1 Introduction

Recent decades have seen considerable advances in the phonological reconstruction of Old Chinese [OC], the ancestor of the modern Chinese dialects which was spoken in the first millennium BC, and Proto-Tibeto-Burman [PTB], the ancestor of Tibetan, Burmese, and the dozens of other languages which constitute the Tibeto-Burman [TB] family.[1] The aim of this study is to carry out a new comparison between OC and PTB, taking into account these advances, in order to arrive at a clearer picture of Proto-Sino-Tibetan [PST], the common ancestor of OC and PTB, and to refine existing reconstructions of OC, especially in those areas where competing systems of reconstruction disagree.

This study focuses on one element of the OC and PST syllable, the "medial". The basic syllable structure of OC is generally taken to be **IMVE**, where **I** represents an initial consonant (or consonant cluster), **M** a medial element, **V** a vowel, and **E** an ending or coda (which may be an offglide or consonant) (see Baxter 1992:6, Li 1971, Ting 1979, Pulleyblank 1962, among others).[2] In some reconstructions (e.g. Baxter 1992) additional elements such as pre-initials and post-codas (the source of Middle Chinese tones) are proposed.

This dissertation is concerned primarily with the proposed reconstructions for **M**, the medial element. There is considerable disagreement among scholars as to the number and nature of medial elements. This study will carefully examine current proposals in the light of all available evidence, with the aim of making a comprehensive re-evaluation and putting forth new proposals. TB data will be of central importance to the evaluation.

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[1]For definitions of Old Chinese and Middle Chinese, and an explanation of the terminology used in the periodicization of Chinese, see for example Norman 1988:23 and Baxter 1992:14-15. Periodicization of Chinese remains somewhat inexact, and is largely shaped by the availability of historical documents.
[2]Tone (**T**) is usually included as a basic component of the Chinese syllable. It is now generally recognized, however, that Chinese tones have their origin in Old Chinese segmental features, so that it is not necessary to include **T** in the schema for the Old Chinese syllable.

Since medial elements are closely bound up with the development of initial consonants and of vowels, it will be necessary to touch on these issues as well, although a full exploration is beyond the scope of this study.

Definition of "medial"

The use of the term "medial" in historical Chinese phonology has its origin in traditional analyses of Mandarin phonology. "Medial" is a translation of the Chinese term *jièyīn* 介音 'intermediary sound', so called because of its position between the initial consonant (or syllable onset) and the main vowel. In modern Mandarin the medial element may be one of three on-glides (or semi-vowels) **j**, **w**, **ɥ**.

For Old and Middle Chinese, however, the term "medial" may not be so simply defined, in part because the syllable structure is not as simple as in modern Mandarin, and in part because some aspects of that structure remain controversial. I will adopt an informal, comprehensive definition of "medial" in this study, as any non-obstruent element in a syllable occurring after an initial consonant and before a vocalic element. This definition encompasses glides (**j**, **w**, etc.), liquids[3] (**r**, **l**, etc.) and vocalic elements of diphthongs (**i**, **u**, etc.), as well as combinations or clusters of these elements. For example, in a syllable such as ***krjam**, **-rj-** is viewed as the medial element. This does not preclude the possibility that functionally or phonetically this particular syllable may be better analyzed as having a cluster initial **kr-** and a vocalic on-glide **-j-**.

1.1 Motivation for the study: Why now?

Sporadic comparisons between Chinese and TB languages (principally Tibetan and Burmese) has been ongoing since the nineteenth century (cf. Leyden 1808 for a particularly early example). But until this century these studies were hampered by the lack of a well-

[3]For convenience **-r-** is classified as a liquid. Its actual phonetic realization in Old Chinese is unknown, and the possibility of it being a flap, trill, or fricative cannot be discounted.

developed methodological approach and inadequate reconstructions of the early stages of the Chinese language.

Three developments around the turn of the century were instrumental in promoting what we would now call comparative Sino-Tibetan studies. The first was the formulation of the comparative method and the neogrammarian hypothesis as applied to the reconstruction of Proto-Indo-European. This provided the methodological foundation for scientific comparison in other language families. The second was the appearance of high-quality dictionaries of Tibetan (Jäschke 1881) and Burmese (Judson 1893), which provided scholars with dependable data from key TB languages. The third, a somewhat later development, was the publication of Bernhard Karlgren's first reconstructions of Middle and Old Chinese, which ushered in the modern era of historical Chinese phonology (Karlgren 1915-26, 1923, 1933, 1940, summarized in Karlgren 1954).

Important early work in Chinese-Tibetan comparison was done by Simon (1929), Wolfenden (1929, 1936, 1937), Karlgren (1931), etc. By today's standards these works are outmoded, but these scholars did important work with the tools available to them at the time. By the nineteen-forties work was advancing on the classification and reconstruction of the Tibeto-Burman languages (Shafer and Benedict 1939-41), work which would ultimately lead to the first reconstruction of PTB itself (Benedict 1972).

Each advance in the reconstruction of OC on the one hand, and of PTB on the other, has catalyzed additional comparative work. As noted above, Karlgren's first reconstruction of Old Chinese led to a burst of research on Chinese and Tibetan comparison. Benedict's 1972 PTB reconstruction allowed him to make comparisons with Karlgren's OC. Coblin's 1986 work on Sino-Tibetan was based on Benedict's PTB and the OC reconstruction system of Li Fang-kuei (1971). Li's system, incorporating important insights and proposals of Yakhontov (1960, 1968, 1970) and Pulleyblank (1962, 1963), might be called the first comprehensive modern reconstruction of Old Chinese. Bodman (1980, 1985) made use of Benedict's work and on modifications made to Li's system in his own

important contributions to Sino-Tibetan comparison. (A more detailed description of the work of Coblin and Bodman, especially involving the reconstruction of medials, may be found in Chapter 3.)

But after Bodman and Coblin, little of true substance has been done since the mid-1980s in Sino-Tibetan comparison. Important advances have been made in the reconstruction of Old Chinese. Gong Hwang-cherng (1990, 1991, 1994, 1997) has made a series of key revisions to Li's system. And Baxter (1992) has recently come out with a complete, new system of reconstruction, continuing with work that grew out of his collaboration with Bodman. His system has evolved well beyond the point where it can be called a revision of Li's system, since it involves significant structural differences. It is remarkably similar to the recent reconstruction of Starostin (1989), whose roots can ultimately be traced back to the work of Yakhontov.[4]

On the Tibeto-Burman side, improvements have been made to Benedict's work over the last 25 years, especially in the reconstruction of subgroups of TB (such as Lolo-Burmese and Karen). In the last decade, Matisoff's STEDT project at UC Berkeley has accumulated a huge database of TB lexical items and is undertaking the massive project of reconstructing PTB anew.

Yet no systematic comparisons have yet been made between the new OC systems of reconstruction and the new PTB roots which have been reconstructed. Gong (1995) has done considerable comparative work using his revisions of Li's system, but he has confined himself to comparison with three key TB languages (Tibetan, Burmese, Tangut) instead of with PTB itself. Peiros and Starostin (1996) have attempted a new reconstruction of PST, but this again makes use of key languages, and may be criticized for other reasons as well (see Chapter 3).

It is my feeling, then, that the time is ripe for additional work to be done in Sino-Tibetan reconstruction. I am confident that scholarship in the last decade has led to better

[4]A full description of Starostin's system is unfortunately available only in Russian.

reconstructions of OC and PTB, and not merely to meaningless re-arrangements of symbols within existing categories. By a "better" reconstruction, I mean one which more closely resembles a natural language, which conforms well with both textual and comparative linguistic evidence, and which is as a construct closer, in a real though immeasurable way, to the unknowable actual language it seeks to represent.

Using these improved reconstructions of OC and PTB, it should be possible to achieve three goals: (1) an improved reconstruction of PST, their common ancestor; (2) an informed judgment as to which reconstructed system of OC is to be preferred; (3) refinements and improvements to the preferred OC reconstruction. These goals are precisely those pursued in this study, though limited for the most part to the evaluation of reconstructions of medial elements. The results are presented in Chapter 5.

1.2 Methodology: the Comparative Method and Proto-Sino-Tibetan

This study takes as given that, as is commonly believed, Chinese and Proto-Tibeto-Burman are genetically related, and that through comparison of Old Chinese and PTB their common ancestor, Proto-Sino-Tibetan, can be reconstructed, at least in part. (For more on the relationship between OC and PTB, see Section 1.6 below.)

What may require further explanation is my belief that using Tibeto-Burman forms to aid in the reconstruction of Old Chinese is also methodologically sound, and not *a priori* a violation of the principles of the comparative method.

Ideally, and under the assumption of the branching model of linguistic divergence, the comparative method calls first for the rigorous comparison of closely related languages to achieve reconstructions of their "meso-level" ancestors. These reconstructed ancestor languages are then to be compared to each other, allowing the reconstruction of an older common ancestor ... and so forth, until the limits of the method are reached and the earliest possible proto-language has been reconstructed. According to this method, only languages descended from Old Chinese—in addition, of course, to contemporary textual evidence—

should be used in the reconstruction of Old Chinese itself. The characteristics of its sister language Proto-Tibeto-Burman should not be used to draw conclusions about the nature of Old Chinese. We might call this viewpoint the strict interpretation of the comparative method.

In actual practice, however, historical linguists have been more pragmatic in their work. Reconstruction has been carried out with a greater respect for the process of trial and error. Hypotheses concerning the nature of the proto-language are advanced based on preliminary evidence from daughter languages; these hypotheses are then tested against additional data from daughter languages (or, ideally, newly discovered daughter languages), and are then accepted, modified or discarded. The process is bi-directional; at any given moment, the historical linguist is working with partial, hypothetical reconstructions at different time-depths, as well as with incomplete data for the daughter languages. The linguist develops the reconstructions incrementally, working forwards and backwards in time, bringing each stage of reconstruction into alignment as new evidence is amassed and processed.

According to this more practical method, it makes perfect sense to take hypothetical reconstructions of Proto-Sino-Tibetan, and to modify the working reconstruction of Old Chinese to better accommodate the hypothesized PST reconstruction, always being careful to be sure that the OC reconstruction is at all times consistent with internal Chinese evidence. The revised OC reconstruction will in turn have ramifications for the PST reconstruction; the process of revision continues in both directions until equilibrium is reached. At that point, with hindsight, the whole structure can be presented as if it were arrived at according to the strict interpretation of the comparative method.

There is another sense in which the use of Tibeto-Burman evidence may be helpful in reconstructing OC. It is sometimes the case that the simplest, most elegant solutions to problems in historical reconstruction can evade discovery for years, although once they are proposed they might appear perfectly obvious in hindsight. As an aid to the creative act of attaining insight, any outside source of data might provide inspiration. One never knows

which Tibeto-Burman languages might possess the phonological feature which proves to be the key to solving a significant problem in OC reconstruction. This key insight might be independently verifiable with Chinese evidence alone; but it might never have seen the light of day without the example of Tibeto-Burman.

Recognition of this approach is apparent in the closing paragraph of Gong 1990 [1994], where the author notes regarding the reconstruction of OC initials:

> This paper revises the reconstruction of certain OC initials from the viewpoint of Sino-Tibetan linguistics. Thanks to poetry and *xiéshēng* characters, a firm base has already been established in the reconstruction of OC finals. But because we only have *xiéshēng* characters as primary evidence for initials, work in their reconstruction has progressed slowly, with many competing explanations which are difficult to decide among. Since OC is derived from Proto Sino-Tibetan, the observation of other languages of common origin with OC can help us accurately select from among these explanations. In this way we will not only make progress in ST researches, but also in the reconstruction of OC. (p. 93)

Some scholars have attempted to make a distinction between those aspects of Old Chinese which can be reconstructed based solely on internal evidence, and those which are based on external comparison. Bodman (1980), for example, uses TB data to reconstruct what he calls "Pre-Chinese", an earlier stage of the language than Old Chinese, whose features cannot be determined from Chinese evidence alone. It is my feeling that this distinction is too artificial. While it may be possible to distinguish between those features whose reconstruction is based on internal evidence and those based on external evidence, there is no necessary correlation between these two types of features and their relative time-depth. More importantly, it is misleading to imply that phonological rules of change can describe the transition from the externally reconstructed to the internally reconstructed stage. Yet this is precisely the implication of establishing Pre-Chinese as opposed to Old Chinese.

At the same time, I certainly don't advocate automatically reconstructing Old Chinese with as many features of Proto-Sino-Tibetan as possible. To some degree the decision

about which features to include in an Old Chinese reconstruction, and which to exclude, is subjective. But it is still subject to reasoned judgment.

As an example, consider the case of Old Chinese medial ***-r-**. It has been noted (Coblin 1986, Gong 1995) that in many cases what has usually been reconstructed as medial ***-r-** following dentals in Old Chinese corresponds to a prefixal ***r-** in PTB. Two approaches may be taken to explain this correspondence. The first is to retain the reconstruction of ***-r-** as a medial in OC. This conforms well with the internal evidence, from which we know that vocalic developments after ***Tr-** are parallel to those after ***Pr-** and ***Kr-**. The drawback to this approach is that it requires the hypothesis that a large-scale process of metathesis took place in the development of PTB from PST or of OC from PST. The second approach is to suppose that OC itself had ***r-T-** clusters, much like PTB, and that these led to the same vocalic developments as ***Pr-** and ***Kr-** clusters. This second approach relies more on the comparative evidence. However, I argue that there is already considerable evidence within Chinese for the presence of prefixal elements, and that ***r-** is very likely one of them. Once this hypothesis about the structure of OC is accepted, reconstructing ***r-T-** clusters makes a lot of sense. It eliminates the complication of proposing regular metathesis (which is usually a sporadic development in languages). It makes ***r** more phonotactically parallel with ***l**, which also does not occur as a medial after dentals. And, its differing behavior in proximity with dentals than with velars and labials are readily explained by universal phonetic features. Now, one could instead propose the development PST ***r-T-** > Pre-Chinese ***r-T-** > OC ***Tr-**, but in my opinion this needlessly adds a level of artificiality to the reconstruction, at the expense of not just simplicity but also of plausibility.

Take a second example. Based on PTB syllables structure and the proposal that ***r-** occurs as a prefix in OC, there were probably also ***r-K-** and ***r-P-** clusters in OC. But there is no internal Chinese evidence that would allow us to establish such clusters in opposition to ***K-** and ***P-**. It would therefore be dangerous to reconstruct such prefixes

for any specific lexical items in OC. In this case I prefer not to reconstruct ***r-** at the OC level for specific lexical items; nor to establish it at a "Pre-Chinese" level. At the same time, I remain open about whether such clusters existed in OC or not.

1.3 Limitations of the phonological approach

In this study I take a fairly straightforward phonological approach to comparison, by which I mean presumed cognates in OC and PTB are directly compared without excessive regard for their morphology. I am well aware of the limitations of this technique. It is becoming increasingly clear that Old Chinese and Tibeto-Burman both have very rich morphologies. Uncovering morphological processes in OC has been particularly difficult. The existence of "word families" in Chinese—groups of etymologically related lexical items—has long been recognized by traditional Chinese philologists as well as modern scholars (again, Karlgren (1933) was a pioneer in this field). And, while some derivational morphemes and processes have been described (e.g. Downer 1959, Pulleyblank 1973, Mei 1989), most have remained opaque or even unrecognized until quite recently. Even the recognized processes seem to operate sporadically, or inconsistently.

This is beginning to change. In just the last few years a good deal of exciting work is being done in Old Chinese morphology. (For example, see Baxter and Sagart 1998 on Chinese word formation, Behr 1998 on ablaut, and Sagart's forthcoming book on Chinese word families.) On the Tibeto-Burman side, variation has long been recognized (see the next section), and much of it can be presumed to be due to morphological processes, but again these remain poorly understood.

There is no question that the working out of the morphological interrelationships among families of related words, both in Chinese and Tibeto-Burman, will be of immense value in doing comparative work. It will be a slow process, but every advance will lead to improved comparison, for the simple reason that it will allow, for the first time, for the comparison of known etymological roots rather than derived forms.

I sincerely hope that before too long work in the field will progress to the point where this aspect of my study—the general absence of morphological analysis in the comparisons—will mark it as out of date. I believe, however, that even with the limitations of my "old-fashioned" phonological approach, the conclusions I draw will remain valid as a contribution to the field.

This is not to say that I am blind to the reality of morphological variation. In fact, it is often necessary to make allowances for such variation in order to work with cognate sets that do not conform unbendingly to rules of correspondence, for to leave out such cognate sets would deprive us of vital information. It is only to say that a degree of uncertainty will inevitably attach itself to a fair number of proposals made here; it is of course up to the reader to make an informed judgment.

1.4 Allofamy and proto-variation

Probably the most important work on variation in PTB reconstruction is Matisoff 1978b. This book, while detailing patterns of variation in Tibeto-Burman, also lays a theoretical and terminological groundwork for reconstruction which is applicable to any language family.

Matisoff recognizes that the neogrammarian dream of perfect correspondences, even in the most pristine linguistic conditions, will always be contaminated to some degree by the quirks and irregularities that are the hallmark of any human social construct. There will always be cognate sets which point to conflicting reconstructed roots. Sometimes these discrepancies will appear entirely random; on other occasions they will be seen to be part of a regular pattern of variation peculiar to the language family in question.

Matisoff's approach to these conflicts and contradictions is to hypothesize a degree of variation at the proto-level, that is to say, within the roots of the reconstructed language. This variation can be attributed to a number of causes. First, actual free variation in the real language which the reconstructed proto-forms attempt to describe. For example, consider

the English words *either* and *neither*. Among the English-speaking population of America, variation between the pronunciation /ij/ and /aj/ for the first vowel is widespread. Indeed, free variation is not uncommon for a single speaker (myself included). It would therefore be natural for future daughter languages of English to disagree as to the correct vowel of English *either* and *neither*, creating headaches for future historical linguists.

Second, morphological variation in the proto-language. For example, a language might have ordinary and emphatic forms for a verbal item, which differ in vowel quality. In one daughter language the ordinary form of the verb will persist; in the other, the original emphatic form may replace the ordinary form, and become bleached of its emphatic meaning. The two reflexes might end up being perfectly synonymous and clearly cognate, but will reflect distinct proto-vowels.[5]

Third, dialect mixture may be involved, with the daughter languages each inheriting closely related forms from different dialects of the proto-language. It is probably fair to say that all modern languages with sizable numbers of speakers exhibit dialectal variation, and this must have been true of the language we are attempting to reconstruct as well.

Fourth, unexplained irregularities. While these irregularities may have occurred only in the development of one language or branch, the resulting discrepancy among cognates will be indistinguishable from true proto-variation of the kinds just described. It is therefore an inevitable side-effect of the reconstruction methodology that some of these irregularities will be encoded as proto-variation.

When regular patterns of variation appear in the proto-language (for example the widely-attested ***i ~ *u** variation of PTB), these may be due to any of the first three causes just described. Rather than throw out cognate sets because they don't match up properly, these variations should be recognized and captured in the system of reconstruction.

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[5]Exactly this kind of effect may be found in Ingush and Chechen, two closely related NE Caucasian languages which I have done some work on. It is not uncommon for an iterative verb form to displace a non-iterative form as the unmarked verb in one language, but not the other.

To facilitate his discussion of variation, Matisoff coins the term “allofam” (derived from *allo-* and *family*) to describe the general relationship between any two forms in one or more languages which are etymologically related, whether they are true cognates, doublets, or variants. Such forms are said to be allofams of each other. The relationship of allofamy is expressed by a superimposed > and < symbol: ⋚.

I concur with Matisoff that it is only by recognizing, and indeed embracing, variation that we can go forward with the work of reconstruction. At the same time, it is important not to allow variation to become an excuse for laziness or for positing outlandish cognacy relationships. If possible, it is best to have recourse to variation in a reconstructed root only when other options have been eliminated, and ideally when the variation falls into an established pattern. As always, this remains a somewhat subjective judgment on the part of the researcher.

1.5 Prefixation and the nature of the syllable in Proto-Sino-Tibetan, Proto-Tibeto-Burman, and Old Chinese.

Both Proto-Tibeto-Burman and Old Chinese are believed to be essentially monosyllabic in nature. In other words, most morphemes are monosyllabic, and most words are monomorphemic.

This definition depends, however, on a rather generous definition of the word *syllable*. Benedict (1972) reconstructs a number of “prefixes” for PTB, namely ***g-**, ***b-**, ***d-**, ***m-**, ***s-, *r-**, which may attach to almost any monosyllabic stem. The resulting “syllable” is, in Matisoff’s (1973) terminology, really a “sesquisyllable” (‘syllable and a half’), since it is presumed that a reduced vocalic articulation usually intervenes between the prefix and the stem initial. For example, ***r-kot** would be realized [rəkot] and ***g-sum** would be realized [gəsum]. Benedict’s use of a post-prefixal hyphen rather than, say, a schwa, is probably intended to convey a sense of the separable nature of the prefix. Implicit in Benedict’s description of the prefixes (1972:105ff) is the presumption that they were individual morphemes with distinct derivational functions—not all of which Benedict

could identify—although the bimorphemic nature of some of these constructs might become opaque through lexification.

The situation in Old Chinese is somewhat less clear cut, although it is my contention that OC was also sesquisyllabic. I am not aware that anyone else has explicitly made a proposal to this effect, although it is implicit in the reconstruction systems of a number of scholars. Baxter 1992 proposes a number of 'pre-initials', some of which are derivational in nature. These include ***s-**, ***N-**, ***ɦ-**, and perhaps ***S-**.[6] But no hyphen is used when transcribing syllables containing these elements. Sagart has proposed additional morphological prefixes for Chinese ***k-** and ***t-**. Baxter and Sagart 1998 use hyphens to separate all such prefixes from the stems they attach to, without however any implication that there is necessarily a vocalic segment intervening.

Adding to the confusion, Baxter (1992) follows Bodman (1980) in proposing two types of ***r**-clusters and two types of ***l**-clusters, which we might represent as ***Cr** vs. ***C-r** and ***Cl** vs. ***C-l**. In this case the hyphen is an arbitrary symbol used to distinguish the two types of cluster; Bodman and Baxter make no claims as to the actual difference in realization of the two types. One possibility that leaps to mind, of course, is that one of each pair represents an initial with an attached prefix, pronounced with intervening schwa vocalism.

I will argue that Old Chinese was much like Proto-Tibeto-Burman in having being truly sesquisyllabic.[7] For the most part, the prefix in the morphological sense—a derivational morpheme which attached to the beginning of the syllable—was identical to the prefix (or pre-initial) in the phonological sense—a consonant articulated with a following reduced vowel. This was not necessarily the case, however. I leave open the possibility that some elements I describe as prefixes had no morphological function whatsoever. They may

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[6]Baxter has since revised this system, eliminating original ***N-** and rewriting original ***ɦ-** as ***N-** (Baxter and Sagart 1998, note 11).

[7]This does not imply that all lexical items were sesquisyllables. Some were simple syllables like ***ka**.

simply be reduced first syllables of earlier bisyllabic morphemes, or reduced first syllables of bimorphemic compounds, long since bleached of their original meaning.

For Old Chinese reconstructions, I will generally use hyphen notation to primarily indicate a phonological prefix, without specific regard to whether the prefix had a morphological function or not.[8]

It follows from my conclusion about the sesquisyllabic nature of Old Chinese that Proto-Sino-Tibetan was also sesquisyllabic.

1.6 The Tibeto-Burman and Sino-Tibetan language families and their subgrouping

The genetic grouping of the languages of East and Southeast Asia is still very much a matter of debate. Five subgroups (Sino-Tibetan, Austroasiatic, Austronesian, Tai-Kadai, and Miao-Yao) are generally recognized, but the nature of the relationships between them remains to be worked out. This part of the world is an area where migrations and interactions between peoples have been particularly common and complex, resulting in a confusing tangle of branches in the tree of genetic affiliation. It is exceedingly difficult to separate out similarities resulting from common genetic origin from those due to areal contact. Most languages in the region consist of a number of strata, whose relative time-depth is not always clear.

Chinese scholars tend to group Miao-Yao and Tai-Kadai together with Sino-Tibetan in a vast family; western scholars now generally consider Miao-Yao and Tai-Kadai to be separate families which have borrowed heavily from Sino-Tibetan (and in particular from Chinese). Broader super-groupings between the remaining families have also been proposed, for example between Austronesian and Tai-Kadai (Benedict's "Austro-Thai Hypothesis", see e.g. Benedict 1975).

As for Sino-Tibetan itself, most scholars agree on the genetic relationship between Sinitic (the Chinese dialects) and Tibeto-Burman. Sagart (1993, 1994), on the other hand,

[8]This is in effect the opposite of the usage found in Baxter and Sagart 1998.

has argued instead for a genetic relationship between Chinese and Austronesian, a view that remains largely unaccepted in the fields of Tibeto-Burman and Sino-Tibetan studies.

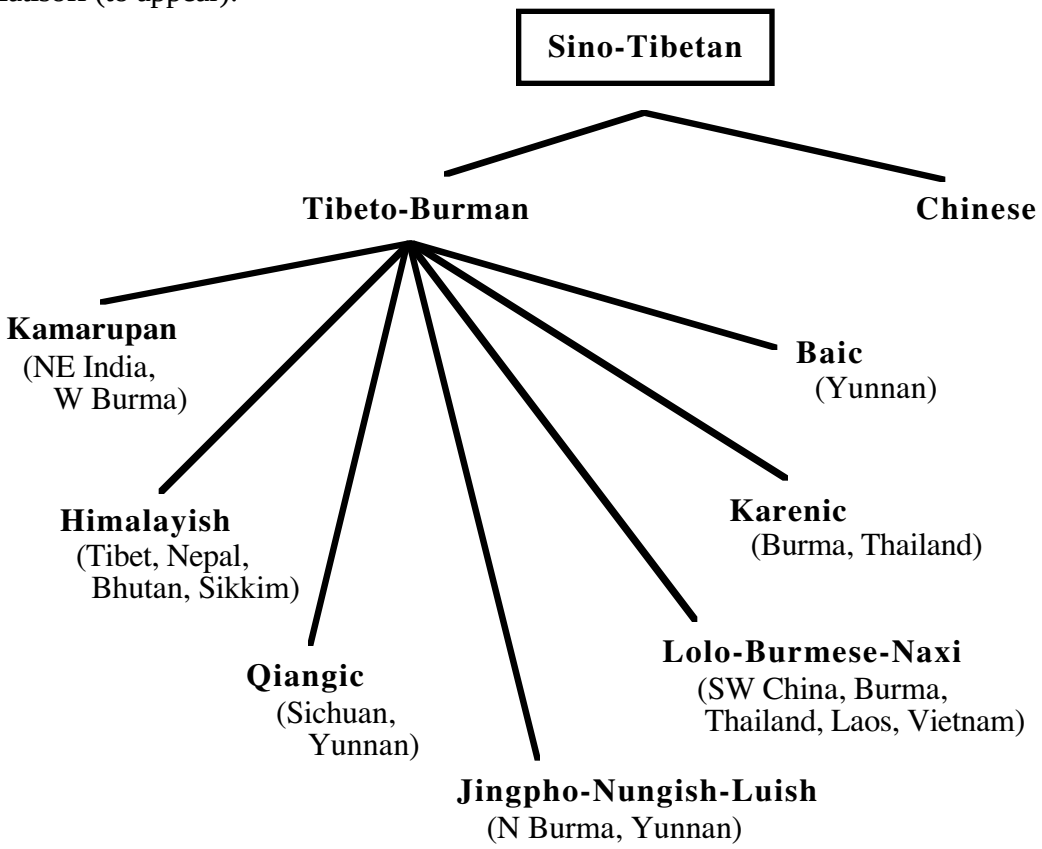
There also remains disagreement on the internal subgrouping of Sino-Tibetan and Tibeto-Burman. (See van Driem 1997:455-461 for an excellent historical overview of developments in this field over the last 150 years.) Van Driem, in fact, has recently proposed that the long-accepted bifurcation of Sino-Tibetan into separate Tibeto-Burman and Sinitic stocks be replaced with his Sino-Bodic hypothesis: that Chinese is most closely related to the Bodic and Himalayish subgroups, and that the Sino-Bodic group thus formed is one branch of a more broadly defined Tibeto-Burman family (1997:461-463).

I find van Driem's arguments unpersuasive. He seems to see the Sino-Bodic hypothesis as an inevitable next step in what has been an ongoing process of refinement of Tibeto-Burman and Sino-Tibetan subgroupings.[9] But the hypothesis seems to rest mostly on the large number of similarities (both lexical and morphological) van Driem has uncovered between Chinese and Limbu, a Kiranti language which he is intimately familiar with. It seems to be that this is no more convincing than the earlier hypothesis regarding the close connection between Chinese and Tibetan, based on the large number of apparent cognates between these two languages. It must be remembered that Chinese and Tibetan are the two Sino-Tibetan languages for which we have available reconstructions of considerable time-depth, a wealth of textual data, and large, comprehensive dictionaries that go well beyond everyday vocabulary. Given the sheer size of the search space involved, we would expect to find a very large number of putative Chinese-Tibetan cognates, even if they had a distant relationship. With van Driem's detailed knowledge of Limbu, it is not surprising that he has identified a large number of suggestive comparisons between it and Chinese.

While I remain open to the possibility that additional data and analysis may yet cause significant revision of the Sino-Tibetan family tree, for the purposes of this study I follow

[9]Van Driem 1997:462: "The replacement of Sino-Tibetan by the older Tibeto-Burman is the logical sequel to the many revisions which the language family has undergone in the last 50 years...."

Matisoff 1991, which provides the following subgrouping (with some revisions based on Matisoff (to appear):



A basic assumption of this study is therefore that PST is best reconstructed by direct comparison, if possible, between Old Chinese and reconstructed PTB, and that these comparisons will provide more meaningful patterns of correspondence than those between Chinese and any particular language (e.g. Tibetan) or subgroup (e.g. Himalayish).

1.7 Reconstructions of Old Chinese and Middle Chinese

The Old Chinese systems used in this study are those of Gong Hwang-cherng and William Baxter, for reasons that are explained in Chapter 2. There are a number of fundamental differences between these two systems. While I must confess here my general preference for Baxter's system, I have attempted to be largely neutral between the two systems throughout the study, so that devotees of one or the other need not be prejudiced against the results. As the reader will discover, I believe that certain aspects of both

systems are confirmed by the comparative evidence, while other aspects of both systems are subject to criticism or revision. In the presentation of results (Chapter 5) I will summarize the implications this study has for the reconstruction of Old Chinese.

Perhaps more difficult than the choice of Old Chinese system is the choice of a Middle Chinese reconstruction or transcription. The reconstruction of Middle Chinese, while supported by a great deal more data, is also more open to significant methodological disagreements than is the reconstruction of Old Chinese. This issue will be dealt with further in Section 1.10. I have not taken a strong stand regarding the nature of Middle Chinese. For the most part I have used Li Fang-kuei's 1971 emendation of Karlgren's Middle Chinese reconstruction as a convenient notational system for recording distinctions found in the *Qièyùn* dictionary. But Baxter's Middle Chinese transcription (1992:27-31) is generally used when Baxter's OC reconstructions are cited.

1.8 Data sources

The fields of historical PTB phonology and historical OC phonology stand in very different relationships to the data sources on which they depend. The Tibeto-Burman family is made up quite literally of hundreds of languages, which vary tremendously in the degree to which they have been documented and recorded. It may well be that a number of Tibeto-Burman languages remain to be discovered. While some subgroups (such as Karen and Lolo-Burmese) are fairly well understood, and reasonably complete reconstructions have been provided of their protolanguages, others (such as Qiangic) still present us with a tangle of unanswered questions and unresolved problems. There is a huge amount of data on Tibeto-Burman languages available, but it varies widely in quality. Even today, the best descriptions available to us of some languages are a hundred years old, and linguistically unsophisticated. Even where modern, reliable fieldwork has been done (a good deal of it by Chinese scholars), much of it remains unprocessed and unanalyzed.

As new data becomes available, and is taken into consideration, new opportunities are constantly arising for revising the genetic subgrouping of Tibeto-Burman, for working out reconstructed languages at various time-depths, and for improving the overall reconstruction of PTB.

The situation with Chinese is nearly the opposite. For some time now, the primary data sources for doing historical Chinese phonology have been fixed, and improvements in the field have largely come from increasingly sophisticated reanalyses of the same body of data, as part of a peculiar and unique process of text-based internal reconstruction. Most recently, Baxter (1992) has brought the machinery of statistical analysis to bear on the question of rhyming patterns in the *Shījīng*. To be sure, new sources of data are sometimes added to the mix (cf. Pulleyblank's use of Chinese transliterations of non-Sinitic languages, or Norman's reconstruction of Proto-Min), but for the most part these have been of marginal benefit.

It is my feeling that future advances in Old Chinese reconstruction will have to come from three directions. First, more work must be done with the vast amount of data available on modern Chinese dialects, and a good deal more fieldwork needs to be done as well. To the extent that the comparative method can then be applied to the dialects, new hypotheses can be raised regarding the nature of Middle and even Old Chinese. Second, additional research on Old Chinese morphology will increase our ability to evaluate the existing data with more sophistication and insight. And third, comparison with increasingly effective reconstructions of language families that have genetic or contact relationships with Chinese should improve our understanding of the typology of Old Chinese and enable us to carry out more sophisticated etymological analysis of individual lexical items. I think it is fair to say that all three of these aspects of research are still in their beginning stages. The current study is an attempt to advance the progress of the third approach, the comparative work.

1.9 The sources of Old Chinese reconstruction

Old Chinese is somewhat loosely defined as the Chinese language as spoken between 1200 and 600 BC, and reflected in the rhyming patterns of the *Shījīng* 詩經 and in the phonetic elements of early Chinese characters.[10] It is the earliest fully reconstructible stage of Chinese. Broadly speaking, Old Chinese is generally considered to have two descendants: Proto-Min and Middle Chinese. The modern Chinese Min dialects are descended from Proto-Min; all the other modern Chinese dialects are descended from Middle Chinese. (This is of course a vastly oversimplified scheme, which fails to take into account the great dialectal diversity which certainly existed from the earliest known stages of the language on. But this is the model that has been used in the reconstruction of Old Chinese.)

There are three primary sources of data for the reconstruction of Old Chinese:

• The rhymes in the *Shījīng*, a compilation containing poems dating from the 8th through 5th centuries BC.

• The phonetic elements of early Chinese characters, which were created over several centuries throughout the Old Chinese period.

• The reconstruction of Middle Chinese, which is presumed to be a direct descendent of Old Chinese.

In principle, given these three sources of data, the method for reconstructing the language is quite simple. Most of the 305 poems of the *Shījīng* have identifiable rhyme schemes. This allows the approximately 2000 distinct rhyming characters to be classified into "rhyme groups" (*yùnbù* 韻部), each with a distinct vowel-plus-coda combination.

The phonetic elements of Chinese characters allow them to be grouped into *xiéshēng* 諧聲 or phonetic series. A phonetic series consists of one basic character, and one or more other characters which use that basic character as a phonetic element. For example, the

[10]There is considerable variation in the dates assigned to Old Chinese by different scholars. The nature of the textual data does not currently permit a more narrow periodicization.

characters 方 妨 芳 放 房 are members of a single phonetic series. It is assumed that (1) words in the same phonetic series are in the same rhyme group and (2) the initial consonants of words in the same phonetic series share a single place of articulation. (Both of these assumptions are based on recurring patterns. (1) Duàn Yùcái 段玉裁, in the 18th century, was the first to state as a principle that characters from the same phonetic series must be in the same rhyme group. He encoded the results of his work in his masterful annotated edition of the early character dictionary *Shuōwén Jiězì* 説文解字 by providing a rhyme group for every character. (2) In many instances words in the same phonetic series have Middle Chinese initials which share the same place of articulation; where the Middle Chinese initials differ in place of articulation, they usually do so in patterned ways which allow for an Old Chinese reconstruction at a single place of articulation. These two assumptions have generally proven consistent with other internal and external evidence for the reconstruction of Old Chinese and remain important working hypotheses.) These assumptions explain how the phonetic element provides a general indication of the pronunciation of the word.[11]

The *Shījīng* and phonetic series data are thus complementary. The *Shījīng* data provides the phonological structure for Old Chinese rhymes (but says nothing about Old Chinese initials). The phonetic series allow almost every character in Chinese to be classified within this structure,[12] and tells us about the relationships between Old Chinese initials. Finally, this reconstructed phonological structure can be filled in with phonetic values by comparison with the reconstruction of Middle Chinese, its descendent.

In practice, the procedure is not nearly so straightforward, because numerous interpretations of these three data sources are possible. The process of determining the number of rhyme groups reflected in the *Shījīng* is complicated by irregular rhymes, variable rhyme schemes, dialectal differences, and the fact the absence of a rhyme between

[11]These assumptions do not, however, take into account the possibility that etymologically related words which have markedly distinct pronunciations might share a phonetic element.
[12]This is possible because the vast majority of Chinese characters are in a phonetic series.

two characters is not proof that they cannot rhyme. Also to be contended with are textual changes (character substitutions, for example) that have been carried out over they centuries in the recopying of the *Shījīng*.

For a number of characters it is not apparent which element, if any, is the phonetic. There are disagreements about how to reconstruct initial consonants in the same phonetic series when their Middle Chinese reflexes differ markedly, and there is uncertainty about exactly how principled the Chinese character creators were in their selection of phonetic elements. The problem of dialectal mixture must also be taken into account.

There remain fundamental disagreements over the nature and reconstruction of Middle Chinese, as we shall see in the next section.

Finally, the treatment of Old Chinese—which encompasses many centuries and many dialects—as a unitary construct, is an oversimplification that may be necessary to the development of a working model but which greatly reduces the reliability of the resulting reconstruction.

Additional data sources (such as early transliterations of foreign words) may be used to supplement the three primary sources, but they cannot eliminate the basic difficulties just described.

Despite all these problems, it is fair to say that recent work in OC reconstruction (Gong 1995, 1997; Starostin 1989; Baxter 1992), drawing heavily on the work of earlier scholars, has achieved remarkable results, providing us on the whole with natural-looking, consistent, usable reconstructions.

1.10 The sources of Middle Chinese reconstruction

Middle Chinese is the Chinese literary language as spoken in the sixth through tenth centuries AD. Because textual evidence used in the reconstruction of Middle Chinese spans

several centuries, Middle Chinese may be further classified into Early Middle Chinese and Late Middle Chinese.[13]

Middle Chinese is unquestionably the single most important source of evidence for reconstructing the phonological system of Old Chinese. An understanding of the sound system of Middle Chinese, and in particular of the medial elements, is therefore a crucial prerequisite for a study of Old Chinese medials. Unfortunately, the Middle Chinese cornerstone is not laid as securely as we might like. Despite abundant written attestation, key details of its reconstruction remain uncertain or controversial.[14]

The major sources of information on the sound system of Middle Chinese are the rhyme book *Qièyùn* 切韻 (601 AD) and later redactions of it, and the rhyme tables of the Southern Sòng which are probably based on traditions dating to the tenth century or earlier.

The Qièyùn

The *Qièyùn* was compiled by Lù Fǎyán 陸法言 (581-618). It is a phonological dictionary, in which characters are listed in homophone groups. Homophone groups which rhymed together and had the same tone were placed together in larger groupings called simply "rhymes" *yùn* 韻.[15] The rhymes in turn were organized by tone. The pronunciation of each homophone group if given by means of a two-character *fǎnqiè* 反切 spelling. The first character indicates the initial consonant of the target character, and the second character indicates the final (including medial, rhyme, and tone) of the target character.

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[13]As defined by Pulleyblank (1984:1-4), these terms refer not just to differences in time but also to differences in dialect. Each of the two stages is represented in different textual materials.

[14]Because the phonological system of Middle Chinese is (in an unconventional sense) attested by rhyme books and rhyme tables, it is customary among Sinologists to omit the asterisk when citing Middle Chinese forms. It must be stressed, however, that the interpretation of these written materials is in many respects open to question, and Middle Chinese is in fact better regarded as an unattested, reconstructed stage of Chinese. In this study the customary practice of omitting the asterisk is followed, but Middle Chinese cited forms will appear in boldface.

[15]Some authors refer to these groupings as *rimes*, to distinguish them from the ordinary meaning of the English word *rhyme*.

Through careful analysis of the rhymes, homophone groups, and *fǎnqiè* 反切 spellings of the *Qièyùn* it is possible to determine the structure of the phonological system of the language it encodes. In theory, this structure can then be filled in with sound values determined from inspection of the living Chinese dialects which are descended from that language, and from analysis of the rhyme tables (discussed below). In practice, a great deal remains unknown about what exactly is recorded in the *Qièyùn*. Does it encode a spoken dialect, an amalgam of dialects, an artificial literary standard, a pastiche of incommensurate spellings taken from older dictionaries, or some combination of all of these? Much ink has been spilled on these questions. Lù Fǎyán's preface to the *Qièyùn* describes the circumstances of its compilation, lists the names of those who worked on it with him, and cites the earlier works (now lost) on which it was based, but does not specify exactly how these factors affected the content of the dictionary. Karlgren, who made the first reconstruction of Middle Chinese (which he called Ancient Chinese), proceeded on the assumption that the *Qièyùn* represented a single real language, a Táng Dynasty standard based on Cháng'ān dialect which was spoken throughout much of China. Though this view is not widely held now, its influence on practices of Middle Chinese reconstruction remains strong.

More recently, a number of scholars (see for example Pulleyblank 1984 and Ting 1995) have argued that the *Qièyùn* represents two distinct phonological systems, a northern and southern variety of Chinese. The compilers of the book defined rhyming categories in such a way that the rhyming distinctions found in both dialects were preserved. The result is the unnaturally complex system that is revealed by modern analyses of *Qièyùn* distinctions. This view of the *Qièyùn* has not yet, however, yielded separate detailed reconstructions of the two underlying phonological systems. Pulleyblank, for example, reconstructs an essentially unified *Qièyùn* system (his Early Middle Chinese), while Ting offers only a methodology for future researchers to follow in carrying out the reconstruction.

The Yùnjìng

The *Yùnjìng* 韻鏡 is the earliest extant complete rhyme table. The version available to us dates from 1161, but is thought to represent a significantly older tradition. The *Yùnjìng* is a collection of tables in which characters are laid out on an elaborate grid. The 23 columns represent initial consonants. The sixteen rows are divided into groups of four, each representing a distinct tone. Within each tone are four rows called *děng* 等 'divisions'. To the left of the rows the rhyme (according to the *Qièyùn* rhyme book tradition) is indicated. In most cases each division is assigned to a different rhyme, but sometimes several divisions are associated with a single rhyme. The individual characters are laid out on this grid according to their pronunciation and their *Qièyùn* classification.

Each table is further characterized as 'inner' (*nèi* 內) or 'outer' (*wài* 外) and as 'rounded' (*hékǒu* 合口) or 'unrounded' (*kāikǒu* 開口) in articulation.

The precise purpose for which the rhyme tables were first created remains unknown. The interpretation of the initial consonant categories is fairly straightforward. But the exact significance of various other elements of the tables (the divisions, the inner/outer distinction, the groupings of rhymes within a single table) remains unclear as well. When compared with pronunciations in the modern Chinese dialects, it is apparent that each division has specific phonological properties; in other words, the placement of words in separate divisions in the rhyme tables is clearly systematic and meaningful. It is also apparent from the rhyme table structure that the distinctions between divisions must lie in the medial, the main vowel, or some combination of the two. But the exact nature of these distinctions has remained a matter of contention among scholars.

If the language underpinning the rhyme table classifications is assumed to be identical to that recorded in the *Qièyùn*, then once an interpretation of the divisions is arrived at, the *Yùnjìng* can be employed as a key to the phonology of the *Qièyùn*. This in fact was Karlgren's approach. But the spatial and temporal distances separating the *Qièyùn* and the *Yùnjìng* cast doubt on Karlgren's assumptions.

On the question of medials, which is the topic of my study, the interpretation of the divisions of the MC rhyme tables is particularly relevant. Based on distinctions in the modern Chinese dialects, Karlgren argued that first division vowels are back and did not cause palatalization, that second division vowels were front and caused some palatalization, and that third and fourth division vowels had a palatal on-glide which regularly caused palatalization. To identify a distinction between third and fourth division rhymes, Karlgren looked to Sino-Korean forms, which have a palatal on-glide in fourth division words but not in third division words. He concluded that the fourth division on-glide must have been a stronger, more vocalic **-i-** as opposed to a weaker, more glide-like third division **-i̯-** (i.e. [-j-]). The former was retained in Sino-Korean while the latter disappeared. This analysis is also consistent with the distributional patterns of the palatal affricate and fricative initial consonants of Middle Chinese, which occur only with third division rhymes.

In recent decades Karlgren's methodology and his conclusions have come under attack from several quarters. The nature of the divisions remains controversial; specific points of contention will be raised below when Pulleyblank's Middle Chinese reconstruction is discussed in Section 2.2.1. Moreover, the relationship between the language represented by the *Qièyùn* and that recorded in the rhyme tables is now viewed as considerably more complex than Karlgren was aware, and this in turn has serious repercussions for our understanding of the nature of Middle Chinese as a whole.

For more detailed descriptions of the sources of Middle Chinese and of the questions regarding their interpretation, see Pulleyblank 1984:61-63, 133-136; Norman 1988:24-34; and Baxter 1992:32-44.

1.11 The STEDT database

The STEDT project, under the direction of James A. Matisoff, has been ongoing at the University of California at Berkeley since 1987. Its goal is the publication of a multi-volume etymological dictionary of Proto-Sino-Tibetan arranged by semantic category, the

Sino-Tibetan Etymological Dictionary and Thesaurus (STEDT). To date the project has produced a number of monographs (e.g. Namkung 1996), and the first volume of STEDT proper (Matisoff to appear) will be published in 1999. One of the major accomplishments of the project has been the creation of a massive etymological database containing lexical items from hundreds of Tibeto-Burman languages. As of this writing the lexicon contains over 375,000 items, and the etyma file holds over 2,000 PTB roots.[16]

The data sources for the STEDT database include published dictionaries, grammars, and wordlists, etymological studies (such as Benedict 1972), and linguistic "questionnaires" distributed to language scholars and fieldworkers. (For more information on the contents of the STEDT database, see the introduction to Namkung 1996.)

The bulk of the work of the STEDT project involves etymologization of the lexicon, a task carried out by Matisoff. Each reconstructed root has been assigned a "tagging number", a unique identification code. All morphemes in the lexicon which reflect this root are "tagged" with the code, thus specifying its etymological affiliation. A cognate set is generated by collecting all of the lexical items which have been tagged with a particular code. Computerization has facilitated this work to a great degree, but it is still a slow and painstaking job which remains dependent on Matisoff's expertise.

My affiliation with the project stems from my employment as a graduate student research assistant there from 1991 to 1997. It was originally my hope that this study could employ, for purposes of comparison with Chinese, the complete list of newly identified or revised PTB roots which result from the etymologization of the STEDT lexicon. Unfortunately, at this time only a very small fraction of the STEDT database has been processed. The sections of the database relating to the human reproductive system, the subject of the first STEDT volume, are the most thoroughly analyzed. A good deal of work has been done in the more general area of human body parts, the first object of study of the STEDT project. Beyond this semantic area, the bulk of the database remains to be etymologized.

[16]A release on CD-ROM of the database (Matisoff 1999) is planned in the near future.

This means that it is not practical to restrict my use of the database to citations of PTB roots. In order to make more meaningful comparisons with Chinese, it has been necessary to include "raw" lexical data from TB languages. It should be stated from the outset that I have not acquired sufficient expertise in all languages and subgroups of Tibeto-Burman to make it feasible for me to carry out full-scale etymologization, in order to reconstruct new PTB roots based on the lexical data. Indeed, acquiring such expertise is a lifelong endeavor. And even with Matisoff's vast familiarity with the field, the process of etymologization itself has proved to be a decades-long process.

The practical upshot of this is that I have chosen to concentrate on a few TB languages which have not been widely used in comparison with Chinese, and which have been chosen for their "diagnostic" ability to make distinctions among PTB features which have not been as well preserved in Tibetan and Burmese. In particular, I have focused on languages which are of use in distinguishing among medial elements ***-r-**, ***-l-**, ***-j-**, ***-w-**. Cognate forms from these languages are cited as supplements to, or in place of, PTB roots in comparison with Chinese.

Even with these diagnostic languages, cognates are often difficult to identify. The data sources on these languages generally contain on the order of 1,000 common words, a very small number when compared with the contents of Chinese, Tibetan, and Burmese dictionaries. When cognates are identified, however, they can be illuminating. The diagnostic languages and their properties are discussed in Chapter 3.

One challenge which the STEDT database presents to the researcher is the problem of attribution. It is often the case that two, three, or four different sources on the same language are included in the database, and some or all might employ different methods of transcription. While internal record-keeping within the database itself is strictly maintained, providing the proper attributions for all forms cited in a scholarly paper can be a logistical and aesthetic nightmare. Indeed, in one recent publication, Matisoff (1994:137) eschewed

individual attributions of cited forms, noting only that "[t]hey are all to be found in the STEDT database."

I have included in an appendix the sources for most languages which are cited in this study, and have done my best to enable the reader to identify the original source of any particular cited form. I hope that this system of attribution will not prove too burdensome.

1.12 Other data sources

A number of other data sources of potential use in the reconstruction of Old Chinese medials are not extensively included in this study. Among them are Tai and Miao-Yao borrowings, and Min dialect data.

Advances continue to be made in the reconstruction of Proto-Miao-Yao, which are enabling refinements to be made to the older systems proposed by Purnell (1970) and Wáng Fǔshì (1979). (See Solnit 1996 as an example.)

Jerry's Norman's reconstruction of Proto-Min (Norman 1973, 1974, 1981, 1986) offers another avenue of exploration for the reconstruction of Old Chinese medials, but the integration of Min data is outside the scope of this work, and must remain a subject for future study.

1.13 Orthographic and other conventions

When working with multiple sources, the transcription of languages threatens to become a typological nightmare. There are several competing transcriptions of Written Tibetan and Written Burmese in use, which differ in both minor (e.g. the use of *ṅ* vs. *ng* vs. *ŋ*) and major ways (e.g. the transcription of vowels in WB). Rather than run the risk of introducing errors by attempting to convert all cited forms to a single standard, I have generally left WT and WB transcriptions in the forms supplied by the various sources consulted. In most cases the correct interpretation of these forms should not prove difficult; where I felt ambiguity might be a problem, I have revised or commented on the transcription.

Similar transcriptional discrepancies exist to a lesser extent with some of the other languages cited. The reader is advised to turn back to the original source in the event that a form requires clarification, or to consult Namkung 1996 for a detailed explanation of the orthographic conventions used in most of the data sources which appear in this study.

In general, the following orthographic conventions are observed:

- Reconstructed forms are given in ***boldface**. Middle Chinese forms, though they should technically be considered as reconstructed, appear without a preceding asterisk by convention. In tables and charts forms may appear unbolded to avoid clutter and save space.
- Middle Chinese forms are given according to Li 1971. Note that these reconstructions do not indicate tone.
- Attested forms are given in *italics*.
- Chinese terms are given in *pīnyīn* notation with tone marks; an attempt has been made to provide Chinese characters following the first appearance of any Chinese term.
- The names of Middle Chinese rhymes are Capitalized; the names of Old Chinese rhyme groups are given in SMALL CAPS.
- Where numbers preceded by the # sign appear in bibliographic citations, they refer to set or id numbers rather than to page numbers.

2 Previous Reconstructions of OC Medials

I will now analyze and evaluate the system of medials in a number of proposed reconstructions of Old Chinese. This overview is not comprehensive; a number of reconstructions which are still influential (for example that of Wáng Lì 1987) will not be treated here, since their treatment of medials overlaps with one or more of the other systems presented, without providing additional insights relevant to this study. The significant contributions of a number of other scholars (such as Yakhontov 1960, 1968, 1970) will be discussed in the context of other systems of reconstruction.

2.1 The system of Li Fang-kuei (1971/1976)

Li Fang-kuei's influential Old Chinese reconstruction was published in 1971, and supplemented with a 1976 article which revised one key element of the system. My analysis refers to Li Fang-kuei 1980, which collects these two earlier works into a single volume.[17]

2.1.1 Middle Chinese

As always, in order to understand Li's OC system, we must first investigate his assumptions about the nature of Middle Chinese. Li (1980:5) defined Middle Chinese as the language codified in the *Qièyùn*. He basically accepted Karlgren's Middle Chinese reconstruction (called "Ancient Chinese") intact, because "it already has been widely received [and] his reference books are available to us". However, Li made a few revisions to Karlgren's system. Orthographically, he revised Karlgren's turned apostrophe (representing aspiration) to **-h-**, and his medial **-i̯-** to **-j-**. In terms of *Qièyùn* rhymes, Li used medial **-j-** and **-ji-** to distinguish *chóngniǔ* third-division and fourth-division doublets, respectively, a distinction which Karlgren had failed entirely to account for. He also rewrote the reconstruction of a handful of rhymes to preserve some *Qièyùn*

[17]English translations appearing here are taken from Li 1974-75, an English translation by G. L. Mattos of Li 1971.

distinctions which were not present in Karlgren's system. As for the initials, Li made two fundamental changes: he revised Karlgren's series of voiced aspirates to simple voiced consonants, and he revised Karlgren's series of palatal stops (the *zhī* 知 series) to retroflexes.

Li's revision of Karlgren's Middle Chinese reconstruction still enjoys widespread currency. For this reason I reproduce it here in its entirety from Li 1980:7-8.

INITIALS

幫	p-	滂	ph-	並	b-	明	m-				
端	t-	透	th-	定	d-	泥	n-			來	l-
知	ṭ-	徹	ṭh-	澄	ḍ-	娘	ṇ-				
精	ts-	清	tsh-	從	dz-			心	s-	邪	z-
照二	tṣ-	穿二	tṣh-	床二	dẓ-			審二	ṣ-		
照三	tś-	穿三	tśh-	床三	dź-	日	ńź-	審三	ś-	禪	ź-
見	k-	溪	kh-	群	g-	疑	ng-	曉	x-	匣	ɣ-
影	·-	喻三	j-	喻四	ji-						

Notes:

- The *zhī* 知 series (**ṭ-**, etc.) are retroflex stops
- The *zhào-èr* 照二 series (**tṣ-**, etc.) are retroflex sibilants
- The *zhào-sān* 照三 series (**tś-**, etc.) are palatal sibilants; **ńź-** is a palatal nasal
- **ng-** is a velar nasal
- **·-** is a glottal stop

FINALS

		一等		二等		三等		四等	
果	開	歌	â	麻	a	麻	ja 歌 jâ		---
	合	戈	uâ	麻	wa	戈	juâ		---
遇		模	uo		---	魚	jwo		---
			---		---	虞	ju		---
蟹	開	咍	ậi	皆	ăi	祭	j(i)äi	齊	iei
	合	灰	uậi	皆	wăi	祭	jw(i)äi	齊	iwei
	開	泰	âi	夬	ai	廢	jɐi		---
	合	泰	wâi	夬	wai	廢	jwɐi		---
	開		---	佳	aï		---		---
	合		---	佳	waï		---		---
止	開		---		---	支	j(i)ĕ		---
	合		---		---	支	jw(i)ĕ		---
	開		---		---	脂	(j)i		---
	合		---		---	脂	(j)wi		---

	開		---		---	之	ï		---
	開		---		---	微	jěi		---
	合		---		---	微	jwěi		---
效		豪	âu	肴	au	宵	j(i)äu	蕭	ieu
流		侯	ǒu		---	尤	jǒu		---
			---		---	幽	jiǒu		---
咸		談	âm	銜	am	鹽	j(i)äm	添	iem
		覃	ậm	咸	ǎm	嚴	jɐm		---
			---		---	凡	jwɐm		---
深			---		---	侵	j(i)əm		---
山	開	寒	ân	刪	an	仙	j(i)än	先	ien
	合	桓	uân	刪	wan	仙	jw(i)än	先	iwen
	開		---	山	ǎn	元	jɐn		---
	合		---	山	wǎn	元	jwɐn		---
臻	開	痕	ən		---	欣	jən		---
	合	魂	uən		---	文	juən		---
	開		---		---	真	j(i)ěn		---
	合		---		---	諄	ju(i)ěn		---
	開		---		---	臻	jɛn		---
宕	開	唐	âng		---	陽	jang		---
	合	唐	wâng		---	陽	jwang		---
梗	開		---	庚	ɐng	庚	jɐng	青	ieng
	合		---	庚	wɐng	庚	jwɐng	青	iweng
	開		---	耕	ɛng	清	jäng		---
	合		---	耕	wɛng	清	jwäng		---
曾	開	登	əng		---	蒸	jəng		---
	合	登	wəng		---		---		---
通		東	ung		---	東	jung		---
		冬	uong		---	鍾	jwong		---
江			---	江	ǻng		---		---
咸		盍	âp	狎	ap	葉	j(i)äp	帖	iep
		合	ập	洽	ǎp	業	jɐp		---
			---		---	乏	jwɐp		---
深			---		---	緝	j(i)əp		---
山	開	曷	ât	鎋	at	薛	j(i)ät	屑	iet
	合	末	uât	鎋	wat	薛	jw(i)ät	屑	iwet
	開		---	黠	ǎt	月	jɐt		---
	合		---	黠	wǎt	月	jwɐt		---
臻	開	沒	ət		---	迄	jət		---
	合	沒	uət		---	物	juət		---
	開		---		---	質	j(i)ět		---
	合		---		---	術	ju(i)ět		---
	開		---		---	櫛	jɛt		---
宕	開	鐸	âk		---	藥	jak		---
	合	鐸	wâk		---	藥	jwak		---

梗	開		---	陌	ɐk	陌	jɐk	錫	iek
	合		---	陌	wɐk	陌	jwɐk	錫	iwek
	開		---	麥	ɛk	昔	jäk		---
	合		---	麥	wɛk	昔	jwäk		---
曾	開	德	ək		---	職	jək		---
	合	德	wək		---	職	jwək		---
通		屋	uk		---	屋	juk		---
		沃	uok		---	燭	jwok		---
江			---	覺	åk		---		---

Notes:

• **â** is [ɑ]
• **ä** is [æ]
• **å** is [ɔ]
• **ï** is [ɨ]
• **v̆** or **ẓ** indicates a lax or centralized vowel

The features of this Middle Chinese reconstruction which are most important for the reconstruction of Old Chinese medials are the following:

1) First-division vowels are back and second-division vowels are front.

2) Fourth-division rhymes are distinguished by the presence of medial **-i-**.

3) Third-division rhymes are distinguished by the presence of medial **-j-**. *Chóngniǔ* fourth-division rhymes (which are, broadly speaking, in the third division) are written with medial **-ji-**.[18]

4) The labiovelar medial **-w-** (sometimes written **-u-**) occurs in all four divisions.

5) The retroflex initials (*zhī* 知 series and *zhào-èr* 照二 series) occur only with second-division and third-division rhymes.

6) The palatal initials (*zhào-sān* 照三 series) occur only with third-division rhymes.

7) The dental stops (*duān* 端 series) occur only with first- and fourth-division rhymes.

8) The dental affricates and fricatives (*jīng* 精 series) do not occur in second-division rhymes.

[18]Li indicates that **-ji-** is merely a notational device for marking the *chóngniǔ* doublets, and is not meant to represent any particular phonetic realization. However, his Old Chinese reconstructions suggest that in practice he considered Middle Chinese medial **-ji-** as a real entity, a medial glide whose palatalizing effect was tempered by a strong vocalic feature.

2.1.2 Old Chinese

Li's Old Chinese reconstruction is based on a few simple principles:

1) *The single-vowel principle*: Each of the traditional rhyme groups of Old Chinese (ascertained based on analysis of *Shījīng* rhyming patterns) should be reconstructed with a single main vowel.

2) *The homorganic principle*: In phonetic series, only consonants sharing the same place of articulation may alternate. (Or, in the case of initial clusters, one element of the cluster must share the place of articulation.) Stops seldom alternate with fricatives and affricates; nasals seldom alternate with orals.

3) Only words in the same rhyme group may occur in phonetic series.

4) *The regularity principle*: All initial and rhyme distinctions found in Middle Chinese must be accounted for by distinctions in Old Chinese according to the fundamental principles of regular conditioned sound change.

Working from these principles[19], from the patterns of complementary and near-complementary distribution found in Middle Chinese, and from the insights of previous scholars[20], Li Fang-kuei reconstructed an Old Chinese phonological system with just four main vowels (***a**, ***ə**, ***i**, ***u**) but having a rich system of medials and diphthongs.

Our discussion of Li Fang-kuei's system will be longer than those of other scholars, since we will find it necessary to introduce and explain a number of topics and issues which will also figure in subsequent discussions. For example, the four principles listed

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[19]The regularity principle is of course accepted by all modern linguists. The single-vowel principle, which is actually a hypothesis regarding the rhyming practices of the authors of the *Shījīng* poems, is generally accepted by most scholars. The assertion that only words in the same rhyme group may occur in phonetic series is essentially a demonstrable fact, with a few exceptions that adhere to certain patterns. The homorganic principle is more of a working hypothesis, and the assumptions behind it can and have been questioned. Why, for example, did the ancient composers of Chinese characters apparently ignore distinctions of aspiration, voicing, and tone when choosing phonetic elements? The answer to this question touches on issues of word formation, the nature of cluster initials, and many other fascinating questions.
[20]The proposals of Yakhontov (1960) and Pulleyblank (1962) appear to have been particularly influential.

above have been accepted with little modification by all the other scholars whose systems will be discussed here.

2.1.3 Medial *-j-

Li followed Karlgren and Tung T'ung-ho (1944) in reconstructing medial ***-j-** in Old Chinese as the direct source of third-division rhymes with medial **-j-** in Middle Chinese. At the same time, this medial accounted for a number of consonantal and vocalic developments in accordance with the single-vowel and homorganic principles.

For example, within a single phonetic series we often find alternation between Middle Chinese dental stops (*duān* 端 series) and palatal affricates (*zhào-sān* 照三 series). According to the homorganic principle, in Old Chinese these initials should all have the same place of articulation and should be either all stops or all affricates. Furthermore, these two series are in complementary distribution in Middle Chinese, with the palatal affricates occurring only in third-division rhymes and the dental stops never occurring in third division.

The solution that accounts for all these facts is to reconstruct the Middle Chinese palatal affricates as Old Chinese dentals. Under the influence of medial semi-vowel ***-j-**, these dentals palatalized:

***tj-**, ***thj-**, ***dj-** > **tśj-**, **thśj-**, **dźj-** (third division)

But when followed directly by a vowel, they remained dental stops:

***t-**, ***th-**, ***d-** > **t-, th-**, **d-** (first and fourth division)

As an example, consider the reconstruction of the following characters from a single phonetic series:

	真	瞋	顛	填
MC	tśjěn	tśhjěn	tien	dien
OC	*tjin	*thjin	*tin	*din

In terms of vowels, the reconstruction of ***-j-** allows adherence to the single-vowel principle while providing a conditioning factor for the appearance of new rhyme

distinctions in Middle Chinese. For example, Middle Chinese first-division rhyme words in **-âu** (with a low back vowel) and third-division rhyme words in **-äu** (with a higher, front vowel) are both derived from the Old Chinese XIāO 宵 rhyme group with the single main vowel ***-a-**. Reconstructing medial ***-j-** accounts for the presence of the fronted, raised vowel in the Middle Chinese third-division reflexes:

高 *kag^{w} > kâu
驕 *kjag^{w} > kjäu

We can summarize the effects of Old Chinese medial ***-j-** in Li's reconstruction as follows:

1) Development of third-division rhymes with medial **-j-** in Middle Chinese

2) Raising and fronting of vowels in Middle Chinese third-division rhymes

3) Palatalization of Old Chinese dental stops and dental nasal

It is also worth noting at this point some effects that medial ***-j-** did NOT have:

1) No effect on Old Chinese rhyming

2) No effect on phonetic elements in Chinese characters; in other words, words with and without medial ***-j-** occur in the same phonetic series

3) No palatalizing effect on dental affricates and fricatives ***ts-** etc.

Finally, we should note one peculiar and unexpected effect of medial ***-j-**. The Middle Chinese initial **g-** occurs only in third division, so is in complementary distribution with initial **ɣ-** which occurs only in the other divisions. Furthermore, these initials alternate in phonetic series. These facts suggest a common origin, and Li reconstructs ***g-** with the following development (1980:18):

***g-** + **-j-** (third division) > **g-** + **-j-** (奇 *gjar > gjĕ)
***g-** (first, second, fourth division) > **ɣ-** (何 *gar > ɣâ)

Structurally there is no problem here, but in terms of phonetic plausibility the weakening of ***g-** except before ***-j-** may appear implausible. However, Pulleyblank (1965:202) has noted a parallel in Turkish, which has both velar and uvular consonants. Voiceless stops

([k] and [q]) occur in both series, but the velar series contains only a voiced stop [g] and the uvular series a voiced fricative [ʁ].

A similar situation is found in Ingush, a North-East Caucasian language, which has velar consonants [k], [g], [x] and uvulars [q], [ʁ]. The situation in Lahu, a Lolo-Burmese language, is a bit different in that there exists a velar fricative [ɣ], but here too the velar/uvular contrast found in the stop pairs [k]/[q] and [kh]/[qh] is absent in the voiced series, where there is only [g].[21]

This suggests that there may be a universal tendency for a backed voiced velar stop to spirantize more easily than a front velar stop.

2.1.4 Medial *-r-

The reconstruction of Old Chinese medial ***-r-** may be traced to the seminal discoveries of Yakhontov (1960). Yakhontov noted three significant facts: first, that in Middle Chinese there are, with few exceptions, no second-division words with initial **l-**.[22] Second, **l-**initial words often occur in phonetic series with second-division words, but seldom with first-division words.[23] Third, characters representing words with initial **l-** may have alternate second-division readings with other initials.[24]

Motivated by these observations and by a version of the single-vowel principle, Yakhontov proposed an Old Chinese medial ***-l-**, which could combine with various initials to form clusters like ***pl-**, ***kl-**, etc. This medial was the source of second-division rhymes in Middle Chinese, and accounted for contacts in phonetic series

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[21]The data on Ingush comes out of my own fieldwork on the language. See also Nichols 1994. For more information on Lahu phonology, see Matisoff 1988.

[22]There are only three exceptions: 冷 **lɐ̆ng** ‘cold’, 犖 **lǎk** ‘mottled cattle’, **lǎm** ‘vinegar-flavored’. Gong Hwang-cherng (p.c.) notes that irregular pronunciations may be the result of analogy within a rhyming binome. For example, 犖 is synonymous with 駁 **pǎk** ‘mottled’ and occurs in the binomes 駁犖 and 駁犖. These originally rhymed in Old Chinese as ***prak^{w}-rak^{w}** (and vice versa); the regular development would be Middle Chinese **pǎk-lâk**, but analogy led to the Middle Chinese reading **lǎk** for 犖.

[23]For example, consider 里 (initial **l-,** third division) and 埋 (initial **m-**, second division; 覽 (initial **l-**, first division) and 監 (initial **k-**, second division).

[24]For example, 龍 has readings **ljwong** (third division) and **mǎng** (second division).

with **l-**initial words. The impossibility of an ***ll-** cluster explains the lack of second-division **l-**initial words.

Yakhontov bolstered his argument by providing words in Tibetan, Burmese, and Thai with medial **-r-** or **-l-** which appear to be related to Chinese second-division words. And he further argued that the Middle Chinese retroflex affricates and fricatives (*zhào-èr* 照二 series) were derived from original clusters of the type ***tsl-**, which explains why these initials occur only in second- and third-division words.

Finally, Yakhontov claimed that initial clusters with ***-l-** also occurred in words which became Middle Chinese third-division (since these words may also alternate with **l-** in phonetic series), but that the ***-l-** dropped without any trace effects on the vowel.

Yakhontov's proposal had a profound effect on subsequent scholarship. For the first time, it allowed for Old Chinese formulations which were consistent with the single-vowel principle. As Yakhontov said, "The Middle Chinese distinction between first- and second-division rhymes has no relationship to the rhyme groups of Old Chinese. A single rhyme group usually has words in all four Middle Chinese divisions. This tells us that first- and second-division words could not have had different vowels, but must have diverged as the result of a medial element."

Li Fang-kuei's reconstruction of medial ***-r-** to account for the development of second-division rhymes was clearly influenced by Yakhontov. There are two main reasons why Li chose to reconstruct ***-r-** instead of ***-l-**. First, he had already proposed the reconstruction of initial ***r-** as the source of the Middle Chinese initials **ji-** (*yù-sì* 喻四) and **zj-** (*xié-mǔ* 邪母), so this phoneme was available in the phonological inventory. Second, he felt that ***-r-** accounted more naturally than ***-l-** for the retroflection of the initials occurring in second-division rhymes. Li also reconstructed a second set of cluster initials with ***-l-**, which will be discussed separately below.

As with medial ***-j-**, medial ***-r-** in Li's system accounts both for vocalic developments in accordance with the single-vowel principle, and for the distributional patterns of Middle

Chinese retroflex initials in accordance with the homorganic principle. It also explains the phonetic series contacts with initial **l-** noted by Yakhontov. (Li felt that ***l-** and ***-r-** were similar enough to account for these contacts.)

For example, in phonetic series it is common for dental stops (*duān* 端 series) to alternate with retroflex stops (*zhī* 知 series). This is because of the development

***tr-**, **thr-**, **dr-** > **ṭ-**, **ṭh-**, **ḍ-**

It is also common for dental affricates and fricatives (*jīng* 精 series) to alternate with retroflex affricates and fricatives (*zhào-èr* 照二 series). This is due to the development

***tsr-**, ***tshr-**, ***dzr-**, ***sr-** > **tṣ-**, **tṣh-**, **dẓ-**, **ṣ-**

The origin of these Middle Chinese retroflexes in Old Chinese medial ***-r-** also explains why these initials are never found in first and fourth division.

	濁	獨	捉	足
MC	ḍåk	duk	tṣåk	tsjwok
OC	*druk	*duk	*tsruk	*tsjuk

As for the unique vowels of Middle Chinese second-division rhymes, these can be explained as the result of a centralizing effect caused by medial ***-r-** before it was lost in the transition between Old and Middle Chinese.

We can summarize the effects of Old Chinese medial ***-r-** in Li's reconstruction as follows:

1) Development of second-division centralized vowels in Middle Chinese

2) Retroflection of Old Chinese dentals

In terms of phonetic series, medial ***-r-** could alternate with words having other medials or no medial. It also permitted alternation with words having initial ***l-**, in which case it functioned as part of a cluster initial as much as a medial element.

2.1.5 Medial *-rj-

In Middle Chinese, the retroflex initials (*zhī* 知 series and *zhào-èr* 照二 series) occur not only in second-division rhymes, but also in third-division rhymes, where they contrast

with dental and palatal initials (*jīng* 精 series and *zhào-sān* 照三 series). To account for this phenomenon, Li also reconstructed what might be called a complex medial, ***-rj-**. As simple medials, ***-r-** and ***-j-** effected the development of both Old Chinese initials and vowels. The cluster ***-rj-** had the same effect on initials as the simple medial ***-r-**, causing retroflection of dentals, and allowing for alternation in phonetic series with ***l-**. Its effect on vowels was the same as that of the simple medial ***-j-**, leading to the development of third-division rhymes with medial **-j-** in Middle Chinese.

	直	稙	德	犆
MC	ḍjək	ṭjək	tək	dək
OC	*drjək	*trjək	*tək	*dək

Since the ***-r-** component of ***-rj-** had no effect on vocalic development, Li only reconstructed it after initials which showed the effect of ***-r-**, namely the dentals. Since labial and velar initials were unaffected by the presence of ***-r-**, Li was not motivated to construct ***prj-**, ***krj-**, etc. in contrast to ***pj**, ***kj-**. This left a peculiar distributional gap in Li's Old Chinese reconstruction, as illustrated in the chart below.[25] A check mark indicates the existence of reconstructed syllables with the initial and medial of that row and column.

	*P-	*T-	*TS-	*K-	*K^{w}-
*-r-	√	√	√	√	√
*-j-	√	√	√	√	√
*-rj-	(*brj-)	√	√	(*grj-)	(*g^{w}rj-)[26]

Aware of this problem, Li in his 1976 supplement proposed reconstructing ***Krj-** initials to account for the significant number of phonetic series involving the alternation of velars with Middle Chinese palatals. He argued that all of these initials were originally velars in Old Chinese, thus satisfying the homorganic principle. The complex medial ***-rj-**

[25]Here and throughout I will often use capital letters as cover symbols for consonants sharing place and/or manner of articulation features. Thus ***P-** represents labial initials ***p-**, ***ph-**, ***b-**, ***m-**, ***T-** represents dental stops, ***TS-** represents dental affricates and fricatives, ***K^{w}-** represents labiovelars and labiolaryngeals, etc.

[26]Li's original reconstruction did have ***grj-**. ***brj-**, and ***g^{w}rj-**, which developed like ***r-** into Middle Chinese **ji-**.

acted like a super-palatalizer. The combined fronting effect of both medials caused the developments

***krj-**, ***khrj-**, ***grj-**, ***hrj- > tś-**, **tśh-**, **dź-** (**ź-**, **ji-**), **ś-**

(Li had earlier accounted for the phonetic series alternations by positing initial clusters ***sKj- > Tś-**.)

Li's arguments for this reconstruction were based almost entirely on structural grounds, and lacked any real phonological motivation.[27] Given that neither ***-r-** nor ***-j-** had any effect on the development of Old Chinese velars, there was little independent reason to suppose that ***-rj-** should have caused palatalization. Moreover, despite the distributional gaps noted by Li, he was unable to find any evidence for reconstructing ***Prj-** or ***K^{W}rj-** initials (aside from the ***brj-** and ***g^{W}rj-** initials already proposed in his original system). Taken together, these factors make Li's reconstruction of ***-rj-** after velars quite tenuous.

Based on Yakhontov's original motivation for reconstructing the medial, it would have made more sense to reconstruct ***-rj-** for third-division velar-initial words showing phonetic series alternation with **l-**initial words.[28] However, Li had already posited clusters of the type ***Klj-** to account for these, as we shall see in section 2.1.8.

The effects of Old Chinese medial ***-rj-** in Li's reconstruction are as follows:

1) Retroflection of Old Chinese dentals in the development of Middle Chinese third-division rhymes

2) Palatalization of velars (but not labiovelars).

2.1.6 Medials *-i-, *-ri-, *-ji-, and the *chóngyùn, chóngniǔ* and labiodentalization problems

In Li Fang-kuei's own terminology, ***-i-** is not considered a medial. He notes (1980:23) that "the [Middle Chinese] fourth division initials were exactly the same as those

[27]Li did provide a few characters having alternate Middle Chinese readings with **ji-** (*yù-sì* 喻四) and **dź-** or **ź-**. Since ***grj-** had already been reconstructed as one source of **ji-**, the possibility of ***grj-** > **dź-** thus presented itself.

[28]This line of reasoning was carried through by Pulleyblank, and will be discussed below. It is not clear why Li, who was aware of Pulleyblank's 1962 proposal, did not apply it.

which occur before first division finals, which clearly indicates that the fourth division medial *i* reconstructed by Karlgren was a vowel, since it did not have any effect on the initials. Consequently we shall not regard it as a medial but as a vowel ....” For the purposes of this study, however, we take a broader view of the concept of ‘medial’ and will treat **-i-** in the context of the medial system as a whole.

*Medial **-i-** and fourth division*

Karlgren reconstructed a medial **-i-** for all Middle Chinese fourth-division rhymes. Indeed, it is a defining characteristic of fourth division in his reconstruction, although a phonemic analysis might view it as redundant since all fourth-division rhymes also have main vowel **-e-**, which does not appear in any other divisions. One could thus rewrite Karlgren’s fourth-division **-ie-** as simply **-e-** without disturbing the structure of the phonological system. Li was aware of this, but thought it irrelevant to the work of reconstructing Old Chinese: “Those who have studied the *Ch’ieh-yün* system in recent times have adopted the view that there was essentially no medial *i* in fourth division rhymes. Perhaps this does not occasion any great difficulties where the *Ch’ieh-yün* system is concerned; from the standpoint of Archaic Chinese, however, the system must at least have had a vocalic *i* in the fourth division rhymes, which in turn would enable us to avoid many complex vocalic problems” (1980:23).

For those Old Chinese rhyme groups which have no first-division reflexes in Middle Chinese, namely the ZHēN 真, ZHĪ 脂, GēNG 耕, and JIā 佳 groups, Li simply reconstructed main vowel ***-i-**. When not preceded by medials ***-r-** or ***-j-**, the breaking of this vowel to **-ie-** accounts directly for the development of Middle Chinese fourth-division reflexes and explains the lack of first-division reflexes. For example, in the JIā 佳 group, *rù*-tone words we have the following developments:

***-ik > -iek**	fourth division	擊 *kik > kiek
***-rik > -ɛk**	second division	擘 *prik > pɛk
***-jik > -jäk**	third division	脊 *tsjik > tsjäk

But for the many rhyme groups which have both first-division and fourth-division reflexes (all of which have main vowels ***-a-** and ***-ə-** in Li's system), Li reconstructed medial ***-i-** to account for the Middle Chinese fourth-division rhymes. Consider for example these developments in the YōU 幽 group:

***-ək^{W} > -uok**	first division	告 *kək^{W} > kuok
***-rək^{W} > -åk**	second division	學 *grək^{W} > ɣåk
***-jək^{W} > -juk**	third division	竹 *trjək^{W} > tɟuk
***-iək^{W} > -iek**	fourth division	迪 *diək^{W} > diek

Note that the behavior of medial ***-i-** is quite different from medial ***-j-**. It has no effect on preceding dental initials. Moreover, in Li's system ***-i-** is not a medial in terms of syllable structure. It does not strictly contrast with medials ***-r-**, ***-j-**, and ***-rj-** as the examples above might suggest. As a member of diphthongs ***-ia-** and ***-iə-**, it may in fact be preceded by any of the three medials ***-r-**, ***-j-**, and ***-rj-**. Thus Li's Old Chinese system includes syllables like ***kjiəg**, ***priat**, ***srjiən**, etc. The combinations ***-ri-** and ***-ji-** are crucial components of Li's system which are used to account for a number of features in the development of Middle Chinese. They have also been a focus of criticism of Li's system, since they raise problems of phonetic plausibility and developmental regularity. Before discussing the motivations behind their reconstruction, we have to first review the Middle Chinese phenomena of rhyme splitting, *chóngniǔ*, and labiodentalization.

*Medial ***-i-** and the Middle Chinese* chóngniǔ *distinction*

The term *chóngniǔ* refers to a contrast found in Middle Chinese among third-division syllables having the same rhyme and initial, and having no *kāikǒu/hékǒu* distinction. Karlgren's Middle Chinese reconstruction ignored this contrast, but Li's revised MC reconstruction set up two third-division medials, **-j-** and **-ji-**, to account for it. Thus the two Xiān 仙 rhyme *qù*-tone words 弁 and 便 are reconstructed **bjän** and **bjiän** respectively, and the two Xiāo 宵 rhyme *shǎng*-tone words 表 and 褾 are reconstructed **pjäu** and **pjiäu** respectively. The medial **-ji-** is supposed to account for the fact that the

word is third-division (thus the **-j-**) yet has features making it similar to fourth-division words (thus the **-i-**). The obvious difficulty of proposing that a language could effectively distinguish **bjV-**, **bjiV-**, and **biV-** was simply felt to be unavoidable because of the intractable nature of the so-called "*chóngniŭ* problem".

In cases where Middle Chinese *chóngniŭ* distinctions arose from a single Old Chinese rhyme group[29], Li simply pushed back this **-j-**/**-ji-** distinction into Old Chinese, setting up a contrast between ***-jV-** and ***-jiV-** after labial, velar, and glottal initials. Consider these examples from the XIāO 宵 rhyme group:

***-ag^{W} > -âu**	first division	高 *kag^{W} > kâu
***-rag^{W} > -au**	second division	巢 *dzrag^{W} > dẓau
***-jag^{W} > -jäu**	third division (cn-3)[30]	表 *pjag^{W} > pjäu
***-jiag^{W} > -jiäu**	third division (cn-4)	標 *pjiag^{W} > pjiäu
***-iag^{W} > -ieu**	fourth division	僚 *liag^{W} > lieu

(We will see below, however, that in fact the XIāO 宵 group is the only one for which Li was able to account for the *chóngniŭ* contrast in such a straight-forward manner.)

Like the Middle Chinese reconstruction, this Old Chinese reconstruction can be criticized for artificiality. One might attempt to sidestep this problem by arguing that this is simply a notational device for recording a distinction whose phonetic nature is as yet unknown. One difficulty with this argument is that if the reconstructed phonological system and syllable structure cannot account for the distinction except in a clearly artificial manner, this may indicate a fundamental flaw in the reconstruction as a whole. In other words, future replacement of the notational device with an actual reconstructed distinction may require more than simple substitution; it may require a revamping of the system as a whole.

In the context of Li's Old Chinese reconstruction, this solution to the *chóngniŭ* problem presents an even more immediate difficulty, however, since it leads to direct contradictions. For example, in rhyme groups with main vowel ***i**, it is not possible to set up a distinction

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[29]In some Middle Chinese rhymes, the *chóngniŭ* doublets have their origins in a single Old Chinese rhyme group; in some, they have their origin in distinct Old Chinese rhyme groups, and in some they originate in a combination of the two.

[30]Here *cn-3* stands for *chóngniŭ* third-division and *cn-4* stands for *chóngniŭ* fourth-division.

between ***-jV-** and ***-jiV-**, and so there is no way to account for *chóngniǔ* distinctions in rhymes descended from the ZHĪ 脂, ZHēN 真 and JIā 佳 groups. For example, Li gives 眉 ***mjid** > **mji** (III-3) but 匕 ***pjid** > **pi** (III-4). Other types of contradictions will be discussed below.

*Medial ***-i-** and rhyme splitting*

"Rhyme splitting" (*chóngyùn*, literally "double rhymes") refers to the fact that a single Old Chinese rhyme group may have more than one Middle Chinese rhyme reflex of the same division. The number of Middle Chinese rhymes is much greater than the number of Old Chinese rhyme groups. We have seen that the reconstruction of medial elements in Old Chinese can account for many of these splits, with each medial type conditioning a different Middle Chinese division. But this is not enough to account for all the splits. For example, the YUáN 元 group of Old Chinese (with main vowel ***-a-**) has reflexes in two different Middle Chinese second-division rhymes, Shān 刪 **-an** and Shān 山 **-ǎn**. According to the single-vowel principle, both must be reconstructed with the same main vowel ***a**. Since both are second-division rhymes, they must both be reconstructed with medial ***-r-**. How then to account for the split? Li reconstructs contrasting vowels ***-a-** and ***-ia-** after medial ***-r-**; or, in our terms, reconstructs contrasting medials ***-r-** and ***-ri-** before ***-a-**. The presence of ***-i-** conditions the development of a higher vowel:

***-ran > -an**	second division	刪 *sran > ṣan
***-rian > -ǎn**	second division	山 *srian > ṣǎn

The same device is used for third-division rhyme splits. The YUáN 元 group also has two different Middle Chinese third-division reflexes, the Yuán 元 **-ɐn** and Xiān 仙 **-än** rhymes. These are accounted for by reconstructing ***-jan** for the former and ***-jian** for the latter:[31]

***-jan > -jɐn**	third division	軒 *xjan > xjɐn
***-jian > -jän**	third division	嘕 *xjian > xjän

[31]But only after grave initials. See below.

This solution leads however to a contradiction. The ***-j-/*-ji-** distinction is used to account both for third-division rhyme splits and for third-division *chóngniǔ* contrasts. In syllables with labial, velar, and glottal initials, this implies a structural three-way contrast: a single Old Chinese group may have reflexes in Middle Chinese third-division rhymes A and B, and rhyme B may in turn have a *chóngniǔ* contrast.[32] This is precisely the case with the YUáN 元 group, since the Middle Chinese Xiān 仙 **-än** rhyme contains a *chóngniǔ* distinction. If the Old Chinese medial distinction ***-j-/*-ji-** is used to account for the rhyme split, it cannot also be used for the *chóngniǔ* contrast; conversely, if it used to account for the *chóngniǔ* contrast, it cannot be used to condition the rhyme split. In the case of the YUáN 元 group, Li has chosen to account for the rhyme split, and has left the *chóngniǔ* distinction unexplained.

***-an > -ân**	first division	難 *nan > nân
***-ran > -an**	second division	刪 *sran > ṣan
***-rian > -ăn**	second division	山 *srian > ṣăn
***-jan > -jɐn**	third division	軒 *xjan > xjɐn, 反 *pjanx > pjwɐn
***-jian > -jän**	third division (cn-3)	弁 ***bjian** > bjän, 褰 ***khjian** > khjän
***-jian > -jiän**	third division (cn-4)	便 ***bjian** > bjiän, 遣 ***khjianx,h** > khjiän
***-ian > -ien**	fourth division	見 *kian > kien

This is a direct violation of the regularity principle. It should be noted, however, that at the level of the individual syllable it is very difficult to find a minimal three-way contrast among the Middle Chinese third-division rhymes (**-jɐn**, **-jän**, **-jiän**). (Among acute-initial syllables we do not even find a single two-way contrast.[33]) In fact, only with initial **k-** do we find such a contrast. This (near-)complementary distribution, which Li did not apparently take into account, opens up several possibilities for resolving the contradiction. But it is not possible to do so in a consistent manner employing only the medial ***-ji-**.

[32]In theory a four-way contrast is possible, but in fact it is never the case that rhymes A and B both have a *chóngniǔ* contrast. This is not an accident, as we shall see.

[33]This is because the Yuán 元 rhyme lacks any acute-initial words. And since there are no *chóngniǔ* doublets among acute initials, there is only one set of acute-initial words in the Xiān 仙 rhyme. Li therefore simply reconstructs ***-jan** > **-jän** after dentals, with no ***-j-/*-ji-** contrast. The fact that Old Chinese initials, as well as medials, may affect the development of vowels is not explicitly stated by Li. The different effects of grave and acute initials on vocalic development becomes central in Baxter's reconstruction.

Rhyme splitting is largely confined to second- and third-division rhymes. In the few cases where it occurs in first-division rhymes, Li cannot employ the ***-V-/*-iV-** distinction, since as we have seen the latter would give rise to a Middle Chinese fourth-division rhyme. In the case of the Old Chinese TáN 談 rhyme group, the traditional analysis of the rhyme groups—the legacy of the Qīng dynasty philologists—holds that it includes words found in two Middle Chinese first-division rhymes: the Tán 談 rhyme (in its entirety) and the Tán 覃 rhyme (in part; the rest derived from the Old Chinese QĪN 侵 group).[34] Li, however, assigns all of the Tán 覃 rhyme to the QĪN 侵 group (1980:28). This eliminates the first-division rhyme split.[35]

In the case of the ZHĪ 之, XIāO 宵 and YōU 幽 groups, each contains words from two different first-division Middle Chinese rhymes. Most ZHĪ 之 group words with no medial develop into Middle Chinese Hāi 咍 (*kāikǒu*) and Huī 灰 (*hékǒu*) rhymes, but some words with labial initials enter the Hóu 侯 rhyme. Li can find no explanation (1980:38) to explain the split. A similar problem occurs with labial-initial words in the XIāO 宵 group (*rù*-tone only), but in these cases many of the words have multiple readings in Middle Chinese and Li ascribes the various reflexes to dialect mixture (1980:62). Labial-initial words are again the trouble-makers in the YōU 幽 group, where some develop irregularly into the Hóu 侯 rhyme instead of the expected Háo 豪 rhyme.

*Medial ***-i-** and labiodentalization*

The third function of medial ***-ji-** in Li's system is related to the labiodentalization of bilabial initials in Middle Chinese. In the *Qièyùn* there is no evidence for more than one series of labial initials **p-**, **ph-**, **b-**, **m-**. By the time of the rhyme tables, however, a series of labiodentals appears in some third-division rhymes. These labiodentals are clearly derived from the earlier bilabials, but the conditioning factors accounting for the change are

[34]For a summary of the work of the Qīng philologists in refining the rhyme groups of Old Chinese, see Baxter 1992:139-174. Note that the chart on page 148 lists only the Tán 談 rhyme under the TáN 談 group, while the chart on page 537 lists both Tán 談 and Tán 覃.
[35]The treatment of the parallel *rù*-tone groups is identical.

not easy to pin down. In general, labiodentalization seems to have occurred in the presence of medial **-j-** and a back vowel (Baxter 1992:72-3, 189-191). But this formulation is difficult to make precise, and there are a number of exceptions. Li argued that the conditioning factors for labiodentalization were medial **-j-** and an allophonically conditioned rounded feature **-^{w}** of the labial initial, which was in turn conditioned in a rather complex (and phonetically not entirely plausible) way. The rules for rounding and labiodentalization can be formulated as follows (Li 1980:77):

1. ***p-** > **p^{w}** / ___ {**u**,**o**}, ___ **V**{**n**,**t**}, ___ **jV**{**m**,**n**,**ng**,**p**,**t**,**k**,**i**,**u**}

(***p** becomes rounded before a rounded element, before a vowel followed by **-n** or **-t**, or before medial ***-j-**)

2. **p^{w}** > **f** / ___ **jV**{**m**,**n**,**ng**,**p**,**t**,**k**,**i**,**u**}

(the rounded allophone of /p/ became a labiodental before **-j-**)

Note that the first rule applies to Old Chinese forms (for reasons which will be explained shortly).

Even these complex rules were not descriptively adequate; a number of third-division labial initials failed to become labiodentals as predicted. To account for this, Li modified these rules to explicitly note that although ***p** became rounded before ***-jV**, it never became rounded before ***-jiV**. He then added a third rule:[36]

3. **-jiV** > **-jV**

It was then a matter of reconstructing ***-ji-** rather than ***-j-** in the appropriate places in Old Chinese to block rounding, which in turn prevented labiodentalization; the conditioning factor **-ji-** then disappears.

It has been argued that since labiodentalization is a phenomenon which occurred between the stages of Early and Late Middle Chinese, one should not need to take it into account in a reconstruction of Old Chinese. A counter-argument is that, if the conditions for the change were already in place by Early Middle Chinese, one should account for the

[36]All three of these rules are accompanied by additional exceptions, not listed here.

presence of those conditions in Old Chinese. Li claimed that "the change in rule 3 had already taken place during the *Ch'ieh-yün* period." This meant that Li had to account for these changes in his Old Chinese reconstruction.

If this seems confusing, there is a good reason for it. The conditioning factors proposed for labiodentalization by Li are overly complex, *ad hoc*, and peppered with exceptions. Later scholars have advanced simpler and more satisfying accounts of the phenomenon. For our present purposes, it is only necessary to realize that Li's medial ***-ji-** had to serve another purpose in his Old Chinese reconstruction, which was occasionally at odds with the other roles (accounting for rhyme splits and *chóngniǔ* doublets) described above. Indeed, in the earlier example

***-jian > -jän**	third division (cn-3)	弁 *bjian > bjän
***-jian > -jiän**	third division (cn-4)	便 *bjian > bjiän

the reconstruction of ***-ji-** in both words could be attributed to the fact that neither developed a labiodental initial, rather than to the fact that they entered the Xiān 仙 rhyme instead of the Yuán 元 rhyme. In either case, the reconstruction conflicts with the need to reconstruct ***-ji-** for *chóngniǔ* fourth-division words but simply ***-j-** for *chóngniǔ* third-division words.

*Medial ***-i-** and the development of ***g-***

Another function of the complex medial ***-ji-** in Li's system involves third-division developments of the Old Chinese velar initial ***g-**.

In Middle Chinese, **g-** (*qún-mǔ* 群母) and **j-** (*yù-sān* 喻三) both appear only with third-division finals, and both are in complementary distribution with **ɣ-** (*xiá-mǔ* 匣母) which never occurs with third-division finals. Karlgren supposed that **g-** and **ɣ-** were descended from a common source, while Tung T'ung-ho (1944) reconstructs **j-** and **ɣ-** as descended from a common source. Li's insight that most syllables with initial **j-** are

hékǒu[37] allowed him to place its origin in the labiovelar initial ***g^{W}-**, leaving **g-** and **ɣ-** as the only descendants of ***g-** (1980:18):

***g-** + ***-j-** > **g-** (third division only)
***g-** > **ɣ-** elsewhere (first, second, fourth division)

But since syllables with **g-** may be *kāikǒu* or *hékǒu*, a problem remains; how to determine when ***g^{W}j-** becomes **gjw-** and when it becomes **jw-**? Li's solution is:

***g^{W}-** + ***-j-** > **jw-** (third division only)
***g^{W}-** + ***-ji-** > **gjw-** (third division only)
***g^{W}-** > **ɣw-** elsewhere (first, second, fourth division)

Presumably, the strong vocalic element in ***-ji-** prevented the weakening of ***g^{W}-** to **j-** which otherwise occurred before ***-j-**.

But, as with the use of ***-ji-** to block labiodentalization, this use of ***-ji-** to block the weakening of ***g^{W}-** conflicts with other uses of ***-ji-**. In fact, it was precisely this type of difficulty which motivated Ting (1977-78) to revise Li's system by reconstructing initials ***ɣ-** and ***ɣ^{W}-** at the Old Chinese level in addition to ***g-** and ***g^{W}-**. Ting (1977-78:173-175) lists several cases where the need to reconstruct ***-j-** or ***-ji-** to account for a rhyme split prevents the use of the ***-j-**/***-ji-** contrast to explain the development of **g-** and **j-**. I list two words in the Middle Chinese Yóu 尤 rhyme by way of illustration:

舊 *g^{W}jəg > gjə̌u
又 *g^{W}jəg > jə̌u

According to his own criteria, Li should reconstruct 舊 **gjə̌u** as ***g^{W}jiəg**; but this is not an option since ***-jiəg** is the source of the Middle Chinese Zhī 脂 rhyme.

Medial ****-i-*** *and the development of* hékǒu *syllables*

Medials ***-i-** and ***-ji-** are also reconstructed in a small number of syllables with dental initials to condition the development of middle Chinese *kāikǒu* syllables. In the next

[37]There are a number of exceptions, which Li explained as resulting from dissimilation or the irregular development of high-frequency grammatical particles. As Ting (1977-78:173) has pointed out, these explanations do not always work.

section we will see that Li proposes a sound shift ***ə** > ***-uə** / **T ___ T** (where **T** represents a dental consonant) to explain the development of *hékǒu* syllables descended from the Old Chinese WēI 微 and WéN 文 groups (***-əd**/***-ət** and ***-ən** respectively). Although he doesn't mention it explicitly, his charts make it clear that this change does not occur in fourth-division words; that is to say, it does not occur when the vowel is ***iə** rather than simply ***ə**. For example, Li lists (1980:48-9) these words:

臀 *dən > duən (first division *hékǒu*)
殿 *diən > dien (fourth division *kāikǒu*)

We can describe the effect of medial ***-i-** here as blocking the sound shift (in addition to conditioning the development of a Middle Chinese fourth-division rhyme).

It turns out that Middle Chinese *kāikǒu* words descended from WéN 文 group words with dental initials are not so rare. (This is not true of the parallel WēI 微 group.[38]) In third-division rhymes, a number of contrasting syllables can be found. For example, we have the two WéN 文-group words 晨 **dźjěn** and 順 **dźjuěn**. To explain this contrast, Li again employs ***-i-** for its 'blocking' ability, reconstructing medial ***-ji-** for the first word and ***-j-** for the second:

晨 *djiən > dźjěn
順 *djənh > dźjuěn

Li (1980:50) justifies these reconstructions by noting the parallel to his use of ***-ji-** to block labiodentalization in labial-initial syllables.

(One might well ask whether a corresponding ***-r-**/***-ri-** contrast is necessary to explain the presence of second-division *kāikǒu* and *hékǒu* reflexes of these groups. Oddly enough, the WéN 文 group has no second-division words with dental initials, and the WēI 微 group contains only a handful, all *rù*-tone words, and all *hékǒu*. For example, 聒 **ṭwǎt**. Neither Li nor Baxter gives any examples of such words. The option of employing

[38]Baxter (1992:446ff) argues that the traditional division by Wang Li of the WēI 微 and ZHĪ 脂 groups needs modification. When this is done, the reflexes of the WēI 微 group parallel those of the WéN 文 group more closely, and *kāikǒu*/hékǒu contrasts are found in the WēI 微 group as well. (Baxter explains these contrasts by reconstructing both rounded and unrounded vowels ***u** and ***ɨ** for the WēI 微 and WéN 文 groups.)

***-i-** to block rounding is of course not available for explaining contrasts found in first-division words, and Li therefore labels as irregular the *kāikǒu* words such as 吞 ***thən** > **thən**.)

In sum, the medial ***-i-** in Li Fang-kuei's Old Chinese reconstruction has the following properties:

1) When not preceded by another medial, it conditions the development of Middle Chinese fourth-division rhymes with medial **-i-**. Unlike ***-j-**, it does not cause palatalization of initials.

2) When preceded by another medial (***-r-**, ***-j-**, or ***-rj-**), it sometimes conditions rhyme splits by additionally raising and fronting vowels.

3) In the cluster ***-ji-**, it contrasts with ***-j-** to produce the Middle Chinese *chóngniǔ* doublets after grave initials.

4) In the cluster ***-ji-**, it contrasts with ***-j-** after bilabials to block labiodentalization.

5) In the cluster ***-ji-**, it contrasts with ***-j-** to block the weakening of ***g^{w}-**.

6) It prevents the development of a rounded medial after dental initials in the WēI 微 and WéN 文 groups, whether by itself or in the cluster ***-ji-**.

As we have shown, functions (2)-(5) may conflict with each other, leading to contradictions. While it is a relatively simple matter to modify Li's system so that ***-ji-** is no longer needed for functions (4) and (5), reformulating the *chóngniǔ* problem to alleviate conflicts between (2) and (3) would require a major reworking of Li's Old Chinese system.

