

AUSTRONESIAN ROOTS AND SINO-TIBETAN: SOME LEXICAL CORRESPONDENCES*

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ABSTRACT

Sagart in a recent publication (1994) has again argued that Austronesian and Chinese are genetically related; however, he has not proposed any correspondences between Austronesian and Sino-Tibetan. Herein a comparison of some Austronesian roots in Blust 1988 and Sino-Tibetan reconstructions in Coblin 1986 will be made in terms of word families and allofams in order to evaluate a possible genetic relationship.

* I would like to thank my wife, Felipa, who, because of her knowledge of Philippine languages, helped me avoid many errors of omission and commission. All remaining errors are the author's own. Needless to say, this work would not have been possible without the publications of Benedict, Blust, Matisoff, and Sagart.

Unfortunately, LaPolla 1994 was unavailable to me until this paper was written. Although some of his reconstructions for Proto-Tibeto-Burman from that paper have been added, this paper would have been improved in several important ways if his paper had been available initially.

This work makes no pretense at addressing, even obliquely, the relevant archaeological and anthropological issues bearing on the areal or genetic relationships between the speakers of Austronesian and Sino-Tibetan languages. For some recent articles on these issues see Blust 1993, Bellwood 1994, and Mahdi 1994a, b. For recent articles on the relationships between Austronesian and other languages of Asia, see Thurgood 1994, Reid 1994 and Hogan 1993.

Blust 1988 pays a great deal of attention to sound symbolism and onomatopoeia. His identification of certain forms as onomatopoeia (O) is respected, and very few of those so identified are used in our comparisons; however, the articles in Hinton, Nichols and Ohala 1994 are relevant to his conclusions concerning individual reconstructions and generalizations.

Mahdi 1994a, b is a criticism of the use of shared innovations as subgrouping criteria. Using historical sources, he successfully argues against the use of specific forms and segmental distinctions in Taiwanese languages such as */*L to establish PAN forms. As he argues, given the navigational skills of Austronesian language speakers, Taiwan is much too close to the Philippines not to have been subjected to areal influence from the Philippine languages.

For languages and language abbreviations, see Appendix 1.

1.0. INTRODUCTION

As indications of genetic relationships at the family or stock level, the more the languages under examination correspond in phonology, morphology, and syntax the more secure is the demonstration of genetic relationship. The first two of these areas of historical linguistics will be examined below: first, relevant phonological and morphological aspects of Austronesian roots in Blust 1988, then these aspects of Sino-Tibetan reconstructions in Coblin 1986. These will then be used to propose some lexical correspondences for Austronesian and Sino-Tibetan. Finally, some general conclusions will be drawn concerning segmental reflexes and phonological processes.

2.0. (PAN-)AUSTRONESIAN

In this section, (Pan-)Austronesian [(P)AN] phonemes as in the reconstructions of Blust 1988, etc., will be discussed first, then (P)AN syllable structure, then relevant consonant and vowel alternations in terms of word families and allofamy, and finally (P)AN morphology.

2.1. (P)AN Austronesian Phonemes

Blust 1988 reconstructs Austronesian roots at several levels; of those levels, Proto-Austronesian (PAN), Proto-Malayo-Polynesian (PMP), Proto-Western-Malayo-Polynesian (PWMP), Western Malayo-Polynesian (WMP) and Formosan (F) are all relevant to our reconstructions. The system of consonant phonemes in (P)AN in the reconstructions of Blust 1980:13 is given in Table 1:

| | <i>Labial</i> | <i>Dental/ Alveolar</i> | <i>Retroflex</i> | <i>Palatal</i> | <i>Velar</i> | <i>Post- velar</i> | <i>Laryngeal</i> |
|-------------------|---------------|-----------------------------|------------------|----------------|--------------|------------------------|------------------|
| <i>Stops</i> | p b | t d | T D | j[gʷ] | k g | q | ʔ |
| <i>Affricates</i> | | C | | c z | | | |
| <i>Fricatives</i> | | s S Z | | (s) | | | h |
| <i>Nasals</i> | m | n | N | ɲ | ŋ | | |
| <i>Liquids</i> | | L l r (R) | | | R | | |
| <i>Glides</i> | w | | | y | | | |

Table 1. Blust's (P)AN consonants.

According to Blust (1990a:232ff.), these symbols represent the following sounds in (Proto-)Austronesian: The voiceless stops and affricates are unaspirated. The phoneme **s* may have been a voiceless palatal sibilant. The liquid **L* was probably a voiceless alveolar lateral, **r* an alveolar tap, and **R* probably an alveolar or uvular trill. The palatals **c*, **z* and **ɲ* occur only initially. Within the roots examined herein, the retroflexes **T*, **D* and **N* are predominantly syllable initial, the exception being **D* with six occurrences initially and two finally. The affricate **C* occurs predominantly as a syllable final, the exception being **Cik* ‘mottled, spotted’. The symbol **q* represents a post-velar, “probably a uvular.” The system of simple vowels in (P)AN according to Blust 1990a:233 are **i*, **e*, **a*, **u* (where **e* is an orthographic symbol for schwa ə). The system of diphthongs “was probably” (Blust 1990a:233ff.) **iw*, **uy*, **ay*, and **aw*, to which should also be added **ey*. All diphthongs occur only in syllables such as **tey* ‘suspension bridge’ and **naw* ‘melt, liquefy’.¹

2.2. (P)AN Syllable Structure

Almost without exception, the roots established by Blust have the form CVC. The exceptions include the following: **bu* ‘dust’, **ka(q)*₁ ‘open forcibly’, **ku(q)* ‘bend, curve’, **nga(q)* ‘gapping, wide open’, **pi* ‘dream’, and **pi(q)* ‘fold’. Because (P)AN diphthongs do not occur before consonant codas, the off-gliding second portion of the diphthongs should be considered a [-syllabic] coda. Thus, assuming the phonemes represented by capitalized letters (**T*, etc.) and the affricates and palatals are unit phonemes, the optimal syllable for (P)AN is as in Figure 1, in which “O” represents the onset, “R” the rhyme, “N” the nucleus, and “Co” the coda. This syllable structure is a simplification of that of both Sino-Tibetan and Old Chinese.

¹ See Hogan 1993:52ff. for a brief discussion of some different systems of reconstruction such as Wolff 1988. Mahdi 1994a:170 considers **r* and **z* as “maverick protophonemes” and argues for their removal from PAN reconstruction and replacement by **R* and **Z*, respectively. Madhi 1994a:171 also agrees with Wolff in an earlier publication (1982) in considering **c* and **T* post-PAN developments, the former deriving from **s* by a conditioned split, and the latter being a local development within Javanese and Madurese. (This is not accepted herein.) He also questions the distinction between **l* and **L*, with separate reflexes in only a few languages in Taiwan; this distinction he attributes to a very local areal effect (p. 211 n. 63). He, however, accepts both PAN **j* and **q* but considers them to be a preglottalized or velar lateral and a preglottalized voiced velar stop, respectively. He correctly considers the distinction between **i*, **u* and **y*, **w* to be non-phonemic, the latter of the two pairs being merely non-syllabic forms of the former, with syllabicity being determined by syllable position (p. 208ff. n. 41). A new phoneme which he suggests is **B* (pp. 171, 201ff. n. 12), although he does concede that it was probably a positional variant of **b*.

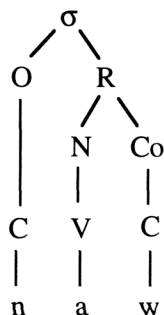


Figure 1. The optimal (P)AN syllable.

In the framework of optimality theory the syllable structure of (P)AN requires parsing (PARSE) of segments (no ellipsis of segments) and a coda condition (CODA) which requires that a coda be present. The latter in conjunction with FILL, which requires that all C and V nodes dominate their expected daughters, generates epenthetic segments. The ranking for these conditions seems to be CODA >> PARSE >> FILL. This permits the epenthesis of the segment *-q* as a coda for those syllables not containing one. Those syllabic roots such as **bu* 'dust' and **pi* 'dream' which are reconstructed without codas do not represent the optimal syllable structure of (P)AN because they violate CODA; however, they may not necessarily be automatically disqualified as valid reconstructions.

2.3. (Pan-)Austronesian Roots and Word Families

The use of word families in the historical linguistics of Asian languages goes back to Karlgren 1933, where he established relationships between lexemes showing variations in initial and final consonants in Archaic Chinese (Old Chinese). The word families that he established for Old Chinese are now known to be due to derivational and inflectional processes, which modified the roots.²

Within (P)AN, there is also a great deal of segmental variation in the roots listed in Blust 1988. These alternations will be discussed in terms of initial consonant alternations, then final consonant alternations, and lastly vowel alternations. These alternations will be considered as analogues to those which occur within word families in Sino-Tibetan.

² For a discussion of word families in Tibeto-Burman see Matisoff 1978b:16ff.

2.3.1. (P)AN Initial Consonant Alternations

Blust (1988:41ff.) points out that the majority of these alternations in onset position involve the [+/-voice] and [+/-nasal] contrasts. Omitting those roots with onomatopoeic meanings, the following reconstructed roots in Table 2 are representative:

| [-voice] | | [-nasal] | | [+voice] | | [+nasal] | |
|------------|------------------|----------|--|------------------------|-------------------|------------|---------------|
| | | | | leb | 'sink, disappear' | neb | 'sink' |
| | | | | lus | 'slip off' | nut | 'husk, fiber' |
| kem | 'enclose' | | | gem | 'grasp in fist' | | |
| pun | 'assemble' | | | bun | 'assemble' | | |
| pek | 'decay, crumble' | | | bek₂ | 'pulverized' | mek | 'pulverize' |
| | | | | buk₁ | 'powder' | muk | 'powder' |

Table 2. (P)AN initial alternations involving [+/- voice] and [+/- nasal].

A group of alternations such as ***pek** 'decay, crumble', ***bek₂** 'pulverized', and ***mek** 'pulverize' establishes a word family in Austronesian. For the relationships between individual forms like ***pek** 'decay, crumble' :: ***bek₂** 'pulverized' and ***pek** 'decay, crumble' :: ***mek** 'pulverize', Matisoff (1978b:16ff.) has coined the term "allofamy". The individual members of a word family he calls "allofams". Word families and these types of alternation within a word family are similar to those in Chinese and Tibeto-Burman.³

³ Other alternations between points of articulation in (P)AN initials include the following:

| <i>Dental/Alveolar and Retroflex</i> | | | |
|--------------------------------------|----|------------------------|------------------------------|
| lem | :: | Dem₁ | 'dark' :: 'id.' |
| luŋ₂ | :: | Duŋ | 'shelter' :: 'id.' |
| <i>Dental/Alveolar and Palatal</i> | | | |
| tut | :: | cut | 'flatulence' :: 'squirt out' |
| tak | :: | ca:k | 'mud' :: 'muddy' |
| tek | :: | cek | 'mud' :: 'blind' |
| tik | :: | cik | 'spring up' :: 'fly out' |
| <i>Dental/Alveolar and Velar</i> | | | |
| luŋ₁ | :: | kuŋ₁ | 'bend, curve' :: 'id.' |
| luk | :: | kuk₁ | 'curve' :: 'bent, crooked' |
| laq | :: | kaq₂ | 'split' :: 'id.' |
| neR | :: | geR | 'hear' :: 'id.' |

2.3.2. (P)AN Final Consonant Alternations

As Blust (1988:41ff.) also points out, the majority of these final consonant alternations involve the [+/-voice] and [+/-nasal] contrasts. Omitting those roots identified as onomatopoetic by Blust, those in Table 3 are representative:

| [-voice] | | [-nasal] | | [+voice] | | [+nasal] | |
|------------------------|------------------|------------------------|-------------------|------------------------|----------------------|------------------------|----------------------|
| kep₁ | 'cover' | leb | 'sink, disappear' | lem | 'dark' | kem | 'enclose' |
| kup | 'enclose, cover' | keb₁ | 'cover' | kum | 'enclose by folding' | kum | 'enclose by folding' |
| but | 'buttocks' | kub₁ | 'cover' | bun | 'heap' | len | 'swallow' |
| let | 'intervene' | | | puŋ₁ | 'bunch, cluster' | luŋ₁ | 'curve, bend' |
| puk₃ | 'gather' | | | laŋ | 'striped' | kuŋ₁ | 'bend, curve' |
| luk | 'curve' | | | | | | |
| lak | 'shine' | kug | 'curl, curve' | | | | |
| kuk | 'bent, crooked' | | | | | | |

Table 3. (P)AN final alternations involving [+/- voice] and [+/- nasal].

Although there are alternations within every point of articulation in the chart above (labial, dental and velar), the most common type of alternation is between voiceless velar stop **-k* and velar nasal **-ŋ* as in ***puk₃** :: ***puŋ₁**, etc. Again, this type of alternation is also common in ST.⁴

There are also other final consonant alternations which involve variation of manner within a given point of articulation. The forms in Table 4 all involve [+/- continuant]. The most common alternations here are between the stop **-t* and the dental/alveolar affricate **-C* (***ŋeC** 'angry' :: ***get** 'angry'); and between **-t* and the dental/alveolar fricative **-s* (***pis₂** 'thin, fine' :: ***pit** 'press, squeeze together; narrow').

⁴ Matisoff 1978b:23ff. points out that the alternation nasal :: stop *-m* :: *-p*, *-n* :: *-t*, *-ŋ* :: *-k* is common in both TB and Chinese, often associated with an intransitive :: transitive contrast in verbs such as the following from Cantonese: 散 **saan** 'be dispersed' / 撒 **saat** 'to disperse'.

For Tibeto-Burman, Weidert 1987:134 establishes the following process in Lolo-Burmese in which a nasal loses nasality and voice: **-ŋ?* > **-k*, which he feels proves "the existence of glottal stop or creaky phonation at the stage postdating common Proto-Tibeto-Burman." Because similar relationships, voiceless final stops alternating with homorganic final nasals, exist both within the Tibeto-Burman and the OC branches of ST, it might be supposed that a similar process is the cause. This appears even more persuasively in the OC reconstructions of Baxter 1992, Schuessler 1987, and Bodman 1980, in which the *shangsheng* 上聲 of Middle Chinese is derived from a glottal stop in OC.

| [+continuant] | | [-continuant] | |
|------------------------|--|---------------|-----------------------------------|
| ŋeC | 'angry' | get | 'angry' |
| ŋiC | 'anger' | git | 'anger' |
| pis₂ | 'thin, fine' | pit | 'press, squeeze together; narrow' |
| pus | 'sound of escaping air' (O) ⁵ | put | 'puff' (O) |
| ris₂ | 'scratch a line' (O) | rit | 'id.' |
| ŋis | 'bare the teeth' | git | 'anger' |
| ŋus | 'snout' | ŋut | 'mumble, murmur, mutter' |

Table 4. (P)AN final alternations involving [+/-continuant]

2.3. (P)AN Vowel Alternations

Blust (1988:38) also recognized that there is a great deal of alternation of vowels within the PAN roots established. Based on his chart, omitting onomatopoeic roots, the following chart (Table 5) is representative:

| a | e | i | u | |
|------------------------|------------------------|------------------------|------------------------|-----------------------|
| ŋaC | ŋeC | ŋiC | | 'anger; irritation' |
| kad | ked | | kud | 'prop; support' |
| kas | kes | | kus | 'loosen; wrap' |
| | pes | pis₁ | pus₂ | 'deflate; be empty' |
| kaŋ₃ | keŋ₁ | | | 'cramps; stiffening' |
| ŋat | | | ŋut | 'elastic; stretching' |
| | ter | tir | | 'shiver; tremble' |
| | bek | | buk | 'decay; powder' |
| | mek | | muk | 'crush; pulverize' |
| | sek | | suk | 'enter; insert' |
| | kep | | kup | 'cover; enclose' |
| | kem | | kum | 'enclose' |
| | kel | | kul | 'curl; bend' |
| | | liR | luR | 'flow' |

Table 5. (P)AN vowel alternations

The most common alternations here are between *e (schwa) ~ *u, and *e ~ *a. Within ST and OC there are also vowel alternations of which Sagart (1994:298) mentions the OC ablaut relationships *i ~ *e, *u ~ *o and *i ~ *a.

⁵ An "(O)" following a gloss means that the word is considered an onomatopoeic form in Blust 1988.

2.4. (P)AN Morphological Processes

Sagart (1993b:10ff.; 1994:275ff.), on the basis of work by Starosta, Pawley, and Reid 1982, Egerod 1980, and Ferrell 1982, discusses some morphological processes in Austronesian as comparable to some in Chinese. The *-Vr-/Vl* of modern AN languages and **(a)r-* and retroflex consonants in reconstructed (P)AN, is compared to the OC **-r-* infix, which he states means “distributed action and nouns of distributed objects” (p. 275). This infix is represented by Tagalog *-al-*:

| | | | |
|---------------|----------------------------|-------------------|---|
| kiskis | ‘scrape off’ | k-al-iskis | ‘fish scales’ |
| dakdak | ‘driving stakes into soil’ | d-al-akdak | ‘sowing of rice seeds/ seedlings for transplant’ |

In addition to the above, there is also the *ni-* prefix / *-in-* infix, compared to the OC **-j-* infix, which he states means “patient nominalizing infix/prefix” (p. 278). It is represented by Tagalog *-in-*:

| | | | |
|--------------|-------------------|------------------|---------------------|
| batak | ‘to stretch/pull’ | b-in-atak | ‘sugar candy stick’ |
| tapay | ‘fermented dough’ | t-in-apay | ‘bread’ |

Finally, the prefix *ma-* is compared to the OC **N-* prefix, which he states means “stative/intransitive” (p. 279), and is demonstrated by Tagalog *ma-*:

| | | | |
|--------------|------------|-----------------|---------------|
| kita | ‘saw’ | ma-kita | ‘to be seen’ |
| tapus | ‘finished’ | ma-tapus | ‘be finished’ |

In addition to these morphological processes (Sagart 1993a, b, and 1994), there is also a morphological process involving the suffix *-s*:⁶

| | | | | | |
|------------------|----|------------------------------|------------------------------|----|--------------------------------|
| git (WMP) | :: | gis (PMP) | ‘anger; resentment’ | :: | ‘bare the teeth’ |
| gut (PMP) | :: | gus (PWMP) | ‘mumble; murmur; mutter’ | :: | ‘snout’ |
| pit (PAN) | :: | pis₂ (PMP) | ‘press; squeeze together’ | :: | ‘thin, tenuous, fine’ |
| put (PMP) | :: | pus₂ (PMP) | ‘puff’ (O) | :: | ‘sound of escaping air’ (O) |
| rit (PMP) | :: | is₂ (PMP) | ‘scratch a line’ (O) | :: | ‘id.’ |

⁶ Among the potential roots in Blust 1988:73ff., the following exhibit the *-s* :: *-t* alternation:

| | | | | | |
|------------------|----|-------------------------------|----------------------|----|-----------------------|
| but (WMP) | :: | bus₁ (PWMP) | ‘buttocks, bottom’ | :: | ‘end, finish, use up’ |
| rit (PMP) | :: | gis (PWMP) | ‘scratch a line’ (O) | :: | ‘scratch’ |
| <i>id.</i> | :: | kis₁ (PAN) | ‘id.’ | :: | ‘id.’ |

This suffix may be related to the **-s* suffix of OC which Baxter (1992:315ff.) identifies as having the derivational functions of nominalization and verbalization, i.e., a noun is formed from a verb and, the converse, a verb is formed from a noun. In (P)AN the functions seem blurred to some extent.

Because some of the above forms are at different stages of AN, (WMP) **git**, for example, being at a level subsequent to (PMP) **ɲis**, the simple diachronic process of the noncontinuant [-continuant] **-t* > **-s* [+continuant] is not as persuasive as it might be otherwise. Although the process of hardening **-s* > *-t* in WMP is possible, and Blust (1990a:237) states that PAN **C* merged with **t* in PMP, the morphological process in which the post-coda is attached to the coda, with a subsequent process of assimilation and coda simplification, is more persuasive:

- (1) **-t + -s** > **-ts**
 (2) **-ts** > **(-ss)** > **-s**

In addition, the morphological process might explain the following relationship:

get (WMP) :: **ɲeC** (PAN) 'angry' :: 'angry, gnash the teeth'
git (WMP) :: **ɲiC** (PAN) 'anger, resentment' :: 'anger, irritation'

The dental/alveolar affricate **C* might then be a representation of the intermediate stage as in the following word family:⁷

git (WMP) :: **ɲiC** (PAN) :: **ɲis** (PMP)
 'anger/resentment' :: 'anger, irritation' :: 'bare the teeth'

Therefore, the root and the morphological and phonological processes might be represented as the following:

git** (git**) (WMP)
****N-git-s** (***ɲiC**) (PAN)
****N- gis** (***ɲis**) (PMP)

in which the nasalization of the initial consonant of the roots ***ɲiC** and ***ɲis** is represented by ***N-**.

In addition, the assimilation of velars to dentals can also be explained with the suffix **-s*:

Det (PAN) 'packed in, compressed' :: **sek₂** 'cram, crowd'

⁷ In addition, the potential root (PAN) ***laC** 'shine' might be derived from (PMP) ***lak** 'shine' via an assimilation to the dental/alveolar point of articulation: ***lak+s** > ***laC** [lats].

in which there is a **-k-s* > **-t-s* in the first form with a subsequent loss of the morphological suffix and paradigmatic leveling:

| | | |
|-------------------|------------------|-------------------------------|
| <i>Root</i> | -k | -t |
| <i>Derivation</i> | -k-s [ts] | -t-s [ts] ⁸ |

If there is a sequence of two consonants to be reconstructed as a (P)AN final, there are two possibilities as to where the final C might be attached: (1) as part of the coda as in Figure 2:

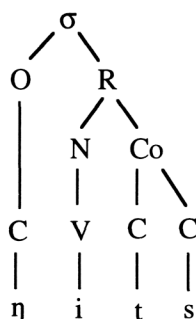


Figure 2.

or (2) directly attached to the Prosodic Word (PWd) as in Figure 3:

⁸ Although this process may not be necessary, given the ease with which nasalized vowels occur and the ease with which rhymes involving nasals merge, the dental/alveolar point of articulation of the morphological suffix **-s* may also be invoked to explain the relationship between the velar and dental/alveolar finals of the following: **pun₁** (PAN) 'bunch, cluster' and **pun** (PMP) 'assemble, collect, gather', the latter of which would result from an assimilation **pun-s** > **pun-s** with a subsequent loss of the morphological suffix and probably paradigmatic change or leveling:

| | | |
|---------------------|---|--------------|
| pun | > | pun |
| pun-s [puns] | > | pun-s |

There are similar contacts between velar, dental, and labial finals in OC, which might be due to nasalization and nasal loss with a subsequent reintroduction of nasal finals.

Matisoff (1982:11) invokes this morphological process to explain the relationship between Form A and Form B within Tone-class I in Kuki-Naga.

In the system of reconstruction of OC in Baxter 1992, Schuessler 1987, and Bodman 1980, the *-s*, which evolved into the **ch'ü** 去 tone in Ancient Chinese (Middle Chinese), indicates the perfect aspect, the present tense or transitive form of verbs and nouns derived from verbs (Bodman 1980:49, 52ff.). However, even at the earlier stage of Pre-Chinese, Bodman (1980:49) points out that the morphological meanings had become blurred.

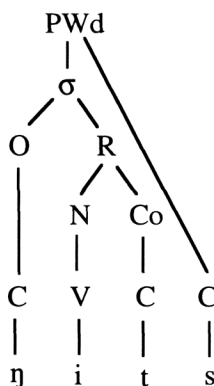


Figure 3.

The latter formation essentially removes the final C from the coda and allows otherwise prohibited structures to occur word finally but not necessarily word internally.

3.0. SINO-TIBETAN RECONSTRUCTIONS

The Sino-Tibetan language family is divided into two major groups: Chinese and Tibeto-Burman, i.e., Chinese and other languages.⁹ This is the language of the *Shih Ching*, *Shu Ching*, and Western Chou bronze inscriptions (*chin wen* 金文). The rhymes are the basis of the reconstruction of the finals of Old Chinese. Although the language of the Shang bronze inscriptions and oracle bone inscriptions (*chia-ku wen* 甲骨文) predates that of Old Chinese and might logically be considered as a source for the reconstruction of Sino-Tibetan, because less is known of its phonology, it is not so used to any large extent. Early written records for the Tibeto-Burman languages exist only for Tibetan (Old Tibetan from the 7th century AD, Li and Coblin 1987:3ff.) and Burmese (Old Burmese from the 12th century AD, Bradley 1993:157-58).¹⁰

⁹ Bodman (1980:39ff.) proposes a closer relationship between Chinese and Tibetan than between Chinese and Tibeto-Burman and attributes this to "widespread borrowings [into Old Chinese] from a Pre-Tibetan (Pre-T) source" (p. 40).

¹⁰ Written records also exist from the Tangut (*Hsi-hsia* 西夏) language, but have not apparently been exploited in the reconstruction of TB.

3.1.1. Sino-Tibetan Phonemes

The system of consonant phonemes established by Coblin (1986:13) for Sino-Tibetan is given in Table 6 below:

| | Labial | Dental | Velar | Labiovelar | Glottal | |
|-------------------|--------------|-----------------|--------------|-----------------|---------|----|
| <i>Stops</i> | p ph b | t th d | k kh g | kw khw gw | ʔ | ʔw |
| <i>Affricates</i> | | ts tsh dz | | | | |
| <i>Fricatives</i> | | s z | x ɣ | xw ɣw | h | hw |
| <i>Nasals</i> | m | n | ŋ | ŋw | | |
| <i>Liquids</i> | | l r | ɭ ɻ | | | |
| <i>Glides</i> | | j | y | w | | |

Table 6. Sino-Tibetan consonants.

As in OC, the stops and affricate **ph*, **th*, **kh*, **khw* and **tsh* are aspirated and the labiovelars **kw*, etc., and labio-laryngeals *ʔw*, etc., represent unit phonemes. However, unlike OC, there are no voiceless nasals or voiceless lateral reconstructed for ST. The symbols **ɭ* and **ɻ* are not explained in Coblin 1986; however, they are necessary because there are distinct reflexes for the liquids in the various languages. All four liquids occur in onset position, medially, and in the coda. The glides **j* and **w*, however, are more restricted in occurrence, not occurring in onset or coda position. The aspirates **ph*, etc., and the affricates **tsh*, etc., are the most restricted, occurring only in onset position, as are the voiced stop **b*, the voiced fricative **z*, the (labio-)velar fricatives **hx*, **hw*, **xw* and the labio-laryngeal **ʔw*.

The system of vowel phonemes for Sino-Tibetan is the following: **i*, **e*, **ɨ*, **ə*, **a*, **u*, **o* and diphthongs **ii*, **ie*, **iə*, **ia*, **io*, **iu*, **ia*, **iə*, **iu*, all occurring in closed syllables. The vowels **e*, **ɨ*, **ə*, and **o* are not reconstructed for (P)AN, nor are the ST diphthongs, except ST **iu* which would be comparable to (P)AN **iw*.

