

Meter in the Old Khotanese *Book of Zambasta*¹

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The *Book of Zambasta* (*Z*) is unique in at least three ways: it is the longest extant text in Khotanese, it is the only Khotanese Buddhist text not translated from Sanskrit but composed in the Middle Iranian language, and it is the only Khotanese text in which the akṣaras are arranged neatly in four columns. Additionally, while some other texts, all translations, appear to have metrical components, *Z* is, with the exception of colophons, entirely in meter. The author of *Z* had a keen sense of meter and one is constantly impressed by the skill at which he kept true to both meter and meaning.

The metrical structure of this poem provides us with information about this long dead language which cannot be obtained in any other way. By studying how particular words or phrases fit into the meter, we gain insights into the phonological structure of those words, or morphophonology. These insights in turn help us to better understand the meter. What at first appears to be a metrical irregularity turns out to be a regularity. Then, our better understanding of the meter can be used to further enhance our understanding of the morphophonology. This is a spiralling process, beginning with the most common features, and proceeding through successively finer levels of detail as both meter and language become better understood. And our respect for the ancient poet's talent increases with each step.

The metrical system is quantitative and features mora counting similar to that used in Greek and Sanskrit poetry. A long vowel or diphthong in any position counts as two moras. The short vowels take part in three moraic patterns. 1. A short vowel at the end of a word, regardless of how many consonants begin the following word, always counts as a single mora. 2. A short vowel followed by CV (Consonant Vowel) counts as one mora. 3. A short vowel followed by CC(C)V, regardless of the nature of the consonants, counts as two moras. The latter may or may not correspond to a phonologically closed syllable. For example, it seems likely that NSm *māstā* 'big' would phonologically syllabify *mā•stā*, but metrically the first part of the word counts as two moras, that is, the moraic units are *mās•tā*. In the meter, only the number of consonants is important, not their phonological status. Any two word-internal consonants "make position". The first of two (or more) consonants is counted with the preceding vowel to form a two-mora unit. Traditionally the term "syllable" has been used when referring to one- and two-mora units containing one vowel. These units in fact almost always correspond to syllables so the use of the term rarely would create difficulty and is continued here.

Old Khotanese orthography

Since counting consonants is critical to the understanding of the meter, it may be useful to describe some features of Old Khotanese orthography and the roman transcription system, both of which cause two roman consonant letters to sometimes stand for one Khotanese consonant. For instance, there are four cases of digraphy in the first complete hemistich in *Z*²:

¹ These pages have benefitted greatly from review by Mauro Maggi, Dieter Maue, Elan Dresher and the anonymous reviewer from *Ars Metrica*. I also thank Hiroshi Kumamoto for making available electronic versions of Khotanese texts and a word list, without which the studies here would not be possible. An introduction to the importance of the *Book of Zambasta*, its subject matter and place in Central Asian Buddhism, as well as the status of known manuscripts is given by Maggi 2004:184. Phonemic transcriptions are essentially those used in Hitch 1990.

² All chapter and line numbers refer to the edition of *Z* in Emmerick 1968b. Likewise, unless otherwise indicated, all transcriptions (including emendations in italics or square brackets) and translations come from there. The use of bold face in transcriptions to draw attention to the forms under discussion is mine.

1.34ab *balysä vā irdä ne īndä tcamna pharu balysa nārmändä*
 CVCCV CV VCCV CV VCCV CVCCV CVCV CVCCV CVCCVCCV
 but they do not possess the Buddha's rddhis, by which he conjures up many Buddhas

The Khotanese Brāhmī script digraph *ys=/z/* occurs twice in *balysa-* 'Buddha', and the Khotanese digraph *tc=/tʰs/* occurs in *tcamna* 'by which'. Those digraphs in transliteration reflect digraphs in the original script. In contrast, the digraph beginning *pharu* 'many' corresponds to one consonant symbol in the Brāhmī. It is a digraph only in the transliteration. The traditional Brāhmī transliteration system familiar from Sanskrit uses two roman letters, *ph*, for one Brāhmī graph standing for /pʰ/.

The single Brāhmī script graphs *k, g, c, j, ñ, ṭ, ḍ, n, t, d, n, p, b, m, y, r, l, v, ś, ṣ, s, h*, stand for single consonants and have mostly values similar to those in Sanskrit. Anusvāra *m* stands for /n/, /ñ/ or /m/ depending on the consonant which follows. A digraph where the second consonant is *h*, counts as one consonant. The voiceless aspirates transliterated with two letters, *kh, ch, ṭh, th, ph*, are /kʰ, cʰ, ṭʰ, tʰ, pʰ/. The voiced aspirates transliterated *gh, jh, ḍh, dh, bh* appear only in Indian loanwords but count as single consonants. The oldest known Khotanese texts already feature seven Brāhmī digraphs for native sounds, *ky=/kʷ/, gy=/gʷ/, js=/dʒ/, tc=/tʰs/, ts=/tʰsb/, ys=/z/* and *rr=/r/*. None of those combinations is used as a digraph in Sanskrit. In addition, within the evolution of Old Khotanese orthography the originally ambiguous sibilant graphs *ś=/ś~ž/* and *ṣ=/ṣ~z/* were doubled to mark the voiceless variant so that in Z double *śś* and *ṣṣ* denote the single consonants /ś/ and /ṣ/. That the Khotanese Brāhmī digraphs stand for single consonants is proven by the meter. For instance, *aysu* 'I' is VCV, *pajsama* NAPm 'honors' is CVCVCV, *nātcana* 'outside' is CVCVCV, and *avātsare* NAPm 'Apsaras' is CVCVCV.

Most of the usual vowel symbols familiar from Sanskrit are in use with the same moraic values: *a, ā, i, ī, u, ū, e, ai, o, au* are phonemically /a, ā, i, ī, u, ū, ē, a^l, ō, a^u/. The exception is the symbol *r* which is phonologically a vowel in Sanskrit but stands for /iē/ in Khotanese. The name NSm *badr* 'Bhadra' counts as CVCCV and may also be spelled *badrā*. In addition, there are two new vowel symbols in Khotanese, *ä=/ě/* which counts light and *ei=/a^e/* which counts heavy.

Previous scholarship

The study of the metrical system in the Book of Zambasta began with its first editor, Ernst Leumann, more than a century ago (1912). He established the basic components of the system arguing that it involved patterns of light and heavy moras, and mora counting.

After Ernst Leumann's death, his son Manu Leumann elaborated the moraic view of the meter in the introduction to the edition of the poem published from materials in the Nachlaß (E. and M. Leumann 1933–6:xxii–xxxv). In contrast, Sten Konow argued in 1934:7–16 and 1947:29–35 that the meter was strictly accentual. All scholars agree that Late Khotanese poetry is accentual. The disagreements have been about Old Khotanese meter.

In the 1960's Ronald Emmerick and Harold W. Bailey apparently independently concluded that the poem was composed at a transitional stage when quantity was being replaced by stress (Emmerick 1973a: 137–138). Emmerick expounded his view in 1968 in two places, in an appendix to his edition of Z (1968b:437–440) and in a separate article (1968c). This inspired Manu Leumann to prepare a rebuttal in 1971, defending the purely moraic view (M. Leumann:1971) and criticizing Emmerick's approach. In 1973 Emmerick published two articles continuing and elaborating the debate (1973a and 1973b). Manu Leumann died in 1977. Emmerick made one further notable contribution with coauthor Mauro Maggi, where they argued that the cases of final *-e* and *-o* in Z which do not make a metrically heavy moraic unit are short

vowels (Emmerick and Maggi 1991)³. Since then, the only scholar to express substantial opinions about the meter in Z is Maggi, in his 1992 dissertation and several later articles (2009a, 2009b, in press). His work has been focussed on Khotanese accent, not specifically on the meter, but it implicitly contains ideas worth noting.

The metrical system in the *Book of Zambasta*

Here I present my understanding of the metrical system found in Z. It is based not only on the work of previous scholars, predominantly Ernst Leumann, Manu Leumann, R.E. Emmerick, and Mauro Maggi, but also on my scanning of the text while working out various issues in Old Khotanese morphophonology.

On the manuscript pages of the *Book of Zambasta* the writing is arranged ornately, in four columns and six lines.⁴ Each graphic line usually contains a metrical line which has been sometimes called a verse. Every metrical line is made up of two half-lines or hemistichs. The break between metrical hemistichs sometimes corresponds to the graphic break between the second and third column of text, but very often it does not. Each metrical hemistich is divided into smaller units which I call segments or mora segments. Each regular segment consists of five, six or seven moras. A light syllable (L) counts as one mora while a heavy syllable (H) counts as two. It is useful to add a third syllable type, X, which is also two moras long, but has a range of particular metrical functions and does not appear to be equivalent to either H or LL.