In addition to the problem just mentioned, the ***-ji-** vs. ***-j-** distinction also suffers from phonetic implausibility. I am unaware of any languages which can consistently distinguish between **jV**, **jiV**, and **iV** after all manner of initial consonants.

2.1.7 Medials *-^{w}- and *-u-

Simply stated, the traditional Chinese distinction between Middle Chinese *kāikǒu* and *hékǒu* syllables can be understood as reflecting the absence or presence of a rounded

medial element **-w-**.[39] In practice, a number of rhymes without such a medial, but with a back rounded vowel such as **-u**, are also considered to be *hékǒu* rhymes.

Li Fang-kuei hesitated to set up a similar opposition in Old Chinese, mainly because of distributional patterns among *kāikǒu* and *hékǒu* syllables in the Old Chinese rhyme groups from which they originate. Li observed that, across all the groups, a consistent contrast between *kāikǒu* and *hékǒu* is found only with velar initials. Syllables with labial initials may be either *kāikǒu* or *hékǒu* in Middle Chinese, but they do not contrast. And in most rhyme groups, only *kāikǒu* syllables are found with acute initials.

Accordingly, Li argued that Old Chinese had no generalized *kāikǒu*/*hékǒu* distinction, which is to say it had no medial ***-w-**. He established an Old Chinese labiovelar series ***K^{W}-** in contrast to the plain velar series ***K-** to account for the Middle Chinese contrasts found after velars and gutturals, arguing that the rounded feature of these initials was later re-analyzed as a vocalic feature, after which the two series of initials merged. Some labial-initial words developed allophonic rounding as a natural assimilatory process, and these later developed into Middle Chinese *hékǒu* syllables.[40]

A number of *kāikǒu*/*hékǒu* contrasts required other explanations. Contrasts are found in syllables with dental initials in the Old Chinese rhyme groups Gē 歌, YUáN 元, and Jì 祭, i.e. those having main vowel ***-a-** and dental endings ***-r**, ***-n**, and ***-d**/***-t** respectively. To account for this Li set up a diphthong ***ua** with limited distribution (which he ascribed to its probable origin in ***u**, which conditionally broke to ***ua** before dental endings)[41]. The contrast between ***-a-** and ***-ua-** before dentals explains the resulting *kāikǒu*/*hékǒu* contrasts in Middle Chinese.

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[39]As a notational device, this medial is sometimes written as **-u-** in Li's Middle Chinese orthography. **-w-** is used within a single *Guǎngyùn* rhyme which contains both *kāikǒu* and *hékǒu syllables*; **-u-** is used in rhymes that are purely *hékǒu*.

[40]We use the terms velar and labiovelar as cover terms including laryngeals and labiolaryngeals.

[41]Li was in essence accepting the possibility raised by Yakhontov (1960) that the origin of ***ua** was ***o**, but arguing that the breaking of this vowel had to precede the time of the *Shījīng* and thus of Old Chinese proper.

Middle Chinese *hékǒu* syllables are also found after dental initials in syllables descended from the Old Chinese Wēɪ 微 and WéN 文 groups (***-əd**/***-ət** and ***-ən** respectively). However, there are very few contrasting *kāikǒu* syllables. Li simply postulated that the emergence of medial **-w-** in this class of words was the result of a simple sound shift ***ə** > **-uə** / **T ___ T** (where **T** represents a dental consonant).[42]

One of the consequences of Li's approach is that the reconstruction of *hékǒu* labial- and velar-initial syllables in the Gē 歌, YUáN 元, and Jì 祭 rhyme groups becomes indeterminate. The origin of Middle Chinese **muât** might be either ***mat** or ***muat**; the origin of **kuân** might be either ***k^{w}an** or ***kuan**, or possibly even ***k^{w}uan** (although Li himself never referred to the third possibility). Indeed, Li took advantage of this ambiguity to reconstruct ***gjua-** instead of ***g^{w}ja-** to account for the Middle Chinese reflex **gjw-**, since ***g^{w}ja-** would give **jw-** (see the previous section). See, for example, the word 圈 ***gjuan** > **gjwɐn** and Li's explanation (1980:55-56).

Li doesn't explicitly reconstruct ***ua** after any grave initials aside from ***g-**, although his system might support such a possibility. For example, 䜌 ***luan** > **luân** is the phonetic in 蠻, which Li reconstructs ***mran**. The reconstruction ***mruan** is avoided, probably under the assumption that ***-u-** is not distinctive after labials.

In short, Li reconstructs medial ***-u-** only in the diphthong ***-ua-** to account for Middle Chinese *hékǒu* syllables in reflexes of Gē 歌, YUáN 元, and Jì 祭 group words with dental initials. The medial is highly restricted in distribution, occurring only after dental initials (and perhaps ***g-**) and only before finals ***-ar**, ***-ad**, ***-at**, ***-an**.

2.1.8 Medial *-l-

In Section 2.1.4 I described how Yakhontov reconstructed medial ***-l-** to simultaneously account for the development of Middle Chinese second-division rhymes, and to explain alternations in phonetic series between **l-** and other initials. Li Fang-kuei

[42]The number of exceptions is more significant than Li implied, however. See the previous section for more discussion.

revised Yakhontov's medial ***-l-** to ***-r-** in the former case, to account for the development of Middle Chinese second-division rhymes, and for the Middle Chinese retroflex initials in second- and third-division rhymes. But when syllables of other types show alternation in phonetic series with **l-**, Li Fang-kuei still reconstructed consonant clusters with ***-l-**.

The first proposal to reconstruct clusters like ***pl-**, ***kl-**, ***gl-** can be attributed to Karlgren, and such clusters have been a component of all major reconstruction systems proposed since. Karlgren proposed that ***Cl-** clusters became **C-** when ***C** was voiceless, and **l-** when ***C** was voiced, so that for example ***gl-** > **l-** and ***kl-** > **k-**.

In Li's system all examples of ***-l-** reconstructed by Karlgren in second-division syllables have been revised to ***-r-**, which is considered similar enough to initial ***l-** to have permitted alternation in phonetic series. There remain however a number of ***-l-** clusters which cannot be revised to ***-r-** in Li's system. Thus, for example, the following words were all originally reconstructed with ***-l-** medials by Karlgren. Only in second-division words has the medial been revised to ***-r-** by Li (1980:24):

各 *klak > kâk (first division)
洛 *glak > lâk (first division)
格 *krak > kɐk (second division)
客 *khrak > khɐk (second division)
略 *gljak > ljak (third division)

Li points out that Karlgren was not consistent in his reconstruction of ***-l-**; when Middle Chinese **l-** alternated with velars he tended to reconstruct ***gl-**, but when it alternated with labials he seldom reconstructed ***bl-**, preferring simply ***l-**. Li did little to improve on Karlgren in this regard.

There are also a few examples of second-division words which Li reconstructed with ***-l-** instead of ***-r-**. In these cases the effect of ***-l-** is identical to that of ***-r-**:

曬 *sligh > ṣaï
數 *sluk > ṣåk

Here ***sl-** is chosen over ***sr-** because of the presumed morphological function of prefixal ***s-**, which is thought to have been a separate morpheme.[43] When attached to an ***l-**initial word, it resulted in an ***sl-** cluster. (See, for example, Mei 1989.) The problem here is that we now have examples where medial ***-l-** conditions the development of second-division rhymes, and examples where it doesn't.[44]

The following list contains every example from Li 1971 of words reconstructed with medial ***-l-**:

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[43]曬 is reconstructed as both ***sligh** (1980:24-25) and ***srigh** (1980:68) by Li.

[44]Like many other minor inconsistencies in Li's medial system, this one disappears with the revision of Old Chinese ***l-** to ***r-** as the origin of Middle Chinese **l-**. The roots to which ***s-** is attached then become ***r-**initial, yielding ***sr-** clusters. For more on this see the discussion of Gong's system below.

六, 陸 *ljək^{w} (>*gljək^{w}) > ljuk	(third division)
謬 *mljiəg^{w}h > mjiǎu	(*chóngniǔ* fourth division)[45]
隆 *gljəng^{w} > ljung	(third division)
立 *gljəp > ljəp	(*chóngniǔ* third division)
泣 *khljəp > khjəp	(*chóngniǔ* third division)
蔺 *bləm > lậm	(first division)
林 *gljəm > ljəm	(*chóngniǔ* third division)
禁 *kljəm > kjəm	(*chóngniǔ* third division)
廩 *bljəmx > ljəm	(*chóngniǔ* third division)
稟 *pljiəmx > pjəm	(*chóngniǔ* third division)
品 *phljiəmx > phjəm	(*chóngniǔ* third division)
律 *bljət > ljuět	(*chóngniǔ* third division)
筆 *pljiət > pjět	(*chóngniǔ* third division)
吝 *mljiənh > ljěn	(*chóngniǔ* third division)
檢 *kljiamx > kjäm	(*chóngniǔ* third division)
驗 *ngljiamh > ngjäm	(*chóngniǔ* third division)
兼 *kliam > kiem	(fourth division)
各 *klak > kâk	(first division)
落 *glak > lâk	(first division)
略 *gljak > ljak	(third division)
涼 *gljang > ljang	(third division)
景 *kljiang > kjɐng	(third division)
樂 *nglak^{w} > lâk	(first division)
櫟 *ngliak^{w} (?) > liek	(fourth division)
鬲 *glik > liek	(fourth division)
曬 *slig > ṣaï	(second division)
數 *sluk > ṣåk	(second division)

As expected, ***-l-** does not occur in words which become second-division, with the exception of the ***s-**initial words mentioned earlier. The development ***Cl-** > **l-** (for voiced **C**) and ***Cl-** > **C-** (for voiceless **C**) is observed everywhere. Except for the ***s-**initial words, ***-l-** has no effect on either the medial or the vowel. The reconstruction of ***-l-** is motivated, in every example, by phonetic series connections with ***l-** rather than by direct phonological evidence.[46]

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[45]This is not strictly speaking *chóngniǔ* fourth-division. The Yóu 尤 rhyme contains words placed in the third division of the rhyme tables, while the Yōu 幽 rhyme contains words placed in the fourth division. There is reason to believe that the relationship between the two rhymes is the same as that between *chóngniǔ* third-division and fourth-division syllables, which is why Li reconstructs them as **-jə̆u** and **-jiə̆u** respectively. However, other evidence indicates (Gong 1996) indicates that it is the Yóu 尤 rhyme that should be identified with *chóngniǔ* fourth division and the Yōu 幽 rhyme with *chóngniǔ* third division.

[46]Ting Pang-Hsin (1978) has suggested minor revisions to Li's reconstruction of ***-l-** clusters, based on a more careful analysis of phonetic series. When a character with Middle Chinese initial **l-** occurs as the phonetic for characters with other initials, he reconstructs ***l-**; when it has as its phonetic a word with another initial, he reconstructs ***bl-** or ***gl-**.

A pattern worth noting is that, when words with medial ***-l-** develop into third-division rhymes with a *chóngniǔ* distinction, they always become *chóngniǔ* third-division words. Li apparently did not notice this pattern, which was observed by Pulleyblank (see below). If the medial ***-l-** were viewed as the conditioning factor for the *chóngniǔ* split, the ***-j-**/***-ji-** contrast would not be needed.

Finally, note that medial ***-l-** never occurs after dental initials. This is not surprising on purely articulatory grounds. In many languages (such as English) we find velars and labials clustering with ***-l-** but not dentals.

In sum, we can conclude that Li reconstructs medial ***-l-** in those words which

(a) alternate in phonetic series with Middle Chinese **l-** and are not reconstructible with ***-r-**; or

(b) alternate in phonetic series with **l-** and have prefix ***s-**

2.1.9 Other medial combinations

In general, the various medial elements described above could combine freely within a single syllable. In practice, some of these combinations occurred more frequently than others.

One combination which has not been explicitly mentioned, but is implied in the earlier discussion, is ***-rji-**. This occurs in Middle Chinese third-division words with retroflex initials, or with palatal initials of velar origin, in which ***-i-** must be reconstructed to account for rhyme splitting. For example, 車 ***khrjiag** > **tśhja**, 歙 ***hrjiəp** > **śjäp** (Li 1980:92-3), 鷙 ***trjiəd** > **ṭji**, 詵 ***srjiən** > **ṣjɛn**.

The labiovelar and labiolaryngeal series, as unitary consonantal phonemes, combine freely with any medial. This accounts for the development of Middle Chinese *hékǒu* syllables in all four divisions. Examples include

***K^{W}** + ***-r-** 繣 *h^{w}rik > xwɛk (second division)
***K^{W}** + ***-j-** 矍 *k^{w}jak > kwjak (third division)
***K^{W}** + ***-rj-** 營 *g^{w}rjing > jiwäng[47] (third division)
***K^{W}** + ***-ji-** 劌 *k^{w}jiadh > kjwäi (third division)
***K^{W}** + ***-rji-** no examples[48]
***K^{W}** + ***-i-** 蜎 *·^{w}ian > ·iwen (fourth division)
***K^{W}** + ***-l-** no examples

It is somewhat surprising that there are no examples of labiovelars combining with medial ***-l-**. This combination is not in theory excluded from the reconstruction system; any Middle Chinese velar-initial word in the first, third, or fourth division having phonetic series alternations with **l-** would be reconstructed ***K^{W}l-**.

The distribution of medial ***-u-** (as opposed to ***-^{W}-**) is limited to syllables with dental initials and finals and main vowel ***a**, but it too occurs with other medials:

***-r-** + ***-u-** 髮 *tsruar > tṣwa
***-j-** + ***-u-** 全 *dzjuan > dzjwän
***-rj-** + ***-u-** 轉 *trjuan > ṭjwän
***-ji-** + ***-u-** no examples[49]
***-rji-** + ***-u-** no examples[50]
***-i-** + ***-u-** no examples[51]
***-l-** + ***-u-** no examples

The many gaps reflect the limited and uneven distribution of *hékŏu* syllables in Middle Chinese. This may indicate either that medial ***-u-** did not combine with medials ***-ji-**, ***-rji-** and ***-i-** due to a phonotactic incompatibility between ***-u-** and ***-i-**, or that positing ***-u-** as the Old Chinese source of Middle Chinese *hékŏu* words is incorrect. This question will be explored further in the discussion of other reconstruction systems.

As we saw in the last section, medial ***-l-** does not combine with medial ***-r-** (for obvious reasons), but we do find examples of it occurring with ***-j-**, ***-ji-**, and ***-i-**.

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[47]***g^{w}-** is the only labiovelar or labiolaryngeal initial which combines with ***-rj-**. See Section 2.1.7.
[48]Syllables beginning with ***g^{w}rji-** > **jiw-** are theoretically possible.
[49]There is no contrast in Middle Chinese in split-rhyme words with apical initials. In other words, we don't find pairs like **tsjwän** vs. **tsjwɐn**. Thus the ***-j-** vs. ***-ji-** distinction is not employed in the Gē 歌, YUáN 元, and Jì 祭 rhyme groups following dental initials .
[50]See the previous footnote.
[51]The relevant fourth-division *hékŏu* rhymes do not have any words with apical initials. Thus the syllable **tien** exists but there is no corresponding **tiwen**.

2.1.10 Summary and critique of Li Fang-kuei's Old Chinese system of medials

Li Fang-kuei's reconstruction was a major milestone in the field of Old Chinese reconstruction. Its success can be attributed in large part to the elegance of its medial system, which allowed the complex consonantal and vocalic system of Middle Chinese to be reconciled with the much simpler Old Chinese systems indicated by the single-vowel and homorganic principles. Before Li, earlier scholars had had no choice but to violate one or both of these principles. In Li's words (1980:23), "the importance of these two medials [***-r-** and ***-j-**] can be viewed from two sides. On the one hand, they affected the initials, as a result of which they caused the simple initial system of Archaic Chinese to evolve into the comparatively complex system of *Ch'ieh-yün*. On the other hand, they affected the vowels, as a result of which they caused the simple vocalic system of Archaic Chinese to evolve into the complex vocalic system of *Ch'ieh-yün*.".

This is not to say that Li's reconstruction, or even its system of medials, is not without problems. Many of these have been touched on in preceding sections.

In Sections 2.1.3 through 2.1.9 I have described the medials ***-r-**, ***-j-**, ***-rj-**, ***-i-**, ***-ji-**, ***-u-**, ***-^{w}-** and ***-l-** (and additional combinations) which figure in Li Fang-kuei's Old Chinese reconstruction. Viewed in the context of the functional nature of these elements and the syllable structure of the reconstructed language, these "medials" can be viewed as vocalic elements (***-i-** and ***-u-**), consonantal features (***-^{w}-**), components of initial clusters (***-l-**), true medials (***-r-** and ***-j-**) and combinations of the above. Li Fang-kuei himself applied the term "medial" only to segments appearing between consonantal and vocalic elements which had effects on the development of both. Thus while both ***-r-** and ***-l-** were quite similar in the way they clustered with initial consonants and co-occurred with ***-j-**, only ***-r-** is considered a medial because of its conditioning effect on the following vowel. Similarly, ***-i-** is considered vocalic, not a medial, because it had no effect on the development of preceding consonants.

According to Li's definition, the Old Chinese syllable has the form ***IMVE**, where **I** is an initial consonant or consonant cluster. A consonant cluster has the form ***(s)C(l)** where **C** is a simple consonant. **M** is one of ***r**, ***j**, or ***rj**. V is one of ***a**, ***i**, ***u**, ***ə**, ***ua**, ***ia**, ***iə**, and **E** is a final consonant.

However, for the purposes of comparison and discussion, we wish to broaden the definition of medial element. Thus while there is no way to construe ***-^{w}-** as a medial in Li's system, we treat it as such because it corresponds to medial elements in other reconstruction systems (notably Karlgren's), because it leads to the development of Middle Chinese medials, and because (as we shall see) it corresponds to medials in Tibeto-Burman. According to this expanded definition of medial, Li's system contains the following six simple medial elements (with their effects on Middle Chinese listed):

***-r-**	second division rhymes; retroflex initials
***-j-**	third division rhymes; palatal initials
***-i-**	fourth division rhymes; rhyme splits, etc.
***-^{w}-**	*hékŏu* syllables with velar and laryngeal initials
***-u-**	(some) *hékŏu* syllables after acute initials
***-l-**	no effect (except after ***s-**, when it is identical to ***-r-**)

It contains two medial clusters, ***-rj-** and ***-ji-**. These clusters are distinguished from other medial combinations because their combined effect on the syllable is not equal to the effect of each component taken separately. For example, ***-rj-** has a palatalizing effect on velar initials which cannot be attributed to either the ***-r-** or the ***-j-**. And ***-ji-** conditions developments (*chóngniŭ* doublets, fate of ***g-**, blocked labiodentalization) which are in opposition to the effects of ***-j-**.

***-rj-**	retroflex initials in third-division rhymes; palatal initials descended from velars
***-ji-**	fourth-division *chóngniŭ* doublets, etc.

Finally, the following combinations of two or more medial elements occur:

***-^{w}r-**	***-ru-**		
***-^{w}j-**	***-ju-**	***-lj-**	
***-^{w}rj-**	***-rju-**		
***-^{w}ji-**		***-lji-**	***-rji-**
***-^{w}i-**		***-li-**	
***-^{w}r-**			

I have noted the following difficulties with the medial system:

(1) The distribution of medial ***-rj-** is unsatisfactory. As a "true medial", we would expect it to co-occur with all initials.

(2) The distinction proposed between medials ***-j-**, ***-ji-**, and ***-i-** is difficult to accept as a feature of a real language.

(3) The functions of ***-ji-** are too numerous and often conflict with each other.

(4) The reconstruction of ***-l-** is haphazard and its distribution skewed. In some cases it behaves like ***-r-**, but in other cases it has no effect on the surrounding segments.

(5) The distribution of ***-u-** is unusual.

I have been critical of some aspects of Li Fang-kuei's reconstruction. This should by no means be taken as a criticism of Li Fang-kuei's work as a whole, which remains an important landmark in the field. He was as aware of anyone of the unsolved difficulties which remained in his work, and he fully expected revisions to be made by himself and others. The fact that he was unable to solve the whole riddle at a single blow in no way diminishes the value of his contributions to the field. Academic work is incremental and synthetic by nature, and the work of any individual is based in the larger part on the achievements of his or her predecessors. Although I criticize aspects of the work of earlier scholars, I do so with full recognition of the value of their ideas and with the aim of furthering their goals. Throughout this paper, my comments on the work of Li and other scholars should be taken in this spirit.

2.2 The system of Edwin G. Pulleyblank (1962, 1973, et al.)

Edwin G. Pulleyblank published his first Old Chinese reconstruction in 1962. His system has undergone nearly continual revision since that time, and his most recent ideas have unfortunately not been published as a unified whole. One engine driving the changes to his Old Chinese reconstruction has been his work on Middle Chinese, which culminated in the publication of Pulleyblank 1984 and Pulleyblank 1991. On the whole, Pulleyblank's

influence on the field has been considerable but piecemeal. Many of his insightful observations have been adopted into the reconstruction systems of other scholars, but his Old Chinese system as a whole has not seen widespread acceptance. He has encountered similar reactions to his work on Middle Chinese, but thanks to the publication of Pulleyblank 1991 his Middle Chinese reconstructions have become easily accessible and are frequently cited.

In this summary of his work I will make reference to a number of publications, and will make every attempt to identify which ideas are current and which have been superseded. Though only a summary, Pulleyblank 1996 will serve as representative of his current views.

2.2.1 Middle Chinese

The primary source of information on Pulleyblank's Middle Chinese reconstruction is Pulleyblank 1984, with some emendations in Pulleyblank 1991. The evolution of his thinking can be traced from Pulleyblank 1962 through Pulleyblank 1970-71. A summary of his ideas may be found in Pulleyblank 1993 and 1996.

Pulleyblank's Old Chinese reconstruction depends in large part on a distinct understanding of Middle Chinese, which has set him at odds with most other practitioners in the field. Most scholars, like Li Fang-kuei, work with a modification or revision of Karlgren's Middle Chinese reconstruction. Pulleyblank has objected in a fundamental way to Karlgren's methodology, and has arrived at very different conclusions regarding the nature of Middle Chinese.

Fundamental to Pulleyblank's reconstruction is the notion that the system encapsulated in the *fǎnqiè* spellings of the *Qièyùn* represents a language removed in time and place from that represented in the Sòng rhyme tables The former, known as Early Middle Chinese [EMC], is the educated speech spoken in the sixth century in Luòyáng 洛陽 (the northern variety) and Jīnlíng 金陵 (the southern variety). The latter, Late Middle Chinese [LMC],

is the ninth- to eleventh-century descendent of the dialect spoken in the Táng capital of Cháng'ān 長安 (modern-day Xī'ān).[52]

Late Middle Chinese is thus not a direct descendent of Early Middle Chinese, but both are derived from a common source (namely Old Chinese), and their phonological structures are commensurate enough that LMC may for practical purposes by treated as a descendent of EMC (Pulleyblank 1984:xiv). This point has been contested on theoretical grounds by Abraham Chan (1997), but the exact nature of the relationship between EMC and LMC is not directly relevant to the project at hand. I am primarily concerned with Pulleyblank's EMC reconstruction, since this forms the basis for his conclusions about Old Chinese. It should be noted, however, that if LMC and EMC truly represent distinct dialects derived from Old Chinese, then the phonological system of LMC may be as directly relevant to the reconstruction of Old Chinese as is that of EMC.

A key consequence of Pulleyblank's distinction between EMC and LMC is that the rhyme tables of LMC may not be interpreted as a key to the *Qièyùn*. The system of initials (as represented by the columns in the rhyme tables) and finals (as represented by the rhymes, the divisions, and the *kāikǒu*/*hékǒu* and inner/outer distinctions) employed in the tables reflects the contemporaneous pronunciation of the tables' compilers, who were of course unaware of the pronunciation(s) current at the time and place the *Qièyùn* was produced.

As an example of the consequences of this approach, consider the retroflex affricates and fricatives (*zhào-èr* 照二 series) and the palatal affricates and fricatives (*zhào-sān* 照三 series). An analysis of the *fǎnqiè* spellings in the *Qièyùn* clearly indicates that these are indeed two distinct sets of initial consonants. In interpreting the rhyme tables, many scholars continue therefore to discuss the placement of these initials as involving two

[52]Though they may differ on details of interpretation, most scholars now agree that there is at least some difference in the languages represented by these source materials. The distinction is a useful one, and for this reason the terms Early Middle Chinese [EMC] and Late Middle Chinese [LMC] are employed throughout this paper. They do not necessarily refer specifically to the EMC and LMC systems as reconstructed by Pulleyblank.

distinct series, and their reconstructions are determined accordingly. But, as Pulleyblank points out, in the key to the *Yùnjìng* only a single series (the *zhào* 照 series, labeled *zhèngchǐ* 正齒) of initials appears, paralleling the single series of retroflex stops (the *zhī* 知 series). According to Pulleyblank, two conclusions can be drawn from this fact: first, there must in fact have been only a single series in LMC, created by the merger of the two EMC series. Second, the arrangement of the *zhào*-series initials in the table, with some words placed in the second division and some in the third, must reflect a contemporary distinction in the finals. There is no way that speakers of LMC could have been aware of the EMC distinctions between these initial series and have somehow preserved it in their arrangement of the tables (1984:65).

On the whole, I agree with Pulleyblank's assessment. However, we must also bear in mind that the rhyme table compilers were attempting to maintain the framework of the *Qièyùn* insofar as they understood it. They may not have been aware of the pronunciation of EMC or its phonological distinctions, and presumably they had no sophisticated methods of *fǎnqiè* analysis.[53] But they did know which words had been classified into separate rhymes, and they understood that the *Qièyùn* listed words in homophone groupings. In creating the rhyme tables they never conflated *Qièyùn* rhymes or homophones. This constraint makes interpretation of the tables less than straightforward, since the exact placement of a *Qièyùn* homophone set on a table may be due either to qualities of its LMC pronunciation, or to the need to keep it distinct from another *Qièyùn* homophone set, or to a combination of both.[54] There is as well a third factor that cannot be

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[53]On the other hand, Pulleyblank himself has argued that the rhyme table compilers used *fǎnqiè* analysis to preserve an artificial distinction between the *fēi* 非 and *fū* 敷 initials, both of which he reconstructs as **f-** for LMC. When **f-** was descended from EMC **p-** it was classed as *fēi* 非, and when descended from EMC **ph-** it was classed as *fū* 敷 (1984:68-69). This implies that the rhyme table compilers may have had a more sophisticated understanding of *Qièyùn* syllables classification (rather than just rhyme classification) than Pulleyblank has suggested elsewhere.

[54]Although Pulleyblank says that "those responsible for the rhyme table system were making only distinctions that they could hear and produce in their own speech and were not engaged in historical reconstruction or in some kind of arbitrary scholastic game" (1996:6), it is also clear that he tacitly recognizes the complications arising from the influence of the *Qièyùn*. He notes that placement in the

ignored, namely the influence of philosophical conceptions and/or foreign influence on the interpretation of phonological structure. In the work of scholars like Shào Yōng 邵雍 (1011-1077)[55] the influence of cosmological conceptions is clearly very strong, to the point where it may obscure or contort the realities of the language; it is possible that similar concerns were at play in the creation of the rhyme tables.

The need to treat EMC and LMC separately simplifies the problem of reconstructing Middle Chinese to some degree, but also means that less data is available for each stage of the reconstruction. To fill this gap, in his reconstruction of LMC Pulleyblank relies heavily on analyses of the rhyming practices of contemporaneous poets (notably Lǐ Hè 李賀), on reading in Sino-Korean, Sino-Vietnamese, and Sino-Japanese, as well as other transcriptional evidence, and on his reconstruction of Early Mandarin [EM], which he considers the most direct dialectal descendent of LMC.

Pulleyblank's approach to reconstructing LMC is based on a fundamental reanalysis of the meaning of the four divisions (termed *grades* by Pulleyblank) of the rhyme tables. "Karlgren's basic assumption about the meaning of the Four Grades was incorrect. Grade III was not, as he thought, characterized by a palatal glide. Rather, Grades III and IV together had high front vowels i (*kaikou*) and y (*hekou*) making a primary binary contrast with Grades I and II together. Further discrimination between Grade II and Grade I and between Grade IV and Grade III was provided by the presence of a palatal glide immediately after certain classes of initials in Grades II and IV." (1984:xiv)[56]

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rhyme tables sometimes "was determined by analogies based on *Qièyùn* rhymes and *fǎnqiè* links with velar initials" (1984:87).

[55]See his *Huáng-jí jīngshì : shēngyīn chàng hé tú* 皇極經世・聲音唱和圖.

[56]Pulleyblank 1993:342: "The evidence from Sino-Vietnamese, Sino-Korean, the Japanese Manyōgana, Tibetan transcriptions of the Tang period and the ḥPhags-pa alphabet of Yuán times, as well as traces even in Mandarin, overwhelmingly points to the fact that the relation between Grades III and IV is just the opposite of that reconstructed by Karlgren, namely that it is Grade IV, not Grade III that gives evidence for initial palatalization." Not all the transcriptional evidence is as unambiguous as Pulleyblank suggests, however. For example, he argues (1984:156-7) that in the Go'on layers of the *Manyōgana* it is the Japanese vowel $\mathbf{i^1}$ and $\mathbf{e^1}$ which regularly correspond to *chóngniǔ* fourth division, and Hattori (1959) has reconstructed them as /ji/ and /je/ respectively. However, the reconstruction of the Japanese vowel pairs $\mathbf{i^1}$ $\mathbf{i^2}$, $\mathbf{e^1}$ $\mathbf{e^2}$, $\mathbf{o^1}$ $\mathbf{o^2}$ is still a matter of considerable dispute. Matsumoto's (1984) theory is similar to that of Hattori 1959. Hattori (1976) revised his reconstruction to argue that $\mathbf{i^1}$ and $\mathbf{e^1}$ could be accounted for

Pulleyblank's conclusions regarding the meaning of the divisions in LMC are as follows (1984:78, with modifications)[57]:

	Kāikǒu			Hékǒu		
I	KV	TV	PV	KuV	TuV	PuV/PV[58]
II	KjV:	TrV:	PV:	KwV:	TrwV:	PV:
III	KiV	TriV	PiV	KyV	TryV	FjyV
IV	KjiV	TiV	PjiV	KjyV	TyV	

The *chóngniǔ* distinction is essentially a false puzzle for LMC according to Pulleyblank; all words placed in the fourth row of the rhyme tables are fourth division, regardless of their classification in the *Qièyùn*; thus *chóngniǔ* fourth-division words and "pure" fourth division words are both reconstructed in the same way.

Furthermore, completely at odds with Karlgren's reconstruction, Pulleyblank reconstructs all words placed in a single table as having the same main vowel. In fact, the tables grouped together into the same *shè* 攝 are all reconstructed with the same main vowel. Homophonous rhymes (in LMC) are listed in separate tables only because they are distinct rhymes in the *Qièyùn*.

Consider the reconstruction of these words, the first set listed in Table 25 of the *Yùnjìng* and the second set in Table 24, under initial **k-** (*jiàn-mǔ* 見母):

高 gāo	LMC **kaw**	Division I	貫 guàn	LMC **kuan`**
交 jiāo	LMC **kja:w**	Division II	慣 guàn	LMC **kwa:n`**
驕 jiāo	LMC **kiaw**	Division III	眷 juàn	LMC **kyan`**
驍 xiāo	LMC **kjiaw**	Division IV[59]	睊 juàn	LMC **kjyan`**

through distinctive palatalization of the preceding consonant, or by glide-vowel combinations with a central vowel. Ōno (1982) on the other hand argues that **i**^{1}, **e**^{1}, and **o**^{1} were centralized vowels /ï/ /ë/ /ö/. In fact, Pulleyblank's claims in the particular case of Japanese are largely circular because all these competing theories for the values of the Japanese vowels are based to a large degree on Middle Chinese reconstructions. The Old Japanese 8-vowel system was derived from a Proto-Japanese four-vowel system (through fusion of diphthongs) and was soon reduced to a five-vowel system; this suggests that it might have been transitional and unstable. At any rate it does not seem a reliable source on which to draw conclusions about Middle Chinese.

[57]**K** represents the velar and guttural initials (*jiàn* 見 and *yǐng* 影 series); **T** the dentals (*duān* 端 and *jīng* 精 series and **l-**); **Tr** the retroflexes (*zhī* 知 and *zhào* 照 series); **P** the bilabials (*bāng* 幫 series); **F** the labiodentals (*fēi* 非 series).

[58]Recall that the *kāikǒu*/*hékǒu* distinction is not very clear after labial initials.

[59]Note that Pulleyblank's interpretation of the third-division/fourth-division distinction is essentially opposite to Karlgren's, since Pulleyblank reconstructs a palatal glide in fourth division and a vocalic **i** in third division. He has argued that this reconstruction is supported, for example, by Sino-Korean readings

There is an important distinction in Pulleyblank's reconstruction between glides **-j-** and **-w-** on the one hand and vowels **-i-**, **-y-**, and **-u-** on the other; they occupy distinct slots in the **GV(:)** vocalic structure of LMC syllables. Underlyingly, the main vowel is either **a** or **ə**.

The neat pattern of medials exhibited after velar initials is not perfectly matched in syllables with labial and apical initials. Indeed, we find second-division syllables like **tra**:**w** and fourth-division syllables like **tsian** which lack medial **-j-**. Pulleyblank's explanation is that the four divisions were originally set up on the basis of contrasting velar-initial words like those listed above; once established, the rhymes of the *Qièyùn* could be superimposed on the four-division framework, and the placement of acute-initial words would then have been dictated by complementarity and phonetic similarity (1984:76-77). Similar reasoning lies behind the placement of the labiodental-initial words in the third rather than the fourth division despite the presence of medial **-j-**; they appear with the same lower *fǎnqiè* spellers as velar-initial words in the *Qièyùn* and so they were placed in the same row of the tables.

These aspects of Pulleyblank's reconstruction, while not unreasonable in and of themselves, seem to contradict his own assertions about the motivations behind the placement of words among the divisions of the rhyme tables. Were the table compilers following their own understanding of the pronunciation of their language, or were they following the structure of the *Qièyùn*? To the extent they were doing the latter, to what degree did they understand the implications of the *fǎnqiè* spellings? What are we to make of Pulleyblank's claim that *chóngniǔ* fourth-division words were placed in the fourth row because of their LMC pronunciation despite the fact that they occur with *Qièyùn* third-division rhymes, while labiodental-initial words were placed in the third row because

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which preserve a palatal glide in fourth division words: *kǒn* (third division) versus *kyǒn* (fourth division). Karlgren interpreted this same data differently, arguing that the third-division glide of Chinese was weak, and so was ignored or dropped out of the Korean reading, while the strong vocalic **-i-** of fourth division was preserved.

they occur with *Qièyùn* third-division rhymes despite their pronunciation with medial **-j-** in LMC?

It might appear that Pulleyblank's LMC reconstruction, in which the four divisions are distinguished by medial elements, could be accounted for by an Old Chinese system of medials not dissimilar from that of Li Fang-kuei. But we must first trace the origins in Pulleyblank's EMC, which has a very different structure and is the starting point for Pulleyblank's Old Chinese reconstruction.

The primary evidence for reconstructing EMC is the *Qièyùn* structure itself, early Sino-Japanese readings (the Go'on layer), and early Vietnamese loans, as well as the structure of LMC, which is thought of as a descendent of EMC.

Pulleyblank's EMC is characterized by a fundamental distinction between two syllable types, which he labels *Type A* and *Type B*. Words of Type A are those in rhymes which were later placed exclusively in the first, second, and fourth divisions of the rhyme tables. Words of Type B are those in rhymes which were later placed, at least in part, in the third division. The placement of *chóngniŭ* doublets in the fourth division of the rhyme tables indicates a merger between some EMC Type A and Type B syllables into LMC fourth division.

Type B syllables are reconstructed in EMC with high vowel **-i-**, **-ɨ-**, or **-u-**, possibly followed by the vowel **-a-**. Type A syllables have a low or mid vowel. It is the feature of height that takes the place of Karlgren's medial **-i̯-**, and accounts for the palatalization of initials.

EMC had only two simple medials, **-j-** and **-w-**. The palatal glide **-j-** occurred before **-i-** after velar, labial, and guttural initials, and accounts for the *chóngniŭ* fourth-division syllables of LMC, all of which contain **-i-**. (The EMC **-j-** medial of "pure" fourth-division rhymes had a distinct origin, see below.) The limited distribution of this medial is due to the fact that it was a recent innovation; it had developed before **-i-** when not preceded by retroflection (1984:174).

The labiovelar medial glide **-w-** had widespread distribution in EMC, occurring before all finals and after all initials except the labials (1984:176).

The more complex medial structure of LMC was derived from several processes affecting the vowels and medials of EMC, which can be summarized as follows:

1) The fronting of **-ɨ-** and **-u-** to **-i-** and **-y-**, respectively (Division III).

2) The breaking of the mid front vowel **-ɛ-** to **-(j)ia-** (pure Division IV) and of **-ɛː-** to **-(j)aː-** (Division II).

3) The strengthening of **-w-** to **-u-** before short vowels (Division I *hékǒu*, Division III).

4) The continuation of medial **-j-** (Division IV *chóngniǔ*).

5) Merger of **-əɨ-** and **-aɨ-** to **-ɛː-**, which then developed into **-aː-** (Division II).

INITIALS

幫	p-	滂	pʰ-	並	b-	明	m-				
端	t-	透	tʰ-	定	d-	泥	n-			來	l-
知	tr-	徹	trʰ-	澄	dr-	娘	nr-				
精	ts-	清	tsʰ-	從	dz-			心	s-	邪	z-
照二	tʂ-	穿二	tʂʰ-	床二	dʐ-			審二	ʂ-		ʐ-
照三	tɕ-	穿三	tɕʰ-	床三	ʑ-	日	ɲ-	審三	ɕ-	禪	dʑ-
見	k-	溪	kʰ-	群	g-	疑	ŋ-	曉	x-	匣	ɣ-
影	ʔ-	喻三	w-	喻四	j-						

Notes:

• **r** represents retroflex articulation of the preceding consonant

FINALS

		一等		二等		三等		四等	
果	開	歌	a	麻	aɨ	麻	ia 歌 ɨa		---
	合	戈	wa	麻	waɨ	戈	ua		---
遇		模	ɔ		---	魚	ɨə̆		---
			---		---	虞	uə̆		---
蟹	開	咍	əj	皆	əɨj	祭	(j)iaj	齊	ɛj
	合	灰	wəj	皆	wəɨj	祭	w(j)iaj	齊	wɛj
	開	泰	aj	夬	aɨj(s)	廢	ɨaj		---
	合	泰	waj	夬	waɨj(s)	廢	uaj		---
	開		---	佳	aɨj		---		---

	合		---	佳	waɨj		---		---
止	開		---		---	支	(j)iə̆		---
	合		---		---	支	(j)wiə̆		---
	開		---		---	脂	(j)i		---
	合		---		---	脂	(j)wi		---
	開		---		---	之	ɨ		---
	開		---		---	微	ɨj		---
	合		---		---	微	uj		---
效		豪	aw	肴	aɨw	宵	(j)iaw	蕭	εw
流		侯	əw		---	尤	uw		---
			---		---	幽	jiw		---
咸		談	am	銜	aɨm	鹽	(j)iam	添	εm
		覃	əm	咸	əɨm	嚴	ɨam		---
			---		---	凡	uam		---
深			---		---	侵	(j)im		---
山	開	寒	an	刪	aɨn	仙	(j)ian	先	εn
	合	桓	wan	刪	waɨn	仙	(j)wian	先	wεn
	開		---	山	əɨn	元	ɨan		---
	合		---	山	wəɨn	元	uan		---
臻	開	痕	ən		---	欣	ɨn		---
	合	魂	wən		---	文	un		---
	開		---		---	真	(j)in		---
	合		---		---	諄	(j)win		---
	開		---		---	臻	in		---
宕	開	唐	aŋ		---	陽	ɨaŋ		---
	合	唐	waŋ		---	陽	uaŋ		---
梗	開		---	庚	aɨjŋ	庚	iajŋ	青	εjŋ
	合		---	庚	waɨjŋ	庚	wiajŋ	青	wεjŋ
	開		---	耕	əɨjŋ	清	(j)iajŋ		---
	合		---	耕	wəɨjŋ	清	(j)wiajŋ		---
曾	開	登	əŋ		---	蒸	iŋ		---
	合	登	wəŋ		---		---		---
通		東	əwŋ		---	東	uwŋ		---
		冬	awŋ		---	鍾	uawŋ		---
江			---	江	aɨwŋ		---		---
咸		盍	ap	狎	aɨp	葉	(j)iap	帖	εp
		合	əp	洽	əɨp	業	ɨap		---
			---		---	乏	uap		---
深			---		---	緝	(j)ip		---
山	開	曷	at	鎋	aɨt	薛	(j)iat	屑	εt
	合	末	wat	鎋	waɨt	薛	(j)wiat	屑	wεt
	開		---	黠	əɨt	月	ɨat		---
	合		---	黠	wəɨt	月	uat		---
臻	開	沒	ət		---	迄	ɨt		---
	合	沒	wət		---	物	ut		---

	開		---		---	質	(j)it		---
	合		---		---	術	(j)wit		---
	開		---		---	櫛	it		---
宕	開	鐸	ak		---	藥	ɨak		---
	合	鐸	wak		---	藥	uak		---
梗	開		---	陌	aɨjk	陌	iajk	錫	ɛjk
	合		---	陌	waɨjk	陌	wiajk	錫	wɛjk
	開		---	麥	əɨjk	昔	(j)iajk		---
	合		---	麥	wəɨjk	昔	(j)wiajk		---
曾	開	德	ək		---	職	ik		---
	合	德	wək		---	職	??		---
通		屋	əwk		---	屋	uwk		---
		沃	awk		---	燭	uawk		---
江			---	覺	aɨwk		---		---

Notes:

• Underlying **-ă** (a pharyngeal off-glide) is omitted after **a** and transcribed **ə̆** elsewhere.

2.2.2 Old Chinese

In addition to the basic principles listed in Section 2.1.2, Pulleyblank's Old Chinese system is based on the following hypotheses:

1) Old Chinese, as well as Tibeto-Burman and Sino-Tibetan, was characterized by a two-vowel system which maintained a simple underlying height contrast between **a** and **ə**. These vowels represent a basic morphological alternation (ablaut) which encodes a semantic distinction between 'extrovert' and 'introvert.[60] In this respect it is similar to Northwest Caucasian and Indo-European.

2) The rhyming patterns of the *Shījīng* and the complex vocalic and medial system of Middle Chinese are in great part conditioned by a wide array of secondary articulations on initial and final consonants. Velar consonants may be plain, labial, palatal, or labio-palatal.

[60]Pulleyblank has strenuously defended this basic two-way distinction as the only reasonably explanation for the morphological alternations he notes (Pulleyblank 1973:118, 1994:163). It seems to me, however, that the semantic alternations he notes could equally well be accounted for by ablaut within a fuller vocalic system. There is no *a priori* reason why a morphological alternation could not involve the feature [+high] and include more than one high/low vowel pair. In Ingush, for example, inflected iterative forms are characterized by either of the high vowels /ii/ or /uu/; the former occurs in verb stems with root vowel /ie/ [jɛ] and the latter in stems with root vowel /oa/ [wa].

3) Old Chinese vowels were bimoraic; accent could fall on either mora, creating a prosodic distinction between otherwise identical syllables.

In general, Pulleyblank's Old Chinese reconstruction can appear typologically bizarre, and its transcriptional complexity has no doubt added to the reluctance of other scholars to accept his system. One reason for this complexity is that Pulleyblank has consciously avoided structuralist interpretations and has instead adhered to the feature-based analysis of generative phonology, placing emphasis on the phonetic details of his reconstruction, details which are often crucial in explaining patterns of subsequent development. In this respect he is in the same school as linguists like Ohala (1993) and Labov (1996), who are increasingly applying what they have learned from the study of sound change in progress and its phonetic conditioning factors to the explanation of historical problems. This means that, while typologically "normal-looking" transcriptions might equally well capture all of the phonological distinctions in Pulleyblank's reconstruction, such a structuralist approach would obscure many phonetic features which he feels are crucial to explaining many aspects of Old Chinese and its development.

While I see no reason to reject Pulleyblank's reconstructions *a priori* on the grounds that they look unfamiliar, I also feel that typologically unusual reconstructions should be justified through internal or comparative evidence. Of all Pulleyblank's hypotheses concerning Old Chinese, the bimoraic prosodic contrast seems to have the least direct support. As far as I know, Pulleyblank has never justified this hypothesis with concrete data. He gives no motivation in Pulleyblank 1973, in which the concept was first introduced, except that it provides for a distinction which he wishes to project forward into Middle Chinese. In Pulleyblank 1996:14 he says "It is, of course, highly desirable to find a parallel for such a prosodically induced segmental change in some other language and I cannot claim to have done so in an exact way." One is left with the impression that the original proposal was purely *ad hoc* in nature.

2.2.3 Medial *-j-

Pulleyblank's Old Chinese system lacks medial ***-j-** where it is reconstructed in Li's system and Baxter's system, that is to say as an automatic feature of all Type B syllables. There are several reasons for this. Pulleyblank's Early Middle Chinese reconstruction does not have a medial **-j-** in third-division rhymes (and medial **-j-** in *chóngniǔ* fourth-division rhymes is a late secondary development), so there is no need to posit a direct ancestor to it in Old Chinese. Furthermore, Tibeto-Burman cognates to Type B syllables often lack evidence of medial -j-.[61] Synchronically, Pulleyblank finds no evidence for the existence of medial ***-j-** in Chinese transcriptions of foreign words from the Hàn dynasty (or later), indicating that there is no direct evidence for the existence of such a segment.[62] Typologically, third-division syllables make up roughly half the Chinese lexicon, and it seems typologically unnatural for a single segment to bear such a heavy functional load in any language.[63]

The prosodic origin of the Type A/B distinction

Although Pulleyblank's EMC does not have medial **-j-** in third division, it does recognize a fundamental distinction between syllables with high vowels (Type B) and those with non-high vowels (Type A). In Old Chinese, the ancestors of Type A and Type B syllables may occur in the same rhyme group. According to the single-vowel principle, they must therefore have had the same main vowel in Old Chinese. Furthermore, as we shall see below, Pulleyblank employs medial and secondary articulations of consonants to

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[61]This is the reason for Bodman's (1980) proposal of a distinction in Chinese between "primary yod" and "secondary yod".

[62]It is odd, though, that Pulleyblank (1996:19) suggests that syllables like ***kɨa** were used to transcribe Sanskrit **ka** because the initial of Old Chinese ***ka** was probably more uvular in articulation. This line of reasoning is quite similar to ones Pulleyblank has attacked which suggest that Chinese syllables with ***-j-** were matched against Sanskrit syllables without a medial glide because the initial consonants may have corresponded better (1993:345).

[63]This argument is, however, spurious on the face of it. Late Middle Chinese presents us with a language of precisely this kind; to argue that it could not be derived from a similar earlier stage because of naturalness constraints is peculiar. Looking at the question from another angle: if it is natural to have a prosodic distinction in a language, and it is natural for such a distinction to give rise to a **-j-** medial in half the syllable types, then we should not find a system with a **-j-** medial in half the syllable types to be unusual.

condition the frontness and roundedness of EMC vowels, not the height. This means that neither a vowel distinction nor a medial distinction is available to Pulleyblank to condition the development of Middle Chinese Type A and Type B syllables. He therefore posits an Old Chinese prosodic distinction, which is notated by placing an accent mark over the vowel. A grave accent indicates a falling intonation, stress on the first mora; an acute accent indicates a rising intonation, stress on the second mora.

Pulleyblank supposes (1973:119) that in the development of Middle Chinese, the accented mora was replaced by a high vowel as follows[64]:

Type B	Type A	Type B	Type A
C̀ə > Cɨə-	Cə́ > Cəɨ-	Cà > Cɨa-	Cá > Caɨ-
Cʲə̀ > Cʲiə-	Cʲə́ > Cəi-	Cʲá > Cʲia-	Cʲá > Cai-
Cʷə̀ > Cʷuə-	Cʷə́ > Cəu-	Cʷà > Cʷua-	Cʷá > Cau-

Syllables with an accented first mora thus lead directly to the formation of Type B syllables in Early Middle Chinese, which in turn lead (mostly) to third-division syllables in Late Middle Chinese.

The development illustrated is highly schematic. It doesn't indicate exactly which initial consonants are involved, or how the vowels are affected by the secondary articulations of final consonants. Later publications revised the details of some of the developments. Nevertheless, this basic outline of the effect of the prosodic contrast remains valid in Pulleyblank's reconstruction, as illustrated by this summary from Pulleyblank 1994:93: "The A/B distinction in syllable types of Early Middle Chinese, erroneously marked by *yod* in Type B in Karlgren's reconstructions, must have arisen as a process by which a central (or back) unrounded high vowel [**ɨ**] was inserted after the onset in Type B syllables, either replacing [**ə**] in the nucleus or forming a diphthong with a following [**a**], being subsequently fronted to [**i**] or rounded to [**u**] in some cases through assimilation to features in the onset or coda."

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[64]In the original this chart contains tailed arrows **Æ**, which would suggest the operation of synchronic phonological rules rather than historical changes. I have emended these arrows to > here under the presumption that Pulleyblank meant to indicate actual historical developments.

*Medial ***-j-** and pure fourth-division rhymes*

Although Pulleyblank does not reconstruct ***-j-** as a feature of Type B syllables, his Old Chinese system does include a medial ***-j-**. (See Pulleyblank 1994, which discusses the role of medial elements in his Old Chinese reconstruction.[65])

In Type A syllables, medial ***-j-** fused with the following vowel, giving EMC **-ɛ-**. For example, 見 ***kjáns** > **kɛn^{h}**; 堅 ***kjə́ŋ^{j}** > **kɛn**. When ***-j-** is lacking the vowel is unaffected, as in the Type A syllable 干 ***kán** > **kan**.

In this respect, Pulleyblank's medial ***-j-** is equivalent to Li's medial ***-i-**; that is, it conditions the development of pure fourth-division syllables. Compare Li's 見 ***kianh** > **kien** and 干 ***kan** > **kân**. This equivalence is carried through after medial ***-r-** as well; the correspondence of Pulleyblank's ***-rj-** to Li's ***-ri-** will be discussed in Section 2.2.5.

In Type B syllables, medial ***-j-** caused the inserted vowel ***-ɨ-** to front to ***-i-**, and was preserved in EMC. This is the source of medial **-j-** in EMC, which as described above occurred only after labials, velars, and gutturals and developed into *chóngniŭ* fourth-division words in LMC. Although it is not absolutely clear from Pulleyblank's articles, it seems then that this Old Chinese medial ***-j-** was restricted in Type B to syllables with velar, labial, and guttural initials.[66] Examples include 幽 ***ʔjəw** > **ʔjiw** and 要 ***ʔjàw** > **ʔjiaw**. Here again we find a parallel with Li's ***-i-**, which conditioned *chóngniŭ* fourth-division words after ***-j-** just as Pulleyblank's ***-j-** conditions *chóngniŭ*

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[65]Pulleyblank 1994 introduces a new notation for the Type A/B distinction, which is not retained in later publications. Type A syllables are indicated by an IPA stress mark following the vowel (e.g. **ka'n**) and Type B by a stress mark preceding the syllables (e.g. **'kan**). In subsequent examples I have revised cited forms to employ the acute/grave accent transcription for the Type A/B distinction.

[66]It is possible that this medial ***-j-** is reconstructed only after the glottal initial. In the case of velar initials, palatalized velars ***K^{j}-** could be reconstructed instead. They would have the same effect on the vowel as ***-j-**, leading to the development of **-i-**. As noted elsewhere, this **-i-** became **-ji-** after velars, labials, and gutturals in EMC. Pulleyblank does not reconstruct an independent glottal-stop initial for Old Chinese, so a palatalized glottal initial is not an option for him. ***ʔj-** should perhaps here be considered the realization of the zero-initial before onset ***j-**. In general, it is not clear from Pulleyblank's publications if or how medial ***-j-** differs from coarticulation ***-^{j}-**, although his publications do suggest divergent developments ***kj-** > **kj-** and ***k^{j}** > **ts-**.

fourth-division words in Type B syllables. Compare Li's 幽 ***·jiəg^{w}** > **·jiəu** and 要 ***·jiag^{w}** > **·jiäu**.

Coarticulation ****-j̇-***

As the chart above indicates, Pulleyblank's Old Chinese includes velar consonants with secondary palatal articulation (notated ***-j̇-**) , labial articulation (***-^{w}-**) and labio-palatal articulation (***-ɥ-**). These consonants may appear as codas as well as initials.[67] As features of initials, these co-articulations fall under the scope of our investigation of medials. (We will reserve the rounded secondary articulations for discussion in a later section.) Palatalized velars (whether in initial or coda position) have an effect on the vowel similar to that of medial ***-j-**, fronting ***-ɨ-** to ***-i-** in Type B syllables (1994:80). In this respect the palatalized velars behave like the other coronal initials in their vocalic effects on Type B syllables.[68] After velar, labial, and guttural initials, this fronting is followed by the insertion of medial **-j-**, leading to the development of *chóngniǔ* fourth-division doublets. Example are 征 ***tàŋ^{j}** > ***tɕiaŋ^{j}** > **tɕiajŋ** and 賓 ***pəŋ^{j}** > ***pɨŋ^{j}** > **pjin**.

The effects of medial ***-j-** in Pulleyblank's system can be summarized as follows:

1) In Type A syllables, it fronted the vowel, leading ultimately to fourth-division LMC words; this contrasts with Type A syllables lacking a medial, which became first-division words.

2) In Type B syllables, it fronted ***-ɨ-** to ***-i-**, leading to *chóngniǔ* fourth-division syllables.

3) ***-j-** had no effect on initial consonants.

The reconstruction has the following problems:

1) In Type B syllables, its distribution is apparently restricted to velar, labial, and guttural initials.

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[67]This represents a significant revision of the consonant system presented in Pulleyblank 1962.
[68]As initials the palatalized velars themselves become dentals (at least in some cases) in EMC. Examples are ***k^{j}-** > **ts-**, ***x^{j}-** > **s-**, ***ŋ^{j}-** > **j-** (1994:79, 1996:23).

2.2.4 Medial *-r-

Pulleyblank (1962) originally followed Yakhontov in reconstructing medial ***-l-** to account for the development of LMC second-division rhymes.[69] He later reinterpreted this medial as ***-r-**, for reasons we have seen already: its correspondence to Tibeto-Burman medial ***-r-** and the more natural explanation for the development of Middle Chinese retroflex initials. In Pulleyblank's system ***-r-** is reconstructed in Type A syllables to account for the development of second-division rhymes. Recall, however, that in Pulleyblank's Early Middle Chinese reconstruction second-division rhymes are characterized by the diphthongs **-əɨ-** and **-aɨ-**. The development of these rhymes from Old Chinese medial ***-r-** is not quite as straightforward as we have seen in Li's system.

Pulleyblank's initial formulation (1984) set up the EMC second-division finals as **-ɛ^{r}-** and **-a^{r}-**. These were accounted for by metathesis from Old Chinese ***Cr-** clusters. However, Pulleyblank felt that these retroflex vowels could not account for the later development of LMC second-division long vowels, and so he revised the EMC reconstruction to **-əɨ-** and **-aɨ-**, pointing out that there is in general a strong acoustic affinity between retroflection and back unrounded vowels (1991:12). He therefore supposed that the OC retroflection (***-r-**) metathesized to the end of the syllable where it emerged as a full vocalic element.[70]

Pulleyblank later became concerned that it was not necessarily appropriate to reconstruct medial ***-r-** for all second-division syllables, since in many cases there was no independent evidence (such as alternations in phonetic series with **l-**) to point to an Old Chinese consonant cluster. More problematic are Middle Chinese second division syllables with

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[69]In some cases he posited other origins for second-division rhymes and initials. See Pulleyblank 1962:110.

[70]This raises the problem of its use in transcribing Sanskrit retroflexes. Pulleyblank (1991:13) says simply, "a back unrounded element in the nucleus would also have been acoustically appropriate for representing retroflexion in transcriptions of Sanskrit, which provided one of the principal pieces of evidence for reconstructing retroflex vowels [originally]." While retroflection is a feature of the vowel and so arguably of the syllable, it seems less likely that a final vocalic element, despite its acoustic imprint, would be suitable for transcribing Sanskrit retroflex *initials* at the expense of mismatching the vowel.

glottal initial, which Pulleyblank originally presumed came from Old Chinese clusters ***ʔr-**. In Pulleyblank 1996b, he suggested that in Old Chinese [ʔ-] was not a contrastive phoneme but rather an automatic articulatory feature of vowel-initial syllables. This would make clusters of the type ***ʔr-** impossible. Even if one chooses to continue to reconstruct an independent initial ***ʔ-**, there is some doubt as to the probability of any language having clusters like ***ʔr-** (1996:18).[71] Furthermore, there are no examples of phonetic series alternation between Middle Chinese **ʔ-** and **l-**, or of Chinese/Tibeto-Burman cognates where TB has **-r-** and Middle Chinese has **ʔ-**.

Old Chinese vowel length contrasts and second division

The upshot is that Pulleyblank considers that there might have been two independent origins for Middle Chinese second division. One is clusters with ***-r-**. The other requires the establishment of a vowel length contrast for Old Chinese, and the assumption that in Type A syllables the second mora was replaced by **-ɨ-**.[72] Thus we have ***aá** > **aɨ**, ***əə́** > **əɨ**. This would account for situations where Tibeto-Burman cognates lack medial **-r-**.

Removing medial ***-r-** from the Old Chinese reconstruction of some LMC second-division words means, however, that retroflex initials in those words need to be accounted for. Recall that in addition to conditioning second-division rhymes, one function of medial ***-r-** is to derive the Middle Chinese retroflexes from Old Chinese dentals. Pulleyblank's solution is to argue that the acoustic quality of **-ɨ-** was sufficient to induce retroflection once the contrast between plain and retroflex initials had already become established: "*t and *s would have been assimilated to [tɹ] and [ʂ] in front of the diphthongs [aɨ] and [əɨ]" (1996:18). The argument appears somewhat circular, and there

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[71]This of course raises the question of accounting for *chóngniǔ* third-division syllables with initial ***ʔ-**, which in Pulleyblank's system would be derived from ***ʔr-** clusters in Type A syllables (see below). It is not clear how this problem would be dealt with. One can also take issue with Pulleyblank's claim that ***ʔr-** is typologically unusual; a number of well-described languages (such as Nusu and Bwe Karen,) have glottalized resonant initials which can be analyzed as sequences of glottal stop plus resonant. See Namkung 1996.

[72]A vowel length contrast was set up originally by Pulleyblank (1962) to account for the Type A/B contrast, but was revised (1973) to a prosodic distinction.

is some doubt about the likelihood of an initial consonant assimilating to a segment from which it is separated by an intermediate plain vowel. Nevertheless, the suggestion of multiple origins for Middle Chinese second-division words is a useful one and should be pursued to see how adequately it accounts for other phenomena.

Medial ***-r-*** *and* chóngniŭ *distinctions*

Medial ***-r-** of course also occurs in Type B syllables, where its effect may be compared to medial ***-rj-** in Li's system. It accounts for the occurrence of retroflex initials in Middle Chinese third-division (Type B) syllables. After labial, velar, and glottal initials, however, Pulleyblank's medial ***-r-** has a very different function than Li's ***-rj-**. Instead of causing palatalization of velars, it accounts for the development of *chóngniŭ* third-division syllables, eliminating the need for Li's ***-j-**/***-ji-** distinction.

Pulleyblank (1962) noticed that when velars and labials in third division alternate with **l-** in phonetic series, they are invariably *chóngniŭ* third-division rather than fourth-division words. The following examples illustrate the point (1962:110). (The EMC forms have been retranscribed to match Pulleyblank 1991):

chóngniŭ third-division word	**l**-initial word in same phonetic series
變 pian^{h}	䜌 lwan
筆 pit	律 lwit
泣 k^{h}ip	立 lip
品 p^{h}im^{h}	臨 lim

He also noticed the tendency for lower *fănqiè* spellers of *chóngniŭ* third-division words to correlate with lower *fănqiè* spellers of words with retroflex initials, were already presumed to come from medial ***-r-**. This suggested that medial ***-r-** in Type B syllables was at least one source of *chóngniŭ* third-division words.

Medial ***-r-**, like medial ***-j-**, had the effect of fronting ***-ɨ-** to ***-i-** in Type B syllables, but then dropped without a trace (Pulleyblank 1994:80). Since no palatal glide was subsequently introduced, these words became *chóngniŭ* third division. Thus 筆 is reconstructed ***prət** > **pit**. Compare this with the development of ***-ɨ-** in the presence of

other fronting factors (such as a palatalized coda), which not only caused fronting to ***-i-** but also the insertion of a glide **-j-** after labial and velar codas, creating the contrasting *chóngniǔ* fourth-division syllables. For example, 賓 ***pəŋʲ** > ***pɨŋʲ** > **pjin** as discussed above in Section 2.2.3.

The effects of medial ***-r-** can be summarized as follows:

1) In Type A syllables, it leads to the development of second-division vowels

2) In Type B syllables after labials, velars, and gutturals, it leads to the development of *chóngniǔ* third-division words.

3) In Type A and B syllables, it causes retroflection of the dental stops and affricates.

The problems with Pulleyblank's current proposals involve second-division words which are not descended from medial ***-r-** and *chóngniǔ* third-division words with initial **ʔ-** (*yǐng-mǔ* 影母). The ramifications of the addition of a vowel-length distinction to Pulleyblank's Old Chinese system need to be further explored, and the effect of long vowels in Type B syllables has yet to be described. Furthermore, the consequences of abolishing ***ʔ-** as an Old Chinese phoneme require a more detailed exegesis. On these questions we must await further publications by Pulleyblank.

2.2.5 Medial *-rj-

As we have seen, medial ***-r-** by itself conditions second-division and *chóngniǔ* third-division rhymes in Middle Chinese. The effect of medial ***-j-** depends on syllable type. In Type A syllables, it leads to the development of fourth-division (as opposed to first-division) rhymes, paralleling medial ***-i-** in Li Fang-kuei's system. In Type B syllables, it leads to the development of *chóngniǔ* fourth-division rhymes, again paralleling medial ***-i-** in Li's system.

It is not surprising then that Pulleyblank's ***-rj-** is similar to Li's ***-ri-** medial. That is, in Type A syllables it accounts for the higher vowel in second-division rhyme splits.

For example, Pulleyblank (1994:78) reconstructs 八 as ***prját** > **pəɨt**; compare with Li's ***priat** > **pwăt**. (See the discussion of rhyme splitting in Section 2.1.6.) Were the ***-j-** not present, the development would be ***prát** > **paɨt**, equivalent to Li's ***prat** > **pwat**.

Another way of describing the effect of ***-rj-** here is to say that it raises ***a** to ***ə**; in other words, ***-rja-** develops just like ***-rə-**. This accounts for the 'rhyme merging' phenomenon, which complements rhyme splitting in the development of Middle Chinese. For while two second-division rhymes may be derived from each of the Old Chinese YUáN 元 ***-an** and JÌ 祭 ***-at** groups, one of those rhymes is also descended in part from the ZHēN 真 and ZHĪ 脂 groups. Compare the following developments in Li and Pulleyblank:

OC group	Li	Pulleyblank	MC rhyme
YUáN 元	*-ran > -an	*-rán > -aɨn	Shān 刪 rhyme
	*-rian > -ăn	*-rján > -əɨn	Shān 山 rhyme
ZHēN 真	*-rin > -ăn	*-rə́n > -əɨn	Shān 山 rhyme

In Li's system a syllable of the type ***-riin** is not possible, but the Pulleyblank equivalent ***-rjín** should be possible. It is not clear which words would be reconstructed that way, but they would presumably develop along the same lines as those with final ***-rín**.

It seems that ***-rj-** is not reconstructed in Type B syllables; at least I can find no examples in Pulleyblank's publications. Recall that in Type B syllables ***-r-** leads to *chóngniǔ* third-division rhymes, and ***-j-** leads to *chóngniǔ* fourth-division rhymes. The effect of a combined medial ***-rj-** would then seem self-contradictory. Nevertheless, the syllable structure of Pulleyblank's Old Chinese suggests that ***-rj-** medials should occur in both Type A and Type B syllables.

Continuing our analogy with Li Fang-kuei's reconstruction, we note that the medial equivalent to Li's ***-rji-** also is unattested. This medial is reconstructed by Li when ***-ji-** is needed to condition a rhyme split and ***-r-** to explain retroflection of dentals or palatalization of velars (see Section 2.1.9). However, words requiring such a

reconstruction are few, and in Pulleyblank's system it is possible that the rhyme splits may be conditioned by consonantal articulations.

In summary, Pulleyblank's ***-rj-** has the following effects:

1) In Type A syllables it accounts for second-division rhyme splits (in contrast with ***-r-**).

2) It caused retroflection of initial dentals in such rhymes.

There are the following problems:

1) Medial ***-rj-** apparently does not occur in Type B syllables, for unexplained reasons.[73]

2) It is not clear how Pulleyblank accounts for third-division rhyme splits; that is, splits in Type B syllables. ***-rj-** (contrasting with ***-r-**, ***-j-**, or no medial) might be a sensible choice, since ***-rj-** serves precisely this function in Type A syllables.

2.2.6 Medials *-ʷ- and *-ɥ-

As I have noted earlier, Middle Chinese *hékŏu* syllables have limited distribution, and they can largely be accounted for by positing a series of Old Chinese labialized initials and by assuming secondary development of medial ***-w-** after labial initials. Li Fang-kuei had to reconstruct medial ***-u-** in a limited environment to explain additional *kāikŏu*/*hékŏu* contrasts.

In Pulleyblank's Old Chinese system, there is not only a series of labiovelar consonants, but also a series of palatolabiovelar consonants. In fact, the two series behave identically in Chinese, with the palatolabiovelars merging with the labiovelars. The palatolabiovelars are reconstructed as initials to account for words like 犬 'dog' (1996:24) which in Tibeto-Burman sometimes have reflexes with **-w-** and sometimes with **-j-**.

As in Li Fang-kuei's system, Middle Chinese *hékŏu* syllables with velar or guttural initials are descended from Old Chinese labiovelars (and labiolaryngeals), or the

[73]Although, for reasons I don't understand, Baxter 1992 contains a number of charts giving reconstructions according to Pulleyblank's 1977-78 system of the form ***-r(j)V-** in Type B syllables.

aforementioned corresponding palatolabialized initials. Under the influence of labialized initial or final velars, Type B syllables developed a high glide ***-u-** rather than ***-ɨ-** (which in turn became **-w-** in LMC). In Type A syllables, the labialized initials led directly to EMC medial **-w-**.

For example, consider 丘 ***k^{hW}ðü** > **k^{h}uw**. Unfortunately, the reconstruction of such initials is not straightforward. Pulleyblank notes (1996:23): "Separating original velars, labiovelars and palatolabiovelars in syllable initials position is a complicated problem and has not been fully worked out. It seems clear, however, that labiovelar ***k^{W}** and ***x^{W}** lost their labialization in front of the vowel ***a** before the time of Middle Chinese but retained it before original ***ə**." It would seem then that some *hékǒu* syllables with Middle Chinese velar initial, derived from an Old Chinese rhyme group with ***a**, would be difficult to explain.[74]

An additional source of *hékǒu* syllables is the development ***w-** > **ɣw-** in Type A syllables, which parallels the obstruentization ***l-** > **d-** (1996:23).

In at least some cases, *hékǒu* syllables with coronal initials can be traced back to Old Chinese labiovelars or palatolabiovelars in Pulleyblank's system, for example (1996:23) the earthly branches (*dìzhī* 地支) 丑 EMC **tr^{h}uw'** < OC ***x^{W}-** and 戌 EMC **swit** < OC ***x^{ɥ}-**. However, the number of syllables that can be accounted for in this way is quite small.

In sum, Pulleyblank attributes Middle Chinese *hékǒu* syllables (those with **-u-** or **-w-** in EMC) to a variety of sources:

1) Labialized initials (when preceding the vowel ***ə**)

2) Palatolabialized initials

3) Labialized finals

4) Old Chinese initial ***w-** > **ɣw-**

[74]It is possible that Pulleyblank might reconstruct such words either with palatolabiovelar initials, or with labialized finals to account for the development of *hékǒu* elements in Middle Chinese.

There are a number of problems with these proposals:

1) They account for only a portion of Middle Chinese syllables, and do so in an incomplete way which will require further elucidation by Pulleyblank.

2) They seem unable to account for the numerous *kāikǒu*/*hékǒu* distinctions found after all initials in Middle Chinese rhymes descended from the Gē 歌, YUáN 元, and YUè 月 groups (***-al**, ***-an**, ***-at** in Pulleyblank's system), which have vowel ***a** and non-labialized finals.

2.2.7 Medial *-l-

In 1962, in addition to proposing a medial element ***-l-** (later revised to ***-r-**), Pulleyblank also proposed medial ***-d-** (a voiced dental fricative) which was later revised to ***-l-**. It was reconstructed for syllables which showed alternation in phonetic series with **l-** but did not develop second-division vocalism. It was basically restricted to clusters with velars and labials, but was also reconstructed after ***n-** and ***s-** to account for certain special developments.

As a simple initial, Pulleyblank had reconstructed ***d-** > **d-** (now revised to ***l-** > **d-**), and in a parallel manner he reconstructed ***Cd-** > **d-** for voiced consonants **C-**. For example, 唐 ***gdaŋ** > **daŋ**. When ***C** was voiceless, ***-d-** either dropped without a trace (before short vowels) or became the "close palatal glide" **-y-** (before long vowels), which was the defining characteristic of *chóngniǔ* fourth division in his Middle Chinese at that time.

In many respects Pulleyblank's medial ***-l-** bears some resemblance to Li Fang-kuei's medial ***-l-**, which is also reconstructed when phonetic series indicate a relationship to Middle Chinese **l-** but the syllable is not second-division and so cannot be reconstructed with ***-r-**. Of course, Li reconstructed ***-l-** in a number of *chóngniǔ* third-division words, in which Pulleyblank instead reconstructs ***-r-**, so the parallel is not exact.

We saw earlier that in Pulleyblank's EMC reconstruction, medial **-j-** arose before the vowel **-i-** after velar, labial, and guttural initials, accounting for some of the *chóngniŭ* fourth-division words of LMC. This hypothesis conflicts, however, with the proposed condition for palatalization of Old Chinese velars, which is precisely before **-ji-** < **-i-** (1984:176). In other words, we have the two proposed developments ***Ki-** > **Kji-** and ***Ki-** > **Kji-** > **Tɕi-**, which are mutually contradictory. How to explain the presence of velar-initial *chóngniŭ* fourth-division words like 緊 EMC **kjin'**, 棄 EMC **k^{h}ji^{h}**, 吉 EMC **kjit**, 輕 EMC **k^{h}jiajŋ**? Why didn't they palatalize?

Pulleyblank tentatively suggests that these words might be reconstructed with medial ***-l-**, which disappeared but not before blocking palatalization of velar initials. He hesitates to strongly endorse the idea because there is no independent evidence (such as alternation in phonetic series with **l-**) to support it. Indeed, we saw earlier that the motivation for reconstructing ***-r-** to account for *chóngniŭ* third-division words was precisely that these words, and <u>not</u> *chóngniŭ* fourth-division words, tended to alternate in phonetic series with **l-**.

Pulleyblank 1994:80 returns to the idea, reconstructing 緊 as ***k-ə̀ŋ^{j}?** > EMC **kjin'** and noting that "the hyphen in the reconstructed Old Chinese form may indicate a lost medial element, perhaps ***l**".

In summary, Pulleyblank reconstructs ***-l-**

1) in syllables with velar, labial, or guttural initials which show alternation in phonetic series with **l-** but do not develop second-division or *chóngniŭ* third-division vocalism;

2) possibly in velar-initial *chóngniŭ* fourth-division words to explain why they didn't palatalize in EMC.

In both cases ***-l-** apparently disappeared without a trace.

2.2.8 Summary and critique of Pulleyblank's Old Chinese system of medials

Many of Pulleyblank's suggestions, published in 1962, about the function of medial elements in Old Chinese have been welcomed by other scholars and adopted into their own systems of reconstruction. I have already noted the influence on Li Fang-kuei's system, and we will see its further effects in our discussion of William Baxter and Gong Hwang-cherng.

Inevitably, however, many aspects of Pulleyblank's medial system are interrelated with his proposals regarding Old Chinese vowels and initials. These proposals (namely, the two-vowel system and the four-way distinction among secondary articulations in velar series) remain highly controversial.

Because Pulleyblank has not published a complete Old Chinese reconstruction, it is difficult to summarize his medial system as a coherent whole. While some aspects of the system have been discussed in detail in his publications, others can only be induced from the limited number of fully reconstructed examples which appear in his publications. It is therefore difficult to assess whether apparent gaps or contradictions are in fact fundamental flaws of his system, or are merely minor details whose solutions have yet to emerge.

In the previous sections I have discussed the medial elements ***-j-**, ***-ʲ-**, ***-r-**, ***-ʷ-**, ***-ɥ-**, and ***-l-**. Of these, the elements ***-ʲ-**, ***-ʷ-** and ***-ɥ-** are in fact consonantal features, and should in theory be able to combine with any of the other three medial elements. (In practice, Pulleyblank has not provided enough reconstructed forms to enable verification of this.) We can briefly summarize the effects of these seven simple medial elements as follows:

***-r-**	retroflex initials; second-division rhymes (A); *chóngniŭ* third-division rhymes (B)
***-j-**	fourth division rhymes (A); some (?) *chóngniŭ* fourth-division syllables (B)
***-ʲ-**	fronting of vowel to **-i-** (B)
***-ʷ-**	*hékŏu* syllables with velar and laryngeal initials (only with ***ə**)
***-ɥ-**	*hékŏu* syllables with velar and laryngeal initials
***-l-**	blocks palatalization of *chóngniŭ* fourth-division velars (?), drops without effect

In addition, we noted the existence of a single medial cluster:

***-rj-**	retroflex initials, rhyme splitting (A)

The main difficulties with Pulleyblank's medial system are distributional.

(1) Medial ***-j-** seems to have an extremely limited distribution in Type B syllables, perhaps limited to the cluster ***ʔj-**. It is not clear in general how the syllable structure accounts for the presence of both medial ***-j-** and the palatal co-articulation ***-ʲ-**, or whether they could co-occur in a single syllable. In some instances the effects of these two medials seem to be identical, and it is not clear how to decide which is called for in the reconstruction of a particular word.

(2) While labialized coarticulations account for *hékŏu* syllables after velars and a few acute initials, it is not clear how *hékŏu* syllables after all acute initials in the Gē 歌, YUáN 元, and YUè 月 groups are accounted for in Pulleyblank's system.

(3) Medial ***-rj-** seems to be confined to Type A syllables. I have not seen any clear-cut criterion for when to reconstruct ***-rj-** in Type B syllables, although Baxter (1992) cites many of Pulleyblank's cover reconstructions with medial ***-r(j)-** in Type B syllables.

(4) The distribution of ***-l-** seems quite limited, and its functions uncertain. As with Li's system, this is in part simply due to the lack of clear-cut internal evidence indicating where it should be reconstructed.

Pulleyblank's and Li Fang-kuei's systems of reconstructions are quite different in their methodology, their conception of syllable structure, and their phonological inventories. Nevertheless, we have noted some deep similarities in the medial system by setting up an analogy between Pulleyblank's ***-j-** and Li's ***-i-**. The similar nature of the difficulties

these parallel elements raise within their respective reconstruction systems suggests that there is a fundamental problem which has yet to be adequately addressed.

2.3 The system of William Baxter (1992)

William Baxter's Old Chinese reconstruction traces its influences to the work of Yakhontov and Bodman. Although only recently published, it has already become influential in the field. A revised version is expected to be published in the near future. One of the revisions is directly relevant to the study of medials, and will be addressed in Section 2.3.10 following the main overview of the reconstruction.

2.3.1 Middle Chinese

Baxter's Middle Chinese is not a reconstruction *per se*, but a "typable transcription" meant to capture the distinctions encoded in the *Qièyùn* phonological system. The symbols employed in the transcription are not meant to represent any particular phonetic content or even necessarily to represent distinct segments; they merely embody contrasts. Nevertheless, the transcription reflects certain assumptions about the nature of Early Middle Chinese which are relevant to Baxter's Old Chinese reconstruction.[75]

Baxter's Middle Chinese is in many respects similar to the emendation of Karlgren's Middle Chinese used by Li Fang-kuei. Third-division rhymes are characterized by the presence of medial **-j-** (which is however omitted in transcription as predictable following the palatal initials). *Chóngniŭ* fourth-division syllables are written with medial **-ji-**. First-division vowels are back; second-division vowels are front; fourth-division vowels are high front. Perhaps the most significant deviation from Karlgren's system is the lack of a medial **-i-** in fourth-division rhymes, which are characterized by the simple vowel **e**.

[75]For a discussion of the degree to which this Middle Chinese transcription influences the reconstruction of Old Chinese, see the debate in Pulleyblank's (1993) review of Baxter 1992 and Baxter's (1994) reply.

INITIALS

幫	p-	滂	ph-	並	b-	明	m-				
端	t-	透	th-	定	d-	泥	n-			來	l-
知	tr-	徹	trh-	澄	dr-	娘	nr-				
精	ts-	清	tsh-	從	dz-			心	s-	邪	z-
照二	tsr-	穿二	tsrh-	床二	dzr-			審二	sr-		zr-
照三	tsy-	穿三	tsyh-	床三	zy-	日	ny-	審三	sy-	禪	dzy-
見	k-	溪	kh-	群	g-	疑	ng-	曉	x-	匣	h-
影	ʔ-	喻三	h(j)-	喻四	y-						

Notes:

- **r** represents retroflex articulation of the preceding consonant
- **y** represents palatal articulation of the preceding consonant
- **h** is a voiced guttural fricative [ɦ] or [ɣ]
- **ng** is a velar nasal

FINALS

		一等		二等		三等		四等	
果	開	歌	a	麻	æ	麻	jæ 歌 ja		---
	合	戈	wa	麻	wæ	戈	jwa		---
遇		模	u		---	魚	jo		---
			---		---	虞	ju		---
蟹	開	咍	oj	皆	ɛj	祭	j(i)ej	齊	ej
	合	灰	woj	皆	wɛj	祭	jw(i)ej	齊	wej
	開	泰	aj	夬	æj	廢	joj		---
	合	泰	waj	夬	wæj	廢	jwoj		---
	開		---	佳	ɛɨ		---		---
	合		---	佳	wɛɨ		---		---
止	開		---		---	支	j(i)e		---
	合		---		---	支	jw(i)e		---
	開		---		---	脂	(j)ij		---
	合		---		---	脂	(j)wij		---
	開		---		---	之	i		---
	開		---		---	微	jɨj		---
	合		---		---	微	jwɨj		---
效		豪	aw	肴	æw	宵	j(i)ew	蕭	ew
流		侯	uw		---	尤	juw		---
			---		---	幽	(j)iw		---
咸		談	am	銜	æm	鹽	j(i)em	添	em
		覃	om	咸	ɛm	嚴	jæm		---
			---		---	凡	jom		---
深			---		---	侵	(j)im		---
山	開	寒	an	刪	æn	仙	j(i)en	先	en
	合	桓	wan	刪	wæn	仙	jw(i)en	先	wen

	開		---	山	εn	元	jon		---
	合		---	山	wεn	元	jwon		---
臻	開	痕	on		---	欣	jɨn		---
	合	魂	won		---	文	jun		---
	開		---		---	真	(j)in		---
	合		---		---	諄	(j)win		---
	開		---		---	臻	in		---
宕	開	唐	ang		---	陽	jang		---
	合	唐	wang		---	陽	jwang		---
梗	開		---	庚	æng	庚	jæng	青	eng
	合		---	庚	wæng	庚	jwæng	青	weng
	開		---	耕	εng	清	j(i)eng		---
	合		---	耕	wεng	清	jw(i)eng		---
曾	開	登	ong		---	蒸	ing		---
	合	登	wong		---		---		---
通		東	uwng		---	東	juwng		---
		冬	owng		---	鍾	jowng		---
江			---	江	æng		---		---
咸		盍	ap	狎	æp	葉	j(i)ep	帖	ep
		合	op	洽	εp	業	jæp		---
			---		---	乏	jop		---
深			---		---	緝	(j)ip		---
山	開	曷	at	鎋	æt	薛	j(i)et	屑	et
	合	末	wat	鎋	wæt	薛	jw(i)et	屑	wet
	開		---	黠	εt	月	jot		---
	合		---	黠	wεt	月	jwot		---
臻	開	沒	ot		---	迄	jɨt		---
	合	沒	wot		---	物	jut		---
	開		---		---	質	(j)it		---
	合		---		---	術	(j)wit		---
	開		---		---	櫛	it		---
宕	開	鐸	ak		---	藥	jak		---
	合	鐸	wak		---	藥	jwak		---
梗	開		---	陌	æk	陌	jæk	錫	ek
	合		---	陌	wæk	陌	jwæk	錫	wek
	開		---	麥	εk	昔	j(i)ek		---
	合		---	麥	wεk	昔	jw(i)ek		---
曾	開	德	ok		---	職	ik		---
	合	德	wok		---	職	wik		---
通		屋	uwk		---	屋	juwk		---
		沃	owk		---	燭	jowk		---
江			---	覺	æk		---		---

Notes:

• **o** represents a back unrounded vowel

2.3.2 Old Chinese

Baxter's Old Chinese reconstruction is unique in that it depends on an analysis of *Shījīng* rhyme categories which deviates in important ways from the traditional analysis arrived at by the Qīng dynasty philologists. Baxter argues that the increasingly sophisticated analyses of that period, which succeeded in discovering ever finer rhyming distinctions, were never brought to their logical conclusion. With the help of modern statistical techniques, additional rhyme distinctions can now be identified with precision. For example, Baxter claims that the traditional YUáN 元 rhyme group is actually composed of three distinct rhyme groups (which he reconstructs ***-en**, ***-an**, ***-on**). The Qīng philologists mistakenly conflated these three groups because of the small amount of cross-rhyming between them.

This reinterpretation of the traditional Old Chinese rhyme groups, which remains controversial, permits the proposal of two hypotheses which are central to Baxter's six-vowel reconstruction:

1) The *rounded-vowel hypothesis* (1992:236-240) says that Middle Chinese *hékǒu* syllables with coronal initials are derived from Old Chinese rounded vowels, which diphthongized. The hypothesis is due originally to Yakhontov (1960).

2) The *front-vowel hypothesis* (1992:240-247) says that contrasts between first-division and fourth-division Middle Chinese rhymes are due to contrasts between front and back vowels in Old Chinese.

These two hypotheses make it possible to eliminate Li Fang-kuei's medials ***-u-** (which accounts for MC *hékǒu* syllables after coronal initials) and ***-i-** (which accounts for the development of MC fourth-division rhymes). Li's diphthongs ***ua**, ***ia**, ***iə** are replaced in Baxter's system by monophthongal back rounded and front vowels. The result is a balanced six-vowel system (***i**, ***ɨ**, ***u**, ***e**, ***a**, ***o**) entirely lacking in vocalic medials. The additional rhyming contrasts implied by this vowel system are in turn supported by

Baxter's reanalysis of the *Shījīng* rhyme groups, which allows him to preserve the single-vowel principle.

2.3.3 Medial *-j-

Baxter, like Li Fang-kuei, reconstructs medial ***-j-** to account both for the development of Middle Chinese third-division rhymes and for the palatalization of Old Chinese dental stops. Medial ***-j-** often had no effect at all on the development of the main vowel, as in ***-jang** > **-jang** and ***-jen** > **-jien**. In other cases, the effect of ***-j-** on the vowel depends on the surrounding environment; for example, in acute-initial syllables with non-back codas, the main vowel was fronted, as in ***njan** > **nyen**.

In addition to palatalizing Old Chinese dentals, Baxter follows Pulleyblank (1962) in proposing that velar initials palatalized before medial ***-j-** and a front vowel. (Pulleyblank reformulated this rule (1984:176) as ***Ki** > **Kji-** > **Tɕi-**.) Recall that Li Fang-kuei proposed that Middle Chinese palatal initials derived from Old Chinese velars should be reconstructed ***sKj-**, then revised the reconstruction to ***Krj-**. I have already discussed the problems with this reconstruction.

Pulleyblank noted that the vast majority of velar palatalizations involve front vowels. In Baxter's system, the rule is formulated this way:

kj-**, ***khj-**, ***gj-**, ***ngj-**, ***hngj-** > **tsy-**, **tsyh-**, **dzy-**, **ny-**, **sy-** / ___ {i**,***e**}

As Baxter notes (1992:213), however, there are a significant number of exceptions to this rule. These exceptions fall into two classes: velars which palatalize before back vowels, and velars which fail to palatalize before front vowels. In the former case, Baxter writes the velar initial in capital letters to draw attention to its aberrant behavior, as in 車 ***KHjA** > **tsyhæ**.[76] The latter case involves *chóngniǔ* fourth-division syllables with velar initials; these have been discussed in Section 2.2.7. Pulleyblank tentatively suggested

[76]It is worth noting that in some, though not all, of the exceptional words, the offending back vowel is ***A**, which is how Baxter writes ***a** when it shows irregular development into Middle Chinese. It may well be that ***A** was some sort of front vowel, which would account both for its development into Middle Chinese and for the palatalization of velars.

reconstructing medial ***-l-** to explain why these initials failed to palatalize. Baxter rejects this explanation, instead simply writing the medial as ***J** and leaving the problem unsolved, e.g. 吉 ***kJit** > **kjit**.

In sum, the effects of ***-j-** in Baxter's system are nearly identical to those in Li's system, with the additional of velar palatalization:

1) Development of third-division rhymes with medial **-j-** in Middle Chinese

2) Palatalization of Old Chinese dental stops and dental nasal

3) Palatalization of Old Chinese velars before front vowels

The problems with medial ***-j-** are all related to velar palatalization. In some cases velars palatalize where they shouldn't, and in other cases they fail to palatalize where they should.

2.3.4 Medial *-r-

Baxter reconstructs medial ***-r-** for all words in Middle Chinese second-division rhymes, for reasons which have been thoroughly discussed already in Section 2.1.4. In Baxter's formulation, the effect of medial ***-r-** on old Chinese vowels is to make them front and lax (1992:260, 265-267).

In general, the effects of Baxter's medial ***-r-** are equivalent to Li Fang-kuei's:

1) Development of second-division front, lax vowels in Middle Chinese

2) Retroflection of Old Chinese dentals

The one difference between Li's and Baxter's reconstruction of ***-r-** is that Baxter reconstructs ***-rj-**, rather than simply ***-r-**, as the origin of some second-division syllables with retroflex sibilant initials. This will be discussed in more detail in the following section.

Medial ***-r-** must be contrasted in Baxter's system with initial clusters of the type ***C-r-**, where **C** is voiced stop **g** or **b**.[77] These clusters give rise to Middle Chinese initial

[77]Baxter does not mention or reconstruct ***d-r-**, but it is certainly a theoretical possibility in his system.

l-. Although ***r** in these clusters is treated by Baxter as an initial, it needs to be examined in conjunction with medial ***-r-**. Baxter himself notes (1992:200) that "the exact nature of the distinction between these hyphenated and non-hyphenated clusters remains to be determined".

The problem is a difficult one. There is ample evidence in phonetic series and Tibeto-Burman cognates that many Middle Chinese **l-** words had in Old Chinese a velar or labial component, and this in turn suggests that such words originated in ***Cr-** clusters. (Li reconstructed these with ***Cl-** clusters.) At the same time, the hypothesis that second-division words are derived from medial ***-r-** dictates that those words also be reconstructed with ***Cr-** clusters. Baxter leaves the problem essentially unresolved. I will return to the issue in the discussion of Gong Hwang-cherng's system.

One difficulty with Baxter's system arises from his assumption that Middle Chinese **l-** is always derived from ***C-r-** clusters, and never simply from ***r-** (which becomes **j-**). In some cases there is evidence allowing a specific reconstruction as ***g-r-** or ***b-r-**, but in many cases he must simply reconstruct an agnostic ***C-r-**. This becomes problematic in phonetic series where labials, velars, and dentals all alternate with **l-**. For example, consider Baxter's reconstructions for the following series:

龍 *C-rjong > ljowng
龐 *b-rong > luwng, *brong > bæwng
寵 *hrjongʔ > trhjowngX
龔 *krjong > kjowng

This reconstruction looks reasonable until we try to substitute either **b** or **g** for the **C** in ***C-rjong**. Whichever one we choose, we have an incompatibility with another word in the phonetic series. In this case, it would appear that revising Baxter's system so that ***r-** > **l-** would be an improvement, since it would allow the reconstruction of ***rjong** for 龍.

2.3.5 Medial *-rj-

The medial ***-rj-*** plays a major role in Baxter's system, accounting not only for retroflex initials in third-division rhymes (as it does in Li Fang-kuei's system), but also for *chóngniǔ* distinctions (following Pulleyblank) and for rhyme splits. Moreover, it is reconstructed sometimes after velars solely on the basis of alternations in phonetic series, and sometimes after dental sibilants in syllables which became second-division rather than third-division.

As in Li's system, medial ***-rj-*** is reconstructed to account for the presence of Middle Chinese syllables with retroflex initials in third-division rhymes. For example, the words 衝 and 重 are both in the third-division Dōng 東 rhyme, transcribed **-jowng** by Baxter. The former has a palatal initial while the latter has a retroflex initial. Baxter reconstructs

衝 *thjong > tsyhowng
重 *drjong > drjowng

But Baxter's use of ***-rj-*** also differs in significant respects from Li's. Li Fang-kuei reconstructed ***-rj-*** in third-division words only when the initial showed evidence of the effects of ***-r-*** (retroflection of dentals and palatalization of velars). The ***-r-*** component never had an effect on the vowel, and ***-rj-*** was not reconstructed to account for alternation in phonetic series with **l-**.

In Baxter's system, ***-rj-*** is sometimes reconstructed solely on the basis of phonetic series. For example, 龔 **kjowng** could be derived from ***kjong**, but is reconstructed ***krjong** to account for the phonetic element 龍 **ljowng** < ***C-rjong**.

Moreover, the ***-r-*** component of ***-rj-*** could have an effect on vocalic development, so that a contrast between ***-j-*** and ***-rj-*** could account for rhyme splits which Li attributed to a ***-j-**/***-ji-*** distinction. The Old Chinese YáNG 陽 group has reflexes in the third-division rhymes Yáng 陽 and Gēng 庚. Compare Baxter's reconstruction with Li's:

	Li	Baxter	
疆	*kjang > kjang	*kjang > kjang	Yáng 陽 rhyme
京	*kljiang > kjɐng	*krjang > kjæng	Gēng 庚 rhyme

Baxter's ***-r-** does double-duty here, simultaneously accounting for the development into the Gēng 庚 rhyme (the role played by ***-i-** in Li's reconstruction) and for the alternation in phonetic series with 涼 **ljang** < ***g-rjang** (the role played by ***-l-** in Li's reconstruction).

Li also used the ***-j-**/***-ji-** distinction to account for the development of *chóngniǔ* doublets. Baxter follows Pulleyblank in instead proposing that *chóngniǔ* third-division doublets have their origin in medial ***-rj-**, while *chóngniǔ* fourth-division doublets are derived simply from ***-j-**. (The motivation for this proposal was discussed earlier in Section 2.2.4.)

I have pointed out that because Li uses the ***-j-**/***-ji-** distinction to condition both rhyme splits and *chóngniǔ* doublets, contradictions occur in his reconstruction. Baxter similarly uses the ***-j-**/***-rj-** distinction to account for both rhyme splits and *chóngniǔ* doublets. His reconstruction does not suffer from the same contradictions, however, because the rhyme groups in which these usages conflict are precisely those which Baxter has further subdivided. For example, recall that in the YUáN 元 group, there is a rhyme split into the two third-division rhymes Yuán 元 and Xiān 仙. The latter rhyme also has a *chóngniǔ* distinction. Li Fang-kuei cannot account for both with just the ***-j-**/***-ji-** distinction. In Baxter's system, the YUáN 元 group is reconstructed ***-en**, ***-an**, ***-on**. Before ***-an** and ***-on**, the ***-j-**/***-rj-** distinction conditions a rhyme split. Before ***-en**, the ***-j-**/***-rj-** distinction conditions the *chóngniǔ* split. (In Baxter's system it is always the case that the *chóngniǔ* distinctions occur before front vowels.) For this reason there is never a conflict in Baxter's system between rhyme splitting and *chóngniǔ* distinctions.

The following chart lists the development of third-division syllables with bilabial initials in the traditional YUáN 元 group, with example characters

***Pjan** > **Pjon**	Yuán 元	反 *pjanʔ > pjonX	(Li *pjanx)
***Prjan** > **Pjen**	Xiān 仙 (cn-3)	??[78]	
***Pjen** > **Pjien**	Xiān 仙 (cn-4)	便 *bjen > bjienH	(Li *bjianh)
***Prjen** > **Pjen**	Xiān 仙 (cn-3)	??	
***Pjon** > **Pjon**	Yuán 元	??	
***Prjon** > **Pjen**	Xiān 仙 (cn-3)	弁 *brjons > bjenH	(Li *bjianh)

Finally, Baxter (1992:267-269) reconstructs ***-rj-** in some second-division syllables with retroflex sibilant initials. Because these are second-division words, they are reconstructed with the simple medial ***-r-** by Li Fang-kuei. Tung T'ung-ho (1944 [1948]:20-21) first observed that, for a given Old Chinese rhyme group, syllables with retroflex sibilants either all become second-division or all become third-division in Middle Chinese. In other words, in Old Chinese there is no contrast between what Li Fang-kuei would reconstruct ***TSr-** and ***TSrj-**. Tung proposed therefore that these were all originally "second-division" words, but that some later developed medial **-j-** and became third division. Baxter, on the other hand, proposes that the change went the other way: in some rhyme groups ***TSrj-** > **TSr-**, merging with original **TSr-** < ***TSr-**.[79] Thus, in Baxter's system words with Middle Chinese retroflex initials **TSr-** might reflect either ***TSr-** or ***TSrj-**. How to decide when to reconstruct ***-rj-**? Whenever it is necessary to explain what would otherwise be an aberrant vocalic development. For example, in Li Fang-kuei's system the word 生 ***sring** > **ṣɛng** is considered irregular, since ***-ring** > **-ɛng** is the normal development. But Baxter reconstructs ***srjeng** > **srjæng** > **sræng**, with the vowel conditioned by **-j-** before it disappeared.

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[78]The types marked with "??" are theoretically possible, but no specific examples can be found in Baxter 1992. This may reflect gaps in his system, or simply indeterminacy. Because the Middle Chinese syllables **Pjon** and **Pjen** each have multiple sources in Old Chinese, it is not possible to determine the Old Chinese reconstruction based on the Middle Chinese reading and the traditional OC rhyme group alone. It is also necessary to determine from rhyming or character phonetic whether the word is ***-an**, ***-on**, or ***-en**. This is not possible if the word doesn't rhyme in the *Shījīng* and isn't in phonetic series with a rhyming word; or if the word only rhymes with other ambiguous characters.

[79]Baxter's proposed change takes place between the stages of EMC and LMC. In other words, it is meant to account for the patterns of distribution found in the rhyme tables. If one only used the *fǎnqiè* spellings of the *Qièyùn*, many of the words involved would still be classed as "third division" in EMC, and the development from Old Chinese (e.g. ***srjeng** > **srjæng**) is straightforward. It is only when we look at the LMC reading sræng that the development from OC seems unusual.

Moreover, in the particular case of MC initial **sr-**, Baxter always reconstructs ***srj-**, since in his system ***sr-** > **tsh-** when no ***-j-** is present (1992:205).

We can now summarize the effects of medial ***-rj-** in Baxter's system:

1) Development of retroflex initials **Tr-** in third-division rhymes

2) Development of some retroflex initials **TSr-** (and all initials **sr-**) in second-division rhymes

3) Development of *chóngniǔ* third-division doublets after grave initials

4) Conditioning of rhyme splits (in contrast with ***-j-**) before back vowels

***-rj-** is also reconstructed after grave initials in OC groups which have neither rhyme splits nor *chóngniǔ* doublets when warranted by alternation with **l-** in phonetic series.

The role of front vowels in rhyme splits and fourth-division rhymes

In Section 2.1.6 I discussed the roles of medials ***-i-**, ***-ri-**, and ***-ji-** in Li Fang-kuei's system. In Baxter's system, the contrast between Li's ***-j-**/***-ji-** is replaced in part with a contrast between ***-jV$_1$-** and ***-jV$_2$** to account for some rhyme splits.[80] For example, in the YUáN 元 group Li's ***-jan**/***-jian** distinction corresponds (partially) to Baxter's ***-jan**/***-jen** distinction. The development of a higher Middle Chinese vowel is conditioned by the presence of ***-i-** for Li and the reconstruction of a front vowel for Baxter (in syllables with grave initials):

	Li	Baxter
元 > 元	*-jan > -jɐn	*-jan > -jon
元 > 仙	*-jian > -j(i)än	*-jen > -jien

The relationship between ***-i-** in Li's reconstruction and the front vowels in Baxter's reconstruction is in fact quite systematic. We have seen that Li reconstructed main vowel ***i** to account for some fourth-division rhymes, and diphthongs ***ia** and ***iə** (without a preceding medial) to account for others. In Baxter's system, all fourth-division rhymes are derived from front vowels ***i** or ***e** with no medial. There are certain advantages to this

[80]In Baxter's system, as we have seen, the higher MC vowel may also be conditioned by an ***-rj-** medial.

approach. For example, it is an interesting fact that the *rù*-tone portion of the YŌU 幽 group, which Li reconstructs ***-ək^{W}**, has reflexes in all four divisions, while the parallel ZHŌNG 中 group, which he reconstructs ***-əng^{W}**, has no fourth division reflexes. Li reconstructs the fourth-division words of the YŌU 幽 group (*rù* tone) as ***-iək^{W}** > **-iek**. In his system there is no explanation as to why syllables ***-iəng^{W}** do not exist. In Baxter's system, the YŌU 幽 group is split in two and reconstructed with finals ***-u** and ***-iw**. Fourth-division reflexes derive from the front vowel ***-iw**. But the ZHŌNG 中 group is not split; there is no final ***-iwng**, only ***-ung**. This parallels the absence of finals ***-awng** and ***-ing** in his system, and is a more satisfying explanation of the imbalance found in the traditional rhyme groups.