3.1.2. Sino-Tibetan Syllable Structure

According to Coblin (1986:13), the syllable structure of ST is as follows:

C (C) (M₁) (M₂) (M₃) V (V) C (C)

with optional segments in parentheses and the medials (M₁) = *j, *y, M₂ = *r, *ʀ, *l, *ʎ, and M₃ = *w, not all three categories occurring within the same syllable; thus, the minimal syllable is CVC, which is the canonical syllable in (P)AN. Some examples of ST syllables are the following:¹¹

| | | | | | |
|------------------------------------|----------------|-----------------|-------------------------------------|----------------|----------------------|
| CVC | lək | 'arm/hand/wing' | CVVC | kiap | 'enclose/surround' |
| CCVC | rduŋ | 'beat' | CCVCC | mtild | 'bottom/lower' |
| CM ₁ VC | sŋjok | 'annoy' | CM ₁ CC | gwjəld | 'deviate/go against' |
| CM ₁ VVC | tshyiaŋ | 'about to' | CM ₁ VC | słeŋ | 'braid/plait' |
| CCM ₁ VC | sdjam | 'bind (3)' | CCM ₁ VVC | mdjiaŋ | 'bright/light' |
| C M ₁ M ₂ VC | krjəŋw | 'boat' | CCM ₁ M ₂ VVC | ʀmjwiəd | 'sleep/dream' |

3.1.3. Sino-Tibetan Alternations

As in (P)AN reconstructions, there are words families in ST in which there are systematic alternations. Predominant in the ST reconstructions of Coblin 1986 are those involving initial consonants and nuclear vowels. These will be discussed below in that order.

3.1.3.1. ST Initial Consonant Alternations

In the reconstructions of Coblin 1986, the most common alternation of initial is that between [+/- voice] initials, although there are some alternations between [+/- aspiration] initials. The forms in Table 7 are representative.

The allofams ****piar** and ****biar** 'plait/weave', for example, establish a word family within reconstructed Sino-Tibetan. Furthermore, as in (P)AN, the majority of the alternations are between voiceless and voiced in the velar series, with fewer among the labials and very few in the dental/alveolars.

3.1.3.2. Sino-Tibetan Vowel Alternations

Among the reconstructions for ST in Coblin 1986, the vowel alterations in Table 8 are readily discernible.

Here we see that a very common alternation in ST is that between *ə and *a, so an alternation between *e (the orthographic symbol for schwa) and *a might

¹¹ The serial representation for medials in ST is apparently not according to the implication of the orderings: the reconstruction ****mtʀyəŋw** 'beak/lip' (Coblin 1986:39) does not quite fit the pattern given by Coblin in that a M₂ medial *-ʀ- occurs before a M₁ medial *-y-. If no initial consonant occurs, the liquids function as consonantal onsets: ****ʀwag** 'black'.

also be expected in (P)AN. The OC ablaut relationships **i ~ *e*, **u ~ *o*, and **i ~ *a*, mentioned in Sagart 1994:298, do not seem well represented here.

| [-voice] | | [+voice] | |
|---------------|---------------|----------|----------------------------------|
| [-aspiration] | [+aspiration] | | |
| piar | phjækw | biar | 'plait/weave' |
| pjaɣ | | bjaɣ | 'father/male' |
| pjæk | | bjæk | 'bat' |
| pjækw | | bjækw | 'cave/cavity/belly' |
| pjid | | bjid | 'give' |
| pjul | | bjul | 'divide/distribute' |
| pɤwaɣ | | bɤwaɣ | 'bamboo' |
| pɤɤar | | bɤɤar | 'spread/sow' |
| tar | khaɬ | dar | 'bind (2)' |
| tar (~ taɤ) | | dar | 'weary/diseased' |
| tek | | dek | 'kick/hoof' |
| tjuk | | djuk | 'torch ≠ kindle' |
| kal | khjuk | gal | 'ward off/ counteract/shield' |
| kap | | gaɬ | 'carry' |
| kəɣw | | gap | 'cover (1)' |
| | | gaɣw | 'call/cry out' |
| kjəŋw | khwjərd | gjəŋw | 'body/person (1)' |
| kɤem | | gjuk | 'bent/crooked (1)' |
| | | gɤem | 'squeeze' |
| | | gɤjərd | 'turn/round' |

Table 7. ST initial alternations involving [+/- voice] and [+/- aspiration].

| i | e | ə | a | ɨ | o | u |
|------|------|------|-------|------|-----|------------------------|
| djiɣ | djeɣ | bjər | bjar | djiɣ | | 'burn/roast/shine (1)' |
| | | gdəm | gdam | | | 'this/that' |
| | | kəɣw | gaɣw | | | 'speak/talk' |
| | | krəp | krap | | | 'call/cry out' |
| | | ɬəp | lap | | | 'shell/armour' |
| | | | | | | 'talk/speak' |
| | | | | loŋ | luŋ | 'ring' |
| | | niəp | rnyap | | | 'pinch' |
| | | nyəm | nyam | | | 'soft' |

Table 8. ST vowel alternations.

3.2. Old Chinese

First, OC phonemes will be presented and compared with those of (P)AN and ST, then the morphology will be presented and compared with corresponding aspects of (P)AN.

3.2.1. Old Chinese Phonemes

Because the Sino-Tibetan reconstructions in Coblin 1986 are based on the reconstruction of Old Chinese in Li 1974-75, that is the system used here, although alternate reconstructions of Baxter 1992 and Schuessler 1987 will be given where available.¹²

The system of consonant phonemes set up for Old Chinese by Li 1975:1143-4 is given in Table 9 below:

| | Labial | Dental | Velar | Labio- velar | Laryngeal | Labio- laryngeal |
|------------|---------|---------|-----------------|-----------------|-----------|---------------------|
| Stops | p ph | t th | k kh | kw khw | ʔ ʔh | ʔw ʔhw |
| Affricates | | | ts tsh cz | | | |
| Fricatives | | | s (z) | | | h |
| Nasals | | | m hm | n hn | ŋ hŋ | ɲw hɲw |
| Liquids | | | | l r hl | | |
| Glides | | | w | | j | |

Table 9. OC consonants.

The stops and affricate *ph, etc., and *tsh are aspirated as in the system of reconstructions for ST. However, the unit phonemes *hm, *hn, *hŋ, *hɲ, and *hl, symbolizing voiceless nasals and laterals respectively, are not in ST as unit phonemes. Including the

12 It would be interesting to rework these materials using the classic ST/TS re-
in Benedict 1972. [Ild.]

lateral, there are only three reconstructed liquids instead of the four reconstructed for ST. The phoneme *ʒ in parentheses is marginal.

Although the system of simple vowel phonemes *i, *u, *ə, and *a set up for Old Chinese by Li (1974-75:1143-4) agrees with the vowel system of (P)AN, the diphthongs *ua, *ia, and *iə do not, nor do ST *ii, *ie, *io, *ia, and *iu occur in OC.

The system of representing OC tones and their corresponding Middle Chinese tones is the following:¹³

| | | | | |
|----------------|---|----|----|---|
| Middle Chinese | 平 | 上 | 去 | 入 |
| OC | 0 | -x | -h | 0 |

in which the symbols *-x and *-h have no phonetic content.

3.2.1. Old Chinese Syllable Structure

According to Li (1974-75:251), the syllable structure for OC was:

C (C) (M) (M) V (V) C

in which the only possible medials (M) are *r, *j, in that order, unlike ST which permit the three groups of medials: (M₁) = *j, *y, M₂ = *r, *ʃ, *l, *ʈ, and M₃ = *w. The syllable structure is further simplified in that the coda permits a maximum of one consonant instead of the two permitted in the coda of the ST syllable.

Although the minimal OC syllable CVC is similar to that of (P)AN, the reconstructions of Blust 1988 do not permit medials nor multiple consonants in the onset or coda. Furthermore, OC allows diphthongal nuclei to be followed by a consonantal coda, (P)AN does not.

¹³ In the reconstructions of Baxter 1992, the following system is used:

| | | | | |
|----------------|---|----|----|---|
| Middle Chinese | 平 | 上 | 去 | 入 |
| OC | 0 | -ʔ | -s | 0 |

in which the symbols *-ʔ and *-s, unlike the corresponding *-x and *-h in Li's system, do have obvious phonetic content. Furthermore, because he considers them post-codas, they occur in his reconstructions after all codas including voiceless stops of *ju-sheng* (入聲). Both post-codas caused the loss of Old Chinese final stops.

In the reconstructions in Schuessler 1987, the following system is used:

| | | | | |
|----------------|---|----|-------|---|
| Middle Chinese | 平 | 上 | 去 | 入 |
| OC | 0 | -ʔ | -s/-h | 0 |

Here both *-ʔ and *-s, like the corresponding symbols in Baxter 1992, have obvious phonetic content. He differs from Baxter in that he uses *-s to represent *-ts and *-h elsewhere because the rhymes in the *Shih Ching* require "something akin to a velar for *qusheng*" (p. xii). However, he does reconstruct *-ts sequences such as 兑 OC *gluats / hluats.

3.2.3. Old Chinese Morphological Affixes¹⁴

Building on his own work (Sagart b, c; 1994) and that of others (Baxter 1992, Pulleyblank 1973, Downer 1959, Chang and Chang 1976, 1977), Sagart (1994:277ff.) identifies the following morphological affixes in OC: **-r-* “distributed action/object,” **-j-* “patient nominalizing infix” or “instrumental nominalizations” (Sagart 1993c:245), and **ŋ-* the “stative/intransitive verb prefix”, which he uses to replace Baxter’s OC **h-*. Sagart 1993c:244 specifies that it causes voicing of the onset. Some of his examples relevant to the discussion below are given in Table 10. The reconstructions are those of Li 1974-75 with a tentative morphological representation, as in Sagart 1994, in parentheses and those of Baxter 1992 as interpreted in Sagart 1994:278ff.

In addition to the above affixes, there are several others reconstructed for OC: the **s-*, **h-*, and **N-* prefixes and the **-s* and **-ʔ* suffixes. Sagart (1993c:242ff.) accepts an OC **s-* prefix as a reflex of the ST “directive” **Si-* prefix based on the work of Mei 1989. Sagart links this to the PAN **Si-* prefix in the work of Starosta, Pawley and Reid 1982. Li (1974-75:241ff.) in his reconstruction of OC considers the **s-* in initial consonant clusters such as **sk*, **skw-*, etc., to be a prefix, as in the following example:¹⁵ **jweñ** 隕 ‘to fall down’ :: **suən** 損 ‘to injure’.

¹⁴ Karlgren (1933:58ff., 106ff.) specifically establishes word families based on the following alternations, all in his notation:

| Finals | Initials |
|-------------------|---|
| -m ~ -p ~ -b | b ~ p' ~ b' |
| -n ~ -t ~ -d ~ -r | t ~ t' ~ d ~ d' ~ t̃ ~ t̃' ~ d̃ ~ d̃'; t ~ ts- |
| | ts- ~ tsh- ~ dz- ~ dz' ~ ts̃- ~ ts̃' ~ dz̃'; s̃- ~ s- ~ z- ~ s- |
| -ŋ ~ -k ~ -g | k ~ k' ~ g ~ g' |
| | k ~ ; k ~ X ; k ~ ŋ- |

The alternations *p ~ m*- and *n ~ ñ ~ l*- he considers doubtful because they are sporadic.

For additional information on Chinese wordfamilies, see Wang Li 1983 and Schuessler 1976.

¹⁵ Although Coblin 1986 does not deal with affixes, according to the reconstructions in Coblin (1986:14ff.), Li (1974-75:241ff.), and Baxter (1992:187, 197ff., 203ff., 218ff.), within Chinese the following changes involving the ST and OC **s-* prefix and the OC “metathesizing **S-*” (Baxter 1992:229ff.) occurred:

Another prefix reconstructed for OC in Baxter (1992:218ff.), but not Li (1974-75), is **h-*, which derives an intransitive/passive verb from a transitive verb. (Sagart 1993c:244 and 1994:279ff. replaces this with the OC **N-* in his

| <i>Coblin 1986/Li 1974-75</i> | | | | <i>Baxter 1992</i> | |
|-------------------------------|-----------|-----------|-----------|--------------------|------------------------|
| <i>ST</i> | <i>OC</i> | <i>MC</i> | <i>TB</i> | <i>OC</i> | <i>MC</i> |
| *s-b- | *dz- | dz- | *s-b- | | |
| *s-d- | *dz- | dz- | *s-d- | | |
| *s-t- | *ts- | ts- | | | |
| *s-gw- | *gw- | 0- | *sg- | | |
| *s-ŷw- | *gw- | 0- | *sg- | | |
| *s-ŷwj- | *gwj- | 0- | *sw- | | |
| *s-hn- | *tsh- | | *sn- | | |
| *s-hw- | *hw- | | *shw- | | |
| *s-khr- | *skhr- | [h- | *sk- | | |
| *s-m- | *hm- | x- | *sm- | | |
| *s-n- | *hn- | cj- | *sn- | | |
| | *hn- | th- | | | |
| *s-ŋ- | *hŋ- | xjw- | *sŋ- | | |
| *s-th- | *tsh- | tsh- | *st- | | |
| | *s-m- | s- | | *s-m- | s- |
| | *s-mr- | s- | | | |
| | *s-n- | s- | | | |
| | | | | *s-n- | (*hn- >) tsh- |
| | | | | *s-nj- | sj- |
| | | | | *s-ŋ(w)- | s(w)- |
| | | | | *s-l(j)- | s(j)- |
| *slj- | *s-l- | s- | | *s-r- > | *s-hr- > *s-th- > tsh- |
| | | | | *s-rj- | sr- |
| | | | | *s-w- | s(w)- |
| | | | | *s-pr- | sr- |
| | *s-k- | s- | | | |
| | *s-kw- | sw- | | | |
| *s-ky- | *s-kj- | tç- | | | |
| | *s-kwj- | sw- | | | |
| | *s-kh- | tsh- (?) | | | |
| | *s-khj- | tçh-/ç | | | |
| | | | | *s-kr- | sr- |
| | *s-g- | dz- (?) | | | |
| | *s-gj- | dz-/z- | | | |
| | *s-gwj- | zw- | | | |
| | *s-ŋj- | jɹ- | | | |
| | | | | *S-t- | ts- |
| | | | | *S-th- | tsh- |
| | | | | *S-d- | dz- |
| | | | | *S-tr- | tsr- |
| | | | | *S-thr- | tsrh- |
| | | | | *S-dr- | dzr- |

The latter clusters with **S-* may indicate that the processes of affrication begun in *ST* continued in at least some dialects of *OC*.

| <i>Base</i> | <i>-j- infix</i> | <i>-r- infix</i> | <i>N- prefix</i> |
|--|--|--|---|
| 合 *kəp 'to put together' | | | 合 *N-kəp 'to agree' |
| 合 *gə (*ŋ-kəp) [*gop] 'join' | | 洽 *g-r-əp (*ŋ-k-j-əp) [*g-r-op] 'unite' | |
| 洗 *sidx [*sij?] 'wash' | | 洒 *sridx (*s-r-idx) [*s-r-ij?] 'sprinkle' | |
| 旁 *baŋ [*baŋ] 'side' | 房 *bjəŋ (*b-j-aŋ) [*b-j-aŋ] 'side-room' | | |
| 駢 *bien [*bin] 'to associate' | 嬪 *bjien (*b-j-ien) [*b-j-in] 'mate, wife' | | |
| 句 *kug [*ko] 'curved' | 痾 *kjug (*k-j-ug) [*k-j-o] 'crooked spine' | | |
| 脱 *duat [*lot] 'to peel off' | | 蛻 *ruat (< *d-r-uat) [*l-j-ot] 'insect exuviae' | |
| | | 夾 *kriap (*k-r-iap) 'to press between' | 狹 *gria (*N-k-r-iap) [*N-krep] 'narrow' |
| | | 著 *tjak (*t-r-j-ak) [*trjak] 'to place' | 著 *drjak (*N-t-r-j-ak) [*N-trjak] 'to occupy' |
| | 覆 *phjəkw (*ph-j-əkʷ) [*ph-j-uk] 'turn over' | | 復 *bjəkw (*N-ph-j-əkʷ) [*N-phjuk] 'to return' |
| | 清 *tshji (*tsh-j-iŋ) [*ts-j-iŋ] 'clear' | | 星 *dzjiŋ (*N-ts-j-iŋ) [*N-tshje] 'to clear' |
| | 别 *pja (*p-j-at) [*p-j-at] 'to separate' | | 别 *bjja (*N-pjat) [*N-pjat] 'to take leave' |

Table 10.

reconstructions.) It had the following phonological reflexes in MC: both voiceless unaspirates and voiceless aspirates were voiced. For example:

見 ***kens** > **kenH** 'to see'

見 ~ 現 OC ***fikens** > **henH**
'to appear' (#397)

曲 OC ***kh(r)jok** > **khjowk** 'bend, bent'

局 ~ 鈎 OC ***fikh(r)jok** >
gjowk 'compressed, bent,
curved (body)' (#406)

Another prefix reconstructed for OC in Baxter (1992:221ff.), but not Li (1974-75), is **N-*, which as Baxter mentions had been also proposed for PST by Chang and Chang (1976, 1977). Baxter reconstructs this prefix for words in those series in which there are *xiesheng* 諧聲 or morphological contacts between nasals and simple voiceless stops. This prefix nasalized the simple stops **p-*, **t-*, **k-* resulting in the corresponding nasals *m-*, *n-*, and *ŋ-* as in OC ***trjen?** 展 > MC **trjenX** 'roll over; unfold, open' :: OC ***Ntrjen?** 碾 > MC **nrjenX** 'trample'.

In the OC reconstructions of Baxter 1992, Schuessler 1987, etc., the "post-coda **-s*" (Baxter 1992:182ff.) can be attached to any vowel or consonant coda. This final is the origin of MC *qusheng* 去聲 which has long been considered a derived tone (Downer 1959) and has been related to TB and Tibetan final *-s* (Schuessler 1976:40, Forrest 1960:236-69). Baxter (1992:308) attributes to Haudricourt 1954 [1972] the theory of the origin of this tone, a theory which was subsequently adopted by Pulleyblank 1962. Baxter (1992:315ff.) identifies the derivational functions as nominalization and verbalization, i.e., formation of nouns from verbs or verbs from nouns. Some of the following examples are attributed to Downer 1959 in Baxter 1992:315:

納 OC ***nəp (nup)** 'bring inside'

內 OC ***nəbh (nuts < nups)**
'inside' (#712)

割 OC ***kat (kat)** 'to injure'

害 OC ***gat (*fikats)** 'harm, injury'
(#723)

王 OC ***gwaŋ (wjaŋ)** 'king'

王 OC ***gwjaŋh (wjaŋs / MC
hjwaŋH)** 'to be king' (#720)

冠 OC ***kwan (kon)** 'cap'

冠 OC ***kwanh (kons / MC
kwanH)** 'to cap (manhood
ceremony)' (#717)

(The reconstructions in parentheses are those in Baxter 1992.) Although Baxter (1992:317) agrees with Pulleyblank's suggestion (1973b) that because OC

derivational *-s is similar to Tibetan derivational -s, it may be that both are inherited from PST, he cautions that both OC and T permit -s as a coda in underived forms and so final -s is not necessarily indicative of a derivation.

In addition to the suffix *-s, there is also the glottal stop *-ʔ which is the post-coda in the OC reconstructions of Baxter 1992, etc., that eventually produced *shangsheng* 上聲 in MC. Baxter (1992:320) attributes this proposal to Pulleyblank (1962:225ff.) and Mei 1970. Baxter (1992:321) reconstructs this post-coda after both zero and nasal codas and allows the derivational -s to follow it:

好 OC *həgwx (?) (xuʔ /

MC xawX) 'good'

坐 OC *dzuarx (dzojʔ /

MC dzwaX) 'to sit'

好 OC *həgwh (xu(?)s /

MC xawH) 'to love' (#737)

坐 OC *dzuarh (dzoj(?)s /

MC dzwaH) 'seat' (#738)

The cluster of post-codas *-(?)s is reconstructed here on the basis of morphological analogy only and not rhyme evidence. Although Baxter (1992:324) speculates that post-coda *ʔ may have originally been a derivational suffix, it did not remain productive in OC.¹⁶

¹⁶ Although Coblin 1986 does not discuss morphological affixes in ST, nor in TB or OC, and Baxter 1992 is "reluctant to admit the possibility that OC medials may have been infixes" (Sagart 1993c:241), a comparison of the various affixes in Sagart 1993a, b, c, and 1994 for PAN and OC, Reid 1994 (based on Starosta, Pawley and Reid 1982) for PAN, Benedict 1972 for TB, Beyer 1992 and Siklos 1986 for T, and Baxter 1992 for OC produces the probable correspondences shown on the next page.

In PAN, Reid (1994:327) classifies *pa, *ka-, and *paka- as causative prefixes. He classifies *mu/-um- as deriving agent nominalizations from nouns or verbs (p. 329) while *maRa- is the patient nominal/stative verb prefix *ma- plus the *Ra- /-aR- distributive plural prefix which was initially used to derive agent nominals but later intransitive antipassive verbs (p. 330). The latter affix is Sagart's *-r/-ar-. The prefix *paN- he analyzes as *pa-causative plus *-an- instrumental (p. 331) and *ni/-in- as instrumental, with probably a resultative function (pp. 331ff.). The prefix *i- he characterizes as a locative case marker (p. 337) and suffixes *-a and *-i as deriving "transitive verbs in dependent constructions, conditionals, and imperatives" (p. 332).

In ST, *-r/-r- are compared with (P)AN and OC *-r- because they function as medials in ST; no semantic function is attributed to them, nor to the corresponding reflexes in TB and T. In addition, the medials *-l/-l- have no semantic function attributed to them.

In OC, *NI- represents Sagart's voicing prefix which is comparable with Baxter's *fi- in some cases; however, because it is linked with -mp-, etc., sequences in (P)AN in Sagart's work, it is distinguished here. The infix *-r- is matched with (P)AN -r- because this infix does occur in retroflex consonants in (P)AN and Sagart 1994:277 does mention a PAN reconstruction *k-ar-uSkuS 'to scrape' with this infix.

In Tibetan, *myi > m- indicates a human body part as in *myi-chin > m-chin 'liver', *sha > s- animal prefix as in *sha-brul > s-brul 'snake', and *-sa > -s place as in *btsa-sa > btsas 'harvest' (all from Beyer 1992:95ff.). The Tibetan suffixes -d, -n, and -s are all nominalizing, forming nouns from verbs, as in na 'be ill', na-d 'illness'; rgyu 'move, wander', rgyu-n 'flow, current, stream'; and skyem 'be thirsty', skyem-s

'beverage, beer, libation' (Beyer 1992:117). In Written Tibetan, the verbal prefix *a-chung* is an intransitive prefix possibly inherited from TB (Siklos 1986:310, 316) and the verbal preradicals *d-/g-*, with the morphological function of tense (future predominantly), are "positional variants" with the *d-* [+cor] [+ant] occurring before labials and velars [-cor] and the *g-* [-cor] [-ant] occurring before dentals, affricates and sibilants [+cor] (Siklos 1986:305ff., Róna-Tas 1966:135, 187). The verbal prefix *s-* is a causative or transitive prefix with reflexes in other TB languages (Siklos 1986:311); however, the preradicals *r-*, *l-*, and *m-* in WT are not identified with any specific morphological functions (Siklos 1986:311). A verbal suffix *-d* also occurs in WT after the final *-n*, *-r*, and *-l*, but, like *-s* as a verbal suffix, its function is debatable (Siklos 1986:314ff.); however, Shafer (1951:1028) speculates that *-d* as a present tense marker was responsible for the assimilation of *-ŋ* to *-n* in verbs such as **'dzin** (< ***'dziŋ-d**) 'grasp' (perf. **bzuŋ** or **'dren** (< ***'dzeŋ-d**) 'drag, pull' (perf. **draŋ** [quoted in Siklos 1986:314]).

| PAN | ST | OC | TB | T |
|---------|---------|--------|---------|---------------------|
| ma- | | N1- | m-/a- | m-/'- m- < *myi- |
| Si- | s- | s- | s- | s- |
| ka- | | | | |
| pā- | | | | |
| paka- | | | | |
| paN- | | | | |
| mu-/um- | | | | |
| Ra-/aR- | | | | |
| maR- | | | | |
| i- | | | | s- < *fa- |
| | | | r- | r- |
| | | | r- | r- |
| | | | b- | b- |
| | | | d- | d- |
| | | | g- | g- |
| | ° | fi- | | °fi- |
| | | N2- | | |
| -r- | (-r-/t) | -r- | (-r-/0) | (-r-/0) |
| | -l-/t | -l-/l- | -r-/l- | -r-/l- |
| ni-/in- | -j- | -j- | 0 | 0 |
| -s | | -s | | |
| -a | | | | |
| -i | | | | |
| | | | -s | -s |
| | | | -t | -t/-d |
| | | | -n | -n |
| | | | | -d |
| | | | | -s |
| | | | | -s < *-sa |
| -q | | -? | | |

4. (P)AN and ST Correspondences

All the (P)AN material in the body of the text below is from Blust 1988. The abbreviations used therein are PAN = Proto-Austronesian, PMP = Proto-Malayo-Polynesian, PWMP = Proto-Western-Malayo-Polynesian and WMP = Western Malayo-Polynesian. Sources are also from Blust 1988. The letter “O” following a gloss refers to an onomatopoeic form.

For the Sino-Tibetan forms, only those correspondences with Tibeto-Burman forms and/or Tibeto-Burman reconstructions will be listed. This will reduce the possibility of encountering borrowings from Austronesian into Chinese, but not borrowings which might have occurred from Chinese into Austronesian.

All Sino-Tibetan data are from Coblin 1986 with the exception of the following: The “K” following the Chinese characters refers to Karlgren 1964; the reconstruction in parentheses following Coblin’s citation of Li’s reconstruction for OC is from Baxter 1992 to facilitate comparison with Sagart 1993a, b, c and 1994; following the glosses for OC, sources have been added from Karlgren 1964 where available; items introduced by “Sc” refer to reconstructions and glosses from Schuessler 1987, which verifies Chou forms and definitions; items following TB reconstructions introduced by the abbreviation “Be” are glosses and other relevant information from Benedict 1972; and glosses for OT are from Coblin 1986 or Li and Coblin 1987. See the detailed explanation given in entry #1:

(P)AN

SINO-TIBETAN

1. *adhesive*

| | |
|-----------------------------------|--|
| (PAN) *teq ‘sap, gummy substance’ | **tshji? ‘varnish’ |
| (3Dp+) *geteq ‘tree sap’ | 泰漆 (K401a, b) OC *tshjit (tshjit) ‘varnish’ (Han-time texts) |
| | PTB *tsiy ‘juice, paint’ (LaPolla 1994:172 #10) |
| | TB *tsiy (*B) (Be #65 *tsiy = (r-)tsəy ‘juice; paint; drugs’) |
| | T rtsi ‘varnish’ |
| | T tshi-ba ‘tough, viscous, sticky matter’ |

Explanation:

On the (P)AN side, the number “1” refers to the sequential listing here. The

gloss “adhesive” refers to the reconstructed “meaning” from Benedict 1975.¹⁷ The abbreviation “PAN” refers to the level of the reconstructed root **teq*. The reconstructed word **geteq* is from the level/source abbreviated “3Dp+,” which refers to “level 3 (PWMP)” and the source “Dempwolff 1934-8” plus additional forms not included therein. When present, an “(O)” following a gloss indicates that it is considered an onomatopoeic form in Blust 1988.