In 1912 Ernst Leumann defined three types of meter based on mora counting and hemistich structure. He called these three types A, B, and C. The names have been kept by all scholars as they are here. A type A hemistich consists of 24 moras most often divided into four segments of 5-moras + 7-moras + 5-moras + 7-moras. Type B is 18 moras mostly in a 5 + 6 + 7 mora segment arrangement. Type C is most often 17 moras arranged 7 + 5 + 5.

$$\begin{array}{ll} A = 5 + 7 + 5 + 7 & = 24 \text{ moras} \\ B = 5 + 6 + 7 & = 18 \text{ moras} \\ C = 7 + 5 + 5 & = 17 \text{ moras} \end{array}$$

Both hemistichs in a line have the same meter. A chapter may contain one, two or all three types of meter.⁵

Simply counting moras within a segment or hemistich can be a useful tool in morphophonological study. But as Leumann also noted, there are mora patterns within the segments that probably reflect metrical ictus. The most striking of these is the sequence heavy-light (HL) at the end of the 7-mora segments. This pattern is universal in the 7-mora segments at the end of type A and B hemistichs, very frequent in the 7-mora segment in the middle of a type A hemistich, and less frequent but still common in the 7-mora segment at the beginning of type C.

Leumann presented a sample of a type A hemistich (Z 2.22) with phonetic and metrical transcriptions:

³ The view here is that the shortness exhibited in meter by final *-e* and *-o* is strictly phonetic. That is, phonemically these are /ē/ and /ō/ which are shortened phonetically at the end of most words. In phonetic transcription I give the short variant of /ē/ as [æ̃] as it may have been distinct from the vowel written *-ä* which was phonemically front, mid, short and is transcribed here /ě/.

⁴ Some original folios may be viewed on the website of the International Dunhuang Project. Go to idp.bl.uk and search the database for “zambasta”. The folios are damaged but the six line and four column arrangement is unmistakable.

⁵ Emmerick 1968b:xxi lists the distribution of the three meter types by chapter and line number.

phonetic: *Bagīrathi rāṣayi tta pyūṣṭā kyau ggū'ṇa Ggaṃggo paśśāte*
 Bagīrathi rāṣayi ta pyūṣṭi cau gūṇa Gaṅgo paśāde (ibid.:16)
 ∪ ∪ ∪ ∪ | ∪ ∪ ∪ ∪ ∪ ∪ || - ∪ ∪ | ∪ ∪ ∪ ∪ ∪
 The Ṛṣi Bhāgiratha, so it has been heard, who let the Gaṅga fall from his
 ear,

Here the segment boundaries, shown by vertical bars (|), neatly correspond to word boundaries, which they often do. Both 7-mora segments end in HL, the first in *pyūṣṭā*, the second in *-śśāte*. Any other useful structural features are more difficult to see. The 5-mora segments of type A taken as a whole show all eight possible combinations of heavy and light syllables to make up the five moras, so there is no structure other than the count of five to aid in morphophonological analysis. Ernst Leumann thought there was a slight preference for the patterns LHH and LHLL (his formulation was ∪ ∪ – and ∪ ∪ ∪ ∪ ; Leumann 1912:15–16). I have not compiled statistics on the patterns but at any rate if there is a preference it is too slight to be of service.

The first four moras of the 7-mora segments do show some structure which may be helpful. There are five logical combinations: HLL, LLLL, HH, LHL, and LLH (Leumann's ∪ ∪ ∪ | ∪ ∪, ∪ ∪ ∪ ∪ | ∪ ∪, ∪ ∪ | ∪ ∪, ∪ ∪ ∪ | ∪ ∪ and ∪ ∪ | ∪ ∪; ibid.:xx). However, the last combination, LLH, does not exist as far as I can tell. Scholars after Leumann similarly do not propose this type. Its absence might imply that the four others are somehow more suitable for the meter. But it might also be the case that the absence is due to the *uysnora*-effect (described below) which lightens an otherwise heavy syllable before the HL segment ending. For instance, a nominally HLHHL segment is treated as if HLLLHL.

For type B meter, 5+6+7, the 5-mora segments, as in type A, are probably defined only by mora counting. The 7-mora segments show the same patterns as in type A. The 6-mora segments exhibit similarities with the final segment of type C. E. and M. Leumann regarded them as exhibiting the same metrical unit, but there are enough differences between them to treat them separately. I conducted a modest statistical survey of 153 hemistichs from three chapters⁶. This revealed clear patterns. 98% of the 6-mora segments begin with a heavy syllable and 2% with a light one. 68% can be defined as HL+word boundary+3 moras (HL LLL, HL HL, HL LH), 19.5% as HLL+word boundary+2 moras (HLL HL, HLL LH), and 10.5% as HX⁷+word boundary+2 moras (HX LL, HX H). Together these apply to 98% of the sample. The other 2% begin LL (LLL LLL, LLX H) probably as rare variants with LL substituting for H (HL LLL, HX H). No segment begins as *LH.

For type C meter, which in moras is mostly 7+5+5 or 7+5+6, the 7-mora segment is like those in type A, the middle, 5-mora segment again has no discernible patterns, but the final segment has rather consistent patterning. There are mainly three structures, HL LL, HL LH, and HL LLL. All begin with HL which is followed by a word boundary, then a word shaped LL, LH, or LLL. That

⁶ I began with 60 hemistichs from each of three chapters, lines 12.1–30, 14.1–30 and 24.378–407. I eliminated from the sample those 27 hemistichs with problematic meter, that is, without a clearly defined 6-mora segment or where the hemistich is two or more moras too long or too short, or where the manuscript is broken and the emendation is not clear. Removed from the sample were 12.4ab, 8ab, 14cd, 16cd, 18ab, 21cd, 22ab, 24cd, 26cd, 28ab, 28cd, 29ab, 14.1cd, 3cd, 6ab, 8cd, 19cd, 20cd, 23cd, 28cd, 24.380cd, 381cd, 397cd, 399ab, 399cd, 401cd, 406cd. With the 6-mora segments in the remaining 153 hemistichs I noted heavy and light syllables, as well as the syllables created by contraction (X; see “Cadence 2” below). I also noted the first word boundary in the segment with a space. In order of frequency: HL LLL 40×, HL HL 36×, HL LH 28×, HLL LL 21×, HLL H 9×, HX LL 8×, HX H 8× (including 24.284cd with *-yau* in the X position, see “IAP *-yau*, *-yo*” below), LLL LLL 2×, LLX H 1×.

⁷ The metrical syllable X, a special form of H, is defined below under “Cadence 2”.

final word is rarely⁸ shaped HL. The useful pattern is the consistent HL L which includes the word boundary but not the final mora or the final two moras. A minor pattern, LLL LL, also consistently has a word boundary after three moras. Then there is a class of cadences beginning HX, LLX, or LX and a word boundary. The type C final segment has much information for morphophonological study.

In my view, the metrically most consistent and best understood parts of the text are the cadences (metrical phrases) in the 7-mora sections of all three meter types, the 6-mora segment of type B, and the 5- or 6-mora cadences ending hemistichs of type C. There can be useful information about the morphophonological structure of a word when it occurs in one of these regions. In the hemistich formulas below, circled numerals show the segments where rhythm (cadence) is most consistent and so most useful for studying word structure:

A: 5 + ⑦ + 5 + ⑦. B: 5 + ⑥ + ⑦ C: ⑦ + 5 + ⑤/⑥

When a word occurs outside of those cadences, that is, in any 5-mora segment except the last in C, we must rely on simply counting moras as an aid in the study of morphophonology. There are plenty of examples where the mora count varies from the ideal, but statistically the ideal counts significantly predominate. Evidence from the circled segments consists of both mora counting and cadence aspects while evidence from the non-circled segments only involves mora counting.

In the table below I list twelve segment patterns which can help us to understand the sound-structure of words. The first four are from the 7-mora segments of all meter types, the next three are from the 6-mora segments of type B, while the last five are from the final segment of type C. Following Emmerick, I call these cadences⁹, which is an apt term. They are repeating metrical phrases. The numbers for the first four cadences I have also adopted from Emmerick as they also reflect the order of frequency of occurrence. Ernst Leumann did not label them. Manu Leumann's contrasting labelling is in the table. The last eight cadences do not share Emmerick's numbers. His work with type B is discussed below and for the final segment of type C he only distinguished two types. I label the cadences in the 6-mora segments of type B as B₁, B₂ and B₃ according to their frequency. Similarly, the cadences found in the final segment of type C hemistichs I label C₁, C₂, C₃, C₄ and C₅ according to frequency. Below the table I explain each row.

Cadence	Here	Emmerick	E. Leumann	M. Leumann	Maggi: only hemistich final
1	HLLHL	1: ˊ ˊ ˊ ˊ / ˊ ˊ ˊ	ˊ ˊ ˊ ˊ ˊ	ideal form: — ˊ ˊ ˊ ˊ	ˊ ˊ ˊ ˊ ˊ
2	HXHL	2: ˊ — / ˊ ˊ ˊ	ˊ — ˊ ˊ	variant 1: — — ˊ ˊ	(ˊ — ˊ ˊ) assumed
3	LHLHL	3a: ˊ ˊ / ˊ ˊ / ˊ ˊ ˊ 3b: ˊ ˊ ˊ / ˊ ˊ / ˊ ˊ ˊ	ˊ ˊ ˊ ˊ ˊ	variant 4: ˊ — ˊ ˊ	(ˊ ˊ ˊ ˊ) assumed
4	LLLLHL	4: ˊ ˊ ˊ ˊ / ˊ ˊ ˊ	ˊ ˊ ˊ ˊ ˊ	variant 2: ˊ ˊ ˊ ˊ ˊ	(ˊ ˊ ˊ ˊ ˊ) assumed
B ₁	HL +3	—	ˊ ˊ ˊ ˊ ˊ	— ˊ ˊ —	—
B ₂	HLL +2	—	"	"	—
B ₃	HX +2	—	—	—	—

⁸ For instance, in the 300 hemistichs of chapter 3 I notice only | *dasta hūdva* | 3.8, *paśśā|taimā biśyo* | 3.71, *uys|norä dukhyau* | 3.75, *bodhisat|vyau jsa biśyau* | 3.79, | *hauri haṃbaḍu* | 3.148.