Li also used the distinctions between ***-ra-**/***-ria-** and ***-rə-**/***-riə-** to account for second-division rhyme splits. Once again, in Baxter's system these splits are conditioned by different vowels:

	Li	Baxter
元 > 元	*-ran > -an	*-ran > -æn
元 > 仙	*-rian > -ǎn	*-ren > -ɛn

In a very general way, it is thus possible to equate medial ***-i-** in Li's system, in its role as a conditioner of rhyme splits (if we consider the difference between first and fourth division reflexes to be a type of rhyme split), with the role of front vowels in Baxter's system. Or, to put it another way, Li's vowels ***ia** and ***iə** are roughly equivalent to Baxter's ***e** and ***i**. We will see below that Li's other Old Chinese diphthong, ***ua**, is similarly equivalent to Baxter's back rounded vowel ***o**. (These structural relationships are, of course, only approximate. It is in general not possible to simply substitute ***i**, ***e**, and ***o** for ***iə**, ***ia**, and ***ua** in Li's reconstructions and arrive at the correct reconstructions in Baxter's system.)

2.3.6 Medial *-^{W}-

Because of his adoption of Yakhontov's rounded-vowel hypothesis, Baxter's system does not contain medial ***-u-** or ***-w-**. All instances of Middle Chinese *hékǒu* syllables may be attributed to (1) labiovelar and labiolaryngeal initials ***K^{W}-**, (2) non-contrastive rounding after labial initials ***P-**[81], (3) the breaking of rounded vowels ***o** and ***u** before apical codas (Baxter 1992:235).

Where Li reconstructs ***ua** to account for the development of *hékǒu* syllables in the Gē 歌, Jì 祭, and YUáN 元 groups after dental initials, Baxter reconstructs ***o**. Where Li posits a general rule ***ə** > ***uə** / **T __ T** (where **T** represents any dental consonant) to account for apical-initial *hékǒu* syllables descended from the WēI 微 and WéN 文 groups, Baxter reconstructs ***u**. (Where this rule doesn't apply, i.e. after medials ***-i-** and ***-ji-** in Li's system, Baxter reconstructs the non-rounded vowel ***ɨ**.)

Baxter's refinement (1992:450) of the dividing line between the traditional WēI 微 and ZHĪ 脂 groups (which were first separated by Wang Li) is a very significant contribution which may have been overlooked by many scholars who do not accept Baxter's further splitting of the traditional rhyme groups. One of the effects of this realignment is to assign some *kāikǒu* syllables with dental initials to the WēI 微 group, making it parallel in this respect to the WéN 文 group (see Section 2.1.6). This makes the number of such words in the WēI 微 and WéN 文 groups large enough that Li's original proposal that all *kāikǒu* syllables shifted to *hékǒu* (except where blocked by medial ***-i-)** seems unsatisfying.

Baxter's reconstruction of the labiovelar and labiolaryngeal initials ***K^{W}-** is essentially identical to the reconstruction in Li's system. In Li's system, we have seen that there is an open question as to how to reconstruct Middle Chinese syllables like **kuân**, which could be reconstructed ***kuan** or ***k^{W}an**. (One could equally well argue that the distinction is

[81]In his Middle Chinese transcription, Baxter omits **-w-** (since it is noncontrastive) when writing syllables with labial initials, except where it is necessary to identify the *Guǎngyùn* rhyme. Thus many Middle Chinese syllables which are labeled *hékǒu* in the rhyme tables do not have medial **-w-** in Baxter's transcription. (For example, 反 ***pjan?** > **pjonX** appears as ***pjanx** > **pjwɐn** in Li's reconstruction.)

neutralized, and arbitrarily choose to write all such syllables as ***k^{W}an**.) In Baxter's system the same ambiguity occurs, but it may be possible to answer the question of whether to reconstruct ***kon** or ***k^{W}an** if the word in question is found rhyming in the *Shījīng* with unambiguous ***-an** or ***-on** syllables, or is in phonetic series with unambiguous ***-an** or ***-on** syllables.

In Li's system, syllables of the type ***K^{W}uan** would appear to be unlikely (it is hard to imagine how they could contrast with ***Kuan** or ***K^{W}an**), but in Baxter's system it is reasonable to ask why syllables of the type ***K^{W}on** do not occur. (Baxter does not appear to mention the possibility of such syllables.) In practice it would not be possible to identify such syllables based purely on Chinese evidence, since both their rhyming environments and Middle Chinese developments would be identical to ***Kon** syllables. But the existence of a contrast between ***K^{W}on** and ***Kon** seems phonetically plausible and might conceivably be reflected in Tibeto-Burman cognates.

2.3.7 Medial *-l-

We have seen that Karlgren reconstructed clusters with ***-l-** to account for phonetic series alternations between Middle Chinese **l-** and velar initials, and we have noted Yakhontov's discovery that medial ***-l-** conditioned the development of second-division rhymes. When Li Fang-kuei revised Yakhontov's ***-l-** to ***-r-**, he also revised Karlgren's clustered ***-l-** to ***-r-** when it occurred in second-division words. But in other divisions, Li retained Karlgren's ***-l-**.

Pulleyblank reconstructed medial ***-l-** (also later revised to ***-r-**) not only as the conditioning factor for second-division rhymes, but also to account for *chóngniǔ* third-division syllables. (This latter reconstruction appears as ***-rj-** in Baxter's system.) He also tentatively proposed clusters with ***-d-** (later revised to ***-l-**) to explain why the velar initials of some *chóngniǔ* fourth-division words failed to palatalize before front vowels.

Baxter also reconstructs clusters with ***-l-**, but for different reasons than both Li and Pulleyblank.

Baxter (1992:232) notes that Bodman (1980) proposed reconstructing two types of clusters with ***-l-** for Proto-Chinese (an earlier stage of the language than Old Chinese). One type, written ****Kl-**, merged with ***Kr-** clusters. The other type, written distinctively as ****K-l-**, developed into dental initials. Since Baxter is working at the Old Chinese stage, he does not reconstruct the first type of ****Kl-** cluster, but he does reconstruct the second type, which he also writes with a hyphen as ***K-l-**. In parallel, he also advances the possibility of clusters ***P-l-**.

Just as ***l-** > **d-** in Baxter's system, these ***-l-** clusters develop into Middle Chinese dentals, with voicing and aspiration conditioned by the velar or labial element of the cluster:

***k-l-**, ***p-l-** > **t-** ***kh-l-**, ***ph-l-** > **th-** ***g-l-**, ***b-l-** > **d-**

When followed by medial ***-j-**, the clusters develop into retroflex stops:

***k-lj-**, ***p-lj-** > **trj-** ***kh-lj-**, ***ph-lj-** > **trhj-** ***g-lj-**, ***b-lj-** > **drj-**

These clusters are reconstructed for Middle Chinese acute stop-initial words when phonetic alternations and/or related words in other language families point to an earlier velar or labial initial. In fact, support for these reconstructions is not strong. Some of the examples given by Baxter depend solely on comparisons with Miao-Yao, Austroasiatic and Tibetan. Baxter 1992 contains the following words which are reconstructed with ***-l-** clusters:

Set[82]		
474	桃	*g-law > daw
475	擔	*k-lam > tam
476	腸	*g-ljang > drjang
477	中	*k-ljung > trjuwng
479	匋	*b-lu > daw
689	對	*k-lups > twojH
690	答	*k-lup > top
1176	懟	*g-ljups > drwijH
9749.13	場	*g-ljang > drjang
9750.27	沖	*g-ljung > drjuwng
9750.29	忡	*kh-ljung > trhjuwng
9753.5	湛	*k-lɨm > tom
9753.10	萏	*(g)-lomʔ > domX
9753.22	陶	*b-lus > dawH
9791.19	唐	*g-lang > dang
9791.20	螗	*g-lang > dang

These would all be reconstructed with dental initials in Li Fang-kuei's system.

Baxter reconstructs a number of other clusters with ***-l-**. For example, he reconstructs ***sl-** (considered a cluster of prefix ***s-** and initial ***l-**) in words with Middle Chinese **s-** to explain contacts in phonetic series, with the development ***sl-** > **s-** having no effect on the vowel (Baxter 1992:225-6). Similarly, Baxter reconstructs ***zl-** > **z-**. Because ***z-** is not a prefix in Baxter's system, he suggests that this initial cluster may actually represent ***ɦsl-**, which is presumably initial ***l-** with prefix ***s-**, prefixed in turn by the "voicing pre-initial" ***ɦ-**.[83]

Because ***-l-** in clusters ***sl-** and ***zl-** leaves no trace in Middle Chinese, some syllables may be ambiguous, and Baxter's reconstructions therefore contain a number of syllables where **l** is placed in parentheses, e.g. (305) 詳 ***z(l)jang** > **zjang**.

Finally, there are a few places where Baxter reconstructs medial ***-l-** after velar initials, although this contradicts his statement that such clusters had already become ***Kr-** in Old Chinese. For example, he reconstructs 姜 ***k(l)jang** > **kjang**. In this case, phonetic

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[82]For words listed in Baxter 1992 Appendix C, an alphabetical listing (by *pīnyīn* spelling) of *Shījīng* rhyming words, I have assigned set numbers in the 9000's. The following three digits are the page number, and the number following the decimal point identifies the character on that page.

[83]Other scholars have hesitated to reconstruct ***z-** at all for Old Chinese, since its distribution in Middle Chinese is so limited. Li Fang-kuei, for example, proposes ***rj-** > **zj-** and does not reconstruct ***z-**.

series alternation with 詳 ***z(l)jang** > **zjang** and 羊 ***(l)jang** > **yang** suggests a medial ***-l-** as the only element which might link these words, but ****kljang** > ***krjang** would give **kjæng**, not **kjang**. (Medial ***-rj-** conditions development into the Gēng 庚 rhyme rather than the Yáng 陽 rhyme.) In such cases Baxter places the ***-l-** in parentheses, indicating his uncertainty.[84]

We might well ask at this point why Baxter does not need to reconstruct medial ***-l-** in the many words that Li reconstructs with medial ***-l-**. These words can be divided into three broad categories:

1) Middle Chinese initial **l-** (Li reconstructs ***gl-** or ***bl-**)

The origin of Middle Chinese **l-** in Baxter's system is ***C-r-** clusters, so these words may be reconstructed ***g-r-** or ***b-r-** in Baxter's system. The second-division stop-initial words with which they alternate are reconstructed ***kr-**, ***pr-**, etc. As we have seen, however, this solution begs the question of the exact nature of the distinction between ***Cr-** and ***C-r-** clusters.

2) Middle Chinese third division and third-division *chóngniǔ* (labial or velar initial)

We have already seen that these are reconstructed with medial ***-rj-** in Baxter's system.

3) Middle Chinese fourth division (labial or velar initial)

The one example of this in Li's system is 兼 ***kliam** > **kiem**. Li reconstructs ***-l-** because it is phonetic in 廉 **ljäm**. Baxter simply reconstructs ***kem,** and notes "in my reconstruction this [i.e. the phonetic series relationship] is unexplained" (1992:541).

As for Pulleyblank's medial ***-l-** which blocks velar palatalization, Baxter instead writes the medial as ***-J-** in these cases to highlight the irregular development. (See above.)

Medial ***-l-** is reconstructed in Baxter's system:

1) in ***K-l-** and ***P-l-** clusters to explain MC acute stop-initial words with phonetic series contacts with velars or labials.

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[84]On the other hand, in the case of (310) 薑 ***k(l)jang** > **kjang**, there is no evidence for ***-l-** in the phonetic series, and I am unclear on why Baxter reconstructs the word this way.

2) in ***sl-** and ***zl-** clusters to explain phonetic series contacts between Middle Chinese **s-** or **z-** on the one hand and **d-** (< ***l-**) or **j-** (< ***lj-**) on the other.

3) in ***k(l)-** clusters when ***l-** or ***C-r-** is suggested by phonetic series alternations but ***kr-** is not a suitable reconstruction.

2.3.8 Other medial combinations

In addition to the complex medial ***-rj-** which I have already discussed, other medial combinations are possible in Baxter's reconstruction.

Medial ***-l-**, both in hyphenated clusters like ***k-l-** and clusters like ***sl-**, can combine with medial ***-j-**, leading to Middle Chinese third-division words. For example:

中 *k-ljung > trjuwng

修 *sljiw > sjuw

Note that because of examples like 中, Baxter (1992:233) proposes that ***K-lj** > **Trj-**, i.e. that ***K-l-** clusters became retroflexes instead of plain dentals before ***-j-**.

Labiovelar and labiolaryngeal initials can combine with medials ***-r-**, ***-j-**, and ***-rj-**, but there are no examples of them combining with ***-l-**. This is somewhat surprising, since as unitary consonantal phonemes we should expect them to occur in all environments.[85] Furthermore, since they can combine with ***-r-** it seems equally plausible phonotactically that they should combine with ***-l-**.

Although initial ***l-** may combine with medial ***-r-** (as in 胄 ***lrjus** > **drjuwH**), medial ***-l-** does not seem to occur in combination with medials ***-r-** or ***-rj-**.

2.3.9 Summary and critique of William Baxter's Old Chinese system of medials

In general, Baxter's system of medials is neater and more compact than Li Fang-kuei's. His reconstruction retains the basic three-way distinction between no medial, medial ***-r-**, and medial ***-j-** which determine first-, second-, and third-division reflexes, respectively.

[85]Note too that these labialized initials are not reconstructed in syllables with back rounded vowels ***o** and ***u**.

His expanded six-vowel system allows him to eliminate the need for medial ***-i-**, which is in part replaced by the reconstruction of monophthongal front vowels to account for Middle Chinese fourth-division rhymes and rhyme splits in second and third division. It also lets him eliminate ***-u-**, which is replaced by the reconstruction of monophthongal back rounded vowels to account for Middle Chinese *hékǒu* syllables after dental initials. Finally, expanding the functionality of the ***-rj-** cluster explains *chóngniǔ* splits, rhyme splits, and phonetic alternations with **l-** without the contradictions of Li's ***-ji-**. In short, the increased number of vowels means fewer medial distinctions, which in turn means fewer internal contradictions.

I have however noted a few inconsistencies and gaps in Baxter's system. For example, the distribution of labiovelar and labiolaryngeal initials is peculiar, in that they do not occur with rounded vowels or with medial ***-l-**. The reconstruction of medial ***-l-** itself is problematic; it is reconstructed in few words and with a narrow distribution. Furthermore, Baxter reconstructs it (as ***(l)**) in a few places where its presence seems to be contradictory.

Moreover, the increased vowel inventory means that Baxter's Old Chinese syllable inventory is greatly expanded. In fact, many of the syllables which are implied by the reconstruction seem not to be instantiated by any words of Old Chinese. (Recall for example from Section 2.3.5 that there do not seem to be any words with syllable shape ***Prjan**, ***Prjen**, or ***Pjon**.) This in itself is not necessarily a problem. Languages like English with complex syllable structures have many gaps (e.g. English ***blorg**, ***skrat**). But if investigation reveals too many gaps, Baxter's motivation for making so many distinctions will have to be reexamined.

Despite these flaws, Baxter's medial system is impressively coherent. This coherence depends in large part on the six-vowel system, which in turn depends on further subdivisions of the traditional *Shījīng* rhyme groups. Since this division remains controversial, the medial system as a whole cannot be accepted unconditionally. If,

however, it is further supported by comparisons with Tibeto-Burman, this would provide good evidence for Baxter's reconstruction as a whole.

2.3.10 Revisions to William Baxter's Old Chinese system

Beginning soon after the publication of Baxter 1992, the author began making a number of revisions to his reconstruction which as of this writing have not yet been published (Baxter 1995). These changes include retranscribing the vowel **ɨ** as **ə**, revising the reconstruction of some instances of final ***-n** to ***-r**, and eliminating medial ***-j-** in favor of a vowel-length distinction. The last of these changes is clearly of consequence in a discussion of medials.

As I have mentioned earlier, a number of scholars (notably Pulleyblank) have objected to the reconstruction of ***-j-** since there is no consistent evidence for it in Tibeto-Burman cognates or in Sanskrit transliterations. Baxter himself (1992:287-290) discusses in some detail these objections to the reconstruction of ***-j-**.

In his revisions, Baxter has accepted the proposal of Peiros and Starostin (1984) to reconstruct short vowels as the origin of Type B syllables, and long vowels as the origin of Type A syllables. This reconstruction is based in part on a comparison of Chinese forms with Lushai cognates, since Lushai maintains a vowel length distinction. (It is far from clear, however, if a similar distinction can be reconstructed for Tibeto-Burman as a whole, and thus whether it is meaningful to make comparisons with Chinese.)

Thus in Baxter's revised system ***krjang** becomes ***krăng** (short vowel) and ***krang** becomes ***krāng** (long vowel). Oddly enough, this is precisely the opposite of Pulleyblank's original proposal (1962) that Type B syllables are derived from long vowels.

Presumably, Baxter still retains medial **-j-** in his conception of Middle Chinese, and merely supposes that at some point in the development from Old to Middle Chinese this medial arose in syllables with short vowels, perhaps as a compensatory mechanism during the loss of vowel length distinctions. In this case, the various developments leading to the

Middle Chinese phonological system which were previously attributed to Old Chinese medial ***-j-** would still be attributed to a medial ***-j-**, but one which arose somewhat later in the history of Chinese. The question of whether or not to reconstruct medial ***-j-** for Old Chinese then becomes merely a question of timing, following the assumption that ***-j-** was not inherited from Proto-Sino-Tibetan.

The pros and cons of this proposal will be discussed in more detail in later chapters.

2.4 The system of Gong Hwang-cherng (1980, 1990, 1993, 1994, 1995, 1997)

Gong Hwang-cherng has consistently approached the reconstruction of Old Chinese in the context of Sino-Tibetan comparison, with an eye toward the reconstruction of Proto-Sino-Tibetan. His PST reconstructions themselves will be dealt with in a later chapter.

Gong takes as his basis the OC reconstruction of Li Fang-kuei. Through the 1990s, his published articles have steadily proposed revisions to Li's system, many of which involve the reconstruction of medial elements. While many of Gong's proposals are not new in and of themselves, his comparative approach, which seeks support for these proposals in Tibetan, Burmese, and Tangut cognates, is unique and provides additional support for his hypotheses.

Gong has compiled, in the process of his comparative work, a large and dependable body of Sino-Tibetan cognate sets which show regular correspondences. Most of these are included in Gong 1995. These sets will provide a starting point for the comparative work I will undertake in Chapter 4.

2.4.1 Middle Chinese

Gong cites Middle Chinese forms according to Li's (1971) revision of Karlgren's Ancient Chinese. This is consistent with Gong's general approach, which is to build on Li Fang-kuei's reconstruction system. There are indications in some of his publications,

however, that he feels some further revisions to Middle Chinese are in order. For example, he has suggested that the Middle Chinese *chóngniŭ* distinction might be a difference between a backed medial **-ɨ-** (*chóngniŭ* third division) and a palatal medial **-j-** (*chóngniŭ* fourth division) rather than Li's **-j-**/**-ji-** distinction.

2.4.2 Old Chinese

Gong Hwang-cherng's Old Chinese system may be said to be a modernized version of Li Fang-kuei's system. His revisions take into account some of the key criticisms that have been directed at Li's system, and incorporate a number of important proposals from other reconstruction schemes. They nevertheless have not changed the basic characteristics of Li's reconstruction, including the four-vowel system and the reconstruction of voiced consonant codas.

Among Gong's revisions are the following key points:

1) The revision of Li's ***l-** to ***r-** and Li's ***r-** to ***l-**. This follows the proposals of Schuessler (1974) and Yakhontov (1976), which have now been widely accepted, and fits more consistently with Li's own revision of Yakhontov's medial ***-l-** to ***-r-**.

2) The revision of Li's ***-h** as a notational marker of *qù* tone to ***-s**, and the reconstruction of this suffix after voiceless as well as voiced codas. This is consistent with observations of many scholars that *qù* tone words may be derivationally and phonologically related to either *píng* tone words or *rù* tone words, and it follows the widely accepted belief that Middle Chinese *qù* tone does in fact originate in a final voiceless sibilant. (Although this revision appears in the extensive citations of Gong 1995, it is absent in Gong 1997, where Li's ***-h** is still employed.)

3) The systematic reconstruction of ***-l-** and ***-lj-** medials (the latter replacing Li's ***-rj-** and accounting for velar palatalization).

4) The reconstruction of ***-rj-** as the origin of *chóngniŭ* third-division syllables, in general agreement with the approaches of Pulleyblank, Baxter, and others.

The revisions involving medials will be discussed in more detail below.

2.4.3 Medials *-r-, *-j-, and *-i-

Gong leaves the basics of Li's medial system unchanged. Simple medial ***-r-** remains the source of Middle Chinese second-division rhymes. Medial ***-j-** conditions palatalization of dental initials and the development of third-division rhymes. Medial ***-i-** by itself accounts for fourth-division rhymes, and in combinations ***-ri-** and ***-ji-** accounts for rhyme splits. In Gong (1997) some instances of ***-ji-** are revised to ***-rj-**. This will be discussed in the next section.

2.4.4 Medial *-rj-

Many of the questions surrounding the distribution and evolution of medials ***-r-** and ***-l-** are bound up with the reconstruction of these segments as Old Chinese initials. Gong (1990) provides further support for the Schuessler/Yakhontov proposal that Middle Chinese **l-** is derived from Old Chinese ***r** while Middle Chinese **ji-** is derived from Old Chinese ***l**. This hypothesis reverses the reconstructions of Li (1971), and is now widely accepted. It not only accounts better for Tibeto-Burman comparisons and Hàn-era transliterations, but also parallels Li's revision of Yakhontov's medial ***-l-** to ***-r-**. Recall that Yakhontov (1960)'s original motivation for proposing medial ***-l-** was alternation in phonetic series with **l-**. If this medial ***-l-** is revised to ***-r-** and Middle Chinese initial **l-** is reconstructed as ***r-**, then the Middle Chinese alternation between second-division words and initial **l-** becomes an Old Chinese alternation between medial ***-r-** and initial ***r-**. This is more satisfying than the alternation between ***-r-** and ***l-** which is found in Li's system.

This revision of initials, however, has a ripple effect necessitating additional revisions to Li's system of medials. For example, Li reconstructed not just ***l-** > **l-**, but also ***gl-**, ***bl-** > **l-**. If his ***l-** is revised to ***r-**, then perhaps his ***gl-**, ***bl-** should be revised to ***gr-**, ***br-**.

These issues are addressed in Gong 1990 and in Gong 1994, which rejects or revises many of the proposals of Gong 1990.

Gong (1990:10) notes that Middle Chinese **l-** corresponds not only to Tibetan *r-*, but also to Tibetan clusters *gr-*, *dr-*, *br-*. For example, Chinese 凉 **ljang** 'cold' is cognate to Tibetan *grang* 'cold'. This suggests that the origin of Middle Chinese **l-** might be not just ***r-**, but also clusters ***gr-**, ***dr-**, ***br-**.

This, of course, creates a conflict, since ***Cr-** clusters of this type are already reconstructed for Middle Chinese second-division rhymes, with the development ***Cr-** > **C-**. It was precisely this conflict that led Baxter to reconstruct two distinct types of **r**-clusters, ***Cr-** and ***C-r-**.

Gong notes, however, that most Chinese words in cognate sets involving Middle Chinese l- and Tibetan Cr- clusters are third-division words like 凉. So he simply reconstructs

***Cr-** > **C-** (second division)
***Crj-** > ***rj-** > **lj-** (third division)

That is, ***Cr-** develops as ***r-** before medial ***-j-**, but as ***C-** elsewhere. More specifically, the changes can be broken down as follows:

***gr-** > **ɣ-** (second division)	***grj-** > ***rj-** > **lj-** (third division)
***dr-** > **ḍ-** (second division)	***drj-** > ***rj-** > **lj-** (third division)
***br-** > **b-** (second division)	***brj-** > ***rj-** > **lj-** (third division)

An obvious problem which Gong does not address is the conflict this creates with ***drj-** as the source of Middle Chinese **ḍ-** in third-division rhymes. This is not a fatal difficulty for Gong's overall theory, however, since there are very few **l-**initial words which show direct evidence of an original ***dr-** cluster. (Recall that in Baxter's reconstruction the functionally equivalent initial ***d-r-** does not exist alongside ***g-r-** and ***b-r-**.)

In summary, Gong (1990) proposes that Old Chinese ***Crj-** clusters be reconstructed as one source, in addition to initial ***r-**, of Middle Chinese **l-**. Li (1971:14) had reconstructed ***grj-** and ***brj-** as sources not of **l-** but of **ji-** (parallel to ***r-** > **ji-**). Gong simply

revises Li's ***grj-** and ***brj-** to ***l-** > **ji-**. Alternations with velar or labial initials are not explained by positing cluster initials, but by arguing that the simple initial ***l-** could alternate with clusters ***Kl-**, ***Pl-** > **K-**, **P-**. Compare:

	Li	Gong	
聿	*brjət > jiuět	*lət > jiuět	(cf. in the same phonetic series 筆 ***pl-** > **p-**)

Gong (1990) presents one other important revision of Li's reconstruction regarding medial ***-rj-**. Recall that Li had used the ***-j-/*-ji-** distinction to account for the following developments:

***g^{W}j-** > **jw-** (third division only)
***g^{W}ji-** > **gjw-** (third division only)
***g^{W}-** > **ɣw-** elsewhere (first, second, fourth division)

Gong (1990:9) presents six cognate sets where Chinese words which Li reconstructed ***g^{W}j-** > **jw-** correspond to Tibetan *gro-*. He therefore supposes that the PST origin is ****gwrj-**. Gong is unclear as to whether the Old Chinese reflex contained ***-r-** or not; he sometimes indicates ***g^{W}j-** (the same as Li), and sometimes ***g^{W}rj-**, at the Old Chinese level. Either reconstruction works in terms of explaining the correspondences, but if we suppose that the Old Chinese reconstruction was in fact ***g^{W}rj-**, then this would allow Li's ***-j-/*-ji-** opposition to be replaced with an ***-r-/*-rj-** opposition, giving:

***g^{W}rj-** > **jw-** (third division only)
***g^{W}j-** > **gjw-** (third division only)

Gong himself did not suggest this, and it would entail proposing a different development for ***g^{W}rj-** than for ***grj-** > ***rj-** > **lj-**. (It does, however, neatly parallel Li's ***grj-** > **ji-**.) But it is a satisfying solution because it not only accounts for the Tibetan cognates but also parallels the replacement of Li's ***-j-/*-ji-** distinction with an ***-rj-/*-j-** distinction in Gong's later 1994 revision.

In Gong 1994, the reconstructions ***Crj-** > ***rj-** > **lj-** from Gong 1990 are abandoned in favor of the proposal originally made by Pulleyblank that ***-rj-** clusters be used to account for the development of third-division *chóngniǔ* doublets. This proposal has been adopted by Baxter as well, so Gong's revision is significant in that all three major

reconstruction systems (Pulleyblank, Baxter, and Li as modified by Gong) are now in agreement on this point. Gong provides ample evidence in the form of Tibetan and Burmese cognates for the change, which can be summarized as:

***Crj-** > **Cj-** (*chóngniǔ* third division), where **C** is a grave initial

This revision meant that ***Crj-** clusters could no longer be used to reconstruct Middle Chinese **l-**initial words, so we find for example that 凉 **ljang** 'cold', which had been reconstructed ***grjang** in Gong 1990, is reconstructed simply ***rjang** in Gong 1995. The latter reconstruction is less satisfying in terms of the Tibetan cognate *grang*.

In Gong 1997, the reconstruction of ***-rj-** is extended beyond *chóngniǔ* third-division words to account for some rhyme splits, thus obviating the need for Li's ***-j-**/***-ji-** distinction in some (but not all) cases.

Gong (1997) argues that in twelve Old Chinese rhyme groups, ***-rj-** conditions the development of third-division *chóngniǔ* distinctions as just described. In six rhyme groups it conditions rhyme splits in third division. And in thirteen rhyme groups it merges with ***-j-**, leaving no trace in Middle Chinese. Gong reconstructs ***-rj-** instead of ***-j-** when one of the following is true:

1) the word is *chóngniǔ* third division (except in the case of the Yóu 尤 rhyme)

2) the word alternates in phonetic series with initial ***r-** > **l-**

3) the word is not in the same MC rhyme as ***rj-** > **lj-** words from the same OC group

4) the word has Tibeto-Burman cognates which point to Sino-Tibetan medial ***-r-**

He goes on to demonstrate that these four criteria complement and never contradict each other, thus verifying the validity of the hypothesis. In essence, conditions (1)-(3) are an analogous extension to third division of Yakhontov's criteria for reconstructing medial ***-l-** (now ***-r-**) in second-division rhyme words. The development of **l-**initial words is particularly crucial to deciding when to reconstruct ***-rj-** in rhyme splits and marginal *chóngniǔ* distinction rhymes. Third-division **l-**initial words derive from Old Chinese ***rj-**. Because medial ***-r-** cannot occur with initial ***r-**, there is no contrast between medials

-rj-** and ***-j-** after initial ***r-**. The rhymes of ***rj-** words always develop in parallel with ***Cj-** words and never with ***Crj-** words. Thus when a split is conditioned by ***-rj-**/-j-**, **l-**initial words appear in the rhyme tables with the words that should be reconstructed with ***-j-**, not ***-rj-**.

In the case of the thirteen rhyme groups in which the reflexes of ***-rj-** and ***-j-** merge before Middle Chinese, criteria (1) and (3) do not help in deciding between ***-rj-** and ***-j-**. The only available evidence is Tibeto-Burman cognates and linking relationships with **l-**initial words preserved in *fǎnqiè* spellings which predate the merger. For example, in the Qīn 侵 rhyme, where ***-rj-** and ***-j-** had merged by Late Middle Chinese (except after glottal initial, where *chóngniǔ* doublets appear), it is still possible to discern differences between *fǎnqiè* lower spellers in the *Qièyùn*. The word 坅 (initial **kh-**) does not link with the other *chóngniǔ* third-division words, but does link to the **l-**initial word 廩 ***rjəm**, indicating original ***-j-** rather than ***-rj-** and suggesting it was once a fourth-division doublet.

Gong, however, cannot do away entirely with Li's ***-j-**/***-ji-** distinction. Recall that in the YUáN 元 group there is a split into Middle Chinese Yuán 元 and Xiān 仙 rhymes, the latter having a *chóngniǔ* distinction. Gong reconstructs

***-jan** > **-jɐn**	Yuán 元 (third division)
***-rjan** > **-jän**	Xiān 仙 (*chóngniǔ* third division)
***-jian** > **-jiän**	Xiān 仙 (*chóngniǔ* fourth division)

This is still an improvement over Li, who had to propose unconditioned splits here.

Another point worth noting is that Gong and Baxter do not always agree on where to reconstruct ***-rj-**. Baxter's system is much more symmetrical while Gong's, perhaps because of its reliance on Tibeto-Burman cognates, is notably unbalanced. A detailed group by group comparison can be found in Section 4.2.4.

2.4.5 Medials *-l- and *-lj-

Gong (1990) revised Li's medial ***-l-** to medial ***-r-** in third division words, positing developments like ***grj-** > ***rj-** > **lj-** instead of Li's ***glj-** > **lj-**. This eliminated nearly all instances of Li's medial ***-l-**, leaving a gap. Gong notes (1990:13) that since his initial ***l-** palatalizes to **ji-**, it makes sense to propose a palatalizing medial ***-l-** > **-j-** as one origin (distinct from ***-j-**) of Middle Chinese third-division words. Thus there are two possible origins of Middle Chinese **kjang**: ***kjang** and ***klang**.

Medial ***-l-** is reconstructed instead of medial ***-j-** when its presence is suggested by alternations in phonetic series with **ji-** < ***l-**.[86] For example, 姜 **kjang** is reconstructed ***klang** rather than ***kjang** because it alternates with 羊 ***lang** > **jiang**.

The palatalization of ***-l-** is phonetically plausible. It has occurred in many of the world's languages, including Burmese. Moreover, reconstructing ***-l-** in some words instead of ***-j-** partially resolves the question of why Old Chinese requires the reconstruction of ***-j-** in so many words, often with no apparent counterpart in Tibeto-Burman cognates.

One further problem needs to be addressed. Li had reconstructed not just ***r-** > **ji-**, but also ***rj-** > **zj-** as the sole source of Middle Chinese initial **z-**, which occurs only in third-division words. If Li's ***r-** is revised to ***l-**, and ***l-** > **ji-**, then the origin of Middle Chinese **z-** needs to be determined. Gong proposes on the basis of Tibetan cognates reconstructing ***(s)lj-** > **zj-**.[87] Here medial ***-l-** undergoes palatalization to **-j-**, but first brings about voicing assimilation in the initial ***s-**. We can contrast this reconstruction with Li's ***sl-** > **ṣ-** and Baxter's ***sl-** > **s-**. In both these cases ***s-** is considered a prefix.

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[86]An exception to the rule is ***klu-** > **ku-**, where medial ***-l-** drops without a trace, presumably through dissimilation with the back initial and vowel (Gong 1990:15). Gong suggests this development because 谷 **kuk**, which is in phonetic series with 欲 ***luk** > **jiwok** and itself has the alternate reading ***luk** > **jiwok**, is a first-division rather than a third-division word. As far as I know Gong has only proposed two words to which this exception applies: 谷 ***kluk** > **kuk** and 公 ***klung** > **kung**. (See Gong 1990:14, sets 67 and 68.)

[87]Actually, Gong 1990:14 proposes ***l(j)- > ji-** and ***sl-** > **zj-**. But Gong 1990 [1994], a reprint with some modifications of Gong 1990, revises this to ***l- > ji-** and ***(s)lj-** > **zj-**.

In Gong's reconstruction it is a true initial, perhaps having a voiced allophone before medial **-l-**. Without initial ***s-**, the phonetic motivation for the change ***lj-** > **zj-** is less clear.

To see how Gong's revisions of Li's system affect particular reconstructions, consider the following phonetic series (Gong 1990:13,14). Middle Chinese forms are given after each character. The forms to the right of the slash are possible reconstructions in Li's system, but he did not himself propose them.

	羊 jiang	姜 kjang	羌 khjang	祥 zjang
Li	*rang/*grjang	*kjang	*khjang	*rjang/*sgjang
Gong	*lang	*klang	*khlang	*ljang

In Gong 1990 the development of medial ***-lj-** is not discussed, but it is the central subject of Gong 1994. In Section 2.1.8 it was noted that Li reconstructed ***-lj-** in many *chóngniǔ* third-division words. Following Pulleyblank, Gong (1994:133) revised this medial to ***-rj-**, as described in the previous section. Gong further proposes that, having revised Li's ***-lj-** to ***-rj-**, it makes sense to also revise Li's ***-rj-** to ***-lj-**. Recall that Li (1976) had proposed ***Krj-** clusters to account for velar palatalization between Old and Middle Chinese. Gong instead reconstructs ***Klj-** clusters. This is a natural extension of Gong's proposal that medial ***-l-** palatalized to **-j-**. When the two palatalizing elements ***-l-** and ***-j-** occurred together as ***-lj-**, their combined effect caused the palatalization of initial velars as well. The developments of ***-l-** and ***-lj-** may be compared in these two words which are in the same phonetic series (Gong 1994:139):

屈 *kh^{w}lət > khjuət
出 *kh^{w}ljət > tśhjuĕt

Where in Baxter's system palatalization occurs before ***-j-** and a front vowel, in Gong's system it is conditioned by the complex medial ***-lj-**.[88] There are two consequences of this. First, Gong's system does not have the exceptions to the palatalization rule which Baxter's system has. (At the same time, we can infer that Gong's ***-lj-** must occur only

[88]But note that Baxter 1992 (#1175.1, #1819) reconstructs 出 as ***thjut**. He does not explain why it is used as phonetic in 屈.

rarely before back vowels. This seems like a plausible distributional asymmetry, however.) Second, Gong's reconstructions imply that we should find evidence of medial ***-l-** either in phonetic series or in TB cognates for all words which exhibit velar palatalization. It remains to be seen whether TB cognates will always support such a reconstruction.

Gong also argues that labials palatalized before ***-lj-**, in parallel with velars, but notes: "Since the examples of the palatalization of labials are extremely rare, I confine myself to the velars alone in this paper" (1994:139).

He does however list the following examples, all of which are in phonetic series with labial-initial words (1994:135-6):

勺	*pljak^{w} > tśjak	cf. 豹 *prag^{w} > pau
帚	*pljəg^{w} > tśjə̆u	cf. 婦 *bjəg > bjə̆u
几	*bljag > źju	cf. 鳧 *blag > bju
勺	*bljak^{w} > źjak	cf. 豹 *prag^{w} > pau

In sum, Gong reconstructs medial ***-l-** in third-division words instead of ***-j-** when either Tibeto-Burman cognates or phonetic series indicate its presence. Gong reconstructs medial ***-lj-** for words with Middle Chinese palatal initials when TB cognates or phonetic series indicate an original velar or labial initial.

This means that ***-l-** is only reconstructed in words that entered Middle Chinese third-division rhymes. Gong does not reconstruct any words with complex medial ***-li-** (although ***-l-** is reconstructed before main vowel ***i**). There is no need to, since medial ***-i-** is only required to account for fourth division rhymes and second-division rhyme splits, and Gong's medial ***-l-** always gives rise to third-division reflexes. From a structural point of view, however, this is a peculiar gap in his system.

2.4.6 Summary and critique of Gong Hwang-cherng's Old Chinese system of medials

Gong Hwang-cherng's revision to Li Fang-kuei's system are improvements. They eliminate some of the problematic aspects of Li's Old Chinese and incorporate a number of

newer hypotheses which are now generally accepted. (For example, that Middle Chinese **l-** derives from Old Chinese ***r** and that *chóngniǔ* third-division syllables are derived from ***-r-**.) Moreover, the rigorous comparisons with Tibeto-Burman cognates provide important supporting evidence for many hypotheses and demonstrate the importance of comparative work for Old Chinese reconstruction.

However, a number of the problems which I identified in Li's system of medials remain unaddressed in Gong's revision. The ***-j-**/***-ji-** distinction remains, though it is now reduced to appearing in only a handful of rhyme groups, further casting doubt on its validity as a systematic phonological contrast. Additional problems, which might be due to either Li's vowel system or his medial system, are still wanting solution. In particular, there are unconditioned rhyme splits in the TáN 談 and Yè 葉 groups.[89]

Gong is clearly torn between two competing developments for ***r-**clusters. One the one hand, he wishes to reconstruct ***Crj-** > **lj-** to account for cases of Middle Chinese **l-** in words that have Tibetan cognates with *Cr-* initials or that are in phonetic series with velar or bilabial-initial words. On the other hand, he wishes to reconstruct ***Crj-** > **Cj-** to account for cases of Middle Chinese third-division *chóngniǔ* words which have exactly the same cognate and phonetic series relationships. Baxter dealt with this problem by reconstructing two types of ***r-**clusters, ***Cr-** and ***C-r-**. Gong has chosen not to propose two arbitrarily distinct cluster types, and so has settled for only the ***Crj-** > **Cj-** development.

In the next chapter I will look more closely at the Tibeto-Burman data which has so influenced Gong's work.

[89]In fact, there seems to be a convergence of evidence that Huáng Kǎn's proposal that these groups need to be split is in fact correct. This split is already in evidence in Baxter's reconstruction. More recently, Chén Xīnxióng 1989, Handel 1996, and Ting 1997 have all suggested that Huáng Kǎn's split should be recognized for at least some stage of Old Chinese even within the framework of the traditional rhyme group analysis and Li Fang-kuei's Old Chinese system.

2.5 Conclusion

In examining in some detail the medial systems reconstructed by Li Fang-kuei, Edwin Pulleyblank, William Baxter, and Gong Hwang-cherng, a number of key questions about their reconstruction have arisen. Among them are these:

• Should Old Chinese be reconstructed with medial ***-j-** as the origin of Type B syllables? If so, are there other possible origins (e.g. medial ***-l-**)? If not, what is the origin of Type B syllables?

• Are all Middle Chinese second-division syllables derived from Old Chinese ***r-**clusters? If not, what other origins might there be?

• Are there distinct types of ***r-** and ***l-**clusters? If so, what is the nature of the contrast between ***Cr-** and ***C-r-**, and between ***Cl-** and ***C-l-**?

• Can the inventory of medials ***-r-**, ***-j-**, and ***-l-**, as well as combinations thereof, account simultaneously, systematically, and plausibly for the phenomena of velar palatalization, *chóngniǔ* distinctions, rhyme splits, etc.? Does a two-vowel system, a four-vowel system, or a six-vowel system make better since in the context of this question?

Tibeto-Burman comparative evidence, lexical and structural, can be brought to bear on all these questions.

3 Previous Reconstructions of Proto-Tibeto-Burman and Proto-Sino-Tibetan Medials

I will now analyze and evaluate the system of medials in proposed reconstructions of Proto-Tibeto-Burman [PTB] and Proto-Sino-Tibetan [PST].

The current state of the field in Tibeto-Burman studies differs markedly from the situation for Old Chinese. While the latter field is crowded with competing systems of reconstruction, differing from each other in fundamental and systematic ways, there are no major competing systems for the reconstruction of Proto-Tibeto-Burman. The most comprehensive work to date is Paul K. Benedict's *Sino-Tibetan: A Conspectus*, published in 1972 based on a draft manuscript compiled in the early 1940s. It is fair to say that the broad outlines of the phonological system of PTB as reconstructed by Benedict have been almost universally accepted. Differences of opinion among scholars in the field tend to involve matters of detail at the level of word-family relationships and of individual lexical items and comparanda.

In this chapter I will describe the findings of Benedict 1972, focusing on medial elements, and then discuss the refinements made to Benedict's work by James A. Matisoff, which are neatly summarized in his introduction to the forthcoming first volume of his *Sino-Tibetan Etymological Dictionary and Thesaurus*.[90]

A number of scholars have attempted partial or complete reconstructions of Proto-Sino-Tibetan based on comparisons of Old Chinese and Tibeto-Burman. On the TB side, they have generally either made use of Benedict's PTB reconstructions, or of Written Tibetan and Written Burmese lexical data. (Peiros and Starostin 1996 is unique in attempting to reconstruct PST essentially from scratch.) These PST reconstructions differ considerably from one another, for two reasons. First, because they are based on different systems of reconstruction for Old Chinese. Second, because they arise out of different approaches to

[90]At the time of writing this volume has not yet been published, and the introduction remains in manuscript form. I will refer to this work as Matisoff (to appear).

resolving apparent irregularities in proposed OC-PTB cognate sets. These irregularities involve, among other things, voicing and aspiration of initial consonants; the presence or absence of final consonants; and incommensurabilities between medial elements. The latter will of course be the focus of my analysis.

Some of the irregularities are the inevitable result of the different approaches taken to the reconstruction of Old Chinese on the one hand and of Proto-Tibeto-Burman on the other. Reconstructions of Old Chinese are based, not on comparisons of data from modern languages or reconstructed meso-level languages according to the dictates of the comparative method, but in a systematic and formulaic way within the constraints imposed by the rhyme books and rhyme tables of the Middle Chinese period on the one hand, and the phonetic series and *Shījīng* rhymes of the Old Chinese period on the other. This has resulted in reconstruction systems that tend toward mechanical treatment of lexical items in logical groupings, rather than as individual and potentially idiosyncratic entities. For example, this approach means that in most reconstructions, all words listed in the second division of the rhyme tables are reconstructed with medial *-r- in Old Chinese.

Work on Proto-Tibeto-Burman, unfettered by these constraints, has proceeded in a more *ad hoc*, though not unsystematic, fashion. There is no predefined class of words which are all to be reconstructed with medial ***-r-**, for example; the medial is assigned to an individual root based on the evidence found in that cognate set. Furthermore, there is considerable evidence for proto-variation in most roots in Tibeto-Burman, reflected in reflexes across daughter languages which are clearly cognate but fall shy of complete regularity in their correspondences.[91] While the actual Old Chinese language was no doubt, like all living languages, rife with variants and dialectal distinctions, these tend to be

[91]It remains an open question whether this phenomenon is truly due to proto-variation, or to the presence in the proto-language of conditioning elements (for example, prefixal elements) which have completely disappeared in all descendent languages. Complicating the picture is the fact that the phenomena of proto-variation and proto-affixation are linked. The presence or absence of prefixes may be thought of as one type of proto-variation. It is even possible that other types of variation (e.g. vocalic alternation, voicing alternation) may ultimately be traceable to the influence of prefixal elements.

obscured by the traditional methods of reconstruction, which tend to focus on the Chinese character, rather than the word family, as the primary unit of analysis.[92]

It is therefore not surprising that irregularities are frequent in OC-PTB comparisons. To continue the example raised earlier involving medial ***-r-**, we find cases in which OC medial ***-r-** corresponds to a PTB liquid medial, but also many cases where it doesn't. Similarly, there are cases where PTB ***-r-** does not seem to have a correlate in Chinese cognates. The character of any particular PST reconstruction is informed by the approaches taken to resolving this problem and others like it.

3.01 The medial system of Written Tibetan

Written Tibetan has the four non-nasal resonant phonemes *w*, *y*, *l*, and *r*, but with a few exceptions -*w*- does not occur as a medial element. Syllables containing the simple medials -*y*-, -*l*-, and -*r*- are all common; medial clusters do not occur.[93]

Medial -y-

Medial -*y*- occurs only with velar and labial initials, forming the clusters *ky*-, *khy*-, *gy*-, *py*-, *phy*-, *by*-, *my*-. The fact that Tibetan has no clusters of medial -*y*- with dental initials is almost certainly due to historical developments in which original clusters of this type were palatalized, accompanied by loss of the medial (Beyer 1992:81-82).[94] This is probably true also of ***ŋy-**. The changes occurred as follows:

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[92]On the other hand, Middle Chinese rhyme books like *Qièyùn* and *Guǎngyùn* are rife with characters with multiple readings. The implications of this for reconstruction Old Chinese are not clear-cut. Where multiple readings are accompanied by distinct semantics, this may represent Old Chinese morphological variants. (In other cases, Old Chinese morphological variants may be represented by distinct characters.) Where they are not, this may represent distinct Old Chinese dialectal forms, or distinct Middle Chinese dialectal forms derived through different derivational pathways from a single Old Chinese source. The problem is a complex one, which will benefit from the increasing sophistication of work on Old Chinese morphological processes and word families, a field which is in many ways still in its infancy.

[93]For a precise definition of Written Tibetan, along with a detailed discussion of Tibetan periodization, standardization, and textual issues, see Beyer 1992.

[94]Note that Gong Hwang-cherng (1995) transcribes the Tibetan palatal nasal *ń*- as **ny-**. This should not, however, be considered a combination of initial *n*- with medial -*y*-.

***ty-**, ***tsy-** > *tś-*
***thy-**, ***tshy-** > *tśh-*
***dy-**, ***dzy-** > *dź-*
***ny-** > *ń-*
***sy-** > *ś-*
***zy-** > *ź-*
***ŋy-** > *ń-*

The initial cluster *gy-*, in which *g-* is the initial and *-y-* the medial, must be carefully distinguished from *g-y-*, in which *y-* is the initial and *g-* a prefix. The two cluster types are distinguished in Tibetan orthography, and their divergent development into modern Tibetan demonstrates that this is not a purely orthographic distinction.[95] I am not aware of Tibetan having a parallel distinction between *by-* and *b-y-*.

Not all cases of Tibetan medial *-y-* can be assumed to be inherited from PTB, since a number of morphological processes in Tibetan (which are not well understood) involve the infixation of medial *-y-*. For example, the verb pairs *gon* 'put on, wear' and *gyon* 'put on, wear', *skor* 'surround, encircle' and *skyor* 'repeat', *dzugs* 'stick into, pierce, insert' and *dźug* (< ***dzy-**) 'inject, put into' are clearly morphologically related. A similar morphophonological relationship may hold between noun pairs (*zabs* 'depth' and *źabs* (< ***zy-**) 'bottom, lower end, foot') and between nouns and verbs (*ldag* 'lick' and *ldźags* (< ***ldy-**) 'tongue'). Moreover, Benedict (1972:55) has argued that *-y-* occurs secondarily after velars before the vowel *-i-*, so that a syllable like *khyi* may reflect earlier ***khi**. Similarly, dental initials sometimes palatalize before *-i-*, so that such palatalization may not reflect earlier ***-y-**.

In many lexical items, however, comparative evidence indicates that medial *-y-* is part of the basic stem.

[95]Cluster *gy-* becomes palatal stop *ch-* in Lhasa Tibetan, while *g-y-* becomes simply *y-* (Beyer 1992:72-73, note 5).

Medial -r-

Medial -*r*- not only clusters with labials and velars (*kr*-, *khr*-, *gr*-, *pr*-, *phr*-, *br*-) but also with some dentals (*dr*- and *sr*-, with some rare examples of *tr*-). There are also a few examples of *nr*- and *mr*- clusters.

The fact that -*r*- occurs with *d*- but not with *t*- or *th*- is puzzling. It has been argued by some that Tibetan historically had clusters like *tr*- and *thr*- but that they developed into *rt*-, *rth*-, etc. as a result of widespread metathesis.

It seems more likely, however, that Tibetan *dr*- is secondary. *d*- is one of the phonemes that may function as a prefix in Tibetan, unlike *t*- and *th*-. *dr*- can therefore be taken back to an original ***d-r-**. This hypothesis is supported by Tibeto-Burman comparison. In his discussion of the Tibeto-Burman prefix ***d-**, Benedict (1972:114-117) presents four cognate sets in which Tibetan *dr*- corresponds to *r*-initial words in other languages. These roots are reconstructed with PTB initial ***r-** or ***d-r-**.

In further support of this hypothesis is the fact that PTB seems to have entirely lacked dental clusters with medial ***-r-** (see below).

There is evidence for the sporadic metathesis in Tibetan of original medial ***-r-** to prefixal position, but not with dental initials. Beyer (1992:85 note 16) gives examples illustrating the developments ***mr-** > *rm*-, ***kr-** > *rk*-, ***gr-** > *rg*-.

There is no *g-r*- vs. *gr*- distinction parallel to the *g-y*-/*gy*- distinction. Benedict (1972:113 note 318) has noted that "prefixed **g*- before *r*- is regularly treated as an initial in Tibetan". If Tibetan ever did distinguish *g-r*- from *gr*-, the two had merged to *gr*- in WT.

Medial -*r*- never occurs in syllables with final consonant -*r*.

Medial -l-

Tibetan medial -*l*- has a limited distribution, clustering only with initials *k*-, *g*-, *b*-, *z*-, *r*-, and *s*-. It never appears in syllables with final consonant -*l*.

It is peculiar that, while -*l*- occurs with labial, dental, and velar initials, its co-occurrence constraints are so much more restrictive than that of the resonants -*r*- and -*y*-. The fact that -*l*- never occurs with aspirated initials, and that four of the six consonants it combines with may act as prefixes in Tibetan (the exceptions are *k*- and *z*-), suggests the possibility that what is normally considered medial -*l*- may in fact be a prefixed initial *l*- in many cases. Beyer (1992:74-79) has convincingly made precisely this argument, drawing on phonotactic, morphological, and historical evidence to demonstrate that the clusters usually transcribed *gl*-, *bl*-, *rl*-, and *sl*- are in fact *g-l*-, *b-l*-, *r-l*-, and *s-l*-. He hypothesizes that, except in the case of *zl*- clusters, inherited *l*-clusters underwent metathesis in Tibetan, so that an original medial *l*- became a prefixal *l*-. (Beyer is however unable to explain the occurrence of *kl*- clusters, where it is impossible to treat *l* as an initial since *k*- cannot be a prefix.[96])

Medial -w-

Written Tibetan does not appear to have had a medial -*w*-. Historical evidence indicates that original ***-wa-** became Tibetan -*o*-, while original ***-wi-** clusters became -*yi*-. A number of Tibetan words are written with the sequence **-wa-**, but this appears to be simply an orthographic device to distinguish homophones (e.g. *śa* 'flesh' versus *śwa* 'deer'). There does not seem to be any evidence to support the ideas that this "medial -*w*-" was vocalized, that it had a morphological function, or even that it represented historical pronunciations.

[96]WT *kl*- clusters are peculiar in another regard as well: they represent the only environment in which an initial unprefixed stop may be unaspirated (with the exception of secondarily derived forms such as loanwords). See Benedict 1972:20 and Coblin 1986:11. This cluster only occurs before back vowels (Beyer 1992:78, note 11).

3.02 The medial system of Written Burmese

Written Burmese contains the three medial elements *-y-*, *-r-*, and *-w-*. Inscriptional evidence indicates the earlier existence of medial *-l-*, which developed into Written Burmese *-y-* or *-r-*. The medials have fewer co-occurrence restrictions than in Tibetan.

Medial -y-

Medial *-y-* patterns with the velar (*k-*, *kh-*, *g-*) and labial (*p-*, *ph-*, *b-*[97], *m-*, *hm-*) initials, as well as *l-* and *hl-*.[98] It does not occur with acute initials or *h-*.[99]

Medial *-y-* can occur with any rhyme, including those beginning with *-w-*. There are several reasons to believe, however, that it is a redundant feature in syllables with front vowel *-i*.[100] First, in syllables with the rhymes *-ip*, *-in*, *-im*, and *-i*, the sequences *Py-* and *ly-*, do not occur. Second, *Ky-* and *K-* do not contrast before *-ip*, *-im*, and *-i*, suggesting that the distinction between *Kyi-* and *Ki-* is not phonemic. The following chart illustrates the complementary distribution of *-i-* and *-yi-* after these initials:

	P-	l-	K-
-i-	Pi-	li-	--
-yi-	--	--	Kyi-

An exception to the pattern is found in the two words *kîn* 'arithmetical number' and *kîn* 'sleep, as a Buddha' (contrast the expected form *kyîn* 'sleep (resp.); remain dormant'), but these appear to be specialized terms.

Medial *-y-* may also be secondary before *-e*. As with rhymes in *-i*, *Py-* and *ly-* sequences are not found before *-e* (with the exceptions *hmyê* 'be faded, as color' and *hmyê* 'overspread', both of which also have readings *hmrê* and *hmê*). The only *Ke*-type

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[97]Written Burmese also has an initial *bh-*, which occurs mostly in Pali/Sanskrit borrowings, but is also written in some native words, especially in alternation with initial *ph-*. Written Burmese is usually not treated as having a series of voiced aspirates in its native sound system.
[98]I am not aware of any Burmese words with *ŋy-*, but this is probably an accidental gap.
[99]Two exceptions are the intensives *tya* 'very red' and *tyak-tyak* 'very'.
[100]This assertion is based on my analysis of Benedict 1976, which is not a complete lexicon of Written Burmese.

syllables are *ke*, an expletive, and *khe* ‘weak, inefficient’, which contrasts with *khye* ‘rub out, erase; cancel’.

Written Burmese has no distinction between dental and palatal affricates, and it is likely that the affricate series represents a merger of earlier dental affricates and palatal affricates. As in Tibetan, the palatal affricates may in part be historically derived from ***Ty-** or ***TSy-** clusters, which would explain the absence of WB clusters of acute initials with -*y*-.[101] In other words, the WB affricate series probably represents a merger of ***Ty--** ***TS-**, ***TSy-**, and ***Tś-**.

Medial -r-

Medial -*r*- patterns very similarly to medial -*y*- in Burmese. (This is almost inevitable given the high degree of variation in WB between -*r*- and -*y*- in different orthographic tokens of the same word.) It occurs only with grave initials (*k*-, *kh*-, *g*-, *ŋ*-, *p*-, *ph*-, *b*-, *m*-, *hm*-), never with acute initials. Unlike -*y*-, -*r*- does not cluster with initial *l*-. It does, however, combine with all vowels, including -*i*- and -*e*-.

The widespread alternation between -*r*- and -*y*- in Written Burmese, predominantly after velars but to some degree after labials too, makes comparison with other languages particularly difficult. In many cases the medial of the Proto-Lolo-Burmese form (and thus the Proto-Tibeto-Burman form) can be accurately reconstructed by making reference to one or more of the Loloish languages which have distinct reflexes of -*r*- and -*y*-.

Medial -l-

Medial -*l*- does not occur in standard Written Burmese, but it is found in Old Burmese inscriptions. Comparisons of the same word in inscriptional and standard form indicates that, in general, Old Burmese -*l*- became -*y*- after velars and -*r*- after labials. For example, Written Burmese *kyâ* ‘tiger’ appears as *klya* in Old Burmese.[102] However, there are

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[101]On the other hand, this would not explain why *ry*- does not occur.
[102]See Benedict 1972:41, note 134. *klya* likely represents a transitional stage from earlier ***kla**. This word for ‘tiger’ is a borrowing from Mon-Khmer.

numerous exceptions to this rule. In general, Written Burmese medials -*y*- and -*r*- show a great deal of variation, and in Old Burmese inscriptions -*l*-, -*r*-, and -*ly*- may all be used in writing the same word.[103] While there is no doubt that historically the three medials -*r*-, -*l*-, -*y*- were distinct, it is also clear that the instability of medial elements was a feature of Burmese for many centuries. As a result, the original PTB medial is often not reconstructible based on Burmese evidence alone.

Medial -w-

Written Burmese -*w*- occurs only with the vowel *a*, with the single exception of the rhyme -*we*. Of the rhymes containing *a*, only -*ac* and -*añ* do not pattern with -*w*-, a fact that is consistent with the secondary nature of these two rhymes. -*ac* is primarily from ***-ik** and ***-it**, while -*añ* is derived primarily from ***-iŋ** and ***-in**.

As for the rhyme -*we*, it also appears to be secondary; it is partially derived from -*uy*, a rhyme without a medial, as found in early Burmese inscriptions. It is therefore fair to say that, in Proto-Burmese at least, -*w*- occurs only with *a*.[104]

Medial -*w*- may cluster with any initial at any place of articulation. The fact that there are no co-occurrence restrictions on -*w*- with initials, while there are stringent restrictions on the co-occurrence of -*w*- with vowels, is the reason that in many classification schemes of Written Burmese -*w*- is treated as a rhyme feature rather than as a medial element.[105] This analysis is also supported by the existence of medial clusters -*rw*- and -*yw*-. If -*w*- is treated as part of the rhyme, then the WB syllable can be analyzed as having a single medial slot which can be filled only with -*y*- or -*r*-, thus explaining the absence of combinations like -*wy*-, -*wr*-, -*ry*-, and -*yr*-.

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[103]Benedict 1972:41, Nishi 1976.

[104]WB -*we* is also derived from PTB ***-wəy**, which constitutes an exception to the proposed generalization.

[105]For example, Benedict 1976, the *Rhyming Dictionary of Written Burmese* lists -*wak*, -*wat*, -*wap*, -*waŋ*, -*wan*, -*wam*, -*wa*, -*wai* and -*we* as distinct rhymes.

3.1 The system of Paul K. Benedict (1972)

Paul K. Benedict's ground-breaking work on Tibeto-Burman has remained the principal reference for research in the field. In addition to extensive PTB reconstructions, Benedict 1972 also makes numerous comparisons between PTB and OC, and proposes a number of PST reconstructions. These comparisons are in many cases suspect, however, in large part because they rely on Karlgren's Archaic Chinese. I will focus therefore on Benedict's work on PTB.

Although data from hundreds of languages appears in Benedict 1972, the reconstruction is primarily based on five key languages, each in a separate TB subgroup, for which lexical material was widely available at the time the book was written. These languages are Written Tibetan (T), Written Burmese (B), Garo (G), Lushai (L), and Jingpho (K), also known as Kachin.[106] Benedict refers to his methodology as "teleo-reconstruction". It differs from the traditional comparative method in that it leapfrogs the intermediate step of making meso-level reconstructions, a task that was not possible several decades ago (and remains difficult today) because of uncertainties about the subgrouping of Tibeto-Burman and of scarcities of data. Benedict felt that by concentrating on the carefully chosen key languages in the family, each of which preserves salient features of the proto-language, it would be possible to achieve a reasonably accurate reconstruction.

Today, although subgroup reconstructions are available for Lolo-Burmese, Karenic, and a handful of other groupings within the TB family, teleo-reconstruction remains the only viable method of reconstructing PTB, at least for the near future.

3.1.1 Medials

Benedict (1972:37) identifies four TB medials, discussed under the heading "Tibeto-Burman consonant clusters".[107] These are of two types, liquids and glides. Liquids **l** and

[106]Lushai is spelled Lushei by Benedict. (The term Mizo is now preferred, since Lushai has derogatory connotations.) The one-letter abbreviations given here are those used in Benedict 1972. I will generally abbreviate Written Tibetan and Written Burmese as WT and WB, respectively.
[107]In Benedict 1972, the term 'medial' refers to the main vowel in a closed syllable.

r form clusters with initial stops and nasals. Glides **y** and **w** form clusters with initial stops and nasals, or with stop+liquid clusters.[108] All four medials also occur as initial consonants.[109]

The chart below is reproduced from Benedict 1972:37-38. Entries in square brackets are additions and changes proposed in the footnotes.[110]

Medial *r*	Medial *l*	Medial *w*	Medial *y*
kr	kl	kw	ky
gr	gl	gw	gy
[tr]	-	tw	(ty)
[dr]	-	dw	(dy)
pr	pl	pw	py
br	bl	bw	by
[sr]		sw	sy [= ś]
[zr]	[zl]	(zw)	(zy [= ź])
-	-	tsw	tsy [= tś]
-	-	(dzw)	(dzy [= dź])
[śr]	-	-	-
[źr]	-	-	-
[tśr]	-	-	-
-	-	[dźw]	-
ŋr	-	(ŋw)	ŋy
-	-	nw	ny
mr	ml	mw	my
-	-	rw	ry
-	-	lw	ly
-	-	hw	(hy)
-	-	(yw)	-

[108]In the Tibeto-Burmanist tradition, the symbol **y** is used to represent the palatal glide (IPA [j]). I will continue this usage, writing the glide as **y** in PTB forms (as well as many cited forms from Tibeto-Burman languages) and as **j** in OC forms.

[109]It should be noted that Benedict (1972:6) considered Tibeto-Burman proper as not including Karen. The common ancestor of Proto-Tibeto-Burman and Karen was Proto-Tibeto-Karen. The latter descended from Proto-Sino-Tibetan as the sister language of Chinese. Benedict 1972 therefore has a separate section on Proto-Karen reconstruction and comparison, wherein the Proto-Karen initial clusters are listed as "*k* or *p* ~ *b* + *y*, *w*, *r*, or *l* (the *w* and *l* clusters are typical); *my*, *ml* and *mw*; *tw*, *dw*, *nw*, *sw*, *χw*, *θw*, *yw*, *lw*" (1972:133-134). It is now generally recognized (Matisoff 1991) that Karen is a subgroup of Tibeto-Burman.

[110]Benedict 1972 was originally written in the early 1940's. When finally published, the original manuscript was left largely unchanged; additions and corrections were provided by the author in the footnotes. There are thus three types of footnotes: those from the original manuscript; those added by the author at the time of publication; and those written by the contributing editor, James A. Matisoff.

Benedict (1972:37, note 122) suggests that a separate palatal series of initial phonemes ***ś-**, ***ź-**, ***tś-**, ***dź-** should be reconstructed to replace the clusters ***sy-**, ***zy-**, ***tsy-**, ***dzy-**.

More complex medials, not listed in this chart, occur in some PTB reconstructions found in Benedict 1972. For example, the initial clusters **rw-**, **ry-**, **lw-**, **ly-**, and **yw-** may also serve as medials in their own right, following stop and nasal initials, as in ***krwəy**[111] 'son-/daughter-in-law' (Benedict 1972:56).

Benedict notes that the reconstruction of liquid medials is somewhat uncertain, since they can show variable developments even within a single daughter language. The complexity of the issue can be seen in this passage from Benedict 1972:41:

> In general, TB medial *l* clusters are better preserved than medial *r* clusters, while surd [i.e. voiceless] stop clusters are much better represented than sonant [i.e. voiced] stop clusters. Tibetan maintains most stop clusters, yet lacks initial *pl-*, which presumably has become *p(h)y-* (we have no certain examples for this shift). No comparisons have been found, however, for the few Tibetan words with initial *bl-* ..., and scarcely any for those with initial *gl-* .... A number of northern TB languages, including Bahing, Lepcha, and Dhimal, preserve consonant clusters as well as or better than Tibetan. Kanauri retains medial *r* but not medial *l* clusters. In Kachin [Jingpho] both types of clusters have fallen together into a single *r* type (sometimes medial *y* in the standard Kachin dialect). Burmese commonly has *r* for medial *r*, *y* for medial *l*, but there are numerous exceptions to this generalization .... Garo and Dimasa preserve medial *r*, as well as initial *pl-* in some roots ..., but Dimasa *khi* 'excrement' < **kli* ... and *buthluŋ* ~ *bithlim* 'brain' < **kliŋ* ... present contrasting types of development. Lushei has the cerebral stop *t-* for the clusters **kr-*, **pr-*, and probably **gr-* ..., but *t(h)l-* for **kl-* and apparently *pi-* [*py-*] for **br-* ...neither **gl-* nor **bl-* can be traced with certainty.

An examination of cognate sets in Benedict 1972 indicates the following general initial cluster correspondences, all of which admit exceptions.

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[111]Between the time of the compilation and publication of Benedict 1972, the author revised his reconstruction of TB vowels ***iy** and ***uw** to ***əy** and ***əw** respectively. Forms given in both the old style and the new style are found throughout the work. I will make all citations in the new style. (See Benedict 1972:57, note 188.)

PTB	Tibetan	Jingpho	Burmese	Garo	Lushai	sets
*Kr-	Kr-	K(ə)r-	Kr- / Ky-	Kr-	Ṭ-	115-122
*ŋr-		ny-	ŋr-			154-156
*Pr-	Pr-	Pr-	Pr- (/ Py-)	Pr-	Ṭ-	129-136
*mr-	br-	my-	mr-			146-150
*Kl-	Kl-	Kr-	Ky-	K- ?	Tl-	123-128
*Pl-		Pr-	Pr- / Py-	Pr- / Pl-		137-142
*ml-		my-	mr- / my-			152-153
*Kw-	Ko-, Ky-[112]		Kw-		Ku-	157-160
*Tw-	To-	Tw-	Tw-		Tu-	165-169
*nw-		n-			nu-	191
*TSw-		TSw-	TSw-	TS-	TSu-	180
*Pw-	Po-	Po- ?	Pw-		Pu-	170-173
*mw-		mw-	mw-		mu-	195-196
*rw-	ro-	rw-	rw-		rw-	198-201
*lw-	lo-	lw-	lw-		lu-	208-210
*hw-	o-	w-	w-		hu-	216-8, 221-2
*Ky-	Ky-	TS-	Ky-	Tś-		161-164
*ŋy-	ny-	ŋ-	ŋ-		ŋ-	189-190
*ny-	ny-	ny-	ń-			192-194
*TSy-	Tś-	Tś-	TS-	Tś- (s-)	Tś- (s-)	181-188
*Py-	Py-	Py-	Py-		Pi-	174-179
*my-		my-	my-			197
*ry-	ź-	y-	r-		ri-	202-207
*ly-	l-	l-	ly-		li-	211-213
*hy-			y-		hi-	230
*Kyw-	Ky-		Kyw-			238
*TSyw-				(s-)	Tśu-	239-242
*Krw-		Kr-	Krw-			243-244
*Kry-		Tś- ?		Tś- (s-)		245-246

On the whole, while the general scheme of PTB medials as reconstructed by Benedict is fairly simple (**r**, **l**, **y**, **w**, **ry**, **rw**, **ly**, **lw**), because of the high degree of variation it is not always possible to say with confidence what the regular reflexes of these medials in the major TB language are, or conversely to solidly reconstruct one or the other based on evidence from TB languages. A number of roots show considerable variation between medials *r* ~ *l* ~ *y*, indicating either instability in the proto-language, dialectal variation, or an insufficient understanding of conditioning factors.[113]

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[112]PTB ***-w-** becomes WT *-y-* before *-i-*, regardless of initial. For example, WT *khyi* 'dog' is derived from PTB ***kwəy** (revised by Matisoff to ***k^{w}əy**).

[113]Benedict notes (1972:41, note 134): "The development *r* > *y* in Burmese has badly confused the phonetic picture here, and has led to frequent interchange between the two letters for these sounds in written

Moreover, the distribution of the medials with respect to initials is uncertain, as is even the existence of some medials, as demonstrated by the large number of clusters placed in parentheses and brackets in the chart above. It is not clear whether weakly attested clusters were rare in the proto-language, or whether additional data would reveal more roots with these clusters, or whether in fact they did not exist at all and the roots containing them need to be reconstructed differently. Benedict (1972:49) says: "The clusters **zw-*, **dzw-* ..., **ŋw-*, **hw-* and **yw-* are difficult to establish for TB roots, yet it is highly likely that all five existed in the parent TB speech."[114] There is some uncertainty about the reconstruction of ***-w-** after labials; for example, the root for 'pig' is reconstructed as ***pak** or ***pwak**.[115] Medials ***y** and ***w** only occur before certain vowels; ***-w-** is reconstructed only before ***a** and ***i**, and ***-y-** is generally not reconstructed before ***i** (Benedict 1972:49, 55).

In the Appendix of Tibeto-Burman roots (Benedict 1972:199-209), the following medial elements can be identified:

Medial	Example root(s)
r	***braŋ** 'give birth'; ***graŋ** 'cold (weather)'
l	***bliŋ ~ *pliŋ** 'full, fill'; ***klu·ŋ** 'valley; river'
w	***bwam** 'plump, swollen'; ***kwa·y** 'bee'; ***(m-)twa** 'span'
y	***byar ~ *pyar** 'affix; plait; ***r-gya** 'hundred'; sew'; ***dyam** 'straight'
rw	***krwəy** 'son-/daughter-in-law'
ry	***pryo** 'soft, boiled; boil'
lw	--[116]
ly	--[117]
yw	***kywəy** 'yam'

The following roots are examples of the many which have alternation between medials:

Burmese .... Medial *l* appears in many forms from the early inscriptions, but *r ~ l ~ ly* interchange is common even at that period (ca. A.D. 1100-1500). Medial *l* in the inscriptions corresponds to TB **r* as well as **l*, hence the Burmese evidence is not of critical value in making this distinction ...."

[114]In fact, additional work by Matisoff (1996) has revealed that ***hw-** clusters are not uncommon.

[115]However, in most such cases the reconstruction with ***-w-** is made to improve consistency with Chinese cognates as reconstructed according to Karlgren; we now know that medial ***-w-** was not distinctive after labials in Old Chinese, obviating the need for reconstructing it in many of Benedict's TB roots. See Benedict 1972:23, note 78.

[116]Although this cluster does not occur as a true medial, it is found in roots such as ***g-lwat** 'release', where **l-** is the initial and **g-** a prefix. The crucial distinction between initial clusters of stop+resonant, and combinations of stop prefix with resonant initial, will be treated in the next section.)

[117]But note the form ***m-lyak** 'lick'; see the previous footnote.

y ~ r ***bya ~ *bra** 'bird; bee';
r ~ rw ***br(w)ak ~ *(s-)br(w)aŋ** 'speak'

Alternations

One well-attested PTB vocalic alternation, *i~ya*, involves medials. This common alternation is best represented in the root

***mik ~ *myak** 'eye'

There is some evidence that the parallel alternation *u~wa* may have existed as well. Benedict 1972 lists several roots whose reconstructed vowel was revised from ***u** to ***wa**, such as:

***tuk=*twak** 'neck'
***ruŋ=*rwaŋ** 'horn'
***suːr=*swaːr** 'sour'

3.2 The contributions of James A. Matisoff

Matisoff, the contributing editor of Benedict 1972, has been the primary scholar carrying on research in Tibeto-Burman in the Benedict tradition.[118] His work on PTB, exemplified in many publications of the last three decades, and benefiting from much additional data that was unavailable to Benedict in 1972, is largely a refinement of Benedict's system.[119] My primary source is Matisoff (to appear), a recent distillation of his views.

One difficulty in the reconstruction of PTB medials which Matisoff notes is distinguishing between segmental sequences of initial + glide and prefix + initial. For example, a PTB syllable like ***k-rak** (initial ***r-**, prefix ***k-**) is distinct from ***krak** (cluster initial ***kr-** composed of initial ***k-** and liquid medial ***-r-**). The former would presumably have been sesquisyllabic, that is, pronounced with a lax epenthetic vowel

[118]While many other scholars have made important and notable achievements in subfields of TB studies, it is fair to say that only Matisoff's work achieves the same range and scope as Benedict's.
[119]With many new contributions made in work on specific subgroups and languages, for example the reconstruction of Proto-Lolo-Burmese.

between the prefix and initial.[120] Under ideal circumstances, these two forms will show different reflexes in many daughter languages. In practice, however, reanalysis of a given syllable may take place in one or more subgroups or languages, with the result that the original distinction may be difficult to reconstruct for many lexical items. Types of reanalysis include the reinterpretation of a prefix as an initial, the reinterpretation of an initial as a prefix, the loss of a prefix, or the loss of an initial due to the presence of a prefix, with the prefix assuming the role of initial (the latter termed "prefix preemption" by Matisoff).

Despite these difficulties in reconstruction, there is no doubt that the type of contrast exemplified by, for example, ***k-r-** and ***kr-** is firmly established in Tibeto-Burman. It is further supported by the fact that prefixes are common in the proto-language even before non-resonant initials (e.g. ***d-g-**, etc.).[121] This strongly suggests that similar distinctions proposed for Old Chinese (cf. Baxter's ***g-r-** and ***k-l-** vs. ***gr-** and ***kl-**) may be explained also as sesquisyllabic morphemes which later became reanalyzed as monosyllables. (This possibility will be explored in later chapters.)

Matisoff gives the following examples (using Proto-Lolo-Burmese rather than PTB roots) to illustrate the kinds of different developments which are possible.

	PLB	WB	Lahu	
WEAVE	***rak**^{L}	*rak*	*ɣà?*	liquid initial
CROSSBOW	***krak**^{H}	---	*khâ?*	cluster initial
CHICKEN	***k-rak**^{H}	*krak*	*ɣâ?*	prefix + initial

The distinction between ***kr-** and ***k-r-** is revealed in the Lahu reflexes *kh-* ('crossbow') versus *ɣ-* ('chicken').[122] The latter is also the reflex of the plain initial ***r-** as

[120]Compare, for example, English *below* [bəlo'] vs. *blow* [blo], *terrain* [təɹejn'] vs. *train* [tɹejn] , and *duress* [dʊɹɛs'] vs. *dress* [dɹɛs]. (One might also cite examples like *support* [səpʰɔɹt'] vs. *sport* [spɔɹt], although here the distinction is also reflected in de-aspiration of the /p/ when clustered with /s/.)

[121]It should be pointed out that the term 'prefix', as applied to Tibeto-Burman, does not necessarily imply an affix with a distinct morphological function. While some PTB prefixes can be identified as derivational or inflectional morphemes (such as the ***s-** causative), others are probably simply remnants of reduced first syllables of sesqui- or bi-syllabic roots, whose semantics (if any) are unrecoverable.

[122]Plain PLB velar initials become uvulars in Lahu. This backing of PLB velars is blocked by medial ***-r-**.

in ‘weave’, but the high Lahu tone for ‘chicken’ indicates a voiceless PLB initial, revealing the influence of the prefixal ***k-**. The presence of this prefix is in turn confirmed by the Written Burmese form *krak*. In these cases the proper reconstruction of the PLB forms is clear-cut.

Because of the implications of prefix + initial combinations for the reconstruction of Old Chinese and PST medials, I will consider them to be within the scope of this study, at least when the initial in question is one of the resonants **w**, **r**, **l**, **y**.

Matisoff makes two important changes to Benedict’s system. First, he rejects Benedict’s ***pw-**, proposing instead ***p-w-**, with variant developments (or proto-variation) accounting for reflexes of ***p-** in some languages and ***w-** in others. (For Matisoff’s latest thinking on this question, see Matisoff 1998.)

Second, he proposes a series of labiovelar initials such as ***k^{w}-**, distinct from ***kw-** and ***k-w-**, to account for the development of bilabial initials in some languages.

We can now look more closely at the function of each PTB medial.

3.2.1 Medial *-w-

Medial ***-w-** is the most widespread of the four medials in terms of phonotactics, combining with nearly all initials. Of the four palatal initials, only ***dź-** occurs with ***-w-**, and only in the single root ***dźwal** ‘hang down; sag’. The status of ***zw-** and ***dzw-** is unclear; they are rare at best. ***yw-** and ***ŋw-** occur in only a few roots, but these are well-attested. As in Burmese, it appears that from the point of view of PTB syllable structure ***-w-** may best be analyzed as a vocalic element because of its co-occurrence restrictions with other vowels.

3.2.2 Medial *-y-

Although ***hy-**, ***ty-**, and ***dy-** are listed in parentheses in Benedict 1972, with the implication that they rarely occur, Matisoff indicates that all three are in fact fairly common. The re-evaluation of combinations ***tsy-**, ***dzy-**, ***sy-**, ***zy-** as unitary phonemes ***tś-**,

***dź-**, ***ś-**, ***ź-** means that ***-y-** does not occur after either the dental or palatal affricate/fricative series. This systemic gap could be viewed as evidence for rejecting Benedict's re-evaluation (Matisoff to appear); on the other hand, it is not uncommon among the world's languages to find exactly this type of co-occurrence restriction on palatal medials (see Ohala and Kawasaki-Fukumori 1997), a point which Matisoff does not note.

Matisoff points out several interesting developments of clusters with ***-y-** in various TB languages, developments which may provide instructive parallels for Chinese. He notes that "[i]n many Loloish languages, as well as in some Tibetan dialects, Nungish, and several Qiangic languages, there is a strong tendency for ***my-** clusters to develop into dental nasals (**ny-** or simply **n-**)." This development is most easily traced with the widespread and well-established PTB root for 'eye', ***s-myak** ≍ ***s-mik** (> e.g. WT **mig**, Jg. **myiʔ**, WB **myak**). Matisoff notes, among others, the following reflexes:

Tibetan (Xiahe) *hnʌk*
Pumi (Taoba) *nɛ*^{53} (cf. Pumi (Jinghua) *mia*^{55})
Sani *ne*^{44}

Furthermore, "Nungish shows variation between *m-* and *n-* in this and other roots: Nung *mɛ* ~ *nɛ* 'eye', *mit* ~ *nit* 'mind' (< PTB ***m-yit**)."

In some cases, medial *-y- leads to palatalization or other backing of labial initials. For example, the common root PTB ***bya** 'bee' has the following non-labial reflexes:

Sani ***dlá***-*mà*
Lisu *biɛ*^{31} ~ *dʒɛ*^{21}

3.2.3 Medial *-r-

PTB ***-r-** is fairly widespread, occurring with initials at all places of articulation, with the exception of glottal ***h-**. However, combinations with labials and velars are more common than with acute initials, and ***nr-** does not seem to occur at all.

Matisoff notes a tendency in many languages for PTB ***-r-** to fricativize, appearing as *-ʐ-* in Achang, *-ʒ-* in some dialects of Jingpho, and *-ɣ-* in some Karen dialects.

As Matisoff points out, clusters like ***tr-**, ***dr-**, ***sr-** and ***zr-** were originally considered prefix + initial combinations by Benedict. Although these were later revised to initial + medial clusters, the relative scarcity of these combinations suggests that the earlier analysis may in fact be correct; this would also tally with the scarcity of such combinations in Written Tibetan.

Oddly enough, ***-r-** combines much more frequently with the palatal initials ***tś-**, ***ś-** etc. This provides further evidence for Benedict's reanalysis of these initials as unitary phonemes, since clusters ***tsyr-** and ***syr-** seem less likely on universal grounds.

Clusters ***mr-** and ***ŋr-** are of particular interest, since they seem to be somewhat unstable. Cluster ***mr-** is fairly common, but seems to alternate with ***br-** or ***my-**. Matisoff notes that 'monkey' may be reconstructed either ***mruk** or ***myuk** based on TB reflexes, while ***mra** 'much, many' appears in WT as ***bra***-*ba* and Written Burmese as *myâ*. In Naxi, PLB ***mr-** has become *zh-* (a voiced palatal fricative), a development reminiscent of Baxter's proposed development OC ***ml-** > MC ***ź-***.

ŋr-** has been reconstructed for only two roots, and in one case (ŋraŋ** 'contradict, deny') the initial alternates with ***gr-**.

3.2.4 Medial *-l-

Medial ***-l-** is found only after grave initials (labials and velars). Benedict also reconstructed ***zl-** in one root (***zlum** 'round', revised from earlier ***s-lum**), but Matisoff points out that, given the absence of ***sl-** clusters in PTB, the proposed existence of ***zl-** is rather tenuous. The combination ***ŋl-** is unattested.

Just as ***-r-** has a tendency to fricativize in some languages, ***-l-** clusters commonly develop into fricatives or affricates, especially in Written Tibetan. The best known example is probably 'four', WT *bźi* < PTB ***b-ləy**.

Following on Benedict's comments about the difficulty of distinguishing ***-r-** and ***-l-**, Matisoff points out the unfortunate fact that these medials are particularly difficult to sort

out in Lolo-Burmese, which is perhaps the best understood Tibeto-Burman subgroup, and one for which solid meso-level reconstructions exist. Only a handful of languages, including the Southern Loloish languages Bisu and Mpi, have consistently distinct reflexes of ***-r-** and ***-l-**, at least in certain environments.

3.2.5 Medial clusters

Matisoff lists PTB double-glide medials ***-rw-**, ***-ry-**, ***-lw-**, ***-ly-**, and ***-yw-**, all of which appear in Benedict 1972. Many of these glides can be shown in particular cases to be of secondary origin. "[S]ometimes they arise through fusion of two separate syllables in compounds...; they may also derive from a reinterpretation of *prefix-plus-resonantal-initial-plus-single-glide (*P - C_i - G) as a root-initial-plus-double-glide (*C_i - G - G)."

Of particular combinations, Matisoff says that ***-rw-** and ***-ry-** most often occur after velars. ***-lw-** and ***-ly-** are extremely rare. The most frequent double glide is ***-yw-**, which occurs at all places of articulation (except palatal).

3.2.6 A note on finals *-əy and *-əw

Benedict's PTB finals ***-əy** and ***-əw** are revised from earlier ***-iy** and ***-uw**. They contrast with vowels ***i** and ***u**, which however appear only rarely as finals in and of themselves. Although the revised reconstruction with schwa vocalism may more accurately reflect their pronunciation at the PTB stage, functionally these vowels seem to fill the role of ***i** and ***u** in the PTB vowel system, and for this reason it seems likely that they are descended from earlier (PST ?) ***iy** and ***uw** or ***iː** and ***uː**. This is further supported by two types of alternations found in a number of PTB roots. One involves finals which appear as ***-i(y)** or ***-u(w)** in Benedict 1972, but which under his revised notation should appear as ***-i ~ *-əy** and ***-u ~ *-əw**, respectively. The second involves alternations between open and closed syllables of the type ***-i(y/t)** and ***-u(w/k)**, which are revised to ***-əy ~ *-it** and ***-əw ~ *-uk**.

As we shall see in later sections, comparison with Old Chinese also suggests that PTB ***-əy** and ***-əw** should be reconstructed as something like ***-iː** and ***-uː** in PST. For this reason, and for simplicity of discussion, I will often refer to ***-əy** as a 'front vowel' or 'high front vowel'; when I refer to PTB front vowels as a class, ***-əy** may be assumed to be included.[123]

3.2.7 Conclusion

The basic system of medials found in what may be called the Benedict-Matisoff reconstruction of Proto-Tibeto-Burman is not in doubt. There is no disagreement among scholars that PTB contained the four medial elements ***r**, ***l**, ***w**, and ***y**, which are clearly found in both Written Tibetan and Inscriptional Burmese.[124] Questions remain as to the reconstruction of particular medials in particular etyma, especially given the seemingly high degree of variation which occurred between some of these elements, at the earliest reconstructible stages and in the daughter languages. Additional details regarding the exact number of medial combinations which were possible, and the phonotactics involving their interaction with initial consonants, also remain to be worked out. On the whole, however, the PTB reconstructions offered by this system may serve as reliable comparanda for Chinese cognates in the reconstruction of Proto-Sino-Tibetan.

3.3 The contributions of Nicholas Bodman (1980, 1985)

I will now turn my attention from the reconstruction of PTB proper to work on Proto-Sino-Tibetan. Like Gong Hwang-cherng, Nicholas Bodman has emphasized extra-Chinese comparisons (including Tai, Miao-Yao, and Mon borrowings as well as PTB comparisons) in his work on Old Chinese phonology. At the same time, this work has led him to make a number of hypotheses about the sound system of PST.

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[123]It should be noted, however, that there is some evidence that PTB final ***-əy** corresponds to Baxter's OC final ***-aj** (see Section 4.3.4). This does suggest a lowering of the vowel nucleus in Chinese as well as Tibeto-Burman, and raises the possible that such lowering had already occurred to some degree in PST.
[124]The /w/ phoneme is actually extremely rare in Tibetan.

Most of his contributions to the reconstruction of Old Chinese have been adopted and amplified by William Baxter. His ideas regarding ***(C)-r-** clusters giving rise to Middle Chinese **l-**, and clusters ***K-l-** and ***P-l-** giving rise to Middle Chinese dentals, have already been discussed in Sections 2.3.4 and 2.3.7 as features of Baxter's Old Chinese system.[125]

In this section, however, I will be concerned with his ideas about medials in OC-PTB comparisons. Bodman's immediate goal is the reconstruction of what he calls "Pre-Chinese", a stage of the language earlier than OC, adduced from comparative evidence. Underlying these reconstructions, however, are implicit many ideas about the nature of PST itself.

The most important publication of Bodman's ideas is Bodman 1980, a lengthy *tour de force* presenting hundreds of Chinese-TB cognate sets (mostly Chinese-Tibetan comparisons), as well as detailed discussions of Bodman's ideas regarding the reconstruction of Old Chinese and Pre-Chinese. (I have generally given only the Pre-Chinese form when citing his examples below.) A good deal of this work is devoted to the reconstruction of medials, particularly the problem of medial ***-j-**. Bodman 1985 is a shorter work focusing specifically on the reconstruction of ***-r-** and ***-l-**; the bulk of the examples there are taken from Bodman 1980, but new ideas are presented as well.

3.3.1 Medial *-r-

Bodman notes two types of correspondences involving medial ***-r-**. The first relates Middle Chinese second-division words to TB (or WT) words with medial ***-r-**. These words presumably go back to simple **r-**clusters in PST. For example, consider Bodman 1980 sets 78, 79 and 311:[126]

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[125]Bodman's hypotheses regarding Old Chinese medials ***r** and ***l** appear in Bodman 1980; they are summarized in Bodman 1985.

[126]In the Chinese examples, the starred forms given are Bodman's Pre-Chinese reconstructions. The term Pre-Chinese is used rather than Old Chinese since these reconstructions are in part adduced from PTB evidence rather than purely internal evidence. I have here omitted the Old Chinese reconstructions also given in Bodman's examples, listing only the derived Middle Chinese forms.

八 *pret > pwăt ‘eight’	WT *brgyad* < ***b-ryat** ‘eight’ Proto-Tamang ***pret** ‘eight’ Lushai *pà-riát* ‘eight’
百 *praʔ > pɐk ‘hundred’	WT *brgya* < ***b-rya** ‘hundred’
甲 *krap > kap ‘shell, buffcoat’	WT *khrab* ‘armor, scales’

The second type of correspondence relates Middle Chinese words with initial **l-** to TB words with medial ***-r-**. In this case, Bodman reconstructs OC initials ***g-r-**, ***b-r-**, and ***d-r-**, which he calls an ‘ad hoc’ notation to distinguish these clusters from ***gr-**, ***br-**, and ***dr-**, which become MC second division. Whatever the phonetic distinction between contrasting pairs such as ***gr-** and ***g-r-**, the phonological distinction is presumably also reconstructible at the PST level, but was later neutralized in TB. Consider set 80, in which the stop element in Chinese is undetermined due to conflicting evidence on the TB side:

六 *C-rùk > ljuk ‘six’	WT *drug* ‘six’ Lushai *tă-rók* ‘six’ Jingpho *krúʔ* ‘six’

Bodman suggests (1980:73) that at least in some cases, the stop member of the ***C-r-** type cluster should be considered a prefix.

A curious difficulty with this approach to Chinese ***r-**clusters is that, while evidence for Chinese ***Pr-**, ***P-r-**, ***Kr-**, ***K-r-** type clusters is ample in Tibeto-Burman, equivalent correspondences for dental clusters with ***-r-** are hard to find. “Although there are many words with MC dental retroflex initials [i.e. retroflex stops] that go back to OC type ***tr-** (Div. 2) and ***trj-** (Div. 3), we find similar clusters strangely lacking in most TB languages, and no good case for reconstructing such a type for PST. [W]T has only the voiced type ***dr-** as in the word ‘six’ **drug** .... It is possible that [W]T **rt-** and **rd-** are sometimes metathesized from an assumed ***tr-** or ***dr-**” (1985:149). An example given by Bodman is 1980 set 452:

綴 *tròt > ʈjwät ‘tie, connect’	WT *rtod* ‘to attach’

Whereas Bodman assumes PST ***tr-** here, with metathesis in Tibetan, we will see below that Coblin prefers to reconstruct PST ***rt-** > OC ***tr-** > MC **ṭ-**, with metathesis in Chinese. Gong Hwang-cherng goes a step further, retaining ***rt-** at the OC stage.

This hypothesis still leaves many Chinese second-division words with retroflex initials, generally reconstructed ***Tr-** for Old Chinese, with TB cognates that lack medial ***-r-**. (For example, 殺 'kill' is reconstructed with OC ***sr-**, but there is no evidence for ***-r-** in TB.) This in turn raises the possibility that medial ***-r-** in these words may be a Chinese innovation. Since no conditioning factor is apparent, it has been suggested that medial ***-r-** may have constituted an infixed morpheme in Old Chinese. As Bodman points out (1985:158): "It may be true that we sometimes have in such cases a word family alternation where one can assume a medial **r** or **l** infix in the form that appears in Div. 2; this assumption would be attractive if we could establish a morphological and semantic function to the so-called infix." To date, no scholar has offered a convincing argument for such a function.[127] A less strong form of the infix hypothesis might simply argue for proto-variation, perhaps due to dialectal differences, between forms with and without medial liquids. Bodman offers some suggestive, though certainly not conclusive, data to this effect (1980, examples 202-203, 333).

3.3.2 Medial *-l-

As with ***r-**clusters, Bodman proposes two types of ***l-**clusters in Old Chinese. One type, ***K-l-** and ***P-l-**, developed into Middle Chinese dentals. Example of this type have already been given in Section 2.3.7.

Bodman supposes that the other type, ordinary ***l-**clusters ***Pl-** and ***Kl-**, fell together with OC ***Pr-** and ***Kr-**, leading to Middle Chinese second-division words (or third-division words when medial ***-j-** followed). This proposal has not been generally accepted by other scholars. (In Li Fang-kuei's system, medial ***-l-** drops out of

[127]Probably the most comprehensive proposal to date for such an infix is that of Sagart 1993.

***l-**clusters without a trace. In Baxter's system, clusters like ***Pl-** and ***Kl-** are not reconstructed.) But Bodman also admits that it is difficult, based on internal OC evidence or even on comparative TB evidence, to reconstruct such ***l-**clusters in contrast to ***r-**clusters. "Some TB languages like Tamang, Lepcha, Mikir, Jiarong, Thulung, etc. show many minimal contrasts between medial **l** and **r**, but TB cognates of **l** medial words with OC are disappointingly few" (Bodman 1985:155). Indeed, nearly all the examples Bodman gives in support of OC ***l-**clusters are Middle Chinese second-division words which appear to have been borrowed into Austroasiatic languages with **l-**clusters. But as Bodman himself notes, the probable late date of the borrowings casts this evidence into some doubt, and OC ***r-**clusters could be reconstructed instead.[128]

Bodman presents only one example of an OC-TB cognate set which supports the reconstruction of medial ***-l-** as a conditioning factor for Middle Chinese second division, 1980 set 319:

下 *gla: > ɣa: 'down' *glas > ɣa- 'go down'	Lepcha *klo*, *glo* 'to fall' PBurmese *klà* 'to fall', *khlà* 'to drop' Mikir *klò* 'to fall'

In other cases, Bodman reconstructs OC medial ***-l-** for second-division words when Tibetan fails to provide evidence for ***-r-**, but where Pre-Tibetan ***-l-** may plausibly be reconstructed. For example, Bodman supposes that, since WT does not have clusters *phl-* or *khl-*, earlier ***phl-** and ***khl-** may have simplified in Tibetan, allowing the following correspondences to be proposed (1980 sets 320, 177):

窆 *phluks > phau- 'cave, cellar'	WT *phug-pa* (< *phl- ?) 'cavern'
屎 *hlyi: > śji: 'dung'	WT *lci* < *hlyi 'dung' Jingpho *khyí* 'dung' Thulung *khli* 'dung' Proto-Tamang ***kli** 'dung' PTB ***kliy** 'dung'

[128]In the case of Chinese 江, which was borrowed into Chinese from Austroasiatic, Bodman reconstructs OC ***krung** or ***klung**; the medial is uncertain since both *r* and *l* are found in the various Austroasiatic languages.

Based on the TB forms, Bodman suggests for the latter a PST reconstruction of ****khli** 'dung', with a common innovation of ****khl-** > ***hl-** in both Chinese and Tibetan.

In no case, however, does Bodman provide evidence from other TB languages supporting the existence of Pre-Tibetan ***phl-** (see sets 320-322), and this proposal must be regarded as speculative.

Whether one supposes that both ***Cl-** and ***Cr-** clusters existed in OC, or that PST ***Cl-** had merged with ***Cr-** in OC, there should still be cognates involving PTB ***l-**clusters and Middle Chinese second-division words. How can we explain the scarcity of such cognates? One possibility that is suggested by Bodman's examples is that the fault lies not with PTB but with Tibetan. If many original PST ***l-**clusters have disappeared in Tibetan, they would only be recoverable through comparison of Chinese words with other TB languages or directly with PTB roots. (And, indeed, this is the case with Bodman's set 319, where there is no Tibetan cognate.) It may simply be that the over-reliance of scholars on Chinese comparisons with Tibetan has obscured the larger picture.

Alternatively, it may be that Chinese never had a distinction between what Bodman reconstructs as ***Cl-** and ***C-l-**. If, as Baxter does, we eliminate ***Cl-** from Old Chinese for lack of evidence, then there is nothing wrong with rewriting Bodman's ***C-l-** as ***Cl-**, and arguing that OC ***Cl-** > MC **T-** is a regular development which corresponds to PTB ***l-**clusters.

3.3.3 Medials *-y- and *-j-

Roughly half the Chinese lexicon is classed in the third division in the rhyme tables of Middle Chinese. In many reconstructions of Old Chinese, this means that medial ***-j-** is widespread. Yet an equivalent profusion of palatal medials cannot be reconstructed for PTB. The problem of reconciling palatal medials in OC-PTB cognates is therefore even more difficult than that of reconciling liquid medials.

Bodman's solution to this problem is to propose two types of Old Chinese medial ***-j-**: "primary yod" and "secondary yod". Primary yod is a palatal medial descended directly from PST, which can be identified by the presence of *-y-* in cognate TB forms. In his Pre-Chinese reconstructions, Bodman writes primary yod as ***y** (the traditional way of transcribing the palatal glide in TB studies).

Secondary yod is a palatal medial in Chinese which has no apparent TB analog; Bodman presumes this arose in Chinese from an unspecified feature in all "Type B" syllables (to borrow Pulleyblank's terminology), and he transcribes this feature in Pre-Chinese with a grave accent over the vowel. Both types of yod are transcribed as ***-j-** in Bodman's Old Chinese transcriptions.

Bodman makes clear that no phonetic distinction is implied in the notations ***y** vs. ***j**. He also remains agnostic about the interpretation of the Type B feature which gave rise to secondary yod.

The situation is further complicated, however, by word family alternations in both Chinese and TB between forms with and without palatal medial glides; these alternations may involve either primary or secondary yod. This raises the possibility that one or both types of yod may have had a morphological function in PST or its descendants. Bodman (1980:151) says: "Primary yod, where yod occurs in both TB and Chinese, is to be sharply distinguished from secondary yod which developed in Chinese Type B syllables. In many cases, primary yod probably does not have a morphological function. However, when there is an alternation in related words showing the presence or absence of yod, yod when it occurs is an infix although its meaning or meanings may not be readily discernible in many cases. Comparisons between TB languages, or between TB and Chinese, may sometimes show a yod in only one member of compared forms; in such cases there is a word family relationship only. Presence or absence of yod is a marked characteristic of Chinese word families."

It is not immediately clear to me why Bodman accepts the idea of ***-j-** as an infix more readily than the idea of ***-r-** as an infix; in both cases the morphological and/or semantic role remains unclear for Chinese.[129] It may simply be that alternations involving ***-j-** are more numerous and better documented in Chinese than those involving ***-r-**. Alternatively, it may be because *-y-* does seem to have some sort of morphological role in many TB languages (such as Tibetan, and Lepcha where it is a causative infix), whereas **-r-** does not.