On the ST side, the form ***tshji?* is the form for ST reconstructed by Coblin 1986 with his gloss ‘varnish’. The Chinese characters 泰漆 are those from Coblin 1986. The following number in parentheses—“(K401a, b)” —refers to the number in Karlgren 1964. The OC reconstruction **tshjit* is that of Li’s listed in Coblin 1986. The following OC reconstruction (*tshjit*) is that of Baxter 1992. The gloss ‘varnish’ is that of Coblin 1986. The source in parentheses “(Han-time texts)” is from Karlgren 1964 when available. The Proto-Tibeto-Burman (PTB) reconstruction is from LaPolla 1994. The Tibeto-Burman (TB) reconstruction *tsiy* (**B*) is that of Coblin 1986.¹⁸ The “Be #65” reconstruction **tsiy* = (*r-*)*tsay* and its gloss ‘juice; paint; drugs’ are from Benedict 1972. The Tibetan (T) forms *rtsi*, *tshi-ba*, and the glosses are from Coblin 1986.

Although the pre-radical *r-* in the Tibetan form *rtsi* ‘varnish’ may be taken as a prefix as in similar forms in Benedict (1972:109) and Siklos (1986:311ff.), it may represent a metathesis of an infix and an initial; thus, it would be more similar to the OC infix *-r-*. See Beyer (1992:74ff.) for a discussion of the metathesis of the infixes (“postinitials”) *-l-* and *-r-*. The proto-form may have been ****s-t-r-ji?* or ****s-th-r-ji?*, although Baxter (1992:205) establishes the following sound change: OC **sr-* > **s-hr-* > **s-th-* > MC *tsh-* as in 青 OC **sreŋ* > MC *tshen* ‘green or blue’, which he compares with Benedict 1972:85 TB **s-rin* ~ *s-raŋ*.

2. *anger, angry*

(PMP) **ŋak* ‘raucous throaty sound’ (O)
(2AE1) **ŋakŋak* ‘raucous sound’

(PAN) **ŋaC* ‘anger, irritation’
(BAL) *jeŋat* ‘put on a sour face;
speak sternly, bitinglly’

***sŋjok* ‘annoy/annoyed’
瓊 (K1216d) OC **hŋjuk*
‘discontented’ (*Chuang Tzu*)
Sc OC **suaj*
T *sŋog-pa*, *bsŋogs*, *bsŋog*,
sŋogs ‘to vex, annoy’

¹⁷ Although an attempt has been made to follow Benedict 1975 as closely as possible, not all reconstructed semantic meanings are from this source.

¹⁸ The reconstructed tones for PTB are represented as in Coblin 1986:10 wherein he states the following relationship:

| | | | |
|----------------|--------|-------|---------------|
| <i>Burmese</i> | Creaky | Level | Heavy Falling |
| <i>PTB</i> | *C | *A | *B |

(PAN) ***ŋiC** ‘anger, irritation’
(3B70) ***biŋit** ‘moody, irritable’

(PAN) ***ŋeC** ‘angry, gnash the teeth’
(3AE1) ***buŋet** ‘anger, angry’

(PMP) ***ŋis** ‘bare the teeth’
(2AE2) ***ŋisŋis** ‘grin, bare the teeth’

(WMP) **git** ‘anger, resentment’
(TAG) **iŋgit** ‘envy, spite, grudge’

(WMP) **get** ‘angry’
(MGG) **jeget** ‘angry’

(PAN) ***ŋaC** ‘anger, irritation’ and (PMP) ***ŋis** ‘bare the teeth’ may represent the morphological suffix *-s: ***ŋat-s**, and ***ŋis** < ***ŋis-s** < **ŋit-s** with root-final -t being the result of the assimilation of the -k: *-k-s > *-t-s and subsequent paradigmatic leveling in (WMP) **git** and **get**.

Blust (1988:131) lists the following words containing the root (PAN) ***ŋaC** ‘anger, irritation’ that have a dental/alveolar fricative: (PAI) **seŋats** ‘one who characteristically dislikes things’ and (Busang) **siŋat** ‘speak in irritation’; and for the root (PAN) ***ŋiC** ‘anger, irritation’ he cites (PWMP) ***seŋit** ‘irritated, annoyed’, and (PWMP) ***siŋit** ‘violent emotion’.

There may be a semantic relationship between WMP **git** ‘anger, resentment’ and the potential roots PWMP **git** ‘bite’ and PMP **kit** ‘id’. (Blust 1988:74). The nineteenth century English word *nag* ‘to gnaw, nibble, vex, irritate’ has a similar range of meanings.

•See “*call (of birds/animals), cackle, crow (v./n.), fowl, bird*”

3. *angle, elbow*

(PMP) ***luk** ‘curve’
(2AE3+) ***beluk** ‘bend, twist’

(PAN) ***luŋ1** ‘bend, curve’
(3Bnd) ***kaluŋ** ‘curved’

****kljəyw** ‘elbow’
肘 (K1073a) OC ***trjəgwɣ**
‘wrist, elbow’ (*Tso Chuan*)
T **gru-mo** ‘elbow’

****kruk** ‘corner/angle’
角 (K1225a) OC ***kruk** (**krok**)
‘horn’ (*Shih Ching*); ‘sharp
angle, corner’; Sc OC
***kəruk**

PTB ***kruw** ‘horn’ (LaPolla
1994:171 #7)
T **khug** ~ **khugs** ‘corner, angle,
nook’

Blust (1988:123) lists the following additional reconstructed words containing PAN ***luŋ₁** which have contacts with velars:

(3Bnd) ***kaluŋ** ‘curved’

(3Bnd) ***keluŋ** ‘coil, curl, undulation’

(1Bnd) ***kiluŋ** ‘curved, bay’

The potential root (PAN) ***lun** ‘roll up’ may belong here as an allofam of ***luŋ**: ***luŋ+s** > ***lun+s** with subsequent loss of the final *-s* and paradigmatic leveling.

•See “*bend/bent, arched, bow (n.)*”

•See “*bend/bent, arched, crooked*”

•See “*turn, wind*”

arm, hand, shoulder, wing

•See “*palm/sole, slap, hand, five*”

4. *ashes, dust, flour, gray, white*

(PMP) ***tak** ‘mud; earth, ground’

(2AE2) ***pitak** ‘mud’

(F) ***taq** ‘mud; earth, ground’

(BKD) **bugta?** ‘earth (ground)’

****smək** ‘black/dark’

黑 (K904a) OC ***hmək** (**hmik**)
‘black’ (*Shih Ching*)

(Cf. 墨 [K904c] OC ***mək** ‘ink’
[*Meng Tzu*], ‘black’ [*Tso Chuan*])

T **smag** ‘dark, darkness’

(WMP) **tek** ‘mud’

(IVT) **hotek** ‘mud’

****nək/Cnək** ‘black’ ɤ ‘evil’

𪛗 (K777o) OC ***hnək**
< ****Cnək** (**hnik**) ‘evil’
(*Shih Ching*)

TB ***nak** (Be ‘black’)

T **nag-pa** ~ **nag-po** ‘black’,
gnag-pa ‘black, wicked’

(PWMP) ***cak** ‘muddy’

(3Dp) ***lucak** ‘muddy’

****fwag** ‘black’

盧 (K69d) OC ***lag** (< PC
***luag?**) (C-**rja**) ‘black’
(*Shu Ching*)

Sc OC ***ra**

(Cf. 壚 [K69j] OC ***lag** ‘black
and hard soil’ [*Shu Ching*])

T **rog-po** ‘black’

(Cf. **bya-rog** ‘raven’)

The (P)AN forms with initial **t-* require a metathesis of the [+coronal] and [-coronal] features of the initial cluster of ST ***sm-* or ***Cnək*.

Sagart (1994:285) establishes the following relationship for *earth*:

(Br1) ***-taq** ‘mud; earth, ground’

± [K62a) OC ***thagx** (hla?)
'soil, earth, land' (*Shih Ching*)

Although Baxter's reconstruction is as here OC ***hla?**, Sagart (1993c:256ff.) argues that it should be ***tha?** on the basis of the "unambiguous dental stop series" K62. He considers Baxter's reliance on comparative TB cognates to be an inheritance from Bodman (1980:102).

- See “*earth, field, mud*”

- See “*mold(y)*, *decay(ed)*, (*worm*)*eat(en)*, *dust*”

back, behind

- See “ended”

basis, trunk (of tree, body), buttocks, heel

•See “*blunt, dull*”

beat, drive in, flutter, wing

- See “*palm/sole, slap, hand, five*”

5. beat, drive in, pound, strike

(WMP) **teg** 'hit, beat' (O)

(SGH) **gatog** 'to tap'

****təkw** ‘pound/beat’

擣(K1090r) OC *təgwx (tu?)
'beat, pound' (*Shih Ching*)

T thug-pa 'hit, strike against'

****thjuk** ‘touch/knock (poss. related to pound/beat)’

觸 (K1224g) OC ***thjuk** 'butt'
(*I Ching*), 'knock against'
(*Tso Chuan*), 'touch, have
contact with'

T gtug-pa ~ btug-pa 'to touch;
to meet with'

(PAN) ***Tuk** 'knock, pound, beat' (O)

(1B73+) *balaCuk 'woodpecker'

****rtjəkw** ‘pound/beat’

築 (K1019d) OC *trjəkw
'pound, beat (sc. *earth into hard walls*), build' (*Shih Ching*), 'beat, strike' (*Chou Li*)

(PAN) ***Tuj** 'knock, pound, beat' (O)(3Dp) ***kenTuj** 'bird-clapper'****rdug** 'to beat'撞 (K1188f) OC ***drug** / **drugh**
'to strike' (*Li Chi*)T **rdug-ba** 'to beat, strike'

(WMP) **teg** 'hit, beat' (O) is irregular: ST ***-əkw** > (P)AN ***-uk/-ug**. The PAN forms ***Tuk** and ***Tuj**, as well as the corresponding OC forms ***trjəkw** and ***drug**, respectively, indicate a retroflex infix **-r-**, not a prefix, as in T **rdug-ba**. In addition LaPolla (1987:22) points out the following allofamic **r** & **y** alternations in PTB: ***srak** & **g-yak** 'ashamed', ***yaap** & **k-rap** 'fan, winnow', and ***mra** & **mya** 'many, much'.

Sagart (1993b:42) establishes the following relationships:

(D) ***pa(n)tuk** 'to peck' (Ja 'beck')啄 (K1218b) OC ***tuk** /
t-r-uk 'to peck up' (*Shih Ching*)¹⁹(WMP) **pa(n)Tuk** 'sound of knocking'

(MAR) 'axe, hatchet'; SAS

'woodpecker *sp.*')Root ***-Tuk** 'knock, pound, beat'嚼 (K1224n) OC ***t-r-uk** 'to
peck' (*Kuo Tse*); OC ***t-rj-**
ugh 'beak' (Han text example)𪔐 (K1218c) OC ***t-r-uk** 'to beat,
strike' (*Shih Ching*)觸 (K1224g) OC ***th-j-uk** 'to
butt' (*Yi Ching*), 'knock
against' (*Tso Chuan*)𪔐 (K1224t) OC ***t-rj-uk** 'to
cut' (*Kuo Yu*) 'to cut out,
exterminate, eradicate' (*Hsun Tzu*)𪔐 (K1235b) OC ***t-r-uk** 'hew,
chop, carve' (*Shih Ching*)

(See also Hogan 1993:9.)

Sagart (1994:286) establishes the following relationship for *beak/peck*:

(B1, AE1) ***tuktuk** 'beak of a bird;
to peck'啄 (K1218b) OC ***tuk (tok)** /
truk (t-r-ok) 'to peck up'
(*Shih Ching*)嚼 (K1224n) OC ***truk (t-r-ok)**
'to peck' (*Kuo Tse*); OC
***trjugh (t-rj-ok+s)** 'beak'
(Han text example)

¹⁹ There is an obvious TB cognate: cf. Proto-Lolo-Burmese ***tok** 'peck at' (Matisoff 1972:#15). [Ed.]

Sagart (1994:294) establishes the following relationships for *hammer, pound*:

(B1, AE3) ***tuqtuq** 'to hammer, pound, crush'
 擣 (K1090r) OC ***təgwɣ** (tu?)
 'to hammer, beat, pound'
 (Shih Ching)

begin

•See "*strong*"

behind, back, buttocks

•See "*ended*"

belly, intestines, mind, soul

•See "*think*"

6. bend/bent, arched, bow (n.)

(PAN) ***kuŋ₁** 'bend, curve'
 (2Dp+) ***be(ŋ)kuŋ** 'curved'

****kjəŋw** 'bow/(bent) tree branch'

弓 (K901a-d) OC ***kjəŋw**
 (***w^hjiŋ**) 'bow' (oracle bone inscription)

Sc OC ***kwjəŋ**

PTB ***ku:ŋ** 'bow' (LaPolla 1994:170 #2)

TB ***ku:ŋ** (A, *B) (Be #359 'tree; branch; stem')

•See "*angle, elbow*"

•See "*bend/bent, arched, crooked*"

7. bend/bent, arched, crooked

(PMP) ***kuk₁** 'bent/crooked'
 (2Bnd) ***bekuk** 'curved, bent'

****gjuk** 'bent/crooked (1)'

局 (K1214a) OC ***gjuk**
 (**ŋkh(r)jok**) 'bent, curved (body)' (Shih Ching)

PTB ***guk** (LaPolla 1994:171 #11)

TB ***gug / khug** (Be #307 ***guk** ~ **kuk** 'bend; crooked')

T **'gug(s)-pa²⁰, bkug, dgug**
 'to bend'

20 The symbol ' represents the T pre-radical *a-chung*, which is often a pre-nasal homorganic to the following consonant in many modern Tibetan dialects or a feature causing nasalization as in the case of the Lhasa dialect. (See Hogan forthcoming for a discussion of *a-chung* and nasalization in modern Lhasa Tibetan.) However, the generalization that this is always so has

(PAN) ***ku(q)** 'bend, curve'
 (3Bnd) ***bakuq** 'curved, bent'

****khjuk** 'bent/crooked (1)'
 曲 (K1213a) OC ***khjuk**
 (**kh(r)jok**) 'bend, bent'
 (*Shih Ching*), 'crooked,
 unjust' (*Tso Chuan*)
 Sc OC ***gjuk**
 PTB ***kuk** (LaPolla 1994:171
 #11)

****gwyag** 'bend/curved'
 迂 (K97p) OC ***gwjag**
 (于 ***w(r)ja** 'go') 'bend,
 deflect' (*Shu Ching*)
 Sc OC ***?wja / wja**
 T **gyog-pa** 'curved, crooked'

****?way** 'bent/crooked'
 ["perhaps cognate to
****gwyag** 'bend/curved'"]
 迂紆 (K97p, y) OC ***?wjag**
 'bend, deflect' (*Shu Ching*);
 'bent, crooked' (*Chou Li*)
 T **yo-ba** 'oblique, crooked'

been corrected in Coblin 1992:273, who demonstrates that in Tibetan transcriptions of the late T'ang or post-T'ang Shachou dialects, this symbol represented a nasal when written before initial voiced stops:

'bun ***mun** (~ **mon** ?)

However, before voiceless (aspirated and unaspirated) stops, it seems to represent a fricative in many cases:

| | | |
|--------------|-----------------|------------------|
| 'pher | *fer (?) | (transcribing 發) |
| pher | *fer (?) | |
| 'phyi | *fi | (transcribing 非) |
| phyi | *fi | |

Within Tibetan, Róna-Tas (1966:145) states that a merger of *a-chung* and *m-* pre-radicals had begun already in the OT dialect reflected in Literary Tibetan, with only *a-chung* remaining before labials. Within TB, the reconstructed prefix **a-*, which occurs before nominal and verbal roots, corresponds to the *a-chung* of T according to Benedict (1972:123).

In a completely unrelated language, KiRundi, a Bantu language, word-internal nasals assimilate to the point of articulation of the following consonant:

ku-N-bona > **ku-m-bona** 'to see me'

However, before voiceless consonants the following consonant is lost and aspiration results:

ku-N-temera > **ku-n-hema** 'to cut for me'

ku-N-korera > **ku-ŋ-horera** 'to work for me'

(See Goldsmith 1990:282ff. for further details.)

In a discussion of the phonetics of spontaneous nasalization, Ohala 1993:240ff., referring to Ohala 1975, Matisoff 1975, and Ohala and Amador 1981, attributes the historical development of nasalized segments in association with high airflow segments (voiceless fricatives and aspirated stops and affricates) to the greater than normal glottal opening for the latter which is then in turn partially assimilated by an adjacent vowel mimicking nasalization. Diachronically, this vowel then becomes nasalized.

(PMP) ***kul** 'curl, bent'
(3Dp) ***Dengkul** 'bend a limb'

****kul ~ gul** 'neck (1)'
頸 (K831n) OC ***kenx** 'neck'
T ***gul-ba ~ mgul(-pa)** 'neck, throat'

(PAN) ***kel** 'bend, curl'
(2Bnd) ***ikel** 'curled, coiled'

The alternation between prefixal *a-chung* and *m-* in the T forms is common (Róna-Tas 1966:145). The potential root PWMP **kaw** 'curve, meander' (Blust 1988:74) probably belongs here, being related to ST ****?way** 'bent/crooked'.

Sagart (1993b:40) establishes the following relationships:

(D) ***Deku** 'curved'
Root **-ku** 'bent, curved'
(2) ***leku?** 'bend, fold, folding part of the body'

句 OC ***kug** (K108a) 'curved' (*Shih Ching*), 'hook, hooked' (*Li Chi*)
鉤 OC ***kug** (K108c) 'hook' (*Shih Ching*), 'crooked' (*Kuo Ts'e*)
痾 OC ***k-j-ug** (K108q) 'crooked spine' (*Chuang Tzu*)

Sagart (1993b:40) establishes the following relationships:

(2) ***pekuq** 'bend, curve'
Root ***-ku(q)** 'bend, curve'

棋 (K121e) OC ***k-j-ugx** 'low sacrificial table with curved legs' (*Li Chi*, *Kuang Yun*)
羽 (K108*) OC ***k-j-ugx** 'curved feathers' (*Kuang Yun*)
柯 (K108*) OC ***k-j-ugx** 'fruit tree with curved branches' (*Kuang Yun*)

Root ***-kuk₁**

曲 (K1213a) OC ***kh-j-uk** 'bend, bent' (*Shih Ching*), 'crooked, unjust' (*Tso Chuan*)

Root ***-kug** 'curl, curve'

拱 (K1182e) OC ***k-j-ugx** 'hold round with both hands' (*Tso Chuan*), 'encircle, span with both hands' (*Meng Tzu*), 'an arch' (*Mathews*)

(See also Hogan 1993:10.)

Sagart (1994:288) establishes the following relationship for *bent*:

(Br1) ***-kuk** ‘bent, crooked’

曲 (K1213a) OC ***khjuk**
(**kh-(r)j-ok**) ‘bend, bent’
(*Shih Ching, Shu Ching*),
‘crooked, unjust’ (*Tso*
Chuan)

角 (K1125-1) OC ***k-r-uk**
(**k-r-ok**) [“with ‘distributed
object’ -r”] ‘horn, the horns’
(*Shih Ching*)

局 (K1214a) OC ***gjuk**
(**N+k-(r)j-ok**) [“with voiced
initial (stative *N-* prefix)”]
‘compressed, bent, curved, of
the body’ (*Shih Ching*), ‘curl,
twist, of hair’ (*Shih Ching*)

•See “*angle, elbow*”

•See “*turn, wind*”

between (part), middle, neck

•See “*bend/bent, arched, crooked*”

•See “*swallow*”

bite, gnaw, cut off

•See “*scratch, scrape, dig, claw/nail*”

black

•See “*ashes, dust, flour, gray, white*”

•See “*dark, black, shade*”

•See “*dark, fog/mist, gloomy, shade/shady, black, night*”

blaze

•See “*burn, blaze*”

blind

•See “*earth, field, mud*”

•See “*stop, stop up, stopper*”

blood

•See “*red, reddish*”

8. blow, wind

(PMP) ***put** ‘puff’

(2AE2) ***se(m)put** ‘blowpipe,
shoot with a blowpipe’

****phjut** ‘remove/brush away’

拂 (K500h) OC ***phjət (bjut)**
‘brush off, wipe off’ (*Li Chi*),
‘knock off’

T **'bud-pa, phud, dbud, phud**
'remove (clothing); take
away, tear out, uproot'
(Cf. also **'phud-pa** 'lay aside,
put away')

(PMP) ***pus₂** 'sound of escaping air' (O)
(2AE2) ***pus** 'hiss'

****pjut** 'remove/brush away'
莠 (K500k) OC **pjət (pjut)** 'to
clear away dense vegetation'
(*Shih Ching*)

PMP ***pus₂** is probably derived from ***put-s** with the suffix indicating a
derived nominal: ***put-s > *puC > *pus**. LaPolla (1987:10) gives PTB
***s-mut** (Be 75) for 'blow'.

Sagart (1993b:52) establishes the following relationship:

Root ***-put** 'puff'

弗 (K500a) OC ***p-j-at** 'gust of
wind' (*Shih Ching*)

Sagart (1993b:37) establishes the following relationship:

(WMP) **ke(m)pes** 'deflate'
(dbl. **ke(m)pis**)
***-pes** 'empty, deflated'
KMB 'flatus; break wind'

屁 (K566*) OC ***ph-j-idh**
'break wind' (*Yu P'ien, Root*
Chi Yun)

(See also Hogan 1993:12.)

•See "*behind, back, buttocks*"

•See "*squirt, penis, vulva, urine, urinate*"

9. *blunt, dull*

(PMP) ***pul** 'blunt, dull'
(2AE3) ***de(m)pul** 'blunt, dull'
(2AE3) ***dumpul** 'id.'
(2AE3) ***tumpul** 'id.'

****pul** 'root/trunk'
本 (K440a) OC ***pənx (pin?)**
'root, trunk' (*Tso Chuan*)
Sc ***OC pən?**
PTB ***pul** (LaPolla 1994:169 #2)
TB ***bul ~ pul** (Be #442 'root,
stump, tree')

****dul** 'dull/blunt'
鈍 (K427i) OC ***dənh (duns)**
'dull' (*Kuo Yu*)²¹
PTB ***dul** (LaPolla 1994:169 #5)
T **rtul-ba** 'blunt, dull', **dul-ba**

²¹ For the ST semantic interconnection between *dull* and *buttock* shown by this root, see
Matisoff (1994), "How *dull* can you get? *buttock* and *heel* in Sino-Tibetan" (*LTBA*
17[1]:137-151). [Ed.]

‘soft, mild, tame’, ***dul-ba**,
btul, gtul, thul ‘to tame,
 subdue, conquer’

Blust (1988:58ff.) discusses the relationship between the (PMP) root ***pul** and other forms ending in *-l* such as Itneg **katdul** and attributes this relationship to final consonant symbolism.

Sagart (1993b:49) establishes the following relationships:

- (D) ***pu(n)dul** ‘blunt’
 Cf. **tultul** ‘blunt, dull’
 (2) ***tultul** ‘blunt, dull’

鈍 (K427i) OC ***danh** ‘dull,
 blunt’ (*Kuo Yu*)
 頓 (K427j) OC ***tanh** ‘worn,
 dull, spoiled (edge)’ (*Tso*
Chuan)

(See also Hogan 1995:11.)

board

- See “flat”

bow

- See “*bend/bent, arched, bow (n.)*”
- See “*stretch(ed), tight*”

break, crack, split

- See “*cut down/off, fall down/off, break down/off, collapse*”

break wind

- See “*blow, wind*”

burn, blaze

- See “*lightning, hail*”
- See “*shine, glitter, bright*”

10. burn, roast, heat, hot, warm

- (PWMP) ***naw** ‘melt, liquefy’
 (3Bnd) ***runaw** ‘id.’

****rɿɿaw** ‘fry/roast’
 熬 (K1130hi) OC ***ɿɿagw** (Naw)
 ‘fry’ (*Chou Li*), ‘roast’ (*Li*
Chi)
 PTB ***r-ɿɿaw** (LaPolla 1994:167
 #6)
 TB ***r-ɿɿaw** (Be #270 ‘fry,
 roast’)
 T **rɿɿod-pa, brɿɿos, brɿɿo, rɿɿos**
 ‘parch, roast, fry’

The form ***naw** would require an assimilation to the dental/alveolar point of articulation or a dissimilation from the velar final of the ST form. Therefore, it might be related to ST ****sayw** 'fat/grease'.

•See "lightning, hail"

bury

•See "submerge, bury"

bury, grave

•See "dark, black, shade"

buttocks

•See "behind, back, buttocks"

•See "ended"

11. call (of birds/animals), cackle, crow (v./n.), fowl, bird

(PMP) ***kuk₂** 'sound (cackle, etc.)' (O)

(2AE2) ***kuk** 'sound of a sob, croak, etc.'

(PMP) ***guk** 'sound (deep throaty)' (O)

(3Dp) ***ceguk** 'hiccough'

(WMP) **ɲuk** 'sound, deep throaty' (O)

(MAL) **sejok** 'to sob'

****kəyw** 'call/cry out'

告 (K1039ad) OC ***kəgwh**
(**kuks**) 'tell, command'

Sc OC ***kəwk**

誥 (K1039e) OC ***kəgwh**
'announce, inform'
(*I Ching*)

Sc OC ***kəwkh**

自 (K1040a) OC ***kəgw**
半 'announce' (*Chou Li*)

Sc OC ***kəw** 'be high'

****ɲuyw** 'cry/weep'

噉 (K1130e) OC ***ɲagw** (**ɲaw**)
'distressed cry (of birds)
(*Shih Ching*); cry, clamor'

Sc OC ***ɲagw** 'to be clamoring'

TB ***ɲuw** (*A) (Be #79 ***ɲuw** =
ɲəw 'weep, cry')

T **ɲu-ba** 'weep, roar'

****gəyw** 'call/cry out'

號 (K1041q) OC ***gəgw** 'cry
out' (*Shih Ching*)

Sc OC ***gəw** 'to shout, cry out,
lament'

號 (K1041q) OC ***gəgwh**
(**gaws**) 'command' (*Chuang
Tzu*)

Sc OC ***gəw**

TB ***gaw** ~ **kaw** (*A) (Be #14
'call')

Sagart (1993b:41) establishes the following relationship:

(PMP) ***kuk** 'sound of sob, croak, etc.'
SA'A 'bark at'

哭 (K1203a) OC ***khuk** 'weep,
lament' (*Tso Chuan*)
[“unexplained aspirated
initial”]

(See also Hogan 1993:13.)