⁹ Emmerick used the term somewhat differently than here. He perceived patterns which cross segment boundaries and called these cadences as well. In these pages a cadence refers to the rhythmic pattern of a segment.

C ₁	HL LL	5: ˘◡/◡˘	˘◡◡◡	—◡◡◡	˘◡ ◡˘
C ₂	HL LH	"	˘◡◡◡	—◡◡—	"
C ₃	HL LLL	6: ˘◡/◡◡˘	"	—◡◡◡	"
C ₄	LLL LL	—	—	—	—
C ₅	HX LL	—	—	—	—

Cadence 1 HLLHL

All scholars agree, in essence, about the structure of the most common cadence in the poem, cadence 1, which is found in the 7-mora segments of all types. Ernst Leumann rendered the structure with ictus as ˘◡◡◡˘ while Manu Leumann called this the normal or ideal form and schematized it as —◡◡◡. Emmerick called it cadence 1 and marked stress ˘◡◡/˘˘. Maggi 2009b who also marked stress preferred ˘◡◡◡˘.

Cadence 2 HXHL

The second most common cadence in Z was rendered by E. Leumann as ˘—˘◡, by M. Leumann as variant 1 —◡◡, by Emmerick as ˘—/˘˘, and is represented here as HXHL. The use of X instead of H is justified by several unusual features of this metrical syllable. Emmerick was the first to point out the special morphophonological origin of most syllables occurring in this position:

It is striking that the second heavy syllable in this sequence is almost always the result of contraction. It is as if this alternative were not due to an inherited notion of the equivalence of one heavy syllable with two light syllables but to a secondary development at a late date within Khotanese. This I would judge to be the case, as there is no other indication of a notion of this equivalence in Khotanese metrics. Thus, the cadence *ṣṣāvā rraysgu* (2.77b) will go back to **ṣṣāvaka rraysgu* ˘◡◡/˘˘, and an ending like *klaiṣyo karma* (9.17b) will be a late analogical development. (1968b:12).

This observation is repeated by Emmerick 1973a:140. I do not think there was once a period in the Old Khotanese metrical tradition in which there was no contraction. However, there is no doubt that the contracted syllables form a special metrical category. As it turns out, the X syllables also play distinctive roles in cadences B₃ and C₅ as discussed below. The IAP suffix *-yau* may also appear in the X position (see below “IAP *-yau*, *-yo*”). Final long *-ī* which may be phonetically shortened under some conditions is not shortened when in the X position (see below “Shortening of final long *-ī*”). There are enough indications of the special metrical status of these particular 2-mora morphophonological units to use a special symbol, X.

Cadence 3 LHLHL

There has been disagreement about what Emmerick called cadences 3a ˘◡/˘◡/˘˘ and 3b ˘◡◡/˘◡/˘˘. M. Leumann commented, “Die Kadenzen K3a, K3b und K4 von Emmerick sind aus dem Material nicht zu erweisen” (1971:467). But earlier he seemed to equate at least the ends of 3a and 3b with his variant 4 ◡◡◡◡ (1971:465–6). Emmerick, on the other hand, offered,

cadence 3a corresponds to his [Leumann’s] Nebenform A 2, cadence 3b could be equated with a resolved form of Nebenform A 3, and cadence 4 could be a resolved form of the ‘Nebenform A 6’, which, as we saw above, he did not set up because only two examples are found. (1973:153)

Here I use LHLHL for a cadence 3 as both scholars might agree that all cadences discussed in

this paragraph would at least end in that pattern. It is the third most common pattern for 7-mora segments.

M. Leumann's variant 3, Kv3 $\text{---}\text{---}\text{---}\text{---}\text{---}$, and his Kv2/3 $\text{---}\text{---}\text{---}$ (1971:461) are infrequent and are probably best not described as cadences, so are not in the table. Unlike M. Leumann's ideal form and variants 1, 2 and 4, these do not end --- but as $\text{---}\text{---}$. They are rather probably instances where the meter retains the necessary mora count of seven, but does not have a rhythmic structure. Similarly, seven light moras $\text{---}\text{---}\text{---}\text{---}\text{---}\text{---}\text{---}$ should not be described as a cadence.

Cadence 4 LLLLHL

What E. Leumann listed as $\text{---}\text{---}\text{---}\text{---}\text{---}$ with ictus, M. Leumann gave as $\text{---}\text{---}\text{---}\text{---}$ and called it variant 2. This was called cadence 4 by Emmerick and given as $\text{---}\text{---}\text{---}\text{---}$. Emmerick used --- here to show a cadence-initial single mora with stress. That device is not helpful in a metrical scheme. It gives the impression that the length of the syllable increases. A light syllable with stress is still a light syllable. I do not think the mora count changed here because of a stress accent.

Cadences B₁ HL +3 and B₂ HL +2

E. Leumann first described the segment as always having six moras and as having predominantly the rhythm $\text{---}\text{---}\text{---}$. He also identified this segment with the last segment of type C (1912:16). E. and M. Leumann later give the basic form of the segment as $\text{---}\text{---}$ but then list four formulas which encompass every possible combination of mora types (1933-36:xxvii). It may be that many of those are unattested.

Emmerick did not consider the 6-mora segments of type B as metrical units. Rather, he was influenced by the two column layout of each hemistich and saw metrical boundaries within the 6-mora segments. This point is examined further below.

The survey of the 6-mora segments in 153 hemistichs produced some compelling statistics. 98% begin with a H syllable, 2% begin with a L syllable. 87.5% begin HL. 68% begin HL+word boundary. 19.5% begin HLL+word boundary. 10.5% begin HX. 98% begin HL or HX. Less than 2% begin LLL or LLX. None begins LH or HH¹⁰. It is easy to identify cadences that can be useful

¹⁰ There are probably no cases of 6-mora segments beginning HH. The one instance in the sample of apparent HH involves the IAP ending *-yau*: 14.3ab |*sūtryau ho-*|. However, as shown below (“IAP -yau, -yo”) this is a case of *-yau* in the X position and the segment begins HX. The observation that there are no cases of initial HH in 6-mora segments is a useful tool in text analysis. The traditional transcription of the middle segment in 24.421 | *bāstāna kye* | would count HHL L. Metrically this would be unique not only because of HH, but because there is no word boundary before the last two moras in the segment. There is no other *HHL L. The problem stems from the transcription *bāstāna*. The Leumanns emended to **bāstānu* ‘von den durchbohrten’ (1933–36:336–337). Emmerick translated ‘(they are) pierced’ seeing here a form containing the ppp *bāsta-* ‘pierced’. However, there are no other ppp+*āna-* adjectives. Bailey translated ‘of the wounded’ without comment but essentially followed the Leumanns (DKS:293b s.v. *bi'sta-* ‘shot’). The solution is to transcribe *bāstāna*. The *ā* is from contraction and the adjective is the same as 24.413 *bistā*, NAPm from *bāstaa-* ‘pierced’. The akṣara *na* as a separate word is found only once more in Z at 24.491 in the phrase *mā na vā hvañita* which Emmerick translated as ‘do not tell me’ and the Leumanns as ‘mir andererseits nicht verkündiget’. Both regarded *na* as an imperfectly written *ne* ‘not’ which is probably the explanation for our case too. The segment | *bāstā na kye* | has a usual HX LL cadence. The semantics of the hemistich may work better too. It describes the aftermath of a battle, after dogs have dragged the dead to the bushes:

24.421ab haṃdārā | *bāstā* □ *na kye* | *nāndā pahīya* (B:5+6+7)

Emmerick: Some of those pierced whom they have taken have fled.

in studying the morphophonology. The most common pattern at 68% can be defined as B₁ HL +3 (HL LLL, HL HL, HL LH). The second most common pattern at 19.5% is B₂ HLL +2 (HLL LL, HLL H). The third pattern at 10.5% is B₃ HX +2 (HX LL, HX H). Together these apply to 98% of the sample. The remaining 2% (LLL LLL 2×, LLX H 1×) begin LL. None begins as *LH.

Cadence B₃ HX H

This is a phenomenon not noticed by previous scholars. The two patterns, HX LL and HX H together constitute 10.5% of the sample studied. Although the X counts here and in cadence 2 as two moras, it has some special functions summarized above (see “Cadence 2”. There is some feature of contracted syllables and 2-mora -yau which sets them apart from ordinary H syllables. The recognition of this cadence enables an explanation of the metrical of -yau (see below “IAP -yau, -yo”).