For example, Bodman (1980:151) writes that WT *skyor* "enclosure, fence" is clearly a derivative of WT *skor* "to turn". Bodman compares the former (set 341A) with Pre-Chinese 菀 ***skwyar** > **ʔjwɐn:** 'park, enclosure (for animals)' and the latter (set 45) with Pre-Chinese 捥 ***skwars** > **ʔuân-** 'wrist (*turning joint)': "We have a case here of primary yod in both T and OC, and here primary yod is an infix rather than part of the stem".

A consideration of word family alternations in both Chinese and TB languages, and of correspondences involving a palatal medial on one side or the other, leads Bodman to define two types of primary yod: 'phonological' primary yod and primary yod as infix. "Where we find yod correspondences in both TB and Chinese, we call this primary yod. When we cannot find evidence from word families that this is an infix, we assume yod is part of the stem and can designate it as 'phonological' primary yod" (Bodman 1980:157).

As examples of phonological primary yod, Bodman offers the following well-known comparisons (1980 sets 389, 390):

薪 *sying > sjĕn 'firewood'	WT *śing* < *sying 'tree, wood' Lushai *śang* < *syang 'dry wood, firewood' Rawang *syïng* 'wood, tree'

[129]Bodman 1980:159-160: "[A]s in the rarer cases of posited *-l- and *-r- infixes in OC, it is difficult to assign a more definite meaning to the infix than merely to state that a derivational process is involved. Although Chinese has numerous cases of doublets with and without yod, many of these can be accounted for equally well by positing secondary yod. We therefore need doublets also in TB languages to be sure that we are dealing with genuine cases of primary yod."

蝨 *sryik > ṣrjɛt ‘louse’ WT *śig* < *sryik ‘louse’[130]

As for the nature of secondary yod and its implications for PST reconstruction, Bodman (1980:162) says: “Setting up two syllable types [i.e. Type A and Type B, the latter the source of secondary yod] is a useful analytical device, but it remains doubtful in my mind as to what the original difference really was; very likely it was a prosodic contrast of some kind. The question arises whether this dichotomy is also to be attributed to ST or whether TB shows any reflexes that can be correlated with it.” Bodman leaves the question open for lack of evidence, but does suggest, as an avenue for future investigation, the possibility that secondary yod in Chinese may correlate with tonogenetic features in some TB languages.

3.3.4 Medials *-ly- and *-ry-

In Bodman’s system, medials ***-l-** and ***-r-** may both co-occur with primary and secondary yod. These reconstructions are based primarily on comparisons of Chinese and Tibetan forms. Bodman points out that Written Tibetan has neither *-ly-* nor *-ry-* clusters. Where Tibetan has *-y-* and the Chinese forms indicate a cluster ***-ly-** or ***-ry-**, Bodman reconstructs similar PST clusters with presumed simplification to *-y-* in Tibetan.

In his examples 339-341, Bodman (1980:150) compares Chinese words in the Middle Chinese Yuán 元 **-än** rhyme to Tibetan forms with medial *-y-*. The presence of *-y-* in Tibetan indicates that primary yod ***-y-** should be reconstructed for Pre-Chinese. The fact that the Chinese words are *chóngniŭ* third-division means they should be reconstructed with medial ***-r-** or ***-l-** as well. (Recall that in Bodman’s Pre-Chinese system medial ***r** and ***l** merge in the development of Old Chinese.) In this case Bodman reconstructs ***-ly-**

[130]Bodman’s reconstruction of ***-r-** in his Pre-Tibetan form is apparently based on comparisons with other TB languages, which show concrete evidence for it.

in Chinese, and so reconstructs ***-ly-** > *-y-* for Tibetan.[131] I give here just one example, set 341:

拳 *gwlyar > gjwän 'fist' WT *khyor* < ***khlyor** 'handful'

Medials ***-l-** and ***-r-** also occur with secondary yod in Bodman's Chinese reconstruction. These are reconstructed when Tibetan cognates have medial *-r-* or *-l-*, but no medial *-y-*.

It is inevitable that for some Chinese words, the reconstruction indicated by the Middle Chinese reflex is in conflict with that indicated by the Tibetan cognate. In such situations Bodman usually gives preference to the comparative evidence. For example, the Chinese word *zhòu* 晝 'time of daylight, day' has the Middle Chinese reading **ʈjəu-**. As a third-division word with a retroflex initial, it would normally be reconstructed ***trj-** in Old Chinese. But Bodman compares it with Tibetan *gdugs* 'midday, noon'. Since the Tibetan form lacks a medial *-y-*, the Old Chinese medial ***-j-** is considered secondary yod. But the Tibetan form also lacks medial *-r-*. Bodman therefore reconstructs Pre-Chinese ***tùks**. Bodman has no explanation for the irregular development leading from this reconstruction to a Middle Chinese retroflex initial; he suggests only the possibility of a "dialect development" (1980:172).

3.3.5 Medial *-^{w}-

Bodman's Old Chinese system, like the Baxter system which followed it, has no medial ***-u-**. It does however have the full series of labiovelar initials with secondary articulation ***-^{w}-**, transcribed **-w-** by Bodman. Bodman 1980 does not deal explicitly with the PST origins of these labiovelars, but there is some incidental discussion accompanying the examples.

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[131]Bodman chooses ***-l-** over ***-r-** because in the Wu-ming dialect of Zhuang, a borrowing of a Chinese word in the same phonetic series as the forms in question is realized with medial *-l-*. See example 200, Bodman 1980:108.

Bodman's cognates indicate that Chinese ***K^{W}a-** corresponds to WT *Ko-*. But most of the examples Bodman gives of Chinese ***K^{W}a-** have dental final consonants ***-l** or ***-n**, which means that in his system they are phonologically ambiguous between ***Ko-** and ***K^{W}a-**. (For more on this ambiguity see Section 2.3.6.)

This means that the Chinese-Tibetan vowel correspondence may be either ***-^{W}a-** / *-o-* or ***-o-** / *-o-*. Since "TB ***-wa-** as evidenced by other cognates appears as T *-o-*" (1980:137, 150), Bodman argues that the source of this correspondence could be either PST ***-wa-** or PST ***-o-**. Without evidence from other TB languages, the ambiguity cannot be resolved.

In Bodman's examples, ***-a-** is by far the most common vowel to occur with labiovelar initials, as in sets 23, 35, 43-47, 278, 287-288, 339-341.

There are also a few examples of ***K^{W}i-** corresponding to Tibetan *Kyi-*, and of Chinese ***K^{W}u-** corresponding to Tibetan *Ku-*. In the first case the PST vowel is presumably ***-wi-** (though Bodman does not say so), with development of the glide to *-y-* in Tibetan. In the second case PST ***-w-** has presumably been lost altogether in Tibetan. Consider sets 55 and 428:

洼 *skwil > ʔiwei 'concave, puddle'	WT *skyil* '(to bend), dam up water' WT *skyil-ding* (W) 'small hole filled with water'
九 *kwù:, *kwju: > kjəu: 'nine'	WT *dgu* 'nine'

3.3.6 Conclusion

Bodman's introduction of the concepts of "primary yod" and "secondary yod" in Chinese is an ingenious effort at solving the problem of palatal medial incompatibility in OC-TB comparisons. It is unlikely, however, that this is the correct solution. Enough questions have been raised about the reconstruction of medial ***-j-** for Old Chinese, based purely on internal evidence, that maintaining the reconstruction in the face of contradictory comparative evidence, especially in such an *ad hoc* and phonetically uncertain way, seems unwise. This is not to say that the widespread reconstruction of OC ***-j-** is certainly

wrong; only that Bodman's solution, with its complex and ambiguous juggling of word families, morphological infixes, and unspecified prosodic features, is too inelegant to accept without first further pursuing other possibilities. One alternative avenue of exploration is offered by Gong Hwang-cherng, and will be discussed below.

From our present vantage point, the value of Bodman's work is threefold. First, in gathering and organizing a vast amount of data in order to propose a large number of OC-TB cognate sets. Second, in systematically laying out the complex challenges involved in reconciling the sound correspondences of the cognate sets with the demands of internal evidence for the reconstruction of Old Chinese. Third, in proposing an array of creative solutions to these challenges. The task left to later scholars is to select from these proposals those elements which would allow a more elegant and systematic solution to the problem of PST reconstruction, while still accounting for all the relevant data. This has only been partially accomplished.

3.4 The system of W. South Coblin (1986)

Coblin 1986 is a collection of 489 cognate sets between Chinese and Tibeto-Burman. Coblin basically adopts the Old Chinese reconstructions of Li (1971/1976) and the Tibeto-Burman reconstructions of Benedict (1972 and 1976), with slight adjustments. Based on regular correspondences holding between the OC and PTB forms, he assigns to each cognate set a PST reconstruction. It is the medial system of this PST system which will be discussed here.

Coblin (1986:13) reconstructs the following PST medials:

Class 1 (high front)	-j-	-y-		
Class 2 (liquid)	-r-	~~-ɹ-~~	-l-	~~-ɮ-~~
Class 3 (labial)	-w-			

The medial of a PST syllable may be represented schematically as $(M_1)(M_2)(M_3)$, but "no syllable containing members of all three classes has so far been reconstructed".

PST **-j- is reconstructed when OC *-j- corresponds to PTB zero.
PST **-y- is reconstructed when OC *-j- corresponds to PTB *-y-.
PST **-r- is reconstructed when OC *-r- corresponds to PTB *-r-.
PST **-ɾ- is reconstructed when OC *-r- corresponds to PTB zero.
PST **-l- is reconstructed when OC *-l- corresponds to PTB *-r-.
PST **-ɫ- is reconstructed when OC *-l- corresponds to PTB *-l-.
(Also when OC *-r- after sibilants corresponds to PTB *-l-.)
PST **-w- is reconstructed when OC zero corresponds to PTB *-w-.[132]

This system is notable for the highly artificial nature of the reconstructions. No attempt is made to suggest any kind of phonetic distinction between **-y- and **-j-. The difference is purely formulaic (corresponding generally to Bodman's 'primary yod' and 'secondary yod'). The same may be said of the barred counterparts of the liquids **-r- and **-l-. It is worth noting that Coblin provides cognate sets in which OC *-r- corresponds to PTB *-r-, to PTB zero, and (after sibilants) to PTB *-l-; and in which OC *-l- corresponds to PTB *-r- and to PTB *-l-. But there are no examples of OC *-r- after non-sibilants corresponding to PTB *-l-, or of OC *-l- corresponding to PTB zero.

Coblin also reconstructs numerous consonant clusters at the PST level. In most cases these clusters are reconstructed to account for TB clusters (as reflected in WT), and they correspond to simple initials in Chinese. For example, Coblin reconstructs 'head' as PST **dbuɣ > OC 頭 *dug (Mand. *tóu*), TB *(d-)bu (WT *dbu*). Some of these clusters, however, are directly related to the question of medial elements. These fall into two categories.

1. Velar clusters which become dentals in OC:

PST	OC	WT	Example
**klj-	*trj-	*gr-*	'elbow' PST *kljəɣw > OC 肘 *trjəgwx, WT *gru*
**kɫy-	*trj-	*gly- > gzh-*	'center/middle' PST *kɫyəngw > OC 中 *trjəngw, WT *gzhung*[133]

[132]The example Coblin gives (1986:25) is 'pig', where PST **pɾwag > OC *prag, PTB *pwak. As we have seen, however (section 3.1.1), one motivation for reconstructing PTB *pwak rather than *pak in the first place was the presence of *-w- in Karlgren's reconstruction of the Chinese word.
[133]Note the similarity between Coblin's PST **kɫy- > OC *trj- and Baxter's OC *k-lj- > MC trj- (see Section 2.3.7). Both authors have borrowed the basic concept from Bodman 1980.

2. Dental clusters which metathesized in OC:[134]

PST	OC	PTB	Example
****rd-**	***dr-**	***rd-**	‘dust’ PST ***rdjiul** > OC 塵 ***drjin**, WT *rdul*[135]
****rtj-**	***trj-**	***rd-**	‘spread/unfold’ PST ***rtjal** > OC 展 ***trjanx**, WT *rdal-*

The PST cluster ****rt-** is not parallel to ****rtj-**, becoming simply ***t-** in Old Chinese. PST clusters of ****r-** plus a non-dental initial simplified in OC through loss of the ****r-**, e.g. PST ****rg-** > OC ***g-**, PST ****rm-** > OC ***hm-**. Many of these developments are only supported by one or two cognate sets, however, and the WT evidence for the PST clusters may be the result of independent morphological development within Tibetan.

The hypothesis of a metathesizing prefixal ***r-** was adopted by Gong Hwang-cherng, who takes it one step further by reconstructing it as a prefix at the Old Chinese stage as well.[136]

Coblin’s rather artificial PST reconstruction is the natural outcome of his decision to use Li’s and Benedict’s reconstructions unmodified. It is an understandable decision, since these were the best reconstructions available at the time. In the previous chapter, however, I noted many difficulties with the medial system of Li’s reconstruction; and I have noted above that the medial system of Benedict’s PTB is somewhat unstable. It is therefore not surprising that many different correspondence patterns emerged, necessitating the formulaic reconstruction which Coblin arrives at.

Coblin’s reconstruction should therefore be considered not an attempt toward the reconstruction of an actual language, but a symbolic representation, or encapsulation, of the set of correspondences found in the cognate sets collected. This is in many ways the opposite of Bodman’s approach. Bodman attempted to propose sound changes for Pre-

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[134]In Section 3.3.1, I noted that Bodman reconstructed PST *Tr- clusters, and assumed that metathesis had taken place in Tibetan rather than Chinese.

[135]Coblin’s reconstruction should be revised to ****rdjul** > OC ***drjən**. The word 塵 is in the OC WéN 文 group, not the OC ZHēN 真 group. This change allows us to do away entirely with Coblin’s PST diphthong ****iu**, which was attested only in this one example (1986:21).

[136]This is evident in the reconstructions for 展 and 塵 found in Gong 1995 (sets #148 and #158), among others, although I have been unable to find any discussion of Gong’s reasoning in the text.

Chinese and Pre-Tibetan which would make the OC-TB correspondences simple and more natural-looking, though this came at the expense of considerable tampering with Old Chinese reconstructions and a good deal of laxity in proposing cognates. Working with much the same data, Coblin has gone to the other extreme, treating the OC and WT stages as fixed, and writing complex but regular correspondence rules to account for the cognate sets.

I find neither of these approaches to the reconstruction of PST particularly satisfying.

3.5 The system of Gong Hwang-cherng (1995)

I have already discussed Gong Hwang-cherng's Old Chinese reconstruction (a modification of Li Fang-kuei's system) in the previous chapter. This system was developed through comparison with data from three Tibeto-Burman languages (Written Tibetan, Written Burmese, and Gong's own reconstruction of Tangut, or Xixia), so that a Proto-Sino-Tibetan reconstruction was arrived at concurrently. Gong does not, however, propose separate reconstructions at the PTB stage; rather, he treats the three TB languages as siblings of OC, proposing distinct rules for the development of PST phonemes into each of the four languages. (He does, however, perform some internal reconstruction on Tibetan and Burmese before making comparisons with Chinese.)

This methodology has a key drawback; namely, that any features of PTB which are not preserved (or are only partially preserved) in the three TB languages that Gong exclusively draws on are not available for comparison with Chinese. And there is no doubt that certain features of PTB medials, still preserved in other branches and languages of TB, are no longer found in Tibetan, Burmese, or Tangut.

Nevertheless, Gong's careful scholarship, his selective choice of solid cognate sets, and his rigid adherence to principles of regular correspondence have produced the best collection of PST roots currently available in the field.[137] This set of roots, and Gong's

[137]The list of cognate sets in Gong 1995 is drawn in part from Gong 1980, 1990, 1991, Bodman 1980, 1985, Luce 1981, Coblin 1986, Starostin 1989 and Yú 1989. The reconstructed PST forms given in Gong

PST reconstructions for them, will serve as the starting point for this study. I will have occasion, however, to substitute different OC and PTB reconstructions than those considered by Gong, in an attempt to more accurately reconstruct PST.

Gong's 1995 reconstruction of the system of finals of PST is remarkably similar to his reconstruction for OC. PST is reconstructed with four main vowels ***i**, ***ə**, ***a**, ***u**, and diphthongs ***ia**, ***iə**, ***ua**, just like OC. The PST final consonant inventory is likewise identical to Li's OC final inventory, including a voiced and voiceless stop distinction and a series of labiovelars. The more complex vocalic systems of Tibetan and Burmese are considered secondary developments. On the face of it, the striking similarity of Gong's PST and OC might be cause for suspicion; it appears that Gong has simply pushed back his OC reconstructions to the PST stage. In Gong's favor, however, is the argument that OC dates approximately 2000 years earlier than Written Tibetan and Written Burmese, and we would expect it to be more similar to PST. This argument is less persuasive, however, when reconstructions of PTB, instead of WT and WB, are considered as representative of the TB sound system. The time depth of PTB should be comparable to OC, and there is little evidence within TB as a whole for the kind of PST system which Gong reconstructs.

3.5.1 Medial *-j-

Gong's views on OC medial ***-j-** and its TB correspondences are summarized in Gong (1995:42-45). Gong argues that OC medial ***-j-** goes back to PST medial ****-j-**. This medial was in general lost in Burmese and Tibetan, accounting for the phenomenon which Bodman attributed to 'secondary yod' in Chinese. The medial was not, however, lost before the high vowel *i* in Written Tibetan, where its reflex is *-y-*.[138] Furthermore, after

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1995 involve rhymes only, not initials. In many, but not all, cases the intended value of the PST initial can be readily inferred. It does appear, though, that Gong has not worked out a full PST system of prefixes and initials to account for the rich consonantalism of the Tibetan forms.

[138]Benedict, however, believes that WT *-y-* before *-i-* cannot be assumed to be original. He notes: "Tibetan regularly palatalizes velars and dentals before [***i**], e.g. *khyi* 'dog' rather than **khi*, *nyi-ma* 'sun' rather than **ni-ma*; comparable forms with initial labials appear in the older texts, e.g. *myig* 'eye' for *mig*" (1972:55).

original dental affricates, the medial has left its trace in the Tibetan palatalized initials.[139] Finally, Gong argues that instances of Written Tibetan -*y*- in other environments (generally not corresponding to OC ***-j-**) are the result of a morphological infixation process which developed in Tibetan after original -*y*- < ****-j-** had been lost. This hypothesis does away with the need for a distinction between "primary yod" and "secondary yod" as proposed by Bodman. Gong says (1995:42): "For me the cognates [Bodman] gave as examples of primary yod are cases where WT retains the original /-j-/ before the high front vowel /-i-/.... As for the cognates he gives as examples of secondary yod in OC, they are cases where OC retains the PST medial /-j-/, whereas WT and WB have lost it .... Some [of Bodman's] examples of primary yod (the cases where the vowel is not */i/) seem either not plausible or allow different interpretations."

As additional evidence for the reconstruction of ****-j-** and its survival into Tibeto-Burman, Gong offers his reconstruction of Tangut, which has a medial ***-j-** corresponding to Old Chinese medial ***-j-**.

The following examples from Gong 1995 illustrate the development of PST medial ****-j-** in Tibeto-Burman and Old Chinese.

First, set 219 in which ****-j-** survives in Tibetan as -*y*- before *i*:

吉 *kjit > kjět 'luck, auspicious, good'	WT *skyid* 'to be happy, happiness, happy' WB *khyac* < ***khyit** 'love'

In sets 9 and 249, Tibetan -*y*- has been absorbed by the preceding initial, which is palatalized:

二 *njids > ńźi 'two'	WT *gnyis* 'two'
漿 *tsjang > tsjang 'rice-water, drink'	WT *chang* < *tshjang 'a fermented liquor'

[139]Gong 1995:90, note 3: "Before the [vowels other than *i*] /-j-/ was lost after causing */ts-/, */tsh-/, */dz-/, */s-/, */z-/, */n-/, */l-/ to become */tś-/, */tśh-/, */dź-/, */ś-/, */ź-/, */ń-/, and */ź-/ respectively. In this paper these palatalized forms in WT are transcribed as /c/, /ch/, /j/, /sh/, /zh/, /ny/, and /zh/ respectively."

Set 7 demonstrates the loss of ****-j-** in Tibetan before *a*; the Tangut form demonstrates that the medial did however survive in Tibeto-Burman and is not a Chinese innovation:

父 *bjagx > bju 'father' WT *pha* 'father'
Tangut ***wja** 'father'

There is some cause to doubt Gong's hypothesis about PST ****-j-**, however. He does not provide any cognate sets with Tibetan forms beginning *Ki-* or *Pi-*. In other words, the contrast in Tibetan between *-i-* and *-yi-*, which according to Gong reflects PST ****-i-** vs. ****-ji-**, is found only after dentals. The implication of this is that all of the nine sets which Gong reconstructs with main vowel ****-i-** and no medial ****-j-** either have dental initials (sets 6, 7, 81, 169, 170, 251, 271) or no WT cognate (sets 250, 252). If Gong's hypothesis is correct, then we might expect to find contrasting Tibetan forms like *bing* vs. *bying*, or *khing* vs. *khying*, corresponding to the OC distinction ***-i-** vs. ***-ji-** after these initials. But there are no such contrasts among Gong's sets; only the forms with *-y-* appear. (An exception is the WT form *ming* 'name', derived from PST ****-jing** in set 77, via a proposed intermediate Tibetan form *mying*. The reason for the loss of the *-y-* is unclear.) There are however many possible explanations for this phenomenon, so that it does not by itself serve to refute Gong's hypothesis.

A more concrete difficulty with Gong's proposal is that there are a number of sets where PST forms are reconstructed with ****-j-** after dental affricates, but the Tibetan initials are not palatalized. Consider sets 200 and 364:

盡 *dzjinx > djzěn 'exhaust, entirely' WT *zin* 'to be consumed' [not *źin*]
寢 *tshjəmx > tshjəm 'lie down to sleep' WT *gzim* 'to fall asleep, to sleep' [not *gźim*]

Finally, I noted earlier (Section 3.01) that one source of Tibetan palatals is probably PTB ***Ty-**, that is, dental stops followed by a palatal glide. But Gong sets up a correspondence between Tibetan dental stops *T-* and OC dental stops ***Tj-**. If this OC ***-j-** originates in PST ****-j-**, then it should have palatalized the Tibetan initials before dropping. Consider set 359:

沈 *rdjəm > ḍjəm ‘to sink, submerged, deep’	WT *thim* ‘to disappear by being imbibed, absorbed; to be melted, dissolved in water, to sink’[not *chim*] WB *tim* ‘shallow’ Tangut *djɨj* ‘shallow’

3.5.2 Medial *-r-

Gong Hwang-cherng does not specifically address the problem of medial ***-r-** in Gong 1995. But an inspection of his proposed cognate sets indicates that he has in some cases accepted the proposal of Coblin that clusters of ***r** with dentals originated in PST ****rT-** rather than ****Tr-**, corresponding neatly with Tibetan forms with initials *rt-* and *rd-*. He goes a step further, however, in often reconstructing ***rT-** clusters at the OC stage as well. Even so, a number of occurrences of ***r** in OC words seem to have no PTB correspondent at all in Gong’s proposed cognate sets. And a number of cognate sets that have been widely proposed elsewhere have been rejected by Gong, perhaps in part because of difficulty explaining OC ***-r-** (see ***sat** ‘kill’ for instance, Bodman 1980’s set 327).

In 35 of Gong’s sets, OC medial ***-r-** corresponds to Tibetan medial *-r-* and/or Burmese medial *-r-*. In terms of OC initials, they break down this way:

Chinese initial	Tibetan initial	Burmese initial	Number of examples
*pr-	phr-, 'ph-[140], brg-, 'br-		pr-, hr- 6
*phr-	'br-	pr-	1
*br-	brg-		1
*mr-	sbr-		1
*kr-	khr-, mkhr-, dkr-	r-	6
*khr-	khr-		1
*gr-	'gr-, kr-, bkr-, sgr-	kr-	5
*ngr-		ŋr-	1
*g^wr-	gr-, 'gr-, sgr-	kr-	10
*sr-	sr-		2
*tr-	gr-		1

The large number of examples with OC ***g^wr-** is the result of Gong 1990 (see Section 2.4.4).

[140]Set 174, OC 板 ***pranx** ‘plank, board’; WT *'phar* ‘board, flat board’; WB *prâ* ‘flat, level’. Tibetan syllable structure does not permit the same liquid segment to appear as medial and final consonant, so this Tibetan form is a possible reflex of PST ****-rar**.

In four sets the Tibetan forms have medial *-r-*, but the OC forms do not. These are sets 90, 171, 205, and 368:

閩 *mjən > mjěn ‘a kind of snake’	WT *sbrul* ‘serpent, snake’ WB *mrwe* ‘a serpent, snake’
煇 *xwjəl > xjwěi ‘brightness, bright’	WT *khrol-khrol* ‘bright, shining, sparkling, glistening’
糞 *pjəns > pjuən ‘manure, dirt’	WT *brun* ‘dirt, dung’
妊 *njəms > ńźjəm ‘pregnant’	WT *sbrum* ‘pregnant’

But note that Gong revises his reconstruction of 閩 to ***mrjən** in Gong 1997.

There are only two sets where Chinese has medial ***-r-** but Tibetan or Burmese do not, 94 and 311:

蝨 *srjik > ʂjɛt ‘louse’	WT *shig* ‘louse’
女 *nrjagx > njwo ‘woman, lady, girl’	WT *nya-mo* ‘wife, house-wife’

It is clear from these numbers that Gong is proposing that OC medial ***-r-** corresponds to TB medial **-r-** (as reflected in Tibetan and Burmese), and presumably originates in PST ****-r-**. Thirty-two sets reflect the correspondence, while only six do not. As Bodman has pointed out, Tibetan clusters involving dentals with *-r-* are rare, and this is reflected in the fact that only one OC ***Tr-** cluster occurs in these examples, corresponding to Tibetan *gr-* (set 350, ‘elbow’).

Gong’s proposal for other Old Chinese clusters traditionally reconstructed ***Tr-** is to reverse the order of the segments, reconstructing OC ***rT-**, which presumably originates in PST ****rT-**. This ****r-** prefix is sometimes, but not always, reflected in the Tibeto-Burman forms. Since prefixes in general are unstable in Tibeto-Burman, this is a reasonably plausible solution. It is odd, however, that such a prefix should be restricted to dental initials; Gong does not reconstruct OC ***rG-** or ***rP-** type clusters. In all, 14 OC forms are reconstructed with an ***r-** prefix, and seven of them correspond to an **r-** element in TB. These seven are sets 44, 72, 76, 148, 158, 262, 329:

綴 *rtjuat > ʈjwät ‘sew, tie, connect’	WT *rtod, gtod, btod* ‘to tether, fasten, secure’
椓 *rtuk > ʈåk ‘beat, strike’	WT *rdug* ‘to strike against’
冢 *rtjungx > ʈjwong ‘mound, peak’	WT *rdung* ‘a small, mound, hillock’ WB *taung* ‘a hill, mountain’
展 *rtjanx > ʈjän ‘roll over, unfold’	WT *rdal* ‘to spread, to extend’
塵 *rdjən > ɖjĕn ‘dust’	WT *rdul* ‘dust’
撞 *rdung(s) > ɖång ‘to strike’	WT *rdung* ‘to beat, to strike’
事 *rdzjəgs > dʐi ‘serve, affair’	WT *rdzas* ‘thing, matter, object’ WB *ca* ‘a thing’

The seven sets without any apparent correspondence are 7, 15, 184, 241, 279, 283, 359:

爭 *rtsing > tʂɛng ‘strife, quarrel’	WT *'dzing* ‘to quarrel, contend, fight’ WB *cac* ‘war, battle’ Tangut *dzeej* ‘to quarrel, contend, fight’
住 *rdjuks > ɖju ‘to stop’	WT *'dug* ‘to remain, to stay, to live, to be, to exist’ Tangut *dju* ‘to have, there is, to exist’
纏 *rdjan > ɖjän ‘bind, wind’	WT *star* ‘to tie fast, to fasten to’ WB *ta* ‘to cling to’
張 *rtjang > ʈjang ‘give tension to a bow, stretch, extend’	WT *thang-po* ‘tense, tight, firm’ WB *tâng* ‘to tighten, become tense’
欶 *rsuk > ʂåk ‘suck, inhale’	WB *sauk* ‘to drink, to smoke’
晝 *rtjuks > ʈjəu ‘time of daylight, day’	WT *gdugs* ‘mid-day, noon’
沈 *rdjəm > ɖjəm ‘to sink, submerged, deep’	WT *thim* ‘to disappear by being imbibed, absorbed; to be melted, dissolved in water, to sink’ WB *tim* ‘shallow’ Tangut *djɨj* ‘shallow’

Note that in four of these seven sets, the WT form does have a prefix which is not *r*-. Given the variation between prefix *r*-, *g*-, and *b*- in the WT form for ‘to tether, fasten, secure’ (Gong’s set 44 above), the possibility of proto-variation among prefixes must be considered for these sets.

Finally, there are a number of sets in which a medial ***-r-** in OC corresponds to an initial *r*- in TB, or vice versa. For these sets, the implication is that prefixal elements have

been attached to an original initial ****r-**, or that an initial cluster has been re-analyzed as prefix+**r**, with subsequent loss of the prefix. There are thirteen sets (41, 68, 81, 108, 116, 138, 147, 246, 247, 248, 268, 312, 313) in which the Chinese form has initial ***r-**.[141] For example, sets 68 and 247:

六 *rjək^{w} > ljuk 'six'	WT *drug* 'six' WB *khrauk* 'six'
量 *rjang > ljang 'to measure'	WT *'grang* 'to number, to count' WB *khrang* 'to measure with a measure of capacity'

Only a single set is proposed where Chinese has medial ***-r-** and one of the TB languages has initial *r-*, set 230:

梗 *krangx > kɐng 'strong'	WT *mkhrang* 'hard, solid, firm' WB *rang'* 'mature, firm'

Here, however, the Tibetan form has *mkhr-*, strongly suggesting that a velar initial or prefix was original to PST, and lost in Burmese.

The asymmetry apparent in these sets—in which there are far more with OC initial ***r-** and TB medial **-r-** than vice versa—is worth exploring. Two possible explanations come to mind. The first is that Chinese was more prone than Tibetan and Burmese to the loss of initials in clusters with ***-r-**, or to the reinterpretation of clusters with ***-r-** as combinations of prefix plus initial, with subsequent loss of the prefix. Or, alternatively, that prefixes before initial ***r-** in TB had a tendency to fuse with the initial, forming clusters. The second possibility is that Gong's OC reconstructions are faulty, and should be emended along the lines of Bodman's proposals (adopted by Baxter) for two types of ***-r-**cluster, ***Cr-** and ***C-r-**, with the prefix of the latter type dropping in the development of Middle Chinese.

[141]For Baxter's treatment of Chinese words of this type, see Section 2.3.4.

3.5.3 Medials *-u- and *-^{W}-

Gong argues that the labiovelar series reconstructed, in both initial and final position, for OC should be pushed back unchanged to the PST stage. He notes (1995:46):

> In my paper of 1980 I have shown that WT /o/ corresponds to OC /^{w}ə/, /^{w}a/ as well as /ua/. If we are to take Tibetan /o/ as the original, it would be hard to explain the subsequent divergent development in the Old Chinese. On the contrary, if we take the Tibetan /o/ as the secondary development, there will be no difficulty whatsoever. We can simply assume that the PST /^{w}ə/, /^{w}a/, and /ua/ have merged in WT to become /o/. Recently Feng (1993) proposed another correspondence between OC rhyme category *Xiao* (宵) (Li's /-ag^{w}/ and /-ak^{w}/) and WT /o/ and /og/ on the basis of 23 pairs of WT and OC cognates. If some of them can be accepted, we can maintain that there is a fourth source of WT /o/.

This position is in stark contrast to the approach of Bodman and Baxter, who reconstruct ***o** at the OC stage, and presume that OC ***o** and WT *o* descend from PST ****o**. This question touches not just on the proper reconstruction of the vowel system of OC and PST, but also on the status of medial ***-u-** and of labiovelar elements in TB. While Matisoff has proposed a small number of roots with labiovelar initials at the PLB and possibly PTB level (such as ***k^{W}əy** 'dog'), to my knowledge no one has suggested that PTB be reconstructed with labiovelar final consonants. Moreover, the number of Chinese words with labiovelar initials far exceeds the small number proposed for TB, indicating that in Chinese the functional load of the velar/labiovelar distinction was much greater.

Gong 1995 does not offer PST reconstructions of initials. However, his belief in the existence of a labiovelar series of initials at the PST stage is implicit in his reconstruction of PST vowels like */^{w}ə/.[142]

If Gong is correct, than many of the distributional oddities of OC must also be pushed back to the PST stage. For example, the restricted distribution of ***ua** to syllables with final dentals is maintained. Yet this is the kind of imbalance in a language's phonemic system which we would not expect to persist over thousands of years.

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[142]According to Gong 1995 note 13, "/^{w}/ stands for the rounded element of the labiovelar consonants /k^{w}/, /g^{w}/, and /ng^{w}/." The elements which Gong writes as **^{W}ə**, **^{W}a**, **a^{W}**, **ə^{W}** therefore represent the vocalic and rounding features of **K^{W}ə**, **K^{W}a**, **aK^{W}**, **əK^{W}**.

It seems to me that, contrary to Gong's assertion, a coherent reconstruction for PST could be offered which contains both the vowel ****o** and the diphthong ***wa**, which both develop into *o* in Tibetan, and into /ʷa/, /ua/, or /aʷ/ in Old Chinese. The problem of OC /ʷə/ also corresponding to WT *o* is more difficult. Gong offers five sets supporting this latter correspondence, which need to be examined in more detail. None have WB or Tangut cognates.

3.5.4 Medial *-i-

Just as Gong pushes OC medial ***-u-** back to the PST stage unchanged, he does the same with medial ***-i-**, proposing that PST ****ia** and ****iə** remained unchanged in OC while developing into the front vowel *e* in Tibetan.

3.5.5 Medial *-l-

Five Chinese forms in Gong 1995 contain medial ***-l-**, sets 45, 110, 121, 196, 315:[143]

垂 *gljual > źjwĕ 'hang down, fall'	WT *'jol* 'hang down' WB *lway* 'suspend from shoulder'
谷 *kluk > kuk 'valley' *luk > jiwok	WT *klung* 'river', *lung-pa* 'valley' WB *khyaung* 'a valley, vale', *khyâung* 'stream', *khyauk* 'chasm, gulf, abyss'
㢑 *khljadx > tśhjĕ 'wide, extend'	WB *kyay* 'wide, broad'
繕 *gljans > źjän 'repair, put in order'	WT *glan* 'to patch, mend'
麝 *gljiags > dźjä 'musk-deer'	WT *gla* 'musk-deer'

The last four show a perfect correspondence of OC ***-l-** to TB ***-l-** (with the regular development of ***-l-** to *-y-* in WB after velars). In the first example the TB form is descended from a root with initial ***l-**, with the presumed Tibetan development ***'ljual** > ***'lyol** > ***'zhol** > *'jol*.[144]

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[143]It should be noted that what I refer to as 'medials' ***-l-** and ***-r-** are considered by Gong (1994) to be second elements of consonant clusters, not true medials like ***-j-**.
[144]For the change *'j-* < ***'zh-**, see Li 1933:148.

Recall from Section 2.4.5 that, in general, Gong (1990, 1994) proposed that Old Chinese medial ***-l-** developed into Middle Chinese **-j-**, and that Old Chinese medial ***-lj-** palatalized preceding velars. However, when the main vowel was ***-u-**, palatalization did not occur, and the ***-l-** dropped without a trace, as in 谷 ***kluk** of set 110.

Also of relevance to the issue of medial ***-l-** are Chinese words with initial ***l-** which correspond to a TB medial liquid. Gong 1995 contains seven sets of this type, 40, 52, 131, 228, 245, 252 and 385:

悦 *luat > jiwät 'pleased, glad'	WT *glod* 'to comfort, console; to cheer up'
爚 *lak^{w} > jiak 'to shine'	WT *glog* 'lightning'
四 *ljids > si 'four'	WT *bzhi* 'four' WB *lê* 'four' Tangut *lj~~ɨɨ~~r* 'four'
楊 *lang > jiang 'poplar'	WT *glang-ma* 'a large kind of alpine willow'
象 *ljang > zjang 'elephant'	WT *glang* 'ox, bullock, elephant'
盈 *ling > jiäng 'full, fill'	WB *prañ'* 'to be full'
習 *ljəp > zjəp 'to practise, exercise'	WT *slob* 'to learn, to teach'

The development of 四 'four' ***ljids** > **si** is irregular; normally ***lj-** becomes MC **zj-**.

Also relevant are the three sets with Chinese words with initial ***hl-**, a voiceless lateral, sets 10, 39, 133:

屎 *hljidx > śi 'dung'	WT *lci* 'dung' WB *khyê* 'excrement' Tangut *lhj~~ɨ~~* 'excrement, dung'
脱 *hluat > thuât 'to take off, escape, careless'	WT *glod* 'to loosen, relax, slacken, to comfort', *lhod* < ***khlod** 'loose, relaxed, slackened', *lod* 'loose, relaxed, slackened' WB *kywat* 'to be freed from, released', *khywat* 'to release, free, emancipate', *lwat* 'to be at liberty, free', *hlwat* 'to free, release'
水 *hljədx > świ 'water'	WT *chu* 'water, brook, river'

The ‘dung’ root has already been discussed in Section 3.3.2; Gong’s ‘water’ correspondence is apparently formed by analogy with it, although the lack of an *l*- prefix in the Tibetan form casts doubt here.

These ten examples just listed look strikingly similar to the thirteen sets in which Chinese initial ***r-** corresponds to TB medial **-r-** (Section 3.5.2). Similar explanations involving prefixation could be offered to explain these correspondences. Moreover, if Beyer is correct, and we can interpret Tibetan clusters *gl*- and *sl*- as sequences of prefix plus initial *g-l*- and *s-l*- (see Section 3.01 above), then most of these examples actually involve Chinese initial ***l-** corresponding to WT initial *l*-.

3.5.6 Conclusion

As I noted earlier, Gong’s reconstructions reflect careful scholarship, a strict methodological approach, and attention to detail. The cognate sets found in Gong 1995 (and to a lesser extend those in Gong 1997) will therefore serve as the main starting point for the comparisons and analysis of my study.

Nevertheless, a number of questions and ambiguities present themselves, notably problems involving consonant clusters in prefixal elements. In the next chapter, the questions and problems raised about Gong’s reconstructions in the preceding sections will be addressed, and the cognate sets just listed will be reexamined. Alternative reconstructions and solutions will be proposed.

3.6 The system of Peiros and Starostin (1996)

Peiros and Starostin 1996 [CVST] is a six-volume etymological dictionary containing 2,637 cognate sets (many of them new[145]), arranged by place of articulation of the initial consonant. Each set is headed by a reconstructed Proto-Sino-Tibetan etymon with an English gloss.

[145]By my rough count, the notes to 1,113 of the sets cite earlier publications, which means that up to 1,524 sets may be new.

The reconstructions are based primarily on forms from five Sino-Tibetan languages: reconstructed Old Chinese[146], Written Tibetan, Written Burmese, Jingpho[147] (= Kachin), and Lushai. Although this five-language foundation is reminiscent of Benedict 1972, the approach taken by Peiros and Starostin breaks from the tradition established by Benedict in a number of respects.

First, Proto-Tibeto-Burman reconstructions are not attempted. Forms from the five principal languages are compared directly to derive PST reconstructions. Second, the sound system of reconstructed Proto-Sino-Tibetan differs markedly from that proposed by Benedict. Peiros and Starostin's PST has a four-way manner distinction in initial consonants (e.g. ***p**, ***ph**, ***b**, ***bh**), two distinct lateral initials (***l** and ***ɬ**, both of which also have aspirated counterparts), and a full series of uvular initials (***q**, ***q^{w}**, ***qh**, ***qh^{w}**, ***G**, ***G^{w}**, ***Gh**, ***Gh^{w}**). This profusion of place and manner types is required to regularize correspondences across the daughter languages, but it results in a sound system that appears typologically bizarre, differing radically from all documented TB languages.[148] (Benedict instead left the basic correspondences somewhat irregular, and attributed the irregularities to proto-variation and the influence of prefixal elements.)

Peiros and Starostin present tables of correspondences for initial consonants, but not for vowels or final consonants. In the tables, medials are listed together with initials in some cases. Unfortunately, the introductory text does not discuss the methodology of reconstruction, or provide any additional information on how the correspondences were arrived at. It also leaves a number of symbols unexplained. In the main entries of the dictionary, there is no discussion of particular forms, cognate sets, or reconstructed etyma.

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[146]The reconstruction is Starostin's own (1989). In many respects it is strikingly similar to Baxter's reconstruction (though it was arrived at completely independently). Baxter's revisions to his 1992 reconstruction, discussed in Section 2.3.10, bring the two systems into even closer alignment.

[147]This language name appears as Jingpo (following the Chinese *pīnyīn* spelling) in Peiros and Starostin 1996.

[148]It is true that some TB languages (such as Lahu) have uvular consonants, but these are demonstrably of late origin. Some Himalayish TB languages also have four-way manner distinctions, but these are also of late origin, arising under heavy influence from Indic languages.

Because of this lack of explanatory material, I have had to rely on inspection and induction for the conclusions I draw below regarding medial correspondences in the Peiros-Starostin system, introducing the possibility of errors or misunderstandings on my part.

3.6.1 Medials

The following correspondences involving medials appear in the introductory materials of the first five volumes. I have rearranged them in groupings by medial:

PST	OC	WT	WB	Jingpho	Lushai
*Pj-	P-	Pj-	Pj-	P-	P-
*mj-	m-	mj-	mj-	mj-	m-
*rj-	r-	rgj-	r(h)-	c-	z- / r-
*rj$_1$-	l-	ź-	r(h)-	j-	ṭh- / hr-
*Pr-	Pr-	Pr-	Pr-	Pr-	P-
*mr-	mr-	br-	mr-	m-	m(r)-
*nr-	nr-	ń-	n(h)-	n-	n-
*k^w-	k^w-	k- (/ Xg-)	k(h)-	k- / kh-	k-
	g^w-	g-	k(h)-	k- / kh-	k-
*kh^w-	kh^w-	k- (/ Xg-)	k(h)-	kh-	k-
	gh^w-	g-	k(h)-	kh-	k-
*g^w-	k^w-	g-	k(h)-	kh-	kh-
	g^w-	k-	k(h)-	kh-	kh-
*gh^w-	kh^w-	k- (/ Xg-)	k(h)-	kh-	kh-
*ŋ^w-	ŋ^w-	ŋ-	ŋ-	ŋ-	?
*q^w-	k^w-	k-	w-	w-	v-
	w-	g-	w-	w-	v-
*qh^w-	kh^w-	k-	w- (/ kh-)	g-(?) / w-	v- (/ Ø-)
	wh-	k-	w- (/ kh-)	g-(?) / w-	v- (/ Ø-)
*G^w-	k^w-	k-	w-	w-	h-
*Gh^w-	wh-	?	?	?	h-
*ɣ^w-	ʔ^w-	k-	?	kh-	v- / h-
*ʔ^w-	wh-	ʔ-	w-	w-	v- / Ø-

The cover symbol **P** represents the labial stops **p-**, **ph-**, **b-**. The difference between the notations **k(h)-** and **k- / kh-** is unclear. **X** represents a Tibetan prefix. As for the proto-initials with two sets of correspondences listed, the text says (1996:1:iii): "The split reflexes of stops in Chinese and Tibetan are connected with each other (although there are some exceptions) and are possibly traces of some unidentified prefix. No certain pattern can be established for the Burmese stop reflexes."

Not listed in the correspondence sets (presumably because the medial has no effect on the development of the initial), but extant in the data sets, are examples of reconstructed PST roots of the type ***Kj-** and ***Kr-**. The diphthongs ***ia**, ***ua**, ***iə**, ***uə** also appear in the data, indicating the existence of medials ***-u-** and ***-i-**. Medial ***-l-** occurs in a few roots.

I have loaded the data in Peiros and Starostin 1996 into a computer database which has enabled me to carry out some elementary statistical analyses.

The following chart lists the approximate frequency of occurrence of the glide medials ***-j-**, ***-r-**, ***-l-**. (The numbers are only approximate because in compiling them I was unable to account for the variants of the proposed etyma, which considerably complicate the picture.[149])

no glide medial	2257	
medial ***-r-**	272	(of which 108 are listed with optional medial ***-(r)-**)
medial ***-j-**	94	(of which 25 are listed with optional medial ***-(j)-**)
medial ***-j_1-**	6	
medial ***-l-**	9	(of which 1 actually has a prefix+initial cluster ***m-l-**)
Total	2,638	

The total is one higher than the number of sets, 2,637, because a single etymon is reconstructed with the cluster medial ***-rj-** and has therefore been counted twice.

3.6.2 Medial *-j-

Medial ***-j-** is fairly rare in Peiros and Starostin's CVST, occurring in approximately 3.6% of the reconstructed etyma. It is reconstructed when a palatal glide is present in Tibetan or Burmese. Since Starostin's OC, like Baxter's revised OC, does not have any medial ***-j-**, there is no question of distinguishing "primary yod" from "secondary yod".[150] PST ***-j-** always drops out in OC, apparently without leaving a trace. Its reconstruction bears no relation to the medial ***-j-** of Li's or Gong's OC systems. As I

[149]For example, set 1:108, reconstructed ***mjar** / ***mrən (?)**, has been counted as a set with medial ***-j-**, and not a set with medial ***-r-**.

[150]Starostin's OC reconstruction, like Baxter's revised reconstruction, does away entirely with medial ***-j-**. Instead, Type A and Type B syllables differ in vowel length.

have noted, Gong Hwang-cherng would consider most of the Tibetan glides which support the reconstruction of Peiros and Starostin's PST ***-j-** as secondary developments; and, in many cases, the presence of the medial is not attested in the other TB forms listed by Peiros and Starostin.

Jingpho, for example, has a medial glide *-j-* which may occur before all vowels. But most Jingpho reflexes of PST roots reconstructed with medial ***-j-** lack the medial, while PST roots without ***-j-** are usually reconstructed when Jingpho has *-j-*. In other words, it is not clear from the data in Peiros-Starostin what the role of Jingpho's medial *-j-* is in correspondences or in reconstructing PST etyma, and there is no explanation given in the front matter. For example, PST ***thjīnH** is reconstructed for Tibetan *bźin* 'face, countenance' and Jingpho *lə́than*^{l} 'forehead', while PST ***(s-)mĭnH** is reconstructed for Tibetan *smin* 'to ripen' and Jingpho *mjin*^{l} 'be ripe'. Tibetan, and to a lesser extent Burmese, are apparently the determining languages for the reconstruction of PST ***-j-**.

Distributionally, ***-j-** co-occurs with all vowels, both long and short, and with initials at every place of articulation. There is, however, only one root reconstructed with both medial ***-j-** and a labialized initial (set 5:396, PST ***kh^{w}(j)ān** 'complete, finish').

A second palatal medial, ***-j$_1$-**, is also reconstructed. The authors do not indicate how it differs from medial ***-j-**. It appears in only 6 roots. Inspection of these six cognate sets indicates that it is only reconstructed after initial ***r-**. (In fact, it is possible that the subscript **1** is meant to modify the initial cluster ***rj-** rather than just the medial.) The chart of initial correspondences above shows that ***rj-** and ***rj$_1$-** have distinct reflexes in all the daughter languages except Burmese. (Although ***l-** is listed as the Chinese reflex, in fact the reflexes ***l-**, ***lh-**, and ***th-** are found in the only three sets with Chinese cognates, 2:308, 2:313, 2:315.)

3.6.3 Medial *-r-

Medial ***-r-** is the most common glide medial in the Peiros-Starostin system, occurring in just over 10% of reconstructed syllables. However, it also seems to be fairly unstable, for in over a third of those roots it is placed in parentheses. According to the chart of initials, medial ***-r-** after labials is retained in Chinese, Tibetan, and Burmese, and in Jingpho as well except after ***m-**.

Peiros and Starostin reconstruct ***-r-** after dentals when OC has medial ***-r-** and Tibetan has a palatal initial. It appears then that the authors are proposing that medials ***-r-** and ***-j-** had an identical palatalizing effect on dental initials in Tibetan. The many instances where ***-(r)-** is reconstructed reflect OC words with ***-r-** (which became Middle Chinese second division) in cognate sets with Tibetan words having plain dental initials. This category of correspondences is roughly equivalent to Gong Hwang-cherng's practice of reconstructing OC prefixal ***r-** before dentals when Tibetan shows no evidence of medial **-r-**.

The reconstruction of ***-r-** and ***-(r)-** can be seen in the following examples:

2:9 PST ***druaŋ** 'middle, inside'
OC 中 ***truŋ** 'middle'
WT *gźung* 'the middle, midst'
WB *ətwaŋh* 'the inside, inner part of a thing'
Lushai *čhūŋ* 'inside'

2:8 PST ***d(r)[ɔ̆]k** 'top, ascend'
OC 陟 ***trək** 'ascend'
WT *thog* 'what is uppermost, roof, above'
WB *tak* 'to climb up'

It seems that in almost all cases of optional medial ***-(r)-**, Chinese has inherited the variant with the medial and Tibetan has inherited the variant without.

**r- as prefix*

In 21 sets, Peiros and Starostin reconstruct an optional prefixal ***r-**. Eight of these etyma have initial dentals; the others have initial velars, uvulars, or laryngeals. Most of these prefixal ***r-**'s are reconstructed to account for Tibetan prefix *r-*, where the Chinese

cognate either has a medial ***-r-** or no medial at all. In some cases, however, as in set 5:291, the optional prefix ***r-** is reconstructed where the Chinese has medial ***-r-** and there is no TB evidence for ***r** at all. It is unclear to me why the root has not been reconstructed as ***k^{W}(r)āt**:

5:291 PST ***k^{W}āt** (~ **g^{W}-**; **r-**) 'cut, divide'
OC 夬 ***k^{W}rāts** 'divide, make a breach'
WB *khut* 'to strike with the edge of a knife, gash, chop, hew'
Jingpho *khot*^{2} 'to cut, shape'

3.6.4 Medial *-l-

Medial ***-l-** is reconstructed so rarely (in only nine roots) that its validity as a PST medial in Peiros and Starostin's system must be suspect. Its reconstruction is somewhat haphazard. In several roots it is reconstructed on the strength of PLB ***-l-** (in Peiros's PLB reconstruction, for which explanations are not provided), which has Burmese reflex ***-r-**. In other roots it seems to be reconstructed to account for forms outside the five key languages. Only three of the medial ***-l-** sets have Chinese supporting forms; one of the Chinese forms has medial ***-r-** (set 5:82), and the other two have medial ***-l-**.

The shortage of PST roots with ***-l-** may in part be due to the fact that very few Chinese words with ***-l-** are represented in the cognate sets. Aside from twenty OC forms with initial cluster ***sl-** (nearly all of which derive from PST initial laterals), 谷 ***klōk** 'valley' (5:216) and 公 ***klōŋ** 'public; official place, palace' (5:217) are the only OC forms with definitive medial ***-l-** which appear in Peiros and Starostin 1996. (An additional five words, in sets 3:19, 3:37, 3:86, 3:254 and 5:656, are reconstructed with optional medial ***(l)**.) It is not clear whether this is because Starostin's OC system has very few words with ***-l-**, or whether it has simply been difficult to find TB correspondences for such words.

3.6.5 Medial *-^{W}-

The reconstruction of PST velars, uvulars, and laryngeals with labial coarticulation **-^{W}-** is straightforward. Peiros and Starostin reconstruct such initials whenever Old Chinese has a labiovelar or labiolaryngeal initial, as seen in the chart of initial correspondences above. The list of initial correspondences for PST ***q^{W}-** and ***qh^{W}-** demonstrate that when TB correspondences show a resonant initial corresponding to a Chinese labiovelar, Peiros and Starostin reconstruct a PST labio-uvular.

In fact, many cognate sets seem to contradict the correspondence chart. For example, set 5:61 has PST ***g^{W}ājH** 'bee, wasp' reflected in OC 蜾 ***kōj?** 'small wasp' and WB *kwajh* 'dammer-bee'. Here the PST labiovelar has apparently been reconstructed to account for the Burmese form, with an unexplained development of PST ***-^{W}a-** > OC ***-o-**. This can be contrasted with the development in set 5:62, where PST ***g^{W}ā~~H~~H** 'fatigue, tiresome' develops into OC 痟 ***k^{W}ān?** 'fatigue, exhausted'.

It is not clear from the chart of correspondences whether the labial feature is preserved vocalically in the TB languages. In fact, the data sets indicate contradictory developments, with for example PST ***-^{W}a-** sometimes reflected as a rounded vowel **o** or **u** in Tibetan, Lushai, Jingpho, and Burmese, and sometimes reflected as plain unrounded **a**.

3.6.6 Medials *-u- and *-i-

As noted earlier, the 'medials' ***-u-** and ***-i-** occur in the PST diphthongs ***ia**, ***ua**, ***iə**, ***uə**. However, while ***ia** occurs in 157 roots and ***ua** in 130, ***iə** occurs in only 10 and ***uə** is reconstructed only once.[151] These last two diphthongs appear marginal at best in this PST reconstruction, and for the most part it seems safe to say that medials ***-u-** and ***-i-** are restricted to co-occurrence with ***a**.[152] This is in itself not unusual; many TB

[151]It is possible that the lone occurrence of PST ***uə**, in set 5:377, is a typographical error.
[152]PST ***iə** seems to be reconstructed when a Chinese open syllable with vowel ***ə** corresponds to TB front vowels.

languages show precisely this kind of vocalic pattern, and Li Fang-kuei's reconstruction of Old Chinese has a similar diphthong inventory.[153]

My inspection of the cognate sets with PST vowel ***ia** does not reveal any clear-cut pattern of correspondences; instead, it would appear that this vowel is reconstructed when some languages have a front vowel and others a back vowel. For example:

1:260 PST ***p(h)iāk** 'gruel, pap'
OC 糪 ***prēk** 'rice or grain gruel', ***phrēk** 'half boiled rice or grain'
WT *spag* 'pap; food'
Jingpho *pha?*^{2} 'a thick rice-gruel'

1:262 PST ***phial** 'skin'
OC 皮 ***bhaj** 'skin'
WB *paj?* 'to flay (skin), peel'
Lushai *pil* 'the outer covering or covering [sic?]'

5:616 PST ***qh^{W}iał-** 'twist, wind'
OC 徇 ***whin(s)** 'go everywhere, all round'
WT *ãkhjil* 'to flay (skin), peel'
Lushai *vial* 'to wriggle, curle [sic] up; coil'

The developments of ***ua** appear as obscure as those of ***ia**. It seems again to be reconstructed in a wide variety of situations, often when some forms have a rounded vowel **o** or **u** and others have vocalic nucleus **a**. In the absence of explanatory text by the authors, it is difficult to discern any clear-cut correspondence patterns. This set is typical:

5:268 PST ***kuar** 'bend, droop, coil'
OC 趯 ***g^{W}ar** 'walk with bent body [since Han]'
WT *dgur, rgur, sgur* 'crooked'
WB *kunh* 'to bend down'
Jingpho *thiŋkun*^{3} 'be bent', *kun*^{2} 'coil'
Lushai *kūr*, Kuki-Chin ***kūr** 'to bend down, to droop'

In the following set, the motivation for reconstructing ***ua** rather than ***u** seems to be the Lushai vowel:

2:520 PST ***[t](r)uat** 'sprout'
OC 茁 ***trut** 'to sprout'
Jingpho (Hkauri) *šətut* 'to raise, as flowers; to grow, as hair'
Jingpho *mətut* 'new paddy from 3 to 6 inches high'
Lushai *dōt* (*do?*) 'to pierce, stick in, to sprout up'

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[153]Peiros and Starostin also reconstruct an off-gliding diphthong ***ai**, distinct from the vowel+ending combination ***-aj**, but they do not reconstruct a corresponding ***au**.

On the other hand, consider this set, where all the languages have **u**:

2:520 PST ***tuar** (/ ***tual**) 'sharp wooden stick'
OC 錐 ***tuj** 'awl'
WT *thur* 'spoon, chopsticks; a pole'
WB *tu* 'chopsticks'
Lushai *tūl* 'a skewer, a k. of two-pronged fork'

3.6.7 Conclusion

Despite the vast amount of data and the large number of newly proposed Chinese-TB cognate sets in Peiros-Starostin 1996, it is a difficult resource to use. Without further elucidation broadly on the methodology of the work, and specifically on the proposed correspondences for vowels, medials, and finals, few conclusions can be drawn about the validity of the PST proposals. On the surface, however, it appears that the correspondences proposed are too irregular to provide any real insight into PST reconstruction in general, or into PST medials in particular. However, where appropriate I will cite proposed cognate sets from this work when they provide a useful supplement to other data.

3.7 Diagnostic languages and subgroups of Tibeto-Burman

I will first be looking at PTB roots as reconstructed by Benedict, Matisoff, and others. Where no such roots exist, or where their reconstruction is uncertain, I will be looking primarily at meso-level reconstructions which preserve cluster distinctions, and at Type 3 languages which preserve cluster distinctions.

In the comparative work of the following chapter, I will first be looking at PTB roots as reconstructed by Benedict, Matisoff, and others. But where no such roots exist, or where their reconstruction is uncertain, I will rely on data from a small number of Tibeto-Burman languages and reconstructed meso-level protolanguages. I have attempted to select these languages and protolanguages for their ability to distinguish between medial elements ***-r-**, ***-l-**, and ***-y-**, so that they may serve as "diagnostic languages" in the identification of medial elements.

As with the development of Middle Chinese, many TB languages have undergone a drastic simplification of their initial consonant inventories. We can identify a number of distinct types based on the development of ***Cl-**, ***Cr-**, ***Cy-** and ***Cw-** clusters:

1) Loss of all resonant clusters

Massive across-the-board simplification of initial consonant clusters is a hallmark of Loloish languages like Lahu, Lisu, Akha, Yi, etc., which permit only simple initials. (Here medials -*y*- and -*w*-, which are retained in some of these languages, are better analyzed as elements of the rhyme than the initial.) Even languages that have undergone such a radical change may, however, retain traces of original clusters manifested in distinct reflexes. We may therefore classify languages of Type 1 on a continuum from complete loss of clusters, resulting in mergers which leave no trace of the original cluster, to complete loss of clusters which nevertheless preserve distinct reflexes.

Most languages fall in the middle of this continuum. For example, in Lahu original ***Kr-** clusters have simplified to velars *K*-, while original simple velars ***K-** have become uvulars *Q*-. ***Kr-** is further distinguished from ***Ky-** which has merged to palatals *C*-. But ***Kl-** also became *K*-, merging with ***Kr-**.

In Mpi we find a similar reduction of initial clusters, but with important differences from Lahu. ***K-** and ***Kr-** have merged to Mpi *K*-, while ***Kl-** and ***Ky-** have merged to *Ky*-.

If enough data from related languages which preserve some distinctions can be collected, it will be possible to reconstruct a meso-level protolanguage in which the full range of cluster initials can be established with confidence, even though no daughter language preserves them intact.

2) Reduction/merger of clusters

There are a number of languages which have retained cluster initials in their syllable structure, but which have nonetheless lost distinctions among clusters.

The Burmish language Achang, for example, has a single cluster series *Cr*- which represents a merger of earlier ***Cr-** and ***Cl-**.

3) Preservation of clusters

Some languages preserve clusters quite well. For example, Tibetan, Lepcha, Geman Deng, Darang Deng, and Dulong all have *Cr*-, *Cl*-, and *Cy*- clusters; in many cases these appear to be inherited unchanged directly from PTB.

Unfortunately, no living language has perfectly retained all the cluster initials of PTB. Even Tibetan seems to have imperfectly preserved ***l-**clusters. In the case of Lepcha and Dulong, it is not immediately clear whether all clusters can be pushed back directly to PTB. There is some evidence, for example, that Dulong *xr*- is derived from PTB ***kr-**, which would make Dulong *kr*- a secondary development. Written Burmese straddles Types 2 and 3, as it retains *Cr*- and *Cy*- clusters, but exhibits alternations between them.

4) Massive reclustering

A number of languages, notably those of the Qiangic group as well as rGyarong and Ergong, have dozens or even hundreds of complex initial clusters. Detailed analysis of these languages is still just getting underway; it appears, however, that most of these clusters are secondary developments arising from the reduction of polysyllabic words through vocalic elision. Thus, although *Cl*-, *Cr*-, *Cy*-, and *Cw*- clusters are counted among the inventory of these languages, in many cases they are probably secondarily derived and do not point to PTB initial clusters.

Clearly, for the purposes of this study, languages of Type 3 are the most useful. If we can find reliable cognates among these languages, we can readily reconstruct PTB clusters for comparison with Chinese. Languages of Type 1 can also be useful, but they require more in-depth knowledge and analysis in order to reconstruct the appropriate clusters at the PTB level. To the extent that this work has already been carried out by others in the reconstruction of, say, PLB, it will also prove useful

3.7.1 Meso-level reconstructions

Proto-Lolo-Burmese

Proto-Lolo-Burmese (PLB), like PTB, is reconstructed with four glides: ***-y-**, ***-w-**, ***-r-**, ***-l-** (Matisoff 1978:4). These seem for the most part to be directly inherited from PTB.

We have already seen that Written Burmese, a member of the Burmish branch of Lolo-Burmese, is not always a useful diagnostic for distinguishing PTB glides. Other PLB languages better preserve the distinctions, and though no one language has distinct reflexes for all possible PLB combinations of initial+glide, the distinctions preserved complement each other in a way that often makes a clear-cut PLB reconstruction possible—though only if the right cognate forms can be found.

Matisoff 1978, a comparison of Mpi, Lahu, and Written Burmese forms, illustrates the following developments of PLB initials, including clusters with medials (1978:5):[154]

PLB	*P	*PR	*PL	*PY	*T	*TS	*C	*KY	*KL	*KR	*K	*K^{w}
Lahu	P	P	P	P	T	C	C	C	K	K	Q	P
Mpi	P	P	PY	PY	T	T	C	C	KY	K	K	K
WB	P	PR	PR	PY	T	C/TS	C/TS	KY	KR~KY	KR	K	KW

Note that clusters with ***-w-** are not given in this chart since, as in Written Burmese, they tend to influence the development of the rhyme, rather than the initial, of LB languages.

It is important to note here that, after velar initials, the reconstruction of medial ***-l-**, ***-r-**, or ***-y-** can be unambiguously determined through triangulation of reflexes in the three languages. The same is theoretically true after labial initials, although even here WB variation between *Pr-* and *Py-* can cast doubt.

Mpi is particularly helpful with the reconstruction of ***-l-**, the rarest of the PTB medials. After velars, ***-l-** is the only medial which has reflex *-y-* in Mpi. After labials, Mpi *-y-*

[154]C is a cover symbol for palatal affricates and fricatives.

could reflect either ***-l-** or ***-y-**, but here the WB contrast between *Pr-* and *Py-* is potentially diagnostic.

Proto-Tamangic

This Himalayish proto-language, also known as Tamang-Gurung-Thakali-Manang (TGTM), has been reconstructed by Mazaudon (1994). The reconstruction is based on data from a number of dialects of these four languages, which are spoken in Eastern Nepal. Most cluster types are well preserved, though even within this rather closely related family of languages there is enough variation to make definitive reconstruction of medial elements difficult.

For example, medial ***-l-** is clearly preserved in ***^{A}kli** 'feces' (in contrast with ***-r-** in ***^{A}kriŋ** 'shout, scream' and ***-j-** in ***^{A}kji** 'sweet'). But there is also a variant ***^{A}kwi**, which demonstrates disagreement between ***-l-** and ***-w-**.

Proto-Northern Naga

Contrasts between ***-l-**, ***-y-**, and ***-r-** are preserved in Proto-Northern Naga [PNN], as reconstructed by French (1983). This language family includes Nocte, Wancho, Chang, Konyak, Phom, and other languages spoken in and around Nagaland in Assam, near the Burmese border in northeastern India. Consider the following PNN contrasts, found after the velar initial ***k-**.

***C_{VD}-kla[A]** 'one'
***C_{VD}-kyaːk** 'dirt'
***C_{VD}-kray** 'bridge'

3.7.2 Individual Tibeto-Burman languages

The principal individual languages looked at in this study are Darang Deng, Geman Deng, Cuona, and Dulong. While not particularly useful in the reconstruction of PTB ***-w-** and ***-y-**, they tend not only to preserve clusters with ***-r-** and ***-l-**, but also to distinguish between true initial clusters (like ***kr-**) and prefix+initial combinations (like ***k-r-**). The latter are often reflected in bisyllabic forms.

These four languages are spoken in a region straddling Yúnnán, Burma, and Tibet. Dulong is a member of the same TB subgroup, called Jingpho-Nungish-Luish by Matisoff (to appear), as the better-known language Jingpho. Jackson Sun (1992:100) places Darang Deng and Geman Deng in this same subgroup, but Matisoff follows Benedict (1972) in placing them in the Abor-Miri-Dafla branch of the Kamarupan geographical grouping. Cuona is generally classified as a Himalayish language in the Bodic group.

Dulong

Dulong is spoken in the region of the Dulong river in the north-west part of Yúnnán Province in China. According to LaPolla (1987:1), the Dulonghe dialect may be identified with the language known as Trung, and the Nujiang dialect with the language Rawang (also called Nung). The two dialects are quite similar, the cognate words in each being often identical or differing only by tone. "Dulong often preserves the proto-prefixes as separate syllables", usually with vocalism *ɯ* (LaPolla 1987:2). For example, we have PTB ***b-ləy** > Dulong *pɯ*^{31}*li*^{55} 'grandchild' and PTB ***s-la** > Dulong *sɯ*^{31}*la*^{55} 'moon'. These may be contrasted with clusters in words like *gru*^{53} 'to bark' and *dɯ*^{31}*glɯɯʔ*^{55} 'cook, boil'.

Note, however, that there is some uncertainty about the reflexes of PTB velar clusters in Dulong. LaPolla notes that "a proto stop can be reflected by a fricative [i.e. x-] in Dulong when it is followed by /r/, though there are several examples of *kr- or *dr- being reflected in a k(h)r- cluster in Dulong" (1987:21).

The following initial clusters are given by Namkung 1996 for the Dulonghe dialect (those in parentheses are found only in Chinese loans):

(tw)	(lw)	(tsw)	(sw)	kw	gw	xw	ŋw
pl	bl	ml	kl	gl			
pɹ	bɹ	mɹ	kɹ	gɹ	xɹ		
pj	(tj)	bj	mj	(lj)			

Deng

Geman Deng and Darang Deng are spoken in Cha'ou County in southeastern Tibet, close to the borders with Burma and Yúnnán.

According to Namkung 1996, Darang Deng has the following initial consonant clusters:

pl	phl	bl	ml	kl	khl	gl	
pɹ	phɹ	bɹ	mɹ	kɹ	khɹ	gɹ	xɹ

The Geman inventory is nearly identical, but lacks clusters with *m*-:

pl	phl	bl	kl	khl	gl	
pɹ	phɹ	bɹ	kɹ	khɹ	gɹ	xɹ

Cuona

Cuona County is located in southern Tibet, just east of the Bhutanese border. Forms cited here are from the Mama (or Southern) dialect.

The following clusters are found in Cuona:

pl	phl	bl	kl	khl
pr	phr	br	kr	khr

The complete phonological inventories of all these language may be found in Namkung 1996.

3.8 Conclusion

This analysis of previous work in the reconstruction of PST and PTB medials highlights several points which will be of importance for the work done in the following chapter.

It is clear that the most comprehensive work on PST to date, involving comparisons of Chinese and TB cognates, relies heavily on Tibetan and Burmese for TB evidence. This is true of the work of Bodman and Gong, and to a lesser extent Coblin. At the same time, the broader-based TB comparative work of Benedict and Matisoff, as well as internal reconstructions of Burmese and Tibetan, demonstrates that the medials—or lack of medials—found in particular Tibetan and Burmese lexical items are not necessarily indicative of the PTB root medial. Morphological processes, phonotactic constraints, neutralization of phonemic contrasts, and lexical variation have all served to muddy the waters where Tibetan and Burmese medials are concerned. By carefully taking these factors into account, and compensating for them through comparison with other TB

languages—some of which are decisive precisely where WT and WB are ambiguous—pitfalls in Chinese-TB comparisons can be avoided. In the reconstruction of PTB roots, this approach has already been taken by Benedict, Matisoff, and others. It is my belief that by submitting well-supported Tibetan-Burmese-Chinese cognate sets, like those of Gong 1995, to comparison with reconstructed PTB forms when they exist, new patterns of correspondence will be revealed. Where PTB forms have not previously been reconstructed, I hope to apply the Benedict-Matisoff method to the WT and WB cognates, arriving at PTB roots. Finally, based on the resulting patterns of TB-Chinese correspondence, it should be possible to discover new cognate sets. These in turn should help us determine the proper reconstruction of Old Chinese and PST medials.

4 The Medials of Old Chinese reexamined through the presentation of Chinese-TB cognate sets

Bearing in mind the analyses of the previous two chapters, I will now present a collection of Chinese-TB cognate sets, with the aim of determining more precisely the nature of the medial correspondences and of refining the reconstruction of Old Chinese. Most of the cognate sets have been proposed in earlier literature. I will cite in particular from Gong 1995, Peiros and Starostin 1996, Coblin 1986, and Bodman 1980.

In my discussion of individual cognate sets, I will provide Old Chinese reconstructions according to Gong, Baxter, and occasionally Starostin.[155] I will also provide additional supporting forms from a number of Tibeto-Burman languages. Most of these forms come from the STEDT lexical database, and are attributed to their original source by means of a "source abbreviation" and "source id" (the latter generally a page or set number). A full list of bibliographic references by STEDT source abbreviation is provided in the appendices.

I will begin with the medial which is the least well attested in reconstructions of Old Chinese, medial ***-l-**. This medial presents a more compact and well-defined problem than the other medials, since it appears to be comparatively rare in both Chinese and Tibeto-Burman.

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[155]Identifying numbers for these reconstructions are given as follows:
• Gong 123: The reconstruction is from Gong 1995 set #123
• Baxter 271: The reconstruction is from Baxter 1992 id #271 (Forms found in Appendix C of Baxter 1992 have been assigned id numbers in the 9000s. For example, Baxter 9798.11 refers to the 11th entry on page 798 of Baxter 1992.)
• Starostin 3:126: The reconstruction is from Peiros and Starostin, Fascicle 3, set #126
If no identifying number is provided, this indicates that the reconstruction has been worked out by myself according to the relevant system.
Reconstructed PTB forms are given as found in the STEDT Etyma database as of March 1, 1998, along with the unique internal STEDT tagging number. (These numbers will not necessarily appear in future publications of STEDT data, where they may be replaced by sequential set numbers.) Where such forms are also found in Benedict 1972, the set number from that publication will also be provided.

4.1 Medial *-l-

I will approach the problem by first categorizing the different classes of Chinese words which have been reconstructed, by one scholar or another, with medial or initial ***l-**. I will then examine in some detail the proposed Chinese-TB cognate sets for words in these classes, and review the internal Chinese evidence. In light of this evidence I will propose some new hypotheses for Old Chinese reconstruction, and provide additional Tibeto-Burman evidence in support of them.

In order to facilitate discussion, I would like to review some concepts and introduce some new terminology. Pulleyblank first noted that phonetic series involving Middle Chinese dentals may be broadly classified in two types.[156] The first contains the Middle Chinese initials

t-, **th-**, **d-** **tś-**, **tśh-**, **ź-** **ṭ-**, **ṭh-**, **ḍ-**

or a subset thereof.[157]

I will refer to this type of phonetic series as a **dental series**. There is general agreement that for Old Chinese this series should be reconstructed

***t-**, ***th-**, ***d-** ***tj-**, ***thj-**, ***dj-** ***tr-**, ***thr-**, ***dr-** .

The second type of phonetic series involves the following initials:

th-, **d-** **ś-**, **dź-**, **ji-** **s-**, **z-** **ṭh-**, **ḍ-**

We have already seen that most scholars now reconstruct MC **ji-** as OC ***l-**. I will refer to this type of phonetic series as a **lateral series**. It is distinctive in that it lacks unaspirated initials **t-** and **ṭ-**, which suggests that Old Chinese simple dental initials are not involved, and that it contains **ji-** and/or **ś-**, which indicates that laterals are involved. Baxter accordingly reconstructs (1992:197):

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[156]See Pulleyblank 1962:116 and 1973:116-117.

[157]Throughout this chapter, all Middle Chinese forms are given according to Li Fang-kuei's 1971 emendation of Karlgren's Ancient Chinese. Some of these orthographic forms may however be misleading. For example, **dź-** should be considered a fricative [ʒ] and **ź-** an affricate [dʒ]. The initials **ji-** and **j-** probably represent [j] and [ɣj] respectively.

***hl-**, ***l-** ***hlj-**, ***Lj-**, ***lj-** ***sl-**, ***zl-** ***hlr-**, ***lr-**

Gong (1995) treats this type of series somewhat differently:

hl-**, ***d-** ('l-**) ***hlj-**, ***glj-**, ***l-** ***st-**, ***(s)lj-**[158] ***thr-**, ***dr-**

The key difference between the two approaches is the fate of ***l-**. Since Baxter supposes, following Pulleyblank, that ***l-** > **d-**, he must reconstruct **ji-** as ***lj-** rather than ***l-**. But Gong supposes that **ji-** comes from ***l-** with no medial, and reconstructs MC **z-** (which occurs only in the third division) as ***lj-**. Gong's approach has the advantage of avoiding Baxter's ***zl-** reconstruction for MC **z-**. This reconstruction is rather awkward, since it must actually be interpreted as ***fis-l-**, that is, initial ***l-** preceded by an ***s-** prefix, which is in turn preceded by the voicing prefix. It also avoids Baxter's odd ***lr-** and ***hlr-** reconstructions, which seem phonotactically and typologically implausible. On the other hand, implicit in Gong's reconstruction is the assumption that OC dentals and laterals may mix freely within a single phonetic series; it is then difficult to explain the absence of MC **t-** and **ṭ-** in lateral series. Furthermore, Gong's reconstruction is at odds with cases where TB comparative evidence suggests that MC **d-** in lateral series is related to PTB ***l-**. In a few of those cases Gong has reconstructed OC ***'l-** > **d-**, where the apostrophe "indicates a nasal prefix like WT a-chung" (see Gong 1995 sets #39 and #53, and note 19).[159]

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[158]In the last chapter I noted that this reconstruction was revised from earlier ***sl-** > **zj-**. In Gong 1994, ***lj-** is reconstructed as a source of MC **ź-**, in parallel with the voiceless equivalent ***hlj-** > **ś-**. The problem with this reconstruction becomes evident when we realize that MC **ź-** was probably an affricate, not a fricative, and that it is not typically found in lateral series. Gong's current reconstruction, found in Gong 1995 and Gong 1990 [1994], is more plausible.

[159]In Starostin's Old Chinese system there are three distinct laterals, ***l-**, ***Ł-**, and ***ɬ-**. Each can occur with or without aspiration, and ***l** and ***lh** may both cluster with ***s-**. As near as I can determine from the reconstructions in CVST, Starostin proposes the following developments for OC laterals:

OC	B (short vowel	A (long vowel)
*l-, *Ł- >	ji-, dź-	d-
*lh-, *Łh- >	z-	d-
*sl-, *ɬ- >	ś-	th-
*slh- >	s-	??
*ɬh- >	ś-, ṭh-	d-

Conditioning factors for OC initials with multiple MC reflexes are unclear. Given an MC initial in lateral series (such as **d-**), it is also unclear to me what determines the choice of OC reconstruction.

In practice, the distinction between dental and lateral series is not always so clear-cut. Some series have only one, two, or three initials, and could be classified as proper subsets of either lateral or dental series.[160] At the other extreme, a few series have initials of both dental and lateral types; I will refer to these as **mixed dental-lateral series**.

There are also cases in which **velar series** (**k-**, **kh-**, **g-**, **x-**, **ɣ-**, **·-**) or **labial series** (**p-**, **ph-**, **b-**, **m-**) MC initials are found intermixed with dental and/or lateral series.

All of these phonetic series types must be taken into account in the reconstruction of Old Chinese medial ***-l-**.

I would now like to define, based on phonetic series relationships, five classes of Chinese words which may be involved in the reconstruction of initial or medial ***l**.

Class I contains words with lateral-series initials. For convenience, these may further be divided into five subtypes.

• Class IA
MC initial ji-
Gong: *l- > ji- (Li's *r-, *grj-, *brj-)
Baxter: *lj- > y-, but also *r- > y- and *j- > y-[161]
Example: 羊 (*G* *lang > jiang, *B* *(l)jang > yang)

• Class IB
MC initial zj-
Gong: *(s)lj- > zj-
Baxter: *z(l)j- > zj-
Example: 祥 (*G* *ljang > zjang, *B* *z(l)jang > zjang)
象 (*G* *ljangx > zjang, *B* *zjangʔ > zjangx)
習 (*G* *(s)ljəp > zjəp, *B* *zlji/ɨ/up > zip)

• Class IC
MC initial s-
Gong: *st- > s- (?)
Baxter: *sl- > s-
Example: 錫 (*G* *stik > siek, *B* *slek > sek)
賜 (*G* *stjigs > sjě, *B* *sljeks > sjeH)
cf. 易 (*G* *lik > jiek, *B* *ljek > yek)

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[160]Some of these phonetic series may be neither dental nor lateral. For example, I suspect that series with only MC initials **ji-** and **z-** may be **palatal glide series** which go back to ***j-**.
[161]Baxter reconstructs ***r-** when MC **ji-** is in phonetic series with **l-** (1992:199-200), and ***j-** as a 'default reconstruction' when there is no evidence for reconstructing ***lj-** or ***r-** (1992:202).

• Class ID
MC initials th-, ś-
Gong: *hl- > th-, *hlj- > ś-
Baxter: *hl- > th-, *hlj- > sy-
Example: 脱 (*G* *hluat > thuât, *B* *hlot > thwat)
式 (*G* *hljək > śjək, *B* *hljɨk > syik)

• Class IE
MC initial d-
Gong: *'l- > d- (Li's *d-)
Baxter: *l- > d-
Example: 蝶 (*G* *'liap > diep, *B* *lep > dep)

Class II contains words with palatal affricate initials **tś-**, **tśh-**, ***ź-*** which are in velar or labial series rather than dental series. These initials are presumed to originate in some type of velar and have undergone what Gong calls "primary palatalization". Those in velar series may be labeled as II.K, and those in labial series as II.P.

• Class II.K
Gong: *klj- > tśj- etc. (Li's *krj- etc.)
Baxter: *kj- + front vowel > tśj- etc.; *Kj- + back vowel > tśj- etc.[162]
Example: 支 (*G* *kljig > tśjě, *B* *kje > tsye)
豉 (*G* *gljigs > źjě, *B* *gjes > dzyeH)

• Class II.P
Gong: *plj- > tśj-etc.
Baxter: none
Example: 勺 (*G* *bljakw > źjak, *B* *ɦtjewk > dzyak)
cf. 豹 (*G* *prakws > pau, *B* *prewks > pæwH)

Class III contains words with velar or labial initials which occur in lateral series (or, more specifically, in the same series as initial **ji-**). Again, we may use the notations III.K and III.P to distinguish them.

• Class III.K
Gong: *kl- > kj- etc. (Li's *kj-)
Baxter: *k(l)j- > kj- etc.
Example: 羌 (*G* *khlang > khjang, *B* *kh(l)jang > khjang)
cf. 羊 (*G* *lang > jiang, *B* *(l)jang > yang)

[162]Baxter's capital ***K** here indicates irregular development of the velar initial. It should not be confused with the cover symbol **K** used elsewhere in this study to represent velar initials of all manners of articulation.

• Class III.P
Gong: *pl- > pj- etc. (Li's *pj-)
Baxter: none
Example: 杓 (*G* *plag^{w} > pjiäu, *B* *pjew > pjiew)
cf. 礿 (*G* *lak^{w} > jiak, *B* *ljewk > yak)[163]

Class IV contains words with MC **dź-** (Baxter's fricative **zy-**). This initial occurs in lateral series, so these words could have been placed with Class I. Alternatively, since Gong considers MC **ź-** and **dź-** to be variant reflexes of the same OC initials, these words could have been placed with Class III. I have chosen to treat them separately for reasons that will become clear. For the moment, I will not distinguish a type IV.K from IV.P.

Gong: *glj- (Li's *grj-)
Baxter: *Lj- (later revised to *mlj-)
Example: 麝 (*G* *gljiags > dźja, *B* *LjAks > zyæH)

Class V contains words with dental or retroflex initials which occur in velar series, labial series, and/or lateral series. These are the words which Bodman and Baxter reconstruct with ***K-l-** clusters. Note that the retroflex initials appear always to occur in third division. In many cases the reconstruction is based not on internal evidence but on extra-Sinitic comparisons.

• Class V.K
Gong: ordinary dentals *t-, etc. > t-, *tr- etc. > ṭ-
Baxter: *k-l- > t- *kh-l- > th- *g-l- > d-
*k-lj- > ʈj- *kh-lj- > ʈhj- *g-lj- > ɖj-
Example: 湛 (*G* *təm > tậm, *B* *k-lɨm > tom)
cf. 堪 (*G* *khəm > khậm, *B* *khum > khom),
擔 (*G* *tam > tâm, *B* *k-lam > tam), cf. Khmu *klam*, Proto-Wa *klɒm
腸 (*G* *drjang > ḍjang, *B* *g-ljang > drjang), cf. Proto-Yao *klaang 2
cf. 陽 (*G* *lang > jiang, *B* *ljang > yang)

• Class V.P
Gong: ordinary labials *p-, etc. > t-, *pr- etc. > ṭ-
Baxter: *p-l- > t- *ph-l- > th- *b-l- > d-
*p-lj- > ʈj- *ph-lj- > ʈhj- *b-lj- > ɖj (there are no examples of this type)
Example: 匋 (*G* *dəg^{w} > dâu, *B* *b-lu > daw)
cf. 缶 (*G* *pjəg^{w}x > pjǎu, *B* *p(r)juʔ > pjuwX),

[163]I am not sure where Gong (1994 set 10a) finds the MC reading **jiak** for this character; this reading is not in the *Guǎngyùn*. This character also has readings with Middle Chinese **tś-** (*Guǎngyùn*) and **b-** (*Jíyùn*).

Gong and Baxter agree on a lateral reconstruction for words in Classes IA, ID, IE, and IV. In Class IB the lateral element is optional in Baxter's system, and in Class III its reconstruction is uncertain. In Classes IC and V, Baxter reconstructs a lateral but Gong does not. In Class II, Gong reconstructs a lateral but Baxter does not.

Note also that both authors have based these reconstructions on internal Chinese evidence, but have also sought support or inspiration for them from comparative evidence.

I will next reexamine the comparative evidence in some detail in an attempt to resolve the discrepancies between these two approaches. I also hope to determine the true phonetic nature of the clusters written as ***K-l-** in Baxter's system.

4.1.1 Class IA words: Middle Chinese initial ji-

Class IA words have Middle Chinese initial **ji-** (**y-** in Baxter's transcription), a smooth palatal glide onset, and are reconstructed as ***l-** by Gong and ***lj-** by Baxter.[164] As we have seen, Gong's comparisons with WT and WB involve both words with initial *l-* and with medial *-l-*. This raises a number of questions for the OC and PST reconstructions. First, are some (or all) of these OC ***l-** words to be derived from PST clusters of the type ***Cl-**? Second, should some of these ***l-** words in fact be reconstructed with ***Cl-** clusters at the OC stage as well?

I list here the cognate sets from Gong 1995 involving OC ***l-** > **ji-**. First, those with cluster initials in the TB forms:

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[164]Note that Baxter may also reconstruct ***r-** or ***j-** as sources of MC **ji-**. ***r-** is reconstructed when **ji-** occurs in phonetic series with **l-** < ***C-r-**; ***j-** when there is no evidence for either ***r-** or ***l-** in the phonetic series. Given the presence of initial ***y-** in PTB and the almost universal presence of initial palatal glides in the world's languages, it strikes me as unlikely that Old Chinese should have no initial ***j-** (as in Li's and Gong's reconstructions), or that initial ***j-** should be as rare as it is in Baxter's reconstruction. We should therefore be willing to entertain the possibility that more words with MC initial **ji-** should be reconstructed with OC ***j-**. Evidence for this reconstruction in phonetic series will, however, remain scanty until the status of OC medial ***-j-** is resolved.

Set	Old Chinese	Written Tibetan	Written Burmese
40	悅 *luat > jiwät ‘pleased, glad’	*glod* ‘to comfort, console; to cheer up’	
52	爚 *lak^{w} > jiak ‘to shine’	*glog* ‘lightning’	
228	楊 *lang > jiang ‘poplar’	*glang-ma* ‘a large kind of alpine willow’	
252	盈 *ling > jiäng ‘full, fill’		*prañ'* ‘to be full’

To these we can add for consideration those sets involving Chinese initial ***l-** and TB initial *l-*:

Set	Old Chinese	Written Tibetan	Written Burmese
19	翼 *lək > jiək ‘wing’	*lag* ‘hand, arm’	*lak* ‘hand, arm’
48	謠 *lag^{w} > jiäu ‘sing, song, rumour, a false report’	*lo* ‘talk, report, rumour’	
115	移 *lad > jiĕ ‘transfer, move, exchange’		*lây* ‘change, exchange’
226	揚 *lang > jiang ‘lift, raise’	*lang* ‘to rise, to get up, to arise’	*lang'* ‘high raised frame, stage’
227	陽 *lang > jiang ‘light, brightness, the sun’		*lâng* ‘be light (not dark)’
375	詍 *laps > jiäi ‘garrulous’	*lab* ‘to speak, talk, tell’	

When we look beyond the Written Tibetan and Written Burmese forms to reconstructed PTB and other TB languages, we can conclude that WT *gl-* in the first three sets is not descended from PTB ***gl-** (see the discussion below). Rather, the evidence points to PTB forms with ***l-** or a prefixed initial ***g-l-**. This is in perfect conformity with Beyer’s proposal that the Tibetan *gl-* cluster is in fact a sequence of prefix+initial rather than of initial+medial (see section 3.01). We therefore have no reason to suppose that the OC forms should be reconstructed with a true cluster initial. We can then entertain three hypotheses: (1) the prefix of PST prefix+initial sequences like ***g-l-** was lost in the development of Chinese, (2) Chinese in all these cases inherited unprefixed variants of which existed at the PST stage, (3) Chinese inherited “loose” clusters of prefix+initial, articulated as in PTB with a schwa-like vowel between the prefix and root-initial, which in turn developed into MC **ji-**.

The one apparent exception in the list above is the root for ‘full’. There is no proposed Tibetan cognate; the WB form points back to a true cluster, and in fact so does additional PTB evidence. It is interesting to note that this is also the only example involving a labial initial. Furthermore, the internal Chinese evidence is scanty, as 盈 is not in a phonetic series at all, let alone a lateral series. This is why Baxter reconstructs ***(l)jeng** instead of ***ljeng**.

We can now turn to a discussion of individual cognate sets.

[1]

悦	Gong 40 ***luat** > **jiwät**
‘pleased, glad’	Baxter 239 ***ljot** > **ywet**
	GSR #324o GSR #324 (兑): ji-, th-, d-, ś-, tś- (lateral)
	STEDT #2425: ***g-lwat** ‘free, release’ (cf. STC #209)
	WT *glod* ‘to comfort, console; to cheer up’

GSR #324 is a classic example of a lateral series, which is widely cited on account of the family of TB cognates.[165] PTB evidence indicates a basic root ***lwat** ‘free, lax’ which may take a number of prefixes. In addition to the transitive WT verb *glod* cited by Gong, we can add the following forms from STC #209 (Benedict 1972:48):

WT	*hlod-pa*	‘loose, relaxed’
WT	*glod-pa*	‘loosen, relax’
Jingpho	*lot*	‘escape; be free, unrestrained’
Jingpho	*śəlot*	‘set free’
WB	*lwat*	‘to be free’
WB	*hlwat*	‘free, release’
WB	*kywat* < *klwat*	‘loosed, freed’
WB	*khywat*	‘release, free’

The effect of the PTB transitivizing/causative prefix ***s-** can be clearly seen in these paired forms. Jingpho *śəlot* and WB *hlwat* are to be derived from PTB ***s-lwat**. Based on the Burmese forms, the ***g-** prefix (> WB *k-*) would appear to have a stativizing effect, and I suspect the last form *khywat* is derivable from a doubly prefixed form ***s-g-lwat**, i.e. the causative of ***g-lwat**, with the ***s-** prefix leaving its trace in the aspiration of the

[165]The series does contain one character with the dental-series initial **tś-**, GSR #324n 桀 *zhuó* ‘short pillars, supporting rafters’. This would presumably be reconstructed with OC initial ***klj-** by Gong.

initial consonant.[166] The Tibetan forms appear irregular semantically, with stative *hlod* deriving from the ***s-** prefix and transitive *glod* from the ***g-** prefix.[167] Gong has apparently chosen *glod* as the direct cognate of Chinese 悦 because its meaning 'cheer up' is closest semantically to the Chinese, but in fact this Chinese stative is better associated with the non-causative TB forms such as Jingpho *lot* and WB *lwat* or *kywat*. While the *k*-initial WB form does suggest the possibility that this particular Chinese word is ultimately derived from a ***g-**prefixed form, it is simpler to suppose that the Chinese form derives from an unprefixed root, which we can reconstruct as PST ***lwat**. (See also the discussion of 脱 below in Section 4.1.4.)

Geman has an interesting form which may be related to this root:

lăt^{55} 'save/rescue'

The meaning of this word is compatible with descent from a causative of PTB ***lwat** 'be free', but in this case there is no evidence of an original prefix at all. Nor is there evidence of a rounded vowel.[168]

[2]

爚	Gong 52 ***lak**$^{\mathbf{w}}$ > **jiak**	
'to shine'	Baxter ***ljewk** > **yak**	
cf. 曜燿耀	GSR #1119f	GSR #1119 (龠): ji-
'shine, gleam'		GSR #1124 (翟): ji-, th-, d-, ḍ- (lateral)

Gong's claim for cognacy of Chinese 爚 'to shine' and WT *glog* 'lightning' is plausible semantically and phonetically. There is unfortunately no evidence I can find for cognates in other TB languages. (Peiros and Starostin 3:141 add WB *lak*, *prak* 'to flash, gleam, glitter' to the set; these forms are not included by Gong because the expected corresponding

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[166]The PTB ***s-** prefix led to devoicing in PLB, which in turn explains the aspiration contrast in WB. In other words, we have PTB ***g-lwat** > PLB ***glwat** > WB *kywat*, and PTB ***s-g-lwat** > PLB ***klwat** > WB *khywat*. (PLB voiced stop initials normally develop into WB voiceless initials, while PLB voiceless consonants develop into WB aspirated initials.)

[167]PTB prefix ***s-** usually survives as WT *s-*. We would expect the regular reflex of PTB ***s-l-** to be WT *sl-*, rather than the rare initial *hl-*. The apparent semantic irregularity of the Tibetan form may not be an irregularity at all if WT *hl-* is not derived from PTB ***s-**.

[168]The fate of medial ***-w-** in Geman is unclear. The PTB root for 'ant', ***k-rwak**, is reflected in Geman *tɕu*^{31}*k.ɹik*^{53}, which has a front vowel.

vowel in Burmese is *au*.) Although GSR #1119 contains only the single initial *ji*-, Gong places 爚 in the same family as several words for ‘shine, gleam’ in GSR #1124, which shows evidence for a lateral series.

Worth looking into further is the Cuona form *lo*^{53}*koŋ*^{13} ‘flash (of lightning)’. Comparison with Cuona *bruʔ*^{53}*koŋ*^{13} ‘thunder (v.)’ and *bruʔ*^{53} ‘thunder (n.)’ shows that *koŋ*^{13} is a verbal element and *lo*^{53} is most likely a noun meaning ‘lightning’ or ‘flash of light’. Although the syllable lacks the expected final -*k*, its loss could be attributed to the influence of the initial *k*- of the following syllable in the compound.

[3]
楊 Gong 228 ***lang** > **jiang**
‘poplar’ Baxter 9800.29 ***ljang** > **yang**
GSR #720q GSR #720 (昜): ji-, th-, d-, ṭh-, ḍ-, ś- (lateral)

WT *glang-ma* ‘a large kind of alpine willow’

GSR #720 is another oft-cited lateral series. Here again the WT form appears to be a TB isolate, making further evaluation difficult. Peiros and Starostin (3:39) compare the WT form *glang-ma* to Chinese 橡 **zjang** ‘acorn’ rather than to 楊 ‘poplar’, making their cognate set a perfectly homophonous to WT *glang* / OC 象 ‘elephant’ (see set [13] in the next section), at some semantic expense. Given the nature of prefixation in TB, I see no reason that WT *glang* ‘ox, bullock, elephant’ and *glang* ‘a kind of alpine willow’ must go back to homophonous PTB or PST roots, or must be cognate to homophonous OC forms. Moreover, it is clear from other cognate sets that WT *gl*- / OC ***l-** is a perfectly good correspondence, so there is no *a priori* reason to reject Gong’s comparison.

[4]

盈	Gong 252 ***ling** > **jiäng**	
'full, fill'	Baxter 9803.19 ***(l)jeng** > **yeng**	
	Starostin 3:18 ***leŋ**	
	GSR #815a	GSR #815 (盈): ji-

STEDT #111: ***pliŋ ⋞ *bliŋ** 'full' (cf. STC #142)

WB	*prañ'*	'to be full'
WB	*phrañ'*	'to fill'
Darang	*bluŋ*^{55}	'full'
Geman	*phlaŋ*^{55}	'full'
PLB	**bliŋ*^{3} ⋞ **pliŋ*^{3}	'full'
TGTM	**^{A}pliŋ, *^{A}p.mliŋ*	'fill'

This is an interesting set for a number of reasons. As far as I know it is the only one so far proposed involving a TB labial cluster and OC ***l-**; as such it is of particular interest but also of limited diagnostic value. The root ***pliŋ ⋞ *bliŋ**, reflected in the Burmese forms cited by Gong, is widespread in TB. In addition to the cognates given in STC #142, we can cite PLB ***pliŋ^{3} ⋞ *bliŋ^{3}** 'full' (Matisoff 1978) and ***m-bliŋ^{3}** (Bradley 1978), TGTM ***^{A}pliŋ** 'fill' (Mazaudon 1994), etc. It is not surprising that Benedict and Gong do not offer Tibetan cognates, since as noted earlier (Section 3.1.1) the fate of ***pl-** and ***bl-** clusters in Tibetan is unclear. Peiros and Starostin (3:18), however, cite WT *ling* 'a whole piece', and reconstruct a PST form with a separable ***p-** prefix. There is however no evidence elsewhere in TB for reconstructing prefix+initial rather than an initial cluster, and if we are to accept this Tibetan form as cognate it would be necessary to argue for PTB ***bl-** > WT *l-*. We would presumably have to make a similar argument on the Chinese side. The phonetic series (GSR #815) contains only MC initial *ji-*, so is of no help in resolving these questions.

Matisoff (1986b) has argued that PTB ***pliŋ ⋞ *bliŋ** 'full' (STC #142) shares a common origin with PTB ***pleŋ** 'flat surface' (STC #138) and PTB ***bleŋ ⋞ *pleŋ** 'straight, straighten' (STC #352), based on their similar shapes and the fact that all three concepts can be viewed as representing perfection along one, two, or three dimensions in space. He accordingly reconstructs an over-arching root ***b/pl[e/i]ŋ** 'full; flat; straight'.

In his note 7, Matisoff further suggests that the PTB root may be related to a triplet of rhyming Chinese words:[169]

'straight'	正	(*G* ***tjing**, *B* ***tjengs**)
'flat'	平	(*G* ***brjing**, *B* ***brjeng**)
'full'	盈	(*G* ***ling**, *B* ***(l)jeng**)

For the moment, I draw no conclusions about the validity of Gong's cognate set or its implications for the reconstruction of OC. If Matisoff's intriguing idea is correct, then the most direct cognate to the PTB root for 'full' may in fact be OC 平 'flat', which is similar in phonetic shape. Much would still need to be explained, however, including the origin of the ***t- ⋙ *br- ⋙ *l-** alternation in the Chinese words.

I will return to this set in Section 4.1.7 below.

[5]

翼	Gong 19 ***lək** > **jiək**	
'wing'	Baxter 469 ***ljɨk** > **yik**	
	GSR #954d	GSR #954 (異): ji-, ṭh- (lateral)

STEDT #374: ***g-lak** 'hand/arm' (cf. STC #86)

WT	*lag*	'hand, arm'
WB	*lak*	'hand, arm'
Tangut	*lạ*	'hand, arm'

The PTB root for 'hand' is one of the most widespread. It also shows a remarkable degree of variation. It is reconstructed as simply ***lak** or ***g-lak** in Benedict 1972 (#86). Matisoff (1985) has argued that this word family includes variants with initial ***y-**, initial cluster ***ly-**, and prefixes ***d-**, ***g-**, ***p-**, as well as variants lacking final ***-k**. This variation allowed Matisoff to suggest a large number of possible Chinese cognates. With proposals made since 1985 that MC **ji-** originates in OC ***l-**, it now appears that 翼 , which Benedict (1972:171, note 458) first suggested was cognate to PTB variant ***g-lak**, remains the most likely candidate for direct cognacy.[170] Given the internal Chinese

[169]Matisoff attributes the comparison with 正 to Axel Schuessler.