12. *cane, staff*

(PAN) ***ked** 'prop, support'
(1Dp+) ***tu(ŋ)ked** 'walking stick;
prop up'

(PAN) ***kud** 'cane, staff, walking stick'
(1AE3) ***su(ŋ)kud** 'id.'

(WMP) **kad** 'prop, support'
(3AE3) ***tugkad** 'prop, support; staff'

****kar** 'stick/staff'
竿 (K139k) OC ***kan** 'pole, stick'
(*Shih Ching*)
Sc *id.* 'a bamboo pole, rod'
Sc 干 *id.* 'a pole to which
something can be attached; a
flag pole'
T **mkhar-ba**, **'khar-ba** 'staff,
stick'

The alternation between *a-chung* and *m-* in the T forms is common (Róna-Tas 1966:145).

Sagart (1993b:49) establishes the following relationship:

Root ***-kud** 'cane, staff, walking stick'

棍 (K417 *) OC ***kwənh** 'stick'
(Yuan text only)

(See also Hogan 1993:14.)

Sagart (1993b:29) establishes the following relationships:

(WMP) **tu(ŋ) kad** 'prop, support; staff'
Root ***-kad** 'prop, support'

稈 (K140j) OC ***kanx** 'straw of
grain' (*Tso Chuan*)
桿 (K140*) OC ***kanx** 'the long,
thin part in various utensils
(writing brush, steelyard,
etc.)' (*Yuan Ts'u Hsuan*);
'a staff, a handle, a pole'
(*Mathews*)
筈 (K1e) OC ***kanh** 'shaft of an
arrow' (*Chou Li*)

(See also Hogan 1993:46.)

cave

•See “house, hut”

chew (soft/prepared foods)

•See “chew, taste, flavor”

•See “mold(y), decay(ed), (wormeaten), dust”

13. chew, taste, flavor²²

(PAN) ***ɲam** ‘savory, taste’

(2Dp+) ***ɲamɲam** ‘to taste, savor’

****sniap** ‘taste’

𪛗 (K 618p) OC ***hniap** ‘to taste’ (*Kuliang* ap. *Yü P'ien*)

T **snab-pa** ‘to taste, savor; smack the lips’

****nyam** ‘soft’

染 (K623a) OC ***ɲjamx** ‘soft’ (*Shih Ching*)

****nyəm** ‘soft’

𪛗 (K667s) OC ***ɲjəm** ‘soft’ (*Shih Ching*)

Sc OC ***ɲjəm** ‘big bean’

(Cf. 𪛗 [K667p] ‘thoroughly cooked, overdone’ [*Lun Yu*])

B **nam** (*C) (< ****nyam** / **nyəm**) ‘soft’

Doublets in (P)AN sometimes involve palatal nasal *ɲ* - :: *s*- alternations as in (PMP) ***(ɲepɲep)** :: (PWMP) **sepsep** ‘drink, slurp, suck’ (Blust 1983-84:88). Furthermore, the ST form ****sniap** ‘taste’ may be an allofam of a ST form having the PTB form ***m-nam** (Be #464) ‘smell’.

Sagart (1993b:29) established the following relationship:

(PMP) ***namnam** ‘to taste, tasty’
(CHM) ‘chew, sound of chewing, eat’
Root ***-nam**

𪛗 (K622e) OC ***n-j-am**
‘to chew’ (*Hsun Tzu*)

(See also Hogan 1993:47.)

•See “lightning, hail”

²² Bauer 1988 brings a mass of data to bear on the relationship of ST **tongue/lick*. This should also probably be related to the words here in (P)AN and ST and related forms for **drink* and **smell*.

14. *clear (of water)*(PMP) ***niŋ** ‘clear, limpid’(2AE1) ***niŋniŋ** ‘clear, of water’****mdjɿaŋ** ‘bright/light’明 (K760a) OC ***mjiaŋ** (< PC ***mrjiaŋ**) (**m-rj-aŋ**) ‘light, bright’ (*ShihChing*)Sc OC ***məraŋ**T **mdaŋs** (< **mdaŋ+s** ?)

‘brightness, luster, splendor’

****seŋ** ‘clear’醒 (K812b) OC ***siŋ/x/h** ‘wake up, become sober (< clear the mind)’ (*Tso Chuan*)(Cf. also 清 [K812] OC ***tshjiŋ**‘clear’; 靜 [K812n] ***dzjiŋx** ‘pure’)T **seŋ-po**, **bseŋ-po** ‘clear, white, airy, pale’T **gseŋ-po** ‘clear and sharp (of sounds); acute (of hearing)’

The initial **n-* of PMP ***niŋ** seems to represent a simplification of the ST cluster ****md-**, i.e., ST ****md-** > PMP ***n-**. The ST medial *-j-* is not represented in the PMP form.

Sagart (1993b:39) establishes the following relationship:

(PMP) ***ningning** ‘clear, of water’
 淨 (K837*) OC ***niŋh** ‘clear [“of water, as indicated by ‘water’ signific”]’ (*Kuang Ya, Chi Yun*)

(See also Hogan 1993:15.)

close eyes, sleep•See “*dream*”•See “*submerge, bury*”**clothes**•See “*slip off/away*”**cloud(y)**•See “*dark, black, shade*”

15. *color(ed), striped, variegated, mark*²³

(PMP) *rik 'spot, freckle'
(2B70+) *burik 'speckled'

**bljiy 'draw/mark'
理 (K978d) OC *bljəgx / ljəgx
(C-rji?) 'to mark out
divisions of fields' (*Shih
Ching*)
T 'bri-ba, bris 'to draw,
describe, design, write'

Blust (1988:146) lists other AN forms for this root which have contacts with labials: (MAD) **balurik** 'spotted' and (MGG) **barik** 'mottled, striped'.

•See "scratch, scrape, dig, strike (line)"

16. *cover, turn upside down, lid, hat*

(PMP) *keb₁ 'cover'
(2AE3) *e(ŋ)keb 'cover up, hide'

**gap 'cover (1)'
蓋 (K642qr) OC *gap (gap) 'to
cover, thatch' (*Tso Chuan*)
Sc 'to fit, join, unite'
PTB *kap (LaPolla 1994:166
#3)
T 'gebs-pa, bkab, dgab 'to
cover'

(PWMP) *kep₁ 'cover, fold over'
(3AE2) *sa(ŋ)kep 'close, shut'

**kap 'cover (1)'
蓋 (K642qr) OC *kabh/kadh
(kaps) 'to cover, conceal'
(*Tso Chuan*), 'a cover (of a
car)' (*Chou Li*)
Sc OC *kats
PTB *kap (LaPolla 1994:166 #3)
T sgab-pa 'to cover'
T khebs 'a cover'

²³ Benedict (1993:121) sets up the following sound change for Proto-Austro-Tai to PAN: PAT *mapra 'eye' > PAN *maCa. The following seems to be similar in that PAN *C is related to ST *pr:

(PAN) *Cik 'mottled, spotted'
(3Dp) *baTik 'batik pattern'
(1B70) *beCik 'tattoo'

**prakw 'spotted/speckled'
駁 (K1127a) OC *prakw (pr[a,e]wk)
'horse' with 'mixed (brown and
white) colors' (*Shih Ching*);
'mixed' (*Hsun Tzu*)
Sc OC *pariawk
B prok 'to be speckled, spotted'

(PWMP) ***kup** ‘enclose, cover’

(2Dp+) ***a(ŋ)kup** ‘cup in the hands’

****krap** ‘shell/armor’

甲 (K629a) OC ***krap** (**krap**)

‘shell’ (*I Ching*),

‘buff coat’ (*Shih Ching*)

Sc OC ***kərap** ‘mail-coat, armor’

韃 (K675l) OC ***krəp** ‘leather
jerkin or cuirass’ (*Kuan Tzu*)

T **khrab** ‘shield, coat of mail,
fish scales’

****kiap** ‘enclose/surround’

桼 (K630f) OC ***kiap**

‘chopsticks’ (< ‘encloser’)

(*Li Chi*)

(Cf. 挾 [K630-l] OC ***giap**

[**gep**] ‘grasp, hold’ [*Shih*

Ching], ‘clasp under the arm’

[*Meng Tzu*])

(Cf. 挾 OC ***skiap** [?] [**fkrep**])

‘encompass, embrace; all

around’ [*Chou Li*])

(Cf. 夾 [K630ac] OC ***kriap**

[**krep**] ‘to be on both sides

of’ [*Shih Ching*], ‘press

between’ [*Tso Chuan*])

T **khyab-pa** ‘to be filled with,
embrace, comprise’

T **skyob-pa**, **bskyabs**,
bskyab, **skyobs** ‘protect,
defend, preserve’

T **skyabs** ‘protection, help,
assistance’

****?yap** ‘cover (2)’

掩 (K614*) OC ***?yap** ‘kerchief
(Han-time dialect word)’

T **yab-pa** ~ **g-yab-pa** ‘lock up,
cover over, shelter’

T **yab-yab-pa** ‘hide, conceal’

LaPolla (1994:166) 業部 #3 identifies the allofamy ***gap** 𪛗 ***kabh** 蓋 (K642qr).

Sagart (1993ab:48) establishes the following relationships:

Root ***-keb₁** ‘cover’

贛 (K1015*) OC ***kəmx** ‘cover’
(*Kuang Yun*)

石感 (K671*) OC ***kəmx** ‘cover
with a stone’ (*Chi Yun*)

Root ***-keb₂** ‘face downward’

𪔐 (K651*) OC ***kh-j-emx**
 ‘walk quickly with head bent
 down’ (*Chi Yun*)
 領 (K651n) OC ***gəmx** ‘nod the
 head’ (*Tso Chuan*)
 鎖 (K652j) ***kh-j-əmx** ‘push
 down (sc. the chin of puppet)’
 (*Lieh Tzu*)

(See also Hogan 1993:16.)

Sagart (1994:290) establishes this relationship for *embrace, grasp, clasp*:

(Br1) ***-kep** ‘seize, grasp, embrace’

挾 (K630-l) OC ***giap (gep)**
 ‘unexplained initial voicing’;
 OC ***tsiap (tsep)**, ‘prob. <
 *s+kep’) ‘grasp, hold’ (*Shih*
Ching)
 夾 (K630a) OC ***kriap (k-r-ep)**
 ‘to be on both sides of’ (*Shih*
Ching); ‘press between’ (*Tso*
Chuan)

•See “*hold (in hand, mouth), squeeze, handful, fist, mouthful, control*”

crack, to

•See “*split*”

cram

•See “*stop, stop up, stopper*”

crush, pulverize, powder

•See “*cut down/off, fall down/off, break down/off, collapse*”

•See “*mold(y), decay(ed), (wormeaten), dust*”

cry out, call

•See “*call (of birds/animals), cackle, crow (v./n.), fowl, bird*”

cut, slice

•See “*scratch, scrape, dig, strike (line)*”

17. *cut down/off, fall down/off, break down/off, collapse*

(PMP) ***pak₂** ‘break, crack, split’

(3AE3) ***cepak** ‘crack, split, break’

****phak** ‘dismantle’

膊 (K771l) OC ***phak (phak)**
 ‘dismember’ (*Tso Chuan*)

PLB ***pak** (Matisoff 1972:40)²⁴

²⁴ LaPolla 1987 established an allofamic relationship between PTB ***be** ≠ ***pe** (Be #254) and ***bay** ≠ ***pay** (Matisoff 1985:#74) ‘break, broken’.

Sagart (1993b:26) establishes the following relationship:

(WMP) **sepak** 'break, snap off at a joint'
 TAE 'cut off the leg of an animal at
 the upper end of the femur'
 "(Not listed by Blust in root **-pak**
 'break, crack, split')."

膊 (K771-l) OC ***phak**
 'dismember, cut off the four
 members' (*Tso Chuan*), 'meat
 cut into pieces' (*Shuo Wen*);
 "Unexplained upper aspirated
 initial"

(See also Hogan 1993:12.)

Sagart (1993b:27) establishes the following relationships:

Root ***-pak** 'to slap, clap'

拍 (K782m) OC ***ph-r-ak** 'to
 beat' (*Ch'u Ts'ü*); 'to strike
 lightly with the hand' (*Han
 Fei Tzu*); 'to pat, to clap'
 (*Mathews*)

搏 (K771d) OC ***pak** 'to beat'
 (*Shu Ching*)

(See also Hogan 1993:9.)

Sagart (1993b:42) establishes the following relationships:

(D) ***pukpuk** 'to hit with a tool'
 Root ***-puk₁** 'throb, thud, clap, break'

撲 (K1211j) OC ***phuk** 'to hit'
 (sc. 'beat a fire out') (*Shu
 Ching*)

扑 (K1210e) OC ***phuk** 'whip,
 cane, rod' (*Shu Ching*)

•See "*beat, drive in, pound, strike*"

•See "*mold(y), decay(ed), (wormeaten), dust*"

•See "*split*"

cut off, break off, castrate, short

•See "*blunt, dull*"

cut off/up

•See "*cut down/off, fall down/off, break down/off, collapse*"

18. *dark, black, shade*

(PAN) ***Dem₁** 'dark, overcast'

(2Dp+) ***demDem** 'dark'

****?ljum** 'dark (1)'

陰 (K651yz) OC ***?jəm** (< PC
***?ljəm**) [**?(r)jum**] 'shade,

darkness; shadow' (*Shih Ching*), 'dark, hidden'

Sc 'shade, cloudiness, overcast,
north slope of a mountain,
south slope of a valley or
river: north'

Trum 'darkness, obscurity'

(P)AN *D- seems to be a reflex of ST **ʔj- here and in *house*, *hut*.

Sagart (1993b:47) establishes the following relationship:

(B) *[dD]iRem 'darkness of hue'
(MAR) 'blacken'

黔 (K651r) OC ***g-jəm** /
g-rj-əm 'black' (*Tso Chuan*)

(See also Hogan 1993:18.)

Sagart (1993b:47) establishes the following relationships:

(D) ***i(n)tem** 'black'
(WMP) **li(n)tem** 'deep black, shiny black'

𪔐(K658n) OC ***thəmx** 'black
 color of mulberries'
 (*Shuo Wen*), OC ***t-rj-əmx**
 'deep black' (*Chi Yun*),
 'dark' (*Chuang Tzu*)
 葚(K658i) OC ***d-j-əmx**
 'mulberry'; OC ***l-j-əmx**
 'jd.'

(See also Hogan 1993:18.)

Sagart (1994:285ff.) establishes the following relationships for *cloud/cloudy*:

(Sr1) ***-qem** ‘cloud, cloudy’

陰 (K651y) OC *ʔjəm
[ʔ-(r)j-um] 'cloudy; dark,
shade; northern slope of a
height (not receiving
sunlight)' (*Shih Ching*); 'the
dark cosmogonic principle'
(*I Ching*)

雲 (K651a') OC *ʔjəm
[ʔ-(r)j-um] 'cloudy' (*Ta Tai
Li Chi*)

今 (K651x) OC *ʔjəm
[ʔ-(r)j-um] 'cloudy' (Shuo Wen)

Sagart (1994:288) establishes the following relationships for *overcast*:

(Br1) ***-Dem** ‘dark, overcast’

雨 (K656*) OC ***drjəm**
([d/l]-rj-[ɿ,u]m) ‘long spell
of overcast weather’ (*Shuo*
Wen)

(Br1) ***-lem** ‘dark’

(B1, ART) ***qiS(e)lem** ‘dark color’]

曇 OC ***dəm** ([d/l] [ɿ,u]m)
‘clouds covering the sky’
(*Suo Wen Hsin Fu*; *Yu*
P’ien)²⁵

•See “*submerge, bury*”

19. *dark, fog/mist, gloomy, shade/shady, black, night*

(PAN) ***lem** ‘dark’

(1B73) ***qiS(e)lem** ‘dark color’

****rmun** ‘dark (2)’

昏 (K457jl) OC ***hmən** (hmun)
‘dusk; evening, darkness’
(*Shih Ching*)

Sc ‘be dark, benighted, stupid’

殯 (K457*) OC ***hmən**
‘blinded, confused’

PTB ***s-mun** (LaPolla 1994:169
#6)

T **rmun-po** ‘dull, heavy, stupid’

****mun** ‘dark (2)’

悶 (K441d) OC ***mənɰ** (mɰns)
‘sad’ (*I Ching*), ‘dull, stupid’
(*Lao Tzu*)

PTB ***r-mun** (LaPolla 1994:169
#6)

T **mun-pa** ‘dark’

The PAN root ***lem** requires an assimilation of the ST final nasal to the labial point of articulation of the root initial. This and semantic contamination with the preceding form would account for the final *-m*. However, more probably, it is related to the preceding form PAN ***Dem**₁ ‘dark, overcast’ with both representing PAN reflexes of the initial ST ****?lj-** cluster in ****?ljum** ‘dark’. This would agree with the correspondences for *house, hut* (PMP) ***Duŋ** ‘shelter, protect’ and (PMP) ***luŋ**₂ ‘shelter; shade’, both being derived from ST ****?ljon** ‘valley/ravine’.

•See “*submerge, bury*”

deep

•See “*dark, black, shade*”

²⁵ Cf. Written Burmese **tim** ‘cloud’ < PLB ***dim**¹. [Ed.]

- See “dark, fog/mist, gloomy, shade/shady, black, night”
- See “submerge, bury”

dig

- See “scratch, scrape, dig, claw/nail”

dive

- See “submerge, bury”

door

- See “submerge, bury”

20. dove, pigeon

(PWMP) ***kur** ‘coo, turtledove’ (O)
 (3Bnd) ***bekur** ‘turtledove; coo’

****kjəɣw** ‘pigeon/dove’
 鳩 (K992n) OC ***kjəgw** ‘pigeon;
 name of various birds’ (*Shih Ching*)
 Sc OC ***kwjəw** > ***kjəw** ‘name
 of a bird’
 TB ***kuw** (*A) (Be #495 ***kuw**
 = (m-)kəw ‘pigeon’)

This is not a good correspondence because a rhyme *-uk* is expected: (PMP) ***kuk₂** ‘sound (cackle, etc.)’ which is identified as cognate to ST ****kəɣw** ‘call/cry out’, 告 (K1039ad) OC ***kəgwəh** (**kuks**) ‘tell, command’ in *call (of birds/animals), cackle, crow (v.n.), fowl, bird* above. However, the fact that it is probably an onomatopoeic form may explain the lack of a regular correspondence. Hock 1991:50 demonstrates that onomatopoeic vocabulary does undergo regular sound change but that individual vocabulary items are often replaced to produce more imitative forms.

Sagart (1993b:43) establishes the following relationship:

(PAN) ***tuRtuR** ‘resonant sound’
 (PAI, PUY) ‘dove, pigeon’
 (MI) ‘coo of the dove’

雉 (K575a) OC ***t-j-əd** ‘a kind
 of dove’ (*Shih Ching*)

(See also Hogan 1993:20.)

This PAN form may have developed the irregular final *-r* in the PWMP form above due to contamination.

- See “call (of birds/animals), cackle, crow (v.n.), fowl, bird”

21. *dream*(PMP) ***pi** 'dream'(3Dp) ***ipi** 'dream'****rmjwiəd** 'sleep/dream'寐 (K531ij) OC ***mjiəd**
(**mjits**) 'sleep' (*Shih Ching*)Sc OC ***mjəs**TB ***rmwiy** (*C) (?) [Be #196***mwiy** = ***(r-)mwəy** ~**(s-)mwəy** 'sleep']²⁶T **rmi-ba** 'to dream'****mīl** ~ **myīl** 'sleep (2)'眠 (K 457e) OC ***min** 'shut the
eyes' (*Lieh Tzu*)TB ***myel** (*B) (Be #197
'sleepy')

Although the PMP form is similar to the former TB ***rmwiy**, it is not a good match with either of the ST forms, even though Blust 1988:138 lists other forms which show contacts with nasals: (3Bnd) ***nipi** 'id.' and (3Dp+) ***nupi** 'id.'

Sagart (1994:290) establishes the following relationship for *to close, shut*:

(B1+) ***kupit** 'close, shut'(B3, AE2) ***kupit** 'close, shut'(AMIS) ***popit** 'close the eyes' (*Fey 1986*)閉 (K412ab) OC ***pit** (**pit**) 'shut,
close' (*Shih/Shu Ching*,
Tso Chuan)悶 (K405n) OC ***pjid**
(**p-j-it** + **s**) 'shut, close'
(*Shih Ching*)**drink**•See "*sip, suck, drink*"22. *drip, leak*(PMP) ***cik** 'fly out, splash, spatter' (O)(3Bnd) ***becik** 'id.'****tik** 'drip/drop'滴 (K877*) OC ***tik** (**tek**)
'drop, drip'PTB ***tik** ≠ **tsak** (LaPolla
1994:173 #1)T **'thig-pa, thigs** 'to drop, fall
in drops'T **gtig(s)-pa** 'fall in drops'T **'thig-pa, btigs, btig** 'cause
to fall in drops'

²⁶ See also Benedict 1983:94 n.2.

(P)AN **c-* represents a palatal affricate which may have resulted from palatalization of the ST sequence **ti-*.

LaPolla (1987:26) reconstructs PTB **tsak* \times *tywak* and PST ***ty(w)ak* 'drip' which may be related to the ST form ***tik* 'drip/drop' here.²⁷

Sagart (1993b:38) establishes the following relationship:

(PMP) **titik* 'drip, leak'
(MAL) 'drop, liquid particle'
Root **-cik* 'fly out, splatter, splash'

滴 (K877*) OC **tik* 'drop of water' (Southern dynasties text example)

(See also Hogan 1993:20.)

drop

•See "*drip, leak*"

23. dry

(PWMP) **ganj* 'dry near a fire'
(3AE2) **eganj* 'dry'

***kan* 'dry'
乾 (K140c) OC **kan* (*kan*) 'dry' (*Shih Ching*)
(Cf. 旱 [K139s] OC **ganx* 'dry, drought' [*Shih Ching*])
PTB **kan* (LaPolla 1994:165 #9)
TB **kan* (*B) (Be #331 **kan*, *kanj* 'dry up')

Baxter (1992:227) points out that the final contrast between *-n* and *-ŋ* was lost in some dialects at the time of the *Shih Ching*. This may have been due to the final morphological suffix **-s* which caused an assimilation to the dental/alveolar point of articulation. In (P)AN, a similar process would also explain the relationship between the various forms of *gather(ed)*, *crowd* below: PAN **puŋ₁* 'bunch, cluster', PMP **pun* 'assemble, collect, gather', and PMP **bun* 'heap, cover with earth'. Note, however, that Benedict (1972:213) does list both **kan* and **kanj* (#331).

24. dry, hoarse

(PWMP) **Raw* 'hoarse'
(3Bnd) **gaRaw* 'id.'

***?ray* 'dumb/mute'
哑 (K805f) OC **?ragx* 'dumb, mute' (*Kuo Ts'e*)
TB **(m-)a* (*C) (Be #105 'dumb [mute]')²⁸

²⁷ For a detailed discussion of the allofamy of this root, see Matisoff 1978a:2-3 and n. 6 (p. 29). [Ed.]

²⁸ See Benedict 1983:94 n.2 for a discussion of the PTB and Burmese forms.

Here the PWMP voiced uvular fricative **R-* does share the manner feature [+continuant] with the **r* of both ST and OC.

25. *ear*

(PMP) **ŋeR* 'hear, noise'
(3AE2) **beŋeR* 'deafened'

(PMP) **ŋel* 'deaf'
(2Dp+) **beŋel* 'deaf'

(PWMP) **neR* 'hear'
(3Dp+) **teneR* 'voice'

****rnjəy** 'ear'
耳 (K981ab) OC ***njəgx** (njɿ?)
'ear' (*Shih Ching*)
Sc ***Cnjə?** / **?rnjə?**
PTB ***g/r-na** (LaPolla 1994:167
#4)
TB ***r-na** (*B) (Be #453
***r-na ~ g-na** 'ear; hear')
T **rna-ba** 'ear'

The (PMP) **ŋeR* 'hear, noise' and **ŋel* 'deaf' would seem to require an assimilation of the initial to the point of articulation of the velar final of the ST form; however, note that Benedict's TB reconstruction is ambiguous between an **r-* and a **g-* prefix. In addition, the final **-R* maintains the back point of articulation ([-anterior] and [+continuant]) of the ST voiced fricative **-y*, but the **-l* may not maintain the back point of articulation.

26. *earth, field, mud*

(PMP) **tak* 'mud, earth, ground'
(2AE2) **pitak* 'mud'

(PWMP) **cak* 'muddy/sound of walking in mud' (O)
(3Dp) **lucak* 'muddy'

(WMP) *tek* 'mud'
(IVT) *hotek* 'mud'

(F) **taq* 'mud, earth, ground'
(BKD) *bugta?* 'earth (ground)'

****rdjiul** 'dust'
塵 (K274a) OC ***djen** (drjin)
'dust' (*Shih Ching*)
Sc OC ***Gdjir ?** > ***Gdjin**
T **rdul** 'dust'

****thal** 'dust/ashes'
炭 (K151a) OC ***thanh** 'coal,
charcoal' (*Li Chi*); 'lime' (*Tso*
Chuan)
T **thal-ba** 'dust, ashes (and
similar substances)'

The (P)AN forms here also occur in *ashes, dust, flour, gray, white* because of their ambiguity, although the correspondence **-k :: *-l* is not particularly good.

Sagart (1993b:21) establishes the following relationship:

(PMP) ***bu(R)taq** ‘mud, earth’

土 (K62a) OC ***thagx** ‘soil, earth, land’ (*Shih Ching*)

(See also Hogan 1993:20.)

27. ended

(WMP) ***but** ‘buttocks, bottom’

(KAY) **avut** ‘buttocks’

****myet** ‘destroy/have not/there is not’

滅 (K 294b) OC ***mjia(t)** (**mjet**) ‘extinguish, destroy’ (*Shih Ching*)

(Cf. 蔑 [K311a] ****met** ? > OC ***mia(t)** ‘have not; destroy’ [*Yi Ching*])

(PMP) ***pus₁** ‘end, finish’

(2AE2) ***qa(m)pus** ‘terminate, reach the end’

TB ***mit** (Be #374 ‘extinguish’)

PTB ***s-mit** (LaPolla 1994:166 #6)

T **med-pa** ‘have not’ (OT **myed-pa** ‘have not’)

(PMP) ***pus₁** would indicate a form resulting from an assimilation due to the morphological suffix **-s*. The potential root (PWMP) ***bus₁** ‘end, finish; use up’ may also belong here.

•See “*blow, wind*”

•See “*squirt, penis, vulva, urine, urinate*”

28. exchange, change, buy, sell

(PMP) ***let** ‘intervene; interspace’

(2B73+) ***qelet** ‘intervening space’

****rle?** ‘change/exchange’

易 (K850ae) ***rik** (**ljeks**) ‘change’ (*Shih Ching*), ‘exchange’ (*Meng Tzu*)

Sc OC ***ljik** / ***Cljik**

T **rje-ba, brjes, brje**, **brjes** ‘to barter, change, shift’ (< ***rzhe** < PT ***rlye**)

LaPolla (1987:28) gives the PTB form ***s-lay** (Be 293; Matisoff 1985:#69) ‘change’ and the allofams ***r-ley** & ***b-rey** (Matisoff 1985:#54) ‘buy, barter’ which may be related to the ST form here, although Benedict (1972:64 n. 205) identifies TB ***b-rey** ‘buy’ as a borrowing from AT.