Cadences C₁ HL LL, C₂ HL LH, and C₃ HL LLL

The hemistich-final cadence of type C is different from those ending type A and type B in a critical aspect. Whatever variants we may see in the 7-mora segments ending A and B hemistichs, the last two syllabic units in those segments are essentially always HL. In contrast the last two syllabic units in the final segment of a type C hemistich may be LL or LH. The segment itself has several variants. The three which are by far the most common always begin with the units HL, most often as a separate word as in 3.25d *būmā biśše* HL LL but frequently at the end of a longer word as in 3.25b *balysūstā kāḍe* HHL LL. The second word is most often LL, sometimes LH and least often LLL. For instance, in folios 181–182 (3.13–36), the word is LLL 2× (24bc, 32b), LH 5× (13b, 19b, 26b, 27bc, 31bc) and LL almost everywhere else, 40×. The one exception, 21b *maitrā tvī*, is discussed under Cadence C₅, below. The word boundary in C-final cadences appears to be metrically significant since it seems to be present without exception. I include a space for the boundary in the metrical formulas, HL LL with a space is more precise than HLLL without.

Ernst Leumann in 1912 described this segment as having six moras. He identified it with the 6-mora segment of type B, but noted that in C the segment rarely has the full form but mostly undergoes catalectic shortening so that the hemistich more often has 17 rather than 18 syllables. He listed two forms for this segment, $\acute{\cup}\cup\cup$ and $\acute{\cup}\cup\cup\cup$. (1912:16). Manu Leumann in 1936 gave the structure of the last segment in type C as $\cup\cup\times$, where \times can stand for \cup or $\cup\cup$ or $\cup\cup\cup$ (1933-36:xxiv, xxvii). In his 1971 article he does not discuss the final segment (Glieder III) of type C.

Emmerick saw two cadences at the end of type C, which he called cadence 5 $\acute{\cup}/\cup\cup$ and cadence 6 $\acute{\cup}/\cup\cup\cup$ (1968b:439). However, as there are no examples of $\ast\cup\cup\cup$ (also noted by Maggi, email 28 Sep 2013), Emmerick’s 6 might be better shown as $\acute{\cup}/\cup\cup\cup$. Maggi sees one unified cadence: “I regard C-cadences as having a final anceps (\sim [occasionally resolved into $\cup\cup$]) and consisting of 6 morae (1992: §70): $\acute{\cup}\cup\sim$, where the final \sim may be replaced by $\cup\cup$ ” (email 28 Sep 2013).

In these pages the three variants are defined separately as C₁ HL LL, C₂ HL LH, and C₃ HL LLL. What is common to these variants, the consistent beginning HL L, is useful in the investigation of morphophonology. It is not necessary or helpful here to further analyze their structure.

Here: Other injured ones whom they have not taken have fled.

Cadence C₄ LLL LL, LLL LH

Five light moras in a row would not by themselves constitute a cadence. But at the end of type C hemistichs we find LLL LL almost always consisting of a three syllable word followed by a two syllable word, e.g., 12.116b *paśśātā puṣṣo*, 18.29b *ṣṣamani tsute*. For instance, among the 300 hemistichs of chapter 3, there are sixteen¹¹ which end with five L moras and all sixteen feature a three syllable word LLL followed by a two syllable word LL. There are a few cases of LLL LL where the first three syllables do not constitute a separate word but form the end of a longer word, e.g., 12.122b *āṛragādā hāmāte*. The word boundary has the same importance as in C₁, C₂, C₃.

Cadence C₅ HX LL, etc.

This pattern has been overlooked before, probably because it is rare, to my knowledge occurring 15 times in Z. Further, it is really a set of patterns, some with only one attestation. They are united because they all feature a contracted syllable or *-yau*, symbolized as X, followed by a word boundary, and then two moras. There are ten examples in Z of a contracted vowel in the X position:

HX LL:	8.22bc pracai hvatā , 8.30b aysmū samā , 8.37b aysmuī jaḍā
HX H:	3.21 mairā tvī , 8.16b pracyā ṣṣai ,
LLX LL:	8.12b hātānai samu
LX LL:	3.132 nār mitai hārā , 7.23 ā chānai hanā 20.69 patā rahvā ¹² dukhā
LX LH:	24.246d vātī paḍā

The five cases with *-yau* in the X position, all in the structure HX LL, are listed below (see “IAP *-yau*, *-yo*”).

While there are these examples of the final segment in a type C hemistich beginning with HX, LLX and LX, there are essentially no cases beginning *HH, *LLH, or *LH. That is, regular H and

¹¹ The sixteen are 3.5d pajsama kāḍe, 33b nātcana samu, 37d skutāna kāḍe, 45d kumuda pharu, 47b vasuta varā, 53d skutāna buśśā, 68d hāmāte ysurrā, 76b hāmāte hve’, 76d hāmāte bei’, 83d kāḍāna biśśā, 91d aggarā samu, 93a skutāna biśśā, 119bc yanimā aysu, 127b suhāta kāḍe, 130bc ṣṣamani biśśu, 131bc ṣṣamani samu. There are also two related irregular segments, 3.27bc hāmāte thatau LLL LH, and 95b satvāna biśśā HLL LL.

¹² Previous scholarship has regarded this word as LPm of *patārahaā-* ‘basis, residence’ with the Late Khotanese LP ending *-vā*. The stem occurs also in ASf *patāraho* thrice in the Śgs 3.6v3, 10r2, 12v4 and once more in OKh as NAPf *patārahe* Suv[Or] 6.2.82. The stem is an *āā*-deverbal noun from *patārah-* ‘be established’. There is reason to suspect the stems originally were *patārahvāā-* and *patārahv-*, with *-hv-* instead of *-h-*. The ppp is *patārotta-*, with rounded vowel *-o-*, suggesting a retraction of the consonantal rounding to the preceding vowel with the suffixation: *patārotta-* < *patārahv-* + *-ta-* • /badē.ɪot- < badē.ɪah* + *-d-*/. It would be odd having a distinctly OKh stem with a clearly LKh ending. The LKh stems are *pārah-* and *pārahaā-* (KhSuf:15a). The LKh LP ending *-vā* otherwise never occurs in Z (although Emmerick reads 2.66 *drahvā* ‘in the gorges’ with Bailey’s ‘in clefts’ DKS:167a instead of Leumann’s ‘erschreckt’ from *drahvaa-* Glossar:446a). From the metrical point of view, *patārahvā* cannot end in a H mora as these never come in this position. On the other hand, contracted vowels do come in this position. The cadence LX LL occurs twice more in Z (see above). Finally, the semantics are better by reading *patārahvā* as NSf, *kāṣce* as NAPf instead of GDSf, and *dukhā* as GDSm instead of NSm. The hemistich contains two parallel equations:

20.69 anācci hīskya □| kāṣce patā|rahvā dukhā (C:7+5+5)

Emmerick: ‘Impermanent is origination: in places there is the woe of anxiety.’

Here: ‘Impermanent is origination (and) anxieties are the foundation of woe.’

X are not interchangeable. If they were, we would expect numerous examples of *HH LL, etc.

Metrical apparatus

The Book of Zambasta is written in four columns. Using the multiplication sign × for an akṣara, the graphic appearance of a line is roughly (the number of akṣaras varies):

××××××××_a ××××××××_b ××××××××_c ××××××××_d

Emmerick and both Leumanns call the groups of akṣaras in each column a *pāda*. It is best to avoid the term *pāda* as it has been used ambiguously to refer to the graphic akṣaras in a column or to a metrical unit. Here the graphic akṣaras grouped in columns are called column groups and can be referred to as a, b, c, d following Emmerick (1968c:1 fn.1) and M. Leumann 1971 (in 1933–36 E. and M. Leumann used α , β , γ , δ). The akṣaras in two columns, a and b or c and d, are here called a graphic half line.

In addition to this graphic layout, every line has a metrical structure which may correspond to the graphic structure but frequently does not. For metrical analysis it is helpful to add metrical structure information to transcriptions of the text, alongside graphic information. This extra information is vital when using the meter to study morphophonology.

In the editions, a particular graphic line in the manuscript is given on two lines in print, each print line containing two column groups or a graphic half line. In Emmerick’s edition, Z 4.49 is presented like this:

49 dai vātcu ttatvatu āya . ttā kave sūjsīru samudru .
 hārā ju karā ttatvatā niṣṭā samu saṃñña haṃtsa-vivāta 9

There is a space in the transcription corresponding to a space between the columns on the manuscript. Where the space in the original comes within a word, an overlong dash “—” is used (see Z 12.10 below). In metrical retranscribing, I use the ballot box □ to represent the spaces on the manuscript between the graphic columns. This also allows the indication of the space between columns b and c where this is helpful. In order to also indicate metrical units in transcription, I follow E. Leumann 1912 and use the vertical bar | to separate the 5-, 6- and 7-mora segments, and, where necessary, the double bar || to separate hemistichs. In my metrical retranscription Z 4.49 appears thus:

4.49ab dai vātcu | ttatvatu āya . □| ttā kave sūjsīru samudru . (A:5+7+5+7)
 4.49cd hārā ju karā | ttatvatā niṣṭā □| samu saṃñña | haṃtsa-vivāta (A:5+7+5+7)

The column groups, a, b, c, d, are indicated after the line numbers. At the end of each metrical hemistich the parentheses contain the meter type and the mora count within each mora segment. Z 4.49 is an ideal type A meter line of 4 parts of 5+7 moras. 49a is HHL | HLLHL, 49b is LLLH | HLLHL, 49c is LLLLL | HLLHL, and 49d is LLHL | HLLHL. The 5-mora segments all have different structures but the 7-mora segments all feature cadence 1. In this example the graphic and metrical structures coincide. It seems plausible that the original four column layout was used to reflect the metrical breaks in the ideal type A metrical line, 5+7 □ 5+7 □ 5+7 □ 5+7, as suggested by M. Leumann:

Die vier Kolumnen (a b c d) der Handschrift sollten bei der Normalform von Metrum A ursprünglich sicher die metrische Gliederung der Verszeile in vier Pādas zum Ausdruck bringen. (1971:469–470)

The original match between the metrical and graphic units became weaker over time as the text was copied and recopied. Graphic symmetry became more important than representing the meter and moving one or two akṣaras to the next or previous column was often done to give a

better visual result. This practice was facilitated by the fact that the language of the copyists had evolved more in the direction of a stress accent. If the text was read aloud, later readers may not have been able to reproduce the original meter. For the copyists, mora weight was less important than the desire to produce a graphically balanced line. Mismatches between type A graphic and metrical units are frequent and need to be marked.