[170]In this same note Benedict anticipated the reconstruction OC ***l-** > **ji-**, observing: "under conditions of palatalization (not fully worked out) ST **l* tends to be replaced in Chinese by [Karlgren's] *i̯* [i.e. ji-] or *di̯/i̯* ...". In Karlgren's system 翼 must be reconstructed with initial ***g-** or ***d-**, which motivated Benedict's selection of the PTB prefixed variant.

evidence, it seems simplest to suppose that the Chinese word is descended from the simple ***lak** etymon of PST, just like the Tibetan and Burmese forms.

[6]

謠	Gong 48 ***lag^{w}** > **jiäu**		
'sing, song, rumour, a false report'	Baxter 9801.8 ***ljaw** > **yew**		
	GSR #1144j	GSR #1144 (畜): ji-	
	WT	*lo*	'talk, report, rumour'

This is another set in which the Tibetan form appears to be an isolate.

[7]

移	Gong 115 ***lad** > **jiê**		
'transfer, move, exchange'	Baxter 650 ***ljaj** > **ye**		
	GSR #3q	GSR #3 (多): ji-, th-, ṭh-, ḍ-, t-, tś-, tśh-, ṭ- (lateral/dental)	
	STEDT #2137: ***g/m/s-lay** 'change/exchange' (cf. STC #283)		
	WB	*lây*	'change, exchange'
	PLB	**ʔ-lay^{2}*	'exchange/sell'
	PNN	**lyay*	'change/exchange'
	Dulong nj	*kle^{53}*	'correct/change'
	Dulong dl	*a^{31}klai^{53}*	'exchange'
		klăi^{55}	'correct/change'

Like a number of other roots in this section, the PTB form has variants with a number of different prefixes. There is no particular reason to reconstruct a prefix for Old Chinese, however. The phonetic series GSR #3 is a mixed lateral/dental series. Baxter and Sagart (1998:52-53) have suggested that this might be due to the presence of an Old Chinese ***t-** prefix. According to their hypothesis, ***t-** had the function of deriving mass noun from countable ones. If this prefix were present in the word 多 'much, many' ***t-laj**, this could account for the presence of dental and lateral initials in the words which take 多 as phonetic.

[8]
揚 Gong 226 ***lang** > **jiang**
'lift, raise' Baxter 9800.28 ***ljang** > **yang**
GSR #720j GSR #720 (昜): ji-, th-, d-, ṭh-, ḍ-, ś- (lateral)

WT	*lang*	'to rise, to get up, to arise'
WB	*lang*'	'high raised frame, stage'

[9]
陽 Gong 227 ***lang** > **jiang**
'light, brightness, the sun' Baxter 9800.27 ***ljang** > **yang**
GSR #720e GSR #720 (昜): ji-, th-, d-, ṭh-, ḍ-, ś- (lateral)

WB	*lâng*	'be light (not dark)'

Two more words in the series GSR #720 (see [3] above). Both of these comparisons are straightforward. Peiros and Starostin (3:258) add Jingpho *leŋ*^{3} 'be light, bright' and Lushai *liŋ* (*lin*) 'be red-hot, be aglow' to the comparison in [9]. Their approach to [8] is somewhat different, as they compare the Chinese form to WT *ldang* 'to rise, to get up' (3:287).[171]

[10]
詍 Gong 375 ***laps** > **jiäi**
'garrulous' Baxter ***ljaps** > ***ljats** > **yejH**
GSR #339g GSR #339 (世): ji-, ś-, s- (lateral)

WT	*lab*	'to speak, talk, tell'

This proposal is based on Coblin, who included Chinese 沓, 諧 with this set. Again, the WT form seems to be a TB isolate.

In addition to the sets listed by Gong, I would like to discuss the following:

[171]Bodman (1980:102) compares both Tibetan forms, as members of a single word family, to the Chinese. Note that according to Li (1933:149), the WT *ld*- cluster is probably derived from earlier ***d-l-** or ***'-l-**.

[11]

羊	Gong ***lang** > **jiang**		
'sheep'	Baxter 9800.24 ***(l)jang** > **yang**		
	GSR #732a	GSR #732 (羊): ji-, z-	
		GSR #711 (姜), #712 (羌): k-, kh-	
	PTB ***g-yaŋ** 'sheep'		
	Dulong nj	*jăŋ*^{53}	'sheep'
	Dulong dl	*a*^{31}*ɟăŋ*^{53}	'sheep'
	Darang	*kɯ*^{31}*joŋ*^{35}	'sheep'
	Cuona	*jeŋ*^{13}	'sheep'

This phonetic series appears to be lateral because of the presence of MC **z-** along with **ji-**. But in the absence of other lateral-series initials, Baxter is hesitant to reconstruct initial ***l-** rather than ***j-**. Matisoff (1988:1292) proposes a PTB root ***g-yaŋ ≍ *g-yak** 'sheep'. The prefix ***g-** and the variant with final ***-k** are meant to account for WT *g-yag* 'yak'.[172] However, most TB forms (like the ones I've listed from Dulong, Darang and Cuona) show no evidence for final ***-k**, so it seems that ***g-yaŋ** may be a sufficient reconstruction at the PTB level. The prefix in the Tibetan and Darang forms is probably the same animal prefix found in *glang* 'elephant'.[173] It seems to me quite likely that, as Matisoff suggests, OC 羊 is related to this PTB root. This is strong evidence for reconstructing OC initial ***j-** here, and by extension for a reconstruction without ***l-** for the words in this phonetic series with MC **z-**. I would like, then, to propose the existence of **palatal glide** phonetic series, which contain only MC **ji-** and **z-**. Since these series look like subsets of lateral series, their identification must depend on comparative evidence. The reconstruction of the OC source of MC **z-** in these series depends on how the whole problem of medial ***-j-** and Type B syllables is dealt with in Old Chinese. For the moment, we can suppose that it derives from a variant of ***j-**.[174] [175] In this regard,

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[172]Recall (section 3.01) that Tibetan contrasts cluster initial *gy-* and prefix+initial *g-y-*.

[173]Matisoff has also raised the possibility that *g-* in the WT form may be reduced from ***kaŋ** 'mountain'; that is, WT 'yak' may be derived from PTB 'mountain-sheep', ***kaŋ-yaŋ** > *g-yag* (personal communication).

[174]Note the phonetic affinity between [j] and [z]. The latter is simply the former pronounced with greater closure and thus more frication. This affinity can be seen synchronically in Lahu, where the phoneme /y/ (a palatal approximant) is realized as [z] before /ɨ/ (Matisoff 1988:1294).

consider the WT word *g-yang* ‘happiness, blessing, prosperity’ which Bodman (1980:95, #151) relates to Chinese 庠 (MC **zjang**) ‘happy omen, auspicious, lucky day’.

As for velar-initial words GSR #711a and #712a, which most scholars now believe are part of the same phonetic series as 羊, these are apparently the result of ***k**-prefixation in Chinese. OC ***k-** is often found in clan names (see Baxter and Sagart 1998:50-51), including the names of peoples associated with particular animals, and may in fact be cognate to the TB animal prefix *g-* found in the WT form for ‘sheep’. The difference in aspiration between 姜 (***k-**) and 羌 (***kh-**) is more difficult to explain. One possibility is that 姜 reflects purely Chinese morphology involving the OC ***k-** prefix, while 羌 may be borrowed from a TB language, such as that spoken by the Qiang people themselves, in which the animal prefix ***k-** was realized with aspiration.[176]

[12]
亦 Gong ***lak** > **jiäk**
‘armpit’ Baxter ***jAk** > **yek**
GSR #800a GSR #800 (亦): ji-, ts-

STEDT #374: ***g-lak** ‘hand/arm’ (cf. STC #86)

WT	*lag*	‘hand, arm’
WB	*lak*	‘hand, arm’
Tangut	*lạ*	‘hand, arm’

The Chinese word is in the same phonetic series as 夜 ‘night’, which is discussed in the next section as set [17]. Given that Baxter reconstructs 夜 as ***(l)jAks**, with the ***l-** added because of the word-family relationship to 夕 (his ***z(l)jAk**), it is surprising that he reconstructs 亦 ‘armpit’ (also written 掖, 腋) as ***jAk** rather than ***(l)jAk**. But note that the phonetic series itself does not show many signs of being lateral. Matisoff (1985:424)

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[175]Under the hypothesis that Type B syllables are characterized by the presence of OC medial ***-j-**, it may be possible to reconstruct MC **z-** as some sort of ***Cj-** cluster. Otherwise, **z-** must simply be considered the reflex of initial ***j-** in syllables with Type B prosody.

[176]The problem of aspiration in Old Chinese is a difficult one. Only a two-way manner distinction for stops (voiced and voiceless) is necessary for reconstructed PTB. Three-way distinctions found in many daughter languages can be shown to be secondary. There would appear to be two ways to reconcile the PTB manner distinction with the three-way distinction (voiced, voiceless, aspirated) of OC. The first is to suppose that one of the manner distinctions is secondary in Chinese, arising through the influence of prefixal elements or derivational morphology. The second is to suppose that PST had a three-way distinction, which collapsed in PTB. There is insufficient evidence at present to decide between these alternative scenarios.

has already placed the word for armpit in the same word family as the familiar general PTB root ***lak** 'arm/hand'. But instead of Matisoff's association of the Chinese word with the specific PTB variant ***zak**, it seems preferable to reconstruct it with an initial lateral and compare it directly with PTB ***lak**, just as Gong does with 翼 'wing'. The two Chinese words 翼 and 亦 show a vocalic alternation (between ***ə** and ***a** in Gong's system). Either vowel makes a perfect correspondence with PTB ***a**, so it is difficult to say which might be derived from the other, or whether both variants are inherited from PST.

Bodman (1980:100-102, sets #162-170) has offered a number of other cognate sets between Chinese words in Class IA and Tibetan words in *l-*, which I will not explore in detail but which may be taken as further confirmation of the general correspondence between MC *ji-* and PTB ***l-**.

Gong's reconstruction of ***l-** and Baxter's of ***lj-** for **ji-** in lateral series fit the evidence. (Baxter's reconstruction is preferable in that it allows ***l-** to be reserved for MC **d-** when appearing in lateral series, so that recourse to Gong's ***'l-** initial is not necessary.[177]) As we have seen, however, **ji-** does not always occur in lateral series, and Baxter's hypothesis that it should be reconstructed ***j-** on occasion is no doubt correct. (A striking fact about Li's and Gong's OC reconstructions is that they lack initial ***j-** entirely.) With the help of comparative evidence, we can now be more accurate in assigning ***j-** to Chinese words (such as 羊) instead of treating it as a default reconstruction when evidence for ***l-** is inconclusive.[178]

I have demonstrated that it is possible to avoid reconstructing any ***l-**cluster initials for Class IA words. In all cases, the simple initial ***l-** can be posited for Old Chinese, with the implication that any PST prefixes were not inherited by Chinese. This approach conforms

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[177]See Gong 1995 sets #53, #57, #58, #106, which all feature OC initial ***'l-**. I will not discuss Class IE words separately. Since Gong and Baxter both agree on a lateral reconstruction for these words, I follow Baxter in reconstructing ***l-** > **d-**.

[178]Note that Baxter supposes that series with OC ***j-** > **ji-** could include **ś-** (< ***hj-**) and **dź-** (< ***ɦhj-**), while I am arguing that these series include **z-** rather than **dź-** (Baxter's **zy-**). The example Baxter (1992:#276) gives for ***ɦhj-** is I believe better reconstructed with ***ml-** or ***bl-**. See Section 4.1.7.

with the first of the three hypotheses given near the beginning of this section. There are good reasons, however, to favor instead the third hypothesis, that OC ***C-l-** clusters may also be reconstructed as a source of MC **l-**.

First of all, I argue in this and other chapters, for a variety of reasons, that OC itself was sesquisyllabic—that, like PTB, it tolerated loose initial clusters of the type ***C_1əC_2-**. There is no reason not to believe, then, that OC had ***Cəl-** initials as well as ***l-**. I will write these clusters as ***C-l-** in conformity with general Tibeto-Burmanist practice.

Second, prefixes do appear in quite a few of the PTB cognates to words with MC **ji-**. Once we have accepted the existence of ***C-l-** clusters in OC, it is natural to suppose that they would be cognate to similar clusters in PTB.

Third, I will argue in the next chapter (for reasons independent of the reconstruction of initial ***l-**), that OC initials ***r-** and ***C-r-** developed identically into Middle Chinese. Given the overall parallelism of ***r** and ***l** in OC (in terms of syllable structure and shared features), it is reasonable to assume that ***l-** and ***C-l-** would also have identical MC reflexes.

I believe the simplest explanation which accounts for all these observations is to reconstruct ***C-l-** clusters as the source of MC **ji-** when TB evidence favors the reconstruction of a prefixed PTB root. Clearly, it will be difficult to decide with certainty whether to reconstruct ***l-** or ***C-l-** for many OC words, and to pinpoint the value of ***C-**. But at the least we can provide for these clusters in our reconstruction system.

One obvious ramification of this conclusion is that Baxter's ***K-l-** clusters, which become MC dentals, cannot be interpreted as loose clusters ***Kəl-**. In fact, I will argue in Section 4.1.5 below that Baxter's ***K-l-** initials should be rewritten ***Kl-**.

4.1.2 Class IB words: Middle Chinese initial zj-

Class IB words have Middle Chinese initial **zj-**. Gong allows for two reconstructions, ***lj-** and ***slj-**, but in practice I am not aware of any words reconstructed with ***slj-**.

Baxter reconstructs ***zlj-** when in a lateral series, and ***zj-** otherwise; when the phonetic series is inconclusive, he sometimes reconstructs ***z(l)j-**.

The main question here is whether the TB evidence supports the reconstruction of sibilant initials in all these words. If so, then Baxter's reconstruction may be left unchanged, and Gong's ***lj-** must be revised to ***slj-**. If not, then Baxter's reconstruction with ***z-** must be revised. Note that Baxter's reconstruction leaves open the possibility that some MC **zj-** words did not have OC lateral initials, while Gong's system reconstructs all such words with a lateral initial. There is also a distributional problem with Baxter's reconstruction, in which initials ***z-** and ***zl-** occur only before medial ***-j-**.

As noted in the previous section, I believe that some instances of MC **z-** are in palatal glide series, rather than lateral series; these would be reconstructed without ***l**.

Gong 1995 lists four words with the development ***lj-** > **zj-**:

Set	Old Chinese	Written Tibetan	Written Burmese
245	象 *ljangx > zjang 'elephant'	*glang* 'ox, bullock, elephant'	
285	俗 *ljuk > zjwok 'popular usage, custom'	*lugs* 'way, manner, fashion'	
367	尋 *ljəm > zjəm 'to warm up (as food)'[179]		*luṁ* 'warm'
385	習 *ljəp > zjəp 'to practice, exercise'	*slob* (pf. *bslabs*) 'to learn, to teach'	

In Gong's sets there is little direct comparative evidence for Chinese ***s-** or ***z-**.

[179]In GSR #662a, Karlgren notes that 尋, normally meaning 'a measure', appears in the *Guóyǔ* 國語 as a loan character for the homophonous word meaning 'to warm up (sc. food)'.

[13]

象	Gong 245 ***ljangx** > **zjang**		
'elephant'	Baxter 306 ***zjangʔ** > **zjangx**		
	GSR #728a	GSR #728 (象): z-	
	STEDT #3318: ***glaŋ** 'ox/bullock/elephant'		
	WT	*glang*	'ox, bullock, elephant'
	Cuona	*lʌŋ*^{55}*tɕen*^{55}	'elephant'
	PNN	***C$_{VL}$-glaːŋ**	'elephant'

The PTB form is reconstructed with a cluster initial ***gl-**; however, the Cuona form indicates PTB initial ***l-**, and the WT form should also be interpreted as having a prefixed initial *l-* (with *g-* perhaps descended from the TB animal prefix ***k-**). The Darang and Geman forms *ka*^{31}*liaŋ*^{55} 'elephant' are also indicative of a separable prefix (as well as apparently reflecting a palatal glide). French (1983) reconstructs a PNN cluster ***gl-**, but in fact this is based on only a single ambiguous form in one language, Moshang *jan*. The reconstruction itself is mostly influenced by knowledge of the PTB reconstruction with ***gl-**. I would therefore suggest revising the PTB reconstruction to ***(g-)laŋ**.

[14]

俗	Gong 285 ***ljuk** > **zjwok**		
'popular usage, custom'	Baxter ***z(l)jok** > **zjuwk**		
	GSR #1220a	GSR #1220 (俗): z-	
		GSR #1202 (谷): ji-, k-	
	WT	*lugs*	'way, manner, fashion'

Karlgren places 俗 in a different phonetic series from 谷, but this seems untenable. If we treat 俗 as part of GSR #1202, then we have initials **k-**, **z-**, and **ji-**, just as in GSR #732 (羊). However, in this case there is no external evidence for a palatal glide reconstruction. Gong reconstructs ***l** as initial or medial in these words to tie them together. (He finds independent evidence for medial ***-l-** in 谷 by comparing it with the areal word ***kluŋ** 'river, valley'). Baxter, on the other hand, reconstructs 谷 as ***kok**, so it is unclear to me whether he would try to link all these words together by reconstructing ***zljok** for 俗, or simply ***zjok**. Either way, if the comparison with the apparent WT isolate *lugs* is correct, there is no TB evidence for an initial sibilant.

[15]
尋 Gong 367 ***ljəm** > **zjəm**
'to warm up (as food)' Baxter ***z(l)ji/ɨ/um** > **zim**
GSR #662a GSR #662 (尋): z-

STEDT #2420: ***lum** 'warm' (cf. STC #381)

WB	*luṁ*	'warm'
WB	*hluṁ*	'to warm oneself by a fire'
PLB	*lum*^{1}	'warm'
Dulong dl	*luɯm*^{53}	'to heat up (e.g. rice)'
Darang	*luɯŋ*^{51}*ŋu*^{55}	'warm'
Geman	*pɹo*^{55}*ma*^{31}*lam*^{35}	'warm'

***lum** is a widespread PTB root for 'warm'. In its unprefixed form it is generally stative. The Chinese form is causative, which suggests the possibility of an original ***s-** prefix. (Note the voiceless initial of the Burmese form meaning 'warm oneself', and compare the Chinese meaning to Lepcha *lyam* 'to warm up food', which is marked by the presence of the causative infix *-y-*.) There does not appear to be a related Chinese stative.

[16]
習 Gong 385 ***ljəp** > **zjəp**
'to practice, exercise' Baxter ***zlji/ɨ/up > zip**
GSR #690a GSR #690 (習): ji-, d-, z-, tś-

STEDT #759: ***p/s-lyap** 'wing'
[WT *slob* 'to learn, to teach']

Gong's comparison was first proposed by Simon. The Tibetan form points to a prefixal ***s-**; this is confirmed by the Dulong form *suɯ*^{31} *lap*^{55} 'teach'. I would like to suggest an alternate etymology for 習, however. The original sense of the word seems to have been 'to practice flying' (GSR #690a, *Shuōwén Jiězì*), as indicated by the presence of wings ( ) in the graph. The meaning 'practice lessons, study' seems to be a metaphorical extension in Chinese, casting doubt on the proposed cognacy with Tibetan *slob* 'learn, teach'. A better cognate might be PTB ***p/s-l(y)ap** 'wing', from which the meaning 'to fly' could easily be derived. In fact, Matisoff (1985:443) notes that the root has "connections to the notions of waving, fanning, flapping, or fluttering". He cites a number of Himalayish forms in support of this root, including WT *hlab-hlab* 'flutter to and fro' and *'dab-ma* 'wing; petal, leaf; fan; flag; ladle'. To these forms we can add Proto-Tani ***lap** 'wing' and

TGTM *^{A}**bjap** ‘feather’. Since this PTB root also has a prefixal ***s-** in some variants, we cannot dismiss the possibility of an ***sl-** cluster on the Chinese side.

In addition to the sets provided by Gong, I note the following:

[17]

夕;	Gong ***ljiak** > **zjäk**; ***liags**> **jia**	
夜	Baxter 699 ***z(l)jAk** > **zjek**; 698 ***(l)jAks** > **yæH**	
‘evening,	Starostin 2:308 ***lhiak**; 3:284 ***lia(k)s**	
night’	GSR #796a	GSR #796 (夕): z-
	GSR #800j	GSR #800 (亦): ji-, ts-

PLB ***ʔrak** ‘night/spend the night’

The Chinese words for evening may be compared with the Lolo-Burmese root for ‘night/spend the night’ (CVST 2:308, 3:284), or to PTB ***ya** ‘night’ (as in Benedict 1972:188). There is considerable uncertainty in this comparison, however, since there are difficulties with both the initial and the final. If we accept the comparison of OC ***l-** with PTB ***r-** or ***y-**, though, then we find no evidence for a sibilant reconstruction on the Chinese side. Note also that neither Chinese word is in a clear-cut lateral series; internal evidence for reconstructing an ***l-** initial is mostly due to the proposition of a word family relationship between the forms.

[18]

隨	Gong ***ljuar**> **zjwĕ**	
‘follow’	Baxter 1070 ***zljoj** > **zjwe**	
	GSR #11g	GSR #11 (隓): t-, th-, d-, ḍ-, s-, z-, x- (dental)

PTB ***m-yuy** ≍ ***s-yuy** ‘follow’

Matisoff 1992 focuses on the Chinese and PTB roots for ‘follow’ and ‘marrow’. He compares Chinese 隨 to a number of TB forms, ultimately setting up the root ***m-yuy** ≍ ***s-yuy**, with stative and causative (or intransitive and transitive) variants. The match with the Chinese form is quite good, despite the lack of a lateral on the PTB side. If the Chinese word were to be derived from the causative root, this would provide some evidence for ***s-**.

[19]

松	Gong ***ljung** > **zjwĕ**	
'pine'	Baxter 9790.4 ***skjong** > **sjowng**	
	Starostin 3:126 ***lhoŋ**	
	GSR #1190a	GSR #1190 (松): s-, z-
		GSR #1173 (公): k-, ·-

Jingpho (H)	*šəluŋ*	'a kind of tree; the fork of a tree'
Lushai	*luŋ*	'name of a large tree'
Darang	*ɹuŋ*^{53}*sǎŋ*^{35}	'pine tree'

The Jingpho and Lushai forms listed here are proposed as cognates to the Chinese by Peiros and Starostin. They have rather vague semantics but are a good phonetic match to the Chinese. I add to this set the Darang form, which specifically means 'pine tree' (the second morpheme *sâŋ*^{35} is 'tree'). The initial rhotic of the Darang form, rather than the expected lateral, bears further investigation.

Evidence for reconstructing a sibilant in Old Chinese for every instance of MC **z-** is scanty. Where there is evidence in individual roots—for 習 and possibly 尋 and 隨—the sibilant is clearly of a prefixal rather than cluster nature (which is in keeping with Baxter's treatment of reconstructed ***sl-** and ***zl-** as sequences of prefix+initial). Gong's reconstruction ***(s)lj-** > **z-**, should be rewritten ***(s-)lj-** to emphasize the prefixal quality of ***s-**. However, since we are adopting Baxter's proposal that ***lj-** > **ji-** as opposed to ***l-** > **d-**, reconstructing ***lj-** > **z-** is not an option. For the moment then, despite a lack of conclusive TB evidence, I will reconstruct ***s-lj-** > **z-**.

It is also necessary to look into TB cognates of Chinese words with MC **z-** which are in palatal series, words like 詳 'scrutinize, detail, explain' and 祥 'lucky, good'. I have yet to find any suitable cognates aside from Bodman's comparison, mentioned in the last section (under set [11]), of 庠 with WT *g-yang*.

4.1.3 Class IC words: Middle Chinese initial s-

Class IC words have Middle Chinese initial **s-** and occur in lateral series. Baxter (1992:197,225-226) reconstructs ***sl-**, where ***l-** is taken to be the initial and ***s-** a

pre-initial. The development ***sl-** > **s-** parallels the general loss of resonants after pre-initial ***s-** in Baxter's system. In Gong's system ***slj-** > **zj-**, so at least before medial ***-j-** the reconstruction ***sl-** is not available to account for MC **s-** in lateral series. It is unclear to me whether Gong's system includes a reconstruction ***sl-** before segments other than ***-j-**. As far as I know, Gong follows Li by reconstructing ***st-** > **s-** when **s-** is in a lateral series. (Recall that in Li's system ***sl-** > **ṣ-**.) For example, Li reconstructs 錫 as ***stik** > **siek** (compare with Baxter's ***slek**).

Gong 1995 offers no cognate sets with OC ***st-** > **s-** or ***sl-** > **s-**.

Bodman (1980:71), like Li, proposes that ***sl-** > **ṣ-**. He offers in set #73 only a handful of examples, all within a single phonetic series, comparing WT *sle*, *hle* 'to plait, braid', and *lhas* 'braid, wickerwork' with Chinese 躧 ***slè:** > **ṣ̤jiĕ:** 'straw sandal (*plaited footwear)', 纚 ***slè** > **ṣ̤jiĕ** 'band round the hair', 麗 ***sle:** > **ṣai:** 'id.', also read ?***les** > **liei-** '...fasten, attach'. The last reading is problematic, since MC **l-** should go back not to OC ***l-** but rather to OC ***r-**. These reconstructions seem doubtful to me. Were it not for the proposed connection with the Tibetan words, these Chinese words in MC **ṣ-** would be better reconstructed with ***sr-**.[180]

In the OC system of Peiros, as reflected in the data available in Peiros and Starostin 1996, MC **s-** in lateral series is derived from initial ***slh-**. This initial is apparently the aspirated counterpart of ***sl-**. (In Starostin's system, aspiration contrasts may be found in all manner of initials, including voiced stops and resonants—see Section 3.6.) In Peiros and Starostin 1996 there are four Chinese words reconstructed with this initial. All four have short vowels—the equivalent of medial ***-j-** in Li's system—and therefore become third-division syllables. None of them, however, show comparative evidence for a sibilant initial.

3:14 PST ***lăH** 'hemp, cotton'
OC 枲 ***slhə?** 'hemp'
Lushai *la* 'cotton, cotton yarn'

[180]In fact, Baxter (1992:228) reconstructs ***C-res** for 麗 and ***sCr-** for other words in the phonetic series.

3:91 PST ***lǐj (p-)** ‘four’
OC 四 ***slhij-s** ‘four’
WT *bźi* ‘four’
WB *lijh* ‘four’
Jingpho *məli*[1] ‘four’
Lushai *li* ‘four’

3:103 PST ***lǐw(H) (s-)** ‘wash’
OC 潃 ***slhiw?** ‘wash rice; urinate’
WB *hljaw* ‘to wash clothes or the hair’
Lushai *tleu* ‘to swill (with water)’

3:114 PST ***lǒj** ‘slippery’
OC 灑 ***slhojs** ‘slippery’
WB *khjwajh* ‘be sticky, adhesive’
Jingpho *bjoi*[3] ‘be slippery’

While the cognate set for ‘four’ is firmly established and well-recognized, the other three sets are problematic. Set 3:14 is a regular correspondence, but there is only one supporting language besides Chinese. In set 3:103 the semantics are shaky, and in set 3:114 the Burmese form should be thrown out on the basis of both shape and semantics. In all four sets, only the Burmese form in the doubtful set 3:103 gives any evidence of an original ***s-** in PTB or PST.

The cognate set for ‘four’ deserves further discussion. Benedict sets up the PTB root as ***b-ləy** (STC #410), and there is ample TB evidence to support both the lateral initial and the labial prefix. The initial ***s-** in the Chinese word has made it difficult to associate with the Tibeto-Burman forms. Li simply reconstructed ***sjidh**, based only on internal evidence. Baxter, following Bodman, reconstructs ***s(p)jij/ts**. The ***(p)** is presumably included to match with the PTB labial prefix.

It seems to me more likely that Chinese inherited a PST form very much like ***b-ləy**, but that, under the influence of the ***s-** initial in the preceding number ‘three’, the ***b-** was simply replaced by ***s-**, yielding (in Baxter’s system) OC ***sljij**. Perhaps the ***-l-** was lost as well. (Benedict 1972:162 offers a similar explanation, as does Coblin 1986:83) This kind of contamination can be attributed to the tendency for the numerals to be recited in order. In Indo-European, the roots for ‘four’ and ‘five’ are ***kwetwer-** and ***penkwe**

respectively. The regular Germanic reflex of IE ***p-** is *f-*, and thus the initial in English *five* is perfectly regular. The Germanic reflex of IE ***kw-** is normally *hw-*, so the regular English reflex for 'four' should have become **whour*. But the Germanic root for 'four' is in fact ***petwor**, with anticipatory assimilation of the initial to match the initial ***p-** of 'five'. Contamination of this type is also found in Russian, where *devjat'* 'nine' has initial *d-* (rather than expected *n-*) to match that of the following number *desjat'* 'ten'.

The change in Chinese which replaced the labial initial in 'four' with ***s-** must have happened quite early, since all the words whose characters take 四 as their phonetic (GSR #518) have initial **s-**; there is no trace of an original labial in these words.

Baxter reconstructs the following words with ***sl-** clusters:

a. 修	***sljiw** 'adorn, repair'	#1077: ji-, th-, d-, s-, ź-
b. 脩	***sljiw** 'dried, withered'	id.
c. 翛	***sliw** 'rapid flight'	id.
d. 錫	***slek** 'tin'	#850: ji-, th-, d-, s-, ś-
e. 賜	***sljeks** 'give, gift'	id.
f. 肆	***sljɨps** 'extensive, display'	#509: ji-, th-, d-, s-
g. 秀	***sljus** 'to flower, flourishing'	#1095: ji-, s-
h. 泄 ~ 洩	***sljat** 'relieve, disburden'	#339/338: ji-, s-, ś-
i. 寫	***s(l)jAk?** 'disburden, relieve'	#799: s-
j. 小	***s(l)jew?** 'small'	#1149: tsh-, dz-, s-, ṣ-, ś-
k. 削	***s(l)jwek** 'scrape, destroy'	id.
l. 消	***s(l)jew** 'melt, dissolve; disappear'	id.

The latter three forms have medial ***-l-** in parentheses since their GSR series are not in fact lateral series. GSR #1149 is a dental affricate series, with the exception of **ś-**.

To Baxter's list of ***sl-** words we can add the words reconstructed by Li (1976/1980:88-89) with ***st-** which we now know to be in lateral series:

m. 犀	***stid** 'rhinoceros'	#596: s-, ḍ-
n. 屧	***stiap** 'bottom inlay of shoe'	#633: ji-, d-, s-, ś-
o. 筱	***stiəg^{w}x** 'type of bamboo'	#1077-: ji-, th-, d-, s-, ź-
p. 虒	***stjig** 'place name'	#870: s-, ṭh-, ḍ-, d-
q. 緰	***stjug** 'fine cloth'	#125-: ji-, th-, d-, ś-
r. 髓	***stjuarx** 'marrow'	#11: t-, th-, d-, ḍ-, s-, z-, x-
s. 邃	***stjədh** 'deep, distant, long'	#526o: d-, éd-, s-, z-
t. 雖	***stjəd** 'kind of lizard; although'	#575: ji-, t-, th-, d-, ḍ-, tsh-, dz-, s-, tś-, ź-

It is hoped that finding TB cognates for some of these words might help to answer the two key questions about this class of Chinese words. Is there evidence for a sibilant initial in the words reconstructed ***sl-**? Is there evidence for ***-l-** in the words Baxter reconstructs ***s(l)-**? But finding dependable TB comparanda for words of this class is challenging because our diagnostic languages, those that generally preserve stop+liquid clusters, and distinguish true clusters from sequences of prefix+initial, do not have *sl-* clusters. Cuona, Dulong, Darang, and Geman all lack *sl-* clusters.[181] Some of these languages do contain the voiceless lateral initial *ɬ-*, and it certainly seems likely that, in Dulong for example, PTB ***s-l-** > *su-l-* and ***sl-** > *ɬ-*.[182] (An example of the former development is the Dulong word for 'teach' *su*^{31}*lap*^{55}, comparable to WT *slob*.) However, clear-cut examples of such a distinction are hard to come by. Indeed, it is not even certain that PTB made a distinction between ***s-l-** and ***sl-**; it may be that ***s-** was always prefixal when preceding other consonants, including liquids (Benedict 1972:42).

We have seen evidence, provided by Beyer, that WT may have distinguished earlier ***s-l-** from ***sl-**, with the former becoming WT *sl-* and the latter metathesizing to an *l*-prefixed cluster. However, these differing developments may conceivably also be attributed to the effects of different vowels, as all examples offered by Beyer of the latter type involve front vowels. And there is also the matter of the origin of WT *hl-* to consider.

Whether or not PTB distinguished ***s-l-** and ***sl-** has ramifications for our reconstruction of both PST and Old Chinese, though it does not preclude setting up such a distinction in Chinese.[183] In the previous section I brought up the possibility that at least

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[181]At least they lack such clusters in the primary sources I am using in this study. Matisoff (1985:436) cites a Dulong form (identifying the language as "Trung (Nungish)") *ul*^{44}*sla*^{42} 'arm'; his source is Lo Ch'ang-p'ei 1945. Sūn et al. 1991 #251.46 lists *ŭ*$^{\text{˩}55}$ 'hand', but I can find no forms with a second syllable comparable to the one in the form Matisoff cites.

[182]Another possibility is that *ɬ-* derives from PTB ***hl-**. Although Benedict 1972 does not explicitly propose reconstructing voiceless resonants, ***hl-** does appear in a few roots, such as #475 ***(m-)hla** 'god, demon, soul'. (Among my diagnostic languages, note the Motuo form *ɬa* 'god'.) In a footnote, contributing editor Matisoff observes that "***hl-** merges with ***sl-** everywhere except in Tibetan; it may be a morpheme boundary that makes the difference".

[183]It is certainly tempting to set up an ***s-l-** vs. ***sl-** distinction for Old Chinese, since this gives us more leeway in constructing OC forms which conform to the triangulation requirements of Middle Chinese

some Class IB words are to be derived from OC clusters of sibilants with laterals; do these need to be distinguished from Class IC words which are also to be so derived? One solution might be to distinguish prefix ***s-** plus initial ***l-** from clusters of initial ***s-** and medial ***-l-**. The evidence from the previous section suggests, tentatively, ***s-l-** (i.e. loose cluster **səl-**) for Class IB words; so perhaps Class IC words can be reconstructed with true clusters ***sl-**. This might explain the lack of cognates in WT, where true cluster ***sl-** disappeared according to Beyer.

Comments on a number of the words listed above:

(k). A possible cognate to 削 is the PLB form ***sök** 'scrape' (Matisoff 1972 #117). This suggests there is no need to reconstruct ***-l-** in the Chinese form, which is consistent with our observation that this character is not in lateral series.

(i). The similarity in both shape and meaning of this word to 脫 (G ***hluat**, B ***hlot**), discussed in the next section, cannot be overlooked. If 洩 is indeed part of this word family, though it lacks a rounded vowel, then it can be related also to PTB ***s-lwat**. The problem with this approach is that it sets up a correspondence of PTB ***s-l-** to both OC ***sl-** and ***hl-**.

(d). The similarity in shape to the common areal word for 'iron', ***hlek**, suggests that it may ultimately be related. The root for 'iron' is found for example in Proto-Tai ***hlek DS1** 'iron'. It is distinct from some native PTB 'iron' words, such as Dulong *ɕăm*[53] (cf. PL ***xam**[1] 'iron'), but is identifiable in many PTB languages, for example in Cuona *lek*[53]. Bodman (1980:103) identifies WT *ltśags* with this root, deriving it from ***hly-**. Like other scholars, he has identified OC 鐵 'iron' as the cognate, with a shift of the final consonant ***hlek** > ***hlet** > **thiet**.[184] If 錫 'tin' is to be related also to this root, then we would have

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developments, phonetic series, and TB comparanda which I have explored in this chapter. One also wonders if a general distinction between ***s-C-** and ***sC-** would help solve the problem of the "metathesizing ***s-**" which Baxter (1992: 227-232) reconstructs for Old Chinese and writes as ***S-** to distinguish it from the ordinary ***s-** prefix. Both Benedict 1976 and Bodman 1980 have proposed different types of ***s-**clusters to account for a number of different proposed developments.

[184]This change of ***-k** to ***-t**—really a type of assimilation—occurs in a small number of well-documented cases, such as 節 (***tsit** < ***tsik**) which is cognate to PTB ***tsik** 'joint' (STC #54).

doublets ***slek** and ***hlek**; but for unknown reasons, in one case the final becomes a dental and in the other it doesn't. Moreover, as with the proposed relationship of 洩 to 脫, we have the problem of explaining the distinct ***sl-** and ***hl-** initials in Chinese. It is probably worth noting in this regard that Bodman's ***hly-** is not the only possible reconstruction for WT *ltś-*. Beyer (1992:78, note 11), for example, proposes that *ltś-* may derive from earlier ***sl-** (just as *ldź-* may derive from earlier ***zl-**) or ***kl-**, through a process of metathesis and palatalization. His supporting examples, such as *ltśe* < ***sle** 'tongue' and *ldźi* < ***zli** 'flea', are convincing in the light of other TB evidence. One point that is not stressed by Beyer is that these developments all seem to occur before front vowels. It is possible, then, to propose for Tibetan ***sl-** > *ltś-* before front vowels, ***sl-** > *hl-* elsewhere, and ***s-l-** > *sl-*. Thus WT *ltśags* 'iron' could be taken back to ***slyak** or ***slek** rather than ***hlyak**, and such a reconstruction would provide evidence for ***sl-** in the OC words for 'iron' and 'tin'. Beyer's proposal may explain how PTB ***sl-** can have different types of reflexes in WT; unfortunately, the same approach cannot be used to explain OC ***sl-** and ***hl-**, which both occur before both front and back vowels and both seem to derive from earlier ***sl-**.

(m). It seems quite likely that this phonetic series should be joined with GSR #561 (尸): **ś-**, **x-** and #595 (屖): **s-**, **ḍ-**. The connection to 屎 (#561d) in particular suggests a lateral initial; this character is discussed in the next section.

(t). This is a peculiar phonetic series, with lateral, dental, and dental affricate type initials. Bodman (1969, 1980:57) has argued that **TS-** initials in series of this type may be derived from ***sT-** clusters which metathesized. Baxter provisionally accepts this hypothesis, but also notes a number of difficulties related to GSR #575 in particular (1992:231). Even if we accept the metathesizing hypothesis, we are still left with what appears to be a mixed dental/lateral series, making it difficult to decide if **s-** should be derived from a lateral cluster ***sl-** or a dental cluster ***st-**.

(r). In Baxter's system this word would be reconstructed ***sljoj**. In the previous section I discussed Chinese 隨 'follow', and noted Matisoff's (1992) association of this word with PTB ***m-yuy ≋ *s-yuy**, and pointed out that if correct this cognate set provides some evidence for a sibilant initial in the Chinese word. In the same article, Matisoff suggests that 髓 'marrow' be compared to the resonant-heavy PTB root ***s-hywəy-t** 'blood' (cf. STC #222). This is an intriguing suggestion, since it sets up a parallel between MC **z-** and PTB ***s-y-** on the one hand and MC **s-** and PTB ***s-hy-** on the other. There are other possibilities, however. GSR #11 appears to be a lateral series, although the presence of initials **t-** and **x-** casts some doubt on the matter.[185] This makes the PTB root ***s-la** for 'marrow' look like an attractive candidate as well (Matisoff 1992; given as ***sla** or ***hla** in the STEDT database #464), although the vowel does not make for as good a match.

4.1.4 Class ID words: Middle Chinese initials th-, ś-

Class ID words have Middle Chinese initial **th-** or **ś-** and occur in lateral series. These initials are reconstructed identically by both Gong and Baxter as ***hl-** and ***hlj-** respectively. Note that in Gong's system, ***hlj-** may be interpreted either as voiceless lateral ***hl-** followed by medial ***-j-**, or as the voiceless fricative ***h-** (which Baxter writes as ***x-**) followed by the palatalizing complex medial ***-lj-**.[186] Thus Gong also reconstructs ***hlj-** for **ś-** when it occurs in a velar series, with medial ***-lj-** conditioning the palatalization of the initial ***h-** (see Gong 1994). In Baxter's system, **ś-** in a lateral series is reconstructed ***hlj-**, **ś-** in a velar series ***xj-** (followed by a front vowel conditioning palatalization), and **ś-** in an unspecified series as the voiceless palatal glide

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[185]**t-** appears only in GSR #11j 鬌, which also has readings with MC **d-** and **ḍ-**. It may be significant that the phonetic itself in this series has MC **d-**, presumably from OC ***l-.** The **x-** initial remains unexplained.

[186]The same is not true however of Gong's ***hl-,** which always represents a simple voiceless lateral, never initial ***h-** followed by medial ***-l-**. This is clear from the examples in Gong 1994, where ***hl-** always becomes **th-** and never **xj-.**

***hj-** (see Baxter 1992:202). This means that Gong's ***hlj-** may correspond to ***hlj-**, ***hj-**, ***h(l)j-** or ***xj-** in Baxter's system.

Gong 1995 has only three OC words in this category:

Set	Old Chinese	Written Tibetan	Written Burmese
10	屎 *hljidx > śi 'dung'	*lci* 'dung'	*khyê*, OB *khlîy* 'excrement'
39	脫 *hluat > thuât 'to take off, escape, careless'	*glod* 'to loosen, relax, slacken, to comfort'; *lhod* < ***khlod** 'loose, relaxed, slackened'; *lod* 'loose, relaxed, slackened'	*kywat* 'to be freed from, released'; *khywat* 'to release, free, emancipate'; *lwat* 'to be at liberty, free'; *hlwat* 'to free, release'
133	水 *hljədx > świ 'water'	*chu* 'water, brook, river'	

It is doubtful that the set #133 (Baxter ***h[l]juj?** > **sywijx**) is valid, however. The WT form is derived from the PTB root ***tšu** 'water'; there is no evidence within Tibeto-Burman to suggest that WT *ch-* in this word is descended from a metathesized ***l-**cluster. Coblin (1986) has instead compared the Chinese word with PTB ***lwi(y)** 'flow, stream' (STC #210). This comparison looks especially good with Baxter's reconstruction ***h[l]juj?** for 水.

To these sets we may add Bodman's proposal (1980:103):

176 鐵 *hlek > *hlet > thiet 'iron' *lcàgs* < ***hly-** 'iron'

The three proposals for 'dung', 'take off', and 'iron' bear further analysis.

('take off'). Baxter 236 ***hlot** > **thwat**.

I discussed the basic related PTB root ***lwat** 'free' in the context of Chinese 悅 in Section 4.1.1. Chinese 脫 is certainly parallel to the causative PTB form ***s-lwat** 'to free'. In addition to the TB causative forms listed in Section 4.1.1, consider the Cuona form *łø*^{53} *łøʔ*^{53} 'loose/lax', whose voiceless initial points back to the causative ***s-** prefix.

It seems sensible then to propose that in this case OC ***hl-** is derived from PST ***s-l-**. The difficulty here is that Class IB (MC **z-**) and Class IC (MC **s-**) words both seem to be

reconstructible with ***sl-** or ***s-l-** clusters, which presumably both go back to something similar in PST. This leaves little leeway for reconstructing OC ***hl-** as a reflex of PST ***s-l-**.

One possibility is that we are dealing with two different stages in the history of Chinese. Some inherited PST ***s-** prefixes may, in lexical items, have fused with a following ***l-** at some early stage and led to the development of OC ***hl-**, while a morphological ***s-** prefix may have remained active well into the Old Chinese period, forming ***s-l-** clusters long after the development ***sl-** > ***hl-** had taken place.

This is, of course, speculation. Neither internal Chinese evidence nor TB comparative evidence, even if more abundant, could definitely prove or disprove such a hypothesis. The fact remains, however, that the connection between the Chinese word family including 脫 and the PTB word family containing ***lwat** is among the most clear-cut we have. Thus the evidence it offers linking PTB ***s-l-** with OC ***hl-** should probably be given precedence over the more speculative evidence, presented in the previous two sections, linking PST ***s-l-** with MC **s-** or **z-**. At the very least neither correspondence should be rejected out of hand.

(‘dung’). Baxter ***h[l]jij?** > **syijx**.

PTB ***kləy** is a widespread, well-attested root which appears in every branch of Tibeto-Burman. Because of this, while neither WT *ltśi* ‘dung’ nor Chinese 屎 appear on first inspection to be related to this root because of discrepancies in the initial consonants, they have both been scrutinized by scholars as possible cognates. Bodman (1980:103) took the WT form back to ***hlyi** and reconstructed Pre-Chinese ***hlyi:** or ***hli:**. He connected these forms to the PTB root by suggesting that both Chinese and Tibetan may have undergone a ‘common innovation’ of ***khl-** > ***hl-** in these words. Bodman supports this hypothesis by noting that WT contains *gl-* and *kl-* clusters but no *khl-* clusters; the Tibetan development ***khl-** > ***hl-** would explain this systemic gap.

I agree with Bodman's conclusion that the Chinese and WT forms should be related to the PTB root ***kləy**, but my analysis is different. Following Beyer in his hypothesis that WT has no inherited true *l*-clusters aside from *zl-*, I agree that WT *ltśi* is to be derived from earlier ***kli** through metathesis and palatalization (Beyer 1992:78, note 11). There is no need to posit the existence of ***khl-** at any stage of Tibetan.

I will propose below, in Sections 4.1.5 and 4.1.8, the two OC developments ***khlj-** > **tśh-** and ***khl-** > **th-**. The latter proposal is due to Bodman, who presumed an interim stage ***hl-**, which normally becomes MC **th-**. It seems possible then that, in parallel fashion, under some circumstances (or in some dialects) ***khlj-** may have become first ***hlj-** which then developed normally to MC **ś-**. This seems, however, to have been the exception rather than the rule, since 屎 is the only example I know of.

If I am right, then this particular cognate set does not "point to a close linguistic relationship between [Chinese and Tibetan]" (Bodman 1980:103). The Tibetan and Chinese developments are quite different, though both are more or less regular in the context of their own distinct pattern of sound changes.

('iron'). As mentioned in the discussion of 'tin' in the previous section, a word of the shape ***slek** or ***hlek** for 'iron' is found in several language families of East and Southeast Asia. Here we cannot take WT *ltśags* back to ***kl-**, because there is no evidence for a velar cluster in other languages with reflexes of this 'iron' root. But as noted earlier, under Beyer's proposal *ltś-* is also a possible reflex of an original ***sl-** cluster. This renders the analysis of the Chinese word 鐵 parallel to that for 脫, which I took back to ***s-l-**. Note that Karlgren does not place 鐵 (GSR #1256b) in a phonetic series. According to the *Shuōwén*, however, the phonetic is ultimately 呈, in GSR #835: **ji-**, **th-**, **d-**, **ṭh-**, **ḍ-**, **ś-**. This is a typical lateral series, providing internal evidence for the reconstruction of a lateral in 鐵. Moreover, the velar nasal ending of 呈 (MC **ḍjäng**) provides good evidence for the original velar final of 鐵.

I will not discuss Class IE words in any detail.

4.1.5 Class II words: Middle Chinese initials tś-, tśh-, ź- in velar/labial series

Words in Class II have Middle Chinese palatal initials **tś-**, **tśh-**, **ź-**, **ń-**, **ś-** but are in phonetic series with velars, or show other evidence of an Old Chinese velar initial.[187] This set of words has puzzled scholars for some time. Tung (1944) proposed an OC series of palatalized velars, which developed into MC palatals but were similar enough to true velars to permit intermixing in phonetic series. Li (1976) reconstructed these initials as ***Krj-**, arguing that the complex medial ***-rj-** led to palatalization of the velar initials. Gong (1994) revised Li's reconstructions to ***Klj-**, for three reasons. First, it had been convincingly demonstrated by Pulleyblank that ***-rj-** should instead be reconstructed after velars to account for third-division *chóngniŭ* words. Second, ***-l-** is more likely on phonetic grounds to cause palatalization than is ***-r-**. Third, many of the words involved are in phonetic series, or have alternate readings, with MC **ji-**, which is presumed to derive from OC ***l-**.

A second approach, first proposed by Pulleyblank (1962), was adopted by Baxter (1992), who formulates the condition for velar palatalization as medial ***-j-** plus a front vowel (***i** or ***e** in his system).[188] There are however a number of exceptions in which velars palatalize before back vowels as well. In such cases Baxter capitalizes the initial of his reconstruction to indicate an irregular development, as in 車 ***KHjA**.[189]

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[187]A prototypical example of this kind of series is GSR #671 (咸), which has initials **k-**, **ɣ-**, **x-**, **tś-**. It is likely that **tś-** in this series is derived from palatalized ***k-**.

[188]This palatalization is blocked by medial ***-r-**. Thus in Baxter's system ***-rj-** prevents velars from palatalizing, while in Li's system ***-rj-** causes velars to palatalize.

[189]In Baxter's reconstruction there is another class of irregular words, those which have velar initials in a palatalizing environment but do not palatalize. These are Middle Chinese fourth-division *chóngniŭ* doublets with velar initials and OC front vowels. Medial ***-rj-**, which blocks palatalization, cannot be reconstructed because it would have given rise to third-division doublets. Baxter writes such words with a capital ***-J-**, as in 吉 ***kJit**. (See Baxter 1992:213.) Pulleyblank has suggested reconstructing medial ***-l-** in these words to block palatalization (1984:176, 1962:118-119), but there seems to be no confirming evidence for this hypothesis. (The proposal may also seem unusual on phonetic grounds. In the development of French from Latin, however, we find exactly this type of blocking. Latin *k-* palatalized to *ʃ-* before *a*—as in Latin *causa* > French *chose* [ʃoz] 'thing'—but this palatalization was blocked before *-l-*, as in Latin *clausus* > French *clos* [klo] 'closed'. This may indicate that French *a* at this stage had a fronted articulation, while *l* may have been dark rather than palatal.) I will not deal with this class of exceptions in this chapter.

The proposed reconstructions of Gong and Baxter for Class II words are clearly in conflict. In Gong's formulation all such words have medial ***-l-**, and in Baxter's formulation none do. Compare:

MC	Gong (1994)	Baxter (1992)
tś-	*klj-	*kj-, *Kj-
tśh-	*khlj-	*khj-, *KHj-
ź-	*glj-	*gj-, *Gj-
ń-	*nglj-	*ngj-, *NGj-
ś-	*hlj-	*hngj-, *HNGj-, *xj-, *Xj-

We can propose a number of hypotheses to reconcile these contrasting approaches, which can be tested against Tibeto-Burman evidence. First, it is possible that Gong's reconstruction is correct, and that velar palatalization is always conditioned by the presence of ***-l-**. If so, the pattern which Pulleyblank observed, in which most such palatalizations occur before front vowels, would have to be attributed to a tendency for medial ***-l-** to pattern with such vowels. Second, it is possible that, as Baxter supposes, velars always palatalize before ***-j-** and a front vowel. The exceptional cases, in which velars palatalize before a back vowel, could be due to the presence of medial ***-l-**, as in Gong's proposal. In other words, if **V** is a front vowel, then ***KjV-** and ***KljV-** both become **Tśj-**; if **V** is a back vowel, then ***KjV-** > **Kj-** but ***KljV-** > **Tśj-**.[190] Third, it is possible that there is no evidence for medial ***-l-** in any Class II words, and that palatalization before back vowels must be ascribed to other causes.

I will test these hypotheses one at a time. As far as Gong's hypothesis is concerned, it seems extremely unlikely that all cases of velar palatalization can be attributed to medial ***-l-**. Consider for example 十 'ten', GSR #686a, MC **źjəp**. Baxter reconstructs this as ***gjip** > **dzyip** (set #347).[191] Evidence for the reconstruction of a velar initial is provided by the word 計 (GSR #1241a, MC **kiei**), which has 十 as phonetic, as well as 叶 (GSR #639c, MC **ɣiep**), an alternate form of 協. Yet there is no evidence of lateral-type initials

[190]In this formulation **K** is a cover symbol for velar initials. It should not be confused with Baxter's ***K-**, which appears in individual lexical items representing an unexpectedly palatalizing initial ***k-**.
[191]Gong does not give a reconstruction for this word, but in his system it would be ***gljəp**.

in phonetic series with 十. Moreover, the PTB root for 'ten', ***gip**, is clearly cognate, and provides additional evidence for a velar initial. But there is no evidence in any TB language to suggest an original ***gl-** cluster.

Furthermore, some of the words which Gong 1994 reconstructs with palatalizing velars are better reconstructed as palatalizing dentals. For example, consider 石 'rock', MC **źjäk**. Gong reconstructs ***gljak**, citing as evidence for medial ***-l-** the word 拓 ***hlak** > **thâk**, which is in the same phonetic series. Closer examination of this series, GSR #795, reveals that it contains initials **ź-**, **tś-**, **ṭ-**, **th-**, **t-**. This is a purely dental series, not a lateral series, whose initials may be reconstructed ***dj-**, ***tj-**, ***tr-**, ***th-**, ***t-** respectively. Since 拓 is better reconstructed ***thak**, there is no longer any evidence to suggest a reconstruction other than ***djak** for 'rock'. (Note Baxter's reconstruction ***djAk**.)[192]

Many of Gong's examples in Gong 1994 do, however, provide evidence that some cases of velar palatalization involve medial ***-l-**. As for verification on the TB side, Gong 1995 lists three cognate sets involving Chinese words with palatalizing velars. These are:

Set	Old Chinese	Written Tibetan	Written Burmese
45	垂 *gljual > źjwĕ 'hang down, fall'	*'jol* 'hang down'	*lway* 'suspend from shoulder'
121	廆 *khljadx > tśhjĕ 'wide, extend'		*kyay* 'wide, broad'
196	繕 *gljans > źjän 'repair, put in order'	*glan* 'to patch, mend', *hlan* 'a patch'	

I believe the first two sets are in error. Gong supposes WT *'jol* derives from earlier ***'lyol**, making it a match for WB *lway* and providing evidence for the ***l-**cluster in Chinese. Benedict (1972) instead derives the WT form from PTB ***dźwal** (STC #242). I suspect, however, that the more probable PTB form is something like ***dywal**, giving the Tibetan development ***'dywal** > ***'dyol** > ***'dźol**. This matches nicely with Matisoff's (1985b) PLB reconstruction ***dway**$^{1/2/3}$ 'hang/cling/creeper'. Another possible cognate

[192]Given PTB ***brak** 'rock' (STC #134), it may be tempting to reconstruct 石 as ***bljak**. According to Gong 1994, ***-lj-** should cause palatalization of labials as well as velars. Given the lack of evidence for laterals or labials in the phonetic series, however, this reconstruction seems unlikely.

is TGTM ***^{A}tsjo**, ***^{A}tsjok**, ***^{A}tsjwa:** 'hang', which suggests an original affricate rather than a stop.

As for the WB form, it should be associated with PTB ***lway** 'easy' (STC #302). How then to reconstruct the Chinese word? Its phonetic series, GSR #31, is clearly dental: **ź-**, **ḍ-**, **tś-**, **ṭ-**, **t-**, **th-**. There is no evidence of either velar or lateral initials. In Baxter's system this word is reconstructed as ***djoj**. It is no doubt cognate to WT *'jol* and to PTB ***dywal**. It is not however a Class II word. Gong's reconstruction should therefore be revised to ***djual**.

A similar criticism may be leveled against Gong's set #121. The Chinese word 㑊 is in GSR #3, a mixed lateral-dental series which shows no evidence of velars. The velar initial in Gong's reconstruction is suggested only by his comparison with WB *kyay*. In Baxter's system the word is reconstructed ***thjaj?**. Reconstruction with a dental initial fits the internal Chinese evidence better, and the comparison with WB *kyay* should be abandoned.

Gong's third set, #196, is more convincing. While GSR #205 contains only the initial **ź-**, evidence for a velar initial may be found in the word 撙, MC **kjän** (which is not in GSR #205), as well as in the Han-era sound gloss of velar-initial 勁 for 繕 (see Baxter 1992:299, which cites Coblin 1983).[193] For this reason Baxter also reconstructs the word with a velar initial, as ***gjens**. Moreover, the semantic and phonetic match with the Tibetan is good, and further TB evidence can be found in the Cuona form *ɬan^{55}pa^{53}ja^{13}* 'patch'. The voiceless lateral in the Cuona form indicates it is directly cognate to WT *hlan* 'a patch'. The suspicion that these voiceless laterals arise from a prefixal ***s-** is confirmed by the Dulong form *suɯ^{31}lǎn^{55}* 'patch'. We can therefore reconstruct a PTB root ***g-lan ≥ *s-lan**. The Chinese root appears to be derived from the ***g-**prefixed form. (In my discussion of Class IA words I observed that a number of Chinese words with OC ***l-** are related to WT words with initial *g-l-*, and further suggested that such words may

[193]But note that 撙 also has the MC reading **tśjän**, given in the *Jíyùn*, and even the *Guǎngyùn* notes that this character often occurs in what looks like an alliterative compound with 撰, which has initial **ṭ- < *tr-**.

sometimes go back to PTB roots with prefixal ***g-** as well. In those cases the OC forms are to be reconstructed as ***l-** or as ***g-l-**. In the case of 繕, it seems that in Chinese the prefix has become fused to the root, creating a tight cluster ***gl-**.)

The issue of the Chinese vowel must be addressed here. The velar palatalization in this Chinese word is regular in Baxter's system since he reconstructs the front vowel ***e**. However, it appears that the reconstruction of ***e** instead of ***a** is here motivated only by the Han-era sound gloss noted above, and/or to prevent the velar palatalization from being irregular. None of the words in phonetic series with 繕 occur in *Shījīng* rhymes, and their MC readings could equally well be accounted for with the vowel ***a**. Given the TB cognates, ***a** does indeed look like a better reconstruction for OC. If Baxter's reconstruction were revised, it would become ***Gjans**, with the capital **G** indicating irregular palatalization. The addition of medial ***-l-** might then explain the palatalization. This will be taken up again below in my discussion of the second hypothesis.

Another Class II Chinese word for which PTB shows evidence of medial ***-l-** is 'kidney': Matisoff (1978:8) observes that Mpi *ŋ⁴kjo⁵* 'kidney' is a perfect cognate to Jingpho *n-khyun* 'kidney'. Since Mpi *kj-* reflects PLB ***kl-**, this provides strong evidence for reconstructing PTB ***n-klun**. Matisoff further notes in footnote 16 that Chinese 腎 may be cognate to this PTB root. 腎 is reconstructed ***gljinx** by Gong and ***gjin?** by Baxter. This does indeed look like a close match, especially since ***-i-**/***-u-** alternation is fairly common in TB (though it is usually found in the environment of labial consonants). Here again we have evidence of ***-l-** after a Chinese palatalizing velar, in this case before an unmistakably front vowel.

This brings us to the second hypothesis, which is clearly the most appealing, since it addresses observed patterns in Old Chinese and resolves a problem with Baxter's reconstruction. The hypothesis can be tested in two ways. First, by observing whether Baxter's irregularly palatalizing words alternate with lateral initials in phonetic series; second, by determining whether these words have TB cognates with **Kl-** clusters.

Baxter 1992 reconstructs 14 words with exceptional velar palatalization. These are listed below with the initials of their phonetic series.[194]

	OC	Gloss	GSR phonetic series	Related TB forms
赤	*KHjAk	'red'	#793: tśh-, ś-, (tsh-) #779 (赫): x-	WT *khrag* 'blood'
車	*KHjA	'chariot'	#74: k-, kh-, tśh-	
杵	*HNGjAʔ	'pestle'	#86: tśh- # 60 (午): ng-, x-	
川	*KHju/on	'river'	#462: tśh-, ṭh-, dź-, z-	
讎	*Gju	'counterpart'	#1091: ź-, tśh-	
臭	*KHjus	'smell'	#1088: tśh-, x-, kh-	
鍼	*Kjɨ/um	'needle'	#671: tś-, k-, ɣ-, x-	Cuona *khɔp*[53] 'needle' Motuo *kham* 'needle' PL ***k-rap ~ *rap** 'needle'
處	*KHjaʔ	'place, live'	#85: tśh- #57 (虎): x-	TGTM ***A/Bgla**ː 'place'
饎	*KHJɨʔ(s)	'sacrificial millet'	#955: tśh-, x-	
枕	*Kjumʔ	'block, pillow'	#656: ji-, ḍ-, tś-, ź-, t-, th-, d-	PTB ***kum** (STC #482) PLB ***m-kum²**, ***m-gum²** Dulong nj *u*[53]*kum*[53]
椹	*Kjum	'chopping-block'	#658: ź-, ṭ-, ṭh-, tś-, dź-, t-, th-, s-, k-, kh-	
甚	*Gjumʔ	'excessive'		
諶	*Gjum	'reliable, trust'		
煁	*Gjɨ/um	'small furnace'		

There is little evidence for medial ***-l-** in any of the phonetic series here. Only GSR #462 can make a claim to being (with the exception of **tśh-**, the initial of 川 itself) a lateral series.[195] Curiously, GSR #656 and #658 both involve dentals. (GSR #656 also includes **ji-**, so this might be a combined dental/lateral series.) This means some of the words

[194]Baxter 1992 set numbers 363.1, 364, 365.1, 1126, 1570, 1572, 1837, 9751.22, 9750.25, 1763, 1762, 1761, 9749.29, 9749.28, respectively.

[195]Evidence for reconstructing a velar initial in this series is found in the character 訓 (Baxter ***xjuns** > **xjunH**), which according to the *Shuōwén* has 川 as its phonetic. Karlgren however places it in a separate phonetic series (GSR #422), where he explicitly states "The phonetic in this character is not 川 ch'uan 'stream'".

involved are of Class V, which Bodman and Baxter reconstruct with ***K-l-** clusters; and this in turn may point to the presence of lateral clusters conditioning palatalization.

The TB comparative evidence is inconclusive. There is a well-established root, PTB ***kum**, for block/pillow. There is no sign of a medial liquid in any TB reflexes. (Lushai, which reflects PTB ***kl-** distinctly as *tl-*, has the cognate *khum* 'bed, sleeping platform'.) In the other sets, though, there is sporadic evidence for a medial liquid in TB. Although Benedict reconstructs PTB 'needle' as ***kap** (STC #52), the Proto-Loloish form ***g-rap** ≍ ***k-rap** suggests the possibility of a medial liquid in this root. (Note that TB shows alternation between final ***-p** and ***-m** in this root, making the Chinese a good match. See Benedict 1972:25 note 82.) Similarly, WT *khrag* 'blood', which has been proposed as a cognate to OC 赤 'red', has an *-r-* medial. Chinese 處 has a possible cognate in TGTM ***$^{A/B}$gla**: 'place'. Moreover, it is possible that the phonetic in this character, 虎 'tiger', is related to PTB ***k-la** (ultimately a Mon-Khmer borrowing), and may provide incidental evidence for medial ***-l-**.[196]

For the moment, the TB evidence for medial ***-l-** as a conditioning factor for velar palatalization, whether before front vowels or back vowels, is sketchy. But neither does the evidence militate against the possibility, which should not be rejected, especially if it can be shown to fit in well with the reconstruction of medial ***-l-** in other classes of words.

Gong 1994 also proposes a second class of words, which I label Class II.P, consisting of palatal-initial words in labial series. To my knowledge Gong is the first to suggest palatalization of labials parallel to palatalization of velars. The evidence for such words is much less abundant than for palatalizing velars. In fact, so few such words are proposed by Gong that it is difficult to make any generalizations about them. Gong 1994 gives the following examples, which he reconstructs with ***l-**clusters:

[196]CVST 5:656 reconstructs for 'tiger' PST ***[χ]lāH** > OC ***x(l)ā?**.

GSR #1120a: 勺 *pljak^{w} > tśjak ‘to ladle’ GSR #1244k: 豹 *prag^{w}s > pau ‘leopard’
勺 *bljak^{w} > źjak ‘a ladle’
GSR #1087a: 帚 *pljəg^{w}x > tśjəu ‘broom’ GSR #1001a: 婦 *bjəgx > bjəu ‘woman’

Notice that the MC palatal-initial words and the MC labial-initial words have been placed in separate phonetic series by Karlgren. The second example is somewhat problematic, since the two characters are not in the same rhyme group, and apparently share the same phonetic with 歸, a velar-initial word in yet a third rhyme group. Furthermore, GSR #1087f 埽, 掃 ‘sweep’ (MC **sâu**) must be reconstructed with an ***s-** initial or cluster, complicating the evaluation of this phonetic series.

The first example, however, is quite interesting. GSR #1120, in addition to palatal initials, also includes MC **ji-**, **t-**, and **ˀ-** (glottal stop). It is extremely difficult to coherently reconstruct this series of initials for Old Chinese. Baxter simply chooses the ‘default’ reconstruction for words in this series, so that verbal 勺 (also written 灼 when meaning ‘to ladle’) is reconstructed ***tjewk**, and the noun 勺 (‘a ladle’) is derived from it as ***ɦtjewk** (Baxter 1992:535).

Of particular interest in regard to these words are the following TB forms:

Proto-Loloish ***ʔ-lyuk^{2}** ‘ladle’
Cuona *lok^{l3}* ‘pour liquid into’
Motuo *luk* ‘pour liquid into’

If cognate to the Chinese, they provide tantalizing evidence for an OC ***l-**cluster. It is difficult, however, to reconcile the fact that Gong’s proposed ***Plj-** cluster here corresponds to PTB ***l-**, while his proposed ***Klj-** clusters correspond to PTB velar initials. A number of explanations could be advanced for this, but since we are limited to only a single cognate set, it seems pointless to speculate.[197]

[197]TGTM ***^{A}tew** ‘pour’, though lacking a final ***-k**, could be taken as an alternative TB cognate for 勺 as reconstructed by Baxter with a dental initial. Also of interest and possibly related are WT *skyogs* 'ladle' and WB *yok* 'pudding-stick'.

4.1.6 Class III words: Middle Chinese grave initials in lateral series

I have labeled as Class III a subset of those words which Gong (1994) reconstructs with ***Kl-** or ***Pl-** (but not ***Klj-** or ***Plj-**). In the case of velars (Class III.K), these are third-division words with MC velar initials which are in phonetic series with lateral-type initials.[198] Gong here reconstructs ***Kl-** > **Kj-**. Baxter 1992 does not recognize this special subset, and simply reconstructs ***Kj-** > **Kj-**.

This class of words is only a subset of those which Gong reconstructs ***Kl-**, since I exclude all examples which are based solely on alternation with ***Klj-**type clusters, i.e. with MC palatals. As demonstrated above, it is likely that many of these ***Klj-** clusters should be revised along the lines of Baxter's reconstruction, in which velar palatalization is conditioned by the frontness of the vowel rather than by medial ***-l-**. I include in Class III only those words for which there is direct evidence of laterals in phonetic series, in order not to prejudice the testing of the hypothesis.

Only a single example of a Class III word occurs in Gong 1995.

Set	Old Chinese	Written Tibetan	Written Burmese
110	谷 *kluk > kuk 'valley'	*klung* 'river'; *lung-pa* 'valley'	*khyaung* 'a valley, vale', *khyâung* 'stream'; *khyauk* 'chasm, gulf, abyss'

This is part of a large 'river/valley' word family which has widespread areal relationships. Norman and Mei (1976:280) have argued that the Chinese 江 ***krung** 'Yangtse River' and WT *klung* 'river', as well as Thai *khlɔːŋ* 'canal' are borrowings from Austro-asiatic. They cite the following Mon-Khmer words for 'river': Vietnamese *sông*; Bahnar, Sedang *krong*; Katu *karung*; Bru *klong*; Gar, Koho *rong*; Laʔven *dakhom*; Biat *n'hong*; Hre *khroang*; Old Mon *krung*.

[198]Or first-division words, in the case of OC vowel ***u**. See Gong 1990 [1994]:92.

Indeed, the peculiar *kl-* cluster in Tibetan (see Section 3.01) may be explained here as the result of a late borrowing; *lung-pa* may reflect an earlier borrowing or inherited cluster.

It is interesting to note that in the single example Gong provides for which there is TB evidence supporting the OC reconstruction of ***kl-**, the development is somewhat irregular. Gong's ***Kl-** clusters normally become MC **Kj-**, but the example above led Gong to formulate an exception for words with vowel ***u**, in which the ***-l-** medial simply drops out.

I list below a number of examples of ***Kl-** clusters from Gong 1994, along with the initials from their phonetic series. Recall that the reconstruction of medial ***-l-** here rather than ***-j-** is based on the presumption of alternation with lateral-type initials.

	OC	Gloss	GSR phonetic series	Related TB forms
舉	*klagx	'lift, raise'	#75: k- #89 (與): ji-, z-	
姜	*klang	'clan name'	#711, 712: k-, kh-	PTB ***yaŋ**
羌	*khlang	'Western tribe'	#732 (羊): ji-, z-	'sheep'
姬	*kləg	'clan name'	#960: ji-, k-, x-, tśh-	
宄	*kləg^{w}s	'distress'	#993: ji-, k-, g-	
今	*kləm	'now, present'	#651: k-, kh-, g-, ŋ-, ɣ-, ·-, ṭh- #645 (貪): th-	
劫	*klap	'rob, plunder'	#642: p-, k-, kh-, ɣ-, j- cf. 魼 th- (not in GSR)	

I will discuss the last two examples first, since they are somewhat problematic. GSR #642 contains over 20 characters, all of which have velar or labial initials. Most scholars would now agree that this series should be split in two, with some characters in the OC Yú 魚 group (Li's ***-ag**) and some in the OC Hé 盍 group (Li's ***-ap**). Gong cites the character 魼 with initial **th-** as evidence for an ***l-**cluster in 劫. According to the *Guǎngyùn* the primary reading of 魼 is MC **khjwo**, which Gong would reconstruct ***khjag**. This reading, in the ***-ag** group, is supported by the *Shuōwén*, which lists 去 as the phonetic of 魼. The *Guǎngyùn* also lists a secondary reading **thâp**, which Gong takes back to ***hlap**, in the ***-ap** group. Since the *Shuōwén* provides no support for this

reading, it may well be a later development. Even if it is not, the fact that it is one of the only dentals in a primarily velar series suggests that it should be treated, as it is by Bodman (1980:111), as a Class V word.

The character 貪, given by Gong with the reconstruction ***hləm** in support of reconstructing ***kl-** for 今, is also treated by Bodman (1980:#201A) as a Class V word. Given the wide variety of velar initials found in GSR #651 (as in #642), and the lack of initials **ji-**, **z-** or **d-** (which might signal ***lj-** or ***l-**), I agree with Bodman's interpretation over Gong's.

When we examine Gong's remaining five examples, an interesting pattern emerges. While all these phonetic series contain initial **ji-**, they are by no means definitive lateral series. In particular, they lack diagnostic initials such as **d-**, **th-**, and **ś-**. In fact, limited as they are to **ji-** and **z-**, these are better analyzed as palatal glide series of the type which go back to OC ***j-**, as I pointed out in Section 4.1.2 in the discussion of 羊.

It seems to me quite likely, then, that many of the Class III words identified by Gong should not be reconstructed with ***Kl-** clusters, but rather as ***j-**initial words prefixed by ***k-** or ***g-**. For example, Gong reconstructs 與 as ***lagx** and Baxter as ***lja?**. I would revise this reconstruction to (following Baxter's reconstruction of the final) ***ja?**, with 舉 (G ***klagx**, B ***k(r/l)ja?**) then reconstructed as ***k-ja?** > ***kəja?** > ***kja?**. The schwa vocalism is easily elided precisely because of the continuant nature of the following palatal glide.

I also leave open the possibility that some Class III words are to be reconstructed with loose ***K-l-** clusters (i.e. clusters of initial ***l-** with a prefixed velar, realized with an epenthetic schwa). With the palatalization of initial ***l-** to ***j-**, these clusters would then follow the same path outlined above for ***K-j-** clusters. This might be an alternate or dialectal development in contrast with ***K-l-** > **ji-** proposed earlier.

4.1.7 Class IV words: Middle Chinese initial dź-

Class IV words have MC initials **dź-** (probably a fricative rather than an affricate, written as **zy-** by Baxter) and usually occur in lateral series. Gong 1994 reconstructs these words as ***glj-**, which gives rise in his system to both **dź-** and **ź-** (the latter being Baxter's **dzy-**), without any apparent conditioning factors. (When **dź-** does not occur in velar or lateral series, Gong reconstructs ***dj-**. However, since it appears that **dź-** is a fricative and **ź-** an affricate, ***dj-** > **ź-** is a better proposal. See Baxter 1992:52-53.) Baxter (1992:198) reconstructs these words ***Lj-**, with the capital letter here indicating an uncertain phonetic value.[199] Baxter tentatively suggests that his ***Lj-** may be interpreted as ***ɦlj-**, but remains open to other possibilities. In later revisions, Baxter (1995) has replaced ***Lj-** with ***mlj-**, following proposals made originally by Schuessler (1987).

Handel 1997 summarizes the evidence for these ***l-**cluster reconstructions, which is repeated here:

Schuessler notes in the introduction to his *Dictionary of Early Zhou Chinese* (1987:xii-xiii) that he believes that MC **dźj-** has its origin in OC ***mlj-** and ***mdj-**. The argument is sketched out in telegraphic brevity, with no examples provided. However, a number of the dictionary entries are reconstructed with ***mlj-** in accordance with this hypothesis, for example *shé* 蛇, given as ***mljaj** (1987:529).

These arguments were later expanded and clarified in a draft paper (1995). Here Schuessler notes that in Norman's Proto-Min reconstruction, the MC initial **dź-** always corresponds to Proto-Min softened stop initials.[200] Furthermore, Norman has shown (1986) that these softened stops often correspond to Proto-Miao-Yao [PMY] nasalized initials. The one Chinese word with a Proto-Min softened stop initial which occurs in both

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[199]In his Appendix C (The rhyme words of the *Shījīng*), Baxter (1992:786) reconstructs two Class IV words, 黮 and 葚, with initial ***sGj-**. This reconstruction is not discussed in the text, and the two examples are followed by a question mark indicating the author's uncertainty.
[200]Baxter also notes this connection (1992:219-220).

sets (i.e. which corresponds to MC **dź-** and to a PMY nasal) is *shé* 舌 'tongue', to which Schuessler compares PMY ***mlat** or ***mlet**.

This suggests the possibility that all Chinese words with MC initial **dź-** may go back to OC ***ml-**. Schuessler offers the following evidence supporting such a reconstruction for nine other words with initial **dź-**:

Chinese word with MC initial **dź-**	Comparandum
shú 秫 'glutinous millet'	PMY ***nblut** 'glutinous, sticky'
shé 蛇 'snake'	PLB ***laj** 'python'[201]
shè 射 'to shoot'	TB ***mla** 'arrow', or WT *rgjag-pa* < ***rjak** 'to throw'
chuán 船 'boat'	PTB ***(m-)loŋ**
shí 食 'to eat'	PTB ***m-ljak** 'to lick'
shì 舐 'to lick'	PTB ***m-laj** 'tongue'
chún 唇 'lips'	WT *mčʰu* 'lips'
shéng 繩 'string, cord'	phonetic is *mǐn* 黽 'toad', OC readings ***mrəŋ** and ***mrin**

Schuessler notes that the comparative evidence for ***ml-** in 'snake', 'to shoot', and 'lips' is less compelling, though it certainly does not refute the general hypothesis.

Baxter (1995) noted that a number of the 45 words he had reconstructed (1992) with OC ***Lj-** have relationships with TB cognates or loanwords from other language families with initial ***ml-**. He was unaware at the time of Schuessler's work on the topic. Among the examples he gave were:

Chinese word with MC initial **dź-**	Comparandum
chuán 船 'boat'	PTB ***m-loŋ**
shí 食 'eat'	PTB ***m-lyak** 'lick/eat'
shí 實 'fruit, full, solid, enriched'	Thai *mlet* [202]
shú 秫 'glutinous millet'	PAN ***mulut** 'sticky' PMY ***mbləɨt** 'glutinous rice'

Furthermore, he noted that in addition to contacts in phonetic series with OC ***l-**initial words (which had originally led him to reconstruct ***L-** as described above), two **dź-** words are in phonetic series with OC ***m-** words. They are:

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[201]This form is from Bradley (1979:300, #64). It appears to be in error, however, making Schuessler's comparison untenable.

[202]Baxter also suggests a possible relationship with *mì* 密 meaning 'dense, full' which he reconstructs ***mrjit**.

shéng 繩 'string, cord' has phonetic *měng* 黽, OC ***mrɨŋ?**; it is also used as a loan to write *yìng* < ***ljɨngs** 'full (sc. ear of grain)'.
shú 贖 'redeem' has phonetic *mài* 賣.

Taken together, this external and internal evidence led Baxter to conclude that, at least for the words listed above, the cluster initial ***mlj-** (or, more precisely, ***ml-** in Type B syllables) is the best OC reconstruction for MC **dź-**.[203]

The fact that both Baxter and Schuessler arrived independently at the same conclusions, based in large part on the same pool of evidence but in some cases on distinct data, is persuasive. I therefore accept the hypothesis that at least some MC **dź-**initial words should be reconstructed with OC ***mlj-**. In fact, in Handel 1997 I argued that Chinese 蛇 'snake', reconstructed ***mljAj** in Baxter's revised system, is a likely cognate to PTB ***b-rul** 'snake'.

But there are a number of questions that still need to be addressed with regard to Class IV words.

For example, what is their relationship to Class II words? In Section 4.1.6 I agreed with Gong's proposal that ***Klj-** (and perhaps ***Plj-**) clusters probably gave rise to MC palatal affricates **tś-**, **tśh-**, **ź-**. To this set we are now adding the development of an ***mlj-** cluster into an MC palatal fricative **dź-**. Yet in the examples given by Schuessler and Baxter there are cases of MC **dź-** corresponding to extra-Sinitic ***bl-** clusters as well. Is it possible that sometimes ***blj-** > **dź-** as well, or that sometimes ***mlj-** > **ź-**? What is the possible role of Chinese prenasalization?

In Gong's reconstruction, many Class IV words are reconstructed with velar clusters ***glj-**. If it turns out that some MC **dź-**initial words do indeed come from velar clusters,

[203]In Baxter and Sagart (1998, note 11), Baxter has revised his voicing prefix ***ɦ-** to a nasal prefix ***N-**. In this light, his original reconstruction of ***ɦhlj-** for MC **dź-** (his **zy-**) is not so peculiar. Initial ***mlj-** could be viewed as the realization of ***N-lj-**.

how can we differentiate these from cases of ***glj-** > **ź-**? Is it possible that such cases actually involve nasal clusters ***ŋlj-** > **dź-**, in parallel with ***mlj-** > **dź-**?[204]

Finally, I will argue in the next section that when no medial ***-j-** was present, clusters ***Kl-** and ***Pl-** developed into MC dentals along the lines of Bodman's hypothesis. How would initial ***ml-**, when not followed by ***-j-**, fit into this schema? (Note that following Baxter's revision, there is no ***ml-** initial as counterpart to ***mlj-**.) All things being parallel, we might expect a development to MC **n-**.

To begin addressing these questions, I will first review the Class IV words which Gong has reconstructed with ***glj-**. Only one such word appears in Gong 1995.

Set	Old Chinese	Written Tibetan	Written Burmese
315	麝 *gljiags > dźjä 'musk-deer'	WT *gla* 'musk-deer'	

Gong 1994:137 presents the following additional examples of ***glj-** > **dź-**:

抒 *gljagx > dźjwo (抒 *ljagx > źjwo)
麝 *gljak > dźjäk (射 *liags > jia, *lak > jiäk)
食 *gljək > dźjək (食 *ləg > jiï)
貰 *gljiags > dźja (cf. WT *gla* 'pay, wages, fee')

It is not clear why the last form, based on a proposed WT cognate, is omitted from Gong 1995. I feel that the Chinese gloss 'lend, borrow; to buy on credit' is not sufficiently close to the Tibetan to inspire confidence.

Of the other three forms, none in fact is reconstructed on the basis of the presence of velar initials in phonetic series or in alternate readings. Rather, evidence for the reconstruction involves only initial ***l-**, as well as the structural parallel to Gong's ***klj-** > **tś-** and ***khlj-** > **tśh-**. In fact, the true parallel to those reconstructions is ***glj-** > **ź-**. An additional problem is Gong's 抒 ***ljagx** > **źjwo**, because Gong has rightly since rejected ***lj-** as a source of **źj-** and proposed ***lj- > zj-** instead (see Section 4.1.1).

[204] *ŋ-* clusters seem to be quite rare in TB, even in those languages with full inventories of liquid clusters. For example, Dulong (Dulonghe) has initials *pl-*, *bl-*, *ml-*, *kl-*, and *gl-* but not *ŋl-*. Darang Deng has initials *pl-*, *phl-*, *bl-*, *ml-*, *kl-*, *khl-*, *gl-*, but not *ŋl-*.

These four examples from Gong 1994 present no evidence at all then for a velar cluster origin of **ź-**. They do seem to present evidence of medial ***-l-**, which could be accommodated by an ***ml-** reconstruction. (This is not surprising at all when we recall that initial **dź-** is one of the initials in the standard lateral series.)

This leaves us with Gong's set 315, 麝 ***gljiags > dźjä** 'musk-deer'. I know of no cognates in TB outside of WT testifying to a *gl-* cluster in a word for 'deer'. There is, however, an intriguing form Miao which is most likely related. Wáng and Máo (1995:304, 413) reconstruct Proto-Miao-Yao ***ŋgeu** 'musk-deer' (based only on Miao forms—see Wáng 1994:36 set #109 for the relevant correspondence set of initials). Additional evidence from Biao Min (Solnit 1996) permits the reconstruction of an ***-l-** medial, yielding something like ***ŋgleu**. How this Proto-Miao root is related to the Chinese is not clear, but it certainly provides strong support for a reconstruction ***ŋlj-** > **dź-**, parallel with ***mlj-** > **dź-**. We might then reconstruct 麝 as ***ŋljiags** in Gong's system or ***ŋljAks** in Baxter's.

In Section 4.1.1 I suggested that PST prefixed consonants like ***g-** were lost in Chinese before initial ***l-**, i.e. that ***C-l-** > **ji-**. In the case of prefixal ***m-**, however, there is convincing internal evidence that ***m-l-** clusters developed in a variety of ways in Chinese, leading to the presence of etymological doublets and triplets. The regular development, which parallels the development of ***l-** when preceded by a prefix, was ***m-l-** > ***l-** > **ji-**. In some cases, however, ***m-l-** initials appear to have fused into true clusters, yielding the developments ***m-lj-** > ***mlj-** > **dź-** and ***m-l-** > ***ml-** > ***mr-** > **m-**. The change of ***ml-** to ***mr-** probably took place at the same time that ***Kl-** and ***Pl-** clusters began changing into dentals.[205] These developments are illustrated by the following examples.

Consider the following Chinese words for 'fly' (the insect):

[205]Perhaps future research will yield examples of the more strictly parallel development ***ml-** > **n-**.

	MC	Baxter	Gong
yíng 蠅 'fly'	jiəng	*jɨng	*ləng
méng 䖟 䖤 'gadfly, horsefly'	mɛng	*mrang	*mrang

Coblin (1986:82) has compared *yíng* 蠅 to WB *yang* 'fly' and Kanauri *yăng* 'bee, fly'; these forms are also listed in Benedict (1972:167), where they are reconstructed as STC #492 ***yaŋ**.

Gong (1995 #224) compares *méng* 䖟 (now written 虻) to WT *sbrang* 'fly, and similar insects without a sting', supposing that the WT form goes back to ***smrang**.

In fact, in footnote 469, Benedict (1972:176) brings together all three of these TB forms under a revised reconstruction ***(s-)brəŋ** 'fly, bee', also supported by Lepcha *sum-bryoŋ* 'fly'.[206]

The two Chinese forms for 'fly' listed here are no doubt doublets (with unexplained vocalic alternation).[207] They can be reconstructed this way (here working with Gong's system of rhymes):

yíng 蠅 'fly'	*m-ləng > *ləng > jiəng
méng 䖟 䖤 'gadfly, horsefly'	*m-lang > *mrang > mɛng

These might represent distinct dialectal reflexes of ***m-l-**. One might argue that 蠅 could simply be reconstructed with initial ***l-** and identified with a PST variant lacking ***m-**, but the phonetic of this character is 黽 ***mrəng** > **mɛng** with a clear ***m-** initial. A second reason we reconstruct ***-l-** in these forms, rather than ***-r-** as suggested by the PTB cognate, is the word for 'rope' which appears in the same phonetic series as 蠅 and is a Class IV word which we reconstruct with initial ***mlj-**:

shéng 繩 'string, cord'	*m-ljəng > *mljəng > dźjəng

[206]Benedict reconstructs PTB ***ə** in a few roots, but the evidence for an ***a**/***ə** distinction is not strong and we might also reconstruct this roots as ***(s-)braŋ**, which is how it appears in the appendix to Benedict 1972. See also LaPolla 1987:22 #172.

[207]Norman and Mei (1976:284) observe that the *Fāngyán* 方言 indicates a dialectal form of 蠅 pronounced as 羊 (蛘). This connects the word back to an ***a** vocalism. However, earlier in this section I reconstructed 羊 with initial ***j-**, while here I propose reconstructing 蠅 with ***m-l-**. I have no explanation for this discrepancy.

As it happens, this Chinese word has a PTB cognate which is strikingly parallel to the form for ‘fly’. It may be reconstructed as ***braŋ ≋ *mraŋ** on the basis of the following forms:[208]

WB	*ə-hmyâng* ‘string, thread, fiber, nerve’
Pumi (Jinghua)	bʐ̩ɔ̃^{13} ‘rope’
Qiang (Mawo)	biɹ̥a ‘rope’
Dulong dl	ɑŋ^{31}bɹɯŋ^{55} ‘rope’
Geman	bɹɑŋ^{53} ‘rope’
Idu	ɑ^{55}tɕe^{55}mbɹɑŋ^{35} ‘rope’

One cannot avoid comparing the Chinese words for ‘fly’ with Thai *məlɛɛŋ* ‘insect’, sometimes pronounced *mɛɛŋ*, which appears in the compound *məlɛɛŋ wan* ‘fly’. One would not normally expect the ordinary word for ‘fly’ to be borrowed between two language families, but the similarity of this Thai word to the Chinese is so striking that it cannot be ignored.

In the case of both the ‘fly’ and ‘rope’ word families, there appears to be variation between a nasal ***m-** and stop ***b-** initial, as well as between medials ***-l-** and ***-r-**. Because of this variation, other reconstructions are possible for Chinese. For example, the three Chinese forms could be reconstructed in Baxter’s system as:

yíng 蠅 ‘fly’	*rɨng > ying
méng 蝱 蝱 ‘gadfly, horsefly’	*mrang > mæng
shéng 繩 ‘string, cord’	*mljɨng > zying

In which case initial ***r-** and medial ***-l-** are deemed close enough to be in the same phonetic series. However, there is reason to doubt that Baxter’s general proposal ***r-** > **ji-** is correct, and we cannot reconstruct ***m-r-** as the initial for 蠅 since this would yield MC **l-** (see Section 4.2.7). Moreover, Bodman has presented convincing correspondences which support a reconstruction of ***ml-** in a number of second-division words like *méng* 蝱 蝱. (See Bodman 1980:170, #441-443, which compare Chinese ***ml-** > **m-** with WT

[208]All the forms except for the Burmese are from Sūn et al. 1991 #422.

md-.[209]) For these reasons, it seems more satisfactory in terms of internal coherence to reconstructs all three forms with ***l**.[210]

Another example which relates PTB ***br-** to OC ***ml-** is the comparison I made (Handel 1997) between PTB ***s-brul** 'snake' and Chinese 蛇 'snake', which I reconstructed according to Baxter's system as ***mljAj**. The irregularity of the vowel correspondence (Chinese ***ɨ** rather than ***a** would be expected) was not, however, addressed satisfactorily.

In reviewing the examples listed by Schuessler and Baxter involving words with MC initial **dź-**, or the comparisons I have made in the previous paragraphs, the reader may observe that a reconstruction for **dź-** of ***blj-** seems as plausible as ***mlj-** based on the comparative evidence. In Section 4.1.5 I suggested that, following Gong, we might argue for ***blj-** > **ź-** based on parallelism with the ***Klj-** > **Tś-** hypothesis, while acknowledging (as did Gong) that direct evidence for such a proposal is extremely scarce. There is no reason, then, not to entertain the alternative proposal that ***blj-** developed just like ***mlj-**, becoming MC **dź-**, or that ***m-blj-** developed into **dź-**. The only objection I can see to such a proposal is that I am not aware of any alternation between **b-** and **dź-** in phonetic series, while we do have a number of examples of alternation between **m-** and **dź-**.

For the moment, then, I will leave this as an unsolved problem. It appears that TB clusters of the type ***bl-** and ***ml-** are particularly unstable, with variation found in both the initial and the medial, and until the tangles of their allofamic interrelationships are

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[209]These comparisons fit into Bodman's larger hypothesis that clusters ***Cl-** (as opposed to the clusters which he writes ***C-l-**) merged with ***Cr-** and developed into MC second-division words. I do not however accept this larger hypothesis.

[210]The reconstructions proposed here for 'fly' and 'rope' may shed new light on the problem of 'full' (Chinese 盈), discussed in Section 4.1.1. The PTB form ***pliŋ ≍ *bliŋ** 'full, fill' shows similarities to the PTB forms for 'fly' and 'rope'. While I know of no TB evidence for a nasalized initial, the possibility of reconstructing 盈 'full' as ***m-ling > *ling > jiäng** can certainly be entertained. (Bradley 1978 reconstructs PLB ***m-bliŋ**^{3}, suggesting the possibility of a nasal initial or prefix for PTB. But this ***m-** is reconstructed only to account for the voiced initial of Lahu *bî* 'full', which was mistakenly identified as cognate by Bradley. The correct Lahu cognate is *pɛ* 'plentiful'. See Matisoff 1988:844,934.)

worked out, it may not be possible to speak with further confidence about similar Old Chinese clusters.

4.1.8 Class V words: Bodman's *K-l- clusters

Pulleyblank (1962:115-119) first described phonetic series involving MC dental and velar initials, and proposed the reconstruction of lateral clusters to explain them. Bodman (1980:108ff) reconstructed these clusters as ***k-l-**, ***g-l-**, etc., in order to distinguish them from his Pre-Chinese ***kl-**, ***gl-** clusters which develop quite differently. Baxter (1992:232-234) provisionally accepts Bodman's proposal, retaining his hyphenated notation (see Section 2.3.7). I refer to words of this type—words with dental initials in velar series, reconstructed with ***K-l-** clusters by Baxter—as Class V words. A parallel class of words which have dental initials but occur in labial rather than velar series are reconstructed with ***P-l-** clusters by Bodman and Baxter. When necessary to distinguish these two subtypes, I will refer to them as Class V.K and Class V.P respectively.

As far as I know, Gong does not accept the cluster proposal for Class V words, reconstructing them instead with ordinary dental initials.

The following examples of Baxter's ***C-l-** clusters were given in Section 2.3.7; many of them appear in Bodman (1980:108-113, 1985:161-165). I have included comparanda provided by Baxter and/or Bodman, and have added phonetic series initials from GSR.

Set		
474	桃 *g-law > daw 'peach' #1145: ji-, th-, d-, ḍ-	PY ***klaau 2**, PMY ***glaau³ A** 'peach'[211]
475	擔 *k-lam > tam 'carry on the shoulder' #619: ji-, t-, d-, tś-, tśh-, ź-	Khmuʔ *klam*, Proto-Wa ***klɐm** 'carry on the shoulder'
476	腸 *g-ljang > drjang intestines'	

[211]These forms from Purnell 1970:#657 appear incorrectly in both Bodman 1980 and Baxter 1992 as ***klaau 3** and ***glaau 3 A** respectively. The superscript **3** in the PMY form indicates not a tone but one of three different correspondence patterns for the reconstructed final ***-aau**. The PMY form for 'peach' is given as ***Glɒːu** in Wáng and Máo 1995 (#651, #(171)).

9749.13 場 *g-ljang > drjang ‘arena’ PY ***klaaŋ 2** ‘intestines’[212]
#720: ji-, th-, d-, ṭh-, ḍ-, ś-

477 中 *k-ljung > trjuwng ‘middle’

9750.27 沖 *g-ljung > drjuwng ‘surge; rise up against’

9750.29 忡 *kh-ljung > trhjuwng ‘grieved, agitated’
#1007: ṭ-, ṭh-, ḍ- WT *gzhung* < ***g-lyun**g ‘middle, spinal marrow, kernel, pith’

479 匋 *b-lu > daw ‘kiln, pottery’

9753.22 陶 *b-lus > dawH ‘kiln, pottery’
#1047: th-, d-

689 對 *k-lups > twojH ‘respond, answer’

1176 懟 *g-ljups > drwijH ‘cause resentment’
#511: t-, ḍ-

690 答 *k-lup > top ‘respond’
#675/676: t-, k-, x-, ɣ-

9753.5 湛 *k-lɨm > tom ‘sink, steep’
#658: t-, th-, ṭ-, ṭh-, tś-, ź-, dź-, s-, k-, kh-

9753.10 菡 *(g)-lomʔ > domX ‘lotus flower’
#672: ji-, d-, ṭh-, kh-, ɣ-

9791.19 唐 *g-lang > dang ‘exaggerate, great’

9791.20 螗 *g-lang > dang ‘cicada’
#700: d-
#746 (庚): k-, kh-

Examples in Bodman 1980 and 1985 not found in Baxter include the following words, for which evidence for velar initials can be found in comparanda from other languages, as well as in phonetic series (set numbers are from Bodman 1985):

<u>Set</u>
90 貪 *kh-ləm ‘to covet’
#645/651: th-, ṭh-, k-, kh-, g-, ɣ-, ŋ-, ·- WT *ham-pa* ‘avarice, covetousness’

91 窞 *g-ləm ‘recess or small pit in bottom of cave or cellar’

92 啗 *g-lam: ‘eat, swallow’
#672: ji-, d-, ṭh-, kh-, ɣ- WT ˈ*gam* ‘put in mouth’

92 啖 *g-lam: ‘devour’
#617: th-, d-, tśh-, ś-, z-, j- WT ˈ*gam* ‘put in mouth’

92 嚪 *g-ləm: ‘keep in mouth’
#646: ji-, th-, d- WT ˈ*gam* ‘put in mouth’

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[212]There are no Miao cognates for this root, so Purnell 1970:#461 does not attempt a PMY reconstruction. However, tone ***2** in the PY form indicates an original voiced initial. If this form could be taken back to PMY, the initial would be ***gl-**. Wáng and Máo 1995 (#675, #(120)) reconstruct PMY ***Glj**ʌ**:ŋ**.

94 塘 *g-lang ‘dam, dyke’
#700/746: d-, k-, kh- PY ***glaang 2** ‘pond, lake’[213]

97 碓 *k-luy ‘pestle’
#575: ji-, t-, th-, d-, ḍ-, tś-, ź-, s-, tsh-, dz- PY ***klui 2** ‘pestle’

98 苔 *g-ləy ‘moss’
#976: ji-, th-, d-, ṭh-, ḍ-, s-, z-, dẓ-, ś- PTai ***gləi A2** ‘moss’

99 赬, 經 *kh-lyeng or *kh-lèng ‘red’
#831 (巫): ṭh-, k-, kh-, ɣ-, ŋ- Jingpho *khyeng* ‘be red’

Bodman (1980:111, Table 18) also offers the following words, for which he provides no comparanda but suggests a cluster reconstruction based on phonetic series alone:

答	*k-l-	‘respond, answer’	cf. 合 #675: k-, ɣ-, x-
靦	*kh-l-	‘face’	cf. 見 #241: k-, kh-, ɣ-
腿	*k-l-	‘swollen’	cf. 鬼 #569: k-, kh-, g-, ɣ-, ŋ-
厰	*kh-l-	‘precipitous’	cf. 敢 #607: k-, kh-, x-, ŋ-
澉	*kh-l-	‘bland (flavor)’	cf. 敢 #607: k-, kh-, x-, ŋ-
涒	*kh-l-	‘vomit’	cf. 君 #459: k-, kh-, g-, x-
魼	*kh-l-	‘kind of fish’	cf. 去 #642: p-, k-, kh-, ɣ-, j-
居	*k-l-	‘precious stone’	cf. 古 #49: k-, kh-, g-, ɣ-
饕	*kh-l-	‘glutton’	cf. 考 #1041: kh-, x-, ɣ-, j-
磲	*g-l-	‘rocky’	cf. 果 #351: l-, k-, kh-, ɣ-, ·-

It is rather striking to note that among all these examples there are two distinct types of phonetic series. The first kind, exemplified in the last set of examples from Bodman’s Table 18, involve overwhelmingly velar series which have a few words with dental-series initials in them. In addition to the ten examples listed immediately above, GSR #645/651 (貪), GSR #672 (莒, 窋, 啗), #831 (經), and perhaps #700/746 (唐, 螗, 庚) also fit into this category. The second kind involves series that have mostly dental and/or lateral initials, with few if any velars. I will call the first type Class V-A, and the second type Class V-B. Class V-A words have a more fundamental claim to being velar clusters, since there is direct internal evidence for a relationship with velar words; there is, however, little direct evidence for ***l**. Class V-B words show little direct evidence for velars.

It is also interesting to note that it is mostly characters of Class V-B, for which direct internal evidence of a velar cluster is lacking, which are provided with extra-Sinitic

[213]According to Purnell 1970:173, PMY ***gl-** yields PY ***kl-**. Thus the PY ***gl-** initial in this form appears to be an innovation; it cannot be taken back to any PMY initial.

comparanda by Bodman supporting the reconstruction of ***K-l-** clusters. Characters of Class V-A, for which phonetic series evidence provides strong support for a cluster reconstruction, seem to have fewer comparanda.

Another point worth noting is that most of the comparanda which Bodman supplies are non-TB. The strongest and most direct evidence comes from Miao-Yao and Austroasiatic borrowings. Yet those words with proposed Miao-Yao or Austroasiatic connections tend not to have velar elements in their phonetic series.