Sagart (1993a:49) establishes the following relationship for *turn over/exchange*:

(D) ***balik**

易 (K850ae) ***rik** (**l-j-**)

The AN form ***balik** is possibly related to the potential root (PWMP) ***lik** ‘turn around’.

expose, unveil

•See “*slip off/away*”

expose to heat

•See “*burn, blaze*”

fall, let fall

•See “*water*”

fall into ruin

•See “*mold(y), decay(ed), (wormeaten), dust*”

far, long

•See “*head, hair (of head), topknot*”

fart

•See “*blow, wind*”

fat, grease, oil

•See “*burn, roast, heat, hot, warm*”

29. fear

(PAN) ***ter** ‘shiver, tremble’

(3Bnd) ***keter** ‘tremble, vibrate’

****dar** ‘tremble/fear’

彈 (K147n) OC ***dan** ‘to shake’
(*Chou Li*)

憚 (K147o) OC ***danh** ‘fear,
dislike’ (*Shih Ching*)

Sc OC ***dars / dans**

(Cf. 顫 [K148s] ***tjanh** ‘to
tremble’)

T ***dar-ba** ‘tremble, shudder,
shiver with fear/cold’

(Cf. **sdar-ma** ‘trembling’)

Sagart (1993b:49) established the following relationship:

Root ***-ter** ‘shiver, tremble’

振 (K455p) OC ***t-j-iənh** ‘shake
(v.i.)’ (*Shih Ching*); ‘scared’
(*Kuo Tse*)

震 (K455s) OC ***t-j-iənh**
‘shake, fear’ (*Shih Ching*).

(See also Hogan 1993:22.)

Sagart (1994:294) establishes the same relationships for *to tremble/to shake* but adds that both verbs are used transitively and intransitively.

fiber, beard, curly (hair)

•See “*turn, wind*”

fiber, beard, hair

•See “*slip off/away*”

fish-hook

•See “*sew, plait, weave*”

•See “*turn, wind*”

five

•See “*palm/sole, slap, hand, five*”

flame

•See “*lightning, hail*”

flash, sparkle

•See “*lightning, hail*”

30. flat, board, plank

(PWMP) ***pap** ‘flatten’

(3AE1) ***lepap** ‘flattened’

****phap** ‘fall down/descend’

沛 (K501f) OC ***phadh** (< PC

***phabh** ?) ‘fall down,
collapse’

(Cf. 弊 [K341e] [PC ***bjiabh** ? >]

***bjiadh** ‘fall’ [Kuo Yu],
‘bring down’ Chou Li], ‘ruin’
[Kuo Ts’e])

(Cf. 弊 [K341f] [PC ***bjiabh** ? >]

***bjiadh** ‘fall down, die’ [Tso
Chuan], ‘kill’ [Li Chi])

T ***bab-pa, babs, bobs** ‘fall,
descend’

T ***bebs, phab, dbab, phob**
‘throw down, cast down’

31. flat, sole, foot, thigh

(PMP) ***paD** ‘flat, level’

(2AE1) ***De(m)paD** ‘id.’

ST ****prar** ‘board/plank’

板版 (K262jk) OC ***pranx**

(**pran**?) ‘board, plank’ (Shih
Ching)

版 Sc OC ***pərar?** > ***pəran?**
 T ***phar** ‘a panel, small plank’

Although the PMP final ***-D** is a retroflex, it is irregular here.

Sagart (1993b:30) establishes the following relationships:

(PMP) ***Da(m)paD** ‘flat, level’
 Root ***-paD**

(K181*) OC ***phanx** ‘flat’
 (*Kuang Yun*)
 板 (K262j) OC ***p-r-anx** ‘plank,
 board, plaque’ (*Shih Ching*)
 版 (K262k) OC ***pranx** ‘id.’
 鉞 (K262-l) OC ***p-r-anx** ‘id.’

(See also Hogan 1993:23.)

flatulence

•See “*blow, wind*”

float

•See “*swim, float*”

foot

•See “*worm, eel*”

3.2. *gather(ed), crowd*

(PAN) ***puŋ₁** ‘bunch, cluster’
 (2Dp+1) ***kampuŋ** ‘assembly, meeting’

****pjuŋ** ‘mound/heap’
 封 (K1197ij) OC ***pjuŋ**
 [p(r)jŋ] ‘mound, tumulus’
 (*I Ching*)
 Sc ‘boundary embankment; be
 great’

(PWMP) ***puk₃** ‘gather, flock together’
 (3B70) ***tumpuk** ‘heap, mound’

T **phuŋ-po** ‘heap’
 (Cf. **spuŋ** (< **s-puŋ** ?) ‘a heap’)
 (Cf. **spuŋ-pa**, **spuŋs** ‘to heap’)

(PMP) ***bun** ‘heap, cover with earth,
 collect, assemble’

(2Dp+) ***bunbun** ‘collect, gather;
 heap over with dirt’

(PMP) ***pun** ‘assemble, collect, gather’
 (2Dp+) ***qi(m) pun** ‘collect, gather’

The alternation between the velar nasal and the velar stop **puŋ** and **puk₃** is not uncommon in either AN or ST. Baxter (1992:227) points out that the final contrast between ***-n** and ***-ŋ** was lost in some dialects at the time of the *Shih*

Ching. It was possibly due to the morphological suffix **-s* as in *dry*, *hoarse* above: (PWMP) ***gaŋ** ‘dry near a fire’ / ST ****kan** ‘dry’.

Sagart (1993b:49) establishes the following relationship:

| | |
|--|--|
| Root *-bun ‘heap, pile, cover with earth; collect, assemble’ | 墳 (K437m) OC *b-j-ən ‘tumulus’ (<i>Li Chi</i>), ‘raised bank’ (<i>Shih Ching</i>) |
|--|--|

(See also Hogan 1993:24.)

Sagart (1993a:49 and 1994:292) establishes the following relationships for *assemble* and *to gather, be together, all*:

| | |
|--|---|
| (D1+) *pulug ‘gather, together’ | 同 (K1176a) OC *duŋ (loŋ) ‘to be the same, join, unite’ (<i>Shih Ching</i> , <i>Shu Ching</i> , Chou bronze JWGL 1035) |
| | 詞 (K1176i) OC *duŋ (loŋ) ‘all’ (<i>Shu Ching</i>) |
| | 銅 (K1176d) OC *duŋ (loŋ) ‘alloy’ > ‘bronze’ (<i>Tso Chuan</i>) |

gnaw, chew, bite, grind teeth

- See “*anger, angry*”
- See “*bite, gnaw, cut off*”
- See “*hold (in hand, mouth), squeeze, handful, fist, mouthful, control*”
- See “*scratch, scrape, dig, claw/nail*”

hair (body), beard

- See “*turn, wind*”

handle, stick, stem

- See “*cane, staff*”

3.3. *hang*

(PMP) ***tey** ‘suspension bridge’
(3Bnd) ***kitey** ‘suspension bridge’
(ILK) **ontay** ‘hanging, suspended,
dangling’

****dyot-** ‘hang down’
垂 (K31a) OC ***djuar** ‘hang
down’ (*Shih Ching*)
Sc OC ***djuaj**
T ***jol-ba** ‘hang down’²⁹
PT ***dyol**

²⁹ This Tibetan form (along with Lushai **fual**) is assigned to PTB ***dzywal** in Benedict 1972:#242. [Ed.]

34. *head, hair (of head), topknot*

(PMP) ***baw₁** ‘high; top’(2Dp+) ***babaw** ‘upper surface’****dbuy** ‘head’頭 (K118e) OC ***dug** ‘head’

(Tso Chuan)

TB ***(d-)bu** (*B) (Be ‘head’)

LaPolla (1987:31) gives PTB *****-u*** for ‘head’ because only T shows the initial ***d-b-**.

Sagart (1994:283) sets up the following relationship for *head*:

(D1+) ***quluH₁**(B1) ***quluh**首 (K1102a) OC ***hjrəgw** (?)**(hl-j- ?)** ‘head’ (Shih/Shu

Ching, Chou bronze

inscription JWGL 1194)

•See “*high*”

heap(ed), crowd

•See “*gather(ed), crowd*”

hear

•See “*ear*”

heat, dry (by heat)

•See “*dry, hoarse*”•See “*lightning, hail*”

35. *high*

(PAN) ***kaw** ‘high, tall’(1AE1+) ***laŋkaw** ‘high, tall’****gjayw** ‘high/head’喬 (K1138ab) OC ***gjagw****[fɿk(r)jəw]** ‘high and arched;

rising aloft’ (Shih Ching)

Sc OC ***gjəw**僑 (K 1138c) OC ***gjagw** ‘tall’

(Tso Chuan)

(Cf. 高 [K1129a] OC ***kəgw****[kaw]** ‘high’ [Shih Ching])(Cf. 僑 [K1138i] OC ***kjəgw**

‘high’ [Shih Ching])

T **mgo** ‘head’T **go** ‘headman; beginning,
source’

Sagart (1993b:24) establishes the following relationships:

Root ***-kaw** 'high, tall'

高 (K1129a) OC ***kagw** 'high'
(*Shih Ching*)

僑 (K1138i) OC ***k-j-agw**
'high, lift the head' (*Chuang Tzu*)

(See also Hogan 1993:26.)

Sagart (1994:287) repeats the above relationships for *high*.

•See "*head, hair (of head), topknot*"

hit

•See "*beat, drive in, pound, strike*"

hoarse

•See "*dry, hoarse*"

36. *hold (in hand, mouth), squeeze, handful, fist, mouthful, control*

(PAN) ***gem** 'grasp in the fist'

(3AE3) ***agem** 'hold, grip'

****gəm** 'hold in the mouth (1)'

含 (K651-l' m') OC ***gəm**
(**g[o,u]m**) 'hold in the mouth'
(*Tso Chuan*)

Sc OC ***mgəm** 'to hold in the
mouth, hold back, bear (anger,
etc.)'

PTB ***gam** (LaPolla 1994:170
#2)

含 (K651-l') OC ***gəmh** 'put in the
mouth' (*Tso Chuan*)

TB ***gam** (Be #491 'put into
mouth; seize with mouth')

T ***gam-pa** 'put in the mouth'

****ʔum** 'hold in the mouth (2)'

𠵼 (K614*) OC ***ʔəmx** 'hold in
the mouth'

TB ***um** [Be #108 ***um** =
(**m**-)**u:m** 'hold in the mouth;
mouthful']

T **um** 'a kiss'

****gəm** 'jaw/molar'

頷 (K651n') OC ***gəmx** 'jaw'
(*Kungyang*)

TB ***gam** (*B) [Be #50 ***gam** =
gəm 'jaw (molar teeth)']

****kɿem ~ gɿem** 'squeeze' ['pos. cognate to flat']

兼 (K627a) OC ***kliam** (< ST ****kɿem**) (**kem**) 'combine' (*I Ching*), 'grasp, hold'

Sc OC ***kəriam(s)** / **kliam(s)** (?)

T **gɿem-pa** (< ST ****gɿem**) 'to squeeze, crush, squash'

Sagart (1993b:47ff.) establishes the following relationships:

(PMP) ***gem** 'hold in the fist'

(MAR) 'hold in the mouth'

Root ***-gem** 'grasp in the fist'

(D) ***kemkem** 'enclose, contain'

root ***-kem** 'enclose, cover, grasp'

含 (K651-l') OC ***gəm** 'hold in the mouth' (*Tso Chuan*)

函 (K643af) OC ***gəm** 'envelop, contain' (*Shih Ching*)

龕 OC ***khəm** 'to contain' (not in K) (*Fang Yen*: Yang and Yueh dialects), 'niche for the effigy of a god' (T'ang text only)

(See also Hogan 1993:26.)

Sagart (1994:289) established the following relationship for *grasp/catch*:

(Br1) ***-gem** 'grasp in the fist'

擒 (K651n) OC ***gjəm** (**g-j-[i,u]m**) 'catch' (*Kuo Yu*)

禽 (K651jm) *id.* 'catch, capture; bird' (Chou bronze JWGL 1838, *Tso Chuan*), 'animal' (*I Ching*)

Sagart (1994:289ff.) established the following relationship for *to enclose/to contain*:

(Br1+) ***-kem** 'enclose, cover, grasp'

衾 (K651h) OC ***khjəm** [**kh-(r)-jəm**] 'coverlet' (*Shih Ching*)

弇 (K615a) OC ***kəm** 'cover' (*Mu T'ien Tzu Chuan*)

龕 OC ***khəm** (*Fang Yen*: Yang and Yueh dialects), 'niche for the effigy of a god' (T'ang text only)

函 (K643a) OC ***gəm** ['unexplained voicing'] 'to

envelop, contain' (*Shih Ching*), 'cuirass' (*Meng Tzu*)

含 (K651-l') OC ***gəm** 'to contain' (*Shu Ching, I Ching*)
 含 (K651f) OC ***gjamh**
 [g-(r)j-im+x] 'single shroud' (*I Li*)

•See "cover, turn upside down, lid, hat"

hole, door

•See "lips"

•See "submerge, bury"

hollow

•See "bend, bent"

hook, fish-hook

•See "narrow, close, bag, basket"

•See "sew, plait, weave"

•See "turn, wind"

horn, hump (of cattle)

•See "angle, elbow"

37. *house, hut*

(PMP) ***Dug** 'shelter, protect'

(2AE3) ***DugDug** 'sheltered as from weather'

?ljon** 'valley/ravine'

𡵓 (K1184ab) OC *?**jun** < PC
 *?**ljun** [*?(r)jong] 'city moat' (Han-time text)

T **roŋ** 'defile, cleft, ravine, valley'

(PMP) ***luŋ₂** 'shelter; shade'

(2AE1+) ***alug** 'shade, shadow'

****doŋ** 'cave/hole'

洞 (K1176h) OC ***dugh** (**doŋs**)
 'cave, hole'

PTB ***dwa:ŋ** (LaPolla 1994:171 #2)

T **doŋ** 'deep hole, pit, ditch'

The PMP forms probably indicate double reflexes of the ST initial cluster **?**lj-** as in *dark, black, shade* above: ST **?**ljum** is represented by both PAN ***Dem₁** and ***lem**.

husk, scale

•See “*slip off/away*”

join, unite, complete, pair, even(-numbered)

•See “*cover, turn upside down, lid, hat*”

•See “*joint*”

•See “*tie, enlace*”

•See “*turn, wind*”

38. joint

(PWMP) ***tuk₁** ‘bend, curve’

(3B73) ***be(n)tuk** ‘bend, curve’

****tsik** ‘joint/section’

節 (K399ef) OC ***tsit** (< dial.

***tsit** < PC ***tsik**) (**tsik**)

‘knot/joint of bamboo’ (*Ssu*);

‘section’

(Cf. 切 (K400f) OC ***tshit**

< PC ***tshik** ? ‘to cut’ (*Shih Ching*)

PTB ***tsik** (LaPolla 1994:172

#13)

TB ***tsik** (Be #54 ‘joint’)

T **tshigs** ‘joint, knot, knee’

The final **-k* in the PWMP form agrees with the final in the ST form, although the back vowel is unexplained.

Sagart (1993b:51) establishes the following relationship:

(D) ***kukut** ‘joint’

Root ***-kut** ‘hunched over, bent’

骨 (K486a) OC ***kwət** ‘bone’

(*Tso Chuan*)

屈 (K496k) OC ***khwət** ‘bent’ (*I*

Ching)

(See also Hogan 1993:28.)

Sagart (1994:289) establishes the following relationship for *bent*:

(Br1) ***-kut** ‘hunched, bent over’

屈 (K496k) OC ***khwjət**

(**kh-j-ut**) ‘bend’ (*Tso*

Chuan); ‘subdue’ (*Shih*

Ching)

•See “*join, unite, complete, pair, even(-numbered)*”

•See “*tie, enlace*”

knot, tie

•See “*head, hair (of head), topknot*”

- See “joint”
- See “tie, enlace”

ladder, stairs, bridge

- See “hang”

laugh

- See “call (of birds/animals), cackle, crow (v./n.), fowl, bird”

leak

- See “drip, leak”

lean on

- See “cane, staff”

level, flat

- See “flat, sole, foot, thigh”
- See “flat, board, plank”

lick, tongue

- See “chew, taste, flavor”
- See “lightning, hail”

light, shine, moon, sun, dawn, morning

- See “burn, roast, heat, hot, warm”

39. lightning, hail

- (PMP) ***lap** ‘flash, sparkle’
 (2Dp+) ***gilap** ‘lustre, shine’

****lam** ‘burn/roast/shine (2)’
 炎 (K617ab) OC ***ram** ‘blaze, blazing’ (*Shih Ching*);
 ‘brilliant’ (*Chuang Tzu*)
 Sc OC ***wjiam** / **ljam** ‘to blaze, burn’
 T **slam-pa** ‘to parch’

T ****lyam** ‘burn/roast/shine (2)’
 炎 (K617h) OC ***rjam** ‘to heat, warm’ (*I Li*)
 T **lcam-me-pa** (< ***hlyam** < PT ***h-lyam** ?) ‘variegated, shiny, dazzling’
 T **lcam-mo** ‘royal consort (< the brilliant woman)’

****hljam** ‘lick/tongue/flame’

["possibly cognate to
burn/roast/shine (2)"]
 舔 (K 1247*) PC ***hlíamx** > OC
***thíamx** 'to lick'
 (Cf. 舌入 [K617*] ***hlamh** ?
 > ***thamh** 'to stick out
 tongue')
 TB ***(s-)lyam** (Be 'tongue;
 flame')

Sagart (1993b:25) establishes the following relationships:

(PMP) ***nilaw** 'bright light'
 Root ***-law** 'dazzling light'

桃 (K1145*) OC ***ragw(l-j-)**
 'bright (as the sun and moon)'
 (*Huai Nan Tzu*)

(See also Hogan 1993:13.)

Sagart (1993b:28) establishes the following relationships:

(PMP) ***kilab** 'flash, sparkle'
 (CEB) 'glitter, flash intermittently'
 (MAL) 'flashing, flaming up'
 (MGG) 'radiance (of lightning)'

炎 (K617*) OC ***ramx/h (l-j-)**
 'sparks' (*Shuo Wen*)
 燄 (K617c) OC ***ramx/h (l-j-)**
 'to flame up' (*Shih Ching*),
 'flames' *Chi Yun*)
 閃 (not in GSR) OC ***hr-j-amx**
 (?) 'to appear intermittently'
 (*Li Chi*)

(See also Hogan 1993:23.)

Sagart (1993b:35, 51) establishes the following relationship:

(B) ***[CtT]ek[ae]p** 'deafening noise'

磕 (K642v) OC ***kap / khap**
 'sound of knocking or
 beating' (*Ch'u Tzu*),
 'thunder-like sound of
 drumming' (*Han Shu*),
 'sound of collapsing rocks'
 (*Shuo Wen, Wen Hsuan*)
 熠 (K690f) OC ***rəp (l-j-)**
 'gleaming' (*Shih Ching*)

(PMP) ***dilep** 'flash, sparkle, shine'

(See also Hogan 1993:29.)

•See "burn, roast, heat, hot, warm"

40. lips

(PWMP) ***bir** 'lip, rim, edge'
 (3AE1) ***birbir** 'rim, edge, border'

****mjur** 'mouth movements/
 mouth'
 吻 (K503o) OC ***mjənx** 'corner'

of the lips; shut the lips'

(*Chou Li*)

TB ***mu:r** 'gills, beak, mouth, face'

T **mur** (< ***mur** / **mjur**) 'gills'

T **mur-ba** 'masticate'

****mur** 'mouth movements/
mouth'

門 (K441a) OC ***mən** (**m+n**)
'gate' (*Shih Ching*, oracle
bone inscription)

Sagart (1993a:55) establishes the following relationship:

(PWMP) ***simuj** 'labial circle/corner
'of lips'

吻 (K503o) OC ***mjənɣ** (**m-j**)

(PWMP) ***ɲusuq** 'labial circle/beak'

觜 (K358t) OC ***tsjuarɣ** (**ts-j-**)
'beak (in name of
constellation)'

41. *mold(y), decay(ed), (wormeaten), dust*

(PAN) ***mek** 'crush, pulverize; powder'

****dmyiaɬ** 'destroy/pulverize'

(1Bnd) ***Cumek** 'pulverize; crumble'

糜 (K17g) OC ***mjiaɾ**
[**m(r)jag** ?] 'destroy, crush';
'rice gruel (< mashed rice)'
(*Li Chi*)

靡 (K17h) OC ***mjiaɾɣ** 'small,
tiny' (*I Ching*)

(PWMP) ***muk** 'crush, pulverize; powder'

Sc OC ***mjaj?**

(3Dp+) ***Remuk** 'crumbs'

T **dmyal-ba** 'to cut into small
pieces; the punishment of
being so cut up; the hell where
this punishment is carried out'

(PMP) ***buk₁** 'decay, crumble; powder'

(2Dp+) ***qa(R)buk** 'dust'

(PAN) ***bu** 'dust'

(1Dp+) ***qabu** 'ashes'

(PMP) ***pek** 'decay, crumble, powder;
sound of breaking' (O)

(1AE3) ***pekpek** 'beat, hit'

The PAN root ***mek** occurs in the following words with dentals/alveolars
(Blust 1988:124): PAZ **demek** 'rotten (as a log)', HLG **dugmuk** 'crush,

break by pressure', BON **lagmek** 'break into pieces, as a reed; crush, as a dried reed or bamboo', PR ***lameke** 'rotten (as a log)', ILK **simek** 'pulverize, triturate, comminute', and PGS **temek** 'to crush'.

The potential root (WMP) **mit** 'small, fine' may also belong here. It would require an assimilation of **-k-s* > **-t-s* with a paradigmatic leveling.

Sagart (1993b:19) establishes the following relationships:

(WMP) **rebas** 'to fall into ruin'

(WMP) **tu(m)bas** 'dregs'

Bolaang Mogondow 'waste'

敗 (K320f) OC ***b-r-adh** 'to ruin, ruined' (*Shih Ching*)

敝 (K341a) OC ***b-j-iadh** 'worn out' (*Shih Ching*), 'to damage, ruin' (*Tso Chuan*)

弊 (K341e) OC ***b-j-iadh** 'to ruin' (*Kuo Tse*) 'become spoiled, ruined' (*Kuo Yu*)
[“the latter two possible, but with irregular /ia/”]

(See also Hogan 1993:22.)

mouth, lips

•See “*lips*”

mud

•See “*ashes, dust, flour, gray, white*”

narrow, close, bag, basket

•See “*sew, plait, weave*”

•See “*turn, wind*”

42. near, border, shore, bank

(PWMP) ***benj** 'block, dam, stop up'

(3Bnd) ***benbenj** 'block, prevent passage'

(KEN) **mbenj** 'a dam'

****bjwanj** 'enclosure/fence'

坊 (K740x) OC ***bjanj** 'dike' (*Li Chi*)

防 (K740z) OC ***bjanj** (**bjanj**) 'embankment, dike' (*Shih Ching*)

Sc 'a match; a dike'

房 (K740y) OC ***bjanj** (**bjanj**) 'side-room, room' (*Shih Ching*)

Sc *id.* 'footstand; chamber'

T **banj-ba** 'storeroom, storehouse'

night

•See “*dark, black, shade*”

•See “*dark, fog/mist, gloomy, shade/shady, black, night*”

noise

•See “*lightning, hail*”

open, gape/stand open, force open/apart, oppose, separate, bay, river

•See “*split*”

43. palm/sole, slap, hand, five

(PMP) ***pak₁** ‘slap, clap’ (O)
(2AE1+) ***ca(m)pak** ‘smack’

(WMP) **pag** ‘strike, beat’ (O)
(BAL) **lempag** ‘strike, hit with something’

(PAN) ***pik** ‘light slap’ (O)
(3Bnd) ***ampik** ‘pat, clap’

****pjay** ‘palm (of hand)’
扶 (K101f) OC ***pjag** [p(r)ja]
‘breadth of 4 fingers’
PTB ***pa-n** ‘palm’ (LaPolla
1994:163 #15)
TB ***pa** (*A) (Be #418 ***pa** =
pwa ‘palm, sole’)

****pray** ‘palm (of hand)’
把 (K39b) OC ***pragx** (pra?)
‘handful’ (*Kuo Yu*), ‘grasp’
(*Meng Tzu*)
PTB ***pa-n** ‘palm’ (LaPolla
1994:163 #15)
TB ***pa** (*A) (Be #418 ***pa** =
pwa ‘palm, sole’)

Sagart (1993b:38) establishes the following relationship:

Root ***-pik** ‘tap, light slap’
(CEB) **hagpik** ‘slap someone fairly hard
on the shoulder’

僻 (K853j) OC ***bik**
[“intransitive voicing”] ‘beat
the breast’ (*Shih Ching*)

(See also Hogan 1993:33.)

palm of the hand, sole of the foot

•See “*palm/sole, slap, hand, five*”

44. pass across

(PWMP) ***taw** ‘float’
(3AE2) ***lantaw** ‘to float’

****day** ‘pass over/ford’
渡 (K801a) OC ***dagh** [dak(s)]
‘to ford’ (*Kuo Ts’e*)
PTB ***da** (LaPolla 1994:164 #28)
T ***da-ba** ‘to pass beyond, pass
over’

•See “*hang*”

pierced, hollow, hole, cave

•See “*bend/bent*”

plant, bury

•See “*dark, black, shade*”

•See “*dark, fog/mist, gloomy, shade/shady, black, night*”

plateau

•See “*flat*”

45. *pluck*

(PAN) ***buC** ‘weed, pluck, pull out’

(3Bnd) ***a(m)but** ‘pull out’

****phjut** ‘remove/brush away’

拂 (K500h) OC ***phjət (bjut)**
‘brush off, wipe off’ (*Li Chi*), ‘knock off’

T ***bud-pa, phud, dbud, phud**
‘remove (clothing); take away, tear out, uproot’

(Cf. also ***phud-pa** ‘lay aside, put away’)

****pjut** ‘remove/brush away’

薙 (K500k) OC ***pjət (pjut)** ‘to clear away dense vegetation’ (*Shih Ching*)

(PMP) ***dut** ‘uproot, pluck, pull out’

(2AE1) ***dutdut** ‘pluck, pull out’

****dot** ‘emerge’

兑 (K324ac) OC ***duadh (lots)**
‘open a passage through’ (*Shih Ching*); ‘opening’ (*Lao Tzu*)

Sc OC ***gluats / hluats**

OT **dod-pa** ‘to come out, come forth, come to the surface’

The final affricate **-C** in (PAN) ***buC** possibly represents ***-t-s** which is the root final ***-t** plus the morphological suffix ***-s**.