The usefulness of marking metrical sections with | becomes more apparent with type B meter. An ideal type B line, as recognized already by E. Leumann 1912:15, has two 5+6+7-mora hemistichs. Each metrical hemistich is graphically divided into two columns almost always¹³ within the 6-mora segment. That is, within the hemistichs the graphic column breaks almost never correspond to the metrical segment boundaries. In Emmerick's edition Z 12.49, a typical type B line, looks like:

49 hārṣṭāyā rrūyāte ttū saṃvaru trāmu
samu kho ju ye hvandāye pu—ṣṣo kamalu patālttä

Here it would look like:

12.49ab hārṣṭāyā | rrūyāte □ ttū | saṃvaru trāmu (B:5+6+7)
12.49bd || samu □ kho ju ye | hvandāye pu□ṣṣo | kamalu patālttä (B:5+6+7)

None of the three column borders □ corresponds with a metrical segment boundary. As is almost always the case, there are column borders within the 6-mora segments. Further, the metrical hemistich boundary || has been obscured as *samu* was moved to the previous column. The mora structure is HHL | HLL H | LLLLHL || LLLL | HLL LL | LLLLHL. The 5-mora segments have random structures but the 6-mora segments are both cadence B₂ (HLL +2) and the 7-mora segments are cadences 1 HLLHL and 4 LLLLHL.

A type C hemistich has either 7+5+5 (C₁, C₄) or 7+5+6 (C₂, C₃, C₅) moras. The column break usually comes immediately after the 7-mora segment, that is, 7 □ | 5 | 5, or 7 □ | 5 | 6. In Emmerick's edition, Z 3.71 looks like:

71 kho ttāro aysu puṣṣo paśśātaimā bi—
śyo tta puṣṣo paśśīmā ttū varata aysu ysurrā

Here it would look like:

3.71ac kho ttāro aysu □ | puṣṣo paśśā|taimā bi□śyo || (C:7+5+5)
3.71cd tta puṣṣo paśśīmā □ | ttū varata | aysu ysurrā (C:7+5+5)

As with the type B example above, the metrical hemistich boundary is not marked by a column border. The akṣara *śyo* of *biśyo* has been written in the next column group as shown by the ballot box. But the other two graphic breaks □ correspond to a metrical boundary |, as is usual. The mora structure is LHLHL | LLLH | HL LL || LLLLHL | HLLL | HL LL. There is a cadence C₁ HL LL at the end of both metrical hemistichs which is typical. The first hemistich begins with a 7-mora segment in cadence 3 and the second with a 7-mora segment in cadence 4.

A four column layout can work perfectly with type A which has four moraicly equal groups 5+7 | 5+7 || 5+7 | 5+7. Each 5+7 metrical group can be written in a separate column as in the

¹³ An example of a type B hemistich with a column break that exceptionally matches a segment boundary is 12.29cd where the 5+6-mora segments are written with six akṣaras in column c while the 7-mora segment is written with five akṣaras in column d:

12.29cd ttai hvañau | pīsai uī' □ | śśārku haṃḡgalju . (B:5+6+7)

his teacher should speak thus to him: 'Collect your senses well.'

I have noticed three other cases, 12.34ab, 12.35cd and 14.88ab.

example above. Four graphic columns also work with type C but in a different fashion. There are not four moraicly equal groups. We have most often 7 | 5 | 5 || 7 | 5 | 5. Here the author chose to write the groups as 7 □ 10 □ 7 □ 10. That is, graphic columns a and c are most often 7 moras while graphic columns b and d are most often 10 moras.

With both meter A and meter C the term *pāda* can often be used ambiguously, referring either to graphic or metrical features, with only minor trouble. But with meter B this is not possible. There is a large mismatch between a four column layout and a metrical structure 5 | 6 | 7 || 5 | 6 | 7. While the hemistichs are usually correctly separated, graphically speaking, the moraic sections within each hemistich are very rarely correctly separated. The graphic break almost always comes within the 6-mora segment, as in 12.10ab and cd above. Graphic columns a and c do not contain metrical units. They do not end in cadences. It is plausible that the sections of Z in meter B were originally intended to be written in two columns, one for each hemistich.¹⁴ Then, at one point in the transmission, it was decided to impose a four column appearance on these sections as well so that the entire work would have a consistent, balanced and esthetically pleasing appearance.

But not only did later copying disturb the layout of sections in meter B, it also disturbed the presumably once elegant match between meter and graphic form of sections in meter A and C. As mentioned above, copyists shifted one or more *akṣaras*, to or from, the beginning or end of a metrical unit, creating a mismatch between graphics and meter. In the analyses below, the mismatches are made clear through the use of |, || and □. It is the metrical structure, not the graphic structure which is useful as a tool for linguistic analysis.

Emmerick's type B and C analysis

Emmerick proposed a complex metrical analysis of type B, listing a range of cadences, 7 through 10, found before the 7-mora segment. He wrote,

Meter B is also characterized by the predominance of the cadence $\acute{\text{—}}\text{—}\text{—}\text{—}\text{—}\text{—}$ in both *pādas*, but it is distinguished by shorter verses. These shorter verses are brought about as a result of there being fewer syllables preceding the cadence. These vary from nought to four in number. (1968c: 15–16)

His analysis of type C was similarly complex:

the cadences admitted at the end of the second *pāda* of a verse are always of a different type from those admitted at the end of the first *pāda*. Metre C may be summarized thus:

Pāda a: 0–4 syllables+cadences 1,2,3,4

Pāda b: 1-5 syllables+cadences 5 or 6. (1968c: 16)

This complexity appears to have two sources. On the one hand, because he believed that the metrical system was partly accentual, he thought that linguistic syllables were sometimes relevant to the description of the meter. I am not convinced that there is any need to look beyond the mora

¹⁴ The unique and interesting folio, T III S 16, may be the oldest known folio of Z (Maggi 2004:184b) and may be key to understanding the history of Z. This is in meter A and does not feature the classic four column layout. But, as Mauro Maggi points out, “the copyist has endeavoured to align the beginning of the third *pāda* of each line leaving a blank after the second *pāda* when possible (r4 and v1) ... and has separated the first from the second *pāda* not only in ll. 2–3 of each side of the folio in correspondence with the string hole but also in r4 and v4” (Maggi 2004:187a). That is, the only consistent break is between the two metrical hemistichs where half the time there is also the punctuation dot on the line (r3, v1, 3, 4). There is no break corresponding to the later break between columns c and d, and the inconsistent break corresponding to the later space between columns a and b is here associated with the string hole. This layout raises the possibility that Z was originally in two columns, one for each hemistich, even the parts in meter A.

to the linguistic syllable to explain the meter. On the other hand, he appears to have regarded the graphic structure of the manuscript as reflecting metrical information. For type B he refers to “both pādas” and for type C he refers to “the first pāda” and “the second pāda”. Graphically there are two units for these metrical hemistichs, but metrically there are three segments. As shown above, a match between graphic and metrical units is often true for type A, less often for type C, and almost never for type B. Because he treated the type B graphic “pādas” a and c as metrically meaningful he had to develop a complex description of the meter. He tried to find cadences where I think none were ever intended.

Maggi’s position

Mauro Maggi most recently defines the main metrical patterns as:

- A 5 morae + $\bar{\cup}\bar{\cup}\bar{\cup}|\bar{\cup}$ 5m + $\acute{\cup}\bar{\cup}\bar{\cup}\acute{\cup}$;
 B 11 morae + $\acute{\cup}\bar{\cup}\bar{\cup}\acute{\cup}$;
 C $\bar{\cup}\bar{\cup}\bar{\cup}|\bar{\cup}$ 5 morae + $\bar{\cup}\acute{\cup}$ – (Maggi 2009b: 337)

His work has focussed on accent. He sees a coincidence of accent and ictus only at the ends of hemistichs, which is implied by the placing of the accent marks in the chart above. This view is more explicit in his 1992 dissertation:

Le cadenze finali, che svolgono la funzione di segnare il confine tra la conclusione di un verso e l’inizio del successivo, sono caratterizzate dalla coincidenza di ictus metrico e accento linguistico. (§69)

I do not refer to accent in my description of the meter. This does not mean there was no stress accent in the language of the composer, but it seems to be sufficient to refer to mora structure when studying word structure. It will be noted that Maggi has defined cadences in almost exactly the same places where I think they exist as shown by the circled numerals in the line below (repeated from earlier):

A: 5 + ⑦ + 5 + ⑦. B: 5 + ⑥ + ⑦ C: ⑦ + 5 + ⑤/⑥

Except for the 6-mora segments of type B, we are in agreement that these segments are rhythmically the most regular.