I believe that all these phenomena, and a number of others, can be accounted for by a single hypothesis. I propose that for Class V-A words, Bodman's ***K-l-** type clusters be reconstructed as true, clustered initials ***kl-**, ***khl-**, ***gl-**, and that these be reconstructed for MC plain dentals **t-**, **th-**, and **d-** when they occur in evident velar series. I further propose that these clusters are descended directly from PST clusters of the same type.

There are a number of reasons for arguing that these clusters were true initial clusters, and not velar-prefixed ***l-**initials realized with schwa vocalism.

First, the phonetic series of Class V-A words involve dentals and velars, but do not involve lateral-series initials. If Bodman's ***K-l-** clusters were really loosely prefixed ***Kəl**-type initials, we would expect more contact with OC ***l-**. But true ***Kl-** clusters would be expected to alternate more often with simple velars, just as ***Kr-** clusters do.

Second, Bodman (1980:113) notes the following *Shuōwén* sound glosses, found in Coblin 1978:

犒 *thəg^{w} > thâu	is read like	糗 *khjəg^{w}x > khjǒu	(Coblin 1978:50, #538a)[214]
啗 *dam(h) > dâm	is read like	含 *gəm(h) > ɣậm	(Coblin 1978:50, #566b)
欿 *khəmx > khậm	is read like	貪 *thəm > thậm	(Coblin 1978:50, #3889b)

[214]The phonetic of this second character is 臭, which is among the words which Baxter reconstructs with an unexpectedly palatalizing velar initial. The palatalization is irregular in his system because the main vowel is not front. The sound gloss listed here may provide indirect evidence for an ***-lj-** medial in 臭, which would account for the palatalization according to the proposal made in Section 4.1.5. According to my current proposals 糗 itself is not reconstructed with a lateral medial, so the nature of the relationship between the readings of the three characters is unclear. Under Gong's system, 糗 could be reconstructed as ***khləg^{W}x**, matching nicely with 臭 ***khljəg^{W}s**. But then 犒 could not also be reconstructed with a tight cluster ***khl-** as I propose here.

If the dental initials in these examples are reconstructed with tight clusters ***khl-**, ***gl-**, ***khl-** respectively, the similarity of the syllables being compared is more apparent.

Third, the proposed development of ***K-l-** clusters into dentals is more plausible phonetically if a tight cluster is reconstructed. Bodman's proposal (1980:109) that ***kh-l-** went through an ***hl-** stage before becoming **th-** is more convincing with a reconstruction ***khl-**, where unlike in ***khəl-** the aspiration of the ***kh-** would have a more direct influence in devoicing the following lateral. Furthermore, the tight cluster helps explain why the manner of the velar articulation had a direct influence on the manner of the resulting MC dental. The example of the Tibeto-Burman language Lushai may be instructive here, where PTB ***gl-**, ***kl-** clusters become **tl-**, **thl-** respectively.[215]

Fourth, evidence presented in earlier sections of this paper indicates that loose clusters ***K-l-** usually developed just like initial ***l-**, becoming MC ***j-**. See Sections 4.1.1 and 4.1.6. This precludes the reconstruction of such prefix+initial combinations for Class V words.

One type of alternation which Bodman (1980:110, #202) describes, between his ***g-l-** (窞) and ***gl-** (陷), can now be revised to an alternation between ***gl-** and ***gr-** respectively. If the history of Tibeto-Burman languages is any indication, we would expect exactly this kind of inter- and intra-dialectal variation between medials ***-l-** and ***-r-**.

Similarly, I would argue that Bodman's ***P-l-** clusters should be revised to ***Pl-**, though evidence for this type of cluster is not as abundant.

If Class V-A words are to be reconstructed as ***Kl-** clusters, then we must seek a different explanation for Class V-B words. If we reconstructed them also as ***Kl-** clusters, we would expect to find velars mixing with them in phonetic series. I believe that these Class V-B words should be reconstructed as simple dentals, while I acknowledge the

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[215]See for example Benedict 1972:39, #123-127. The development of these initials is actually somewhat more complicated. In general, voiced PTB velars are devoiced, and voiceless velars are aspirated, but the presence of PTB prefixal elements may cloud the picture by preventing or causing aspiration (Benedict 1972:20-21).

real possibility that they are borrowings from extra-Sinitic **Kl-** clusters. A clue to resolving this apparent conflict may be found in Bodman 1980:111, where he states: "It seems realistic to assume that the PY forms [which are evidence for ***K-l-** reconstructions in Chinese] were borrowed anciently from the Chinese since most of the Chinese forms are attested very early." This is a puzzling statement, since if the direction of borrowing is as Bodman proposes and these are native Chinese words, we should expect to find TB cognates as well. I propose, therefore, that Class V-A and Class V-B words represent different stages of Old Chinese. Class V-A words, as descendants of PST ***Kl-** clusters, were written with velar-initial phonetics before they began changing into dental initials. Class V-B words, as extra-Sinitic borrowings, came into the language later, after the change was underway (at least in some dialects). The foreign **Kl-** clusters were variously borrowed as lateral, dental or retroflex initials, depending on how they were perceived by Chinese speakers, and thus absorbed into the ongoing sound change in Chinese. More specifically, ***kl-** was borrowed as ***t-** or ***ṭ-** and ***gl-** as ***l-**. (Note there are very few examples of Bodman's ***kh-l-** > **th-** among Class V-B words, while there are quite a few Class V-A words with MC initial **th-**. This may simply reflect a lack of ***khl-** clusters in Miao-Yao.[216]) They were thus naturally written with phonetic elements having dental initials.

Developments with labial initials were presumably parallel.

A further point needs to be addressed. Bodman reconstructed not just ***K-l-** > **T-**, but also ***K-lj-** > **Ṭ-**, where the presence of medial ***-j-** leads to the development of MC retroflex stops. This appears somewhat odd, since retroflexes usually are derived from OC ***-r-**. His reasoning seems to stem from two sources. In the first place, he had already reconstructed ***hl-** > **th-**, and his ***kh-l-** > **th-** was based on the assumption of an intermediate stage ***kh-l-** > ***hl-**. By analogy, ***kh-lj-** should become first ***hlj-**, which

[216]Purnell (1970:168) reconstructs PMY ***kl-**, ***gl-**, and ***ql-** clusters, but not ***khl-**, although PMY does have the aspirated simple initial ***kh-**.

in Bodman's system is a source of MC **ṭh-**.[217] Second, his comparanda for MC retroflex-initial words derived from velar clusters show no evidence of medial ***-r-**.

Baxter follows Bodman in reconstructing ***K-lj-** clusters as a source of MC retroflex stops, although in his system ***hlj-** becomes MC **ś-**, not **ṭh-**. Since I agree with the development ***hlj-** > **ś-**, I find the development **K-lj-** > **Ṭ-** difficult to accept.[218]

Because I have proposed in Section 4.1.5 that clusters ***Klj-** become MC palatal affricates, I cannot simply revise Bodman's ***K-lj-** clusters to ***Klj-** as a source of MC retroflex stops.[219] Instead, I note that nearly all Class V words in velar series—that is, Class V-A words—have MC dental, not retroflex, initials. Indeed, the ten Class V-A characters listed in Bodman's Table 18 without exception have dental initials. Retroflex initials are more commonly found in Class V-B words, which are in dental or lateral series. It seems likely to me, therefore, that the retroflex initials are the result of different assimilatory patterns in the later borrowing of foreign **Kl-** clusters.

I would now like to review some of the Class V words, and their phonetic series, in more detail.

'peach'. Karlgren lists over 20 characters in his series #1145, with no evidence of any velars. The series itself is clearly lateral, as indicated by the presence of **ji-** and the absence of **t-** and **ṭ-**. It would be tempting, therefore, to reconstruct 桃 with the simple initial ***l-** > **d-**. (In Gong's system this would be reconstructed with ***d-** or ***'l-**.) The Miao-Yao forms are such a good match, however, that it would be foolhardy to ignore them. This word was probably a late borrowing, with the PMY ***gl-** cluster reduced to ***l-** in OC.[220]

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[217]Bodman makes this claim at 1980:108. However, on pages 102-104 are many examples of ***hlj-** > **ś-**.

[218]This line of reasoning does raise another possibility however. I have already discussed possible variation between MC **ź-** (the affricate) and **dź-** (the fricative), especially as reflexes of voiced clusters like ***blj-**, ***glj-**, ***mlj-**. There may be a parallel variation between MC **tśh-** and **ś-** as reflexes of ***khlj-**, with the latter development fitting well with Bodman's proposed intermediate stage of ***hlj-**. See the discussion of 屎 in Section 4.1.4.

[219]Indeed, my proposed reconstructions ***Kl-** > **T-** and ***Klj-** > **Tś-** are pleasingly parallel. The second proposal could easily be accounted for by positing that ***Kl-** > ***T-** took place before ***Tj-** > **Tś-**. This obviates the need to specify a special rule for the development of ***Kl-** before ***-j-**.

[220]Investigating the native geographic range of the peach would be one way to help confirm the direction of borrowing.

Two TB forms of interest here are from Cuona. The Mama dialect has *kle*^{l3} for 'peach' and the Wenlang dialect has *gle*^{l3}. Despite the front vocalism, these may be related in some way.

'intestines'. This phonetic series (GSR #720) is classically lateral, containing both **ji-** and **ś-**, lacking **t-** and **ṭ-**. The relationship with PY ***klaang 2** may be purely coincidental. A reconstruction in Baxter's system of ***lrjang** seems more appropriate.

'middle'. Again there is no evidence of a velar initial; the series is dental. In fact, all the members of the series may be reconstructed with dental initial and medial ***-r-**. Baxter (1992:233) observes that, according to Coblin 1983:156, 中 is used as a sound gloss for 宮, which has initial ***k-**, in the Eastern Han work *Bái hǔ tōng yì* 白虎通義. But I do not believe this is sufficient evidence for reconstructing a velar cluster. As for the WT proposed cognate *gzhung*, based on its range of meanings it would appear that 'middle' is a semantic extension of the more basic sense 'marrow, kernel, pith', senses which are not evident in Chinese 中. Indeed, the Tibetan word may be better related to PTB **(r-)kliŋ* 'marrow, brain'. The Chinese word is probably better associated with PTB **tu·ŋ* 'middle' (STC #390, but see also n. 63 on p. 17), which has wide support (and, incidentally, shows ***i**/***u** alternation).

'sink, steep'. GSR #658 is an extremely interesting and difficult phonetic series, which we have already seen in previous sections. It appears to be a mix of dental and velar initials, but the presence of both retroflex stops and palatal affricates makes its reconstruction less than straightforward. If the velars were not present in the series, the retroflexes and palatals could all be reconstructed as OC dental stops (followed by ***-r-** and ***-j-** respectively). The presence of the velars suggests that the MC dental stops be reconstructed as ***Kl-** clusters, and the palatal affricates as ***Klj-** clusters (with the ***-l-** medial simultaneously explaining, in Baxter's system, their exceptional palatalization before a back vowel). This, however, leaves the MC retroflexes unaccounted for, unless we admit the possibility of a mixed dental/lateral series here.

‘carry on the shoulder’ This phonetic series appears mystifying until we examine it in the light of our analysis of the ‘sink, steep’ series, GSR #658. The mix of lateral- (e.g. **ji-**) and dental- (e.g. **t-**) series initials, as well as palatal affricates (**tś-**, **tśh-**), all indicate the presence of velar clusters, which is confirmed by the Austro-asiatic forms. Unlike in GSR #658, however, no plain velars have survived into Middle Chinese. When viewed this way, GSR #619 is revealed to be primarily a velar series (with the dentals deriving from ***kl-** clusters, the palatals from ***klj-** clusters, and **ji-** from ***lj-**). Baxter hinted at a possible solution of this sort when he said of this series (1992:233): “This suggests that clusters of the type ***k-l-** and ‘unexpected’ velar palatalization may be related phenomena”. This also suggests that other examples of apparently mixed dental/lateral series may in fact be disguised velar series, or, more accurately speaking, velar-cluster series.

‘exaggerate, great’; ‘cicada’; ‘dam, dyke’. The analysis of this series (GSR #700), which contains only the initial **d-**, depends entirely on whether one accepts Pulleyblank’s arguments that the phonetic is , which is in velar series GSR #746. The reconstructed initial would be either ***d-** or ***gl-**. Even if one accepts the relationship to PY ***glaang 2** ‘pond, lake’, this word could still have been borrowed into Chinese directly as ***dang**.

‘devour’. This phonetic series appears to be lateral, except for the presence of velar-series initial **j-** in the phonetic element 炎, which goes back to ***g^{w}j-** in Li’s system, to ***g^{w}rj-** in Gong’s, and normally to ***wj-** in Baxter’s. Baxter reconstructs 炎 tentatively as ***ɦljam (?)**, with irregular development into Middle Chinese, so that he can preserve the lateral character of the series. This approach follows Bodman (1980:100), who notes that three words in this series with similar meanings— 炎 ‘brilliant, magnificent; blaze, blazing’, 剡 ‘brilliant’, 燄 ‘to flame up’—may be compared with the following lateral-initial forms: Jingpho *làm* ‘to flash (as bright steel)’, WB *ə-hlyam* ‘coruscation of flame’, and Proto-Tai ***hlïam C2**.

Gong, on the other hand, reconstructs 炎 as ***g^{w}rjam**, and then follows Coblin in reconstructing 談 'to speak' as ***gdam**, comparing it with WT *gtam* 'talk, discourse, speech', even though ***gd-** does not otherwise appear in Gong's system.

As we see in this form for 'devour', however, Bodman also suggests that GSR #617 may have ***K-l-** clusters in it, and this is further supported by the close relationship of words in this series to words like 啗 'eat, swallow' in GSR #672, which has a more obviously velar character and which I have described as of type Class V-A. In fact, it seems likely that in 燄 'to flame up', the left side should be considered the phonetic rather than the radical. Note also that the same word is sometime written 焰. GSR #672o also lists the near-synonym 爛 'brightness'.

Taken together, the evidence indicates close word-family relationships between GSR #617 and GSR #672, and suggests that at least some words in each series be reconstructed with ***Kl-** clusters. I therefore reconstruct 談 (Gong's ***gdam**, Baxter's ***lam**) as ***glam**.

'pestle'. This is a peculiar phonetic series, as it includes not only lateral-series initials (**ji-**), dental-series initials (**t-**), and palatal affricates, but also palatal fricatives. The latter present an unsolved problem. I would propose here that PY ***klui 2** 'pestle' was borrowed directly into Chinese with initial ***t-**.

'moss'. This is nearly a perfect lateral series (it contains **ji-**, **d-** and **ś-**, but not **t-** or **ṭ-**), except for the anomalous presence of **dẓ-.** It would appear then that the Tai initial ***gl-** was interpreted as Chinese ***l-**. (Note the same thing occurs with 'peach', above.)

4.1.9 Initial *l- as a source of Middle Chinese l-

In my analysis of initial and medial ***l**, I have followed the conventional wisdom that MC **l-** is derived from OC ***r-**, while OC ***l-** became MC **ji-**. As noted in Chapter 2, this reversal of the reconstruction of ***r-** and ***l-** found in Li Fang-kuei's system was initially

motivated by comparisons with TB which demonstrated that, on the whole, MC **l-** corresponds to PTB ***r-** rather than PTB ***l-**.

Matisoff (1995b) has however proposed a number of Chinese/TB cognates which support the correspondence of MC **l-** (Baxter's ***C-r-**) with PTB ***l-**. If the validity of these cognate sets can be confirmed, then the question of how to reconstruct the OC initial arises. Should MC **l-** be reconstructed as OC ***r-** as usual, with OC and PTB in disagreement as to whether the original PST initial was ***r-** or ***l-**? Or is the PTB evidence to be given greater weight, and OC ***l-** to be reconstructed in these words, with irregular development to MC **l-**? Since the ultimate decision between these two alternatives is essentially arbitrary, it seems to me that we have no choice but to favor the internal evidence, and continue to reconstruct OC ***r-**, while providing either for irregular development from PST to OC, from PST to PTB, or for variation at the PST level.

Matisoff (1995b:51-52) offers the following six comparisons, the first two of which are credited to Benedict 1972.

Chinese	Tibeto-Burman
鹵 *C-raʔ > luX 'salty; rock salt'	PTB ***s-la** 'salt'
領 *C-rjengʔ > ljengX 'neck; collar';	PTB ***m-liŋ** 'neck'
頸 *kJengʔ > kjiengX 'neck'	
來 *C-rɨ(k) > loj 'come'	PTB ***la-y**
林 *C-rjɨm > lim 'forest'	PTB ***b-liŋ**
麗 *C-res > lejH 'elegant; beautiful; refined; good';	PTB ***l(y)ak** ≋ ***l(y)aŋ**
良 *C-rjang > ljang 'good';	'good'
靈 *C-reng > leng 'supernatural; felicitous; intelligent; excellent';	
令 *C-reng > leng (used as a loan for 'good')	
郎 *C-rang > lang 'young man, bridegroom' (this definition not in GSR)	WB *laŋ* 'husband'

It is difficult to evaluate the solidity of these comparisons. The lack of wider TB cognates to WB *laŋ* 'husband' casts this comparison in some doubt. The mismatch of place of articulation of the final nasal in the words for 'forest' is also troubling. But the comparisons for 鹵 'salt', 領 'neck', and 良 'good' appear persuasive. On the strength of

these comparisons it seems prudent to provide for PST variation between ***l** and ***r** in these roots, with Chinese inheriting initial ***r-** and TB inheriting initial ***l-**. Variation of this sort in a few roots is not of concern. As we would expect, comparisons between OC ***r-** and PTB ***l-** remain considerably fewer than those between ***r-** and ***r-** or between ***l-** and ***l-**.

4.1.10 Conclusion

Based on a careful reanalysis of proposed cognate sets between Chinese and TB languages, a number of conclusions about the reconstruction and development of OC ***l** as an initial and a medial, have been made.

When ***l-** occurred as an initial, it developed into MC **d-** in Type A syllables and MC **ji-** in Type B syllables. This development was in most cases unaffected by the presence of prefixal elements in "loose clusters" written as ***C-l-**. Occasionally, these prefix+initial clusters were reinterpreted as true initial clusters ***Cl-**. This kind of shift in individual lexical items was possible because ***-l-** could also function as a medial element in the Chinese syllable structure.

When ***-l-** occurred in tight clusters with grave initials like ***k-**, ***kh-**, ***g-**, ***p-**, ***ph-**, ***b-**, the clusters gave rise to dental initials in Middle Chinese. In Type B syllables, however, these dentals were palatalized. This explains the alternation found in phonetic series between lateral, palatal, and velar initials.

In clusters with nasal initials ***-l-** caused palatalization as well, in this case to a fricative **dź-**. There is some evidence that ***bl-** and ***gl-** also sometimes became **dź-** rather than the affricate **ź-**, but this may have been conditioned by the presence of a nasal prefix.

Medial ***-l-** did not occur with acute initials, with the exception of fricative ***s-**. (As we shall see, medial ***-r-** had similar co-occurrence restrictions.) Developments of ***s-l-** and ***sl-** initials are difficult to work out with precision. There may also be some confusion between the reflexes of original ***s-l-**, ***sl-**, and ***hl-**.

Finally, some phonetic series previously identified as lateral are better reconstructed as palatal glide series, which have the MC reflexes **ji-** and **z-**. (If Type B syllables are assumed to be characterized by the presence of medial ***-j-** rather than a prosodic feature, then clearly the initial cannot be reconstructed as ***jj-** in such syllables. Instead a reconstruction of ***Cj-**, with C unidentified, must be assumed.)

As for Baxter's ***lr-** initial in lateral series, see Section 4.2.3, where the cluster is revised to ***r-l-**.

The following chart summarizes the findings of this chapter. In all cases the PST sources of the OC initials are assumed to be quite similar to their OC reflexes.

	MC reflex	
OC initial	A (without 'medial *-j-')	B (with 'medial *-j-')
*(C)-l-	d-	ji-
*hl-	th-	ś-
*sl-	s-	s-
*s-l-	??	z-
*s-l- > *hl- (?)	th-	ś-
*kl-, *pl-	t-	tś-
*khl-, *phl-	th-	tśh-, (ś-)
*gl-, *bl-	d-	ź-
*ml-, *ŋl-	??	dź-
*j-	ji-	z-
*k-j-	--	k-

4.2 Medial *-r-

I will discuss next Old Chinese medial ***-r-**. Because of the close relationship, it makes sense to discuss ***-r-** after ***-l-**. Medials **-l-** and **-r-** are confused or merged in many Tibeto-Burman languages, and a number of PTB roots indicate that variation between these medials existed at the earliest reconstructible stages. It is possible that similar variation will be found in certain lexical items in Old Chinese. More broadly, the general affinity of **r** and **l** seems to be a universal feature of language. In many of the world's languages, we find complex interactions between **r** and **l**. They often have similar phonotactics, occupying identical slots in the syllable structure. It is not uncommon to find mergers or confusion of these two phonemes in a language's development. Furthermore, two **r**'s or two **l**'s within a word may trigger dissimilation, causing an **r** to change into an **l** or vice versa.[221] Finally, **r** and **l** both seem to be particularly prone to metathesizing with other segments.[222]

In Old Chinese reconstruction, as we have seen, a consensus has been emerging regarding the reconstruction of ***r**. Initial ***r-** is now accepted as the source of MC **l-**. Medial ***-r-** is considered to be the source of MC retroflex initials, second-division rhymes, and third-division *chóngniŭ* rhymes. Certain rhyme splits have also been attributed to its effects. Despite this emerging consensus, there remain disagreements about where to reconstruct ***r**, particularly for individual lexical items in environments where medial ***-r-** is presumed not to affect development into Middle Chinese.

It will be useful at this point to review in some detail the effects of medial ***-r-**. Practically speaking, we can distinguish between **direct** evidence for medial ***-r-**, **analogous** evidence for medial ***-r-**, and **comparative** evidence for medial ***-r-**. Evidence for reconstructing this medial in a particular word is direct when the word is in

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[221]For example, consider the English word *pilgrim*, which is ultimately derived via French from Latin *peregrīnus* > Late Latin *pelegrīnus*.

[222]This tendency can be observed in some dialects of English, in which words like *nuclear* [nukliəɹ] are pronounced 'nucular' [nukjuləɹ].

phonetic series with MC **l-** < ***r-**. It was analysis of the patterning of this direct evidence that led to the analogous reconstruction of this medial in certain categories of OC words, e.g. second-division rhyme words and *chóngniŭ* third-division words. Without direct evidence, however, the analogous evidence is sometimes ambiguous as to where to reconstruct ***-r-**. In such cases comparative evidence, gleaned from TB cognates or borrowings into or from other languages, may be helpful. The strength of the reconstruction of medial ***-r-** lies in the fact that, where all three types of evidence are available, they tend to be mutually supportive. There are, however, certain subsets of words for which the comparative evidence is not consistent with analogous evidence. These subsets of words will be of particular interest in this study.

The main objectives of this chapter are (1) to attempt to use Tibeto-Burman comparative evidence to reconcile the differences between Gong's and Baxter's reconstruction of medial ***-rj-** in the development of rhyme splits and *chóngniŭ* splits; (2) to attempt to reconcile conflicting TB and Chinese evidence about the presence or absence of medial ***-r-** in particular lexical items; (3) to determine whether MC **l-** has its origin in OC ***r-**, in OC ***r-**clusters, or both; and to determine the nature of any such clusters.

A brief word about the phonetic nature of Old Chinese ***r** may be in order. Li Fang-kuei (1971) presumed that OC /r/ was an apical tap or flap, similar enough in articulation to ***d-** to permit alternation in phonetic series. To my knowledge, few other scholars have cared to speculate on the nature of ***r**. To some degree this is irrelevant to our reconstruction. Although segments identified as /r/ in languages of the world vary considerably in articulation (e.g. apical [r, ɾ], retroflex [ɹ], uvular [ʁ]), they are remarkably similar not only perceptually but in their functional role within a phonological system, both synchronically and diachronically. Ladefoged and Maddieson (1996), in their overview of the sounds of the world's languages, provide this analysis:

> Phonologically, rhotics tend to behave in similar ways. In particular, rhotics often occupy privileged places in the syllable structure of different

> languages. They are not uncommonly the only consonants allowed as second members of clusters in the syllable onset, or as first members of clusters in coda position.... In languages with consonant clusters, rhotics tend to occur close to the syllable nucleus.... Frequently they share this privileged position with lateral approximants and/or nasals. (p. 216)
>
> About 75% of all languages contain some form of an /r/ phoneme (Maddieson 1984a). These languages mostly have a single /r/, and it is most commonly some form of trill, but 18 percent of languages with /r/'s contrast two or three rhotics. (p. 217)

Just as I did with medial ***-l-**, I would like to introduce some terminology to facilitate discussion of medial ***-r-**. I will refer to as a **rhotic** series any phonetic series containing MC initial **l-**. This is not an exclusive category. A rhotic series may also be a velar or labial series, for example. Recall that Gong reconstructs MC **l-** as ***r-**, while Baxter reconstructs MC **l-** as ***C-r-**.

In this chapter I will explore seven classes of Chinese words which bear on the reconstruction of medial ***-r-**.

Class I words have grave initials (**K-**, **P-**) and occur in second-division rhymes. These words are reconstructed with medial ***-r-** to account for the second-division vocalism. Some of these words also occur in rhotic series, providing direct evidence for medial ***-r-**.

• Class I
MC grave initials (K-, P-) with second-division rhymes
Gong: *Kr-, *Pr- > K-, P-
Baxter: *Kr-, *Pr- > K-, P-
Example: 江 (*G* *krung > kång, *B* *krong > kæwng)
八 (*G* *priat > pwăt, *B* *pret > pɛt)

Class II words have retroflex initials and occur in second-division rhymes. Since such words generally occur in dental or dental affricate series, they are reconstructed with OC dental initials. Medial ***-r-** is reconstructed to account not only for the second-division vocalism but also for the retroflex feature of the initial. Note that in Baxter's system, some of these words are also reconstructed with medial ***-j-** (see Class III below), and that in some cases the presence or absence of that ***-j-** cannot be determined with certainty.

• Class II
MC retroflex initials (Ṭ-, TṢ-) with second-division rhymes
Gong: *Tr-, *TSr- > Ṭ-, TṢ-
Baxter: *Tr-, *TSr(j)- > Tr-, TSr-
Example: 謫 (*G* *trik > ṭɛk, *B* *trek > trɛk)
捉 (*G* *tsruk > tṣåk, *B* *tsr(j)ok > tsræwk)

Retroflex initials occur in third-division as well as second-division rhymes. These are **Class III** words. Here medial ***-r-** accounts for the retroflex feature of the initial but has no effect on vocalic development. Note that Baxter supposes that by the end of the Middle Chinese period all third-division words with retroflex affricate initials had lost their medial ***-j-** and become classified as second-division in the rime tables. In some rhymes this change occurred early enough in the Middle Chinese period to be reflected in the *Qièyùn*, and Baxter reconstructs ***TSrj-** > **TSrj-** > **TSr-** in these cases.

• Class III
MC retroflex initials (Ṭ-, TṢ-) with third-division rhymes
Gong: *Trj-, *TSrj- > Ṭj-, TṢj-
Baxter: *Trj-, *TSrj- > Trj-, TSrj- (> TSr-)
Example: 女 (*G* *nrjagx > ṇjwo, *B* *nrjaʔ > nrjoX)
狀 (*G* *dzrjangs > dẓjang, *B* *dzrjangs > dzrjangH)

In a number of OC rhyme groups, Baxter and Gong use an ***-rj-**/***-j-** contrast to account for *chóngniǔ* splits, with *chóngniǔ* third-division rhymes developing from OC ***-rj-**. **Class IV** words have MC grave initials and are third-division *chóngniǔ* doublets. Note that Baxter and Gong do not always agree on when a medial ***-r-** needs to be reconstructed. In some cases, *chóngniǔ* third-division words may be derived from syllables lacking medial ***-r-**.

• Class IV
MC grave initials (K-, P-) in *chóngniǔ* third-division syllables
Gong: *Krj-, *Prj- > Kj-, Pj- (III-3) (in most rhymes)
Baxter: *Krj-, *Prj- > Kj-, Pj- (III-3) (in most rhymes)
Example: 密 (*G* *mrjit > mjět, *B* *mrjit > mit) III-3
cf. 蜜 (*G* *mjit > mjiět, *B* *mjit > mjit) III-4
驕 (*G* *krjag^{w} > kjäu, *B* *k(r)jaw > kjew) III-3
cf. 翹 (*G* *gjag^{w} > gjiäu, *B* *gJew > gjiew) III-4

Class V words are those with grave initials in pure third-division rhymes which are reconstructed with ***-r-** by either Gong or Baxter to account for rhyme splits. There is not full agreement by Gong and Baxter on where it is necessary to reconstruct ***-r-**.

• Class V
MC grave initials (K-, P-) in pure third-division syllables, when necessary to account for rhyme splits
Gong: *Krj-, *Prj- > Kj-, Pj-
Baxter: *Krj-, *Prj- > Kj-, Pj-
Example: 京 (*G* *krjang > kjɐng, *B* *krjang > kjæng)
cf. 疆 (*G* *kjang > kjang, *B* *kjang > kjang)

Class VI is composed of third-division words with grave initials descended from rhyme groups where there are no *chóngniǔ* or rhyme splits. In this case, either ***-rj-** or ***-j-** is an acceptable reconstruction, but a definitive choice must depend on direct or comparative evidence. Here too Gong and Baxter do not always agree.

• Class VI
MC grave initials (K-, P-) in pure third-division syllables with no rhyme splits or *chóngniǔ* splits
Gong: *K(r)j-, *P(r)j- > Kj-, Pj-
Baxter: *K(r)j-, *P(r)j- > Kj-, Pj-
Example: 皮 (*G* *b(r)jar > bjě, *B* *b(r)jaj > bje)
cf. 彼 (*G* *pjarx > pjě, *B* *p(r)jajʔ > pjeX)

Class VII words have MC initial **l-**. Gong reconstructs simply ***r-**, while Baxter reconstructs ***b-r-** or ***g-r-** (and writes ***C-r-** if the first segment cannot be reconstructed with confidence). In Baxter's system, plain ***r-** becomes MC **ji-**. The exact nature of the distinction between ***C-r-** clusters and ***Cr-** clusters is left unspecified.

• Class VII
MC initial l-
Gong: *r- > l-
Baxter: *C-r- > l-
Example: 涼 (*G* *rjang > ljang, *B* *g-rjang > ljang)

4.2.1 Class I words: Middle Chinese second division with grave initials

Before evaluating Class I words, I would like to summarize the reasons for the reconstruction of medial ***-r-** in second-division rhymes. This information was presented

in Chapter 2 in the context of different reconstruction systems; here it is brought together and summarized.

The development of Middle Chinese second-division rhymes

There is a general consensus that Middle Chinese second-division rhymes (characterized in Karlgren's reconstruction by non-high, non-back vowels) have their origin in Old Chinese medial ***-r-**.

According to Li, this medial induced the lowering of high vowels and the raising of low back vowels. He characterized this effect of ***-r-** on vowels as "centralization" (1980:23).

According to Baxter (1992:260), ***-r-** made the following vowel front and lax, a change he terms ***r-color**. In his Middle Chinese transcription, all second-division rhymes have front lax vowel **ɛ** or **æ**.

The situation according to Pulleyblank is more complex. Second-division rhymes are characterized by long vowel **aː**, but this is a feature of Late Middle Chinese. This vowel derives from Early Middle Chinese diphthongs **aɨ** and **əɨ**, which merged to **ɛː** before centralizing to **aː** (1984:185, 1991:12). It is the diphthongs **aɨ** and **əɨ** which are derived from Old Chinese ***-r-**: "There is a strong acoustic affinity between retroflection and back unrounded vowels ... it makes good sense to suppose that the r-umlaut in Type A syllables which had the effect of throwing the r-feature from initial r-clusters forward to the end of the syllable should have resulted in this type of diphthong" (1991:13). Schematically, the development is ***Crá-** > ***Car-** > **Caɨ-** (1996:17-18).

These three analyses of the development of Middle Chinese second-division rhymes from Old Chinese medial ***-r-** may seem equivalent, but in fact Pulleyblank's reconstruction of EMC second-division vowels as long diphthongs opens the possibility of a secondary origin for Middle Chinese rhymes in Old Chinese long vowels. "If we assume that there was already a distinction of vowel length in OC, we can suppose that Type A syllables with long vowels and a rising accent would have replaced the second mora with

-ɨ- ... : **aá** *Æ* **aɨ**, **əə́** *Æ* **əɨ**, giving rise directly to the vocalic nuclei that we have posited for Grade II finals in EMC without the intermediate stage we have assumed for syllables with *Cr- clusters" (1996:18).

This hypothesis allows Pulleyblank to do away with medial ***-r-** in Old Chinese words which show no evidence for it in phonetic series or TB cognates, and to eliminate the ***ʔr-** initial which he finds troubling on typological grounds (1996:18).

I will examine Pulleyblank's hypothesis more carefully in the comparison of Chinese/Tibeto-Burman cognates; if indeed it turns out that in many solid cognate sets there is no Tibeto-Burman evidence for a medial, this would provide good evidence for an origin of second-division rhymes which does not involve ***-r-**. However, accepting Pulleyblank's specific explanation would require also accepting his hypothesis about vowel length distinction in Old Chinese and Middle Chinese, which may be incompatible with other evidence.

Another possibility has been proposed by Coblin, who derives OC ***dr-**, ***trj-** from PST ****rd-**, ****rtj-** respectively (see Section 3.4). Gong takes this proposal a step further, reconstructing ***rd-**, ***rt-**, ***rth-**, etc. at the Old Chinese stage. But neither Gong nor Coblin proposes similar developments for clusters of ***r** with grave initials.

Class I words and Tibeto-Burman

The first question that presents itself is whether TB cognates of Class I words all show evidence for medial ***-r-**. If so, OC medial ***-r-** in these words may be projected back to PST medial ***-r-**. If not, we must either account for the loss of medial ***-r-** in PTB, explain its emergence in some words in Chinese, or argue for a secondary source of MC second-division rhymes.

On the whole there is good correlation between OC ***-r-** in Class I and PTB ***-r-**. Gong 1995 contains the following Class I words:

Set	Old Chinese	Written Tibetan	Written Burmese
34	話 *g^{w}rads > ɣwai ‘speak, word, good words’	*gros* ‘speech, talk, advice, counsel’	
61	胞 *prəg^{w} > pau ‘womb’	*phru-ma*, *'phru-ma* ‘uterus, matrix of animals, placenta’, *phrug* ‘child, a young one (of animals)’	
66	覺 *krək^{w} > kak ‘to awake, to rouse somebody into understanding’; 攪 *krəg^{w}x > kau ‘disturb’	*dkrug* ‘to stir, agitate, to disturb’	
163	加 *kral > ka ‘add, apply, attain’	*khral* ‘punishment, tax, tribute, duty’	
174	板 *pranx > pwan ‘a plank, board’	*'phar* < ***'phrar** ‘board, flat board’	*prâ* ‘flat, level’
212	八 *priat > pwăt ‘eight’	*brgyad* < ***br-·yad** ‘eight’	*hrac* ‘eight’
224	蚻 *mrang > mɐng ‘gadfly, horsefly’	*sbrang* < ***smrang** ‘fly, and similar insects’	
230	梗 *krangx > kɐng ‘strong’	*mkhrang*, *khrang* ‘hard, solid, firm’	*rang*' ‘mature, firm’
231	胻 *grangs > ɣang ‘shinbone’; 行 *grang > ɣang ‘walk, go’	*krang-nge* ‘standing’; *rkang-pa* ‘foot, leg, hind-foot’	
289	核 *grək > ɣɛk ‘kernel fruit’	*rag-tse* ‘stone in fruits’	
299	遐 *grag > ɣa ‘far, distant’		*kra* ‘to be long in doing, to be long in time’
302	迓 *ngrags > nga ‘meet’		*ŋrâ* ‘meet with’
304	樺 *g^{w}rags > ɣwa ‘a kind of birch’	*gro-ga* ‘birch tree or its bark’	
333	駁 *prak^{w} > påk ‘horse with mixed colours, mixed’		*prauk* ‘be speckled, spotted’
373	甲 *krap > kap ‘shell’	*khrab* ‘shield, scales’	
379	洽 *grəp > ɣăp ‘unite, accomplish’	*'grub* ‘to be finished, accomplished’	

An additional comparison is found in Gong 1997:

赫 *xrak > xɐk ‘red, fire-red’ *khrag* ‘blood’

Gong has been careful to include only comparisons in which the Tibetan or Burmese forms contain *-r-*. Some of these sets may be commented on further:

(61). Baxter ***pru** > **pæw**. STEDT #1733: ***r-bu** ⋗ ***pru** ‘nest/womb/placenta’.

(66). Baxter 766 ***kruk** > **kæwk**; ***kru(k)?** > **kæwx**. I do not know of any proposed PTB root, but the following forms are clearly cognate and provide solid evidence for ***-r-**:

PLB	***C-krök** 'stir/mix'
Cuona	*kroʔ*^{53} 'stir/churn'
Darang	*tɯ*^{31}*kɹi*^{35} 'stir/churn'
Dulong dl	*a*^{31}*ɹuʔ*^{55} 'stir/churn'

Dulong final *-ʔ* is the normal reflex of PTB ***-k**. The lack of an initial velar is unexplained. The vocalism of the Darang form is puzzling, but reminiscent of the same front unrounded vocalism in a similar environment in the Geman word for 'ant', *tɕu*^{31}*kɹik*^{53}, from PTB ***g-rwak** (compare Dulong *sɯ*^{31}*ɹɔʔ*^{55}, presumably from ***s-rwak**). (The missing final stop in Darang is less troubling, as Darang also lacks a final stop in the form *ta*^{31}*xɹo*^{53} for 'six'.)

(174). Baxter ***pranʔ** > **pænx**. The correspondence OC ***-an** : WT *-ar* : WB *-a* is regular according to Gong's system. He supposes that the WT form originally had medial *-r-* as well, but that it was lost through dissimilation with the final *-r*. Though there is no STEDT root, Bradley does reconstruct Proto-Loloish ***ʔ-bra**^{2} 'flat', which is ancestral to the WB form.

(212). Baxter ***pret** > **pɛt**. STEDT #2259: ***(b-)g-ryat** 'eight' (STC #163). Li (1959) long ago suggested on comparative grounds that WT *rgy-* clusters may be derived from earlier ***ry-** through epenthesis. Gong follows this reconstruction but includes a glottal stop (represented by a raised period), presumably because of the Tangut form ***·jar** 'eight'. Regardless of the status of **g** in this PTB root, evidence for medial ***-r-** is conclusive. Note for example:

TGTM	***^{B}brat** 'eight'
PLB	***ʔrit** 'eight'
Dulong nj	*ɕăt*^{55} 'eight'

The Dulong form shows no evidence for a labial, and may, like the PLB root, be derived from ***ʔr-** or ***hr-**. Elsewhere among our diagnostic languages, there are unusual forms for 'eight' ending in *-n*:

Geman *gɹɯn*^{53}
Cuona *cen*^{13}

We have an even more unusual form in Darang: *liɯm*^{35}. I believe, however, that all these reflexes are ultimately related. Similar deformations are apparent in words for 'seven', where PTB ***-t** is also realized with nasal endings in these languages.

(224). Baxter 9776.30 ***mrang** > **mæng**. STEDT #2788: ***(s-)brəŋ** (STC #492). I discussed this word in some detail in the last section on medial ***-l-**. Probably related is the Dulong (Nujiang) form *kɯ*^{31}*ɹaŋ*^{53} 'firefly', with the familiar animal prefix.

(230) Baxter ***krang?** > **kængX**. It is not clear what Gong's source is for the gloss 'hard' for the Chinese word. The early meaning of this character, as reflected in the *Shuōwén* and GSR, is 'a medical plant'. The *Guǎngyùn* also lists the meaning 'straight' (直也).

Gong 1997 adds the forms WT *krang* 'hard' and WB *krang*' 'tight, stiff' to the set. The Longchuan dialect of Achang, which is closely related to Burmese, has a word *ʂək*^{55}*kʐaŋ*^{55} meaning 'branch' (the first morpheme is 'tree'). The second morpheme is a perfect match to WB *krang*', and I suspect that 'branch' may in fact be an original meaning of this root, accounting for the wood radical in the Chinese character. Probably cognate are the following Dulong forms:

Dulong nj *gɹeŋ*^{53} 'hard'
Dulong dl *gɹeŋ*^{55} 'hard'

Perhaps also related are:

PNN ***raŋ** 'hard'
PNN ***kəːŋ** 'branch'
TGTM ***^{B}H/^{h}ruŋ** 'thick, stiff', ***^{A}koŋ** 'hard'

(231). Baxter ***grangs** > **hængH**; 682 ***grang** > **hæng**. STEDT #584 ***kaŋ** 'shin'. There seems to be some confusion between roots for 'shin', 'foot' and 'stand' here. While

the STEDT root given here contains no medial ***-r-**, note the presence of ***r** in these other roots for ‘shin’:

STEDT #582: ***m-raŋ**
STEDT #583: ***r-guːŋ**
STEDT #2254: ***r-guŋ** (cf. STC #395)

and in this root for ‘foot’:

STEDT #336: ***r-kaŋ ≍ *k-raŋ ~ *k-la(ŋ)≍ *r-koŋ**

If in fact WT *krang-nge* ‘standing’ and *rkang-pa* ‘foot, leg, hind-foot’ are related, this is evidence for metathesis of medial *-r-* to prefix in the Tibetan form. However, in this case the PTB evidence seems to support a prefixal rather than medial ***-r-**. Consider the PNN root ***C$_{VD}$-guːŋ** ‘shin’, which appears to be directly descended from STEDT #583. The overall evidence suggests variation between ***r-k-** and ***kr-** all the way back at the PTB level, as found in STEDT #336.

In the root for ‘foot’, medial ***-r-** can be reconstructed with confidence based on the Tibetan form as well as:

Darang	*gɹoŋ*^{53} ‘foot’
Geman	*ta*^{31}*kɹuŋ*^{35} ‘foot (measure)’

There also appears to be a PTB root for ‘stand’ of the shape ***laŋ**, as seen in

Geman	*loŋ*^{53} ‘stand’
Cuona	*lʌŋ*^{13} ‘stand’

These might also be descended from STEDT #336.

It seems to me that in this example the Chinese word for ‘shinbone’ is most likely directly comparable to PTB ***r-guŋ** ‘edge; shin’. (Benedict (1972:82,109) lists as support for this root Jingpho *nguŋ* ‘back of a blade’, Garo *rikiŋ* ‘edge’, Dimasa *ruguŋ* ‘near, by the side of’, Mikir *arkoŋ* ‘shin’; the relationship between the two senses can be seen in the Garo form *dʑa-rikiŋ* ‘shin’ = ‘leg-edge’.) The relationship of the Tibetan forms which Gong lists to this root is less clear. This is the only example in this set in which a Class I word seems relatable to a PTB root with prefixal (rather than medial) ***r**.

(289). Baxter ***grɨk** > **hɛk**. I can find no other support for this set. Although the semantics in Gong's Chinese/Tibetan comparison are good, the lack of a velar in the WT form casts the comparison in some doubt.

(302). Baxter ***ngras** > **ngæH**. STEDT #2533: ***ŋra** 'meet' (STC #154). Benedict cites Jingpho *nya* 'meet'.

(373). Baxter 1733 ***krap** > **kæp**. Perhaps STEDT #1467: ***kwaːp** 'scales'. It is possible that the PTB root should be reconstructed with variation between ***-r-** and ***-w-** if the WT form is to be included among its reflexes. (Otherwise we would expect WT *khob*.) The PNN root ***goːp** 'shell' is probably descended from this root.

('red, fire-red'). Baxter 363.2 ***xrak > xæk**. This WT form for blood appears to be an isolate in Tibeto-Burman. Gong (1980) compared it to 赤 'red', reconstructed ***khrjiak** by Li Fang-kuei, but revised to ***khljiak** according to the hypotheses of Gong 1994. (Baxter 1992:214 reconstructs ***KHjAk**. I suggested reconstructing ***khlj-** in the previous section on medial ***-l-**.) This is an attractive comparison, because it explains the Tibetan form as euphemistically derived from the meaning 'red (stuff)'. Following his revision of ***-r-** to ***-l-** in 赤, however, Gong prefers to compare 赫, which has a clear medial ***-r-**, although it could be argued that its initial, ***x-**, is not as good a match for WT *kh-*. At any rate, the two Chinese words 赫 and 赤 are clearly related, so it is not difficult to posit a PST variant with both a stop initial and medial ***-r-**.

Gong's eighteen cognate sets presented above provide persuasive evidence for the correlation of medial ***-r-** in OC Class I words with PTB medial ***-r-**. Some of the proposed sets may be less solid than others, but even if these are eliminated from consideration, there remains a substantial number.

It appears, however, that Gong has employed correspondence of medial ***-r-** as a precondition for proposing cognacy. This means that this body of data is not sufficient to test the hypothesis of whether there is in fact always a medial ***-r-** correspondence for Class I OC words.

I will turn, then, to the PST roots in Coblin 1986 which are reconstructed with medial ****-ɾ-**. Unlike ****-r-**, which is reconstructed when OC ***-r-** corresponds to PTB ***-r-**, the PST barred glide ****-ɾ-** represents a correspondence between OC ***-r-** and PTB ***-Ø-** (Coblin 1986:25).

I count ten such roots in Coblin 1986. These deserve closer examination:

gloss	PST	OC (modified from Li 1971/76)	PTB (from Benedict)
bamboo	****p/bɾwa ɣ**	笆 ***bragx** 'type of bamboo'	***g-pwa** 'bamboo'
big/elder/much	****mɾang**	孟 ***mrangh** 'elder (of brothers)'	***mang** 'big; older (brother, uncle)'
board/plank	****pɾar**	板, 版 ***pranx** 'board, plank'	WT *'phar* 'panel, small plank'
corner/angle	****kɾuk**	角 ***kruk** 'horn; angle, corner'	WT *khug(s)* 'corner, angle, nook'
flower	****bɾɨan**	瓣 ***brianh** 'petals of a flower'	WB *pàn* 'flower'
goose	****ngɾan**	雁 ***ngranh** 'wild goose'	WB *ngàn* 'goose'
great/elevated	****pɾar**	昄 ***pranx** 'great'	WT *'phar-ba* 'raised, elevated'
people	****mɾang**	氓, 甿 ***mrang** 'population, people'	WT *dmangs* 'common people'
pig	****pɾwag**	豝 ***prag** 'sow, pig'	***pwak** 'pig'
spread/sow	****p/bwɾar**	班 ***pran** 'spread out, scatter' (cf. 播 ***parh** 'spread, sow')	***bwâr** 'throw away, cast, sow, toss'
ten	****gɾip**	十 ***grjəp** > ***djəp** 'ten'	***gip** 'ten'

The last set, 'ten', can be eliminated. Following Baxter's reconstruction, there is no need to posit a medial ***-r-** in the Chinese form to account for palatalization of the velar initial. (See Section 4.1.5.)

Three of the sets—'board/plank', 'great/elevated', and 'spread/sow' involve initial ***p-** and final ***-r**. We have already seen the first set as Gong #174, where Gong argues that medial ***-r-** was lost in WT through dissimilation with final *-r*, but was preserved in PTB as a whole as demonstrated by the WB form. A parallel argument could be made for 'great/elevated', but not for 'spread/sow', where Benedict 1976:172-173 note 460 finds no evidence (among supporting languages WT, Bahing, Chepang, Mikir and Lushai) for PTB medial ***-r-**.

Besides the difficulty with ‘spread/sow’, there are other reasons to suspect that Gong’s solution is not ideal. For one thing, it seems quite likely that a restriction on ***CrVr** syllables existed not only in WT, but in PTB and OC as well. Behr (1996:9) has demonstrated that there seems to be such a constraint in OC.[223] As for PTB, not a single root in STC or the STEDT etyma database has the shape ***CrVr** or even ***rVr**. Among the meso-level reconstructions, I have only been able to find a single root of this shape: PNN ***ryəːr** ‘hail’ (French 1983:499).

As an alternative explanation for these correspondences, consider the possibility that some instances of ***Pr-** in OC are derived from PST ***Pw-**, or even that they should instead be reconstructed ***Pw-** at the OC stage, in which case ***-w-** would, like ***-r-**, be a source of Middle Chinese second-division rhymes after labial initials.

Recall that in most reconstructions medial ***-w-** is not an element of Old Chinese. It is, however, a prominent phoneme in PTB. It seems likely then that PST also contained medial ***-w-**, distributed most commonly after labials and velars. In OC the medial lost its independent phonemic status, leading after velars to the phonologization of a labio-velar series of initials. But what about after labials? I would like to propose that, as part of the loss of phonemic ***-w-**, instances of ***Pw-** became ***Pr-** in Old Chinese.[224]

This idea is not entirely new. Benedict himself suggested as much when he noted (1972:188 note 487) that “Ar. Ch. also has *-å* (= *-ɔ*) appearing to correspond to TB final ****-a*** in some roots, especially after labial initials. This final, recognized by Karlgren as distinct from Ar. Ch. final *-a* ... apparently had been developed in many if not most instances from an earlier ****-wa*** (virtually absent in the Ar. Ch. system of finals).” Karlgren’s ***-å** was reconstructed for those Yú 魚 group words which became MC

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[223]Behr’s conclusion is based on the reconstruction of final ***-r** in Starostin’s system, which has been adopted by Baxter in his 1995 revision. Basically, final ***-r** is reconstructed when a phonetic series contains both endings ***-n** and ***-j** under Baxter’s 1992 system. The reconstruction of ***-r** can then be extended based on *Shījīng* rhyming patterns.

[224]The acoustic affinities between **w** and some varieties of **r** are well known. Indeed, the replacement of *r* with *w* (à la Elmer Fudd) is a common speech impediment in English.

second-division.[225] These are now reconstructed as ***-ra** by Baxter and ***-rag** by Li and Gong.

Matisoff (1998) has recently returned to this proposal, and compiled a list of proposed cognate sets which lend further support to a correspondence between PTB ***Pwa-** and OC ***Pra-**.

Bearing this hypothesis in mind, let's return to the items in Coblin's list which have labial initials. It is apparent that 'bamboo', 'pig', and 'spread/sow' fit the pattern perfectly. These forms have all been reconstructed with both ****-~~r~~-** and ****-w-** in the PST form, with OC ***-r-** corresponding to PTB ***-w-**.[226]

To these we can add two sets from Matisoff's list for which the reconstruction of ***-r-** is ambiguous on internal Chinese evidence, but can be confirmed now through comparison with Tibeto-Burman:

	PTB	OC	Gong	Baxter
'ax'	*r-pwa (STC #441)	鈇, 斧	*p(r)jag(x) > pju	*p(r)ja(ʔ) > pju(X)
'father'	*pwa (STC#24)	父	*b(r)jagx > bju	*b(r)jaʔ >bjuX

What of the other sets listed by Coblin? There is no evidence for medial ***-w-** in the reflexes of PTB ***mang** 'big; older (brother, uncle)' (Benedict 1972:189 note 488). However, a second form, reconstructed ***bwaŋ ~ *pwaŋ** meaning 'uncle/older brother' is also given (1972:23 note 78), with considerable support. These two roots are likely variants of each other, and this suggests the presence of ***-w-** at the PST level.

Our diagnostic languages are of some interest here. Consider the following forms:

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[225]It is also reconstructed for a small number of apparently exceptional third-division words with acute initials, which Baxter reconstructs ***-jA**.

[226]The doublet 班 ***pran** 'spread out, scatter' / 播 ***parh** 'spread, sow', which Coblin suggests is cognate to PTB ***bwâr**, is quite interesting. According to the views of Starostin (the outlines of which conform with Gong's reconstruction and Baxter's revised reconstruction as well), OC final ***-r** merged with ***-n**, but in some dialects it remained ***-r**, finally merging with ***-j**. The 'spread/sow' doublet can be explained by the following dialectal developments (disregarding tone):

1) **pwar > *pwan > *pran 班
2) **pwar > (*prar) > *par > *paj 播

In the first dialect, the change of ***-r** to ***-n** occurred before the medial shifted from ***-w-** to ***-r-**. In the second dialect, the change of final ***-r** to ***-n** did not occur. When the ***-w-** to ***-r-** shift took place, the medial in this word dropped out entirely since the syllable shape ***CrVr** could not be tolerated.

Dulong *a*^{31}*wăŋ*^{53} ‘uncle (paternal)’
Dulong (Nujiang) *a*^{31}*muŋ*^{55} ‘elder brother’
Geman *poŋ*^{35} ‘uncle (paternal)’
Darang *a*^{31}*m˕oŋ*^{55} ‘elder brother’

The first Dulong form reflects ***pwaŋ** with loss of initial ***p-** (a common development), while the Geman form reflects the same root without loss of the initial and subsequent rounding of the vowel under the influence of ***-w-**. The Dulong (Nujiang) form for elder brother appears to reflect the ***maŋ** root, but the vowel rounding suggests a medial ***-w-** as well. Of particular note is the Darang form, which indicates there might be a medial ***-r-** lurking in the background of this root after all.

The situation is similarly ambiguous when it comes to the root for ‘flower’. Coblin lists only the WB form, which Benedict (1976:15 #1) associates with PTB ***ba:r** ‘bloom; flower’, noting that PTB ***-ar** may be realized in WB as *-a*, *-an*, or *-ai* (note 54). In and of itself this indicates that Coblin’s PST reconstruction should be ****br̥iar**. (On the other hand, Geman *phan*^{53} ‘flower’ seems to reflect PTB ***-n**.) Moreover, Benedict identifies a second ‘flower’ root ***bwat** (1976:24 note 78) which has among its reflexes PLB ***wat** ‘flower’ and Dulong *wăt*^{55} ‘bloom’. Again, it seems likely that these two roots are doublets, and provide evidence for medial ***-w-** at the PTB level to correspond with OC ***-r-**.

I have no additional evidence in support of reconstructing PTB ***-w-** in ‘people’, for which there is only representation in Tibetan, or in ‘great/elevated’. As for ‘board/plank’, it appears that the evidence here is weighted toward ***-r-** in PTB, given the WB form *prâ* ‘flat, level’ cited by Gong and Bradley’s PL root ***ʔ-bra**^{2} ‘flat’. It may well be, however, that these words for ‘flat’ are not directly cognate to the OC and WT words for ‘board, plank’, and should not be taken back to a PTB root with final ***-r**. If this is true, than the reconstruction of the PTB ancestor of TB *'phar* remains uncertain.

The hypothesis advanced here solves the problem of correspondences between OC ***-r-** and PTB ***-Ø-** which Coblin marked with the reconstruction ****-r̥-**. It argues for the

establishment of a correspondence between OC ***Pr-** and PTB ***Pw-**, to be taken back to PST ***Pw-**, and allows for the possibility the medial ***-w-** was retained in this environment through some portion of the development of OC. The evidence in support of this hypothesis is suggestive but not conclusive, especially given the apparent degree of variation between ***P-** and ***Pw-** in PTB.[227]

Remaining in Coblin's list are roots with velar initials. It is here not possible to set up a correspondence between OC ***-r-** and PTB ***-w-**, as I have done after labials, because it is presumed that PST ***Kw-** became OC labiovelars ***K^{W}-**. There are only two examples: 'corner/angle' and 'goose'.

While the WT form for 'corner/angle' indeed shows no evidence for medial ***-r-**, the PTB root ***krəw** 'horn' (STC #37) does. And, despite the lack of a final stop, this root is closer in meaning to the basic sense of the Chinese word. The diagnostic languages have the following words for 'horn':

Dulong dl	*tɕi^{31}**xɹɯ**^{55}*
Dulong nj	*aŋ^{31}tɯ^{31}**xɹɯ**^{55}*
Darang	***ɹau**^{55}*
Geman	***kɹăŋ**^{35}*
Cuona	***ru**:^{13}*

Dulong *xɹ-* is a regular reflex of PTB ***kr-**. The Dulong morphemes are unmistakably descended from ***krəw**. The Geman form appears to be related, but here we have the unexpected appearance of a final velar. (Perhaps there is some connection between this final and the final ***-k** of the Chinese form?) In Cuona the initial ***k-** has dropped, leaving an *r*-initial word.

These same variations are discernible in the meso-level reconstructions for 'horn':

DB-PL	***kro^{1}**
PLB	***kruw^{1}**
TGTM	***^{Ah}ru**
PNN	***ruŋ**

[227]For a discussion of the secondary origins of medial ***-w-** following labials in PTB, see Matisoff 1998.

In this context, note that the Tibetan word for ‘horn’ is *rwa ~ ru* and that there is another Tibetan word for ‘corner, angle’ *grwa ~ gru* (Benedict 1972:113), neither of which show evidence of a final stop.[228]

Which brings us to ‘goose’. Coblin compares WB *ngàn* with Chinese 雁 ***ngranh**. The WB form is treated by Benedict as an **-n**-suffixed form of a basic TB root ***ŋa** ‘goose’ (Benedict 1972:99 note 284). The TB ***-n** suffix is described by Benedict as “a special kind of ‘collective’ pluralizing suffix”, and is attested in a number of animal words in individual TB languages. WB *ngàn* is however a TB isolate, and the evidence for its final ***-n** being a morphological suffix is found by Benedict in Chinese, where he presents the pair of cognates 鵝 and 雁, reconstructed (in Karlgren’s notation) ***ŋâ** and ***ŋan** respectively. In both Baxter’s and Gong’s systems, these would be reconstructed ***nga** and ***ngrans**. It should be noted that the first form, which is presumed to represent the basic root, contains no medial ***-r-**, and so corresponds perfectly to the root of WB *ngàn* < ***ŋa-n**. The presence of ***-r-** in the derived word ***ngrans** is unexplained, but has no direct bearing on the comparison with the Burmese. In terms of root morphemes, the comparison is between OC 鵝 ***nga** and TB ***ŋa**.

Through careful evaluation of the evidence presented by Gong and Coblin, supplemented with additional TB data and an appreciation of variational patterns, the correspondences of the medials of Class I Chinese words can be determined without resorting to reconstructing Coblin’s ****-ɾ-**. While it could be argued that too high a reliance on variation allows the successful resolution of nearly any hypothesis, I believe that the variants I have made reference to here are both individually attested by living TB

[228]It seems possible that the Chinese addition of final ***-k** to this root was an innovation, as was the extension of the meaning ‘horn’ to ‘angle’; the Tibetan word *khug* for ‘corner, angle’ may have been borrowed back from Chinese after the medial ***-r-** had disappeared. This would account both for the semantics of the Tibetan word and for the final *-k*, as well as resolving the problem with the OC/PTB medial ***-r-** correspondence. This is only speculation; I have not investigated the textual evidence which would allow dating of the earliest attestations of *khug*. One STEDT root (#814) set up by Matisoff attempts to account for the full range of semantic and phonological variation with a single protoform: ***n/g-[r]u-(ŋ/k)** ≍ ***n/g-[r]wa-(ŋ/k)** ‘horn/angle/corner’.

forms, and are typologically consistent with well-documented patterns of variation within TB.

My hypotheses do not militate against the possibility that some instances of medial ***-r-** in Class I words are of uniquely Chinese origin and may reflect a morphological infix. I have demonstrated, however, that in many cases it is not necessary to resort to such an explanation.

Two types of correspondence have been proposed. The first involves OC medial ***-r-** and PTB medial ***-r-**. The second involves OC medial ***-r-** and PTB medial ***-w-**, and occurs only after labial initials. The vast majority of Class I words for which PTB cognates have been identified fit into one of these two correspondence patterns.

4.2.2 Class II words: Middle Chinese second division with retroflex initials

The development of Middle Chinese retroflexes

Li, Baxter, and Pulleyblank are in general agreement that the Middle Chinese retroflexes, which occur only in second- and third-division rhymes, have their origin in the effects of Old Chinese ***-r-** on dental initials ***T-** and ***TS-**. When these retroflexes occur in second-division syllables, the simple medial ***-r-** is reconstructed; when they occur in third-division syllables, the cluster medial ***-rj-** is reconstructed (in Pulleyblank's case ***-r-** is reconstructed for both, but the latter has Type B prosody). This explains why plain dentals never occur with second- and third-division vocalisms, but do alternate in phonetic series with the retroflexes.

It is unclear if, under Pulleyblank's more recent theory regarding Old Chinese long vowels as a second source for second-division rhymes, some Middle Chinese retroflex initials could have also arisen from the influence of long vowels rather than from medial ***-r-**. Pulleyblank 1996 does not address the issue, but there would seem to be two possibilities. First, that the retroflexes resulted from the immediate proximity of medial

***-r-** before it became off-glide **ɨ**. Second, that the retroflexes arose in a later period under the influence of **ɨ** itself.

While the first possibility seems phonetically more plausible, it would imply that syllables with plain dentals could appear with second-division vocalism. Consider the following contrasting developments:

***trá-** > ***ṭar-** > **ṭaɨ** (second division)
***taá-** > **taɨ** (second division)

Since syllables of the type **taɨ** (with plain dental initials) do not occur in EMC, the second possibility, that retroflexes developed as ***trá**, ***taá** > ***taɨ** > **ṭaɨ**, is the only interpretation which is consistent.

I will next compare Class II and Class III words with Tibeto-Burman, to see whether a reconstruction of medial ***-r-** in all such words can be reconciled with regular TB correspondences. If not, hypotheses regarding secondary sources of MC retroflex initials can be entertained and tested, including Pulleyblank's long-vowel hypothesis.

As noted in the previous section, Coblin derives OC ***dr-**, ***trj-** from PST ****rd-**, ****rtj-** respectively (see Section 3.4), while Gong reconstructs ***rd-**, ***rt-**, ***rth-**, etc. at the Old Chinese stage. This hypothesis is largely influenced by the structure of Tibetan, which has few clusters of dental initials with medial ***-r-**, but does have an ***r-** prefix which may precede dental initials. It has also been noted (Section 3.2.3) that evidence is scarce for the reconstruction of PTB ***Tr-** clusters as well.

Benedict (1972:109ff) reconstructs prefix ***r-** as a feature of PTB. It is of uncertain morphological function, and appears with both noun and verb roots. In addition to its reflex as WT *r-*, Benedict indicates that it is preserved in Jingpho (as *lə-* or *n-~niŋ~num-*), Bodo-Garo, and Mikir (as *ar-*), as well as sporadically in other languages. Our diagnostic languages, which were chosen to distinguish medial ***-l-** and ***-r-**, will not be of much help here.

Class II words and Tibeto-Burman

Among Gong's cognate sets, Class II words are greatly outnumbered by Class III words. I do not know if this fact has significance for reconstructing Old Chinese.

Gong 1995 lists five Class II words.

Set	Old Chinese	Written Tibetan	Written Burmese
7	爭 *rtsing > tṣɛng 'strife, quarrel'	*'dzing* 'to quarrel, contend, fight', *zing-cha* 'quarrel, dispute'	*cac* 'war, battle'
60	產 *srianx > ṣǎn 'breed, bear, produce'	*srel-ba* 'to bring up, to rear, to nurse up'	
72	椓 *rtuk > ṭǎk 'beat, strike'	*rdug* 'to strike against	
262	撞 *rdung(s) > ḍǎng 'to strike'	*rdung* 'to beat, to strike'	
279	欶 *rsuk > ṣǎk 'suck, inhale'		*sauk* 'to drink, to smoke'

(7). Baxter ***tsr(j)eng** > **tsrɛng**. Based on the two WT forms, the Tibetan root appears to be *zing*, with the affricate of *'dzing* arising under the influence of the prefix *'-*. (This is a common alternation in Tibetan; see Li 1933:148.) Assuming that the Chinese and WT forms are cognate, one could speculate that the original Chinese stem is ***sing**, with affrication to ***tsing** under the influence of prefix ***r-**.[229]

There is however no evidence in the WT forms for prefixal or medial ***r**.

The WB form would be derived from stop-final ***-ik** rather than ***-iŋ** (the latter would give WB *-añ*). Its initial supports an original affricate in this root, rather than ***s-** or ***z-**. (As does Gong's reconstructed Tangut form ***dzeej** 'to quarrel, contend, fight'.)

(60). Baxter 118 ***sngrjan?** > **srɛnx**. Baxter's reconstruction requires some explanation. In line with Baxter's general proposal that ***s-** + resonant > **s-**, the first development is ***sngrjan?** > ***srjan?**. This ultimately becomes second-division **srɛnx** (**ṣǎn**) rather than third-division **srjenx** (**ṣjän**) due to the MC change **TSrj-** > **TSr-**

[229]***r-s-** > ***r-ts-** is a purely speculative proposal, which may bear looking into further but as far as I know is not generally supported by evidence. (See, however, the following footnote for further discussion.) It is reminiscent of Baxter's proposal (1992:205) to reconstruct ***sr-** > **tsh-**, but it would be a distinct phenomenon. Baxter's ***sr-** always develops into an aspirated MC initial. It is reconstructed for MC **tsh-**initial words which show a word-family relationship to **s-**initial words.

(described above in the definition of Classes II and III. See also Baxter 1992:371.) As for why Baxter reconstructs a velar cluster ***sngrj-** rather than simply ***srj-**, it is because the phonetic of 產 is 彥, which unmistakably has initial ***ng-**. The *Shuōwén* identifies 彥 as the "abbreviated phonetic", but this is not recognized by Karlgren, who places 產 in a separate phonetic series from 彥. Whether or not 彥 is really the phonetic is open to debate. If Baxter is right, however, then WT *srel* is unlikely to be cognate. On the other hand, given the close semantic and phonological similarity of the WT word with the Chinese, it seems better to reconstruct the Chinese word as ***srjan?** or ***sren?** in Baxter's system, leaving the structure of the character 產 a puzzle.

Assuming that the comparison is valid, Tibetan medial *-r-* and OC medial ***-r-** correspond well here. As we shall see, ***sr-** clusters appear to behave somewhat differently than clusters of ***-r-** with dental stops or affricates, and comparisons involving ***sr-** are surprisingly abundant. I will have more to say about this later.

(72, 262). Baxter ***trok** > **træwk**; ***drong(s)** > **druwng(H)**. STEDT #2709: ***tuk** 'cut, knock, pound' (STC #387). I believe this PTB root should be revised to ***tuk ⋗ *tuŋ**, and that its semantic center of gravity is closer to 'knock, pound' than to 'cut'. There is considerable evidence in TB as well as in Chinese for alternation between final stop and nasal:

WT	*rdug* 'to strike against'
Dulong dl	*tuʔ*^{55} 'sting' < ***-uk**
Dulong nj	*a*^{31}*tu*^{53} 'hit (target)'
PL	***m-tok**$^{\mathbf{H}}$ 'hit'
PLB	***tok** 'peck/strike with curved instr.'

WT	*rdung* 'to beat, to strike'
Dulong dl	*duŋ*^{55} 'strike (iron)'
Dulong	(Nujiang) *duŋ*^{53} 'strike / hit'
Darang	*la*^{55}*tiuŋ*^{53}*xo*^{53} 'hit (target)'
DB-PL	***ʔ-toŋ**$^{\mathbf{2}}$ 'pound'
PTP	***thɔ́ŋ'** 'pound (in mortar)'
PPS	***tò** 'pound (in mortar)'

Among these languages only Tibetan can provide evidence of ***r-**.

(279). Baxter ***srok** > **sræwk**. STEDT #1703: ***s(y)ok** 'drink/suck/smoke'. With this reconstruction Gong indicates that he reconstructs OC ***sr-** when WT has *sr-* (see set #60), and OC ***rs-** when WT has just *s-*. (Note that the sequence **rs-* does not occur in Tibetan.)[230]

Although in the case of Class II words the presence of a medial or prefix *r* in TB is not for Gong a requirement for cognacy, it will still be instructive, as in the previous section, to turn now to Coblin's cognate sets involving Class II words which are reconstructed with ****-ɾ-**. Recall that these are sets for which OC has medial ***-r-** but TB does not.

gloss	PST	OC (modified from Li 1971/76)	PTB (from Benedict)
hair	****sɾam**	彡 ***sram** 'long hair'	***sâm** 'head hair'
kill	****sɾiat**	殺 ***sriat** 'kill'	***sat** 'kill'
pair	****zɾung**	雙 ***srung** 'pair'	WT *zung* 'pair, couple'
quarrel/strife	****tsɾing ~ **dzɾing**	爭 ***tsring** 'quarrel, strife'	WT *'dzing-ba* 'to quarrel, contend, fight'
sand/earth	****sɾaɾ**	沙 ***srar** 'sand'	WT *sa* 'earth'
sick	****nɾaɣ**	瘴 ***nrag** 'sick'	***na** 'ill; pain'
suck/drink	****sɾuk**	欶 ***sruk** 'suck, inhale'	WB *sok* 'to drink'

The character 爭 has already been dealt with above. Of the remaining six sets, a surprising five of them involve OC ***sr-**. Since *sr-* clusters (unlike *tr-* clusters) exist in Tibetan, it is surprising to find in these sets that OC ***sr-** corresponds to WT *s-* with no medial. Is this indeed a regular correspondence, or are there problems with the data?

At this point it is worth asking whether there are also valid correspondences between OC ***sr-** and WT *sr-*. We have in fact seen a proposal above for one cognate set of this type, Gong's set #60, and I noted at that time that Baxter's reconstruction poses difficulties for the proposal. Are there other such sets relating OC ***sr-** to WT or TB *sr-*?

[230]Li 1933 documents the following prefix-conditioned changes to initial consonants in Tibetan: ***'-ś-** > **'tśh-**, ***'-s-** > **'tsh-**, ***'-ź-** > **'dź-**, ***'-z-** > **'dz-**, ***r-ź-** > **rdź-**. Though he gives no examples demonstrating the fate of ***r-s-**, by analogy we might suppose it would become **rts-** or possibly **rdz-**. This is supported, for example, by Benedict's reconstruction of PTB ***r-saŋ** 'lizard' based on WT *rtsangs-pa* and Jingpho *nsaŋ* (1972:109).

Coblin lists five cognate sets with PST ****sr-**. As opposed to his ****~~sr-~~**, this initial cluster is reconstructed when both TB and OC show evidence for an ***-r-** medial. They reveal an interesting pattern:

gloss	PST	OC (modified from Li 1971/76)	PTB (from Benedict)
bear, rear	****srel**	產 ***srianx** 'to breed, bear, produce'	WT *srel-ba* 'bring up, rear'
live, bear	****sring**	生 ***sring** 'live, life; bear, be born'	***s-ring** 'live, alive, green, raw'
louse	****sryik**	蝨 ***srjik > *srjit** 'louse'	***śrik** 'louse'
rule/lead	****srjiət**	帥, 率 ***srjiət > *srjət** 'to lead, direct'	WT *srid* 'government; ruler, commander'
sister	****sring**	甥 ***sring** 'sister's son or daughter; son-in-law'	WT *sring-mo* 'sister (of a male)'

We can add to this list the following comparison from Benedict 1972:171, 183:

weasel	****sring**	鼬 ***sjings** 'weasel'	***sre[ŋ]** 'weasel'

Aside from 'bear, rear', the remaining four sets all have the high front vowel **-i-** in TB. Moreover, they all involve Class III rather than Class II Chinese words. 生 and 甥 appear to be Class II, since they have second-division MC reflexes, but in fact they are reconstructed ***srj-** by Baxter and Gong alike (see Gong set #256 in the next section). As for 狌 鼬 'weasel', Karlgren (GSR #812t,u) reconstructs this word as homophonous with 姓 (Gong ***sjings**, Baxter ***sjengs**), but the *Guǎngyùn* lists both characters in the same homophone group as 生, which indicates a reconstruction with medial ***-r-**, fitting the observed pattern of correspondence. Although Gong does not always accept Baxter's **TSrj-** > **TSr-** change, in the case of these words with phonetic 生 the proposal ***srj-** > **ṣj-** > **ṣ-** explains what would otherwise be an irregular vocalic development. These Class III words will be treated in the next section.

Restricting the field of inquiry to Class II words then, it appears that the correspondence pattern captured in Coblin's PST ****~~sr-~~** reconstruction is the norm rather than the exception. I would like to propose, therefore, that these sets be reconstructed with

ordinary ***sr-** at the PST level, with the development PST ***sr-** > OC ***sr-** and PST ***sr-** > PTB ***s-**.[231]

This reconstruction must be carefully distinguished from PST prefix+initial ***s-r-**, which yielded PTB ***s-r-** in such roots as ***s-ram** 'otter' > WT *sram* 'otter' and ***s-ra** 'place'.[232] True ***sr-** and ***zr-** clusters appear to be lacking in PTB except before front vowels.

My approach solves a problem with one of the best-attested Chinese/TB roots, that for 'kill'. In this word, common throughout the TB language groups, there is unmistakably no evidence whatsoever for the reconstruction of medial ***-r-**. Yet, as a MC second-division word, the Chinese cognate has always been reconstructed with medial ***-r-**. This initial correspondence can now be viewed as regular.[233] If my hypothesis is correct, the loss of medial ***-r-** after initial ***s-** in PTB also provides evidence supporting the early split of Chinese from the common PST stock, before the subsequent ramification of Tibeto-Burman.

The developments can be summarized as follows, where V represents a non-high, non-front vowel:

PST	OC	PTB
*sri- >	*sr-	*sr-
*srV- >	*sr-	*s-

Coblin's final example of PST ****-r-**, the only one not involving initial ***s-**, compares Chinese 瘴 'sick' to PTB ***na** 'ill; pain' (STC #80). The Chinese character is attested only in medieval texts. Given the obscurity of the word (it does not even appear in the *Guǎngyùn*) and the difficulty of reconciling the medial ***-r-** problem, there does not appear

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[231]This rule applies only to sets involving Chinese Class II words. Until the question of OC and PST medial ***-j-** is resolved, it is difficult to formulate the environment for this rule in more specific symbolic language. The precise formulation may end up involving the absence of medial ***-j-**, or the absence of vocalic ***-i-**. The important thing for now is the structural relationship.

[232]The former has no apparent cognate in Chinese; the latter is related to 所 'place' (Baxter ***s(k)rja?** > **srjoX**).

[233]There is still a problem with the vowels, however. OC ***ia** (Baxter's ***e**) does not normally correspond to PTB ***a**.

to be a pressing reason to accept this cognate set. Benedict (1972:158-9) connects the PTB root instead with Chinese 難 ***nans** 'difficulty, calamity'. To do so he makes recourse to a Chinese ***-n** suffix of uncertain meaning.[234] Nevertheless, in my opinion Benedict's proposal remains more convincing than Coblin's.

In conclusion, as far as Class II words are concerned, Gong's reconstruction of ***rT-** clusters in Chinese appears acceptable. It accounts for retroflection in the development of Middle Chinese, matches the PTB restriction on ***Tr-** type clusters, and corresponds in some cases with Tibetan *rT-* clusters. Unfortunately, the number of cognate sets is small, and evidence elsewhere in TB for the ***r-** prefix is difficult to come by, so this reconstruction cannot be supported by much evidence. Circumstantially, however, it seems the best solution currently available. Since the ***r-** of such clusters should properly be considered a prefix, for consistency I will write ***r-T-** for Gong's ***rT-**.

The case of Chinese ***sr-** clusters should be kept distinct from clusters with stops or affricates. It appears that for Class II words, a general correspondence of OC ***sr-** with PTB ***s-** can be established with some confidence, suggesting descent from PST ***sr-**.

4.2.3 Class III words: Middle Chinese third division with retroflex initials

Class III words are similar to Class II words, in that they have Middle Chinese reflexes with retroflex initials. They differ, however, in that they appear in third-division rhymes, and are marked in Baxter's and Gong's reconstructions by the presence of medial ***-j-**.[235]

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[234]Benedict glosses the Chinese as 'difficulty, suffering', the latter meaning providing the semantic link to PTB 'ill, pain'. The meaning 'suffering' does not however appear in GSR #152d.

[235]A few words reconstructed with medial ***-j-** but end up in second-division rhymes are included here, although technically they are Class II words according to the definitions I gave for the classes. According to Baxter, these words ultimately shifted into second division through the transformational rule **TSrj-** > **TSr-**. Gong does not in general agree with this development, but he does reconstruct ***-rj-** for a subset of these words: those in the GēNG 耕 and JIā 佳 groups whose vocalic development would be irregular if just ***-r-** were reconstructed. See Baxter 1992:267-269. For the purposes of this study, only three words of this type are involved, all in the same phonetic series: 生, 甥 and 狌 = 鼪.

As with Class II words, Gong tends to reconstruct ***rT-** and ***rTS-** rather than the traditional ***Tr-** and ***TSr-** clusters, in order to explain the correlation with TB forms lacking medial *-r-* and sometimes having prefix *r-*.

Set	Old Chinese	Written Tibetan	Written Burmese
15	住 *rdjuks > ḍju 'to stop'	*'dug* 'to remain, to stay, to live, to be, to exist'	
44	綴 *rtjuat > ʈjwät 'sew, tie, connect'; 贅 *tjuats > tśjwäi 'unite, together'	*rtod, gtod, btod* 'to tether, fasten, secure'	
76	冢 *rtjungx > ʈjwong 'mound, peak'	*rdung* 'a small mound, hillock'	*taung* 'a hill, mountain'
94	蝨 *srjik > ʂjɛt 'louse'	*shig* 'louse'	
148	展 *rtjanx > ʈjän 'roll over, unfold'	*rdal* 'to spread, extend'	
158	塵 *rdjən > ḍjĕn 'dust'	*rdul* 'dust'	
184	纏 *rdjan > ḍjän 'bind, wind'	*star* 'to tie fast, to fasten to'	*ta* 'to cling to'
241	張 *rtjang > ʈjang 'give tension to a bow, stretch, extend'	*thang-po* 'tense, tight, firm'	*tâng* 'to tighten, become tense'
256	甥 *srjing > ʂɐng 'sister's son or daughter, son-in-law'	*sring-mo* 'sister (of a male person)'	
283	晝 *rtjuks > ʈjəu 'time of daylight, day'	*gdugs* 'mid-day, noon'	
311	女 *nrjagx > ṇjwo 'woman, lady, girl'; 孃, 娘 *nrjang > ṇjang 'lady, woman, mother'	*nya-mo* 'wife, house-wife'; *nyag-mo* 'woman'	
329	事 *rdzjəgs > dẓï 'serve, affair'	*rdzas* 'thing, matter, object'	*ca* 'a thing'
350	肘 *trjəg^{w}x > ʈjəu 'wrist, elbow'	*gru-mo* 'elbow'	
359	沈 *rdjəm > ḍjəm 'to sink, submerged, deep'	*thim 'thim, gtim, stim* 'to disappear by being imbibed, absorbed; to be melted, dissolved in water, to sink'	*tim* 'shallow'

And one form from Coblin which is absent from Gong 1995:

	生 *srjing > ʂɐng 'live, life; bear, be born'	*hrang* 'live, alive'

We can also add the set mentioned in a footnote in the previous section:

狌 鼪 *srjing > ṣɐng ‘weasel’	*sre-mong ~ sre-mo* ‘weasel’	*hrañ* ‘squirrel’

I first list the words for which there is evidence of ***r** in TB.

(44). Baxter ***trjot** > **trjwet**; ***tjots** > **tsywejH**. STEDT #2207: ***du-t ~ *tu-t** ‘join; tie, knot’ (STC #421). Among our diagnostic languages there are several reflexes of the open and closed variants of this root:

Dulong nj	*sɯ^{31}tɔt^{55}* ‘connect’ < ***-uːt**
Darang	*ma^{55}tho^{55}* ‘connect’
Geman	*dău^{53}ni^{55}* ‘connect’
Cuona	*tut^{53}* ‘connect’

Evidence for an ***r-** prefix in PTB is inconclusive. WT has three variants of this verb, all with different prefixes. The Dulong form indicates an ***s-** prefix, while the voiced initial in Geman possibly suggests a voiced prefix. Given this variation, an ***r-**prefixed variant in Chinese is entirely possible. Chinese 贅 (GSR #343a) appears to be an ***r-**less variant of the same root.

(76). Baxter ***trjong?** > **trjowngX**. I have not identified any other TB cognates.

(94). Baxter ***srjik** > ***srjit** > **srit**. PTB ***śrik** ‘louse’ (STC #439). This is one of four roots reconstructed with PTB ***śr-** in Benedict 1972 (p. 108 note 304), three of which appear to have cognates in Chinese ***srj-**. This root is widely attested in Tibeto-Burman, and cognacy with the Chinese form is unassailable.[236] The presence of ***-r-** in PTB is not apparent in the WT reflex, but can be seen clearly, for example, in Mikir *rek*. A number of our diagnostic languages have initial *ɕ-*, which may well generally reflect ***śr-** and ***sr-**.

Dulong nj	*ɕɯ̆ʔ^{55}* ‘louse’
Dulong dl	*ɕĭʔ^{55}* ‘louse’
Cuona	*ɕeʔ^{53}* ‘louse’
PNN	***sri(ː)k**, ***sreːk** ‘louse’
PS	***θúq** ‘louse’

[236]The change ***-ik** > ***-it** in OC is sporadic but attested in a number of clear-cut examples with internal evidence from phonetic series as well as external comparisons. The most well-known example is 節 ***tsik** > ***tsit** ‘knot, joint in plants’. Compare with phonetic 即 ***tsjik** and PTB ***tsik** ‘joint’.

One might speculate that the back vowels in the Dulong (Nujiang) and Karen forms may reflect the effects of ***-r-**.

(148). Baxter 417.2 ***trjenʔ** > **trjenx**.[237] As far as I know no PTB root has been proposed. A PLB root that looks similar is ***(ʔ-)dzan³ ≍ *tsan³** 'stretch out' (Matisoff 1985b #11). I have argued (Handel 1995:#188,#189) based on the Lisu reflexes that this root should be revised to ***(ʔ-)džan³ ≍ *tšan³**, with palatal initials. One could then make an argument for an original PTB ***dy-** or ***ty-** cluster, though this is not supported by the WT form. Despite the semantic similarity, I believe that this PLB root is probably not related to the Chinese. There is an interesting form in Dulong:

Dulong nj *dǎn*^{53} 'pave/spread/fill'

Final -*n* in Dulong (Nujiang) may reflect either ***-n** or ***-l**. Dulong (Dulonghe) preserves PTB ***-l**, but unfortunately I cannot locate a cognate in this dialect. (See LaPolla 1987:31.)

(158). Baxter 1112 ***drjɨn** > **drin**. STEDT #2203: ***(r-)dul ~ *tul** 'dust'. This is a very nice cognate set. To it we can add:

Dulong nj *tɕha*^{31}*dun*^{55} 'dust'

This Dulong form may reflect either PTB ***-un** or ***-ul**, but unfortunately there does not appear to be a Dulonghe dialect cognate to confirm the presence of ***-l**. (Compare Nujiang *ŋun*^{55} and Dulonghe *ŋŭl*^{55} 'silver'.)

(256). Baxter ***srjeng** > **srjæng** > **sræng**. STEDT #2664: ***sriŋ** 'sister' (STC p. 108 note 304). This Chinese word is perfectly homophonous with 生, which we compare to PTB ***śriŋ**. Reconstruction of the ***sr-** / ***śr-** distinction in PTB is tricky. Benedict 1972:108 provides the following forms for 'louse',' live', and 'sister':

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[237]This reconstruction, found at Baxter 1992:221, may be in error. The appendix (p. 808) lists the *qù*-tone variant of this character with a reconstruction ***trjan(ʔ)s**, and in *Shījīng* 47.3A (p. 600) the word does indeed rhyme with ***-an** words. It appears then that the correct reconstruction for the *shǎng*-tone variant should be ***trjanʔ**. (If so, then the reconstruction of 碾 on page 221 should be revised to ***Ntrjanʔ**.) This of course matches better with the proposed TB cognates.

	PTB	Bunan	Tibetan	Kachin	Burmese	Mikir	Garo
'louse'	***śrik**	*śrig*	*śig*	*tsiʔ*	--	*rek*	*tik*
'live'	***śriŋ**	--	--	*tsiŋ*	*hraŋ*	*reŋ*	*thaŋ*
'sister'	***sriŋ**	*śriŋs*	*sriŋ-mo*	--	--	--	--

It appears that the main reason for reconstructing 'sister' (which has support only in the Himalayish group) with ***sr-** rather than ***śr-** is the Tibetan distinction. The other TB evidence is supportive of either reconstruction, however, and Tibetan is not necessarily diagnostic in this case. In fact, given the situation in Chinese and the patterns involving ***sr-** discussed in the previous section, it may be appropriate not to draw a distinction in PTB between ***sr-** and ***śr-** before ***-i-**, and attribute the variation in Tibetan to unknown causes.[238]

At this point it is appropriate to discuss the word 生, which is listed by Coblin but not included in Gong 1995. Gong did not include this set because the OC/WB vowel correspondence is not regular. We would expect a WB form something like *hrañ* (with the regular Burmese development ***-iŋ** > *-añ*). There is little doubt, however, that the Burmese form is indeed cognate. Benedict (1972:39 note 128) has attributed the irregular vocalic development to the effect of the initial cluster, citing for comparison WB *khraŋ-tshi* < PTB ***(r-)kliŋ-** 'marrow'.

At any rate, the following forms all confirm the presence of some sort of sibilant-rhotic cluster:

Kanauri	*söŋ* 'live, alive'	STC #404
Manchati	*sriŋ* 'live, alive'	STC #404
Lushai	*hriŋ* 'fresh, green'	STC #404

Dulong	*ɹɔŋ*^{53} 'dwell/live'
Darang	*a*^{31}*suɯŋ*^{55} 'alive'
Dulong dl	*puɯ*^{31}*ɕĭŋ*^{55}*ɕĭŋ*^{55} 'green'
Geman	*kuɯ*^{31}*ɹăŋ*^{35} 'alive'

[238]It is interesting to note that English does not permit a distinction between *sr-* and *shr-* [ʃr-]. **sr-* does not occur in English, and foreign words beginning with this sound (e.g. Sri Lanka, Srebrenica) are usually pronounced *shr-*. This phonotactic peculiarity is limited to *-r-*. Initial *sl-* is common, and though *shl-* does not exist in native vocabulary, it is easily articulated in contrast to *sl-* in borrowed words like *schlemiel*.

(329). Baxter ***ɦsrjɨ?(s)** > **dzriH**.[239] Using Gong's reconstruction, the comparison with WT seems straightforward. Baxter, however, reconstructs the word with a fricative initial ***s-** and a voicing prefix, making direct comparison with the Tibetan difficult. In a footnote in Section 4.2.1 I did however raise the possibility that WT *rdz-* might arise from ***r-s-**.

(350). Baxter ***trju?** > **trjuwX**. STEDT #307: ***s-gu ≋ *s-gru** 'elbow'. The initials of the OC and WT forms do not match up. Coblin reconstructed PST ****klj-** to account for this single example of this correspondence. As described in the section on medial ***-l-**, Bodman has proposed the general change ***k-lj-** > **ʈj-**, which could account for this correspondence. There is no evidence for velars in GSR #1703 however. It is possible that the OC form represents an irregular development from a PST velar cluster, but I think it is more likely that the WT and OC forms simply aren't cognate. The Chinese word for 'wrist' is similar to that for 手 'hand' (Gong ***hljəg^{W}x**, Baxter ***hju?** but also possibly ***hlju?**), suggesting the possibility that it is in fact an internal derivation from 'hand'.[240]

The words for which there is no evidence of ***r** in TB.

(15). Baxter 223 ***drjos** > **drjuH**. The MC syllable could also originate from ***drjoks**, with a velar stop final matching Gong's reconstruction, but this phonetic series contains no *rù*-tone words.[241] If Baxter's reconstruction is correct, then the correspondence with the WT form appears a little less likely.

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[239]I presume that Baxter's reconstruction is based on a proposed etymological relationship with 使 ***srjɨ?** > **sriX** 'send, employ, cause'. (At GSR #971a Karlgren says: "There is really no fundamental difference in the archaic graphs between 事, 史 and 吏 (使)."') It is unclear to me why ***ɦsr-** should develop into an affricate **dzr-** rather than fricative **zr-**, as Baxter's ***sr-** becomes affricate **tsh-** only when not followed by ***-j-** (1992:205).

[240]Baxter and Sagart (1998:51-53) list ***t-** as one of the morphological prefixes of Old Chinese, but its function seems to be to derive mass nouns from count nouns; no such semantic relationship between 'wrist' and 'hand' is apparent.

[241]On the other hand, GSR #129 contains no *píng*-tone words either. So even in Baxter's system, an argument could be made for reconstructing the *qù*-tone words in this series with ***-oks**, and the *shǎng*-tone words with ***-o?**. Some of the *qù*-tone words in the series could even be reconstructed ***-o(?)s**, especially if a morphological relationship with *shǎng*-tone words could be demonstrated (Baxter 1992:321, 338).

The following form might however be cognate to an OC open syllable:

Geman *tɕau*^{53} ‘exist/be present’

The palatalized initial suggests the presence of a PTB medial glide.

A word on semantics: OC 住 is glossed ‘to stop’ by Karlgren, based on an early citation, but has since been extended to mean ‘live, dwell’. The WT comparandum *'dug* shows a similar semantic range, but it seems likely that the WT word, as well as the Geman , has as its core meaning ‘to exist’. This makes cognacy with the Chinese appear less likely, unless it can be argued that ‘to stop’ is actually a secondary meaning of the Chinese etymon. This is certainly possible. The phonetic and possible etymonic of this word is 主 (Gong ***tjugx**, Baxter ***tjo?**) meaning ‘master, lord, host; to govern’, and one can imagine an etymological connection between this sense and ‘live, dwell’, though a connection with ‘to be, to exist’ seems more far-fetched.

(184). Baxter ***drjan** > **drjen**. There doesn’t appear to be a STEDT root. If WT *star* is indeed cognate, indicating PTB ***-r**, then we would not expect this root to have a medial ***-r-** due to syllable-structure constraints. This does not necessarily rule out a prefixal ***r-** however. The following form appears to be related, but has a palatal initial:

Cuona *dʑʌr*^{13}*zu*^{13} ‘paste/glue/stick’

The WT, WB and Cuona forms all have similar glosses. The meaning of the Chinese word is somewhat different, but within acceptable semantic range.

(241). Baxter 582 ***trjang** > **trjang**. A number of PTB forms seem to be related to the WT and WB forms which Gong lists:

Darang *ma*^{31}*tuɯŋ*^{55} ‘tight’
Geman *kɯ*^{31}*daŋ*^{35} ‘tight’
Cuona *tʌm*^{13}*mo*^{53} ‘tight’ (with labial assimilation of the final)

and possibly:

PNN ***C$_{VD}$-dam** ‘tight’

As with the previous set, the semantics within TB seem more tightly clustered together. The semantic center of ‘tight’ can be related to the Chinese word through the sense ‘tense’,

but the Chinese word really seems to have its origin in the notion of 'stretching, extending' which is completely absent in TB. This casts some doubt on the validity of the comparison. Indeed, one wonders if 張 ***rtjang** isn't perhaps related to 展 ***rtjanx** (set 148).

(283). Baxter ***trjoks** > **trjuwH**.

(311). Baxter 224 ***nrja?** > **nrjoX**.

(359). Baxter ***drji/um** > **drim**.[242] In the same phonetic series we find 枕 'block used as headrest; pillow', which Baxter derives from a velar initial and which I tentatively reconstructed with initial ***klj-** in Section 4.1.5. However, this phonetic series (#656) shows no direct evidence of velars; if the current comparison with WT *thim* holds up, this casts the reconstruction of 枕 with a velar initial into doubt.

If in fact ***r-** is prefixal in many of these Chinese words, then it is not surprising to find disagreement between Chinese and TB in which lexical items have prefix ***r-**. Within Tibeto-Burman the survival of individual prefixes varies from language to language and from word to word. This may be due to variation at the proto-level between prefixed and non-prefixed forms, or to differing developments in different languages. Moreover, individual languages may analogize and/or extend the use of inherited prefixes to additional lexical items. It is entirely possible that in Chinese prefix ***r-** had some morphological function, some of the time. This is not to imply that ***r-** or ***-r-** always carried meaning; in some cases it must have been part of an inherited stem.

Regardless of the details, there is a fairly high correlation between ***r-** in Gong's OC reconstructions and in those TB languages where PTB ***r-** is recoverable. More than half of the cognate sets listed above from Gong 1995 reveal such a correlation, and this can hardly be due to chance.

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[242]The vowels ***i**, ***u**, and ***ɨ** are all possible in Baxter's system, and there is no reliable way of determining which is appropriate. The vowel ***u** is suggested by Baxter's reconstruction of 枕 ***Kjum?** (1992:551 #1763, in the same phonetic series), but the vowel ***i** is suggested by the WT cognate.

Coblin (1986) differs from Gong in reconstructing the two types of Class III words—those with evidence for ***r** in TB and those without—distinctly in PST. When WT has an *rd-* initial, Coblin reconstructs PST ****rt-** or ****rd-** and assumes metathesis led to OC ***tr-** or ***dr-**.[243] Most of Coblin's sets of this type have been accepted by Gong, who reconstructs ***rd-** and ***rt-** clusters at the OC level. But when there is no *r* in the Tibetan form, Coblin reconstructs PST medial ****-ɾ-**. When Gong accepts these sets, he usually still reconstructs OC ***rt-** or ***rd-**. But the following sets of this type from Coblin 1986 were not compiled into Gong 1995:

gloss	PST	OC (modified from Li 1971/76)	PTB (from Benedict)
beak/lip	****mtɾyəɣw**	咮 ***trjəgwh** 'beak'	WT *mchu* 'lip, bill or beak of birds'
firewood	****tɾjəng**	蒸 ***trjəng** 'small twigs used as firewood'	WT *thang* 'pine, fir, evergreen tree; WB *thàng* 'fuel, firewood; pine, fir (in compounds)'
gather together	****tsɾjup**	揖, 輯, 戢 ***tsrjəp** 'cluster together, to crowd', 'gather up', 'collect, store'	PLB *tsup ~ *ʔtsup 'crumple / clench / squeeze into a ball'
insect	****dɾyəngw**	蟲 ***drjəngw** 'insect, bug'	Bodo-Garo ***dyung** 'insect'
mount/raise	****tɾjɨk**	陟 ***trjək** 'to mount, raise, promote'	WT *theg-pa* 'lift, raise'
remove/ eliminate	****dɾjag**	除 ***drjag** 'remove, clear away, eliminate'	WT *'dag-pa dag* 'clear away, remove'
stop up	****tɾjik**	昄 ***trjik > trjit** 'to stop up'	WT *'dig-pa* 'to stop up'
tan	****nɾyel/r**	戾 ***nrjanx** 'to work leather so as to make it smooth'	WT *mnyel-ba ~ gnyel-ba* 'to tan or dress a hide'

Some of these were rejected by Gong because of irregular initial, medial, or vowel correspondences, others because there were no WT or WB cognates.

[243]But when WT has *dr-* and OC has ***trj-**, Coblin reconstructs ****trj-**. There is only one such example. I have already suggested that WT *dr-* probably reflects not an earlier cluster but rather ***d-r-**.

The main questions at the end of this section are: Was there in Old Chinese a contrast between ***r-T-** and ***Tr-**? After dental initials, is there an inherited ***-r-** medial? If not, was there a process of metathesis from ***r-T-** to ***Tr-**?

My interpretation of the evidence is that, in the case of dental stops and affricates, there is no need to propose both ***r-T-** and ***Tr-** clusters. Given that PTB seems to have had ***r-T-** but not ***Tr-**, it is simpler to suppose that OC also had ***r-T-** rather than ***Tr-** than it is to suppose widespread regular metathesis from PST ***r-T-** to OC ***Tr-**.

There is almost no PTB evidence to suggest the existence of medial ***-r-** after dental stops and affricates in Old Chinese. On the other hand, in a substantial number of cognate sets evidence for prefixal ***r-** comes only from Tibetan. For many words, ***r** is reconstructed in Chinese but no evidence of ***r** can be found in TB. In some cases it is probable that Chinese has inherited a PST ***r-** which has been lost in Tibetan. In other cases the Chinese ***r-** may be an innovation, perhaps having a morphological function.

One may well ask how the development of Middle Chinese second-division rhymes could be conditioned by a prefixal, rather than medial, ***r**. This is in fact not a surprising development. Once the dental initials became articulated with a retroflex feature under the influence of ***r-**, this feature could in turn have spread to the vowel: ***r-T-** > ***rT-** > ***rṬ-** > **Ṭ-** (second-division vocalism)

As for Pulleyblank's argument that some second-division words may have arisen not through the influence of ***-r-** but from some other feature (such as OC long vowels), I see no patterns in the comparative data to support this. It may be that such a feature remains to be discovered.

The ***r-**prefix hypothesis also allows us to revise Baxter's unwieldy ***lr-** and ***hlr-** clusters (as sources of MC **ḍ-** and **ṭh-** in lateral series) to ***r-l-** and ***r-hl-**. This revision is in fact anticipated by Baxter in his discussion of these clusters (1992:198-199).

Having proposed that Chinese had ***r-T-** and ***r-TS-** clusters, but not ***Tr-** or ***TSr-**, the question naturally arises whether grave initials could have been preceded by an ***r-**

prefix as well. This seems entirely likely given what we know of TB syllable structure. But presumably the retroflex feature of this prefix was not able to spread through the initial consonant to the vowel, so that ***r-kang** would develop just like ***kang** and differently from ***krang**. Recovery of prefixal ***r-** in such words would be extremely difficult. (As an example, note Gong's set #27, discussed below in Section 4.3.2, where PTB ***r-ko-t** 'dig'—the prefixal ***r-** is reflected both in WT *rkod* and Jingpho *ləgot*—corresponds to Chinese 掘 ***g^{w}jət**.)

Finally, I have proposed that after fricative ***s-** we do find medial ***-r-**.

4.2.4 Class IV words: Middle Chinese *chóngniǔ* third division

Class IV words are third-division *chóngniǔ* doublets. It will be useful to review the criteria that Gong and Baxter use to determine whether ***-r-** should be reconstructed in words of this type.