Sagart (1993a:49 and 1993b:38) establishes the following relationships:

(D) ***puTik** ‘to pluck (pick, gather, as fruit or flowers)’

(PAN) ***peCik** ‘snap, as the fingers or a slingshot’

(MAL) ‘plucking at; picking (flowers)’

(BAL) ‘pick fruit or flower’

Root ***-Cik** ‘spring up, flicking motion’

摘 (K877p) OC ***t-r-ik** ‘to pluck’ (*Lieh Tzu*)

Sagart (1994:289) establishes the following relationship for *to pull out, uproot*:

(Br1) ***buC** ‘weed, pluck, pull out’

拔 (K276h) OC ***briadh**
(**b-r-ot+s**) ‘pull up, uproot’
(*Shih Ching*), OC ***badh**
(**bot+s**) ‘thinned out (as a forest, some trees having been pulled up)’ (*Shih Ching*)

•See “*slip off/away*”

point, finger

•See “*stick (into), push into, thread*”

prick, stick, pierce

•See “*stick (into), push into, thread*”

puff

•See “*blow, wind*”

pull lengthwise, strip

•See “*slip off/away*”

46. *red, reddish*

(PMP) ***Raq** ‘red’

(3Bnd) ***baRaq** ‘red’

(2Dp+) ***daRaq** ‘blood’

****khrjak** ‘red/blood’

赤 (K793ac) OC ***khrjak**

(**KHjAK**) ‘red’ (*Shih Ching*)

Sc OC ***khljak**

T **khrag** ‘blood’

Baxter (1992:213ff.) calls OC ***KH-** an “exceptional palatalizing initial.”

Sagart (1993b:21) establishes the following relationship:

Root ***-Raq** ‘red’

昕 (K53*) **gagx** ‘red markings’
(*Chi Yuan*)

(See also Hogan 1993:36.)

rotten, spoiled

•See “*mold(y), decay(ed), (wormeaten), dust*”

round

- See “*angle, elbow*”
- See “*bend/bent, arched, bow (n.)*”
- See “*bend/bent, arched, crooked*”
- See “*turn, wind*”

savory, tasty

- See “*chew, taste, flavor*”

47. scratch, scrape, dig, claw/nail(PWMP) ***gut₁** ‘gnaw’(3Dp+) ***gutgut** ‘nibble off’****rkhwət** ‘dig’
 掘 (K496p) OC ***khwət** ‘dig in
the ground, underground’
(*Tso Chuan*)

 (Cf. 掘 [K496s] OC ***gwjət** ‘dig
out [earth]’ [*I Ching*])

 T **rkod-pa** ‘excavate, dig’
(Cf. **rko-ba** ‘dig’)

Sagart (1993b:52) identifies the following relationship:

(3) **kutkut** ‘dig’
 掘 (K496p) OC ***khwət** ‘dig in
the ground, underground’
(*Tso Chuan*)

(See also Hogan 1993:38.)

窟 (K496q) ‘cave, hole’ (id.)

Sagart (1994:290) establishes the following relationships for *to scrape*:

(B1, AE4) ***kiSkis** ‘scrape off’
 搗 (K313*) OC ***khriat**
(**kh-r-[i,e]t**) ‘scratch,
scrape’ (*Shuo Wen*)

Sagart (1994:291) establishes the following relationship for *to gnaw*:

(B1, AE4) ***ɲitɲit** ‘gnaw’
 齧 (K279e) OC ***ɲiat (ɲet)**
‘gnaw, crunch in the teeth’
(*Kuan Tzu, Li Chi*)
48. scratch, scrape, dig, strike (line)(PMP) ***lat₂** ‘scar’****kret** ‘scrape’(2AE2) ***piRlat** ‘scar’契 (K 279b) OC ***kriat** /

khiadh²⁹ (**khets**) ‘scrape’
 Sc OC ***khiats** ‘to carve,
 inscribe, perforate’
 PLB ***kret** (Matisoff 1972:48)

(PMP) ***ris₂** ‘scratch a line’ (O)
 (2Dp) ***garis** ‘scratch; draw a line’

(PMP) ***rit** ‘scratch a line’ (O)
 (3Bnd) ***burit** ‘mark, line’

(PWMP) ***rud** ‘scrape, grate’ (O)
 (3Bnd) ***arud** ‘scrape off’

The root PMP ***ris₂** seems to indicate an assimilation of the root final **-t* to the morphological suffix **-s*, which occurs in the OC reconstructions of both Baxter and Schuessler, and a subsequent simplification. This root occurs in the following forms with velars (Blust 1988:147): (2Dp) ***garis** ‘scratch; draw a line’, (2Dp) ***guris** ‘id.’, (2AE3) ***karis** ‘scratch mark’, and (3B73) ***Ruris** ‘tear into strips’.

Sagart (1993b:35) establishes the following relationships:

(PMP) ***biras** (**dsj birat**) ‘scar’
 (PMP) ***kiras** ‘scar’

癩 (K272*) OC ***lat(r-)** ‘a
 scabby itching skin disease’
 (*Chi Yun*)

癩 (K272*) OC **lat(r-)** /
ladh(r-) ‘leprosy’ (*Yi Chieh
 Ching Yin Yi*)

癩 (K340d) OC ***l-j-adh(r-)**
 ‘leper’ (*Li Chi*)

(See also Hogan 1993:38.)

- See “*color(ed), striped, variegated, mark*”
- See “*scratch, scrape, dig, claw/nail*”

49. *separate(d)*

(PAN) ***laq** ‘split’
 (1Dp+) ***belaq** ‘split’

****rjjaɬ** ‘separate’
 離 (K23f) OC ***ljjar** (C-rjaj)
 ‘to divide, be dispersed’

Sc OC ***rjaj**
 T **ral-ba** ‘to be torn, lacerated,
 slashed to pieces’
 T **ral** ‘a rent, cleft’

- See “*split*”
- See “*split, separate*”

²⁹ Schuessler (1987:476) gives ***khiadh** ‘carve, inscribe’ for Li’s OC reconstruction for this character.

50. *sew, plait, weave*(PWMP) ***pid** 'braid'(3AE2) ***apid** 'braid'(PMP) ***pil** 'attach, join'(2AE2) ***Sa(m)pil** 'go together'(PAN) ***bit₁** 'hook; grasp with the fingers'(3Dp+) ***bitbit** 'hold by the fingers'(PAN) ***wit** 'hook-shaped'(3AE2) ***kalawit** 'hook'(PMP) ***bej** 'wind around repeatedly'(3Bnd) ***qambej** 'wind around'

The (P)AN forms are ambiguous between the ST form here and those in *turn*, *wind* and so are listed in both places. Sagart (1993b:48) establishes the following relationship:

(PMP) ***anem** 'plait, braid'

(BIL, SML) 'weave a mat'

(MAL) 'interweaving'

(BGS, ROTI) 'plait, braid, twine, weave
(baskets, mats, but not cloth)'

(See also Hogan 1993:39.)

Sagart (1993a:54) establishes the following relationship for *connect on one side*:

(PWMP) ***tampil**Sagart (1994:292) establishes the following relationships for *braid*:(Br1) ***-pil** 'braid, wind together'****piar/biar** 'plait/weave'編 (K246e) OC ***pian** 'plait,
weave' (*Li Chi*)TB ***pyâr ~ byâr** (Be #178***byar ~ pyar = pyâr ~
byâr** 'affix; plait; sew')T **'byor-ba ~ 'byar-ba** 'stick
to, adhere to'T **sbyor-ba, sbyar** 'affix,
attach, join, connect'紐 (K667-l) OC ***n-j-əm /
n-rj-əm** 'to weave' (*Tso
Chuan*)偏 (K246h) OC ***ph-j-ian**紜 (K221*) OC ***pianx**
(*He.i.ju?*) 'braids of hemp or
wheat stalks' (*Shuo Wen*)編 (K246e) OC ***pian**
(*p[e,i]n?*) 'plait (the hair)'
(*Shih Chi*, reading after *Tz'u
Yuan*)

辮 (K219*) OC ***bianx**
(b[e,l]n?) [“intransitive
voicing of initial”] ‘plait the
hair into braids’ (*Liang Shu*)

•See “turn, wind”

shell (of tortoise)

•See “cover, turn upside down, lid, hat”

shelter

•See “house, hut”

51. shine, glitter, bright

(PMP) ***lak** ‘shine’

(2AE1) ***celak** ‘to shine, of
heavenly bodies’

****lang** ‘rise/raise’
揚 (K720jo) OC ***rang** ‘lift,
raise’ (*Shih Ching*), ‘extol’
T **lang-pa** ‘to rise’

****lang** ‘rise/raise’
颺 (K720p) OC ***rang** ‘tossed
up by the wind’ (*Ch’u Tz’u*)
T **ldang-ba, ldangs ~ dangs,**
ldongs ‘to rise, get up’
T ****lang** ‘rise/raise’
陽 (K720eg) OC ***rang** ‘elated’
(Cf. T **slong ~ slang-ba,**
bslang, slongs ‘to raise,
cause to rise, excite, inspire’)

(PMP) ***law** ‘dazzling light’

(2Dp) ***ilaw** ‘reflected light’

****lay** ‘up/raise’
旗 (K89-lm) OC ***rag** ‘a kind
of flag; bending upwards
(hair curling)’ (*Shih Ching*),
‘to rise up (sc. the hair)’
昇 (K89a) OC ***ragx** ‘to lift’ (Han
texts only)
譽 (K89i) OC ***rag** ‘praise’
(*Shih Ching*), ‘joy’ (*Tso*
Chuan), ‘renown’
T **bla (~ rla)** ‘above, over,
upper’
(Cf. also OT **gla-dar** [= T
bla-dar] ‘flag on top of
house’)
耀 (K1124i) OC ***rəgwh** ‘shine,
brightness’ (*Shih Ching*)
Sc OC ***ljawkh**

(PMP) ***lak** might be related to

Sagart (1993a:47, 49 and 1993b:32) establishes the following relationship:

(D) ***gilang** 'to glitter'
(TO, FU) 'to shine' (*Shih Ching*)

陽 (K720e) OC ***raŋ** (l-j-)
'light, brightness; the sun'
(*Shih Ching*)

暘 (K720h) OC ***raŋ** (l-j-)
'sunshine, bright' (*Shu Ching*)

(B) ***(CfT)alang** 'throw into the air/
winnow'

揚 (K720jo) OC ***rang** (l-j-)

(B) ***[t]alang** 'throw into the air/winnow'
(See also Hogan 1993:40.)

sink

•See "*submerge, bury*"

5.2. *sip, suck, drink*

(PAN) ***sep** 'sip, suck'

****tsop** 'suck'

(1AE2) ***qesep** 'suck'

𪔐 (K660o) OC ***tsəp** 'sting
and suck'

****dzop** 'suck'

TB ***dzo:p** (Be #69 'suck,
kiss')

****hrap** 'bite/suck up'

呷 (K629*) OC ***hrap** 'to sip'

TB ***hap** (Be #89 'bite, snap at,
mouthful')

T **hab** 'mouthful, suck up'

Sagart (1993b:51) establishes the following relationship:

Root ***-sep** 'sip, suck'

𪔐 (K679*) OC ***tsəp** 'to suck,
lick' (Han text only)

(See also Hogan 1993:46.)

Sagart (1994:293ff.) establishes the following relationships for *to suck*:

(Br1) ***-sep** 'sip, suck'

𪔐 (K660o) OC ***tsəp**
(**[ts[i,u]p]**) 'to sting and suck
(sc. mosquitoes)' (*Lieh Tzu*)

𪔐 (K679*) OC ***tsəp** (**[ts[i,u]p]**)
'to suck, lick' (Han text
example only)

•See “*chew, taste, flavor*”

slap

•See “*palm/sole, slap, hand, five*”

53. sleep

(WMP) **nek** ‘sound of sleep’

(MAL) **jenak** ‘deep, of sleep’

(PWMP) ***DaR** ‘lean on, recline’

(3Dp+) ***sanDaR** ‘lean on’

****rnət** [~ -rnət(d)] ‘rest/sleep’

妥 (K354a) OC ***hnərɣ** (hnoj?)
‘tranquil’ (oracle bone
inscription)

(Cf. 綏 [K354g] [****snyəld** ? >])

***snjəd** ‘to give repose to,
calm’ [*Shih Ching*])

T **rnal** ‘rest, tranquility of mind’

(Cf. **mnal** [< ****mnət**?] ‘sleep’,

nyal-ba, nyol ‘lie down,
sleep’)

T **mnyel-ba** ‘to get tired’,

nyel-ba ‘to be ill’

OT **mnyald** ‘to fall ill, be sick in
bed’

The PWMP form requires a retroflex **N* (< ST ****nr-**) and subsequent loss of nasalization. Sagart (1993a:53) establishes the following relationship:

D ***tiDuR** ‘sleep’

睡 (K31d) OC ***d-j-uarh**

54. slip off/away

(PWMP) ***lus** ‘slip off’

(3B73+) ***luslus** ‘slip off, slip away’

****hlot** ‘loose/free/take off’

脱 (K324m) OC ***thuat** (< PC
***hluat**) (**hlots**) ‘take off’
(*Kuo Yu*), ‘take away’ (*Tso*
Chuan), ‘escape’ (*Lao Tzu*),
‘relieve’

Sc OC ***hluat(s)**

PTB ***g-lwat** ≠ ***s-lwat**
(LaPolla 1994:166 #5)

(PWMP) **rus₂** ‘slip, slide off’

(3Bnd) ***durus** ‘slide down’

脱 (K324m) OC ***thuadh** ‘easy,
leisurely’

T **lhod-pa, glod-pa, lod-pa**
‘loose, relaxed, unstrung;
easy of mind, careless’

****lot** ‘loose/free/take off’

脱 (K324m) OC ***duat** ‘take

(PMP) ***nut** ‘husk, fiber’

(2AE2) ***benut** ‘coconut husk’

off/away, escape, relieve'

****lot** 'loose/free/take off'

悅 (K324o) OC ***ruat** (**ljot**)
'pleased, glad' (*Meng Tzu*)

B **lwat** 'at liberty, free' (?)

B **hlwat** (< ****hlot**) 'to free,
release' (?)³⁰

PWMP ***lus** and ***rus** may indicate the result of the assimilation of the final *-t* to the *-s* of the morphological suffix *-s*: ***lut-s** > ***luC** > ***lus**, etc. There are multiple initials in both (P)AN and ST. Furthermore, the following probably also belongs here: (PAN) ***tut** 'flatulence' (1Dp+) ***qe(n)tut** 'id.', with ST ****ht-** > ***t-** in a process somewhat similar to that relating ST to OC.

Sagart (1993b:19) establishes the following relationship:

(WMP) **bu(ng)kas** 'to expose, unveil'
Root ***-kas₂** 'loosen, undo, untie'

揭 (K313n) OC ***kh-j-adh** 'to
lift up one's clothes' (*Shih Ching*)

(See also Hogan 1993:21.)

Sagart (1994:291) establishes the following relationship for *to slip off*, *loose*:

(Br1+) ***-lus** 'to slip off'

脱 (K324m) OC ***duat** (**lot**) /
***thuat** (**hlot**) 'peel off' (*Lieh Tzu*), 'take off (as clothes)'
(*Kuo Yu*), ('slip off' >)
'escape, disappear' (*Lao Tzu*)

蛻 (K324e) OC ***thuadh**
(**hlot+s**) / **sthjuadh**
(**hl-j-ot+s**) / **ruat** (**l-j-ot**)
'exuviae of insects or reptiles'
(*Chuang Tzu*)

說 (K324q) OC ***sthjuadh**
(**hl-j-ot+s**) 'let loose' (*Shih Ching*); 'speak'

駮 (K324d) OC ***thuadh**
(**hlot+s**) / **duadh** (**lot+s**)
'withdraw, flee' (*Shih Ching*)

³⁰ From the general TB perspective, it is clear that on the contrary WB *-wa-* reflects the more archaic pronunciation. PTB **-wa-* regularly > WT *-o-* (see Benedict 1972:49). [Ed.]

55. *soft*

(PAN) ***jaw** 'wash, bathe, rinse'
(IAE1) ***ba_njaw** 'wash, bathe'

****nyəgw** 'soften/knead/rub'
揉 (K1105b) OC ***njəgw/h**
'make pliable, twist, knead'
(*Shih Ching*)
柔 (K1105a) OC ***njəgw (nju)**
'soft, mild' (*Shih Ching*),
'gentle, flexible'
Sc OC ***njaw**
PTB ***now** 'soft' (LaPolla
1994:169 #12)
T **nyug-pa** 'rub, stroke, caress,
besmear'

PAN **n*- indicates the palatalization of the initial nasal due to the ST medial *-y-; however, the final is irregular, since *-uk/g is expected.

56. *split*

(PAN) ***Tak** 'sound of splitting,
cracking, knocking'
(1Dp+) ***beTak** 'to split'

****rjaɬ** 'separate'
離 (K23f) OC ***ljiaɬ (C-rjaɬ)** 'to
divide, be dispersed'
Sc OC ***rjaɬ**
T **ral-ba** 'to be torn, lacerated,
slashed to pieces'

The PAN initial indicates a retroflex which may be explained by the OC form ***C-rjaɬ** of Baxter 1992. Sagart (1993b:27) establishes the following relationship:

Root ***-Tak** 'sound of splitting,
cracking, knocking'

拆 (K792d) OC ***th-r-ak** 'to
split, be rent' (*Shih Ching*)

(See also Hogan 1993:43.)

•See "*separate(d)*"

•See "*split, separate*"

57. *split, separate*

(PMP) ***kaq₂** 'split'
(2Dp+) ***bekaw** 'split'

****kryey** 'divided/branching'
支 (K864a) OC ***krjig (kje)**
'branch' (*Shih Ching*),
'separate'
Sc OC ***kji**

(PAN) ***kaŋ₁** 'spread apart, as the legs'
(1B73+) ***ba(ŋ)kaŋ** 'bowlegged'

枝 (K864b) OC ***krjig (kje)**
'branch of a tree' (*Shih
Ching*), 'go astray'

肢 (K864c) OC ***krjig** 'limb of the body' (*Meng Tzu*)

T **'gye-ba, gyes** 'to be divided, separate; to part'

T **'gyed-pa, bgyes, bkye** 'to divide'

****gyey** 'divided/branching'

歧 (K864i) OC ***gjig** 'bifurcating, forked (sc. road)' (*Lieh Tzu*)

Sagart (1993b:38) establishes the following relationship:

(WMP) **pisik** 'split, cleave'

析 OC ***sik** (K857ab) 'cleave, split' (*Shih Ching*)

(See also Hogan 1993:43.)

•See "separate(d)"

•See "split"

58. *spotted, piebald*

(PMP) ***laŋ** 'striped'

(2Dp+) ***belan** 'spotted'

****mdon** 'variegated colors/dappled'

龍 (K1193a) OC ***mrung** (C-**rjoŋ**) 'mixed black and white'

彪 (K1201ab) OC ***mrung** 'particolored, motley'

駉 (K1201d) OC ***mrung** 'particolored animal, variegated'

T **mdon**s 'blaze, star on a horse's forehead; eyes on peacock's feather'

59. *spray, scatter, sow, sprinkle, squirt*

(PMP) ***buR₁** 'strew, sow; sprinkle'

(2Dp+) ***sa(m)buR** 'strew'

****pwrar** 'spread/sow'

班 (K190ab) OC ***pran** 'spread out, scatter' (*Tso Chuan*)

Sc OC ***pəran** 'to distribute'

(Cf. 播 [K195p] OC ***parh** 'spread, sow' [*Shih Ching*])

TB ***bwār** (Be 'throw away, cast, sow, toss')

T **'bor-ba** 'throw, cast'

In Sagart 1993a, PAN and PMP final ***-R** in the reconstructions of both

Blust and Dempwolff correspond to OC **-r* and **-d*: ‘snake’ *D *ulaR* :: *ηD *d-j-ar (l-j-)* and ‘dove’ *B1 *tuRtuR* :: OC **t-j-əd* 佳. (See #20 above.)

spread (out)

•See “*flat*”

•See “*split, separate*”

60. *squirt, penis, vulva, urine, urinate*

(PMP) **pes* ‘empty, deflated’

(2AE3) **i(m)pes* ‘deflate; subside
(of swelling)’

(PMP) **pis₁* ‘deflate, be empty’

(3Bnd) **e(m)pis* ‘empty rice husk’

****pjat** ‘send forth/vomit’

發 (K275c) OC ***pjat (pjat)**
‘send forth, issue, shoot,
throw out’ (*Shih Ching*)

Sc OC ***mpjət**

TB ***-pat**

PLB ***C-pat** ‘vomit’ (Matisoff
1972:35)

The PMP forms **pes* and **pis* require the morphological suffix **-s* and the assimilation of the final **-t* (< *C).

•See “*blow, wind*”

stand, person (self)

•See “*stick (into), push into, thread*”

61. *stare, fix the eyes on*

(PAN) **Neng* ‘stare, look fixedly’

(1AE1) **Neng* ‘gaze, stare at’

****mljan** ‘see’

望 (K742m) (PC ***mljanh** >) OC
***mjanh (mjans)** ‘look at
from afar’ (*Shih Ching*)

PTB ***mraŋ** ‘look, see’ (LaPolla
1994:164 #2)

TB ***mraŋ** (*A) (Be #146 ‘see’)

TB ***mraŋ** indicates a medial **-r-* which may indicate that the PAN form also had one, which resulted in the retroflex **N-* in the PAN form.

Sagart (1993b:34, 50) establishes the following relationships:

(WMP) **mangmang** ‘stare, fix
the eyes on’

望 (K742m) OC ***m-j-aŋ/h**
‘look from afar, look toward’
(*Shih Ching*)

望 (K743d) OC ***m-j-aŋ/h** ‘to
face, regard, look to’ (oracle
bones)

tengteng ‘stare, look fixedly’

(dbl. of [PAN] **Neng*;

cf. Blust 1986:66, 1988:128)

(See also Hogan 1993:44.)

瞪 (K833*) OC ***d-rj-aŋ**
‘look fixedly’ (*Kuang Yun*)

62. *stick (into), push into, thread*

(PMP) ***zeg** 'stand erect'

(3Bnd) ***ta(n)zeg** 'stand erect'

(PAN) ***sek₁** 'insert, stick into
a soft surface'

(1Bnd) ***Cesek** 'insert, force
into a soft surface'

(PMP) ***suk** 'enter, insert, penetrate'

(2Bnd) ***buRsuk** 'drive or force into'

****dyuk** 'dwell/establish'

['cognate to *'stay/remain'*']

樹 (K127jl) OC ***djugx** (**djos**)

'to plant' (*Shih Ching*),

'establish' (*Tso Chuan*)

Sc OC ***dju?**

PTB ***dzuk** (LaPolla 1994:171
#14)

僮

(K127eg) OC ***djugh**

'stand, be in attendance'

(oracle bone)

T **bzhugs-pa** (< **bdyugs** ?) 'to
sit, dwell'

(P)AN ***z** is reconstructed as a palatal affricate and ***s** is ambiguous between a dental/alveolar and palatal point of articulation.

Sagart (1994:293) establishes these relationships for *to stick into/to pierce*:

(Br1) ***sek** 'insert, stick into
a soft surface'

刺 (K868d) OC ***tshjik**

(**tsh-j-ek**) / **tshjigh**

(**tsh-j-ek+s**) 'pierce, prod,

stab' (*Shih Ching*, Zhou

bronze JWGL 927, *Meng Tzu*)

束 (K868a) OC ***tshjigh**

(**tsh-j-ek+s**) 'thorn' (Shang

inscription; *Shuo Wen*

without text example)

策 (K868e) OC ***tshjigh**

(**tsh-j-ek+s**) 'to prick' (*Ho*

Kuan)

63. *stop, stop up, stopper*

(PAN) ***Det** 'packed in, compressed'

(1B73+) ***DetDet** 'crowded,
crammed, dense'

(PAN) ***sek₂** 'cram, crowd'

(2AE3) ***be(n)sek** 'overcrowded'

****trjik** 'to stop up'

壑 (K413h) OC ***trjit** (< dial.

***trjit** < PC ***trjik**) (**trjit**) 'to
stop up'

T **'dig-pa** 'to stop up'

PAN***Det** indicates an initial retroflex which resulted from the ST cluster ****tr-**, and the final ***-t** agrees with the final of OC, the latter possibly resulting from the derivational suffix added to the final (***-k-s** > ***-t-s**) and a paradigmatic change resulting in reanalysis of the root to end with ***-t**. PAN ***sek₂**

represents the original final of the root but has a [+continuant] initial resulting from the ST medial ****j-**.

Sagart (1993b:46 and 1994:293) establishes the following relationship:

(Br1, *root*) ***sek** ‘cram, crowd’

塞 (K908a) OC ***sək (sik)** ‘stop up, block’ (*Shih Ching*), ‘fill’ (*Meng Tzu*)

(See also Hogan 1993:17.)

64. *stretch(ed), tight*

(PWMP) ***kaŋ3** ‘stiff, rigid; cramps’

(2AE1) ***kaŋkaŋ** ‘cramps, stiffening of the limbs’

(PMP) ***keŋ1** ‘cramps, stiffening of limbs’

(2AE1) ***keŋ** ‘stiff, as a corpse’

****gwljian** ‘long/stretch (1)’

永 (K764af) (PC ***gwljianx >**)

OC ***gwjianx (wraŋʔ)** ‘long, eternal’ (*Shih Ching*)

Sc OC ***wərjaŋʔ**

T **rgyɔŋ-ba, brgyaŋs, brgyaŋ** ‘extend, stretch’

T **rgyaŋ-ma** (< PT ***gryaŋ**) ‘distance’


Sagart (1993b:31) establishes the following relationship:

Root ***-kaŋ3** ‘stiff, rigid; cramps’

(2) **kaŋkaŋ** ‘rigor mortis’

(MAL) **jeŋkaŋ** ‘stark or stiff in death’

僵 (K710e) OC ***k-j-aŋh** ‘rigor mortis’ (*Kuang Yun*)

Mandarin 僵  **chian**¹ ‘stiff in death: numbed, stiff; dead’ (*Mathews*) [“reflects the Tone A prototype, ***k-j-aŋ**”]

剛 (K697b) OC ***kaŋ** ‘hard, strong (= rigid)’ (*Shih Ching*)

鋼 (K697h) OC ***kang** ‘steel’ (*Lieh Tzu*)

(See also Hogan 1993:45.)