Meter as a morphophonological tool

As mentioned earlier, as our understanding of the meter grows, so too does our understanding of the morphophonology of Old Khotanese. And as we learn more about word structure we become better able to perceive metrical patterns. Often, what at first glance appears to be an irregular segment, turns out to be regular, when a particular principle is established.

The use of meter in this way is not new. In 1912, E. Leumann used metrical and other evidence to show that the Indian loan words *sarvajña* and *Śuddhodana*¹⁵ in the hemistich below contained double consonants written as single ones, *ñ* and *d* (Leumann 1912:17):

2.22cd ṣṣai śa sar|vañi ni vāte śti □| cva ni śśā|dūvani pūri . (A:5+7+5+7)
 even he was not all-knowing. How much less the son of Śuddhodana! (Emmerick)

More than two decades later, E. and M. Leumanns’ edition of the poem (1933–36) used a

¹⁵ Leumann mistakenly thought that *śśādūvani* represented a Prakrit form of Sanskrit *śraddhā* but his use of the principle was valid (Leumann 1912:17).

complex apparatus to indicate morphophonological patterns not obvious from the spellings. For instance, hemistich 2.3cd is printed as

biśśu but te sarvañi balysä biś[śi]ye ysamaśśandai ttrāñi
The all-knowing Buddha, the stronghold of the world, knows all. (Emmerick)

This contains two features not repeated later in the edition by Emmerick. The word *butte* ‘he knows’ is reproduced with a narrow space between the two *t*’s. E. and M. Leumann had determined that some cases of *tt* stood for double /tt/, rather than the usual single /t/.¹⁶ The double *tt* makes *biśśu butte* LLHL and a 5-mora segment. The second feature is the insertion of [śi] into *biśye* reflecting what is here called post-consonantal glide resolution (described below). That is, they thought, probably correctly, that *biśye* was pronounced as three syllables.

They also used the meter to distinguish between /ō/ and /ō̄/. The word *o* ‘or’ they transcribed *ō* with macron because it is always long and reads H, e.g.:

2.16ab kho ye siyato | hvaittä bajsī □ ha | o ūtco | maṃthāte kīśśā (A:5+7+5+7)
Just as when one pounds sand in a mortar or swirls water in a churn,
2.107ab ṣṣai ttā ne balysu . □ | o balysu | biṣṭu tcaramu (C:7+5+6)
Even these (would not be able to deceive) the Buddha or the Buddha’s least
disciple.

Similarly, the very common words *kho* ‘as, how’ and *rro* ‘also, moreover, even, again’ always count L so they transcribed *kho*, *rro*. Examples of both words in 5-mora segments from all meter types:

8.49ab cu mara ṣā īyu □ | **kho rro** mahā|yāñā hvatu (C:7+5+5)
Whatever there may be here that has also been spoken in the Mahāyāna
12.37cd **kho rro** sūtro | hvīnde □ ce ttū | saṃvaru heḍā (B:5+6+7)
just as is prescribed in the *sūtra* for one who gives the *saṃvara*.
15.7cd aṣṣaddā nā | hāḍe nā daiyā □ | **kho rro** prīya | ūtco ne daindā (A:5+7+5+7)
but the unbeliever does not see them, just as the Pretas do not see the water.

In the pages that follow various phenomena are examined using the metrical tools provided by the predominant and most consistent metrical patterns and by mora counting. Several of these phenomena have been recognized earlier but it may be possible to improve their description.

Metrically awkward words of Indian origin

The composer of *Z* usually did a remarkable job of fitting words of Indian origin into the meter. For example, in the hemistich below, he fit most of *dīvamḡgarā* into an ideal HLLHL 7-mora segment, and all of *paramārthā* into a 5-mora segment.

2.241ab kho aysu **dī|vamḡgarā** balysä □ | **paramārthā** | bustāmā dātu (A:5+7+5+7)
Since I, as the Buddha Dīpaṃkara, realized the *paramārtha* in the Law,

But there are frequently instances where the structure or length of the foreign words required the composer to relax the metrical rules. Of these, most irregularities occur in the early part of the hemistich, as in the three examples below.

¹⁶ See Hitch, forthcoming, ‘Old Khotanese *tt*’.

- 4.39cd samāntamukha-pa|rivartto □ balysä | västarna | arthä nijaṣṭe (A:7+7+5+7; not 5+7+5+7)
In the Samantamukhparivarta, the Buddha has shown the meaning of it in detail.
- 12.8ab ṣei bodhisatva-|saṃvari □ cai | abvatu drysde. (B:8+6+7; not 5+6+7)
This is the Bodhisattva-saṃvara. ... as keeps it unbroken.
- 13.9ac ku ṣṭa ākāśā|ggarbhä u ma□nyu|śśrī ku ṣṭa rro | hatāḍaru balysä (A:7+7+5+7; not 5+7+5+7)
in which Ākāśagarbha and Mañjuśrī, in which also the Buddha ... once

The uysnora-effect

The forms of *uysnora*- ‘being’ with short vowel ending, *uysnorV*, as nearly all words with apparent shape HHL, exhibit two behaviors. At the end of a 7-mora cadence they scan LHL. Elsewhere they scan as expected as HHL. For instance, the NAPm spelling *uysnora* appears consistently as LHL seven times¹⁷ at the end of a 7-mora cadence in the mostly type A Chapter 22, e.g.:

- 22.270ab drrai rrāyi | ṣṣīve haḍāya □ | nyānartha | yīndä **uysnora** . (A:5+7+5+7)
Three times by night, by day, he will inform beings:

At the same time it appears consistently in Chapter 2 as HHL four times (152, 158, 234, 250) outside the cadence, e.g.:

- 22.158cd ahvasta | ṣṭāna abasta . □ | **uysnora** | dātu yanīndi (A:5+7+5+7)
Unharméd, unbound, beings will follow the Law.

The same pattern for *uysnora* holds in the type B Chapter 14 with one case of LHL at the end of the 7-mora segment in cadence 1:

- 14.25ab pravarttāte | cakkrū □ u pharu | parrāte **uysnora** (B:5+6+7)
he turned the Wheel and rescued many beings.

and three cases (4, 82, 84) of HHL in other positions, e.g.:

- 14.82ac cīyā **uys|nora** □ ttu skyātu | marā hayārī□ndā (B:5+6+7)
When beings rejoice here at that moment.

In the type C Chapter 3 *uysnorV* is LHL three times (36, 72, 113) in the 7-mora segment cadence 1 HLLHL, e.g.:

- 3.72cd ysurre jsa **uysnora** □ | narya hī|sīndā biśśā (C:7+5+5)
through wrath all beings will go to hell.

and HHL elsewhere four times (10, 12, 75, 102), e.g.:

- 3.102ab kho ju ye ysānājā □ | nei?ṇa **uys|nau**ru samu (C:7+5+5)
as if one should bathe a being with nectar alone.

¹⁷ 22.198, 238, 258, 270, 303, 322, 334.

The first remark relating to this apparent shortening was by E. Leumann in 1912. His formulation was somewhat inaccurate¹⁸ but his example was *uysnora*. This process of HHL > LHL for three syllable words at the end of 7-mora segments was later correctly described by E. and M. Leumann under the heading “Metrische Kürzung [Iktusgesetz]” (1933–36:xxxiii). Emmerick also examined this process, involving what he referred to as “apparent ‘shortenings’” (1968:3; 1973:151). Because the phenomenon frequently involves *uysnora*-, and because E. Leumann’s first example was with this word, it is useful to call it the “*uysnora*-effect”. I do not try to explain the process but merely describe it to better inform morpho-phonological study.

The very frequent *balysūsti*- ‘bodhi’ has several forms ending in a short vowel (NSf *balysūstā*, ASf *balysūstu*, GDSf *balysūste*, IASf *balysūste jsa*, LSf *balysūsta*) and any can exhibit the *uysnora*-effect. When the word is at the end of a 7-mora segment such as in cadence 1 HLLHL the syllable *bal*- is L, but everywhere else it is H. Examples of HLLHL:

- 11.54ab *ci śrāvaka-|yānī satvā □| ko ni hamatā | śtā śtā **balysūstā*** (A:5+7+5+7)
 a being of the Śrāvakayāna: ‘Is *bodhi* of itself necessarily ours?’
- 14.17ab *kye vā pharu | kalpa □ parrāta | bustā **balysūstu*** (B:5+6+7)
 For some, although he realized *bodhi* many kalpas ago,

Examples in 5-mora segments showing HHL:

- 24.266cd **balysūstu** | bustā . □ mṛṭtyu-|māru hatcaste (B:5+6+7)
 He realized *bodhi*. He crushed Mṛtyumāra.
- 11.67ab *ku ṣṭa ṣṭāna | duṣkara kīre □| **balysūste** | vaska yādāndi* (A:5+7+5+7)
 Wherever they for the sake of *bodhi* have performed difficult tasks

The frequent (46×) IASm *aysmūna* is LHL at the end of a 7-mora cadence, e.g.:

- 3.109cd *mulysgo **aysmūna** □| maitro kāṣ|taimā aysu* (C:7+5+5)
 Little have I meditated upon love with my mind.
- 12.38cd *satva vātā | mulydsi mā□stā | tcera **aysmūna*** (B:5+6+7)
 he should show great compassion in mind toward beings.