The emergence of the Middle Chinese chóngniǔ *distinction*

Middle Chinese *chóngniǔ* distinctions are found in the following twelve rhymes: Zhī 支, Zhī 脂, Jì 祭, Zhēn 真, Zhì 質, Xiān 仙, Xuē 薛, Xiāo 宵, Qīn 侵, Qī 緝, Yán 鹽, Yè 葉. In addition, the Gēng 庚 and Qīng 清 rhymes appear to form a *chóngniǔ* pair, as do their *rù*-tone counterparts Mò 陌 and Xī 昔. Finally, the Yōu 幽 rhyme appears to be a fourth-division *chóngniǔ* rhyme, possibly paired with third-division Yóu 尤.

The third- and fourth-division components of these rhymes have their origins in the following Old Chinese groups:

MC Rhyme		OC Rhyme Groups			
支	III-3	佳	歌		
	III-4	佳			
脂	III-3	脂	微	之 (*PK^{w}- only)	幽 (*K^{w}- only)
	III-4	脂			
祭	III-3	祭			
	III-4	祭			
真	III-3	真	文		
	III-4	真			
質	III-3	質	物		
	III-4	質			
仙	III-3	元			
	III-4	元			
薛	III-3	月			
	III-4	月			
宵	III-3	宵			
	III-4	宵			
侵	III-3	侵			
	III-4	侵 (*ʔ- only)			
緝	III-3	緝			
	III-4	緝 (*ʔ- only)			
鹽	III-3	談			
	III-4	談 (*ʔ- only)			
葉	III-3	葉			
	III-4	葉 (*ʔ- only)			
庚	III-3	耕	陽		
清	III-4	耕			
陌	III-3	錫	鐸		
昔	III-4	錫			
尤	III-3 (?)	幽	之 (*PK^{w}- only)		
幽	III-4	幽			

These Middle Chinese *chóngniǔ* rhymes (or paired rhymes) can be divided into two categories: those that are derived from a single Old Chinese group (Category I), and those derived from more than one Old Chinese group (Category II). In the latter there is a clear pattern. If Middle Chinese rhyme *X* is derived from Old Chinese groups *A* and *B*, and both the third- and fourth-division parts of *X* are derived from *A*, then only the third-division part will be derived from *B*. In other words, there is always one Old Chinese group which is the source of both third- and fourth-division words, and any additional groups always give third-division words.

(Gong (1997) has argued that Yóu 尤 should be considered a III-4 rhyme, while Yōu 幽 is actually a III-3 rhyme. Baxter, on the other hand, does not treat Yóu 尤 as a *chóngniŭ* rhyme at all, and considers Yōu 幽 to be a fourth-division *chóngniŭ* rhyme without a third-division counterpart.)

This strongly suggests that the fourth-division *chóngniŭ* syllables are in some sense unmarked descendants of Old Chinese syllables, while the third-division syllables derive from an Old Chinese feature which in some cases led to the convergence of two or more Old Chinese vowels.

Positing medial ***-r-** as the source of *chóngniŭ* third-division, a proposal of Pulleyblank's adopted by Baxter and supported (for the most part) by Gong, explains this pattern well. In second-division syllables, we have seen that medial ***-r-** often leads to the convergence of non-low vowels. (For example, in Li's system ***-riad**, ***-rəd**, and ***-rid** all merge in Middle Chinese.) It is therefore not surprising that medial ***-r-** should have a similar effect in third-division syllables. This hypothesis is further supported by the fact that the Category II rhymes are all derived from Old Chinese groups with non-low vowels. That is, Li's Old Chinese low vowel ***a** occurs only in Category I.

In Baxter's reconstruction, not all third-division *chóngniŭ* rhymes have their origin in Old Chinese ***-rj-**. According to his formulation (1992:280): "division-IV *chóngniŭ* finals reflect OC **-j-* plus front vowels; division-III *chóngniŭ* finals reflect OC **-rj-* plus back or front vowels (or, in some cases, **-j-* plus an original back vowel ....)"

This means that whenever a single OC group gives rise to both third- and fourth-division words in the same MC rhyme, the contrast involves (1) ***-rj-** vs. ***-j-**, plus a front vowel; (2) ***-(r)j-** plus a back vowel vs. ***-j-** with a front vowel; or (3) a combination of (1) and (2). This can be illustrated with the Old Chinese Xiāo 宵 group, which gives rise to *chóngniŭ* third- and fourth-division words in the Xiāo 宵 rhyme. Baxter reconstructs both ***-ew** and ***-aw** for this group. Since ***e** is front vowel, ***-rjew**

> III-3 while ***-jew** > III-4.[244] But since ***a** is a back vowel, both ***-rjaw** and ***-jaw** become III-3.

When a single OC group gives rise to a *chóngniǔ* third-division rhyme and also splits to another rhyme, the contrast usually involves ***-rj-** vs. ***-j-**, with a back vowel. Thus, for example, in the YUáN 元 group, ***-rjan** > Xiān 仙 **-jen** III-3, while ***-jan** > Yuán 元 **-jon**.

We can now contrast Baxter's and Gong's reconstructions for the Old Chinese origins of the *chóngniǔ* rhymes given above. Semicolons are used to separate reconstructions in different traditional rhyme groups; these are listed in the same order as in the previous chart.

MC Rhyme		Baxter	Gong
支	III-3	*-rje; *-rjej, -(r)jaj, -(r)joj	*-rjig; *-(r)jar
	III-4	*-je; *-jej	*-jig
脂	III-3	*-rjij; *-rjɨj, -rjuj; *-rjɨ; *-rju	*-rjid; *-(r)jəd; *-rjəg; ??
	III-4	*-jij	*-jid
祭	III-3	*-rjets, -rjats, -rjots	*-rjad
	III-4	*-jets	*-jiad
真	III-3	*-rjin; *-rjɨn, -rjun	*-rjin; *-(r)jən
	III-4	*-jin	*-jin
質	III-3	*-rjit; *-rjɨt, -rjut	*-rjit; *-(r)jət
	III-4	*-jit	*-jit
仙	III-3	*-rjen, -rjan, -rjon	*-rjan
	III-4	*-jen	*-jian
薛	III-3	*-rjet, -rjat, -rjot	*-rjat
	III-4	*-jet	*-jiat
宵	III-3	*-rjew, -(r)jaw	*-rjag^{w}
	III-4	*-jew	*-jag^{w}
侵	III-3	*-rjim, -(r)jɨm, -(r)jum	*-(r)jəm
	III-4	*-jim (only after *ʔ-)	*-jəm
緝	III-3	*-rjip, -(r)jɨp, -(r)jup	*-(r)jəp
	III-4	*-jip (only after *ʔ-)	*-jəp
鹽	III-3	*-rjem, -rjam	*-(r)jam
	III-4	*-jem (only after *ʔ-)	*-jam
葉	III-3	*-rjep, -rjap	*-(r)jap
	III-4	*-jep (only after *ʔ-)	*-jap

[244]These specific developments are proposed by Baxter in conformity with his general assumptions about Old Chinese development. In fact, Baxter does not reconstruct any words with ***-rjew** (1992:528).

庚	III-3	*-rjeng; *-rjang	*-rjing; *-rjang
清	III-4	*-jeng	*-jing
陌	III-3	*-rjek; *-rjak	*-rjik; *-rjak
昔	III-4	*-jek	*-jik
尤	III-3 (?)	*-(r)ju; *-jɨ	*-jəg^{w}; *-jəg
幽	III-4	*-(r)jiw	*-rjəg^{w}

Gong's and Baxter's reconstructions largely agree, once the differences in their vowel systems are compensated for. Gong reconstructs ***ia** rather than ***a** for 祭 > 祭 III-4, 月 > 薛 III-4, and 元 > 仙 III-4 because ***a** is used to account for a rhyme split (not shown in this chart). Gong and Baxter differ slightly in their treatment of the bilabial-ending rhymes, which have *chóngniǔ* contrasts only after the glottal stop initial. Baxter only reconstructs ***-jim**, ***-jip**, ***-jem**, ***-jep** after ***ʔ-**, reconstructing medial ***-r-** after other initials. Gong, on the other hand, assumes that the ***-rj-**/***-j-** distinction was contrastive after all initials, and has simply been neutralized except after ***ʔ-**. He therefore reconstructs both ***-j-** and ***-rj-** for third-division words with initials other than ***ʔ-**. The other main difference involves the Yóu 尤 and Yōu 幽 rhymes. Gong argues that despite their placement positions in the rhyme tables, the former should be considered fourth-division and the latter third-division. He accordingly reconstructs ***-rj-** only for Yōu 幽. Baxter treats Yōu 幽 as an unpaired *chóngniǔ* fourth-division rhyme, but violates his own principles by reconstructing ***-rj-** as well as ***-j-** for some of these words. He does so because there is evidence for it in phonetic series. He also notes that ***-r-** should probably be reconstructed in many more of these words to block velar palatalization, though he does not always do so (1992:514). These anomalies in Baxter's system lend support to Gong's hypothesis that Yōu 幽 may really be a third-division *chóngniǔ* rhyme; it would do no damage to Baxter's system to reconstruct ***-rjiw** for all the syllables in question.

Finally, it should be pointed out that in a recent paper, Ting (1997) has argued persuasively that the *chóngniǔ* distinction in Early Middle Chinese involved medial ***-r-**. If this conclusion, based entirely on MC-period evidence and not on Old Chinese

reconstructions, is correct, then it provides still more evidence for the reconstruction of ***-rj-** as the source of third-division *chóngniŭ* rhymes.

Class IV words and Tibeto-Burman

Together, Gong 1995 and Gong 1997 list nine OC words which are reconstructed with ***-rj-** in rhyme groups that have *chóngniŭ* splits. Gong finds evidence for ***-r-** in TB cognates. Note however that the first two examples from Gong 1995 do not develop into third-division *chóngniŭ* syllables; these reconstructions are at odds with the hypotheses advanced in Gong 1997.

Set	Old Chinese	Written Tibetan	Written Burmese
36	越 *g^{w}rjat > jwɐt 'transgress, extend'	*'grod* 'to go, to travel'; *bgrod* 'to walk, to go, to wander'	
111	垣 *g^{w}rjang^{w} > *g^{w}rjan > jwɐn 'wall'	*grong* 'house, village, town'	
132	几 *krjidx > kji 'stool, small table'	*khri* 'seat, chair; throne; couch'	
149	援 *g^{w}rjans > jwän 'to succour'	*'grol* (pf. *grol*) 'to become free, to be liberated, released from'; *sgrol* (pf., fut. *bsgral*) 'to rescue, deliver, save'; *grol* 'deliverance'	
209	別 *prjat > pjät 'divide, separate, distinguish'	*'brad* 'to scratch, to lacerate by scratching'; *sbrad* 'to scratch'	*prat* 'be cut in two; be cut off'; *phrat* 'cut in two; to break off'

From Gong 1997:

	飢 *krjid > kji 'famine; be hungry'	*bkres* 'hungry, hunger'	
	耆 *grjid > gji 'old'	*bgres* 'old'	*krî* 'great, big'
	密 *mrjit > mjět 'silent; dense; near'	*'brid* 'deceive, cheat, impose upon'	
	陰 *·rjəm > ·jəm 'shade, cloudiness'	*rum* 'dark'	

(36). Baxter 971 ***wjat** > **hjwot**. This is in fact not a MC third-division *chóngniŭ* word. Gong's reconstruction is based on his 1990 paper in which he argued for the

development ***g^{W}rj-** > **jw-**. At that time he had not yet formulated a hypothesis involving contrasting vocalic developments for ***-rjat** and ***-jat**. Under his 1997 formulation, which appears in the chart above, ***-rjat** should give **-jät**. The problem here is a conflict between the need to reconstruct medial ***-r-** to account for the development of the initial, and the need to omit ***-r-** to account for the development of the rhyme. Internally, this conflict can be avoided through the proposal of Ting (1977-78) that some instances of MC **j-** arose not from initial ***g^{W}-** but from a continuant (Ting's ***ɣ^{W}-**, Baxter's ***w-**). Gong's reconstruction could then be modified to ***ɣ^{W}jat** > **jwɐt**. This fails, however, to account for the comparative evidence, as the WT form given by Gong contains medial *-r-*. In fact, the presence of medial *-r-* in WT comparative forms was one of the reasons Gong proposed the general rule ***g^{W}rj-** > **jw-** in the first place, revising Li's original formulation of ***g^{W}j-** > **jw-** (Gong 1990 [1994]:84-85). One way to deal with this problem is to throw out some of the comparisons as incorrect, including the one presently under discussion. (Such a rejection is implied by Gong himself in his 1997 formulations, but is not mentioned explicitly.) Other solutions may be possible, though, depending on the ultimate resolution of the difficult problem of reconstructing MC **g-**, **j-**, and **ɣ-**.

(111). Baxter 442 ***wjan** > **hjwɔn**. The situation here parallels that of set 36. In this case, however, the comparison must be considered more tentative, since it relies on the development ***-ang^{W}** > ***-an**. While Gong has presented internal evidence to support the general existence of such a rule, there is no independent evidence for it in the case of this particular Chinese word or of others in its phonetic series. In fact, this word is in one of the phonetic series which Baxter now reconstructs with final ***-r** instead of ***-n**, casting further doubt on the possibility of its originating from earlier ***-ang^{W}**.

(132). Baxter ***krjɨj?** > **kijx**.

(149). Baxter ***wjan** > **hjwɔn**. Although Gong 1995 gives the MC reading **jwän**, conforming to his 1997 formulation ***-rjan** > **-jän**, in fact the MC reading is **jwɐn** (as

indicated by Baxter's **hjwon**). This set is actually of the same type as sets 32 and 111; that is, when viewed in the light of Gong 1997, the proposed development is incorrect.

There is, incidentally, an excellent Geman cognate to the WT form:

Geman *ku*^{31}*glol*^{35} 'loose/lax'

It is difficult to know what to make of the *gl-* cluster. If we suppose it was original in a PTB form ***glol** or ***glual**, this violates the proposed restriction on syllables of the type ***ClVl**. But if the original form is more like the Tibetan ***grol**, then it is difficult to explain the change to *gl-* in Geman. (This is the only Geman word of the form *ClVl* listed in Sūn et al. 1991. There are several words of the form *lVl*, such as *lul*^{55} 'tender'.)

In terms of PTB morphology, the Geman form is particularly interesting. The first syllable may go back to PTB ***g-**, the stativizing prefix, while the root initial ***g-** is also preserved. I know of nowhere else in TB where a proto-initial ***g-g-** has been preserved.

(209). Baxter ***prjat** > **pjet**. Perhaps STEDT #1787: ***N-prat** 'break/wean'. Gong gives for comparison also 裂 ***rjat** > **ljät** 'tear asunder, divide', though this might be better related to STEDT #3564 ***ra-t** 'cut' (STC #458).

('famine'). Baxter 1233 ***krjɨj** > **kij**. STEDT #106: ***b-kri-(n/s)** 'hungry'.

('old'). Baxter 359 ***grjij** > **gij**. This set makes a nice pair with 'famine'; the voicing of the initial is perfectly paralleled on both the Chinese and Tibetan sides.

('dense'). Baxter 1146 ***mrjit** > **mit**. I don't see how the semantics of this proposed set are meant to work.

('shade'). Baxter 1756 ***ʔ(r)jum** > **ʔim**. STEDT #2624: ***rum~*rim** 'dark, dusk, twilight' (STC #401). This comparison, which looks quite solid, tends to refute Pulleyblank's assertion that phonotactically a medial ***-r-** should be possible in a syllable with initial ***ʔ-**. (It does raise the question of the origin of OC ***ʔr-** in contrast with ***r-**.) This assertion was the main motivation for his proposal that second-division words need not arise from OC ***-r-**.

As it happens, aside from the three examples from Gong 1995 which are not in fact third-division *chóngniǔ* syllables, Baxter agrees with Gong on the reconstruction of ***-r-**. Although the comparative evidence here is limited, I see no reason to disagree with Gong's basic hypothesis in his 1997 paper, which is supported by a good deal of internal evidence as well. And insofar as it agrees with Baxter's proposals (ultimately derived from Pulleyblank) about the reconstruction of ***-rj-**, this hypothesis can be considered on solid ground. None of the examples here really touch on the areas where Gong and Baxter disagree; more such examples will appear in the next few sections.

4.2.5 Class V words: Middle Chinese pure third division with grave initials (< *-r-)

Class V words are those in which ***-r-** is reconstructed by Gong or Baxter to account for rhyme splits.

Set	Old Chinese	Written Tibetan	Written Burmese
28	友 *g^{w}rjəgx > jǎu 'friend, associate'	*grogs* 'friend, associate, companion'	
	From Gong 1997:		
	鳴 *mrjing > mjɐng 'cry of birds; sound of animals; to sound'		*mrañ* 'sound, produce sound'
	命 *mrjings > mjɐng 'order, command'		*mrañ* 'find fault with, scold'
	評 *brjing > bjɐng 'evaluate, appraise'		*prañ* 'to seduce, tempt'
	迎 *ngrjang > ngjɐng 'meet'; 逆 *ngrjak > ngjɐk 'go against; meet, receive'		*ngrâng* 'contradict, deny'
	炳 *prjangx > pjɐng 'bright'		*prâng* 'be violent, loud, virulent'
	虩 *xrjak > xjɐk 'fear'	*skrag* 'to be terrified, afraid'	
	糾 *krjəg^{w} > kjiǎu 'twist, plait'		*krûw* 'thread, string, chain'
	觓 *grjəg^{w} > gjiǎu 'horn-shaped, long and curved'		*khruw* 'horn'

For comparison, I list here the MC developments of the rhymes involved in this set of words with and without medial ***-r-**, according to Gong 1997.

*-jing > -jäng	*-rjing > -jɐng
*-jang > -jang	*-rjang > -jɐng
*-jak > -jak	*-rjak > -jɐk
*-jəg^{w} > -jə̆u	*-rjəg^{w} > -jiə̆u

(28). Baxter 9804.18 ***wjɨ?** > **hjuwX**. The development in Gong's system is irregular. The normal reflex of ***-rjəg** is **-ji** (Gong 1997:11). The word should be reconstructed without medial ***-r-** if it is to develop into MC **-jə̆u**. Gong is forced to reconstruct ***-r-**, however, to account for the development of the initial into **j-** rather than **g-**. This ***-r-** also corresponds well with the Tibetan cognate. Baxter's reconstruction is perfectly regular. The development of the initial is account for by reconstructing ***w-** rather than ***g^{w}-**. But under Baxter's system, the Tibetan form has almost nothing in common with the Chinese.

('sound'). Baxter 1480 ***mrjeng** > **mjæng**.

('command'). Baxter 596 ***mrjeng(s)** > **mjængH**.

('evaluate'). Baxter ***brjeng** > **bjæng**.

('meet'). Baxter ***ngrjang** > **ngjæng**. STEDT #2533: ***ŋra** 'meet' (STC #154). Gong instead compares the Chinese to WB **ngrâng** 'contradict, deny', which is derived from PTB ***ŋraŋ** (STC #155), rather than WB **ngrâ** 'meet, encounter', which is closer in meaning but lacks the velar ending. These two roots are perhaps ultimately related, with the semantic bridge between them indicated by Chinese 逆 'go against; meet, receive'. The basic idea seems to be that a face-to-face meeting is in essence an opposition.

('bright'). Baxter ***prjang?** > **pjængX**. One PTB root possibly related to the Chinese is STEDT #2569: ***praŋ** 'dawn, morning' (STC #332).

('fear'). Baxter ***xrjak** > **xjæk**. STEDT #2249 ***grâk~krâk** 'fear; frighten' (STC #473). The original reconstruction of STC #473 was ***grok~krok**, based on forms like:

WT	*dkrog-pa~skrog-pa* 'rouse, scare up'
WB	*krauk* 'to fear', *khrauk* 'frighten'

The revision of ***o** to ***â** was presumably meant to account both for these forms and for WT *skrag* ‘fear’. In general the reconstruction of PTB ***â** is doubtful. It seems that we have here nothing more than variation (at least in Tibetan) between ***o** and ***a**. The Chinese form listed corresponds better to the WT form with *a*, so Gong does not list the other WT or WB forms. The following Lolo-Burmese reconstructions also support reconstructing ***o**:

DB-PL ***(sə)-grok^{H}** ‘fear’
PLB ***Nkrok** ‘fear / be afraid’

I suspect that the Chinese form may not be cognate at all. The PTB vowel is definitely ***o**; variation with ***a** is found only in Tibetan. Moreover, there is the problem of the initial. We would expect to find a stop in Chinese.

(‘twist’). Baxter ***k(r)jiwʔ** > **kjiwx**. This set and the next (‘horn’) are particularly interesting because, while Gong reconstructs medial ***-r-** for two reasons (one being his argument that the Yōu 幽 rhyme, generally considered a fourth-division *chóngniŭ* rhyme, is actually third-division, the other being TB comparisons), Baxter hesitates between reconstructing ***-rj-** and ***-j-**. As a fourth-division *chóngniŭ* rhyme, Yōu 幽 rhyme words should be reconstructed with just ***-j-** in Baxter’s system. But evidence for initial ***r-** in phonetic series, the fact that velar palatalization does not occur in many of these words, and TB comparisons all point to ***-rj-**, so that Baxter comprises with ***-(r)j-**. Gong’s solution is preferable here.

(‘horn’). Baxter ***g(r)jiw** > **gjiw**. STEDT #2345: ***krəw** ‘horn’ (STC #37). This root was brought up in Section 4.2.1. As Bodman has pointed out (1980:75-79), many of the words in this phonetic series seem to be related to the core sense of ‘twist’. He related these words to the Tibetan word family which includes *'khril-ba* ‘to wind or coil round’. Benedict reconstructs the PTB root ***kiːl** ‘bind, twist; roll; angle’ (STC #373) as the source of these words. This comparison, however, depends on relating PTB ***-l** with OC ***-w**, a comparison which does not have strong support outside of this word family. In

general, PTB ***-l** seems to correspond to OC ***-n** or Baxter's ***-j** (Gong's ***-r**/***-l**). Both 'twist' and 'horn' involve complicated word families in Tibetan, PTB, and Chinese. Unraveling these strands of relationship will be left to others; the important point for now is the strong evidence in TB for medial ***-r-**.

4.2.6 Class VI words: Middle Chinese third division with grave initials (< *-(r)-)

While much of interest can be said about the individual etymologies of Class VI words, comparison with PTB tells us little about systematic reconstruction of Old Chinese. These words are precisely those whose development into Middle Chinese is not effected by the presence of medial ***-r-**. The choice of whether to reconstruct ***-r-** or not may appear completely arbitrary as far as internal Chinese evidence is concerned. Gong has given comparisons for 43 Class VI words (37 in Gong 1995, 18 in Gong 1997, with 12 appearing in both) for which the presence or absence of ***-r-** has been determined by comparison with TB. These are generally words which Baxter has reconstructed with ***-(r)j-**. One might quarrel with some of the individual comparisons that Gong has made, but I will not examine each of them in detail. Instead, I will look only at those where Baxter has made a definite conclusion about whether to reconstruct ***-rj-** or ***-j-** which is in conflict with Gong's results.

Set	Old Chinese	Written Tibetan	Written Burmese
29	胃 *g^{w}rjəts > jwěi 'stomach'	*grod* 'belly, stomach'	
89	銀 *ngjən > ngjěn 'silver'	*dngul* 'silver'	*ngwe* 'silver'
156	貧 *bjən > bjěn 'poor'	*dbul* 'poor, poverty'	
205	糞 (1997) *prjəns > pjuən 'manure, dirt'; (1995) *pjəns	*brun* 'dirt, dung, excrement'	

All four of these examples concern words in the WēI 微 and WéN 文 rhyme groups. For the first and last, Gong reconstructs medial ***-r-** but Baxter does not.[245] For the other two Baxter reconstructs ***-r-** but Gong does not.

[245]Note that the reconstruction of set #205 was revised in Gong 1997 to include medial ***-r-**.

(29). Baxter ***wjɨts** > **hjwɨjH**. STEDT #2112: ***grwat** 'belly/stomach'. Although in many cases ***g^{w}-** and ***w-** are both possible reconstructions of MC **hw-** in Baxter's sytem, this is not the case when the MC initial is **hjw-**, in which case ***w-** is the only possible reconstruction. Moreover, Baxter must reconstruct this word without medial ***-r-**, since ***wrjɨts** would give MC **hwijH** (**jwi**).

Compare the developments of words in the Wēi 微 group with grave initials in the systems of Gong and Baxter. According to Gong 1997, the split is apparently unconditioned, though Gong speculates that lost prefixal elements (still reflected in the WT cognates) might have been conditioning factors. The only way to decide whether any particular word has ***-r-** or not is by looking at TB cognates.

OC	MC
*-jəts	Zhī 脂 (*chóngniǔ* third-division)
*-jəts	Wēi 微
*-rjəts	Zhī 脂 (*chóngniǔ* third-division)
*-rjəts	Wēi 微

Baxter, on the other hand, has ***-r-** conditioning the split:

OC	MC
*-jɨts	Wēi 微
*-rjɨts	Zhī 脂 (*chóngniǔ* third-division)

Since 胃 is a Wēi 微 rhyme word, Baxter must reconstruct it without medial ***-r-**. Gong, on the other hand, chooses to reconstruct ***-r-** on the basis of WT *grod*. These differences in reconstruction can also be seen in the chart of *chóngniǔ* developments which appeared in the previous section, in which Baxter's ***-rjɨj** and ***-rjuj** correspond to Gong's ***-(r)jəd**.

The situation is parallel in the WéN 文 group, and this explains the discrepancies in the remaining three examples.

(89). Baxter ***ngrjɨn** > **ngin**. STEDT #2536: ***(d-)ŋul** 'silver'. Note also:

Dulong dl	*ŋǔl*^{55} 'silver'
Dulong nj	*ŋun*^{55} 'silver'

(156). Baxter ***brjɨn** > **bin**.

(205). Baxter ***pju/ɨns** > **pjunH**. Perhaps STEDT #317: ***br/lun ⋊ *blum** ‘fart/shit’.

For comparison, consider the following two sets, in which Baxter and Gong agree on the reconstruction of ***-r-**.

90	閩 (1997) *mrjən > mjěn ‘a kind of snake’; (1995) *mjən	*sbrul* ‘serpent, snake’	*mrwe* ‘a serpent, snake’
207	饉 *grjəns > gjěn ‘famine’	*bkren* ‘poor, hungry’	

(90). Baxter ***mrjɨn** > **min**. STEDT #2623: ***b-ruːl** ‘snake’ (STC #447). (This root has been discussed in Section 4.1.7.)

(207). Baxter ***grjɨns** > **minH**. STEDT #106: ***b-kri-(n/s)** ‘hungry’.

How are we to resolve these disagreements? From an internal point of view, Baxter’s solution is preferable. It not only presents us with regular conditioning factors, it also conforms to the effects of medial ***-rj-** elsewhere in his system.

If Gong’s comparisons are deemed valid, however, and if we believe the correspondence between OC medial ***-r-** and PTB medial ***-r-** after grave initials to be solid, then the comparative evidence forces us to reconsider Baxter’s reconstructions.

Among Gong’s comparisons, there is one that I believe is irrefutable: ‘silver’. This is a very solid, widely attested root in TB. The similarity to the Chinese word, in meaning and shape, is undeniable. And there is no evidence whatsoever for medial ***-r-** on the TB side. As STC sets 154-156 demonstrate, PTB ***ŋr-** is preserved as *ŋr-* in WB and becomes *ny-* in Jingpho. The WB word for silver is *ngwe*. No other TB forms show evidence for ***-r-**. (Unfortunately, the Jingpho word for ‘silver’, *gumphro*, is not cognate.) It does not seem possible to reconstruct ***-r-** in the PTB root.

Could Baxter’s system be modified to do away with medial ***-r-** in this word? In fact, it would not do great violence to Baxter’s system to derive some third-division *chóngniŭ* words from ***-jɨj**, ***-jɨt**, and ***-jɨn**. Although in general third-division *chóngniŭ* finals reflect ***-rj-**, Baxter does note that sometimes they reflect “**-j-* plus an original back vowel

which was fronted by some other process" (1992:280). This is in fact the case with the final ***-jaj** of the Gē 歌 group, as seen in the chart of *chóngniǔ* developments in the previous section. The problem is, this leaves the rhyme splits without any conditioning factors.

Gong's suggestion that these splits might be conditioned by prefixal elements is intriguing, but I don't believe he has provided enough evidence to make this argument persuasively. Moreover, there is no evidence in other rhyme groups for the effect of prefixal elements (other than ***r-** before dental initials via retroflection) on vocalic development. Finally, I can see no phonetic reason for the presence of prefixal ***b-** or ***d-** to lead to the fronting of a following vowel.

4.2.7 Class VII words: Middle Chinese initial l-

Class VII words have initial **l-** in Middle Chinese. The main question here is whether such words should be reconstructed as simply ***r-** at the OC stage, or as clusters ***b-r-** or ***g-r-**. It is of course also possible to reconstruct all three of ***r-**, ***b-r-** and ***g-r-** as sources of **l-**. Gong reconstructs simply ***r-**. Baxter, on the basis of phonetic series contacts, sound glosses, and other supplementary evidence, argues for the reconstruction of ***C-r-** in every case. This raises the second question of the nature of these ***C-r-** clusters and how they differ from ordinary ***br-** and ***gr-** clusters.

It is difficult to know how much weight to give to TB comparisons in these cases. As we have seen, prefixes are especially unstable in Tibeto-Burman. Many prefixed roots have variants lacking the prefix. Often, it is hard to predict whether a given language will reflect a prefixed or non-prefixed variant. If we assume the same to be true of PST, then the presence or absence of a prefix in a PTB cognate to a Chinese word does not say anything definitive about whether OC inherited a prefixed variant or not.

Still, it is worth examining the data to see if patterns emerge. The following seventeen **l-**initial Chinese words are found in Gong 1995:

Set	Old Chinese	Written Tibetan	Written Burmese
41	卵 *ruanx > luân ‘egg’	*sro-ma* ‘egg of a louse, a nit’	
49	醪 *rag^{w} > lâu ‘sprits with sediment’	*ro* ‘taste, flavour, savour, residue, sediment’	
68	六 *rjək^{w} > ljuk ‘six’	*drug* ‘six’	*khrauk* ‘six’
81	憐 *rin > lien ‘to pity’	*drin* ‘kindness, favour, grace’	*râñ-* ‘love’
108	立 *rjəp > ljəp ‘to stand’	*'khrab* ‘to strike, to stamp, tread’	*rap* ‘to stand; to stop, halt, remain’
116	羅 *rad > lâ ‘bird-net’	*dra* ‘net, net-work’	
120	籬 *rjad > ljě ‘hedge’	*ra-ba* ‘enclosure, fence, wall’	
138	類 *rjəds > ljwi ‘class, category’	*gras* ‘class, order, tribe’	
147	連 *rjan > ljän ‘connect, unite, in a row’	*gral* ‘row, series, class’	
246	涼 *rjang > ljang ‘cold’	*grang* ‘cold, cool’	
247	量 *rjang > ljang ‘to measure’	*'grang* ‘to number, to count’; *grangs* ‘number’	*khrang* ‘to measure with a measure of capacity’
248	良 *rjang > ljang ‘good’	*drang-po* ‘straight, right, sincere, honest’	
268	絡 *rak > lâk ‘silk thread, cord, bridle’	*'grags* ‘to bind’	
312	呂 *rjagx > ljwo ‘spine’	*gra-ma* ‘the bones of fish’	
313	旅 *rjagx > ljwo ‘troop, guest, stranger, traveller’	*dgra* ‘enemy, foe’	
356	藍 *ram > lâm ‘indigo’	*ram*, *rams* ‘indigo (dye)’	
360	懍 *rjəmx > ljəm ‘full of fear, respectful’	*rim-(')gro* ‘honour, homage’	

In analyzing these sets, it is important to remember that in WT, original ***Cr-** and ***C-r-** have likely merged to *Cr-*. WT is therefore not very useful for distinguishing ***g-r-** from ***gr-**. Since PTB had no ***dr-**, we can be fairly sure that WT *dr-* reflects ***d-r-**.

Below are Baxter’s reconstructions for these words, and notes about additional TB evidence.

(41). Baxter 557 ***g-ron?** > **luanx**. STEDT #1172: ***s-row** ‘egg/nit’ (STC #278). Matisoff (to appear) has suggested a connection between the Chinese and PTB ***rum** ‘egg’ (STEDT #3438). Comparisons between OC ***-n** and PTB ***-m** are rare however. The

comparison to PTB ***s-row** seems more likely, with addition in Chinese of the collective final ***-n** suffix.

(49). Baxter ***C-ru** > **law**. Gong and Baxter disagree about whether this character is in the OC YōU 幽 group or the XIāO 宵 group. Words with this phonetic are usually placed in the Yōu 幽 group, in which case the correspondence with the WT form would not be regular according to Gong.

(68). Baxter 267 ***C-rjuk** > **ljuwk**. STEDT #2621: ***d-ruk** 'six' (STC #411). There is quite a bit of uncertainty about the correct reconstruction of the PTB prefix for 'six', since TB languages vacillate between support for ***k-** and for ***d-**. Consider the following reflexes:

Dulong dl	*kɹŭʔ*^{55}
Dulong nj	*khɹŭʔ*^{55}
Darang	*ta*^{31}*xɹo*^{53}
Geman	*kɯ*^{31}*tam*^{53}
Cuona	*kroʔ*^{53}
PLB	***C-krok** (prob. ***d-krok**) - low tone indicates voiced prefix
TGTM	***^{B}ɖu ~ *^{B}ɖu: ~ *^{B}ɖuk**
PNN	***d-ruk**

(81). Baxter ***C-rin** > **len**. Here WT shows evidence for a ***d-** prefix.

(108). Baxter 264 ***g-rjɨ/up** > **lip**. STEDT #145: ***g-ryap** 'stand/rise' (STC #246).

(116). Baxter ***C-raj** > **la**.

(120). Baxter ***C-rjaj** > **lje**.

(138). Baxter 691 ***C-rjut/ps** > **lwijH**. This comparison looks shaky to me. We would expect a final stop in Tibetan.

(147). Baxter 930 ***C-rjan** > **ljen**. STEDT #2603: ***ren** 'equal/place in a row; line, row' (STC #346). I believe the Chinese form is better compared with PTB ***ren** than with WT gral. Support for ***ren** includes PTP ***rɛ́n'** 'row' (Jones 1961) as well as these forms from STC #346:

Jingpho	*ren* 'be equal', *diŋren* 'place in a long, even row'
WB	*rañ-tu* 'to be equal', *hrañ* 'put together side by side'
Dimasa	*ren* 'line'
Mikir	*ren* 'line, range, row'

The comparison would look better if the Chinese word could be reconstructed ***C-rjen** in Baxter's system, but Baxter indicates that it clearly rhymes with ***-an** rather than ***-en** words in the *Shījīng* (1992:384). OC ***a** to PTB ***e** is not a valid correspondence in Gong 1995.

(246). Baxter 266 ***g-rjang** > **ljang**. STEDT #2245: ***graŋ** 'cold (weather)' (STC #120). There is no indication in the PTB reconstruction for a prefixal ***g-** rather than a true cluster initial. Note the following two forms in PNN, however, which indicate variation in this root:

PNN ***riaŋ**, ***klaŋ** 'winter/cold'

The first form suggests there may have been a PTB variant with initial ***r-**. It also appears that there is variation in this PTB root between medial ***-r-** and ***-l-**. The PLB root is reconstructed ***Nglaŋ** ⋟ ***Nkrak** ⋟ ***?krak** 'cold' in Matisoff 1972, but the medial is revised to ***-l-** in Matisoff 1978 on the strength of the Mpi reflex. I have not seen any evidence, however, for variants with initial ***l-**, and this could be taken to imply that ***-l-** is an innovation. The Chinese form is most likely descended from a PST variant with initial ***r-** and prefix ***g-**, as there is evidence for velars in the phonetic series.

(247). Baxter ***C-rjang > ljang**. As with 'cold' (set 246), the WT and WB forms reflect a true cluster. However, evidence for an ***r-** initial with a velar prefix may be found by comparing the Darang forms with the Geman forms:

Darang *xa*^{31}*ɹueŋ*^{35} 'measure', *ta*^{31}*ɹueŋ*^{53} 'foot (measure)'
Geman *kɹuŋ*^{55} 'measure', *ta*^{31}*kɹuŋ*^{35} 'foot (measure)'

The following forms might be related, reflecting a variant without a final nasal. If so, they also show evidence for a prefixal velar element:

DB-PL ***(k)-raw**^{1} 'count'
TGTM *****^{A}**kru** 'measure (length)'

(248). Baxter ***C-rjang** > **ljang**.

(268). Baxter ***g-rak** > **lak**.

(312). Baxter 312 ***g-rja?** > **ljoX**. STEDT #237: ***g/n-r(w)a-s** 'bone'. The Dulong (Nujiang) form *aŋ*^{31}*ɹuu*^{53} 'bone' reflects the initial ***r-**. (The *aŋ*^{31} formative appears in many Dulong nouns, including body parts, and does not reflect the phonology of the root for 'bone'.)

(313). Baxter ***g-rja?** > **ljoX**. The Tibetan form which Gong cites is related to TGTM ***^{B}gr(w)a(k)** 'enemy'. There is no evidence here for a separable ***g-** prefix. In fact, the presence of prefix *d-* in the WT form indicates that *gr-* is descended from a true cluster. Consider instead the Darang word *ka*^{31}*ɹuu*^{35} 'guest', which is closer in meaning to the Chinese and reflects PTB ***r-**. I think it is quite likely that the WT and TGTM words reflect a different root meaning 'enemy'; but even if we choose to relate this to 'guest', the Darang provides evidence for a variant with initial ***r-**, supporting a Chinese reconstruction like Baxter's.

(356). Baxter 127 ***g-ram** > **lam**.

(360). Baxter ***b-rji/u/ɨm?** > **limX**.

On the strength of this evidence, it does indeed seem likely that ***C-r-** is a better OC reconstruction than simply ***r-** for many of these words. While it is possible to argue that Chinese could in all these cases have inherited a prefix-less variant from PST, the confluence of strong PTB evidence for prefixes with patterns found in phonetic series strongly supports the reconstruction of ***g-r-** in many of these words. In other words, Baxter's hypothesis is largely supported. (WB shows little evidence for these prefixes, but prefixes are generally lost in Burmese.)

However, it appears that to Baxter's ***g-r-** and ***b-r-** should be added ***d-r-** on the strength of sets 81, 166, and 248 (and perhaps 68). Indeed, although I have argued that ***dr-** did not exist in OC (***r-d-** should be reconstructed instead), there is no reason to suppose that ***d-r-** was not possible. This is the same pattern found in PTB and WT.

Furthermore, I see no *a priori* reason to limit **C** to voiced consonants in the formulation ***C-r-**. (This idea probably goes back to Karlgren, who argued that voiced initials were

more easily lost than voiceless ones. Karlgren applied this argument to clusters like ***gl-** as well as to simple initials. This argument is irrelevant, however, when we suppose that the lost consonants were prefixes. Voiced and voiceless consonants would both be lost when prefixes disappeared as Chinese became more strictly monosyllabic.) There is, however, not enough evidence to argue for specific instances of ***k-r-** or ***p-r-** in contrast with ***g-r-** and ***b-r-**. Moreover, it is simpler to assume that, like PTB, OC had in addition to ***s-** only voiced prefixes.

I disagree with Baxter, however, in that I believe non-prefixed ***r-** should also be reconstructed as a source of MC **l-**. This is necessary to account for comparisons where there is no evidence of a prefix in TB (such as sets 49, 120, 356, 360) as well as for phonetic series where we find words with initials of all places of articulation alternating with MC **l-**. For example, 龍 (with MC initial **l-**) serves as phonetic in 龐 (MC **b-**), 寵 (MC **ṭh-**), and 龔 (MC **k-**).

Baxter did not reconstruct ***r-** > **l-** because he felt that the development ***r-** > **ji-** was necessary to explain a handful of cases in which MC **ji-** alternates with MC **l-** (1992:200). Reconstructing ***r-** for the former and ***C-r-** for the latter provides a neat solution. Such cases are few, however, and they could just as easily be ascribed to the occasional mixing in phonetic series of OC ***l-** with OC ***r-**.

In conclusion, the TB evidence strongly supports the reconstructions

***r-**, ***g-r-**, ***b-r-**, ***d-r-**, etc. > **l-**

In this formulation, the notation ***C-r-** in fact indicates that ***C** is a prefix, articulated with a reduced vowel as ***Cər-**, contrasting with true clusters of the type ***Kr-** and ***Pr-**.

4.2.8 Conclusion

The comparative evidence discussed in the preceding sections reveals that the behavior of OC medial ***-r-** was similar to that of ***-l-** in terms of phonotactics. The main

difference between the two segments lies in the occurrence of ***r-** as a prefix in Chinese, and the special behavior of medial ***-r-** after initial ***-s-**.

Like PTB, OC had no ***Tr-** or ***TSr-** clusters. Therefore such clusters need not be reconstructed for PST. We do however have prefix+initial clusters ***r-T-** and ***r-TS-**, which became ***rT-** and ***rTS-** and led to retroflection of the dental initials.

MC **l-** derives not just from ***r-** but also from ***C-r-**, where **C** can be ***d-** as well as ***g-** or ***b-**. Though I have no evidence, I suspect that other prefixes like ***m-** and ***s-** may be possible as well. ***C-r-**initial words are actually sesquisyllabic, contrasting with true ***Cr-** clusters. In this respect ***r-**initial words are similar to ***l-**initial words in their interaction with prefixal elements. The development of these two liquid initials was parallel.

The correspondences involving initial or prefixal ***s-** and medial or initial ***r** require a special explanation. Although ***Tr-** clusters are not found in OC or PTB, ***sr-** clusters are found. It appears that before low or back vowels, PST ***sr-** became PTB ***s-** and but remained ***sr-** in Chinese. Before front vowels, medial ***-r-** was retained in both PTB and OC.

The ***r-** prefix had no effect before grave consonants, eventually dropping without a trace.

The comparative evidence disfavors Baxter's use of medial ***-r-** to condition third-division splits in the OC Wēɪ 微 and Wéɴ 文 rhyme groups. Gong's analysis appears to be correct. It is not clear, however, how these splits are to be accounted for.

The following chart summarizes and compares the developments of initial and medial ***r** and ***l** from PST to OC and PTB, based on the analysis carried out in Sections 4.1 and 4.2. **C** represents a grave consonant. **T(S)** represents dental stops and affricatives.

PST		PTB	OC		MC (A)	MC (B)
*r-	>	*r-	*r-	>	l-	l-
*C-r-	>	*C-r-	*C-r-	>	l-	l-
*Cr-	>	*Cr-	*Cr-	>	C- (II)	C- (III)
*r-T(S)-	>	*r-T(S)-	*r-T(S)-	>	Ṭ(S)- (II)	Ṭ(S)- (III)
*l-	>	*l-	*l-	>	d-	ji-
*C-l-	>	*C-l-	*C-l-	>	d-	ji-
*Cl-	>	*Cl-	*Cl-	>	T-	Tś-

4.3 Medial *-w-

I will now turn to medial ***-w-**. Included in this discussion are the labiovelar and labiolaryngeal initials (including initial ***w-** of Baxter's system), the vowel ***ua** of Li Fang-kuei's system, and the vowels ***o** and ***u** of Baxter's system. In no recent formulation of Old Chinese can there be said to be a true medial ***-w-**. Proto-Tibeto-Burman, however, does have a medial ***-w-**, which occurs primarily before the vowel ***a** but also before ***i** and ***əy**.[246] The purpose of this chapter is to determine the nature of the correspondences between the ***-w**-like elements of PTB and those of OC.

Comparison of Chinese with Written Tibetan is particularly unsuited to an investigation of this kind, since WT does not have a medial *-w-*. PTB ***wa** has usually become WT *-o-* (merging with original ***o** and ***aw**), and PTB ***-wəy** has become WT *-yi*. Since WT *-o-* is of a secondary nature, and represents a merger of several PTB vowels, direct comparison between Chinese and PTB (or TB languages which, unlike Tibetan, do preserve ***-w-**) should prove more enlightening in exploring the nature of medial ***-w-** in Sino-Tibetan.

Gong (1995) has identified correspondences between WT *-o-* and what he writes as OC ***wa**, ***aw**, ***wə** and ***ua**.[247] In this notation **w** actually represents the labial component of a labiovelar or labiolaryngeal consonant, which I will write as ^{w}. Gong is therefore implicitly proposing the following developments:

PST $*\mathbf{K^{w}a-}$ > OC $*\mathbf{K^{w}a-}$, WT *Ko-*
PST $*\mathbf{K^{w}ə-}$ > OC $*\mathbf{K^{w}ə-}$, WT *Ko-*
PST $*\mathbf{-aK^{w}}$ > OC $*\mathbf{-aK^{w}}$, WT *-o(g)*
PST ***-ua-** > OC ***-ua-**, WT *-o-*

This in turn suggests that Gong believes PST to have had a series of labiovelar initials. But given what we know of PTB, this seems unlikely. While a few lexical items in

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[246]Benedict (1972:49) indicates that PTB ***w** is found only before ***a** and ***i,** but with the revision of the diphthong ***iy** to ***əy**, ***əy** must be added to the list of vowels compatible with ***w**.
[247]But OC ***əw** corresponds to WT *-u-*.

Tibeto-Burman show evidence of a labiovelar initial, the vast majority of words involved in Gong's comparison are better reconstructed with ordinary velar initials followed by medial ***-w-**.

I will therefore explore the possibility that the labiovelars of Old Chinese are secondary, having arisen from a reanalysis of ***Kw-** sequences into unitary phonemes ***K^{W}-**. I have already suggested in a previous section that an early stage of Old Chinese may have had ***Pw-** sequences which became ***Pr-** following the loss of ***-w-** as a medial element in the sound system.

In addition to the labiovelar question, the nature of Li's ***ua** clusters (which are retained by Gong) requires further investigation. This vowel, highly restricted in distribution, is reconstructed ***o** in Baxter's system, and generally corresponds to -*o*- in Tibetan. Comparison with other TB languages should be helpful in deciding between these reconstructions.

As in the investigation of medials ***-l-** and ***-r-**, it will be useful to define several classes of Old Chinese words, and to explore their relationship with TB one at a time. The classes will be defined in terms of Gong's reconstruction.

Class I words have labiovelar initial ***K^{W}-** and vowel ***a**. (It is possible that some of these words would be reconstructed with vowel ***e** in Baxter's system.)

Example: 攫 (*G* *k^{W}jak > kjwak, *B* *k^{W}jak > kjwak)

Class II words have labiovelar initial ***K^{W}-** and vowel ***ə**. In Baxter's system this vowel is written ***ɨ**. But before dentals Baxter may reconstruct a non-labialized velar initial and the vowel ***u**.[248]

Examples: 歸 (*G* *k^{W}jər > kjwěi, *B* *k^{W}jɨj > kjwɨj)
訓 (*G* *x^{W}jəns > xjuən, *B* *xjuns > xjunH)

Class III words have vowel ***a** and labiovelar final ***-K^{W}**. The final ***-ag^{W}** corresponds to Baxter's ***-aw**, while ***-ak^{W}** corresponds to Baxter's ***-awk**. (Also

[248]In Baxter's system, ***K^{W}(r)(j)ɨT** and ***K(r)(j)uT** merge. The choice between them depends on the rhyming and phonetic series relations of the word in question.

included in this class are words which Gong has reconstructed ***-aŋ^{W}** > ***-an**. See Gong 1995:59.)

Example: 豪 (*G* *gag^{W} > ɣâu, *B* *gaw > haw)

Class IV words have labiovelar initial ***K^{W}-** and front vowel ***i** (or diphthongs ***ia**, ***iə**). These vowels correspond to either ***i** or ***e** in Baxter's system, depending on the vowel and coda.

Examples: 橘 (*G* *k^{W}jit > kjiuět, *B* *k^{W}jit > kjwit)
鶪 (*G* *k^{W}ik > kiwek, *B* *k^{W}ek > kwek)

Class V words have vowel ***ua** (***o** in Baxter's system). These words always have dental initials and dental finals.

Example: 卵 (*G* *ruanx > luân, *B* *g-ronʔ > luanX)

Class VI words are those with main vowel ***ə** and dental initials and finals. These words become *hékǒu* in Middle Chinese. They are reconstructed by Baxter with ***u**, never ***ɨ**.

Example: 鈍 (*G* *dəns > duən, *B* *duns > dwonH)

Class VII words have vowel ***ə** and labiovelar final ***-K^{W}**. These words are generally reconstructed with ***u** in Baxter's system.

Example: 毒 (*G* *dək^{W} > duok, *B* *duk > dowk)

Classes III and VII do not strictly involve medial ***-w-**, but their reconstruction, and their correspondences with TB vowels, are intimately bound up with those of the other classes, so I will treat them here.

Generally speaking, a medial glide like ***-w-** tends to interact more intimately with following vowels than do liquids like ***-l-** and ***-r-**. It is inevitable, therefore, that questions of vowel correspondence will play a major role in the investigation of medial ***-w-**. Before taking up the classes of Chinese words one by one, it will be useful to review some of Gong's proposed vowel correspondences from Gong 1995. I have assigned each correspondence pattern a number for ease of reference.

PST	OC (G)	WT	WB	Number
*^{w}ə	*^{w}ə	o	--	1
*^{w}a	*^{w}a	o	wa	2
*ua	*ua	o	wa	3
*a^{w}	*-ag^{w}	-o	-au	4
	*-ak^{w}	-og	(-auk)	5
*ə^{w}	*-əg^{w}	-u	-uw	6
	*-ək^{w}	-ug	-auk	7
	*-əng^{w}	(-ung)	-aung	8
*u	*-ug	-u	-uw	9
	*-uk	-ug	-auk	10
	*-ung	-ung	-aung	11
	*-əd	-u	--	12
	*-ət	-ud	(-ut)	13
	*-ən	-un	-un	14
	*-ən	-ul	-uy	15
	*-ən	-ur	--	16

According to Benedict 1972 we have the following correspondences for PTB rounded vowels:

PTB	WT	WB	Jingpho	Lushai	Number
*-wa-	-o-	-wa-	-o- ~ -u-	-wa-	1
*-oK	-o-	-au-	-o-	-o-	2a
*-oT/P	-o-	-a-	-o-	-o-	2b
*-o	-o	-au	-o		3
*-aw	-o	-au	-au	-ou	4a
*-aːw	-u ~ -o	-au	-au	-au	4b
*-ow	-o	-u	-u ~ -au	-ou	5
*-əw	-u	-ui	-u	-u	6
*-uK	-u-	-au-	-u-	-u-	7a
*-uːK	-u-	-ui-	-u-	-uː-	7b
*-uT/P	-u-	-u-	-u-	-u-	7c
*-wəy	-yi	-we	-wi	-ui	8

It will be observed that WT -*o*- has a number of PTB origins:

• PTB ***-wa(-)**. Since ***-w-** is preserved in WB as well as a number of other TB languages (such as Lushai), it is usually a simple matter to confirm the reconstruction of PTB ***wa**. For example, STC #158 derives WT *rkon-pa ~ skon-pa* 'basket; fowler's net' and WB *kwan* 'casting net' from PTB ***kwan**, and STC #165 derives WT *mtho* 'span' and WB *thwa* 'measure with a span' from PTB ***twa**. According to Benedict, Jingpho generally shares with Tibetan the development ***wa** > *o*, while Lepcha has ***wa** > *u*.

• PTB ***-aw**. This vowel is reconstructed when WT -*o* corresponds to WB -*au* and Jingpho -*au* (Benedict 1972:62).

• PTB ***-o**. PTB final ***-o** is rare, reconstructed in only a handful of roots. It is reconstructed for WT *-o* only when Jingpho also has *-o* (note that WB has *-au* for both ***-o** and ***-aw**) (Benedict 1972:59).

• PTB ***-o-**. Before a consonant, WT -o- may be reconstructed as either PTB ***-o-** or ***-wa-**. PTB ***-o-** is reconstructed when WB has *-au-* (before velars) or *-a-* (elsewhere), as opposed to *-wa-* (Benedict 1972:73). For example, STC #344 takes WT *gtsod ~ btsod* 'Tibetan antelope' and WB *tshat* 'sambhur' back to PTB ***tsot**, and STC #341 relates WT *mdongs* 'eye in peacock's feather' and WB *ú-daùŋ* 'peacock' as reflexes of PTB ***doŋ**.

• PTB ***-ow**. The final ***-ow** can be reconstructed in contrast to ***-aw** when Burmese has *-u* rather than *-au*. (Jingpho shows alternation between *-u* and *-au* in these correspondence sets) (Benedict 1972:62).

The evaluation of WT *-o-* is further complicated by the issue of *-o-/-a-* alternation in many Tibetan verb stems. This alternation pattern is generally found only in those classes of transitive verbs which are marked by {g-} in the present tense rather than by {'-}.[249] The paradigm can be summarized as follows, where **a** and **o** represent verb stems with *a* and *o* vocalism respectively.[250]

Present	Past	Future	Imperative
*g-*o**	*b-*a*-s*	*g/b-*a**	**o*-s*

It is generally agreed that in this type of verb, the root vowel is *-a-*. Benedict reconstructed ***â** rather than ***a** in some PTB roots in part to account for this variational pattern in Tibetan. It is more likely, however, that alternation with *-o-* is a purely internal Tibetan inflectional pattern, whose exact conditioning factors remain unclear (see Beyer 1996:165-166 note 2). Unfortunately, the situation is further muddied when etymologically related verbs are in disagreement about the root vowel. For example, the intransitive verb *'grol* 'to become free, to be liberated, released from' has past form *grol*,

[249]The segments in curly braces here represent morphophonemes. The actual realization of these elements depends on the constraints of WT phonotactics and syllable structure. See Beyer 1992:166-168.
[250]Adapted from Beyer 1992:164.

while the related transitive verb *sgrol* ‘to rescue, deliver, save’ has past and future forms *bsgral*.

WT verbs are usually cited with the present tense form. If this form has vowel *-o-*, it is important to first determine the root vowel by inspecting the past (also called perfect) and/or future forms before making comparisons with other languages.

It is apparent that Gong’s and Benedict’s sets of correspondence patterns are not entirely commensurate. An attempt to combine the two charts through common WT-WB correspondences yields the following:

PST	OC (G)	PTB	Pattern(s)
*-^{w}ə-	*-^{w}ə-	*-wa-	Gong #1, Benedict #1
*-^{w}a-	*-^{w}a-	*-wa-	Gong #2, Benedict #1
*-a^{w}	*-ak^{w}	*-o-	Gong #5, Benedict #2a
	*-ag^{w}	*-o	Gong #4, Benedict #3
	*-ag^{w}	*-aw	Gong #4, Benedict #4
?	?	*-ow	Benedict #5
*-u-	*-uK, *-əT	*-u-	Gong #9-16, Benedict #7a-c

Evaluation of the validity of these correspondences, and revision of the PST reconstructions, can be made on the basis of analysis of individual cognate sets in the following sections.

Because of the complications discussed above regarding Tibetan vowels, in comparisons involving WT *-o-* forms from other TB languages like WB, Jingpho, and Lushai will be given more weight in establishing the nature of correspondences with Chinese.

4.3.1 Class I words: Old Chinese initial *K^{w}- and vowel *a

Class I words are involved in the correspondence pattern labeled Gong #2.

Set	Old Chinese	Written Tibetan	Written Burmese
30	戶 *g^{w}agx > ɣuo ‘door, house’	*sgo* ‘door’	
31	護 *g^{w}agx > ɣuo ‘to guard, protect’	*'gogs* ‘to prevent, to avert’; *'gog-skyong* ‘to guard, to protect’	
32	皇 *g^{w}ang > ɣwâng ‘sovereign, magnificent, brilliant’	*gong-ma* ‘a higher one, a superior’	
33	惶 *g^{w}ang > ɣwâng ‘fearful, agitated’	*'gong* ‘to despond, be in fear’	
34	話 *g^{w}rads > ɣwai ‘speak, word, good words’	*gros* ‘speech, talk, advice, counsel’	
35	攫 *k^{w}jak > kjwak ‘seize’	*'gog* ‘to take away forcibly’	
36	越 *g^{w}rjat > jwɐt ‘transgress, extend’	*'grod* ‘to go, to travel’; *bgrod* ‘to walk, to go, wander’	
37	羽 *g^{w}rjagx > ju ‘a feather’	*sgro* ‘a large feather’	
38	于 *g^{w}rjag > ju ‘go to’	*'gro* ‘to walk, to go’	*krwa'* ‘to proceed, whether going or coming’
111	垣 *g^{w}rjang^{w} > jwɐn ‘wall’	*grong* ‘house, village, town’	
117	蜾 *k^{w}adx > kuâ ‘a kind of small wasp’		*kwây* ‘dammer bee’
144	倌 *k^{w}an(s) > kuân ‘servant, groom’	*khol-po* ‘servant, man-servant’; *khol-mo* ‘maid-servant’; *'khol* (pf. *bkol*) ‘to use as a servant’	
145	涫 *k^{w}ans > kuân ‘to bubble’	*khol* ‘boiled, boiling bubbling’; *'khol* ‘to boil, to effervesce’; *skol* ‘to boil’	
149	援 *g^{w}rjans > jwän ‘to succour’	*'grol* (pf. *grol*) ‘to become free, to be liberated, released from’; *sgrol* (pf., fut. *bsgral*) ‘to rescue, deliver, save’; *grol* ‘deliverance’	
211	偽 *ng^{w}jats > ngjwĕ ‘false, cheat’	*rngod* ‘to deceive, to seduce’	
304	樺 *g^{w}rags > ɣwa ‘a kind of birch’	*gro-ga* ‘birch tree or its bark’	
318	芋 *g^{w}rjags > ju ‘taro’	*gro-ma* ‘potato’	

Only two of these sets have a WB cognate, for which medial *-w-* is indicated. The question remains whether WT *-o-* can be taken back to ***-wa-** for the other sets.

(30). Baxter 9763.25 ***ga?** > **huX**. STEDT #466: ***m-ka** 'mouth/opening/door' (STC #468). Although Baxter reconstructs a non-labialized initial, the reconstruction ***g^{W}a?** > **huX** is also possible in his system. Whether to reconstruct ***g-** or ***g^{W}-** depends on evidence found in other words in the same phonetic series. GSR #53 unfortunately presents no unambiguous examples of ***K-** or ***K^{W}-**. Gong supports the reconstruction of ***g^{W}-** by citing the character 㡯 ***g^{W}rag** (not in GSR #53), which must be reconstructed with initial ***g^{W}-** (1995:91 note 15).

There is no medial ***-w-** in the PTB form ***m-ka**. However, there is evidence for a rounded vowel in a number of TB reflexes of this root. Compare these forms with the corresponding words for 'bitter', descended from the well-established PTB root ***ka**.

DB-PL	***k/go$^{2/3}$** 'door'	***ka^{2}** 'bitter'
Cuona	*kɔ^{53}* 'door'	*kh$_{A}$^{53}po^{53}* 'bitter'
Motuo	*ko* 'door'	*khalu* 'bitter'

(But note that in most other TB languages the reflexes of these two roots have identical vowels.) When we add to this list WT *sgo* 'door' (compare WT *kha-ba* 'bitter'), it appears that a PTB variant with a rounded vowel must be established. It is difficult to say for sure whether to reconstruct ***wa**, however, since we would expect PTB ***wa** to be preserved in Proto-Loloish as ***wa**.

(31). Baxter ***wa(k)?** > **hwaX**.

(32). Baxter ***wang** > **hwang**. Note that the phonetic in this character is 王 'king' (G ***gwjang** > **jwang**, B ***wjang** > **hjwang**). The two words are no doubt etymologically related. We may compare PNN ***waŋ** 'chief' and TGTM ***^{A}groŋ** 'chief'. Unfortunately, these two roots do not help us decide between reconstructing a stop or approximant initial, nor do they specify whether the PTB vowel should be ***o** or ***wa**.

(33). Baxter ***wang** > **hwang**.

(34). Baxter ***g^{W}rats** > **hwæjH**. Note that in Baxter's system there are many possible reconstructions for this word: ***wrats**, ***wrots**, ***g^{W}rats**, ***g^{W}rots**, or ***grots**. I have chosen to reconstruct ***g^{W}rats** because of Baxter's reconstruction of ***g^{W}at** for 活 (#9764.26) in the same phonetic series.

(35). Baxter 1415 ***k^{W}jak** > **kjwak**.

(36). Baxter 971 ***wjat** > **hjwot**.

(37). Baxter ***w(r)jaʔ** > **hjuX**. This may be related to the complex of STEDT roots #763-767 (***wa**, ***g-wa**, ***wu**, ***g-wu**, ***(g)w(a/u)**), which seem to reflect a basic root of the form ***g-w(a/u)**. Based on the Tibetan form, this root should perhaps be further modified to ***g-(r)w(a/u)**, with ***g-rwa** ancestral to the Tibetan. Evidence for the medial ***r** may also be found in.

Cuona *krɔ^{l3}* 'feather'

as well as in Chinese.

(38). Baxter ***w(r)ja** > **hju**. Here, we have the WB form confirming PTB ***wa**. As with the previous set, Baxter's reconstruction is ambiguous with regard to medial ***-r-**, but its presence can be confirmed through comparison.

(111). Baxter 442 ***wjan** > **hjwon**. This root was discussed in Section 4.2.4, where Gong's reconstruction was deemed unlikely. The following forms, related to the Tibetan, militate against reconstructing PTB ***wa**, making the Chinese form an unlikely cognate.

Dulong dl *khɹɔŋ^{55}* 'village'
Dulong nj *khɹɔŋ^{53}* 'village'
DB-PL ***koŋ^{3}** 'village'

(117). Baxter ***k^{W}ajʔ** or ***kojʔ** > **kwaX**. STEDT #2370: ***kwaːy** 'bee' (STC #157). The PTB vowel ***wa** is confirmed by the Burmese form as well as TGTM ***^{B}gwai** 'bee' and PNN ***C$_{VD}$-guay** 'bug/bee'.

(144). Baxter ***k^{W}an(s)** > **kwan(H)**. The reconstruction ***kon(s)** is also possible in Baxter's system.

(145). Baxter ***k^{W}ans** > **kwanH**. The reconstruction ***kons** is also possible in Baxter's system, but PTB ***wa** can be confirmed by TGTM ***^{B}k^{h}wal** 'boil (v.)'.

(149). Baxter ***wjan** > **hjwon**. This root was discussed in Section 4.2.4. There is no direct evidence for ***wa** in PTB.

(211). Baxter ***ng^{W}(r)jajs** > **ngjwe**. Gong's reconstruction in ***-ats** (the Jì 祭 group) appears to be motivated by comparison with the Tibetan. In fact, according to Gong 1997, the word would have to be reconstructed within the Gē 歌 group (as Baxter has done), with final ***-ars**, ***-als**, or ***-ads** to account for MC **-jwě**; ***ng^{W}jats** would normally yield MC **ngjwɐi** (1997:14). Note that Coblin (1986:77) reconstructs the Chinese form as ***ng^{W}jar**, but compares the WT form instead directly to 訛 ***ng^{W}ar** 'deceive, false', reconstructing PST ****~~r~~ngwa~~r~~**.

(304). Baxter ***wras** > **hwæH**.

(318). Baxter ***w(r)jas** > **hjuH**.

A number of conclusions can be drawn. First of all, the comparisons for which only Tibetan forms exist on the TB side are doubly tenuous. In general, comparisons with WT isolates are less dependable than with TB roots which enjoy wider support. Within this class of words we must add the uncertainty over the multiple possible PTB origins of WT *-o-*.

In those sets where additional TB forms can be given, support for PTB ***wa** is strong. The hypothesis that labiovelars + ***a** in OC correspond to PTB velars + ***wa** is confirmed; these correspondences can be reconstructed ***Kwa** for PST, rather than Gong's ***K^{W}a-**.

PST		OC (G)	PTB		WT	WB	Pattern(s)
*Kwa-	>	*K^{W}a-	*Kwa-	>	*Ko-*	*Kwa-*	Gong #2, Benedict #1

None of these correspondences involve OC labio-laryngeals ***ʔ^{W}-** and ***h^{W}-**.[251] By analogy ***x^{W}a-** may be presumed to correspond to PTB ***hwa-**. The relationship of OC ***ʔ-** and ***ʔ^{W}-** to PTB remains to be determined.

The comparative evidence tends to undermine Baxter's reconstruction of ***w-** where Gong has ***g^{W}-**. In Baxter's system ***w-** and ***g^{W}-** are indistinguishable in their MC reflexes except before ***-j-**. It does no violence to revise many of Baxter's ***w-** initials to ***g^{W}-** in light of comparative evidence. Before medial ***-j-** the situation is more difficult. Li Fang-kuei employed a ***-j-**/***-ji-** distinction to account for the distinct reflexes **jw-** and **gj-** of OC ***g^{W}j-** (see Section 2.1.6). This distinction is not available in Baxter's system, so he instead reconstructs ***wj-** (corresponding to Ting's (1977-78) ***ɣ^{W}j-**) as the sole source of MC **jw-**. In light of the TB evidence for a stop initial, it seems that at the very least ***ɣ^{W}-** is preferable to ***w-** in correspondences with PTB ***g-**. PST ***ɣ-** could be reconstructed for these correspondences, with hardening of ***ɣ-** to ***g-** in PTB, but this solution is less than satisfactory. It may be that the development of OC ***g^{W}-** into MC **gj-** or MC **jw-** is conditioned by the presence of medial ***-r-** as Gong suggests. It might be possible to revise Baxter's ***wja** to ***g^{W}rja-** in at least some cases, though only if the addition of ***-r-** in the relevant lexical items does not interfere with vocalic developments.

A detailed solution to this problem with OC initials is beyond the scope of this study. Regardless of its solution, the problem does not in itself threaten the proposed hypothesis regarding the correspondence of PTB ***Kwa-** with OC ***K^{W}a-** (where the cover symbol ***K^{W}** is here understood to include Baxter's ***w-** initial).

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[251]The initial I have given here as ***h^{W}-** is variously reconstructed as ***h^{W}-**, ***x^{W}-**, and ***hw-** in different systems. (In Baxter's system ***hw-** (the voiceless counterpart of ***w-**) serves as the labialized counterpart of ***x-**.) It is not clear whether strictly speaking it should be considered a labiovelar or a labio-laryngeal.

4.3.2 Class II words: Old Chinese initial *K^{W}- and vowel *ə

Class II words have labiovelar initials and ***ə** vocalism in Gong's reconstruction. Gong 1995 lists seven words of this type. They are involved in Gong's correspondence pattern #1.

Set	Old Chinese	Written Tibetan	Written Burmese
26	歸 *k^{w}jər > kjwěi 'return'	*'khor* 'circle; to turn round, to return, to come home'; *skor* 'to surround; to return, go home'; *sgor-mo* 'round, a circle'	
27	掘 *g^{w}jət > gjuət 'to dig out'	*rkod*, *rko* 'to dig, dig-out, to hoe'	
28	友 *g^{w}rjəgx > jǒu 'friend, associate'	*grogs* 'friend, associate, companion'	
29	胃 *g^{w}rjəts > jwěi 'stomach'	*grod* 'belly, stomach'	
161	郡 *g^{w}jəns > gjuən 'district'	*khul* 'district, province, domain'	
162	訓 *x^{w}jəns > xjuən 'instruct, explain'	*skul* 'to exhort, admonish'	
171	煇, 輝 *x^{w}jəl > xjwěi 'brightness, bright'	*khrol-khrol* 'bright, shining, sparkling, glistening'	

There are actually two different correspondence patterns illustrated here. Two of the sets have Tibetan words with vowel -*u*- rather than -*o*-. Gong takes these two sets back to PST ***-jul** (as in pattern #15), while the other five are derived from PST ***-wə-**. But the development PST ***-jul** > OC ***-^{W}jəl** is slightly irregular. According to Gong 1995:46, the regular Chinese development of PST ***-u-** before dentals is ***-ə-**, not ***-^{W}ə-**. But if the irregularity on the Chinese side is eliminated by instead taking these words back to PST ***-wjəl**, then the WT reflex -*u*- becomes irregular, since -*o*- would be expected (as in pattern #1).

In Baxter's system, Class II words in the dental-ending rhyme groups (WēI 微, Wù 物, WéN 文) may be reconstructed with either ***K-** and ***u** or with ***K^{W}-** and ***ɨ**, depending on which rhyming group they fall into. As it turns out, the two cognate sets (#161, #162) with WT -*u*- vocalism involve OC words reconstructed with ***u** by Baxter. I believe

Baxter's choice of ***u** over ***ɨ** in these two words is based purely on internal evidence; this is strong support for Baxter's reconstruction.

(26). Baxter 104 ***k^{W}jɨj** > **kjwɨj**. Coblin (1986:153) reconstructed the OC word as ***k^{W}jəd**, and also listed 圍 ***g^{W}jəd** 'encircle, surround' and 回 ***g^{W}əd** 'revolve, go around' as part of the same word family. Noting the Old Tibetan form *'khord*, Coblin argued for a PST root ending in ****-rd**, with ****-r-** lost in Chinese and ****-d** ultimately lost in Tibetan.[252] Gong, in contrast, reconstructs the Chinese words with final ***-r,** implying a PST final in ***-ər**. These forms may be compared with the following cognates:

Cuona *kɔr^{l3}kɔr^{l3}jA^{l3}* 'surround'
TGTM ***^{A}kor** 'turn to'

(27). Baxter 323 ***gjo/ut** > **gjwot ~ gjut**. STEDT #2325: ***r-go-t ~ *r-ko-t** 'dig up, scoop out' (STC #420). The prefixal ***r-** is reflected not only in the Tibetan forms but also in Jingpho *ləgot ~ ləkhot* 'scoop up'.[253] The gloss 'to hoe' for the Tibetan word appears to link it to the following word:

Darang *ta^{31}ko^{53}* 'hoe'

This should probably be kept distinct from a separate dental-initial root (perhaps connect to STC #317: ***tow** 'hammer'), which appears in:

TGTM ***^{B}to**: 'hoe'
PNN ***t^{h}u** 'dig'

Finally, this Geman form is likely related:

Geman *gua^{35}* 'dig'

As noted earlier, the presence of Jingpho *-o-* corresponding to WT *-o-* leads to the reconstruction of ***o** rather than ***wa** at the PTB level. Only the Geman form suggests there may have been a medial ***-w-** in this root. This makes Baxter's reconstruction, with a rounded vowel and unrounded initial, appear to be a closer match. Note that in Baxter's

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[252]Bodman (1980:65) compares these Tibetan words for 'circle, round' to the Chinese word family including 捥 'wrist (< *turning joint)', which he reconstructs ***skwars** > ***ʔwans** > **ʔuân-**.
[253]It is also possible that the variant with the voiced initial ***g-** reflects the influence of the prefix ***r-** on the plain root initial.

system both ***gjut** and ***g^{W}jɨt** would yield MC **gjut**. Why has Baxter chosen the former reconstruction rather than the latter, which is more similar to Gong's? The reason seems to be that 掘 is in the same phonetic series as 出, which in Baxter's system must be reconstructed with ***-ut**. Baxter also reconstructs a variant in **gjot** to account for a second Middle Chinese reading; this variant corresponds well with the PTB root, and may therefore better reflect the PST-inherited pronunciation.

(28). Baxter 9804.18 ***wjɨ?** > **hjuwX**. This set is similar to many involving Class I words, in that Gong's reconstruction of a stop initial correlates more closely with the proposed Tibetan cognate than does Baxter's initial ***w-**. The following form might be a borrowing from Tibetan:

Cuona *tʂɔk^{13}po^{53}* 'friend'

It is possible that the second syllable of

Dulong dl *lam^{55}bɹʔ^{55}* 'friend'

is cognate, with assimilation of the velar initial to the final *-m* of the previous syllable. (Dulong final *-ʔ* is the normal reflex of PTB ***-k**.) Note that the Nujiang dialect form lacks medial ***-r-**:

Dulong nj *ɹam^{31}bɹʔ^{55}* 'friend'

This root was also discussed in Section 4.2.5, where its development in Gong's system was noted to be irregular.

(29). Baxter ***wjɨts** > **hjwɨjH**. STEDT #2112: ***grwat** 'belly/stomach'. WT *-o-* is here explicitly derived from PTB ***-wa-**. In Gong's set #36 in the previous section, the WT word *'grod* 'to go, to travel' was compared with Chinese 越 ***g^{W}rjat**. In this set we have the nearly homophonous Tibetan form *grod* 'belly, stomach' corresponding to Chinese ***g^{W}rjəts**. Gong accounts for the two correspondence types by deriving the second from PST ***-^{W}ə-**.

(161). Baxter ***gjuns** > **gjunH**. As noted above, the development from PST to OC is irregular. We can contrast it with the regular development of 銀 ***ngjən** 'silver', derived from PST ***-jul**, which has an unrounded velar initial (Gong 1995:66 #160).

(162). Baxter ***xjuns** > **xjunH**.

(171). Baxter ***hwjɨj** > **xjwɨj**.

To Gong's sets we should add PTB ***ŋwa** 'cattle' (STC #215) and Chinese 牛 'cattle' (G ***ng^{W}jəg**, B 795 ***ng^{W}jɨ**).

The evidence here is not very conclusive. For the moment we retain Gong's PST reconstruction, with revision of ***-^{W}-** to ***-w-**, when WT has *-a-* vocalism. But PST ***u** is reconstructed when WT has *-u-*; only in Baxter's system does this allow for consistent correspondence patterns.

PST		OC (G)	PTB		WT	WB	Pattern(s)
*Kwə-	>	*K^{W}ə-	*Kwa-	>	*Ko-*	*Kwa-*	Gong #1, Benedict #1
*Ku-	>	*K^{W}ə-	*Ku-	>	*Ku-*	*Ku-*	Gong #12-16, Benedict #7c

4.3.3 Class III words: Old Chinese vowel *a and ending *-K^{W}

Class III words have vowel ***a** and a labiovelar ending. Gong 1995 lists ten words of this type. They are in correspondence patterns #4 and #5.

Set	Old Chinese	Written Tibetan	Written Burmese
47	耄 *mag^{W}s > mâu ‘very old’	*rmo-mo* ‘grandmother’	
48	謠 *lag^{W} > jiäu ‘sing, song, rumour, a false report’	*lo* ‘talk, report, rumour’	
49	醪 *rag^{W} > lâu ‘spirits with sediment’	*ro* ‘taste, flavour, savour, residue, sediment’	
50	號 *gag^{W}s > ɣâu ‘cry out, command, call, name’	*sgo* ‘to say, when used of superiors, hence mostly to bid, to order’	*khau* ‘call, invite, name’
51	弱 *njak^{W} > ńźjak ‘weak, young, tender’	*nyog-nyong* ‘soft, tender, weak’	
52	爚 *lak^{W} > jiak ‘to shine’; 曜, 燿, 耀 *lak^{W}s > jiäu ‘shine, gleam’	*glog* ‘lightning’	
111	垣 *g^{W}rjang^{W} > jwɐn ‘wall’	*grong* ‘house, village, town’	
333	駁 *prak^{W} > pâk ‘horse with mixed colours, mixed’		*prauk* ‘be speckled, spotted’
335	鑿 *dzak^{W} > dzâk ‘to bore, to chisel out’		*chauk* ‘a chisel’
346	豪 *gag^{W} > ɣâu ‘brave, eminent’	*mgo* ‘head, summit, height, top’; *'go* ‘captain, head-man’	

(47). Baxter ***maw(k)s** > **mawH**. While this is a perfect correspondence according to Gong’s criteria, it seems to me that it is probably coincidental. The Tibetan form for ‘grandmother’ is most likely derived from one of the several ***m-**initial roots for ‘mother/woman’ found in Tibeto-Burman. Tibetan *mo* ‘woman, female’ is descended from STC #297 ***mow** ‘female/woman/bride’; *rmo-mo* ‘grandmother’ is probably derived from this simple root.

(48). Baxter ***ljaw** > **yew**. This comparison has been treated in Section 4.1.1.

(49). Baxter ***C-ru** > **law**. This comparison has been treated in Section 4.2.7.

(50). Baxter ***gaws** > **hawH**. STEDT #2235: ***gaw~*kaw** ‘call’ (STC #14).

(51). Baxter 1692 ***njewk** > **nyak**. Possibly related to STEDT #2510: ***now** ‘tender, soft’ (STC #274). A variant with final ***-k** would have to be posited to account for the Chinese and Tibetan forms. Note that Dulong has a form, *ɲɯp*^{55} ‘soft, tender’ with final *-p*.

(52). Baxter ***ljewk** > **yak**. This comparison has been treated in Section 4.1.1.

(111). Baxter 442 ***wjan** > **hjwon**. This comparison has been treated in Sections 4.2.4 and 4.3.1

(333). Baxter ***pra/ewk** > **pæwk**.

(335). Baxter ***dzawk** > **dzak**.

(346). Baxter ***gaw** > **haw**. STEDT #386: ***m/s-gaw** 'head' (STC #490).

The Tibetan forms have the vowel *-o-* in all cases, and where Burmese forms appear they have the vowel *-au-*. In most cases there is a clear correspondence between PTB ***-aw** and Class III words. There is some suggestion that the PTB final ***-ow** is involved as well (set #51), though there is not enough support to confirm this correspondence. In the sets for which Baxter reconstructs ***u** or ***ew** rather than ***aw** (#49, #51, #52, #333) there is not enough comparative evidence to draw any conclusions about the validity of the reconstruction.

PST		OC (G)	PTB		WT	WB	Pattern(s)
*-aw	>	*-ag^{w}	*-aw	>	*-o*	*-au*	Gong #4, Benedict #4
*-awk	>	*-ak^{w}	*-awk	>	*-og*	*-auk*	Gong #5, Benedict #4

4.3.4 Class IV words: Old Chinese initial *K^{W}- and vowel *i

Class IV words have labiovelar initials and a front vowel. No words of this type appear in Gong 1995.

Class IV words include the following Chinese lexical items:

'orange' 橘: Gong ***k^{W}jit** > **kjiuět**; Baxter ***k^{W}jit** > **kjwit**.
'sunflower, mallow' 葵: Gong ***g^{W}jid** > **gwi**; Baxter ***g^{W}jij** > **gjwij**.
'shrike' 鶪: Gong ***k^{W}ik** > **kiwek**; Baxter ***k^{W}ek** > **kwek**.
'handsome' 鬈: Gong ***g^{W}rjan** > **gjwän**; Baxter ***g^{W}rjen** > **gjwen**.
'jade tablet' 圭: Gong ***k^{W}ig** > **kiwei**; Baxter ***k^{W}e** > **kwej**.

And possibly:

'dog' 犬: Gong ***k^{W}hi(a)nx** > **khiwen**; Baxter ***k^{W}hi/en?** > **khwenx**. (It is not clear whether this word belongs in the YUáN 元 or ZHēN 真 groups. If the former, it should be considered a Class I word.)

A number of scholars have proposed that PTB ***kwəy** ‘dog’ is cognate to this last Chinese word, with Chinese reflecting the addition of the ***-n** collective suffix. If the comparison is correct, then the PTB vocalism would argue for placing the Chinese word in the ZHēN 真 group, with main vowel ***i**. We would then have a development something like PST ***kwiː-n** > OC ***k^{W}hin**. It is worth noting the parallel with set #133, discussed below in Section 4.3.6, in which PST ***-wiː** becomes OC ***-uj** (Baxter’s system) or OC ***-uəd** (my revision of Gong’s system), with the peak of sonority shifting earlier in the syllable. In the former case the medial ***-w-** was absorbed into the velar initial, leaving the vowel unrounded; in the second case, following an acute initial, the medial ***-w-** was retained as a rounded vowel, and the original front vowel developed into an off-glide.

Benedict 1972 contains only two other roots which have velar initial, medial ***-w-**, and a front vowel. These are ***kwi(y)** ‘comb’ and ***m-gwi(y)** ‘elephant’ (the finals should now be written ***-wi ≷ *-wəy**). I am not aware of any Chinese cognates to these two roots.

Matisoff (1986) has proposed that ‘dog’ and ‘comb’ may be better reconstructed with PTB labiovelar initial ***k^{W}-** rather than ***kw-**, since these roots have distinct labial-initial reflexes in some languages (notably Lahu). A few other roots of this type have been proposed; but at any rate, labiovelar phonemes seem to have been marginal at best in PTB, and are perhaps better established for meso-level reconstructions within TB. Matisoff (to appear) has taken the latter approach, reconstructing labiovelar initials definitively at the Proto-Lolo-Burmese level, and leaving their existence open to question for PTB.

It may be, though, that the unusual development of the initials could be attributed to front vowel quality rather than to a unitary labiovelar phoneme. Matisoff (to appear) gives the following PLB roots with labiovelar initials:

‘dog’: PLB ***k^{W}əy^{2}**
‘nest’: PLB ***k^{W}əy^{1}**
‘comb’: PLB ***ʔg^{W}əy^{2}**
‘trumpet’: PLB ***Ng^{W}ya$^{1/2}$**
‘chew’: PLB ***Ng^{W}ya^{2}**

All of these roots have the front vowel ***-əy** or medial ***-y-**. By contrast, Matisoff lists these roots with ordinary velar+**w** initials:

'wear clothes': PLB ***gwa²**
'chaff': PLB ***pway²**

An apparent exception is the root set up for 'moon' in Matisoff 1980 as PTB ***s-ŋ^{W}a-t**, although this reconstruction must be regarded as more tentative.

I have found a possible Chinese cognate for PLB ***k^{W}əy¹** 'nest': 窠 'burrow, nest' (Gong ***kh^{W}ar** > **khuâ**, Baxter ***k^{W}haj** > **khwa**). The character does not appear at GSR #351, but is listed in *Shuōwén*, where it is defined as both 'empty' and 'bird's nest'. The PTB root appears in the STEDT database as #1611: ***k^{W}əy** 'nest/womb/placenta'.

It is difficult to draw any general conclusions about Class IV words because of a lack of TB cognates. However, the examples of 'dog' and 'nest' suggest at least that the initials of Class IV words correspond to velar + ***-w-** or labiovelar initials in PTB. It is not possible to speculate on vocalic correspondences or developments.

4.3.5 Class V words: Old Chinese vowel *ua

Class V words have vowel ***ua**. This words are always reconstructed with ***o** in Baxter's system. Eleven words of this type appear in Gong 1995, fitting in with correspondence pattern #3.

Set	Old Chinese	Written Tibetan	Written Burmese
39	脱 *hluat > thuât 'to take off, escape, careless'	*glod* 'to loosen, relax, slacken, to comfort'	*kywat* 'to be freed from, released'
40	悦 *luat > jiwät 'pleased, glad'	*glod* 'to comfort, console; to cheer'	
41	卵 *ruanx > luân 'egg'	*sro-ma* 'egg of a louse, a nit'	
42	鑽 *tsuan > tsuân 'to bore, perforate, penetrate'; 鐫 *tsjuan > tsjwän 'chisel, sharp point'	*mtshon* 'any pointed or cutting instrument'	
43	坐 *dzuadx > dzuâ 'sit, seat'	*sdod* (pf., fut. *bsdad*) 'to sit, to stay'	
44	綴 *rtjuat > ʈjwät 'sew, tie, connect'	*rtod, gtod, btod* 'to tether, fasten, secure'	
45	垂 *gljual > źjwĕ 'hang down, fall'	*'jol* 'hang down'	*lway* 'suspend from shoulder'
46	絕 *dzjuat > dzjwät 'cut off, break off'	*chod* 'to be cut off', *gcod* (pf. *bcad*, fut. *gcad*) 'to cut, to cut asunder, to cut off'	*chwat* 'to pluck'
119	唾 *thuads > thuâi 'to spit'	*tho-le 'debs-pa* 'to spit'	
180	緩 *guanx > ɣuân 'slow, delay'	*'gor* 'to tarry, linger'	
181	算 *suanx > suân 'to count'	*gshor* 'to count, to measure'	

(39). Baxter 236 ***hlot** > **thwat**. STEDT #2425: ***g-lwat** 'free, release' (STC #209). See Section 4.1.4.

(40). Baxter 239 ***ljot** > **ywet**. STEDT #2425: ***g-lwat** 'free, release' (STC #209). See Section 4.1.1.

(41). Baxter 557 ***g-ron?** > **luanx**. STEDT #1172: ***s-row** 'egg/nit' (STC #278). See Section 4.2.7.

(42). Baxter ***tson** > **tsuan**. The Chinese form could be related to STEDT #2763: ***tsywar** 'cut, chop' (STC #240), but in that case the WT form would have to be excluded or considered irregular because of its *-n* final. (Moreover there is no evidence within Chinese to suggest an original final ***-r** here.) Benedict (1972:63 note 200) has in fact suggested relating the Tibetan word to PTB ***tsow** 'thorn' (STC #276), but again the *-n* is problematic.

(43). Baxter 631 ***dzoj?** > **dzwaX**. The proposed cognacy is presumably made on the grounds that Chinese initial ***dz-** is ultimately descended from some sort of ***sd-** cluster. The proposal for this type of development was first made by Bodman (1969) in a discussion of Chinese 卒, which appears as set #221 in the next section. If Baxter's reconstruction were made to conform to this proposal, it would be revised to ***Sdoj?** (where capital ***S** represents the "metathesizing ***s**", of uncertain phonetic distinction from the ordinary ***s-** prefix). This means that we would expect additional TB cognates to have a stop, rather than an affricate, initial. I have however been unable to find any more cognates. In addition, the past and future forms of the WT verb indicate a root vowel of *-a-*, not *-o-*. The comparison is therefore on shaky ground.

(44). Baxter ***trjot** > **trjwet**; ***tjots** > **tsywejH**. STEDT #2207: ***du-t ~ *tu-t** 'join; tie, knot' (STC #421). See Section 4.2.3.

(45). Baxter ***djoj** > **dzywe**. In Section 4.1.5 I argued that the WB form was not cognate to the Chinese and WT forms. In Gong's system, the Chinese word should be reconstructed ***djual** and compared to PTB ***dywal**.

(46). Baxter ***dzjot** > **dzjwet**. STEDT #1007: ***tsyat** 'cut off' (STC #185). This root appears as ***tsyat**=***tśât** 'break; cut' in the index to Benedict 1972. The vowel ***â** in the revised version is meant to account for the rounded vowel *-o-* in Tibetan (the perfect and future forms *bcad* and *gcad* have *-a-* vocalism), while still explaining the vocalism of Lushai *tśat* 'break, cut'. With the added evidence from WB, however, we must propose a revised reconstruction PTB ***tsywat**.

Matisoff has proposed two distinct PLB roots:

PLB ***tsat** ⋙ ***{C}-tsat** 'break in two/cut'
PLB ***?cwat** 'pluck'

with the second one clearly ancestral to WB *chwat* and the former perhaps better related to PTB ***tsyat** (STC #185). Also related to ***tsyat** is Cuona *tɕʌt*^{53} 'break (v.i. of rope, etc.)'.

If two separate roots are maintained, it is not clear which to associate with the Chinese word; the WT form, however, should be assigned to an unrounded root vowel.

(119). Baxter ***thots** > **thwajH**. STEDT #603: ***m/s-twa** 'spit'. Note TGTM ***^{B}t^{h}wa** 'spit'. In Baxter's system ***thots** is the only possible reconstruction that yields MC **thwajH**. Since the phonetic in this word is 垂 ***djoj** (set #45) a reconstruction without a stop coda would be preferred, but ***thojs** would yield MC **thwaH**. A reconstruction without a final stop would also agree better with the TB forms.

Two other STEDT roots with similar shape have been proposed, STEDT #606 ***m-tyur** 'spit' and STEDT #604 ***twəy** 'spit' (STC #168). The latter is reconstructed as the source of WB *thwê* 'spit'. All three PTB roots are similar enough to be etymologically related, but an onomatopoetic origin cannot be discounted (cf. English *ptooey*), making it difficult to make a claim for expectation of a perfect correspondence between Chinese and TB.

(180). Baxter ***g^{W}an?** > **gwanX**. Here Baxter has reconstructed ***g^{W}an?** rather than ***gon?** (both yield the same MC reflex) because words in this phonetic series rhyme with ***-an** rather than ***-on** according to his analysis of the *Shījīng*. The more interesting question is why Gong has chosen to reconstruct ***guanx** rather than the "default" reconstruction of ***g^{W}anx**, which Li (1971[1980]:54) reconstructs for this same word. In the absence of any other explanation, it seems likely that Gong 1995 contains a typographic error here, in which case this word should be corrected to ***g^{W}anx** and placed in Class I.

(181). Baxter 862.3 ***sons** > **swanX ~ swanH**.

We might also add to this list Benedict's suggested correspondence (1972:172 note 460) between PTB ***swa:r** 'sour' and OC 酸 'sour' (G ***suan**, B ***son**). The PTB root was originally reconstructed as ***su:r** (STC #42).

There is a clear correspondence here between PTB ***wa** > WT *o* and Class V words. These can be safely reconstructed with PST ***wa**. This does not by itself resolve the

question of whether Gong's ***ua** or Baxter's ***o** is the better reconstruction for OC; either one could descend from earlier ***wa**.

It seems to me plausible that during the Old Chinese period there was first a structural shift of ***wa** to ***ua** following the loss of ***w** as a functional medial element (it was this loss that led to the development of unitary phonemes ***K^{w}-**). The vowel /ua/ could then have become more rounded in articulation, realized something like [uɔ]. The difference in articulation between this vowel and plain ***a** would explain the rhyming separation in the *Shījīng* that led to Baxter's reconstruction of two distinct monophthongs ***o** and ***a** in rhyme groups with dental endings. Proposing this kind of marked allophonic variation—even one which could affect rhyming practices—does not however militate against a phonemic reconstruction of ***wa** and ***a** for Baxter's ***o** and ***a**.

In the context of other OC-PTB correspondences, however, Baxter's reconstruction of ***o** does appear preferable. I will address this issue in Section 4.3.8 below.

PST		OC (G)	PTB		WT	WB	Pattern(s)
*-wa-	>	*-ua-	*-wa-	>	*-o-*	*-wa-*	Gong #3, Benedict #1

4.3.6 Class VI words: Old Chinese vowel *ə with dental initials and finals

Class VI words have ***ə** vocalism and dental initials and finals. In Li Fang-kuei's and Gong Hwang-cherng's systems, these words develop *hékǒu* vocalism epenthetically. In Baxter's system, such words are reconstructed with vowel ***u** to account for the development of *hékǒu* vocalism. This is discussed in more detail in Sections 4.1.7 and 3.3.6.

Gong 1995 contains the following words in this class:

Set	Old Chinese	Written Tibetan	Written Burmese
133	水 *hljədx > świ ‘water’	*chu* ‘water, brook, river’	
138	類 *rjəds > ljwi ‘class, category’	*gras* ‘class, order, tribe’	
154	鈍 *dəns > duən ‘dull’	*rtul* ‘blunt, dull, stupid’	
159	順 *djəns > dźjuěn ‘obey, submissive’	*'dul* ‘to tame, to subdue, conquer’; *dul* ‘soft, tame, gentle, mild’	
204	尊 *tsən > tsuən ‘to honour, honourable’	*btsun* ‘respectable, noble, honourable’	
206	孫 *sən > suən ‘grandson, granddaughter’	*mtshan* < ***m-san** ‘nephew’	
221	卒 *tsjət > tsjuět ‘finish, die’	*sdud* ‘to close, conclude, finish’	

It is unfortunate that no WB cognates have been proposed for these sets. Note that Tibetan words with both -*a*- and -*u*- appear. According to Gong 1995, those with -*u*- are descended from PST ***u**, which becomes OC ***ə** before dentals.[254] Those with -*a*- are descended from PST ***ə**, which becomes -*a*- in Tibeto-Burman. If it can be shown that the correspondences with WT -*a*- are invalid, then Baxter’s hypothesis that all these Chinese words should be reconstructed with ***u** can be accepted. But if the correspondences are valid, then another explanation needs to be sought. Recall that I have already argued in Chapter 2 that Li’s general proposal OC ***ə** > **-uə** / **T ___ T** (where **T** represents a dental consonant) is problematic, and have indicated that adding ***uə** to the vowel inventory of Li’s system, with the same distribution as ***ua**, is a reasonable solution.

(133). Baxter 1239 ***h[l]juj?** > **sywijX**. This correspondence set was rejected in Section 4.1.4. It is worth considering instead the correspondence proposed by Coblin, in which the Chinese word is compared to STEDT #2428 ***lwi ≮ *lwəy** ‘flow, stream’ (STC #210).

(138). Baxter 691 ***C-rjut/ps** > **lwijH**.

[254]According to Gong 1995:50, a second source of WT -*u*- is PST ***-əw**, which is Gong’s shorthand notation for the PST finals that give rise to OC ***-ək^{W}**, ***-əg^{W}** and ***-əng^{W}**. Since by definition Chinese Class VI words do not have these finals, we need not concern ourselves with these correspondences in this section.

(154). Baxter ***duns** > **dwonH**. Cf. STEDT #3335: ***s-tin ≍ *s/m-tun** 'buttocks' and STEDT #394: ***r-tiŋ ≍ *r-tin** 'heel'. Matisoff 1994 relates and revises these roots; the latter becomes ***r-tiŋ ≍ *r-tuŋ ?≍? *-tin ≍ *-tun** 'heel/buttock'. In other words, both the dental and nasal-ending roots show ***i/u** variation, and are probably related to each other. The forms ending in the velar nasal always mean 'heel', but the dental-ending forms may mean 'buttocks' in compound. The semantic relationship is understood in terms of the similar rounded shape of the body parts. The semantics can further be extended to incorporate the concepts 'dull, blunt'. Under this interpretation, Matisoff proposes that 鈍 ***dəns** 'dull' and 臀 ***dən** 'buttocks' are etymological doublets, directly cognate to PTB ***s/m-tun** 'buttocks'.

The only problem here is the final *-l* of Tibetan. It is interesting to note that Matisoff 1994 does not make reference to this WT form; at the same time, he provides ample support for final ***-n** rather than ***-l** in many other Tibeto-Burman reflexes. But regardless of whether the WT word is related to the PTB root, we still have a good correspondence here between the Chines form and PTB ***-u-**.

(159). Baxter ***ɦsKjuns** > **zywinH**. Baxter's reconstruction with a velar initial is due to his reconstruction of the phonetic, 丿|, as ***KHju/on** (1992:429).[255] It is conceivable that the WT word *dul* is in the same word family as WT *rtul* 'dull' from the previous set.

(204). Baxter ***tsun** > **tswon**.

(206). Baxter ***sun** > **swon**. Gong's derivation of WT *mtshan* from ***m-san** is presumably based on analogy with the development *'tsh-* < ***'-s-** (see Li 1933:147). This is plausible; the sequence *ms-* does not occur in Tibetan. But WT *mtshan* could also be derived from ***m-tshan**. In fact, WT has forms *tsha-bo*, *tsha-mo* 'grandchild, nephew or niece' which appear to include the root from which *mtshan* is likely derived through the addition of *m-* and *-n*. The Tibetan forms are clearly related to STEDT #2727 ***tsa** 'child, grandchild, nephew/niece' and STEDT #1012 ***za** 'child' (STC #59). Neither has the

[255]Baxter's reason for reconstructing 丿| with a velar initial rather than with ***thj-** is unclear to me.

expected final ***-n**, but Lepcha *(ă-)zon* ‘grandchild’, Dhimal *tśan* ‘son’ indicate the sporadic occurrence of suffix ***-n** with these roots in TB (see Benedict 1972:27 note 86).

The most basic Chinese cognate to these TB roots is 子 ‘child’ (G ***tsjəgx** > **tsɨ**, B ***tsjɨ?** > **tsiX**), which under Gong’s system would be taken back to PST ***-ə** (Gong’s set #327).

(221). Baxter 462 ***Stjut** > **tswit**. This set was first proposed by Bodman (1969) in his proposal of the “**st-* hypothesis”, which argued for the development of PST ***st-** clusters to OC ***ts-**. Baxter has adopted this hypothesis, writing such metathesizing clusters with a capital ***S-** to distinguish them from ***st-** clusters which did not metathesize.

The two sets for which Gong has proposed Tibetan cognates with *-a-*, #138 and #206, deserve further scrutiny. In the first set (‘class, category’) neither a PTB root or cognates from other TB languages can be found to support the reconstruction of PTB ***a** corresponding with Gong’s OC ***ə**. In the case of #206, ‘grandchild’, there is evidence for ***a** in the PTB roots ***za** and ***tsa** meaning ‘child’. But the relationship between Chinese 孫 and these roots appears to be indirect.

Based on the sets listed here, it seems to me that correspondences between PTB ***u** and Class VI words are best attested. In the case of set #133, where there is no final consonant, there appears to be a correspondence with PTB ***-wəy** (PTB contains no final ***-uy**). This correspondence might be taken back to PST ***-wi** or ***-wi**:. Note also the discussion of 犬 in Section 4.3.4. In light of this evidence, I would suggest the following:

1) Class VI words should indeed be reconstructed with a rounded vowel at the Old Chinese stage. Within Li Fang-kuei’s system, this would mean a revision to ***uə**. This kind of reconstruction not only accommodates the comparative evidence better, it also eliminates some of the difficulties which were raised in Section 2.1.7. Furthermore, it brings the reconstruction of this class of words into closer alignment with Baxter’s system.

2) These Class VI words have their origin in PST ***wi** and ***u** vowels before dental finals (or no final, in which case ***wi** developed into PTB ***wəy**), which in turn are reflected in Tibetan as *u*. The merger of PST ***wi** and ***u** within Old Chinese can be viewed as part of the process of the loss in Chinese of true medial ***-w-**, the same process that led to the creation of unitary labiovelar phonemes. There is no evidence for the reconstruction of PST ***wə**, which presumably would have developed to ***wa** in PTB but had the same reflexes in OC as ***wi** and ***u**, but additional data may in future require such a reconstruction.