65. *strong*

(PMP) ***kas3** ‘swift; agile, energetic’

(3AE3) ***ba(ng)kas** ‘swift, fast’

****ywas** ‘suitable/combine’

活 (K302-l) OC ***gwaŋ (gots < gops)** ‘to join, arrive’ (*Shih Ching*)

會 (K321ac) OC ***gwadh** (< PC ***gwaŋ**) ‘unite, assemble, collect’ (*Shih Ching*), ‘to combine, meet, encounter, conform to’

T **’os-pa** ‘suitable, fitting, worthy, appropriate’

Sagart (1993a:53) establishes the following relationship:

(D) ***makas** 'hard/strong, firm'

固 (K49f) OC ***kagh** 'secure;
strong, firm'

66. *submerge, bury*

(PWMP) ***neb** 'dive, sink,
disappear under water'

(3AE2) ***leneb** 'disappear under water'

(PMP) ***leb** 'sink, disappear'

(2Dp) ***lebleb** 'sink, disappear under
water'

****nup** 'enter/descend'

納內 (K695h,e) OC ***nəp** (**nup** /
nups) 'bring inside'

內 (K695e) OC ***nəbh** (**nuts**
< **nups**) 'inside'

Sc OC ***nets** 'inside, interior;
within'

TB ***nup** (Be #400 ***nup** ~ **nip**
= **nu:p** ~ **ni[:]p** 'sink')

T **nub-pa** 'fall, sink, set (sc.
sun/moon)'

T **nub** 'west'

snub-pa 'cause to perish,
suppress'

(PWMP) ***nej** 'submerge, sink, drown'

(3B73) ***lenej** 'disappear under water'

****njup** 'enter/descend'

入 (K695a) OC ***njəp** (**njup**)
'enter'

Sc OC ***njəp**

TB ***nup** (Be #400 ***nup** ~ **nip**
= **nu:p** ~ **ni[:]p** 'sink')

(PAN) ***Neb** 'door'

(1Tsu76) ***qeNeb** 'door(way); close a door'

TB ***nup** (Be ***nup** ~ **nip** = **nu:p** ~ **ni[:]p** 'sink') is linked to PTB
allofams ***nup** ✕ ***nip** (Be 400) 'west' by LaPolla (1987:8).

Sagart (1993b:48) establishes the following relationship:

(WMP) **leneb** 'disappear under water'

Root ***-neb** 'dive; sink, disappear under
water'

𩺰, (K670f) OC ***hn-j-əmx**
'disappear under water' (of
frightened fish)' (*Li Chi*)

suck

•See "*sip, suck, drink*"

support

•See "*cane, staff*"

67. swallow

(PMP) ***len** 'swallow'
(2Dp+) ***telen** 'id.'

****bɿyŋ** 'neck (2)'
領 (K823f) PC ***bljŋx** > OC
***ljŋx** (C-rjŋ?) 'neck'
(Shih Ching)
Sc OC ***rjŋ**

****mɿyŋ** 'neck (2)'
TB ***liŋ** (*A) (Be #96 ***liŋ** =
(m-)liŋ 'neck')
PT ***'lyiŋ** ~ **mliŋ** > **'jiŋ** ~ **mjiŋ**
T **'jiŋ-pa** ~ **mjiŋ-pa** 'neck'

The PMP form with the alveolar/dental nasal assumes that the ST velar nasal ****ŋ** form became a PMP dental/alveolar nasal ***-n**. This may have been an assimilation due to the morphological suffix ***-s** with a subsequent loss of the suffix. Only TET **folan** 'swallow' and SAM **folo** 'id.' indicate a labial (Blust 1988:121).

Sagart (1994:284) establishes the following relationship for *neck/gullet*:

(D1+) ***l[i]qeR** 'neck'

咽 (K370h) ***ʔin** (?in) 'gullet'
(Chan Kuo Tse)

68. swim, float

(PAN) ***puŋ2** 'float'
(2Bnd) ***apuŋ** 'id.'

****pyoy** 'float'
浮 (K136d) OC ***pjug** 'a raft,
a float' (Kuan)
浮 (K136h) OC ***phjug** /
phju 'a raft, a float' (Kuo
Yu)
T **'phyo-ba** ~ **phyo-ba** 'to
swim, float, flow'

****byam** 'float/flow'
汜 (K626c) OC ***bjamh** 'be
thrown about, to float about'
(Ch'u Tz'u)

(Cf. 洩 OC ***phjamh**
'overflow, inundate' [Meng
Tzu]; 'disperse', 'sprinkle'
[Li Chi])

(Cf. 泛汎 [K641b, 625f] OC
***phjamh** 'float' [Chuang
Tzu, Shih Ching])

T **'byam-pa**, **byams** 'flow
over, be diffused'

Of the two ST forms, probably the latter ****byam** would require a dissimilation of the final labial *-m* due to the initial labial, which is common in OC, i.e., ST ****byam** > *****byaŋ** > PAN ***puŋ**. The former, ST ****pyoŋ**, requires a raising of ST ****o** > PAN ***u** (not an uncommon development) for (PAN) ***puŋ** to qualify as an interlingual allofam.

tail, buttocks, anus

•See “*ended*”

tall

•See “*high*”

taste

•See “*chew, taste, flavor*”

69. think

(PAN) ***Dem₂** ‘think, ponder,
brood, remember’
(1Bnd) ***DemDem** ‘think, ponder,
consider’

****nyəm** ‘think’
念 (K670a) OC ***njəmX** ‘to
think’

****niəm** ‘think’
念 (K670a) OC ***niəm^h** (**nims**)
‘to think of’ (*Shih Ching*)
Sc OC ***gnəms(?)** ‘to think of,
remember, remind; care
about’
T **nyam(s)** ‘soul, mind, thought’
(Cf. **snyam-pa** ‘think, mind’)

****nyəm** ‘think’
任 (K667qr) OC ***njəmX** ‘to
think’ (Chou inscription
#306)

****sjəm** ‘heart/mind’
心 (K663ab) OC ***sjəm** (**sjim**)
‘heart, mind’ (*Shih Ching*)
TB ***sam** (Be **sam** = **səm**
‘breath, voice, spirit’)
T **sem(s)** (< ***samd** ?) ‘soul,
spirit, mind’
T **bsams** ‘thought’
T **sem(s)-pa, bsams, bsam,**
soms ‘to think’

The PAN form involves loss of nasalization with the initial cluster being understood as ****ʔlj-**, as in ST **ʔljum** 'dark (1)' and ****ʔljon** 'valley/ravine', both having the (P)AN initial reflex ***D-**.

Sagart (1994:284) establishes the following relationship for *to think*:

(B1, AE2) ***nemnem** 'think'

念 (K670a) OC ***niəm̥h**
(**nim+s**) 'think of' (*Shih Ching*, Chou bronze JWGL 1378)

𠂔 (K667q) OC ***njəm̥x**
(**n-j-im?**) 'think' ['with unexplained tone correspondence'] (late Chou inscriptions; *Hou Han Shu*)

70. *thrust through/into*

(PWMP) ***zur** 'thrust out, extend'

(3Bnd) ***unzur** 'shove, thrust forward'

****rtjal** 'spread/unfold'

展 (K201a) OC ***trjanx**
(**trjan[ʔ]s**) 'roll over' (*Shih Ching*), 'unfold, open' (*Yi Li*); 'develop, set forth, explain' (*Tso Chuan*)

T **rdal-ba, brdal, rdol** 'to spread, unfold, extend over'

The vowel correspondence is a problem, although the initial palatal ***z-** may be due to the ST medial **-j-**.

Blust (1988:164) lists the following words with this root containing dental/alveolar initials: TAG **duldol** 'show or thrust (something) with force into another' and MGG **wendor** 'extend the legs while sitting'.

•See "*worm, eel*"

71. *tie, enlase*

(PMP) ***kit** 'join along the length'

(2AEw) ***dakit** 'id.'

****kik** 'tie/knot'

結 (K393p) OC ***kit** (< dial. ***kit** < PC ***kik**) (**ki[t,k]**)
'to tie; knot' (*Shih Ching*)

Sc 'to tie, tie up'

(PAN) ***kes** 'encircle, wrap firmly around'

(1B70+) ***ba(R)kes** 'belt'

PTB ***kik** (LaPolla 1994:172 #15)

****kyik** 'tie/knot'

T **'khyig-pa, bkyigs, bkyig**
'to bind'

Both (PMP) ***kit** and (PAN) ***kes** indicate a possible assimilation of the ST final ****k** to the dental/alveolar point of articulation due to the derivational suffix ***-s**. The potential root (WMP) **kis₂** 'tie, bind' belongs here.

Sagart (1993b:40) establishes the following relationship:

(D) ***Ra(N)kit** 'tie together, raft'
Root ***-kit** 'join along the length'

結 (K393p) OC ***kit** 'tie; knot'
(Shih Ching)

(See also Hogan 1993:27.)

Sagart (1994:290) establishes the following relationship for *to encircle, wrap around*:

(Br1) ***-kes** 'encircle, wrap
firmly around'

紮 (K279d) OC ***kiat (ket)**,
giat (? N-**ket**) 'to wrap a
cord around an object and
measure it' (Ch'u Tz'u)
屢 (K279k) OC ***khiat (khet)**,
giat (? N-**khet**) 'girdle'
(Chuang Tzu)

Sagart (1994:294) establishes the following relationship for *to tie*:

(B1, AE4) ***SikeC** 'tie, attach to'

結 OC ***kit** (K393p) 'tie; knot'
(Shih Ching, I Ching, Tso
Chuan)

in which the final ***-C** would represent ***-t-s**, the affricate resulting from the final stop and the morphological suffix ***-s**.

•See "*bend/bent, arched, crooked*"

7.2. *turn, wind*

(PMP) ***bej** 'wind around repeatedly'

(3Bnd) ***qambej** 'wind around'

****kwyil** 'whirl/twist'

鈞 OC ***kwjin (kwjin)** 'potter's
wheel'

T ***khyil-ba** 'to wind, twist; turn
with a whirling motion'

(PMP) ***pil** 'attach, join'

(2AE2) ***Sa(m)pil** 'go together'

(PWMP) ***pid** 'braid'

(3AE2) ***apid** 'braid'

****kwjærd** 'turn/round'

歸 OC ***kwjæd** (K570ag)
[***wjijj**] 'to return'

T ***khor** 'circle'

T ***khor-ba** 'turn around, go in a
circle'

(PAN) ***bit₁** 'hook; grasp with
the fingers'

(3Dp+) ***bitbit** 'hold by the fingers'

OT **'khord** (Li and Coblin 1987: 379 **'khor** 'circle, wheel')
(Cf. OT **'khorte** 'verbal root ended in -d')

(PAN) ***wit** 'hook-shaped'

(3AE2) ***kalawit** 'hook'

****gwjərd** 'turn/round'
圍 (K571g) OC ***gwjəd (wji)**
'encircle, surround'

****gward** 'revolve/go around'
回 (K542ae) OC ***gwəd[wij]**
'revolve, go around'

T **sgor-mo** (< ***-gor** < PT ***gord**) 'round; a circle, globe'

Schuessler (1976:63) associates T **'khyil-ba** 'to wind, twist', **skyil-ba** (< ***s-k-yil**) 'to bend', and **'phyil-ba** 'to wind, twist'. Bodman (1988:5) associates the T **'khyil** 'twist, wind' with the cognate Chinese character with a double reading, a velar and a labial initial: 繆 (K1069-l) OC ***krjiw / mrjiw** 'twist'. In (P)AN, the velar reading may be represented in the (PAN) **kel** 'bend, curl' and (PMP) **kul** 'curl, bend':

| | | | |
|-------------------|---|-----------------------|--------------------|
| ST **kwyil | ／ | PAN *kel / kul | T 'khyil-ba |
| | ／ | PAN *pil | T 'phyil-ba |

with the ST labiovelar ****kw-** having both velar and labial reflexes in both (P)AN and T. This process of simplification of the complex onset is assumed to relate the (P)AN forms (PWMP) ***pid** 'braid' with ST ****kwjərd** 'turn/round' and (PAN) ***bit₁** 'hook; grasp with the fingers' and (PAN) ***wit** 'hook-shaped' with ST ****gwjərd** 'turn/round', with subsequent change of the feature [-continuant] of the initial stop ***b-** to [+continuant] ***w-**.³¹

Sagart (1994:288) establishes the following relationship for *bent*:

(Br1) ***-kul** 'curl'

卷 (K226a) OC ***gwjian**
(**N+k-rj-on?**) 'bend, curved'
(*Shih Ching*), 'rolled hand,
fist' (*Li Chi*), also written as

拳 [K226g] 'id.'

卷 (K226d) OC ***kwhjian**

³¹ Solnit 1988 discusses some velar and labial contacts for Kam, although for completely different roots (*dog*, *pig* and *flea*), and his conclusion about the processes involved are different.

(**kh-rj-on**) 'crooked wood'
(*Kuo Tse*), 'bowl made of
curving wood' (*Meng Tzu*)

髻 (K226e) OC ***khwjian**
(**kh-rj-on**) / **gwjian**
(**N+k-rj-on**) 'curly hair of
foreigners' (*Kuang Yun*)

瘥 (K226*) OC ***gwjian**
(**N+k-rj-on**) 'sickness of
crooked hands' (*Kuang Yun*)

•See "sew, plait, weave"

wash, rinse

•See "soft"

73. water

(PWMP) ***luR** 'flow'
(3Dp) ***aluR** 'pond, stream'

(PMP) ***lir** 'flow'
(2Dp) ***aliR** 'flow'

****hwrjid** 'water/stream'
水 (K576a) OC ***hwrjidx**
(**hljjuj?**) 'water' (oracle
bone inscription), 'river,
stream'

TB ***lwi(y)** (Be #210 'flow;
stream')

Blust (1988:122) lists the following words with **s-* for (PMP) ***lir** 'flow' and (PWMP) ***luR** 'flow', respectively: (3B73) ***saliR** 'glow', (SAN) **sellihē?** 'current', and (3Dp) ***saluR** 'pond, stream', (BKL) **sulog** 'flow (of water), current'.

Sagart (1993b:44) establishes the following relationship:

(D) ***aluR** 'waters'

水 (K576a) OC ***h-rj-ædx** (**hl-j-**)
'water' (*Shih Ching*) 'body of
water' (*Kuo Yu*)

(See also Hogan 1993:49.)

Sagart (1994:285) establishes the following relationship for *to flow/water(s)*:

(Br1+) ***-luR** 'to flow'

水 (K576a) OC ***hwrjidx**
(**hl-j-uj?**) 'river' (*Shih Ching*, *Shu Ching*) 'body of
water' (*Shu Ching*); 'water
(*I Ching*)

weep

•See “*anger, angry*”

wind (n.)

•See “*blow, wind*”

wind (v.)

•See “*turn, wind*”

74. worm, eel

(PWMP) ***til** ‘small protruding part’

(3AE1) ***i(n)til** ‘clitoris’

****rtol** ‘pierce/tip’

端 (K168d) OC ***tuan (ton)** ‘tip, end, point’ (*Li Chi*), ‘first’

T **rdol-ba, brdol** ‘to come out, break forth, issue from; to come up, sprout, shoot up’

(Cf. **rtol-ba, brtol** ‘to bore, pierce, perforate; arrive’)

The PWMP vowel may represent an assimilatory process due to the dental/alveolar consonants.

Blust (1988:156) lists the following words containing this root which seem to indicate a labial prefix:

(SND) **bentil** ‘pimples’

(MAL) **pentil** ‘sprout, rudimentary fruit’

•See “*thrust through/into*”

4.0. PROCESSES

(P)AN segmental correspondences with ST, OC, TB, and T are listed in Appendix 2 for consonants and Appendix 3 for vowels. Although not all correspondences seem regular, those that do will be discussed below.

4.1. Consonantal Processes

There seem to be three processes relevant for relating (P)AN to ST: retroflexion of **t*, **d* and **n*, palatalization of **t*, **d* and **n*, and affrication of **t*.

4.1.1. Retroflexion

The segments **T*, **D* and **N* are reconstructed as retroflex consonants for (P)AN and, although there has been a great deal of dispute about their status, the word-initial correspondences with the other languages are to a great extent in words containing the **-r-* infix in one or more languages:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | <i>#</i> |
|--------|------------------|-----------|-----------------|-----------|----------|----------|
| (PAN) | Dem ₁ | ʔl-j- | ʔj- (ʔ(r)j-) | | r- | #18 |
| (PMP) | Duŋ | ʔl-j- | ʔj- (ʔ(r)j-) | | r- | #37 |
| (PWMP) | DaR | r-n- | h-n- (hn-) | | r-n- | #53 |
| (PAN) | Det | t-ɾ-j- | t-r-j- (t-r-j-) | | 'd- | #63 |
| (PAN) | Dem ₂ | ny- | n-j- (n-) | | | #69 |
| (PAN) | Tuk | r-t-j- | t-r-j- | | | #5 |
| (PAN) | Tuŋ | r-d- | d-r- | | r-d- | #5 |
| (PAN) | Tak | ɾ-j- | l-j- (C-r-j-) | | r- | #56 |
| (PAN) | Neŋ | m-l-j- | m-j- (m-j-) | m-r- | | #61 |

(The Tibetan reflexes are all those of written Tibetan and not a phonetic or phonemic transcription.) The PAN reflexes of the ST onset cluster ***ʔl-j-* seem to be an interpretation of the initial glottal stop as the manner of articulation [-continuant] and the point of articulation of the following ***-l-*, dental/alveolar, which is then interpreted as a retroflex segment. This would be an example of the Obligatory Contour Principle (OCP) (Kenstowicz 1994:322ff.), which maximizes distinctions between phonological segments: in this case, [+/-continuant] and dental/alveolar and retroflex:

| ʔ | l j | d | r |
|---------|---------|------------|------------|
| [-cont] | [+cont] | [-cont] | [+cont] |
| [-cor] | [+cor] | [+cor] | [+cor] |
| | | [+ant] | [-ant] |
| | | [-distrib] | [+distrib] |

in which “cont” is ‘continuant’, “cor” is ‘coronal’, “ant” is ‘anterior’, and “distrib” is ‘distributed’. This is probably a syllable process in (P)AN to limit the number of segments in an onset, from three in ST to two, with a subsequent retroflexion of the cluster ***dr-*. The medial ***j-* may be a trigger in the sense that it creates a non-optimal onset. The same assimilatory process would also explain the retroflex *N-* and ST ***mlj-*, the nasal assimilating to the [+cor] of the lateral which become a [-anterior] [+distrib] retroflex in the cluster ***nr-*.

Within ST, ***l- > OC *r- / TB *l-*, but ST ***ʔl- > OC *ʔ- / TB *r-*, in which the glottal stop and liquid become a non-lateral as in (P)AN. Therefore, this process in (P)AN is more similar to a process in TB than in OC.

Within PAN, the **r* occurs also as a *word affix* prefixed to roots corresponding to ST words. This can be forced in PAN by ranking an onset constraint ONSET-COND that restricts the number of consonants and/or sequences of permissible consonants higher than an EDGEMOST (*r*, L) constraint that forces the affix to be an infix unless the onset constraint is violated. The following would be such a ranking:

ONSET-COND >> EDGEMOST (*r*, L)

in which *r* will be infixal unless there are more than two consonants (of a certain type) in the onset.

4.1.2. *Palatalization*

The (P)AN segments **c*, **z*, and **ɲ* are reconstructed as palatal consonants for (P)AN. As Blust (1990a:234) observes, none of these occur in final position; therefore, they should be considered as positional variants of other phonemes. Of these correspondences here, all occur before ST high front vowels or glides:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|--------|------------|-----------|-----------------|----------|-----|
| (PMP) | cik | ti- | ti- | 'thi- | #22 |
| (PMP) | zeg | dy- | d-j- (d-j-) | | #62 |
| (PWMP) | zur | r-t-j- | t-r-j- (t-r-j-) | d- | #70 |
| (PAN) | ɲam | ny- | n-j- | n-y- | #13 |
| (PAN) | ɲaw | ny- | n-j- (n-j-) | n-y- | #55 |

Because (P)AN **s* is ambiguous between a dental/alveolar and a palatal point of articulation, it too seems to have reflexes in other languages in which a dental occurs with a high front vowel or glide:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|-------|------------------|-----------|-----------------|----------|-----|
| (PAN) | sek ₁ | dy- | d-j- (d-j-) | | #62 |
| (PAN) | sek ₂ | t-r-j- | t-r-j- (t-r-j-) | 'd- | #63 |

This is probably a syllabic process in which there is a restriction on the number of segments in the onset (ONSET-COND) as above; however, because ST ***j-* and ***y-* merge in OC, this may be more similar to a process in OC rather than one in TB.

4.1.3. Affrication

The morphological suffix **-s* produces an assimilation of the coda to the dental/alveolar affricate **-C*:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|-------|------------|-----------|-----------|----------|-----|
| (PAN) | buC | -t | -t (-t) | -d | #45 |

(Although written Tibetan has syllable-final stops transcribed as */-b, -d, -g/*, these were pronounced voiceless, since TB has only voiceless syllable-final stops.) The assimilation results in morphologically underived dental stops in both (P)AN and OC through the process of paradigmatic regularization (leveling). In addition, in some cases the affricate **-C* is simplified to the fricative **-s* at the PMP and PWMP levels:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|--------|------------------|-----------|-----------|----------|-----|
| (PMP) | pus ₂ | -t | -t (-t) | | # 8 |
| (PMP) | ris ₂ | -t | -t (-t-s) | | #48 |
| (PWMP) | lus | -t | -t (-t-s) | -d | #54 |

In the latter two the reconstructions of Baxter do indicate the suffix **-s*.

Furthermore, the (P)AN reconstructions do indicate an assimilation of velar **-k* to the dental/alveolar point of articulation as in the case of OC in the reconstructions of Baxter:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|-------|------------|-----------|-------------|----------|-----|
| (PMP) | let | -ʔ | -k (-k-s) | -0 | #28 |
| (PAN) | ket | -k | -t ([t,-k]) | -g | #71 |
| (PMP) | kit | -k | -t ([t,-k]) | -g | #71 |

For the former, there is paradigmatic regularization. For this form, Baxter reconstructs an OC suffix **-s* and an ambiguous final **-t/-k*, respectively.

The (P)AN forms with final **-t/-s/-C* for which we have no comparative evidence are the following:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>T</i> | # |
|-------|------------|-----------|-----------|----------|-----|
| (PAN) | ŋaC | -k | -k | -g | #2 |
| (PMP) | ŋis | -k | -k | -g | #2 |
| (WMP) | get | -k | -k | -g | #2 |
| | git | -k | -k | -g | #2 |
| (PAN) | Det | -k | -t | -g | #63 |

4.2. *Vowel Processes*

There are two rule-governed processes discernible for vowels: labialization of ST ***ə* and ***a* before a velar; and raising of ST ***e* and ***o* to **i* and **u* respectively.

4.2.1. *Labialization*

One of the more common processes concerning vowels is labialization, where a vowel is labialized (rounded) due to a labiovelar final such as *-kw*. For ST ***ə*, PAN and PMP **u* occurs as is indicated below:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|-------|------------------|-----------|-----------|-----------|----------|-----|
| (PMP) | luk | jəɣw | jəɣw (ok) | | u | #3 |
| (PAN) | Tuk | jəɣw | jəɣw | | | #5 |
| (PAN) | kuŋ | jəŋw | jəɣw (ɤŋ) | uŋ | | #6 |
| (PMP) | kuk ₂ | əɣw | əɣw (uks) | | | #11 |

Exceptions include:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|-------|------------|-----------------|-----------|-----------|----------|-----|
| (WMP) | teg | ək _w | əɣw (u?) | | ug | #5 |
| (PAN) | jaw | əɣw | əɣw (u) | | ug | #55 |

For the ST vowel ***a* the final is lost and an offglide **-w* replaces the coda at the PAN through PWMP levels:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|--------|------------|-----------|-----------|-----------|----------|-----|
| (PWMP) | naw | aɣw | agw | aw | od | #10 |
| (PAN) | kaw | aɣw | agw (aw) | | o | #35 |

and the following in which a [+continuant] velar is sufficient for PMP and PWMP roots:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|--------|------------|-----------|-----------|-----------|----------|-----|
| (PWMP) | Raw | aɣ | ag | a | | #24 |
| (PWMP) | taw | aɣ | ag | | a | #44 |
| (PMP) | law | aɣ | ag | | a | #51 |

There are, however, several exceptions to the latter, all at the PMP level:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|-------|------------------|-----------|-----------|-----------|----------|-----|
| (PMP) | baw ₁ | uɣ | ug | u | u | #34 |
| (PMP) | pak ₁ | aɣ | ag | a | | #43 |
| (PMP) | pag | aɣ | ag | a | | #43 |

The first is unexpected and the latter two fail to produce the expected coda *-w.

A quite contrary result is the delabialization of ST **u* ~ *o* to (P)AN **e* (schwa). The following are examples of this process:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|--------|------------------|-----------|-----------|-----------|----------|-----|
| (PAN) | Dem ₁ | um | əm (um) | | um | #18 |
| (PAN) | sep | op | əp | o:p | | #52 |
| (PWMP) | neb | up | əp (up) | up ~ ip | ub | #66 |

Both (P)AN and OC (in the reconstructions of Li and Coblin) undergo this process. Sagart (1994:297ff.) derives OC **u* from PAN **e* (schwa) before labials; however, this would be the reverse of the process assumed in this paper, if one uses Baxter's reconstructions of OC.

4.2.2. *Raising*

Because (P)AN is reconstructed without the mid vowels **e* and **o*, it might be expected that these ST vowels would be raised to merge with **i* and **u* respectively. The following are examples of this process:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|--------|------------------|-----------|-----------|-----------|----------|-----|
| (PMP) | ning | e | i | | e | #14 |
| (PMP) | pis ₁ | e | ia | i | e | #27 |
| (PMP) | ris ₂ | e | ia | | | #48 |
| (PMP) | rit | e | ia | | | #48 |
| (PMP) | Dung | o | u | | o | #37 |
| (PMP) | dut | o | u | | o | #45 |
| (PWMP) | lus | o | ua | | o | #54 |
| (PWMP) | rus ₂ | o | ua | | o | #54 |

Although corresponding OC reflexes often involve diphthongization, there seems to be a process of raising involved: ST ***e* > OC **i* before velars, elsewhere **ia*; ST ***o* > OC **u* before velars, > **ə* before labial and labiovelar finals, > **ua* before dental finals and **y*, with the **ua* becoming **a* after labiovelar initials.

In the following group, all related to one ST form, there also seems to be raising and fronting:

| | <i>PAN</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | # |
|-------|------------|-----------|-----------|-----------|----------|----|
| (PAN) | ŋiC | jo | ju | | o | #2 |
| (PMP) | ŋis | jo | ju | | o | #2 |
| (WMP) | git | jo | ju | | o | #2 |

although in many cases, particularly with labial consonants and the medial ***w-*, the ST medials ***j-* and ***y-* are lost with little apparent effect on the (P)AN vowels.

Sagart (1994:297ff.) derives OC **i* from PAN **e* (schwa) before dentals; however, that is not indicated by the correspondences herein.

5.0. CONCLUSION

In optimality theory, all morphological affixes are basically the same. Placement is determined by a constraint such as the following:

EDGEMOST (φ; E;D)

in which φ is the affix, E is L(ef) or R(igh) t, and D the domain. By ranking other constraints such as complex onsets prohibiting certain sequences of consonants in the onset, an infix becomes a prefix. Within a language, a diachronic change might occur in the ranking of these constraints affecting onset and coda (phonotactics) and interactions with principles such as the SSP (Kenstowicz 1994:254ff.) and the Sonority Sequencing Generalization (Blevins 1996:213ff.) which determine the maximum peaks within syllables. Several of the processes discussed above are syllabic, in that they are related to the number of segments in the onset or coda. Affrication and retroflexion incorporate the following approximants into initial consonants, thus reducing clusters. Other processes such as raising may be related to OC ablaut relations and, although ST reconstructions in Coblin 1986 do not seem to reflect the same relationships in ST, these may be indicative of a close historical relationship between OC and PAN as argued by Sagart (1993a, b, c; 1994).