It is HHL elsewhere, e.g.:

- 2.222cd **aysmūna** | byāta yanā□ñi | dāṣe vīrā | sāmuha balysa (A:5+7+5+7)
 he should recall in his mind the visible Buddhas in all directions.
- 12.46ab *ku ne nā kāḍe | ysīrā□na **aysmūna** yanīyā* (B:5+6+7)
 If he does not do these with a very fierce mind,

There are many words which show the *uysnora*-effect. M. Leumann also mentioned *hamraṣṭu* ‘always’, *urmayśde* ‘sun’, *ātāśa*- ‘sky’ and *ānanda* ‘Ānanda’ (1971: 457).

Emmerick listed a range of nominally HHL forms which occur at the end of seven mora segments which contain anusvāra (*m̐*) in the first syllable such as *hamggargga*, *hambirstā*, *hamkhīysgyo* and *saṃtsera*. Some of these are written sometimes without anusvāra. He argued, “It would seem that a nasalized syllable was optionally short or long in Khotanese” (1968a: 8). It is simpler to regard these forms as showing the *uysnora*-effect and to regard *m̐* as /n/.

There exists a prominent exception to the *uysnora*-effect. *bilsamgga*- ‘bhiksusaṅgha’ which occurs 23× curiously does not show the *uysnora*-effect as the first syllable appears to always

¹⁸ “Wie hier in *uysnora* ... so bildet auch sonst sehr oft inlautende Doppelkonsonanz, aber höchstens vor einer Arsis, keine Position” (Leumann 1912:16).

count L in any position. Some examples:¹⁹

- 24.464ab biśśu **bilsam**|**ggānu** □ mlecha | nāndā ysātāndā (B:5+6+7)
The Mlecchas have taken, plundered everything of the Bhikṣusaṅghas.
2.144ab **bilsam**ggu rro | badr̥ kṣamotte □ | biśśā bodhi|satva kṣamotte (A:5+7+5+7)
Bhadra asked forgiveness of the Bhikṣusaṅgha, asked forgiveness of all the
Bodhisattvas.

That the second syllable is not short is shown when *bilsamggV* comes at the end of cadence 1 where it must be read LHL, e.g.,

- 2.78 samkhālu | pāttāru nāte | paḍā pas|tātā **bilsam**ggä . (A:5+7+5+7)
(put on his) *samghāṭa*, took a bowl, went out in front for the Bhikṣusaṅgha.
24.461 balysi vāte | gyasta dātā | vīri **bilsam**ggä (B:5+6+7)
To the Buddha, King, to the Law, the Bhikṣusaṅgha.

Post consonantal glide resolution

E. and M. Leumann analyzed this feature in this way:

Wechsel von *y v* und *iy uv*. Für eine ganze Anzahl von Wörtern mit postkonsonantischem *y v* erscheint in der Überlieferung auch mehr oder weniger häufig die Schreibung mit *iy* oder *uv*, welche letztere meist als die etymologisch ältere erkennbar ist. (1933–36:xxxiv).

They also noted that variants showing *y~iy* or *v~uv* are metrically equivalent (ibid.:xxxv). Emmerick described this in somewhat inverse fashion:

“It is to be noted that *i* and *u* need not be written before *y* and *v*. Thus we find both *sya* and *siye*, both *hve*’ and *huve*’.” (1968:7).

Mauro Maggi suggests that *CyV* and *CvV* could be resolved to *CiyV* and *CuvV* “depending on metrical need” (p.c. January 2014). All of these scholars are partly correct but the actual situation is more complex. A preliminary point to make is that the spellings with apostrophe, like the example *hve*’~*huve*’ given both by E. and M. Leumann and by Emmerick, represent a distinct phenomenon. This is described separately below (see “The apostrophe”). The remaining cases exhibit what I call *post consonantal glide resolution*. As it turns out, some forms always resolve the glide, some never do, while others resolve it sometimes. When a pattern is clear, it becomes useful in studying the meter.

Glide resolution may be described in this way: in the orthographic sequences *CyV* and *CvV* often, but not always, a *CyV*’ or *CvV*’ counts as two moras and a *CyV* or *CvV* counts as three. Also, often, but not always, there are spelling variants attested of the types *CiyV*~*CäyV* and *CuvV*.

I tentatively identify four categories of behavior with regard to glide resolution. The first includes some apparently qualifying forms which appear to never undergo glide resolution. One is the very frequent verb stem *pyūṣ-* ‘hear’ for which the initial *py-* is never written **piy-* or **päy-* (compare *pyaura*~*päyaura*~*päyora*- below), and there is never an extra, non-orthographic mora counted. The frequent stems *byeh-* ‘obtain (tr.)’ and *byau-* ‘be found; be’ also are never written,

¹⁹ Other examples are at 12.25 a and 22.238 (22.308 and 24.463 2× may or may not be counter examples). The Leumanns were probably aware of the behavior of *bilsamgga-*. The lemmata in Glossar is “bi’samgga-” with superscript *l*. The one instance of *bilsaha-* ‘fetter’ 22.146 appears to also show *bil-* as one mora. 22.149 *ggälserai* ‘on its neck’ may similarly show *ggäl-* as one mora. The frequently attested forms of *puls-* ‘ask’ do not ever seem to show *pul-* as one mora.

and never counted as if written **biy-* or **bāy-*. Similarly, when a stem final consonant is followed by the IAP morpheme *-yau* the resulting sequence *-Cyau* is never written **-Ciyau* or **-Cāyau*.

The second category is represented by the present stem *tvāy-/ttuvāy-* ‘convey across’. It may or may not resolve, and when it does, the extra syllable is always written. The stem occurs three times as *tvāy-* (6.19, 16.63, 22.258) where it always counts H, e.g.:

6.19bd kho □ śā dhā|raṇā kṣaya-nāḍa □| ce **tvāy**ātā | harbiśśā vāma . (A:5+7+5+7)
this *Kṣayanāṭā-dhāraṇi*, which conveys across all seas.

At the same time it also occurs three times as *ttuvāy-* (1.187, 11.8, 24.239) where it always counts LH, e.g.:

11.8cd nārvānu | kīntha **ttuvāy**ā □| hamatā hā | ustamu trāme (A:5+7+5+7)
May I bring to the city of Nirvāṇa. May I myself enter it last.

There is no instance of a spelling *tvāy-* showing glide resolution and counting as LH. Where the glide is resolved there is always an indication in writing. There may be other forms like this, or, if more instances of *tvāy-~ttuvāy-* were attested it might pattern like the following category.

The third category contains two elements of variability. The words may or may not undergo glide resolution, and when they do, they may or may not show this in the spelling.

The 3Pp.m of *jī-* ‘disappear, be removed’ is spelled *jyāre* 12×²⁰, *jyāri* 1× (2.191), *jyārā* 1× (15.11), and *jiyāre* 8×²¹. The spelling *jiyāre* is naturally always LHL as in

9.21cd nāhuta puṣṣo | kleśa abhā□vu | biśśī kādā|yāne **jiyāre** (5+7+5+7)
kleśas have utterly disappeared to non-existence, all one’s evil deeds disappear.

In contrast, *jyāre* may be either HL without glide resolution as in

3.144ab maitre jsa **jyāre** □| dīra kādā|yāne pharu (C:7+5+5)
Through love, many evil deeds disappear

or LHL with unwritten glide resolution as in

5.18cd trāmu nai|rātma-hvanaina □| uysnori | ysamtha **jyāre** (A:5+7+5+7)
so through the nairātma-doctrine births cease for a being.

Similarly, the 3Pp.m of *bu-* ‘perceive, know’ is spelled *buvāre* 8×²² where it is predictably LHL as in

2.121ab balysa **buvāre** □| śśūjīye | hota samu (C:7+5+5)
Buddhas alone know one another’s power.

But it is more often spelled *bvāre* (34×) where it is sometimes LHL, e.g.,

13.53bd śātā □ hīni | śrāvaka-yānā □| batu balysā | gvāru **bvāre**
(A:5+7+5+7)
that is the inferior Śrāvakayāna. They little understand the Buddha’s meaning.

and sometimes HL, e.g.,

²⁰ *jyāre*: 3.139,144, 5.9, 18 12.6, 93, 13.67, 150, 15.8, 22.305, 24.472

²¹ *jiyāre*: 3.29, 140, 143, 6.1, 9.21, 22.116, 23.370, 24.458.

²² *buvāre*: 1.32, 2.121, 3.35, 49, 50, 22.217, 23.4, 23.5.

- 4.71bd biśśā□nya | daindā abhāva | na-ro □ biysā|nīndi ne **bvāre** (A:5+7+5+7)
All kinds of unreal things they see. Until they wake up they do not understand.

