, a somewhat broader notion of direct object (see also L. Li 1986: 352 for a similar argument). Her ‘semantic condition’ on the use of ba is that ‘[a] NP may be fronted with ba if the rest of the sentence answers the question, “What did the agent do to NP?”’, that is, if it is semantically the “direct object” of the sentence’ (p. 220). We can see from the examples above that the pre-ba NP is not always an agent, so this condition does not always hold in ba constructions. In other words, it would be more correct to say that something affects something else, with no reference to semantic role or grammatical function. This transitive function is clear in examples such as the following ([52a]) is from a love song; [52b] is from Li & Thompson 1981: 469, their [27]):

(52) a. Wo shou zai Xishan ba lang deng.
1sg stay LOC West-Mountain BA man wait
I stay at West Mountain and wait for (my) man.

b. Ta ba xiao mao ai de yao si.
3sg BA small cat love CD want die
S/He loves the kitten very much (i.e. ‘so much s/he could die’).

Generally ‘wait’ and ‘love’ are not verbs of high transitivity, but to emphasize how much energy the woman/child is putting into waiting/loving, the ba construction is used. Li & Thompson (1981: 469) offer the explanation that sentence (52b) ‘hyperbolically creates an image that such intense love must have some effect on the “small cat”’. From this example, though, we can see that ba here is intensifying the transitivity, but not intensifying the affectedness of the undergoer, as can be seen from the fact that the complement of result refers to the actor of the loving, not the undergoer. That the cat is not necessarily affected by the loving can be seen in the fact that the same sentence could be used about a fan loving a movie star s/he had never met. Likewise, in
the following example, it is the one doing the loving, not the one loved who can't sleep:

(53) *Ta bai ai de shui bu fiao jiao.*
3sg BA 2sg love CD sleep not able sleep (n.)
She loves you so much she can't sleep.

As pointed out by McCawley (1989: 31), it is also possible to have ambiguity as to who is being affected in a sentence of this type, as in (54):

(54) *Ta ba wo xiang si le.*
3sg BA 1sg think die ASP
a. He misses me so much he could die.
b. He makes me miss him so much I could die.

Another argument against seeing the *ba* construction as marking a direct object is that of the 'retained' object (a post-verbal object in a *ba* or *bei* construction – see Thompson 1973). Consider the examples below, both from Li & Thompson 1981: 471:

(55a) *Wo ba erzi huan lexingming.*
1sg BA 3sg son change ASP name
I changed his/her son's name.

(55b) *Ta ba huo jia le yi-dian you.*
3sg BA fire add ASP a-little oil.
S/He added a little oil to the fire.

In no sense could we say that *erzi* 'his/her son' is the direct object of *huan* 'change', or that *huo* 'fire' is the direct object of *jia* 'add'; (55a) is a case of possessor raising (Fox 1981), and there is no grammatical non-fronted form for (55b) without *ba* or *ge* to allow an added argument.

As we have found no consistency in the use of *ba* for marking a *P* role argument or any other type of argument, it cannot be used as evidence for the grammaticalization of the syntactic function 'direct object' in Chinese. We have, then, found neither behavioral or coding properties that could justify establishing the syntactic function 'direct object' in Chinese.

### 4.0 Conclusion

In this paper we have looked at various constructions in Chinese to see if there are any restricted neutralizations of semantic roles that would point to a grammatically viable category of either 'subject' or 'direct object' in that language. We have found none. We have also compared the classic accusative and ergative syntactic patterns and found Chinese to differ from them both. My conclusion is that Chinese has not grammaticalization either an accusative or an ergative pattern, and so the syntactic categories 'subject' and 'direct object' simply do not exist in Chinese.²⁰

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**Notes**

1. There are actually two parts to the question of 'subject':

   ... in order to say that a given grammatical relation exists in a given language this claim must be justified both language-internally and cross-linguistically. Language-externally, this means that a number of logically independent criteria must be established that serve to identify the grammatical relation in question as being syntactically significant in the language in question. Cross-linguistically, ... in assigning the same name to grammatical relations established independently in different languages, it must be the case that the relations in the two languages have a reasonable degree of overlap ...

   (Comrie 1981: 60)

2. In this paper we will be concerned only with the language-internal question of 'subject', etc.

3. This concept is from Dixon 1979, but see also Foley & Van Valin 1984: 107-124, 1985: 304-306 for a discussion of the nature of pivots and the distinction between Pragmatic Pivot and Semantic Pivot. A Semantic Pivot is sensitive to semantic factors, while a Pragmatic Pivot is sensitive to the topicality of a referent. For Dixon, pivots are a surface phenomenon, as there is a deep universal subject. Foley & Van Valin's Role and Reference Grammar is a monstral theory, and what Dixon calls deep subject properties, Foley & Van Valin analyze as role-related properties different from the reference-related properties that define pragmatic pivots. (The term 'pivot' goes back to Chao 1968, but there refers to the shared argument of a biclusal structure.)