3) The two proposals above make the reconstruction of PST ***wi** and ***u**, and their developments in OC, largely parallel to those of ***wa** and ***o**.

PST		OC (G)	PTB		WT	WB	Correspondence(s)
*-u-	>	*-^{w}ə-, *uə-	*-u-	>	*-u-*	*-u/ui/au-*	Gong #2, Benedict #7a-c
*-wi-	>	*-^{w}ə-, *uə-	*-wəy	>	*-yi-*	*-we-*	Benedict #8

4.3.7 Class VII words: Old Chinese vowel *ə and ending *-K^{W}

Set	Old Chinese	Written Tibetan	Written Burmese
18	毒 *dək^{W} > duok ‘poison’	*dug*, *gdug* ‘poison’	*tauk* ‘to be poisoned’
24	九 *kjəg^{W}x > kjə̆u ‘nine’	*dgu* ‘nine’	*kûw* ‘nine’
25	舅 *gjəg^{W}x > gjə̆u ‘maternal uncle’	*khu-bo* ‘paternal uncle’	*kuw* ‘brother’
61	胞 *prəg^{W} > pau ‘womb’	*phru-ma*, *'phru-ma* ‘uterus, matrix of animals, placenta’; *phrug* ‘child, a young one (of animals)’	
62	鳩 *kjəg^{W} > kjə̆u ‘pigeon; name of various birds’	*'ang-gu* ‘pigeon’	*khuw* ‘pigeon’
66	覺 *krək^{W} > kak ‘to awake, to rouse somebody into understanding’	*dkrug* ‘to stir, agitate, to disturb’	
67	窠 *phjək^{W} > phjuk, *bjək^{W} > bjuk ‘cave’	*phug* ‘cavern’	*ə-pauk* ‘hole, opening’
68	六 *rjək^{W} > ljuk ‘six’	*drug* ‘six’	*khrauk* ‘six’
69	躬 *kjəng^{W} > kjung ‘body’		*ə-kaung* ‘animal body, dead body’
337	篤 *tək^{W} > tuok ‘firm, solid, thick’	*'thug* ‘thick, thickness, dense’	*thu* ‘to be thick, not thin’
341	粥 *tjək^{W} > tśjuk ‘rice gruel’	*thug* ‘soup, broth’	
349	嗥 *gəg^{W} > ɣâu ‘howl, cry’	*ngu* ‘to weep, to roar’	*nguw* ‘cry, weep’
350	肘 *trjəg^{W}x > ʈjə̆u ‘wrist, elbow’	*gru-mo* ‘elbow’	

Two sets from Gong 1997:

	糾 *krjəg^{W} > kjiə̆u ‘twist, plait’		*krûw* ‘thread, string, chain’
	觓 *grjəg^{W} > gjiə̆u ‘horn-shaped, long and curved’		*khruw* ‘horn’

We are fortunate in that PTB roots have been reconstructed for a large number of these sets.

(18). Baxter 1616 ***duk** > **dowk**. STEDT #2202: ***duk~tuk** ‘poison’ (STC #472).

(24). Baxter 626 ***k^{W}ju?** > **kjuwx**. STEDT #2364: ***d-kəw~d-gəw** ‘nine’ (STC #13).

(25). Baxter 9769.22 ***g(r)juʔ** > **gjuwx**. STEDT #2362 ***kəw** ‘uncle (maternal); father-in-law’ (STC #255).

(61). Baxter ***pru** > **pæw**. STEDT #1733: ***r-bu** ⋙ ***pru** ‘nest/womb/placenta’. See also Section 4.2.1.

(62). Baxter 796 ***k(r)ju** > **kjuw**. STEDT #2346: ***m-krəw** ‘dove’ (STC #118).

(66). Baxter 766 ***kruk** > **kæwk**. See Section 4.2.1.

(67). Baxter ***ph(r)juk** > **phjuwk**. STEDT #258: ***s-bu-k** ‘belly/stomach/cave’ (STC #358). The range of meaning of the PTB root indicates that Chinese 腹 ‘belly’ (G ***prjəkʷ**, B ***p(r)juk**) is part of the same word family.

(68). Baxter 267 ***C-rjuk** > **ljuwk**. STEDT #2621: ***d-ruk** ‘six’ (STC #411). See also section 4.2.7.

(69). Baxter 848 ***k(r)jung** > **kjuwng**. STEDT #1: ***guŋ** ‘body/back’.

(337). Baxter ***tuk** > **towk**. STEDT #2712: ***tuːk** ‘thick, deep’ (STC #356).

(341). Baxter ***tjuk** > **tsyuwk**.

(349). Baxter ***gu** > **haw**. STEDT #1104: ***ŋəw** ⋙ ***ŋuk** ‘weep, cry’ (STC #79). Given both the semantic distinction (the Chinese word means more ‘roar’ than ‘weep’) and the imperfect correspondence between the initials, this proposed cognate set must be seen as doubtful.

(350). Baxter ***trjuʔ** > **trjuwx**. STEDT #307: ***s-gu** ⋙ ***s-gru** ‘elbow’. I argued in section 4.2.3 that the Chinese form is not cognate to the PTB root.

(‘twist’). Baxter ***k(r)jiwʔ** > **kjiwx**. See also Section 4.2.5.

(‘horn’). Baxter ***g(r)jiw** > **gjiw**. STEDT #2345: ***krəw** ‘horn’ (STC #37). See also Section 4.2.5.

With the single exception of Gong #61 ‘nest/womb/placenta’, the cognate sets show a very clear pattern of correspondence to Class VII words. Before final stops, PTB has ***u**; in open syllables, PTB has ***-əw**. Just as I proposed taking PTB ***-əy** back to PST ***-iː**, I believe PTB ***-əw** should be taken back to PST ***-uː**.

This collection of cognate sets are therefore all descended from PST ***u**(ː). (That PTB ***-uK** and PTB ***-əw** are originally descended from the same vowel can be seen in alternations like that of PTB ***ŋəw ≋ *ŋuk** < PST ***ŋuː-k** 'weep'.)

This means that Baxter's reconstruction of OC ***u** in most cases matches very nicely. Baxter's reconstruction also creates a better parallel with Class VI words, where PTB ***-uT** corresponds to OC ***-uT**. Under Gong's system (modified as in Section 4.3.6), PST ***u** breaks to ***uə** before dentals, but to ***-ə**^{w} before velars (where ^{w} indicates the rounded feature of a labiovelar). It is difficult to explain why the rounded feature should shift left in one case but right in the other.

In the last two sets, 'twist' and 'horn', Baxter has ***-iw** rather than ***-u**. This is in accord with Baxter's division of the traditional YōU 幽 group (to which all these Class VII words belong) into two distinct finals. The set for 'horn' would then imply a second correspondence pattern, involving OC ***-iw** and PTB ***-əw**, which would have to be reconstructed distinctly from PST ***-uː**. There are not however enough sets exhibiting such a correspondence to warrant establishing it as regular. An alternative explanation is that Chinese 觓 'horn-shaped' is only indirectly related to PTB ***krəw** 'horn', and is derived within Chinese from the basic root 丩 'twist'. (Recall that 角, not 觓, is the basic Chinese word for 'horn'.)

4.3.8 Other correspondence types

Having investigated the classes of Chinese words which bear directly on the question of medial ***-w-**, I turn now to some classes of PTB words which involve medial ***-w-** but have no immediately obvious Chinese correlates. For example, PTB syllables of the type ***twap** and ***twak** are not directly comparable to Chinese, in which ***ua** does not occur before labials or velars.

The rounded vowel ***u** does however occur before velars, and in Baxter's system the equivalent ***o** before labials as well. In previous sections we have seen correspondences

between PTB ***-o-** and Gong's OC ***-ua-** or ***-^{w}a-**, which go back to PST ***-wa-**. Is it also necessary to set up correspondences between PTB ***-wa-** and Gong's OC ***-u-**?[256] Would it then be necessary to posit the breaking of PST ***-o-** or ***-u-** to PTB ***-wa-** in some environments? Finally, how do the answers to these questions influence our assessment of Gong's and Baxter's reconstructed vowel systems?

To answer these questions, I will first list the PTB roots in the index of Benedict 1972 which have ***-wa-** before velars, labials, and in open syllables (except those with velar initial).

STC #	form	gloss	STEDT #
24	*pwa	father	2546
44	*g-pwa	bamboo	2549
43	*pwak	pig	1006
46	*pwak	hide, v.	2550
48	*pwaŋ	spindle	2553
174	*pywak	sweep; broom	2587
441	*r-pwa	ax	2772
172	*(s-)bwam	plump, swollen	2182
99	*(b)wa	bird	1765
392	*twak	neck	359
165	*(m-)twa	span	2715
169	*dwaːŋ	hole, cave, pit	2208
461	*d-wam	bear, n.	2777
85	*rwaŋ	horn	814
199	*g-rwak	ant	2631
239	*tśwap	lungs	457
444	*r-wa~g-wa	village	2773
216	*hwam	dare	2268
217	*hwaŋ	encircle, circular; fence	2270
218	*hwaŋ	come (out); enter	2269

Four of the roots with labial initials—'ax', 'father', 'bamboo', and 'pig'—have already been discussed in Section 4.2.1, where I argued that PTB ***-w-** after labials corresponds to OC ***-r-**, and is probably derived from PST ***-w-**. I propose:

PST		OC (G)	PTB		WT	WB
*Pwa-	>	*Pra-	*Pwa-	>	*Po*	*Pwa*

[256]Note that although both Baxter and Gong reconstruct back rounded vowels before velar endings, their reconstructions do not agree. In the 侯 HóU, 屋 Wū, and 東 DōNG groups, Gong reconstructs ***u** and Baxter ***o**; in the 幽 YōU, 覺 JUé, and 中 ZHōNG groups, Gong has ***ə^{w}** and Baxter ***u** (as well as ***iw**).

I have also noted (Section 3.1.1) that Benedict's reconstruction of ***-w-** after labials is sometimes problematic, as reflexes in various daughter languages may disagree. As Matisoff 1998 indicates, in some cases what appears to be PTB ***-w-** may in fact be a secondary allophonic articulation (an 'extrusion' in Matisoff's terms) which has become phonemicized in some daughter languages. This is perhaps the case with ***pwaŋ** 'spindle', which is cognate to Chinese 紡 'twist, spin' (G ***pjangx**, B ***pjang?**). As with a number of other ***Pw-** roots, 'spindle' was originally reconstructed ***paŋ** by Benedict but was revised to ***pwaŋ** in the index of Benedict 1972.

The next set of roots has acute initials. PTB ***dwaːŋ** 'hole, cave, pit' is certainly cognate to Chinese 洞 'cave, hole' (G ***dungs**, B ***dongs**) (Coblin 1986:53). Reconstructing a monophthong ***u** or ***o** for PST is not an option, since we must account for the distinction in PTB between ***-waŋ** (I ignore length distinctions for the moment) and ***-oŋ**. It seems simplest then to reconstruct PST ***-waŋ**, and to assume monophthongization in the development of Chinese.

Under Baxter's system, this works quite well. The development PST ***-waŋ** > OC ***-ong** parallels the development PST ***-wan** > OC ***-on**. (After velars, the development would be ***Kwaŋ** > ***K^{W}ang**.) Combined with the results of earlier sections, this gives us the following very neat set of correspondences:

PST		PTB	OC (B)	OC (G)
*Kwan	>	*Kwan	*K^{W}an	*K^{W}an
*Twan	>	*Twan	*Ton	*Tuan
*Kwaŋ	>	*Kwaŋ	*K^{W}ang	*K^{W}ang
*Twaŋ	>	*Twaŋ	*Tong	*Tong
*Kon	>	*Kon	*Kon	*K^{W}an
*Ton	>	*Ton	*Ton	*Tuan
*Koŋ	>	*Koŋ	*Kong	*Kong
*Toŋ	>	*Toŋ	*Tong	*Tong

Chinese developments can then be explained very simply. PST ***o** remains unchanged. Sometime after ***-w-** fused with preceding velars to form labiovelar initials, ***wa** monophthongized to ***o**.

The same developments can be accounted for in Gong's system, but not as elegantly. We would have to assume that PST ***-wan** and ***on** merged to OC ***-uan**, and that PST ***-waŋ** and ***-oŋ** merged to OC ***ung**. In the first development we have diphthongization, and in the second monophthongization. Because these processes occur in different environments, they do not violate the principle of regular sound change, but they appear suspect for lack of parallelism.

It should be pointed out that confusing the picture is a PTB variational pattern ***u ⋙ *wa**, which is parallel to the better-attested pattern ***i ⋙ *ya**. (This alternation must not be confused with the interactions of ***o** and ***wa** which are so frequent in the development of Chinese and many TB languages such as Tibetan.) Two of the roots listed, here, those for 'neck' and 'horn', have been revised by Matisoff, appearing as

STEDT #814: ***n/g-[r]u-(ŋ/k) ⋙ *n/g-[r]wa-ŋ/k** 'horn'
STEDT #359: ***tuk ⋙ *twak** 'head/skull/neck'

The ***u ⋙ *wa** alternation can also be seen in the original reconstruction of PTB ***rwaŋ** 'horn' at STC #85 as ***ruŋ**.

It is difficult to know how this PTB alternation should be interpreted at the PST level, or what the implications are for OC reconstruction.

A final note on the dental-initial roots: It has been suggested (Coblin 1986:40) that PTB ***d-wam** 'bear' can be compared with Chinese 熊 **jung**. Coblin reconstructed PST ****dɣwjəm** > OC ***g^{w}jəm**. It seems more prudent, however, to presume that the roots was simply PST ***wəm**, as not all TB languages show the effects of prefixal ***d-**. With Baxter's reconstruction of 熊 as ***w(r)jɨ/um**, the comparison looks quite good. (This is in contrast to Baxter's reconstruction of ***w-** in many of the roots in Section 4.3.1, where the comparative evidence favors the reconstruction of a velar stop initial in Chinese.) As far as Chinese and PST are concerned, then, this root should not be considered as having a dental initial.

The last set of PTB roots has initial ***h-**. As noted in Section 4.3.1, we would expect initial ***h-** to be parallel to velar initials. That is to say, that PTB ***hwa-** should correspond to OC ***h^{w}a-** or ***x^{w}a-** and go back to PST ***hwa-**. However, I have not found any Chinese cognates to these PTB roots.

4.3.9 Conclusion

Gong 1995 reconstructs a four-vowel system for PST which is structurally identical to that of OC. The only vocalic change he proposes in the development of PST to OC is the lowering of ***-u-** to ***-ə-** before dental and bilabial final consonants.

In light of the evidence presented here, it appears that such a reconstruction is not adequate. I believe the correspondences between Chinese and PTB can be better explained if we make the following assumptions:

1) PST contained no labiovelar initials or finals. Like PTB, it had rounded vowels and both rising and falling diphthongs, including ***u**, ***o**, ***wa**, and ***aw**. Unlike PTB, it also had a fully phonemic ***ə** vowel.

2) Developments from PST to PTB were relatively simple. The major shift, as noted by Gong, is the lowering of ***ə** to ***a**. It is only when Tibetan, which has undergone further vocalic changes, is taken as an exemplar of PTB and compared to Chinese that the developments from PST to PTB appear to be complicated.

3) Developments from PST to Chinese must be explained differently for Gong's and Baxter's system. While both systems can accommodate the comparative evidence, Baxter's provides for more consistent, natural developments.

In Gong's system, developments are marked by the breaking of rounded vowels (except before velars) and the loss of medial ***-w-**. This meant, for example, that PST ***o** and ***wa** merged in Chinese to ***wa**, which in turn developed to ***^{w}a** after velars, and otherwise to ***ua** before dentals and ***a** before labials. The same is true of the

corresponding higher vowels ***u** and ***wə**, which merged to ***wə** (again, except before velars) and then split to ***^{W}ə**, ***uə**, and ***ə**.

Before velars, we must propose fusion rather than breaking, PST ***wa** > OC ***u**; this change had to have occurred before the change ***Kwa** > ***K^{W}a**.

Baxter's OC vowel system basically maintains the original PST distinctions, which surface as ***wa** vs. ***o**, and ***wɨ** vs. ***u**. Unlike in Gong's system, developments are consistent for final dentals and final velars. In either case, PST vowels fuse into monophthongs.

4) The Chinese final written ***-ak^{W}** by Gong and ***-awk** by Baxter is derived from PST ***-awk**. Whether the ***-wk** was reinterpreted in Chinese as a labio-velar or not is, I believe, a detail of phonology which we are unable to answer.

5) It is an interesting fact that no cognate sets with labial finals are found among Classes I and II. Chinese reflexes of PST ***u**, ***o**, ***wa**, and ***wə** before labial finals must have lost their rounded elements entirely due to dissimilation. This change was no doubt motivated by the general loss of ***-w-** as a functional medial element in the OC sound system. This explains the correspondence Gong has noted before labials between OC ***ə** and PTB ***u**.

6) In Baxter's reconstruction, the OC vowel system appears much more similar to that of PST. The vowels ***o** and ***u** remain distinct from ***wa** and ***wɨ**. This similarity cannot, however, be taken by itself as evidence that Baxter's system is more accurate. In deciding which approach to OC vowel reconstruction is correct, the crux of the matter remains the interpretation of *Shījīng* rhyming evidence. In terms of my PST system and Gong's OC system, PST ***kwan** and ***kon** would have merged first to ***kwan**, and then developed to OC ***k^{W}an**. In Baxter's system the merger never occurs, leading to two distinct OC forms ***K^{W}an** and ***Kon** which rhyme only imperfectly in the *Shījīng*. Both proposals involve plausible phonological developments.

Since the MC reflexes of these syllables are identical, Baxter's proposal can only be confirmed if one accepts the statistical arguments made in Baxter 1992 which demonstrate that there are distinct rhymes in ***-an** and ***-on**. In terms of Gong's system, this would mean distinguishing ***k^{W}an** from ***kuan** (Baxter's ***o** elsewhere corresponds to Gong's ***ua**), and arguing that the two finals ***-an** and ***-uan** do not rhyme. It is possible to make such a distinction in Gong's system by claiming, for example, that Gong's ***ua** was realized [uɔ]. The problem is that in Gong's system both ***k^{W}an** and ***kuan** would have to be reflexes of PST ***kwan**, since Gong does not reconstruct ***o** as part of his PST vowel system.

Gong's PST vowel system might be criticized for being simply his OC vowel system pushed back with only the slightest modification. One could level a similar criticism against the PST vowel system which I have outlined above, which is very close to Benedict's PTB vowel system.

It must be remembered, however, that the OC vowel system as reconstructed by Li and Gong is quite asymmetrical. The system is unbalanced, with restricted distributions of a number of elements (such as medial ***-w-**).[257] In many ways this system was rebalanced with the development of Middle Chinese. This leads me to believe first, that the OC vowels system was transitional in nature, and second, that its peculiarities can be traced back to an earlier, more balanced system. In general, reconstructed PTB is more symmetrical, and it should therefore not be surprising that PST would look more like PTB than like OC.

This is not to say that the PST vowel system was necessarily as similar to PTB as the above sketch might imply. I believe that a number of changes may have occurred (for example, PTB ***-əy** and ***-əw** perhaps reflect PST ***-i**: and ***-u**:). A full exploration is,

[257]Baxter's six-vowel reconstruction is based in part on the presumption that OC should have a balanced vowel system. This presumption is not necessarily correct, however; and Baxter's hypotheses regarding the distribution of his vowels are supported to varying degrees by other evidence (such as statistical patterns in *Shījīng* rhyming). While his claim that all six vowels occurred before ***-n** is well-supported, his arguments that all six also occurred before labial endings are based almost entirely on appeals to symmetry.

however, beyond the scope of this study, whose main aim is an investigation of medial correspondences.

What can be said is that, on balance, the evidence pertaining to the reconstruction of medial ***-w-** in PST favors Baxter's OC reconstruction. Reproduced here are the changes proposed in Section 4.3, as ordered rules using Baxter's system.

1) Development of labiovelars:

PST		OC (B)	OC (G)	PTB
*Kwa-	>	*K^wa-	*K^wa-	*Kwa-
*Kwə-	>	*K^wɨ-	*K^wə-	*Kwa-

2) Loss of *-w- after labials:

PST		OC (B)	OC (G)	PTB
*Pw-	>	*P(r)-	*P(r)-	*Pw-

3) Monophthongization:

PST		OC (B)	OC (G)	PTB
*-wa-	>	*-o-	*-ua-	*-wa-
*-wɨ-	>	*-u-	*-uə-	*-wə(y)
*-wə-	>	*-u-	*-uə-	*-u-
*-o-	>	*-o-	*-ua-	*-o-
*-u-	>	*-u-	*-ə-	*-u-

4.4 Medial *-j-

The last medial in this study is ***-j-**, which is generally written with the Americanist symbol ***-y-** in Tibeto-Burman studies.[258] My analysis of medial ***-j-** will also take into account diphthongs ***ia** and ***iə** of Li Fang-kuei's Old Chinese reconstruction.

As noted in Chapter 2, the question of medial ***-j-** in Old Chinese has been particularly difficult and contentious. Its reconstruction once seemed unassailable, since it so readily accounted for both Middle Chinese third-division rhymes and for the palatalization of OC dental initials. But the reconstruction of ***-j-** in Old Chinese syllables has come under increasing attack ever since Pulleyblank first criticized Karlgren's representation of Middle Chinese third-division syllables as being characterized by a medial *yod*.

What is not in question is that there was some sort of fundamental distinction in Old Chinese between two distinct syllable types, which were labeled Type A and Type B by Pulleyblank. In the reconstructions of Li (1971 [1976]) and Baxter (1992), Type B syllables are all reconstructed with medial ***-j-** and Type A syllables are not.

If one still accepts Karlgren's basic assertion about the nature of third-division syllables in Middle Chinese, then reconstructing medial ***-j-** for Old Chinese Type B syllables remains defensible from a purely internal standpoint. Even so, it may be judged peculiar that ***-j-** should be present in approximately half of Old Chinese lexical items.[259]

From a comparative standpoint, the medial ***-j-** hypothesis is on shakier ground. It has been observed that in the transliteration of foreign words (such as Buddhist terminology during the Han period) Chinese syllables with medial ***-j-** often transcribe foreign syllables which lack any sort of medial glide. And, as noted in Chapter 3, there seems to be no direct correspondence between OC medial ***-j-** and any single phonological feature of PTB

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[258]I will continue to write ***-y-** when discussing TB, PTB, and PST forms, and I will write ***-j-** when discussing OC. No difference in phonetic value is necessarily implied by these different notations.
[259]See Baxter 1992:287-290 for a detailed summary of the arguments for and against the reconstruction of medial ***-j-**.

or of any living Tibeto-Burman language. (Gong's reconstruction of Tangut has a medial ***-j-** which appears to correlate very well with OC ***-j-**. I will discuss this in Section 4.4.3 below.)

Neither of these problems is fatal for the medial ***-j-** hypothesis. After all, the tonogenetic segmental features (like final ***-ʔ** and ***-s**) which are reconstructed for Old Chinese often do not correspond well with PTB, but their existence is not questioned. It is usually assumed that their presence in certain Chinese lexical items is partly accounted for by Chinese morphological processes, which for the most part remain poorly understood. A similar argument could be made about medial ***-j-**.

Indeed, this sort of approach is evident in Bodman's analysis, described in Chapter 3, which divides OC medial ***-j-** into two types, "primary yod" (inherited from PST and cognate to PTB ***-y-**) and "secondary yod" (which arose independently in the development of Old Chinese from Pre-Chinese via an unknown process).

Gong Hwang-cherng has taken a very different approach to the comparative problem, arguing that OC medial ***-j-** is directly inherited from PST. Focusing on three TB languages (Tibetan, Burmese, and Tangut), he argues that ***-j-** was lost entirely in Burmese, lost in all environments except before ***i** in Tibetan, and preserved in Tangut.[260] From this Gong concludes that "PTB inherits the medial /-j-/ from PST". One goal of my study is to see how well this claim stands up to broader comparison with TB languages and PTB reconstruction.

On the whole, when both the internal and comparative objections to the reconstruction of medial ***-j-** are taken together, they constitute a serious challenge to the hypothesis. A number of scholars have therefore proposed replacing medial ***-j-** with a prosodic feature which might distinguish Type A from Type B syllables. Pulleyblank (1962) originally

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[260]On universal grounds it may be considered quite unusual for a medial ***-j-** to disappear leaving no trace on surrounding consonants and vowels. Usually the loss of a palatal glide is accompanied by the phonologization of higher and/or fronter vowel allophones and of palatalized consonant allophones. The developments Gong proposes for Burmese and for Tibetan may be considered suspect on these grounds.

suggested there was a length distinction, then (1973) proposed a prosodic distinction predicated on whether the first or second mora of the vowel was stressed. Starostin has also proposed a length distinction, which was in turn adopted by Baxter in his 1995 revision of his 1992 reconstruction. All of these proposals eliminate medial ***-j-** entirely from the syllable structure of Old Chinese (although Pulleyblank's reconstruction retains palatalized initial and final consonants).

It is my feeling that none of these concrete proposals for the Type A/Type B distinction are particularly convincing. They appear, in fact, to be mostly guesswork; there is precious little direct evidence in support of any of them. Starostin's vowel-length distinction is based on a tenuous connection with the vowel-length distinction of Lushai (which itself may not be inherited as such from PTB). It is not clear what inspired Pulleyblank's distinction, although recently he has drawn an analogy with a similar prosodic distinction found in the TB language Sizang (Siyin) Chin (1994, 1996:14).

Moreover, these proposals raise troubling new questions. First, to my knowledge no one has discussed the implications of these proposals on our understanding of the metrical patterns of *Shījīng* rhymes. In particular, we might expect a vowel-length distinction to affect metrical patterns, just as it does in Japanese. But there is no evidence of this in the very regular rhythmic patterns of most *Shījīng* poetry, in which Type A and Type B syllables both fill one metrical slot.[261]

Second, the problem of correspondences with PTB presents itself anew. PTB is reconstructed with a medial ***-y-**; to what does this segment correspond in Old Chinese? To what in PTB, if anything, does the Type A/B distinction correlate with?

These are difficult questions which have been pondered by many minds for some time, and I don't expect to provide complete answers here. I will tentatively conclude that OC

[261]I do not mean to imply that this is a conclusive argument. There may be ways in which the difference between Type A and Type B syllables is manifested in poetry. It might be quite revealing if someone were to do a comprehensive analysis of the distributional patterns of Type A and Type B syllables in *Shījīng* poetry. Such a study could provide valuable clues into the nature of the distinguishing feature involved.

medial ***-j-**, as a feature found in all Type B syllables, must either be done away with entirely or considered a completely secondary feature of Old Chinese.[262] In this I disagree with the approaches of both Bodman and Gong. I believe the comparative evidence shows that medial ***-i-** of Li's reconstruction is in essence the functional equivalent—and the corresponding element—to medial ***-y-** in Tibeto-Burman. If Type B syllables are to be reconstructed with ***-j-**, this segment must be considered an OC innovation.

Before turning to the more difficult problem of OC medial ***-j-** proper, I would like to look first at what I have in earlier chapters termed medial ***-i-**. This segment is, in Gong's adaptation of Li Fang-kuei's system, the first element of diphthongs ***-ia-** and ***-iə-**. These diphthongs are generally equivalent to Baxter's ***-e-** and ***-i-** respectively, although ***iə** corresponds to Baxter's ***ɨ** before dentals. After medial ***-j-** the equivalences between the two systems are somewhat more complex.

Gong's correspondences involving medial ***-i-** (Gong 1995:49) are:

PST	OC (G)	WT	WB	Number
*iə	*iə	e	--	1
*ia	*ia	e	--	2

Note that none of the sets offered by Gong to illustrate these correspondences have WB cognates. According to Benedict 1972 we have the following correspondences for PTB front vowels:

[262]Note that in Section 2.1.10 I concluded that some third-division syllables may have arisen from prefixed ***j-**initial roots, such as 姜 ***k-jang** > ***kjang** > **kjang**. This conclusion is based on the assumption that this 'secondary' medial ***-j-** was a feature which led to the development of third-division syllables.

PTB	WT	WB	Jingpho	Lushai	Number
*-ya-	-e-	-(y)a-	-(y)e-	-ia-	1
*-eK	-e-	-aC	-e-	-e-	2a
*-eT	-e-	-aC	-e-	-e-	2b
*-eP	-e-	-iP	-e-	-e-	2c
*-e	-e	-ai	-e	-e	3
*-ay	-e	-ai	-ai	-ei	4a
*-aːy	-e	-ai	-ai	-ai	4b
*-ey	-e	-i	-i	-ei	5
*-əy	-i	-e	-i	-i	6
*-iK	-i-	-aC	-i-	-i-	7a
*-iːK	-i-	(-iK)	-i-	-i-	7b
*-iT	-i-	-aC	-i-	-i-	7c
*-iP	-i-	-iP	-i-	-i-	7d

It can be readily seen that WT is in general a poor indicator of the original PTB vowel, as it does not distinguish between original monophthongs and diphthongs.[263] WB, Jingpho, and Lushai are on the whole more reliable, with the most secure reconstructions possible when reflexes exist in all three languages.

In the case of ***-ya-**, WB has -*a*- rather than -*ya*- following fricatives and affricates.[264] Similarly, Jingpho may have -*e*- rather than -*ye*- after palatal fricatives and affricates.

Instances of -*ya*- in WT must be assumed to be secondary, resulting from derivational infixation of -*y*- before -*a*-, as noted by Gong (1977, 1995:42). Occasionally -*ya*- may reflect irregular development of original ***ya** (perhaps in forms influenced by western dialects).

We might expect OC ***ia** and ***iə** to exhibit parallelism with OC ***ua** and ***uə**. In Section 4.3 I concluded that Gong's ***ua** (Baxter's ***o**) had two sources in PST, ***wa** and ***o**, and that ***uə** (Baxter's ***u**) also had two PST sources, ***wə** and ***u**.[265] These multiple sources were not readily discernible from WT cognates because of the mergers that have taken place in the development from PTB to WT.

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[263]Benedict (1972:52) observes that West Tibetan dialects often reflect ***ya** as *ya* or *a*, retaining the original vocalism.

[264]It is probable that ***-y-** had a palatalizing effect on preceding affricates and fricatives, e.g. ***tsy-** > ***tś-**, but in WB the dental and palatal series have merged, so that PTB ***syam** and ***sam** have the same WB reflex *sam*. In WT the two series remain distinct.

[265]OC ***ua** and ***uə** are limited to syllables with dental initials and dental endings. PST ***wa**, ***o**, and ***wə**, ***u** do not merge in other environments in OC.

If diphthongs with ***i** are parallel, then we would expect OC ***ia** (Baxter's ***e**) to correspond to PTB ***ya** and ***e**, and for OC ***iə** (Baxter's ***ɨ** and ***i**) to correspond to PTB ***yə** and ***i**. A complication is that OC ***ia** and ***iə** have a far wider distribution in OC than do ***ua** and ***uə**. This will limit the degree of parallelism possible between the ***i**-diphthongs and the ***u**-diphthongs. For one thing, the development of PST vowels like ***ya** is not complicated by the genesis of labiovelars in OC which affected the development of vowels like ***wa**.

For this discussion, I have divided the Old Chinese words to be examined into just two classes. The first class contains words reconstructed with Li's medial ***-i-**, i.e. with the vowels ***ia** and ***iə**. The second class is Type B syllables, those conventionally reconstructed with medial ***-j-**, which have WT cognates showing signs of medial *-y-*.

4.4.1 Class I words: Old Chinese medial *-i- and Proto-Tibeto-Burman *-y-

Class I words have the vowel ***ia** or ***iə** in Gong's system. Gong 1995 contains eleven sets in which the OC word is reconstructed with medial ***-i-**:

Set	Old Chinese	Written Tibetan	Written Burmese
53	疊 *'liəp > diep 'double'	*ldeb* < ***'leb** 'to double down'	
54	洗 *siəlx > siei, sien 'wash'	*sel* 'to cleanse, to clear'	
55	銑 *siənx > sien 'bright and well-polished metal'	*gser* 'gold'	
56	遍 *pians > pien 'all round, universally'	*spel-ba* 'to spread, to propagate'; *'phel-ba* < OT *pheld* < ***phels** 'to increase, enlarge'	
57	蝶 *'liap > diep 'butterfly'	*phye-ma-leb* 'butterfly'	
58	牒 *'liap > diep 'tablet'	*leb-mo* 'flat'	
59	霰 *sians > sien 'sleet'	*ser-ba* 'hail'	
60	產 *srianx > ṣǎn 'breed, bear, produce'	*srel* 'to bring up, to rear, to nurse'	
212	八 *priat > pwăt 'eight'	*brgyad* < ***br-·yad** 'eight'	*hrac* 'eight'
315	麝 *gljiags > dźjä 'musk-deer'	*gla* 'musk-deer'	

From Gong 1997:

滅 *mjiat > mjiät ‘drown; extinguish, destroy’	*med* ‘not exist, not be’

(53). Baxter ***lip** > **dep**. Perhaps STEDT #2692: ***təp~dəp** ‘fold; repeat’ (STC #493). Gong has argued that WT *ldeb* is descended from ***'leb**, where ***'** represents a nasal prefix, following Li 1959:149, which lists the development *ld-* < *d-l-* < *'-l-* (?). (See also Beyer 1992:183-184.) On the Chinese side, 疊 (GSR #1255a) is not in any phonetic series, but as Karlgren points out, it is probably identical to homophonous 褶 ‘double, lined (garment)’ (GSR #690g) which is in lateral series. Thus the reconstruction of initial ***'l-** (Gong) and ***l-** (Baxter) rather than ***d-**.

This all raises problems for the PTB reconstruction with dental stop initial. Consider the following forms:

PNN	***dəp** ‘repeat’
DB-PL	***tup^{H}** ‘fold’
DB-PL	***C-tap^{L}** ‘repeat’
DB-PL	***tu^{2}** ‘repeat’

In his treatment of this root (reconstructed originally with vowel ***a** but revised to ***ə** in the index), Benedict (1972:184 #493) compares Jingpho *thap* ‘layer’ and WB *thap* ‘repeat, do again’ with WT *ltab-pa* ‘fold or gather up, lay or put together’, *ltab-ma* ‘a fold’, *ldab-pa* ‘do again, repeat’, none of which have the *e* vocalism found in the form cited by Gong.

Since WT *ldeb* appears to be in the same word family as *ltab-pa* and *ltab-ma* which have initial *t-* rather than *d-*, the proposal to take *ld-* in this word back to ***'l-** must be rejected. This in turn allows us to assign WT *ldeb* to the PTB root. The vocalism appears, however, to be secondary.

The comparison between the PTB and OC forms can be salvaged if we make several assumptions. First, 疊 is not homophonous with 褶. We are then free to reconstruct it with a dental initial ***d-**. Second, the PTB root can be revised to ***t/dap ≍ *t/dyap**. Most TB forms are descended from the variant with simple ***a** vocalism, but WT *ldeb*

represents the variant with ***ya**. The Chinese form represents the same variant, reconstructible at the PST level as ***dyəp** (with the normal development of PST ***ə** to PTB ***a**).

The Proto-Loloish variants suggest still another possibility, which is a distinction between one PTB variant with ***a** (> PL ***C-tap**^{L} 'repeat') and one with ***i ~ *u** (> PL ***tup**^{H} 'fold', ***tu**^{2} 'repeat'). ***i ~ *u** variation is especially common in PTB in the environment of labial consonants. This opens the possibility that the Chinese word is descended from an ***i** vocalism.

These possibilities and speculations are not easy to resolve. Nor do they illuminate the question at hand, namely vocalic and medial correspondences. They do, however, cast the comparison as formulated by Gong into question.

(54). Baxter 1259 ***sɨjʔ** > **sejx**. STEDT #156: ***g-sal** 'clear/bright'. WT *sel* is no doubt related to WT *gsal-ba* 'to be clear, distinct, bright', which Benedict (1972:15 note 54) compares to Jingpho *san* 'clean, pure' and WB *sa* 'clear, pleasant'. This has the effect of establishing the semantic center of gravity of the PTB root closer to 'clear' than to 'clean', although a semantic shift from the former to the latter via causation seems perfectly plausible.[266] Benedict relates the Chinese word 洗 to a different PTB root entirely, ***(m-)s(y)il** 'wash' (revised to ***(m-)syil ~ *(m-)syal**), which has its reflex in WT *bsil-ba* 'wash' (1972:173 #493). The same comparison is made by Coblin 1986:158.[267]

Benedict's comparison is preferred over Gong's for another reason, which is that the future and perfect form of the WT verb *sel*, i.e. *bsal*, indicate a root vowel *-a-*, tallying with the vowel in *gsal-ba* 'clear, distinct, bright'.[268]

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[266]The curious fact that English *clear* and *clean* seem to show the same kind of *-r*/*-n* alternation found in the TB root is of course purely coincidental. *Clear* is descended from Latin *clārus* 'bright, clear' via French, and ultimately goes back to PIE ***kel-** 'to shout'. *Clean* is inherited directly from PIE ***gel-** 'bright'. Thus the words are unrelated. Interestingly, both go back to final ***-l**, which is again reminiscent of the alternations found in TB and OC.

[267]To further complicate matters, Gong (1995 #186) has compared WT *gsar* 'new, fresh' with Chinese 鮮 'fresh fish, fresh meat' ***sjan** > **sjän**.

[268]According to Beyer (1992:175 note 9), the verbal vowel paradigm *e*/*a*/*a*/*o* (present/past/future/imperative) is derived from root vowel *a*. The fronted vowel *e* found in the present tense form results from

As in the previous set, this implies a PST reconstruction with one variant having vowel ***-yə-**.

(55). Baxter ***sɨn?** > **senX**. As far as I know, no PTB root has been proposed as the ancestor of WT *gser*. Cognates do not appear to be widespread in TB. The following forms for 'gold' may be borrowings from Tibetan:

Dulong nj *seɹ*^{55}
Dulong dl *se*^{ɹ55}
Cuona *ser*^{55}

There is a Proto-Loloish form which may very well be cognate, but metathesis of final ***-r** needs to be assumed: PL ***s-rwe**^{1} 'gold/yellow' (Bradley 1978 #402A/506).[269] Unfortunately, this gives us little idea of the PTB vocalism.

(56). Baxter ***pens** > **penH**.

(57). Baxter ***lep** > **dep**. Gong does not cite WB *lip-pra* 'butterfly' which appears to be related. This form is important, since when WB *lip* is compared with WT *leb* a PTB form ***lep** 'butterfly' can be reconstructed. As Benedict (1972:74) notes, PTB ***e** becomes WB *i* before labials, merging with original ***i**. A reconstruction PTB ***lip** is not possible, since this would have yielded WT *lib*.

(58). Baxter ***lep** > **dep**. STEDT #2432: ***lyap** 'flat, thin' (STC #212). Also STEDT #2401: ***(s-)lep** 'slice, pare, cut off' (STC #351). Note WT *spang leb* 'board, plank'.

(59). Baxter 844 ***s(k)ens** > **senH**. It doesn't seem possible to establish whether the PTB root had vocalism ***ya** or ***e**. Definitely related, but possibly a borrowing, is:

Cuona *ser*^{55}*w*$_{A}$^{53} 'hail' (the second syllable also means 'hail', cf. PL ***wa**^{2} 'hail')

Also possibly related, but with an unexplained final -*n*, is the first syllable of

Dulong nj *săn*^{53}*wa*^{55}*za?*^{55} 'hail' (for the last syllable cf. *năm*^{53}*za?*^{55} 'rain')

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an original -*d* suffix (the so-called *da-drag*) in the present tense, still present in Old Tibetan but lost after acute final consonants by the time of Written Tibetan. Beyer specifically cites the verb *sel* 'to clear away' as an example of this development.

[269]The development of the final could have been influenced by the root for 'silver', PL ***C-ŋwe**^{1} < PTB ***d-ŋul**. Words for 'gold' and 'silver' often appear together in idiomatic phrases.

Finally, we have the curious PNN form ***ryəːr** ‘hail’ (#499) which may also be related.

(60). Baxter 118 ***sngrjanʔ** > **srɛnx**. See Section 4.2.2, where I suggested the alternative reconstruction ***srjanʔ** or ***srenʔ** in Baxter’s system.

(212). Baxter ***pret** > **pɛt**. STEDT #2259: ***(b-)g-ryat** ‘eight’ (STC #163). In Section 4.2.1 I noted that there is considerable irregular development in TB among the reflexes of this root (which is fairly common for numerals). The front vowels in the forms

PLB	***ʔrit** ‘eight’
Cuona	*cen*[13]

provide evidence for medial ***-y-** in PTB. The development in WT is irregular here; we would expect the vowel *-e-* from ***ya**.

Note that this is the only Class I word for which Gong provides either a WB or a Tangut cognate in addition to WT. The reconstructed Tangut form ***·jar** contains a medial ***-j-**, which would be expected to correspond to medial ***-j-** in OC.

(315). Baxter ***LjAks** > **zyæH**. See 5.1.7.

(‘destroy’). Baxter ***mjet** > **mjiet**. STEDT #2451: ***mit** ‘extinguish’ (STC #374). But note that Benedict doesn’t list WT *med* as one of the reflexes of STC #374, presumably because of the irregular vocalism (WT *mid* would be expected). The STEDT database also contains variants #31 ***s-miːt** ‘die/extinguish/shut’ and #139: ***s-mit** ‘blink/extinguish’.

There is a similar Chinese word which appears to be a closer semantic and phonological match with the Tibetan, namely 蔑 ‘destroy, have no’ (B664 ***met** > **met**, G ***miet** > **miet**).

However, it should be noted that according to Jäschke, WT *med-pa* is simply a contraction of *mi yod-pa* (*yod-pa* meaning ‘to be’). This casts doubt on the entire comparison. Even if the Chinese form could be shown to be a similar contraction of cognate morphemes, the phonological changes involved in the contraction process would not necessarily be parallel in the two languages.

The data above can be summarized by dividing the Chinese syllables up by category.

• Syllables without medial ***-r-** or ***-j-**:

Gong ***iə** : Baxter ***i** (labial ending)
(53) PTB ***ya** (< PST ***yə**)

Gong ***iə** : Baxter ***ɨ** (dental ending)
(54) PTB ***ya** (< PST ***yə**)

Gong ***ia** : Baxter ***e**
(57) PTB ***e** (< PST ***e**)
(58) PTB ***e** or ***ya** (< PST ***e** or ***ya**)
(59) probably same as above

• Syllables with medial ***-r-**:

Gong ***ria** : Baxter ***re**
(212) PTB ***ya** (< PST ***ya**)

• Syllables with medial ***-j-**:

Gong ***jia** : Baxter ***je** (see Section 5.2.4, where the chart indicates that this is a regular equivalence in the two systems for the development of *chóngniǔ* fourth-division syllables from OC dental-ending rhyme groups)

Note that set #315 was dealt with differently in Section 4.1.7, where it was reconstructed with PST ***a**.

The TB evidence indicates that two PTB vowels, ***ya** and ***e**, correspond to OC vowels with medial ***-i-**, allowing us to set up the following correspondences:

PST		OC (G)	PTB		WT	WB	Pattern(s)
*-yə-	>	*-iə-	*-ya-	>	*-e-*	*-(y)a-*	Gong #1, Benedict #1
*-ya-	>	*-ia-	*-ya-	>	*-e-*	*-(y)a-*	Gong #2, Benedict #1
*-e-	>	*-ia-	*-e-	>	*-e-*	*-a(C)*, *-i(P)*	Gong #2, Benedict #2

The situation becomes slightly more complex when Baxter's reconstructions are used, since Gong's ***iə** must be replaced with Baxter's ***i** or ***ɨ** depending on the ending consonant.

PST		OC (G)	OC (B)	PTB
*-yə-	>	*-iə-	*-i(P), *-ɨ(T)	*-ya-
*-ya-	>	*-ia-	*-e-	*-ya-
*-e-	>	*-ia-	*-e-	*-e-

There is nevertheless no theoretical objection here to Baxter's reconstruction, which still allows regular correspondences to be established. As we found in the discussion of PST ***o** and ***wa** in 5.3, Baxter's system implies monophthongization (PST ***ya**, ***e** > OC ***e**) while Gong's implies breaking or diphthongization (PST ***e**, ***ya** > OC ***ia**).

Although we have no examples of it, we might expect that PST ***ye** (as in PTB ***nyen** 'press' and ***kyeŋ** 'ashamed') has fallen together with ***ya** to become Baxter's OC ***e**.

4.4.2 Class II words: Old Chinese medial *-j- and Proto-Tibeto-Burman *-y-

The identification of PTB ***-y-** with Gong's medial ***-i-** (and the Baxter equivalents) would appear to eliminate the possibility that OC medial ***-j-** might ever correspond to PTB ***-y-**. In this section I will review the cognate sets which Gong proposes illustrate a relationship between OC ***-j-** and WT *-y-*, as well as Bodman's cognate sets which illustrate "primary yod", to determine whether it is also possible to relate PTB ***-y-** to OC ***-j-**, and if so, how to account for the distinction between medial ***-i-** and medial ***-j-**.

Gong, Bodman, and Benedict disagree on the role and nature of Tibetan medial *-y-*. Since this bears directly on the issue of comparison with Chinese ***-j-**, the views of these three scholars deserve scrutiny.

According to Gong (1995:42), PTB medial ***-y-** is preserved in WT only before *-i-*, where it is realized as palatalization after sibilant initials and as *-y-* elsewhere. For example, WT *śing* continues earlier ***syi-** and WT *nyi* continues earlier ***nyi**. Before all other vowels, medial ***-y-** simply disappears in WT (e.g. PTB ***ya** > WT *a*). Instances of WT *-y-* before vowels other than *-i-* are infixes, which arose in WT after the loss of original ***-y-**. An example of this secondary *-y-* is *dgyes-pa* 'to rejoice', the honorific form of *dga-ba* 'to rejoice'.

For these reasons, in Gong's comparisons WT *-y-* is ignored, except when it occurs before *-i-*, in which case it is expected to correspond to OC ***-j-**.

Bodman is less categorical in his interpretation of WT medial -*y*-. According to him (1980:151-157), instances of -*y*- might be either original (inherited from PTB ***-y-**) or secondary (morphological infixes). Both types of -*y*- may exist in all environments. Thus the only way to determine whether a given instance of -*y*- is original is through internal comparison with related WT words, and through external comparison with TB and Chinese words. In some cases, of courses, it is impossible to make a determination because of a lack of comparanda.

Since Bodman contends that both WT -*y*- and OC ***-j-** may be either primary or secondary, these two segments are considered to correspond only when there is no other evidence to suggest they are derivational in nature. Bodman generally looks at Tibetan and Chinese word families to determine if the medials are primary or secondary.

Benedict differs from both Gong and Bodman in his interpretation of WT medial -*y*-. Before the vowel -*i*-, Benedict (1972:55) argues that -*y*- is an automatic secondary development after velar and dental initials (but not after sibilants). Thus Benedict believes that instances of -*y*- which Gong claims are original are in fact secondary. Furthermore, Benedict often reconstructs PTB ***-y-** for WT -*y*- before other vowels, precisely where Gong claims they must be secondary. For example, sets #161-164, where we have PTB ***kyoŋ** > WT *skyoŋ-ba* 'guard; keep, tend (cattle)'; PTB ***kyeŋ** > WT *skyeŋ-ba* 'to be ashamed'; PTB ***b-r-gyat** > WT *brgyad* '8', PTB ***r-gya** > WT *brgya* '100'. In many roots, however, PTB ***-ya-** monophthongizes to WT -*e*- (1972:52).

Benedict indicates that WT seems to distinguish earlier ***-i-** and ***-yi-** after affricates and fricatives, which regularly become palatalized when followed by ***-y-**. There seems to be quite a bit of irregularity, however, and Benedict concludes that the reconstruction of ***-y-** before ***-i-** in PTB is an "uncertain" prospect, though he does reconstruct ***-(y)i-** in a handful of roots (such as #231, #236, #237).

It should be pointed out, however, that Benedict's examples illustrating his argument are odd. His examples of secondary -*y*- before -*i*- after velars and dentals are (1) *khyi* 'dog'

rather than **khi*, (2) *nyi-ma* 'sun' rather than **ni-ma*. It seems that PTB ***-w-** regularly becomes WT *-y-* before *-i-*, and so *khyi* 'dog' is the expected reflex of PTB ***kwəy**, and *-y-* cannot be considered secondary here (see sets #159, #173). Benedict gives no examples at all of secondary *-y-* after dentals stops, only after nasal *n-*. In fact, sets like #56 PTB ***(s-)di:k** > WT *sdig-pa* 'scorpion' seem to refute Benedict's claim for palatalization of WT dentals before ***i**. Only the palatalization of the nasal dental ***n-** can be supported by his examples.[270]

Finally, Benedict is unclear about whether he means to say that the insertion of *-y-* after velars and dentals before *-i-* is an automatic process, or a sporadic one. Claims of an automatic process are hard to defend, since WT has syllables like *ni* (a topicalizer) and *gis* (a modal particle, a phonologically conditioned variant of *kyis*). On the other hand, it is difficult to present a solid minimal pair which contrasts only in the presence or absence of *-y-* in this environment. Syllables lacking it tend to be Hindi borrowings or, like *ni* and *gis*, grammaticalized particles which are perhaps marked by a degree of phonological reduction.

Despite the difficulties with Benedict's argumentation, I believe the TB evidence presented in his cognate sets supports the general idea that the presence of *-y-* before *-i-* in Tibetan cannot be taken as a reliable guide to the reconstruction of ***-y-** in PTB. The *-i-*/*-yi-* distinction is, as a universal principle, difficult to maintain after consonants, and it seems likely that a combination in Tibetan of free variation and/or epenthesis, along with morphological infixation, has muddied the waters quite a bit when it comes to the presence of *-y-* before *-i-*.

The three differing views outlined above underscore the difficulty of using WT as the primary source of information on PTB and PST ***-y-**, and advise caution in evaluating

[270]Note the non-palatalized dental initials in WT words *thig* 'carpenter's cord', *thig-le* 'a spot', *thib-pa* 'very dark', *thim-pa* 'melt, dissolve', *'di* 'this', *'dig* 'stopper', etc.

correspondences involving WT -*y*- and Chinese. Some of the confusion can be eliminated by drawing broader TB comparisons into the picture.

I have labeled as Class II words those Chinese words reconstructed with OC medial ***-j-** for which Gong or Bodman have offered TB cognates with medial ***-y-** or direct reflexes thereof.

I count 31 cognate sets in Gong 1995 and Gong 1997 in which OC words with ***-j-** are compared to WT words with main vowel -*i*-. I will list these sets according to place of articulation: labials (IIA), velars (IIB), sibilants (IIC), dental stops (IID), liquids (IIE).

Class IIA: Labials

Gong 1995 contains seven sets of this type, and Gong 1997 contains one.

Set	Old Chinese	Written Tibetan	Written Burmese
77	名 *mjing > mjäng 'name, fame'	*ming* < *mying* 'name'	*mañ* 'to be named, have a name'; *hmañ*' 'to name, give a name'; *ə-mañ* 'a name'
122	妣 *pjidx > pi 'deceased mother'	*phyi-mo* 'grand-mother'	*ə-phê* 'a great-grandfather'
123	髀 *pjidx > pi 'femur, haunch'	*dpyi* 'hip'	
124	畀 *pjids > pi 'give'	*sbyin* 'to give, to bestow, to hand'	*pê* 'give; offer'
125	貔 *bjid > bi 'a wild animal, possibly some kind of panther or leopard'	*dbyi* 'lynx'	
199	髕 *bjinx > bjiěn 'knee cap'	*byin* 'calf of the leg'	
358	稟 *prjəmx > pjəm 'rations, receive'	*'brim* 'to distribute, deal out, hand round'	
	密 *mrjit > mjět 'silent; dense; near'	*'brid* 'deceive, cheat'	

(77). Baxter 1481 ***mjeng** > **mjieng**. STEDT #2450: ***r-miŋ** 'name' (STC #83). Note Gong claims the Tibetan form is from earlier ***-yi-** (for reasons that are unclear to me) while Benedict (1972:55) implies that in early Tibetan forms ***-y-** after labials is secondary and perhaps in free variation with ***-y-**less forms.

(122). Baxter 652 ***pjij? ~ *pjijs** > **pjijX ~ pjijH**. STEDT #2559: ***pəy** 'grandmother' (STC #36). WB *ə-phê* < *ə-phîy* (Gong 1997).

(123). Baxter ***pjij?** > **pjijX**. (This character has a second reading G ***pjigx** > **pjiě**, B ***pje?** > **pjieX**.) STEDT #401: ***d/s-pi** 'hips'.

(124). Baxter ***pjits** > **pjijH**. STEDT #2158: ***bəy** 'give' (STC #427). WB *pê* < *pîy* (Gong 1997).

(125). Baxter ***bjij** > **bjij**.

(199). Baxter ***bjin?** > **bjinX**.

(358). Baxter ***p(r)ji/u/ɨm?** > **pimX**.

('dense'). Baxter 1146 ***mrjit** > **mit**.

We need not take the last two examples into consideration, since the sequence *-ry-* does not occur in Tibetan. Thus when for the WT cognate has *-r-*, it would not be expected to contain a *-y-* corresponding to OC ***-j-**.

Of the other sets, there is no evidence for medial ***-y-** in any of the four PTB roots offered. Benedict's comment (1972:55) that *-y-* appears epenthetically between labial initials and *-i-* in older Tibetan texts, but is often not present in WT forms, requires further elucidation. The context of this comment implies that *Pyi-* clusters should not be found at all in WT, though in fact as the sets listed above indicate they are not uncommon. Perhaps Benedict is simply indicating that there is no direct correlation between WT *Pi-* and *Pyi-* and earlier ***Pi-** and ***Pyi-**, with considerable confusion and/or free variation clouding the picture.

At the very least, other TB languages do not seem to support the reconstruction of PTB ***-yi-** for WT syllables with *Pyi-*. Perhaps the greatest difficulty for Gong's theory is the first set, #77, which involves a widespread PTB root and is a very solid Chinese-TB cognate set. Here even the WT form lacks medial *-y-*. Gong has indicated derivation from earlier *mying*, but it is not clear if there is textual support for this or if it is a reconstruction based on comparison with the Chinese.

On top of all these uncertainties remains the possibility that some examples of *-y-* in the Tibetan forms are morphological infixes, in which case they are certainly secondary.

Class IIB: Velars

There are six examples, four from Gong 1995 and two from Gong 1997:

Set	Old Chinese	Written Tibetan	Written Burmese
132	几 *krjidx > kji 'stool, small table'	*khri* 'seat, chair; throne; couch'	
219	吉 *kjit > kjiět 'luck, auspicious, good'	*skyid* 'to be happy, happiness, happy'	*khyac* 'love'
361	禁 *krjəms > kjəm 'prohibit'	*khrims* 'right, law'	
362	擒 *grjəm > gjəm 'catch'	*sgrim* 'to hold fast'	
	唫 *grjəmx > gjəm 'stammer, speak impatiently'; 急 *krjəp > kjəp 'urgent, rushed'	*grim* 'hasten, hurry'	
	坅 *khjəmx > khjəm 'pit'	*khyim* 'house'	

(132). Baxter ***krjɨj?** > **kijx**. This is an example of a traditional ZHĪ 脂 group word which has been assigned to the WēI 微 group by Baxter (1992:449).

(219). Baxter 362 ***kJit** > **kjit**. The WB form is to be derived from STEDT #1645: ***krik** 'love/copulate'; the final ***-k** indicates that the WB form is in fact not cognate to the WT or OC forms.[271]

(361). Baxter 1771 ***krjɨ/ums** > **kimH**.

(362). Baxter ***g(r)ji/ɨ/um** > **gim**.

('rush'). Baxter ***g(r)jɨm?** > **gimx**; ***k(r)jɨp** > **kip**. Gong notes that the first character is glossed in the *Shuōwén* as 口急也.

('pit'). Baxter ***kh(r)jɨm?** > **khimx**. STEDT #1612: ***k-y(i/u)m** 'house/womb' (STC #53).

As noted above, the sets with medial ***-r-** can be eliminated from consideration, since *-ry-* is not a possible sequence in WT. That leaves only two examples, set #219 and

[271]Although it is possible that the OC word is derived from ***kjik**, evincing the sporadic but well-documented change ***-ik** > ***-it**.

‘pit/house’. In set #219 the WB form provided by Gong would seem to provide evidence for medial ***-y-** in PTB, but it should rather be identified with PTB ***krik** ‘love/copulate’.

In the set labeled ‘pit’, the PTB root does contain ***-y-**.

Class IIC: Sibilants

There are nine examples in Gong 1995:

Set	Old Chinese	Written Tibetan	Written Burmese
11	死 *sjidx > si ‘die, death’	*'chi* < ***'syi** ‘to die, death’; *gshin-po* ‘a dead man’	*se* ‘to die’
82	辛 *sjin > sjěn ‘bitter, pungent’	*mchin* < ***m-syin** ‘liver’	*sâñ* < ***sin** ‘liver’
92	薪 *sjing > sjěn ‘firewood’	*shing* < ***sying** ‘tree, wood’	*sac* < ***sik** ‘wood, timber’
94	蝨 *srjik > ʂjɛt ‘louse’	*shig* ‘louse’	
129	鬃 *tshjids > tshi ‘to varnish, to lacquer’; 桼, 漆 *tshjit > tshjět ‘varnish, varnish tree’	*tshi* ‘tough, viscous sticky matter’	*cê* ‘to be sticky, adhesive’; *chê* ‘paint, pigment’
200	盡 *dzjinx > dzjěn ‘exhaust, entirely’	*zin* ‘to be consumed’	
256	甥 *srjing > ʂɐng ‘sister’s son or daughter, son-in-law’	*sring-mo* ‘sister (of a male person)’	
257	井 *tsjingx > tsjäng ‘a well’	*rdzing* ‘pond’	
364	寢 *tshjəmx > tshjəm ‘lie down to sleep’	*gzim* ‘to fall asleep, to sleep’	

(11). Baxter 295 ***sjij?** > **sijX**. STEDT #27: ***səy** ‘die’ (STC #232).

(82). Baxter ***sjin** > **sin**. STEDT #1390: ***m-sin** ‘liver/heart/bile/bitter’ (STC #234).

(92). Baxter 660 (***sjing** ? >) ***sjin** > **sin**. STEDT #2658: ***siŋ** ‘tree, wood’ (STC #233).

(94). Baxter ***srjik** > ***srjit** > **srit**. STEDT #2609: ***śrik** ‘louse’ (STC #439). See Section 4.2.3.

(129). Baxter ***tshjits** > **tshijH**; ***tshjit** > **tshit**.

(200). Baxter ***dzjin?** > **dzinX**.

(256). Baxter ***srjeng** > **srjæng**. STEDT #2664: ***sriŋ** ‘sister’ (STC p. 108 note 304). See Section 4.2.3.

(257). Baxter ***tsjeng?** > **tsjengx**.

(364). Baxter 1776 ***tshjim?** > **tshimx**. STEDT #128: ***d-(d)zim ⋞ *g-(d)zum** 'sleep', which is possibly cognate to STEDT #127: ***s-yip ⋞ *s-yup** 'sleep' (STC #114).

This class of words is potentially of the most interest. It involves the one series of words which Benedict agrees provides evidence for the presence of ***-y-** before ***-i-** in PTB. "Tibetan does, however, distinguish between palatalized and non-palatalized sibilants and affricates even before *i*, hence we have some basis for at least indicating medial *y* in some of these roots: T *gtśi-ba* 'urinate' from TB **ts(y)i*, contrasting with T *rtsi-ba* 'juice; paint' from TB **tsiy*" (1972:55).

It is telling, however, that even in the example given by Benedict medial ***-y-** is parenthesized in the PTB root, indicating that evidence for it is not widespread through PTB. Benedict goes on to reconstruct three PTB roots (#232-234) with initial ***si-** despite the presence of palatalized *ś-* in the WT reflexes.

It seems that the palatalization of WT fricatives and affricates is not really a reliable guide to the presence of PTB ***-y-** after all. I can think of two reasons for this. First, the palatalized initials may occur in lexical items which have developed with the Tibetan morphological infix *-y-*. Second, there may have been in Tibetan sporadic occurrences of epenthetic *-y-* before *-i-* after fricatives and affricates, in parallel with the more regular developments after velar initials.

In Beyer's discussion of Tibetan medial *-y-*, his proposed developments also imply that the medial cannot be projected back to PTB. For example, he proposes (1992:83) "Proto-Tibetan **tsi* > **g-tsi* > **g-tsyi* > [Written] Tibetan *GTŠI* 'urinate'" and "Proto-Tibetan **tshir* > **tshyir* > [Written] Tibetan *TŠHIR* 'squeeze'". Beyer does not indicate whether he thinks medial *-y-* developed in these words phonologically or morphologically.

Aside from these arguments, Gong's own evidence demonstrates that there is an imperfect correlation between OC ***-j-** and palatalized WT initials. WT *tshi*, *zin*, *rdzing*, and *gzim* of sets #129, 200, 257, and 364 all have non-palatalized initials, which under Gong's hypothesis are derived from PTB syllables lacking medial ***-y-**. The last of these, set #364 'sleep', is a reliable cognate set.

In summary, attempts to correlate the occurrence of WT palatalized versus non-palatalized affricates and fricatives with either PTB ***-y-** or OC ***-j-** are unconvincing.

Class IID: Dentals

Set	Old Chinese	Written Tibetan	Written Burmese
8	日 *njit > ńźjět 'sun, day'	*nyi-ma* 'the sun, day', *nyin-mo* 'day'	*ne* 'the sun', *ne'* 'a day'
9	二 *njids > ńźi 'two'	*gnyis* 'two'	*hnac* 'two'
255	仁 *njing > ńźjěn 'kind, good'	*snying* 'heart, mind'	*hnac* 'heart'
319	是 *djigx > źjě 'this, this is, is'	*'di* 'demonstr. pronoun this'	
359	沈 *rdjəm > ḍjəm 'to sink, submerged, deep'	*thim*, *'thim*, *gtim*, *stim* 'to disappear by being imbibed, absorbed; to be melted, dissolved in water, to sink'	*tim* 'shallow'[272]

(8). Baxter 1156 ***njit** > **nyit**. STEDT #85: ***nəy** 'sun/day/dwell' (STC #81).

(9). Baxter 724 ***njijs** > **nyijH**. STEDT #2504: ***g-ni-s** 'two' (STC #4).

(255). Baxter ***njin** > **nyin**. STEDT #251: ***(s/k)-niŋ** 'brain/heart/mind' (STC #367).

(319). Baxter 1453 ***dje?** > **dzyeX**. STEDT #2195: ***day** 'that, this' (STC #21). The regular WT reflex of ***-ay** is *-e*, which indicates that WT *de* 'that, that one' is the direct descendent of the PTB root. The WT form cited by Gong, *'di*, is clearly related.

(359). Baxter ***drji/um** > **drim**.

[272]Gong 1995:86: "for the semantic connection between 'sink' and 'shallow', compare German *seicht* 'shallow' and *sinken* 'to sink'"

Of these five sets, the three with nasal initials show palatalization before -*i*- in WT, but the two with stop initials have neither medial -*y*- or palatalized initials in WT. Moreover, medial ***-y-** is not reconstructed in the PTB roots from which the WT forms are descended. Again, it is difficult to establish any regular correlation between OC ***-j-** and PTB ***-y-**. Benedict's claim that earlier ***ni-** regularly becomes WT *nyi*- (1972:55) appears to be correct. In fact, the example Benedict gives to illustrate this development, *nyi-ma* 'sun', appears in the list of cognate sets above.

Class IIE: Liquids

Set	Old Chinese	Written Tibetan	Written Burmese
10	屎 *hljidx > śi 'dung'	*lci* 'dung'	*khyê*, OB *khlîy* 'excrement'
131	四 *ljids > si 'four'	*bzhi* < ***b-lyi** 'four'	*lê* 'four'
360	懍 *rjəmx > ljəm 'full of fear, respectful'	*rim-(')gro* 'honour, homage'	

(10). Baxter ***h[l]jij?** > **syijX**. STEDT #572: ***kləy** > ***tšəy** 'shit' (STC #125). See Section 4.1.4, where I suggested the Chinese word be reconstructed with ***khlj-**.

(131). Baxter 9789.24 ***s(p)jij/ts** > **sijH**. STEDT #2409: ***b-ləy** 'four' (STC #410). Gong reconstructs ***l-** > ***s-** based on Coblin 1986:83. See Section 4.1.3 for a more detailed discussion of this 'contamination'.

(360). Baxter ***b-rji/ɨ/um?** > **limX**.

The first two of these roots have been discussed at some length in Section 3.1 on medial ***-l-**. Here again PTB as a whole provides no evidence for medial ***-y-**. (The third set is not relevant to the discussion, since *ry*- does not occur in Tibetan.

When the 30-odd cognate sets of Class II are looked at as a whole, there appears to be no clear relationship between the presence of -*y*- (or of a palatalized initial) in WT and the presence of OC ***-j-**. Moreover, there does not even appear to be a correlation between WT -*y*- and PTB ***-y-**. Now, it could be argued that only WT has effectively preserved the original distinction between PTB ***-i-** and ***-yi-**, while the other TB languages have

confused the two. But given what we know of medial -*y*- as a morphological infix in WT, and given its development as a secondary element before vowels other than -*i*-, the evidence is open to several interpretations and this argument is difficult to support. It could also be argued that the sets for which OC ***-j-** has no corresponding -*y*- in WT are exceptions or false cognates. But since there is a lack of evidence elsewhere for the dependability of -*y*- in WT, this approach borders on circularity and threatens to make exceptions outnumber regular examples.

The safest conclusion, according to the data at hand, is that no PTB correlate of OC ***-j-** can be found, at least in this class of sets involving WT -*i*-.

Bodman's "primary yod" revisited

Gong has argued that all occurrences of medial -*y*- in WT, except before -*i*-, are secondary and cannot be projected back to PTB. Bodman (1980:151-157) recognizes the morphological function of infix -*y*- in Tibetan, but also contends that some instances of WT -*y*- are inherited from PTB and PST. Where these correspond to third-division syllables in Chinese, Bodman reconstruct "primary yod", written ***-y-**, for Pre-Chinese.

In many cases, however, it seems that Bodman's "primary yod" is spurious, as Gong contends. For example, Bodman reconstructs Pre-Chinese ***ngya** for 魚 'fish' (> OC ***ngja** > MC **ngjwo**) with primary yod. His evidence is WT *nya* < ***ngya** 'fish', which contains medial -*y*-. (The WT velar nasal is reconstructed based on comparison with other TB languages, which all point to PTB ***ŋa** 'fish'.) But the Written Tibetan form is aberrant; there is no evidence for medial ***-y-** elsewhere in TB, and the presence of -*y*- in Tibetan alone is not sufficient evidence for setting up an alternate PTB form ***ŋya** as Bodman does (1980:154).

In the end, evidence for reconstructing PST ***-y-** in 'fish' is purely circumstantial. The only reason to suppose that OC ***-j-** in 'fish' is "primary" rather than "secondary" is that WT shows evidence for -*y*-. But WT is the least reliable TB language to compare with

Chinese in this case, since its word for 'fish' is irregular—precisely by virtue of containing *-y-*. If comparison is made directly between PTB ***ŋa** and OC ***ngja** (Gong's ***ngjag**), then there is no reason to suppose this is an example of "primary yod" in Chinese.[273] Furthermore, the irregular medial *-y-* of WT is easily explained as an infix, for the general existence of which we already have so much evidence.

This points up the inherent danger of attempting to determine instances of "primary yod" in Chinese through comparison with WT. Nearly half of the Chinese lexicon is made up of Type B syllables. If Gong is right about most instances of *-y-* (indeed, as I've indicated in previous sections, perhaps all instances of *-y-*) in WT being secondary, then it should only be expected that numerous comparisons will arise involving WT secondary *-y-* and OC ***-j-**, creating the illusion of common origin in PST ***-y-**. Bodman himself was aware of this problem, noting that "because of the survival of only a [derived] form with yod and the loss of yod-less [root] forms we shall perforce miss some cases where yod did have a morphological function" (1980:157). But he failed to correct for it adequately. The only appropriate solution is, when attempting to determine if "primary yod" really exists, to make use of reconstructed PTB roots and to avoid comparison with forms in languages like Tibetan and Lepcha which are known to have *-y-* infixes.

Indeed, this is more or less the same argument I made above regarding Gong's comparisons involving WT words with vowel *-i-*. While Gong finds numerous correspondences between OC ***-j-** and WT *-y-* (or palatalized initials) in such words, TB evidence indicates that many if not all these instances of WT *-y-* are secondary. When the comparisons are restricted to cases where there are solid PTB reconstructions, the alleged correspondence disappears.

Looking more carefully at Bodman's cognate sets which he indicates represent primary yod, we can note first that sets #389-#392 (Bodman 1980:157-158, all examples of

[273]Of the numerous reflexes in TB languages of PTB ***ŋa** 'fish', I know of none which provide support for the existence of medial ***-y-** aside from Tibetan.

"phonological primary yod") involve vowel -*i*-, and so are subject to the same skepticism as Gong's sets listed above. In fact the first two examples have already been discussed.

389. 薪 *sying > sjěn 'firewood'	WT *śing* < ***sying** 'tree, wood' Lushai *śang* < ***syang** 'dry wood, firewood' Rawang *syïng* 'wood, tree'
390. 蝨 *sryik > ṣrjɛt 'louse'	WT *śig* < ***sryik** 'louse'
391. 篳 *pyik > pjět 'interlaced branches, wattle'	PLB ***pyik**, ***'pyik** 'thicket, jungle'
392. 臣 *gying > źjěn 'slave, servant, subject, minister'	WT *gying* 'look down on' WT *sgying* 'despise'

Among other primary yod comparisons in Bodman 1980, overall TB evidence for medial ***-y-** is scarce.

334. 齦 *ngyəl > ngjən 'gums'	WT *(so)-rnyil, (so)-snyil* 'gums' Lushai *ngel*, *nyel* 'gums'

Despite the Lushai variant with initial *ng*- (and note that this form lacks medial -*y*-), the PTB root is reconstructed ***r-nil ~ *r-ni(y) ~ *s-nil** by Benedict (STC #3) on the strength of forms from half a dozen languages. On the basis of the Chinese and Lushai forms we might propose a variant with velar-nasal initial, but there is no direct evidence for ***-y-** here.

A number of Bodman's other comparisons involving primary yod seem doubtful because of mismatches in other parts of the syllable. For example:

336. 篳 *dzyaks > dzja- '... to present, contribute, aid'	WT *'jags* < ***dzy-** 'give, make a present'
337. 蝨 *sbhyangs > dzjang- 'carpenter'	WT *sbyangs-pa* 'practiced, skilled, expert'

The proposed changes ***dzy-** > WT *'j*- and Pre-Chinese ***sbhy-** > **dzj-** are both difficult to support outside of these comparisons.

What remains of Bodman's evidence for primary yod is, I believe, not sufficient in quantity to be persuasive of more than coincidental similarities.

4.4.3 Medial *-j- in Tangut

Any discussion of OC medial ***-j-**, especially one based on Gong Hwang-cherng's data, must take into account the Tangut evidence which Gong cites as a major factor in reconstructing PTB and PST medial ***-j-**.

Tangut is an extinct Tibeto-Burman language which was spoken by a people living to the west of China. The Chinese referred to their empire as Xīxià 西夏. Their writing system, invented in 1036 by order of the Tangut emperor, is an extremely complex logographic system based on the Chinese model. The country was destroyed by the Mongol invasion, after which the writing system fell into disuse. It was rediscovered in 1908 when a cache of written records was uncovered. In addition to translations of Buddhist scriptures and Confucian classics, three Tangut works have survived which are of great importance in reconstructing the language. These are the *Fān-Hàn Héshí Zhǎngzhōng Zhū* [*Tangut-Chinese Timely Pearl-in-the-Palm*] 番漢合時掌中珠, an encyclopedic list of Tangut-Chinese synonyms with Tangut transliterations of the Chinese words and Chinese transliterations of the Tangut words (in other words, a bidirectional encoding/decoding pronouncing dictionary); the *Yīntóng* 音同, which lists homophone sets of Tangut syllables arranged by initial consonant; and the *Wénhǎi* 文海, a rhyme book modeled on the *Guǎngyùn* which includes *fǎnqiè* spellings (in Tangut characters) of Tangut headwords.

Although these works provide a wealth of phonological information, they still leave room for considerable disagreement over their interpretation. This has led to a number of markedly different reconstruction systems proposed by various Chinese, Japanese, and Russian scholars. The language itself is thought to be most likely a member of the Qiangic branch of Tibeto-Burman.[274] It is possible that its direct descendent is still being spoken

[274]Proposals that Tangut was part of the Loloish branch are, I believe, not given as much credence nowadays.

today somewhere in Sìchuān Province. It has also been suggested that Tosu, a Qiangic language spoken in Yúnnán and attested in the 19th century, may be that descendent.[275]

Gong Hwang-cherng has worked extensively on Tangut and developed his own reconstruction.[276] Based on this reconstruction, Gong (1995:41) observes that Tangut "is very important for the reconstruction of Proto-Tibeto-Burman (PTB) as well as of PST phonology, because it retains the medial /-j-/ of PST which is supposed to have been lost in WT ... and WB."

An obvious objection can be raised that it may be misleading to use a reconstructed language as the only solid evidence for reconstructing PTB ***-j-**, especially when it is itself based on reconstructed Chinese transliterations. Furthermore, the possibility of circularity must be considered, since this means that ultimately Tangut ***-j-** is predicated on the reconstruction of **-j-** in Chinese.

But the situation is more nuanced than this. Evidence for reconstructing Tangut ***-j-** is based not just on direct Chinese transliterations, but also on internal patterns of correspondence and structure found in the *Wénhǎi*. Gong argues that by focusing on Chinese loanwords and observing which *Wénhǎi* rhymes they appear in, a three-Grade pattern can be discerned, with each Grade corresponding to one or more Middle Chinese divisions. For example, consider the following chart modified from Gong 1994b:306:

Grade	*Wénhǎi* rhyme	Final	Chinese loanwords found in this rhyme
I	R.41	*-(w)əj	外 栽 (I)
II	R.42	*-i(w)əj	生 行 蟹 (II)
III	R.43	*-j(w)ɨj	丙 正 (III), 邊 丁 (IV)

This three-division pattern can be extended, with some adjustments, through the entire structure of the *Wénhǎi*. According to Gong, Tangut Grade II is marked by medial ***-i-** and corresponds to Middle Chinese second division and Tangut Grade III is marked by

[275]See Namkung 1996 for a brief summary of Nishida's reconstructions of Tangut (Xixia) and Tosu.
[276]The manuscript draft of this reconstruction, listed as 西夏語韻母系統的擬測 in the bibliography of Gong 1995, has as far as I know not been published. I have not had access to it.

medial ***-j-** and corresponds to Middle Chinese third and fourth divisions. Thus the reconstruction of Tangut ***-j-** is based not on the assumption that medial ***-j-** existed in Old Chinese, merely that some ***-j-**like element was characteristic of third- and fourth-division words in a Northwestern Chinese dialect in the 12th century.

The fact that this Tangut ***-j-** appears in contrasting syllables with both palatal affricate and dental affricate initials, and before all manner of vowels, makes it difficult to dismiss as a secondary articulation. Moreover, Gong argues through comparison with WT and WB cognates that Tangut ***-j-** prevents the normal lowering of PTB ***i** and ***u** to Tangut ***e** and ***o** respectively (1995:55), although only a few examples are provided.

When the sets of Gong 1995 are analyzed, the correlation found between OC ***-j-** and Tangut ***-j-** is extremely high. There are fifty sets which include both a Chinese and Tangut form.

OC ***-j-** corresponds to Tangut ***-j-**: 29 sets
OC ***-j-** corresponds to Tangut ***-Ø-**: 1 set (Tangut ***ngwo** 'silver')
OC ***-Ø-** corresponds to Tangut ***-j-**: 2 sets (including Tangut ***·jar** 'two')
OC ***-Ø-** corresponds to Tangut ***-Ø-**: 18 sets

It must be remembered, however, that this sample has been assembled within the constraints of Gong's assumptions regarding the correspondence of OC ***-j-** and Tangut ***-j-**. Though I have no reason to believe that Gong has omitted any possible cognates solely because of mismatches involving medial ***-j-**, I am also at this point not in a position to be able to confirm the regularity of the correspondence independently. This fact, combined with a reluctance to give too much weight to a reconstructed sound system, leads me for the moment to retain my conclusion about the lack of correlates to OC medial ***-j-** in Tibeto-Burman.

However, in future, I hope more attention will be paid by myself and other scholars to the implications of Gong's Tangut reconstruction. If the very strong evidence presented

here is confirmed, then the question of the fate of medial ***-j-** elsewhere in TB will have to be carefully reexamined, and the nature of OC medial ***-j-** will have to be reconsidered.[277]

4.4.4 Conclusion

The fundamental question would seem to remain then: If PTB is reconstructed with ***-y-**, and OC ***-j-** is done away with or relegated to secondary status, how can the typological and lexical differences between the two be reconciled in a PST reconstruction?

The answer is in fact fairly simple, and has already been suggested in Section 4.4.1. PST ***-y-**, the ancestor of PTB ***-y-**, is reflected in OC as medial ***-i-** of Li Fang-kuei's reconstruction. In Baxter's reconstruction, it is reflected in those front vowels which resulted from the fusion or monophthongization of older glide + vowel combinations like ***ya**. This is the fate of the true "primary yod".

The possibility must be entertained, however, that like Tibetan, Lepcha, and other TB languages, OC retained a productive morphological ***-j-** infix, which may have continued to surface as ***-j-** in some environments, or even in vowels like ***-ja-** and ***-je-** long after the fusion of original ***-ya-** > ***-e-** had occurred, and that this could account for some portion of Type B syllables.

The question of the origin and nature of Type B syllables remains unanswered. One thing appears likely, though: inherited PST ***-y-** is not among their sources.

[277] A place to start would be the closest living relatives of Tangut, the Qiangic languages. This is where we would expect key features of Tangut to have a good chance of being retained. Unfortunately, comparative work on these languages has barely begun.

5 Conclusion: Medials in Old Chinese and Proto-Sino-Tibetan

The results of this study fall into three broad categories: conclusions regarding the nature of Proto-Sino-Tibetan medials; conclusions regarding the nature of Old Chinese medials; and conclusions about related aspects of Old Chinese reconstruction. These three issues are inter-related.

5.1 Proto-Sino-Tibetan medials

All the evidence presented in the preceding chapters indicates that Proto-Sino-Tibetan had four medial elements which could occur between syllable-initial consonants and vocalic elements. These medials were the liquids ***l** and ***r** and the approximant glides ***j** and ***w**. All four of these medial elements may be found as well in Old Chinese and in Proto-Tibeto-Burman. The exact phonetic nature of PST ***r** is impossible to determine, but since its phonotactics and historical development closely parallel those of ***l**, it seems likely that PST ***r** was a true liquid [ɹ] rather than some sort of flap or tap.

The medials had the following phonotactic restrictions:

1) ***w** occurred only before unrounded vowels ***a**, *ə, ***i**. It did not occur before ***o** and ***u**.

2) ***y** seems to have primarily occurred before the vowels ***ə** and ***a**.

3) ***r** and ***l** occurred only after grave initials and the fricative ***s**. Clusters such as ***tl** and ***dr** were not tolerated.

There is insufficient evidence at present for the certain reconstruction of medial clusters in PST. The most likely candidates are ***rw** and ***ry**, since they occur with some frequency in PTB and are necessary to explain a number of syllable types found in Old Chinese. Also likely is ***yw**, which occurs in a number of Matisoff's PTB reconstructions.

It should also be noted that in the absence of an obstruent initial, the four PST medial elements could also occupy the initial consonant slot of the PST syllable. Thus PST had a contrast between clusters of the type ***CM** (***Cr**, ***Cl**, ***Cy** and ***Cw**) on the one hand and prefix+initial combinations ***C-M** (***C-r**, ***C-l**, ***C-y** and ***C-w**) on the other. Medial ***r**, alone of the four medials, could also serve as a prefixal element ***r-**. Other PST prefixes included ***m-**, ***s-**, ***g-**, and ***d-**.

Broadly speaking, PST medials were largely unchanged in the development of PTB. Additional medial clusters may have come into existence as the result of fusion of bisyllabic forms (see Section 3.2.5). Some confusion apparently arose between medials ***r** and ***l**, leading to the substitution of one for the other in individual lexical items. In addition, sporadic reanalysis of sequences ***C-M** as true clusters ***CM-** took place in some lexical items.

One interesting development in Proto-Tibeto-Burman is that ***-r-** apparently was lost after ***s-** in syllables with low or back vowels, but was retained before front vowels. (See Section 4.2.2.) This means that in syllables with back vowels, PTB ***s-** corresponds to OC ***sr-** (the medial was not lost in the development of Chinese) .

Developments of medials into Old Chinese were more complex than for PTB, and will be dealt with below in terms of individual medial elements.

5.2 Old Chinese medials

The evidence presented in this study indicates that Old Chinese was quite similar to Proto-Sino-Tibetan in two key respects. First, Old Chinese had a similar sesquisyllabic structure, characterized by prefixal elements followed by an unstressed vowel.[278] Second, Old Chinese inherited PST syllables containing medial and initial ***l** and ***r** with almost no phonological change. While it might be argued that these apparent similarities are an artifact of comparison with Tibeto-Burman, in fact these two features are also supported by

[278]While many sesquisyllables represented bimorphemic derivations, it is also possible that some were monomorphemic, so that the “prefix” had no derivational function.

considerable internal Chinese evidence. Indeed, many scholars have made proposals for Old Chinese reconstruction which anticipate or mirror this conclusion, explicitly or implicitly.

In contrast with the fate of PST medials ***l** and ***r**, the medial glides ***y** and ***w** underwent significant changes in the development of Old Chinese, most notably diphthongization of glide+vowel clusters and the formation of labiovelar unit phonemes. In Section 5.3 below I will argue that these changes can be described most naturally under the OC vocalic system reconstructed by Baxter.

In the following sections I will discuss Old Chinese medial elements in terms of both their ancestry in PST and their fate in Middle Chinese.

5.2.1 Old Chinese medials *l and *r

I concluded in Sections 4.1 and 4.2 that medial ***l** and ***r** had nearly identical phonotactic properties in Old Chinese. Old Chinese retained from PST the restriction that these liquids did not combine with acute initials (other than the fricative ***s-**). The effects of these two medials on the development of Middle Chinese initials must be clearly distinguished from the development of OC initials ***l-** and ***r-**, especially when they were preceded by prefixal elements. In general, loose ***C-r-** and ***C-l-** clusters developed no differently from plain initials ***r-** and ***l-**, giving rise to MC **l-** and **ji-** respectively. (This is not true with prefixal ***s-**, however.) As true medial elements, ***l** and ***r** both disappeared after the Old Chinese period (part of a general process of simplification of Chinese initial clusters), though not without leaving an impact on surrounding segments. ***l** dentalized grave initials ***K-** and ***P-** through assimilation, leading to the development of MC dental (and, in Type B syllables, palatal) initials. Medial ***l** apparently had no effect, however, on following vowels. Medial ***r**, in contrast, strongly colored following vowels, leading to the development of MC second-division syllables, while having no effect on preceding grave initials.

As noted earlier, ***r** did not occur after acute obstruents. In its role as a prefix, however, ***r-** could precede acute obstruent initials, and in this way it served as the source of the Middle Chinese retroflexes.

Medial ***l** conditioned special developments after nasal initials and initial ***s-**. The cluster initials ***ml-** and ***ŋl-** generally gave rise to the Middle Chinese fricative initial written ***dź-**. In OC initial cluster ***sl-**, ***l** dropped without a trace, yielding MC ***s-**.

These development and others discussed in Sections 4.1 and 4.2 are summarized in the following chart, adapted from the conclusions to Sections 4.1 and 4.2. Examples follow.[279]

	PST		OC		MC (A)	MC (B)
1)	*r-	>	*r-	>	l-	l-
2)	*C-r-	>	*C-r-	>	l-	l-
3)	*s-r-	>	*s-r-	>	ṣ- (II)	ṣ- (III)
4)	*Cr-	>	*Cr-	>	C- (II)	C- (III)
5)	*sr-	>	*sr-	>	ṣ- (II)	ṣ- (III)
6)	*r-T(S)-	>	*r-T(S)-	>	Ṭ(S)- (II)	Ṭ(S)- (III)
7)	*l-	>	*l-	>	d-	ji-
8)	*C-l-	>	*C-l-	>	d-	ji-
9)	*s-l-	>	*s-l-	>	th-	ś- ??, z-
10)	*Cl-	>	*Cl-	>	T-	Tś-
11)	*ml-, *ŋl-	>	*ml-, *ŋl-	>	??	dź-
12)	*sl-	>	*sl-	>	s-	s-

1) PST ***ram** 'indigo'
OC 藍 ***ram** > MC **lâm** 'indigo'
PTB ***ram** > WT *ram* 'indigo (dye)'

2) PST ***g-raŋ** 'cold'
OC 涼 ***g-rjang** > MC **ljang** 'cold'
PTB ***g-raŋ** > WT *grang* 'cold, cool', PNN ***rianŋ**, ***klaŋ** 'winter/cold'

3) PST ***s-ra** 'place'
OC 所 ***srjaʔ** > MC **ṣjwo**
PTB ***s-ra** 'place'

[279]Unless otherwise indicated, Old Chinese forms in Section 5 are given according to Baxter's system, with modifications made to medials and initials (and occasionally finals) according to the conclusions reached in previous sections. I have substituted **ə** for Baxter's **ɨ** in all instances. Middle Chinese forms are given according to Li's 1971 emendation of Karlgren's reconstruction.

4) PST ***krap (~ *kwap)** 'shell'
OC 甲 ***krap** > MC **kap**
PTB ***krap** > WT *khrab* 'shield, scales'

5) PST ***srik** 'louse'
OC 蝨 ***srjik** > MC **ṣjɛt** 'louse'
PTB ***śrik** > WT *śig* 'louse'

6) PST ***r-tuk** 'knock, pound'
OC 椓 ***r-tuk >** MC **ṭåk** 'beat, strike'
PTB ***r-duk ~ *r-duŋ** > WT *rdug* 'to strike against'

7) PST ***lep** 'butterfly'
OC 蝶 ***lep** > MC **diep** 'butterfly'
PTB ***lep** > WT *phye-ma-leb*, WB *lip-pra* 'butterfly'

8) PST ***g-lak** 'hand/arm'
OC 翼 ***(g-)ljək** > **jiək** 'wing'
PTB ***g-lak** > WT *lag*, WB *lak* 'hand, arm'

9) PST ***s-lyak** 'iron'
OC 鐵 ***s-lek** > MC **thiet** 'iron'
PTB ***s-lyak** > WT *ltśags*, Cuona *lek*[53] 'iron'

10) PST ***khləm** 'covet'
OC 貪 ***khləm** > MC **thậm** 'covet'
PTB ***khlam** > WT *ham-pa* 'avarice, covetousness'

11) PST ***ŋla** 'musk-deer'
OC 麝 ***ŋljaks** > MC **dźjä** 'musk-deer'
PTB ***n-gla** > WT *gla* 'musk-deer'

12) PST ***slywəy** 'marrow, blood'
OC 髓 ***sljoj** > MC **sjwĕ** 'marrow'
PTB ***s-hywəy-t** 'blood'

5.2.2 Old Chinese medial *j and Proto-Sino-Tibetan *y

I concluded in Section 4.4 that, notwithstanding the attempts of a number of scholars to correlate Old Chinese medial ***j** with Proto-Tibeto-Burman medial ***y**, there is in fact no evidence that OC medial ***j** is a direct descendent of PST ***y**. PST ***y** is instead reflected in the vowels of Old Chinese. Comparison with PST ***w** (see the next section) suggests a parallel development, in which these glide medials fused with following vowel nuclei, resulting in syllables with no glide element. Under Li Fang-kuei's reconstruction of Old Chinese, PST ***y** correlates in most cases with OC medial ***-i-**. In Baxter's system, the

reflexes of ***y** may be found in the front vowels ***e** and ***i** (***ɨ** before dentals) which resulted from monophthongization of ***y**+vowel sequences. Evidence is only available for PST ***ya** and ***yə**, which both became PTB ***ya**; the status of PST ***yo**, ***yu**, etc., if they existed at all, is unclear.

As for the more troubling question of whether medial ***j** should be reconstructed at all in Old Chinese as the distinguishing feature of Type B syllables, I have been unable to find any comparative evidence at all in support of one conclusion or the other. Whatever feature it was that distinguished Type A and Type B syllables appears to have had no correlate in Proto-Tibeto-Burman. If it was a purely Chinese innovation, then internal evidence alone must be relied on to determine whether a reconstruction of ***j** for this feature is appropriate. Like other scholars, I have serious doubts about the validity of reconstructing ***j**, but at the present moment I find no alternative proposal (such as a vowel length or other prosodic distinction) persuasive. At the very least, one can note that infixation of a palatal medial glide seems to be a morphological feature of a number of Tibeto-Burman languages, and it is possible that such a process was inherited by Old Chinese from Proto-Sino-Tibetan, where it remained productive—or even expanded in scope—long after the fusion of inherited medials ***y** and ***w** with following vowels had occurred. We can do no more than speculate on this point.

The following examples illustrate the development of PST syllables with medial ***y** into Old Chinese.

	PST		OC (G)	OC (B)	PTB
13)	*-yə-	>	*-iə-	*-i(P), *-ɨ(T)	*-ya-
14)	*-ya-	>	*-ia-	*-e-	*-ya-

13) PST ***dyəp** (**~ *dəp**) ‘double’
OC 疊 ***dip** > MC **diep** ‘double’
PTB ***t/dyap** (**~ *t/dap**) ‘double’ > WT *ldeb* ‘to double down’

PST ***m-syəl** ‘clean’
OC 洗 ***sɨj?** > MC **siei**, **sien** ‘wash’
PTB ***m-syal** (**~ *m-syil**) > WT *bsil-ba* ‘wash’

14) PST ***pryat** ‘eight’
OC 八 ***pret** > **pwăt** ‘eight’
PTB ***b-ryat** > WT *brgyad* ‘eight’

5.2.3 Old Chinese medials $*^{w}$ and *u and Proto-Sino-Tibetan *w

The fate of Proto-Sino-Tibetan ***w** in Old Chinese is considerably more complex than that of the other three PST medials. This is explained by the fact that at least two phonological processes were at play simultaneously, both of which impacted on PST ***w**, sometimes in contradictory fashion.

One, noted in the previous section, was the loss of medial glide elements in Old Chinese through their fusion with following vowels to create new vowel nuclei. In Baxter’s system this process can be described as monophthongization. PST ***wa** fused to OC ***o**, and PST ***wi** and ***wə** fused to OC ***u**. This process was preceded, however, by the other: wholesale absorption of medial ***w** into preceding velar and laryngeal segments, leading to the development of the Old Chinese labiovelar series of initials ***K^{w}-**. A third and related process was the loss of ***w** in the environment of labial consonants; this natural dissimilatory process was probably encouraged by the ongoing loss of ***w** as a medial element due to the other processes just mentioned. In syllables with labial endings, ***w** seems to have been lost without a trace. But after labial initials ***P-** there is good evidence that in many instances this ***w** changed to ***r**, leading ultimately to the development of second-division Middle Chinese syllables.

These developments are summarized below, in a chart slightly modified from Section 4.3.9:

	PST		OC (B)	OC (G)	PTB
15)	*Kwa-	>	*K^{w}a-	*K^{w}a-	*Kwa-
16)	*Kwə-	>	*K^{w}ɨ-	*K^{w}ə-	*Kwa-
17)	*Pw-	>	*P(r)-	*P(r)-	*Pw-
18)	*-w-P	>	*-P	*-P	*-w-P (*-uP ?)
19)	*-wa-	>	*-o-	*-ua-	*-wa-
20)	*-wɨ-	>	*-u-	*-uə-	*-wə(y)
21)	*-u-	>	*-u-	*-uə-	*-u-

15) PST ***kway** ‘bee’
OC 蜾 ***k^{W}aj?** > MC **kuâ** ‘a kind of small wasp’
PTB ***kwa:y** > WB *kwây* ‘dammer bee’, TGTM ***^{B}gwai** ‘bee’

16) PST ***ŋwə** ‘cattle’
OC 牛 ***ng^{W}jə** > MC **ngjǒu** ‘cattle’
PTB ***ŋwa** ‘cattle’ > WB *nwâ* ‘cattle’

17) PST ***g-pwa** ‘bamboo’
OC 笆 ***bra?** > MC **ba** ‘type of bamboo’
PTB ***g-pwa** ‘bamboo’

18) Perhaps PST ***swəm** ‘three’
OC 三 ***səm** > MC **sâm** (irregular) ‘three’
PTB ***g-sum** ‘three’

19) PST ***tswan** ‘perforate’
OC 鑽 ***tson >** MC **tsuân** ‘to bore, perforate, penetrate’
PTB ***tswan** > WT *mtshon* ‘any pointed or cutting instrument’

20) PST ***lwi**: ‘river’
OC 水 ***hljuj?** > MC **świ** ‘water’
PTB ***lwi ≋ lwəy** ‘flow, stream’

21) PST ***tun** ‘dull’
OC 鈍 ***duns** > MC **duən** ‘dull’
PTB ***s/m-tun** (**~ *s-tin**) ‘buttocks’

5.3 Related conclusions regarding Old Chinese initials and vowels

Vowels

The vocalic system of Old Chinese is of course intimately bound up with its medial system. In general terms, it is especially true of a language’s glide medials like ***j** and ***w** that they tend to have a significant impact on the development of following vowels. I have argued in Sections 4.3 and 4.4 that Baxter’s six-vowel reconstruction for Old Chinese is more compatible with my conclusions regarding PST and OC medials than is Li’s four-vowel reconstruction. Baxter’s system allows for a balanced formulation of vocalic developments from PST to OC, characterized by the monophthongization of glide+vowel sequences. Although the formulation can be adjusted to account for the development of Li’s vowel system, it is less elegant, as it involves positing the breaking of original monophthongs in some environments and the fusing of original diphthongs in others.

When considered along with Baxter's statistical analysis of *Shījīng* rhyming, the comparative Tibeto-Burman provides additional support for Baxter's six-vowel system.

Initials

Sesquisyllabic structure is a well-known feature of Proto-Tibeto-Burman. Comparison with Old Chinese suggests that Proto-Sino-Tibetan was also sesquisyllabic, and that this feature of the language persisted into Old Chinese as well. It was lost only later, when simplification of consonant clusters and loss of prefixes led to a more purely monosyllabic language.

Comparison with Tibeto-Burman may have provided the inspiration for reconstructing sesquisyllables for Old Chinese, but such a reconstruction makes good sense from a purely internal standpoint as well. Evidence from Middle Chinese and phonetic series in many cases points to conflicting reconstructions for Old Chinese, as manifested in the hyphenated reconstructions (***b-r**, ***k-l**) found among Baxter's OC initials. This problem can be resolved by reconstructing loose clusters of prefix and initial, in a way that is compatible with phonologically natural rules describing developments from Old Chinese to Middle Chinese. The system of prefixes also resolved problems of phonotactics (allowing us, for example, to do away with Baxter's awkward ***lr-** cluster initial in favor of ***r-l-**), and gives a balanced phonological system in which medials ***l** and ***r** have parallel restrictions on their co-occurrence with dental initials.

Indeed, as I have noted earlier, the presence of sesquisyllables in Old Chinese has been hinted at in many previous reconstruction systems. By explicitly reconstructing them, and clarifying the phonetic nature of prefix+initial sequences (i.e. articulated with an intervening schwa), we not only resolve some of the puzzles of Old Chinese reconstruction, but also facilitate comparison with Tibeto-Burman. Finally, the sesquisyllabic reconstruction provides a phonological framework for morphological

investigations of Old Chinese (such as Sagart (forthcoming)) which posit the existence of derivational prefixes.

5.4 Conclusion

In this study I have attempted to make use of newly available data and insights, provided by scholars in the fields of Chinese and Tibeto-Burman historical linguistics, in order to resolve many of the questions that remain about the reconstruction of medial elements in Old Chinese, and to make some proposals about the nature of Proto-Sino-Tibetan. While many problems remain unsolved, I have clearly laid out the nature of the questions at hand, presented all the relevant data, and proposed a methodology for carrying out Chinese/Tibeto-Burman historical comparison.

The results presented here must in many ways be considered preliminary. While many individual Chinese/Tibeto-Burman comparisons have been invoked, the difficulty of establishing perfectly regular correspondences remains a concern. It is my belief that the regularities are there, but that they have been obscured and distorted by morphological processes which are still poorly understood. In a situation such as this, careful examination of the available evidence and a thorough understanding of typical patterns of variation in the languages concerned, combined with appeals to universal tendencies of phonological evolution and a belief that reconstructed languages should have natural-looking, balanced phonological structures, can provide results that, while not necessarily conclusive, are a good starting point for further testing and study.

Many of the ideas in this study are not new, but have been reformulated, extended, and refined from proposals made by others. As far as I know, the proposals that PST ***sr-** became PTB ***s-** before low vowels, that Middle Chinese dentals arise from tight Old Chinese ***Kl-** clusters (as opposed to loose ***K-l-** clusters), that some Middle Chinese second-division words originate in PST ***Pw-** sequences, and that Old Chinese medial ***r** could not combine with initials dentals, are new contributions. The proposal that Old

Chinese was sesquisyllabic is, I believe, explicitly formulated here for the first time. It is my hope that these proposals, whether ultimately accepted or rejected, will be evaluated by others in the field; and that the larger framework in which they have been presented will be of benefit to future work in reconstructing Old Chinese and Sino-Tibetan.