Within both (P)AN and ST, there exist word families of related allofams, displaying similar morphophonemic relationships. Common alternations are

between final labials and velars as in (P)AN ***kup** 'enclose, cover', ***kum** 'enclose by folding' and ***kuk** 'bent, crooked', ***kuŋ₁** 'bend, curve'. These word families are in turn related by morphological processes such as the infixes of (P)AN and OC such as the ***-r-** which resulted in the phonological process of retroflexion in (P)AN and subsequently MC, e.g., ***Det** 'packed in, compressed', ***Tuk** 'knock, pound, beat'.

Within (P)AN, various phonological processes have occurred which have somewhat obscured the relationships of various cognates with those in ST. One of the more apparent is labialization in which ST ****ə** has (P)AN ***u** as a reflex, as in (PAN) ***kuŋ** 'bend, curve' and (PMP) ***kuk₂** 'cackle', due to the labiovelar finals ****əy_w**, etc.

A comparison of the (P)AN roots in Blust 1988 with the ST reconstructions in Coblin 1986 has brought out some inadequacies. One of the more apparent is the phonological word structure of (P)AN, which will have to be modified to include sequences of two word-final consonants: ***-k-s** and ***-t-s**, such as in PAN ****drek-s** 'packed in, compressed' and ****ŋit-s** 'anger, irritation', the latter being represented as a unit phoneme in the reconstructions of Blust.

The use of the roots in Blust 1988 has identified many related forms; however, this procedure may be necessary but not sufficient in that (P)AN prefixes may be related to ST initials as in the following:

| | | | | |
|-------------------------------|--------------------------------|---------|---------------|------------------------|
| ST **kljəy_w | 'elbow' | (3Bnd) | *kaluŋ | 'curved' |
| ST **bljiy | 'draw/mark' | (2B70+) | *burik | 'speckled' |
| ST **kret | 'scrape' | (2Dp) | *garis | 'scratch; draw a line' |
| ST **mdoŋ | 'variegated colors/dappled' | (2Dp+) | *belan | 'spotted' |

In these words the ST ****l-** and ****r-** apparently become root initials in the (P)AN forms. Even at the OC level, roots may not be sufficient, as Sagart (1993b:13) realizes when he establishes the correspondence between OC aspirated stops and (P)AN voiceless stops preceded by homorganic nasals or by ***-R-**. In addition to this correspondence, there are the following: 頤 OC ***h₂juk** 'discontented' in which the OC ***h-** may be represented by the prefix ***se-** in (PWMP) ***seŋit** 'irritated; annoyed' and 脱 OC ***thuāt** < PC ***hluat** (***hlots**) 'take off' in which the initial sequence may be represented in the dental prefix ***du-** in (PWMP) ***durus** 'slide down', ***lurus** 'slip off'. This is, of course, what Benedict did (1967:321ff.) in his comparison of AT 'sell' > IN ***bəli** ~ ***bili** with MC **mai** 賣 'sell'.

Although we have demonstrated that word families, morphological processes, and semantic reconstructions relate reconstructions in (P)AN and ST, not merely OC, the fact that languages can borrow morphological processes (e.g., the verbal morphology from Russian into Aleut: Thomason and Kaufman

[1988:233ff.], referred to in Sagart [1994:301]) persuasively argues against a premature attempt to establish a new language stock such as “Sino-Austronesian” (as in Sagart 1993a, b, c, and 1994). It is precisely because the dynamics of the social situations in Asia several thousands years ago are not known as well as those of the Mednyj Aleut that this cautionary approach should be taken.

APPENDIX 1

Language and Language Family Abbreviations

| | | | |
|------|------------------------|------|--|
| AKL | Aklanon (WMP) | MAN | Mandar (WMP) |
| AMIS | Amis (PW) | MAR | Maranao (WMP) |
| B | Burmese (TB) | MATU | Matu (WMP) |
| BAL | Balinese (WMP) | MC | Middle Chinese (ST) |
| BGS | Buginese (WMP) | MGG | Manggarai (CMP) |
| BIL | Bilaan (WMP) | NgD | Ngaju Dayak (WMP) |
| BON | Bontok (WMP) | NIAS | Nias (WMP) |
| BM | Bolaan Mongondow (WMP) | OC | Old Chinese (ST); <i>also</i> Oceanic (OC) |
| BUS | Busand (WMP) | OJ | Old Javanese (WMP) |
| CEB | Cebuano (WMP) | OT | Old Tibetan (TB) |
| CHM | Chamorro (WMP) | PAI | Paiwan (PW) |
| EMB | Embaloh (WMP) | PAZ | Paseh (F) |
| FI | Fijian (OC) | PGS | Pangesinan (WMP) |
| FU | Futana | PR | Proto-Rukai (F) |
| HLG | Hiligaynon (WMP) | PUY | Puyuma (PW) |
| HO | Hova (WMP) | ROTI | Roti (CMP) |
| IB | Iban (WMP) | SA'A | Sa'a (OC) |
| ILK | Ilokano | SAN | Sangir (WMP) |
| ISG | Isneg (WMP) | SAS | Sasak (WMP) |
| IVT | Ivatan | SGH | Singhi (WMP) |
| JA | Javanese (WMP) | SM | Samoan (OC) |
| KAY | Kayan (WMP) | SML | Samal (WMP) |
| KB | Karo Batak (WMP) | SND | Sundanese (WMP) |
| KEN | Kenyah (WMP) | T | Tibetan (TB) |
| KIP | Kiput (WMP) | TAE | Tae' (WMP) |
| KMB | Kambera | TAG | Tagalog (WMP) |
| LgA | Long Anap (WMP) | TB | Toba Batak (WMP); <i>also</i> Tibeto-Burman (TB) |
| MAD | Madurese (WMP) | TO | Tonga (OC) |
| MAK | Makasarese (WMP) | WBM | West Bukidnon Manobo (WMP) |
| MAL | Malay (WMP) | WT | Written Tibetan (TB) |

Abbreviations for language groupings and reconstructed forms include the following:

| | | | |
|-----|---------------------------|------|---------------------------------|
| AN | Austronesian | PMP | Proto-Malayo-Polynesian |
| AT | Austro-Thai | PT | Proto-Tibetan |
| CMP | Central Malayo-Polynesian | PW | Paiwanic (Formosa) |
| F | Formosan | PWMP | Proto-Western-Malayo-Polynesian |
| OC | Oceanic | ST | Sino-Tibetan |
| PAN | Proto-Austronesian | TB | Tibeto-Burman |
| PC | Proto-Chinese | WMP | Western Malayo-Polynesian |
| PLB | Proto-Lolo-Burmese | | |

Abbreviations for AN reconstruction levels and sources include the following (full references appear in the bibliography):

| | |
|-------|-------------------|
| 1 | PAN |
| 2 | PMP |
| 3 | PWMP |
| AE1 | Blust 1980 |
| AE2 | Blust 1983-84 |
| AE3 | Blust 1986 |
| B70 | Blust 1970 |
| B72A | Blust 1972a |
| B72B | Blust 1972b |
| B73 | Blust 1973 |
| B77 | Blust 1977 |
| B78 | Blust 1978 |
| B81 | Blust 1981 |
| Be | Benedict 1972 |
| Bnd | Blust n.d. |
| Dp | Dempwolff 1934-37 |
| Dy | Dyen 1965 |
| Sc | Schuessler 1987 |
| Tsu76 | Tsuchida 1976 |

APPENDIX 2

Consonant Correspondences

Ambiguous segments such as (P)AN **p*- and **k*- corresponding to ST **k(h)w*- are listed twice. Furthermore, where the ST forms are incomplete, the (P)AN segment is listed twice: e.g., PMP *p*- corresponding to ST *pj*-, OC *pj*- and TB *p*- #43, but ST *pj*-, OC *pj*- and T *ph*- #32.

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|-------|------|---------|-------|---------|
| p- | | | | py- | pj- | | 'phy- | #69 |
| p- | | | | pj- | pj- | | ph- | #32 |
| | p- | | | pj- | pj- | p- | | #43 |
| | p- | | | pj- | pj- | | ph- | #32 |
| | p- | | | pɸ- | pr- | | 'ph- | #30 |
| | p- | | | pr- | pr- | p- | | #43 |
| | p- | | | by- | bj- | | 'by- | #68 |
| | p- | | | p- | dmy- | | dmy- | #41 |
| | p- | | | rmjw- | mj- | rmjw- | rm- | #21 |
| | p- | | | kwj- | kwj- | | 'khy- | #72 |
| | | p- | | p- | p- | py-/by- | 'b- | #50 |
| | | p- | | pj- | pj- | | ph- | #32 |
| | | p- | | ph- | ph- | | 'b | #31 |
| | | p- | | kwj- | kwj- | | 'kh- | #72 |
| | | | p- | pj- | pj- | p- | | #43 |
| | | | p- | pr- | pr- | p- | | #43 |
| -p | | -p | | -p | -p | -p | | #52 |
| | | -p | | -p | -p | | -b | #16 |
| | | -p | | -p | -dh | | -b | #31 |
| b- | | | | phj- | phj- | | 'b- | #45 |
| b- | | | | pj- | pj- | | | #45 |
| b- | | | | dmy- | mj- | | dmy- | #41 |
| b- | | | | kwj- | kwj- | | 'kh- | #72 |
| b- | | | | gwj- | gwj- | | sg- | #72 |
| | b- | | | pj- | pj- | | ph- | #32 |
| | b- | | | dh- | d- | (d)b- | dh- | #34 |
| | b- | | | pɸ- | pr- | bw- | 'b- | #59 |
| | b- | | | dmy- | mj- | | dmy- | #41 |
| | b- | | | kwj- | kwj- | | 'khy- | #72 |
| | | b- | | bjw- | bj- | | b- | #42 |
| | | b- | | mj- | mj- | m- | m- | #40 |
| | | | b- | pj- | pj- | | | #6 |
| | | | b- | my- | mj- | m- | m- | #27 |
| | -b | | | -p | -b | | -b | #16 |
| | | -b | | -p | -p | -p | -b | #66 |
| m- | | | | dmy- | mj- | | dmy- | #41 |
| | | m- | | dmy- | mj- | | dmy- | #41 |
| -m | | | | -m | -m | -m | -m | #36, 69 |
| | | -m | | -m | -m | -m | -m | #36 |

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|--------|------|------|------|------------|
| w- | | | | kwj- | kwj- | | 'kh- | #72 |
| w- | | | | gwj- | gwj- | | sg- | #72 |
| -w | | | | -gw | -gw | | -g | #55 |
| -w | | | | -ɣw | -gw | | -0 | #35 |
| | -w | | | -Y | -g | -0 | -0 | #34, 51 |
| | | -w | | -ɣw | -gw | -w | -d | #10 |
| | | | -w | -Y | -g | | -0 | #44 |
| t- | | | | tsh- | tsh- | ts- | ts- | #1 |
| t- | | | | d | d | | 'd- | #29 |
| | t- | | | n-/Cn- | hn- | n- | n- | #4 |
| | t- | | | sm- | hm- | | sm- | #4 |
| | t- | | | dy- | dj- | | 'j- | #33 |
| | t- | | | rdj- | dj- | | rd- | #26 |
| | | t- | | th- | th- | | t- | #26 |
| | | t- | | rt- | t- | | rd- | #74 |
| | | t- | | ts- | ts- | ts- | tsh- | #38 |
| | | | t- | n-/Cn- | hn- | n- | n- | #4 |
| | | | t- | t- | t- | | th- | #5 |
| | | | t- | d | d | | 'd- | #44 |
| -t | | | | -k | -t | | -g | #63 |
| -t | | | | -rd | -d | | -r | #72 |
| | -t | | | -t | -t | | | #48 |
| | -t | | | -t | -t | | -d | #8, 45, 47 |
| | -t | | | -k | -k | | -g | #71 |
| | -t | | | -ʔ | -k | | -0 | #28 |
| | | -t | | -t | -t | | | #48 |
| | | | -t | -k | -k | | -g | #2 |
| | d | | | d | d | | d | #45 |
| d | | | | -r | -n | | -r | #12 |
| | | -d | | -t | -t | -t | | #48 |
| | | -d | | -r | -n | -r | -r | #50 |
| | | -d | | -rd | -d | | -r | #72 |
| | | | d | -r | -n | | -r | #12 |
| -C | | | | -t | -t | | -d | #45 |
| -C | | | | -k | -k | | -g | #2 |
| s- | | | | dy- | dj- | | bzh- | #62 |
| s- | | | | trj- | trj- | | 'd- | #63 |
| s- | | | | ts- | ts- | dz- | | #52 |
| s- | | | | hr- | hr- | h- | h- | #52 |
| -s | | | | -k | -t | | -g | #71 |
| | -s | | | -t | -t | | | #8, 48 |
| | -s | | | -s | -t | | -s | #65 |
| | -s | | | -k | -k | | -g | #2 |
| | | -s | | -t | -t | | -d | #54 |
| | n- | | | mdj- | mj- | | md- | #14 |
| | | n- | | n- | n- | n- | n- | #66 |
| | | n- | | mj- | nj- | r-n- | m- | #25 |
| | | n- | | mj- | mj- | r-ŋ- | mj- | #10 |
| | | | n- | m- | hn- | | m- | #53 |
| -n | | | | -ŋ | -ŋ | | -ŋ | #32 |

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|-------|-------|-----|-------|---------|
| l- | | | | bty- | blj- | | | #67 |
| l- | | | | mty- | | | 'j- | #67 |
| l- | | | | ɛj- | lj- | | r- | #49 |
| l- | | | | rm- | hm- | | rm- | #19 |
| | l- | | | kl- | tr- | | gr- | #3 |
| | l- | | | kr- | kr- | | kh- | #3 |
| | l- | | | kr- | kr- | | | #48 |
| | l- | | | rl- | r- | | rj- | #28 |
| | l- | | | l- | r- | | l- | #39, 51 |
| | l- | | | d- | d- | | d- | #37 |
| | l- | | | md- | mr- | | md- | #58 |
| | l- | | | n- | n- | | n- | #66 |
| | l- | | | ʔj- | ʔj- | 0- | | #68 |
| | | l- | | t- | d- | | | #54 |
| | | l- | | l- | r- | | | #54 |
| | | l- | | ht- | th- | | lh- | #54 |
| | | l- | | hwrj- | hwrj- | lw- | | #73 |
| | -l | | | -l | -n | | -l | #9, 72 |
| | -l | | | -r | -n | -r | -r | #50 |
| | | -l | | -l | -n | | -l | #74 |
| | r- | | | kr- | kr- | | | #48 |
| | r- | | | blj- | blj- | | 'bri- | #15 |
| | | r- | | t- | d- | | | #54 |
| | | r- | | l- | r- | | | #54 |
| | | r- | | ht- | th- | | lh- | #54 |
| -r | | | | -r | -n | | -r | #29 |
| | | -r | | -r | -n | -r | -r | #40 |
| | | -r | | -l | -n | | -l | #70 |
| -y | | | | -t | -r | | -l | #33 |
| D- | | | | ʔlj- | ʔj- | | r- | #18 |
| D- | | | | ny- | nj- | | | #69 |
| D- | | | | n- | n- | | ny- | #69 |
| D- | | | | tɛj- | trj- | | 'd- | #63 |
| | D- | | | ʔlj- | ʔj- | | r- | #37 |
| | | D- | | rn- | hn- | | rn- | #53 |
| | | -D | | -r | -n | | -r | #30 |
| T- | | | | rt- | tr- | | rd- | #5 |
| | | | | rd- | dr- | | rd- | #5 |
| T- | | | | ɛj- | lj- | | r- | #56 |
| N- | | | | mlj- | mj- | mr- | | #61 |
| | c- | | | t- | t- | | 'th- | #22 |
| | z- | | | dy- | dj- | | dy- | #62 |
| | | z- | | rtj- | trj- | | rd- | #70 |
| | -j | | | -l | -n | | -l | #72 |
| ɲ- | | | | ny- | nj- | ny- | | #13, 55 |
| ɲ- | | | | sn- | hn- | | | #13 |

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|-------|------|-------|---------|-----------|
| k- | | | | k- | k- | k- | | #6 |
| k- | | | | k- | k- | | mk- | #12 |
| k- | | | | khj- | khj- | | kh- | #7 |
| k- | | | | gj- | gj- | | mg- | #35 |
| k- | | | | | | | | |
| | k- | | | gj- | gj- | g- | 'g- | #7 |
| | k- | | | k-/g- | k- | | 'g-/mg- | #7 |
| | k- | | | k- | k- | | | #71 |
| | k- | | | k- | k- | | sg-/kh | #16 |
| | k- | | | kh- | kh- | | | #71 |
| | k- | | | ky- | | | 'ky- | #71 |
| | k- | | | g- | g- | | 'g- | #16 |
| | k- | | | gwlj- | gwj- | | rgy- | #64 |
| | k- | | | gy- | gj- | | | #59 |
| | k- | | | gj- | gj- | | mg- | #35 |
| | k- | | | kj- | kj- | k- | | #20 |
| | k- | | | kry- | krj- | | 'g- | #40, 57 |
| | k- | | | γw- | gw- | | '- | #65 |
| | | k- | | k- | k- | | sg- | #16 |
| | | | k- | gwlj- | gwj- | | rgy- | #64 |
| | | | | k- | k- | | mkh- | #12 |
| -k | | | | -k | -g | | -g | #62 |
| -k | | | | -k | -t | | -g | #63 |
| | | | | -t | -r | | -l | #41, 56 |
| | -k | | | -k | -k | | -g | #2, 4, 22 |
| | -k | | | -ŋ | -ŋ | | -ŋ | #53 |
| | -k | | | -γ | -g | -0 | | #43 |
| | -k | | | -γw | -gw | -w | | #11 |
| | | | | -l | -n | | -l | #26 |
| | | -k | | -k | -k | | -g | #4 |
| | | -k | | -k | -t | -k | -g | #38 |
| | | | -k | -γ | -g | -0 | | #43 |
| | | | -k | -γw | -gw | -w | -0 | #11 |
| | | | | -t | -r | | -l | #53 |
| | | | | | | | | |
| g- | | | | g- | g- | g- | 'g- | #36 |
| | g- | | | g- | g- | g-/k- | | #11 |
| | | | | g- | g- | | 'g- | #36 |
| | | g- | | k- | k- | k- | k- | #23 |
| | | g- | | rkhw- | khw- | | rk- | #47 |
| | -g | | | -k | -g | | -g | #62 |
| | | | -g | -γ | -g | -0 | | #44 |
| | | | -g | -kw | -gw | | -g | #5 |
| | | | | | | | | |
| -ŋ | | | | sŋ- | hŋ- | | sŋ- | #2 |
| | ŋ- | | | sŋ- | hŋ- | | sŋ- | #2 |
| | ŋ- | | | mj- | ʔr- | m- | m- | #25 |
| | | | ŋ- | ŋ- | ŋ- | ŋ- | ŋ- | #11 |
| -ŋ | | | | -ŋ | -ŋ | -ŋ | | #6, 61 |
| -ŋ | | | | -ŋ | -ŋ | | -ŋ | #32 |
| -ŋ | | | | -ŋw | -ŋw | -ŋ | | #6 |

| <i>PAN</i> | <i>PMP</i> | <i>PWMP</i> | <i>WMP</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | <i>#</i> |
|------------|------------|-------------|------------|-----------|-----------|-----------|----------|--------------------|
| -ŋ | | | | -ŋw | -ŋw | | -ŋ | #5 |
| -ŋ | | | | -m | -m | | -m | #68 |
| | -ŋ | | | -ŋ | -ŋ | | -ŋ | #14, 37, 58, 64 |
| | | -ŋ | | -ŋ | -ŋ | | -ŋ | #42, 64 |
| | | ŋ | | -n | -n | -n | | #23 |
| | R- | | | kh- | kh- | | kh- | #46 |
| | | R- | | ʔr- | ʔr- | (M-) | | #24 |
| | -R | | | -r | -n | -r | -r | #59 |
| | -R | | | -ʏ | -g | -0 | -0 | #25 |
| | | -R | | -d | -d | -(y) | | #73 |
| | | -R | | -t | -r | | -l | #53 |
| -q | | | | -t | -r | | -l | #49 |
| -q | | | | -ʔ | -t | -y | | #1 |
| | -q | | | -k | -k | | -g | #46 |
| | -q | | | -ʏ | -g | | -g | #57 |
| | -(q) | | | -k | -k | | | #70, 47 |
| | -0 | | | -d | -dh | 0 | 0 | #21 |

APPENDIX 3

Vowel Correspondences

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|----|----|----|-----|-----------------|
| i | | | | ə | ə | | o | #72 |
| i | | | | a | a | a | | #43 |
| i | | | | o | u | | o | #2 |
| | i | | | i | i | | | #71 |
| | i | | | i | i | i | | #73 |
| | i | | | i | i | | i | #71 |
| | i | | | i | i | | i | #22, 72 |
| | i | | | i | ə | | i | #15 |
| | i | | | ia | ia | iy | i | #20 |
| | i | | | e | i | | e | #14 |
| | i | | | e | ia | | | #48 |
| | i | | | e | ia | i | e | #27 |
| | i | | | ia | ia | | a | #14 |
| | i | | | o | u | | o | #2 |
| | | i | | ia | ia | a | o/a | #50 |
| | | i | | ə | ə | | o | #72 |
| | | i | | o | ua | | o | #74 |
| | | i | | u | ə | u | u | #40 |
| | | | i | o | u | | o | #2 |
| | | | | i | i | | i | #71 |
| e | | | | i | i | | i | #71 |
| e | | | | i | i | | i | #63 |
| e | | | | i | i | i | i | #1 |
| e | | | | ia | ia | | a | #41 |
| e | | | | ə | ə | | | #69 |
| e | | | | ə | ə | a | a | #36 |
| e | | | | a | a | | a | #12, 29, 61, 69 |
| | | | | a | a | a | a | #52 |
| e | | | | u | ə | | u | #18 |
| e | | | | u | u | | u | #62 |
| e | | | | o | ə | | | #52 |
| | | | | o | ə | o | | #52 |
| | e | | | ə | ə | a | a | #25 |
| e | e | | | a | a | a | | #60 |
| e | e | | | a | a | | e/a | #16 |
| e | e | | | i | i | | | #67, 72 |
| e | e | | | i | i | i | i | #67 |
| e | e | | | ia | ia | | a | #41 |
| e | e | | | ia | ia | | a/o | #64 |
| e | e | | | ia | ia | a | a/o | #50 |
| e | e | | | e | i | | e | #28 |
| e | e | | | e | ia | i | e | #27 |
| e | e | | | u | ə | u | u | #66 |
| e | e | | | u | u | | u | #62 |
| | | | | o | ua | | o | #33 |
| | | e | | ə | ə | a | a | #36 |
| | | e | | a | a | | a | #42 |

| PAN | PMP | PWMP | WMP | ST | OC | TB | T | # |
|-----|-----|------|-----|----|----|-----|-----|-------------|
| | | e | | a | a | | e/a | #16 |
| | | e | | u | ə | u | u | #66 |
| | | | e | o | u | | o | #2 |
| | | | e | ə | ə | | a | #53 |
| | | | e | ə | ə | a | a | #4, 5 |
| | | | | ə | ə | | u | #5 |
| a | | | | a | a | | | #13 |
| a | | | | a | a | | a | #13 |
| a | | | | a | a | | o | #35 |
| a | | | | ia | ia | | a | #49 |
| a | | | | ə | ə | a/a | | #13 |
| a | | | | ə | ə | | u | #55 |
| a | | | | o | u | | o | #2 |
| | a | | | a | a | | | #17 |
| | a | | | a | a | a | | #43 |
| | a | | | a | a | | a | #30, 39, 46 |
| | a | | | a | a | | o | #65 |
| | a | | | e | i | | e | #57 |
| | a | | | e | ia | | | #48 |
| | a | | | o | u | | o | #2, 58 |
| | a | | | ə | ə | a | a | #4 |
| | a | | | ə | ə | | o | #47 |
| | a | | | ə | ə | | a | #4 |
| | a | | | u | u | u | u | #34 |
| | | a | | a | a | a | | #23, 24 |
| | | a | | a | a | | a | #31, 44, 51 |
| | | a | | ia | ia | | a/o | #64 |
| | | a | | ə | ə | a | a | #4 |
| | | a | | ə | ə | | a | #4 |
| | | | a | ə | ə | a | o | #10 |
| | | | | a | a | a | | #43 |
| u | | | | u | u | u | u | #7 |
| u | | | | u | u | | u | #4, 32 |
| u | | | | u | ə | | u | #45 |
| u | | | | o | u | | o | #68 |
| u | | | | ia | ia | | a | #41 |
| u | | | | ə | ə | | | #5 |
| u | | | | ə | ə | u | | #6 |
| | | | | a | a | | a | #12, 68 |
| | u | | | u | u | u | u | #7 |
| | u | | | u | u | | u | #3, 62 |
| | u | | | u | ə | | | #8 |
| | u | | | u | ə | u | | #9 |
| | u | | | u | ə | | u | #8 |
| | u | | | o | u | | o | #37, 45 |
| | u | | | ia | ia | | a | #41 |
| | u | | | ə | ə | | | #11 |
| | | | | ə | ə | | u | #3 |
| | u | | | a | a | a | | #11 |
| | u | | | a | a | a | o | #59 |
| | u | | | a | a | | a/e | #16 |

| <i>PAN</i> | <i>PMP</i> | <i>PWMP</i> | <i>WMP</i> | <i>ST</i> | <i>OC</i> | <i>TB</i> | <i>T</i> | <i>#</i> |
|------------|------------|-------------|------------|-----------|-----------|-----------|----------|----------|
| | | u | | o | ua | | o | #54 |
| | | u | | i | i | i | | #73 |
| | | u | | i | i | i | i | #38 |
| | | u | | ia | ia | | a | #41 |
| | | u | | e | ia | | | #48 |
| | | u | | ə | ə | | u | #20 |
| | | u | | a | a | | a/o | #70 |
| | | u | | a | a | | a/e | #16 |
| | | | u | u | a | u | u | #11 |
| | | | u | e | ia | i | e | #27 |

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Abbreviations

| | |
|-------|--|
| BIHP | Bulletin of the Institute of History and Philology |
| BSLP | Bulletin de la Société de Linguistique de Paris |
| BSOAS | Bulletin of the School of Oriental and African Studies |
| HJAS | Harvard Journal of Asiatic Studies |
| JAOS | Journal of the American Oriental Society |
| JCL | Journal of Chinese Linguistics |
| LTBA | Linguistics of the Tibeto-Burman Area |
| OL | Oceanic Linguistics |
| STC | See "Benedict 1972" below |

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