4. The single argument of intransitive verbs can also be agentive or non-agentive. This semantic distinction is significant in the determinations of word order in prescriptive and other constructions in Chinese (see Ip 1990, Chapter 3, 1993), but it is not important for the discussion of pivots, as the question of which of two or more NPs is pivot is only relevant with transitive verbs.

5. These 'primitives' are 'semantic-syntactic' in the sense that in terms of transitive verbs the distinction is semantic, while in terms of intransitive verbs, the neutralization of semantic roles is syntactic. See Du Bois 1985 for arguments why A, S, P (has 'O') are not universal or primitives. Nonetheless, I will use them here, as Du Bois does, because they are useful heuristic notions. I am using 'P' instead of Dixon's (and Van Valin's) 'O' to refer to the patient of a prototypical transitive verb, following Comrie 1978, 1981. Dixon's use of 'O' stems from his posing of a level of 'deep subject' and object (see footnote 2). Though we are essentially talking about the same thing, I prefer not to use 'O' because of its association with 'object' and the confusion that might arise from this association.
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17 The nature and use of *ji* "self" in Chinese is actually quite complex. See J. Sun 1989 and Zuhui, Chun, & Li 1990 for more complete discussion. See Li 1990 for a more complete discussion of psychological perspective framing, and Yan Huang 1989 for a thorough refutation of the Government-Binding analysis of reflexives and discussion of a possible agreement analysis.

18 Though see Hopper & Thompson 1980 for arguments on why *P* case marking should be seen as "functionally motivated by the Transitivity of the clause as a whole, rather than by the need to distinguish subject from *P*" (p. 292).

19 The case I am speaking of here is when there is both an A role NP and a P role NP in preverbal position — ignoring for the time being the question of the *by*-construction (see §3.2) and preverbal temporal and locational phrases.

20 For those whose theoretical orientation would preclude them from accepting my conclusion, the fact remains that the differences in syntactic patterning presented here are very real; a theory that assumes "subject" and "direct object" as universals must be able to explain how these categories can evidence such radically different behavior in different languages.

References


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5 I want to emphasize that I am talking here about syntactic ergativity; morphological ergativity has no necessary relationship to this syntactic type (Comrie 1981: 65 ff.), though it so happens that Dyirbal is morphologically ergative (with a pattern split according to person) as well.

6 This paragraph is partially adapted from Var Vuit 1981: 862; see also Var Vuit 1977, Comrie 1981: 64-138.

7 See Silverstein 1981: 243 on the speaker and addressee as the 'maximally presuppositional' and the most 'natural' topics.

8 I am dealing here only with the order of constituents in a sentence, not the order within constituents such as NPs. It might be said that the order of relative clause before head reflects information structure, but it is not clear how one could relate determiner-head order to pragmatic structure (though see Takashima 1985, 1987 for one attempt at this in the language of the Chinese oracle-bone inscriptions).

9 This term is from Lambrecht, to appear roughly, a sentence-focus sentence is a sentence without a topical subject, as the entire sentence is focal.

10 Though in a later article L. Li (1986: 349) claims that not only the syntactic function, but also the semantic role of a referent changes with a change in position in a sentence. Li claims that in (i) the referent of *i pl* is a patient, while in (ii) it is an agent:

(i) Zhe yi xiao, jiu zang huai le, women zhe xie ren
    this time then busy ruin ASP 1pl this few people
    This time we really got busy.

(ii) Women zhe xie ren jiu zang huai le.
    1pl this few people then busy ruin ASP
    We really got busy.

11 Tsao (1990: 340-342) gives arguments to show that the degree of topicality of the relativized NP is directly correlated to the naturalness of its being relativized upon. In the case of (17), the NP involved is not highly topical, and so not as relativizable.

12 This structure is much more acceptable when the items being compared are inanimate, as in (i):

(i) wo daishu bi jihe xihuan.
    1sg algebra compared to geometry like
    I like algebra more than (I do) geometry.

This possibility is not available at all when the 'objects' are human, as in (21), below.

13 Unmodified Mandarin Chinese stative verbs, such as gao 'tall' are INHERENTLY comparative because a clause without the comparative PP is still comparative (Light 1989). For example, if there were two people standing in front of me and I said *John gao* (lit. 'John tall'), it would mean 'John is taller (than the other person)', not 'John is tall'. To say the latter, the stative verb must be modified by *wen very* or some other adverb.

14 Comrie 1990: 378ff for other examples of 'raising' in Chinese showing the possibility of all arguments being 'raised'.

15 In Dixon 1972, the absolutive case is referred to as the 'nominative' case; I am here using 'absolutive' to conform with the examples cited above from Dixon 1980.

16 It is possible for the absolutive marked NP to not include a lexical noun, but there must at least be a noun class marker, and so there is still an overt absolutive NP, as in (i):

(i) bayi banpu.
    het: *A1S come*
    (Man is coming.)

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