From the same stem the 1Ssj.m *buvāne~buvāni~bvāne* ‘I perceive’ has the spelling *buvā-* twice (2.206, 216) and both times the word counts LHL, e.g.,

- 2.206cd avāśśā bal|ysūstu **buvāni** □ | biśśā klaiśa | purrdu yanīñi (A:5+7+5+7)
May I surely realize best *bodhi*. May I be able to overcome all *kleśas*.

Of the four spellings beginning *bvā-*, two (5.113, 11.77) words are HL as in

- 5.113cd balysūstu | hastamu **bvāne** □ | biśśā parrīj|īñi uysnora (A:5+7+5+7)
may I realize best *bodhi*. May I rescue all beings.

and two (12.1, 24.259) are LHL as in

- 12.1ab ce yāḍe praṇā|hā□nu se bal|ysūstu **bvāne** . (B:5+6+7)
One who has taken a vow: ‘May I realize *bodhi*,’

The 3Pp.m *dyāre* ‘they appear’ is spelled twice *dāyāre* (5.12, 23.13), twice *diyāre* (2.161, 4.100) and once *diyāri* (4.37), all LHL as might be expected. Of the fifteen cases of *dyāre*, ten²³ are HL, e.g.,

- 9.4cd samu kho purra | āyāte □ ūca | trāmu mara | rūvāna **dyāre** (A:5+7+5+7)
Just as the moon is reflected in water, so do (the Buddhas) appear here bodily.

And five cases (2.165 2x, 4.104, 5.60, 23.91) are LHL, e.g.,

- 2.165ab cu buro ttāte | ṣkogye dyāre □ | cā'ye māññande **dyāre** . (A:5+7+5+7)
Whatever these *samskāras* appear, they appear resembling magic.
23.91cd ne ne varatā | balysa **dyāre** □ | jaḍye para|nārvāta saindā (A:5+7+5+7)
no Buddhas appear there. To the ignorant (man) they appear parinirvṛta.

The participle of necessity *dyāñña-* ‘to be viewed’ has a similar distribution. It is spelled *diyāñña-* three times (2.153, 5.65, 68) and once *dāyāñña-* (2.210) all LHL. With the spelling *dyāñña-* it is four times HL (2.83, 6.43, 19.88, 24.441) and three times LHL (2.148, 162, 11.24), e.g.,

- 2.162ab crrāma ttāte | harbiśśi balysa □ | ttrāma biśśā | satva **dyāñña** (A:5+7+5+7)
As are all these Buddhas, so are all beings to be viewed.
11.24cd tta tta pare|hāñi parāhā □ | ṣā hajva|ttātā **dyāñña** (A:5+7+5+7)
‘thus is restraint to be exercised,’ this is to be viewed as wisdom.

The GDSm pronoun in the spelling *ttye* occurs more than 50 times, almost always as two moras. I find only four²⁴ cases where a reading as one mora may be preferred, e.g.:

- 4.37ab **ttye** aysmuī | hāvī vipākā □ | cu samu ays|mūna diyāri (A:5+7+5+7)
The things which appear by the mind alone are the *vipāka* of that mind,
13.131ab paranārvāte | sūtro tta hvī□ndi | **ttye** haṃdarā | arthā salāvi (A:6+7+5+7)
‘He is “*paranārvāta-*”’, so it is said in the sūtra. There is another meaning of this expression.

²³ *dyāre* as HL: 3.113, 137, 4.23, 32, 73, 82, 9.4, 15.47, 21.25, 23.90.

²⁴ 4.37ab, 12.28ab, 13.112ab, 13.131ab.

The word is spelled *tīye* twice (11.53, 13.50) and *tāye* three times (2.202, 16.3, 24.215). These spellings indicate that the two moras of *tīye* can be LL. This is confirmed by one case of *tīye* at the end of a type C hemistich where it appears in a cadence C₁ HL LL:

12.120 ka bodhisatvā □ | atārañi | yīndā tīye (C:7+5+5)
If a Bodhisattva is ungrateful to one

Its appearance at the end of a type C hemistich confirms that its shape is LL and not H, since we rarely²⁵ find H in that position. It does not behave like monosyllabic H nouns such as NSm *rre* ‘king’ or ASm *rro* ‘plain’.

pyaura~*pāyaura*~*pāyora*- ‘cloud’ occurs with the spelling *pyaur*- 10×²⁶, with *pyau*- in every case counting H as in 2.19 *pyaure* and 2.176 *pyaurānu*. It occurs once as *pāyaura* (24.475), and once as *pāyore* (23.158), both times as LHL as the spelling might predict. Based on the distribution to this point one might expect the one case of *pyore* (23.148) to count as HL but it counts LHL:

23.148ab samu kho purra | stāryau haṃtsa | bendo kāḍe | māstā *pyore* . (A:5+7+5+7)
just like the full moon with the stars over a very big cloud

The fourth category of behavior with regard to glide resolution is the one which is perhaps best attested. It has just one aspect of variability. These forms always feature glide resolution and the spellings sometimes show this and sometimes do not.

The GDS *biśye*~*biśśāye*~*biśśye* ‘all’ is always three moras. While *biśye* may be readable as HL, there is evidence suggesting all spellings count LLL. Beside the spelling *biśye* which occurs 13×²⁷, there are *biśśāye* twice (16.7, 23.31) and *biśśye* once (19.5). E. and M. Leumann noticed variant spellings for this word in the same phrase with the same mora count (1933–36:xxxv):

2.4cd **biśye** ysama|śśandai satvā □ | cu va ne kau | hastari āya (A:5+7+5+7)
a being in the whole world. How much less if there should be one better!
23.31ab māñandi | vaysña ni byaude □ | **biśśāye** ysama|śśandai satvā (A:5+7+5+7)
In the whole world, there is now no being resembling him

The LSm *ysamaśśaṃḍya*~*śśandāya*~*śśaṃḍiya*~*śśandya*~*śśaṃḍita*~*śśaṃḍya*, ‘world’ is always (9×)²⁸ six moras. E. and M. Leumann again noticed two variants, *ysamaśśaṃḍya*~*ysamaśśandāya*, in the same phrase with the same mora count:

22.196cd panatā **ysama|śśaṃḍya** ba□lysā | ce biśśā dukha | jāndā satsera .
(A:5+7+5+7 if *śśaṃḍya* is HLL)
A Buddha has arisen on earth who will destroy all the woes in saṃsara.
22.195ac ṣa ṣṣuva biśśu | vīri bira□ysde | panatā **ysama|śśandāya** □ balysi (A:5+7+5+7)
This news will spread everywhere: ‘A Buddha has arisen on earth.’

²⁵ Under Cadence C₅ above the two cases of HX H in Z are listed.

²⁶ *pyaure* 2.19, 6.15, 9.3, 16.50, 3.121, 4.63, *pyaurā* 17.9, *pyaura* 4.107, 5.49, *pyauru* 5.50, *pyaurānu* 2.176.

²⁷ *biśye* is found at 2.3, 4, 169, 181, 11.5, 15.1, 3, 17.30, 22.257, 23.39, 24.227, 248, 427.

²⁸ The LSm of *ysamaśśandaa*- ‘world’ occurs at 1.39, 6.3, 23, 20.2, 71, 22.195, 196, 23.53, 24.206. At first glance 6.3 *ysamaśśandya* appears to count 5 moras as a 5-mora segment in a type A hemistich. However, 1.39 *ysamaśśaṃḍiya* appears in the same position and counts as 6-moras, as the spelling shows. Both are examples of a metrically awkward long word giving an irregular mora count.

Another locative singular of a secondary declension, *aysmya*, LSm of *aysmūa*-²⁹ ‘mind’, occurs 23 times in Z always written *aysmya* and apparently always containing four moras, e.g.:

- 2.9ab ttārthānu | mästā arātā □ | kāḍe nu dukhā | **aysmya** saittā (A:5+7+5+7)
There was great envy on the part of the heretics. It seemed in their mind very much a misfortune.
- 19.86cd ttāna hva'ndā | **aysmya** □ ālyīnai tcerā (B:5+6+7)
Therefore an example is to be kept in mind by a man.

Although this word is never spelled **aysmiya* or **aysmäya* in Z, it occurs once as *aysmiyei* (*aysmya* + *-i*) in Suv[Or] 2.41 as noticed by Emmerick (1995:53). The four moras of *aysmya* in Z count HLL.

The numeral ‘two’ is written mostly *duva* 8×³⁰ but also *dva* 2× (9.25, 10.9) and *duta* once (7.38). The related word for ‘both’ appears as *hūduva* 2× (13.77, 79) and *hūdva* 3× (2.139, 3.8, 24.491). In all cases (-)*dva*~(-)*duva* counts as two moras, presumably always LL, e.g.,

- 9.25cd ttāri **dva** | yāna biysāmgya □ | kye mara stā|sīndā samtsera . (A:5+7+5+7)
Those two Vehicles are the waking up of those who become weary here in *samsāra*.

There is a group of four words, all often meaning ‘while’ which show similar morphophonological patterning: *ṣṭānye*~*ṣṭāniye*, *ānye*~*āniye*, *śśānye* and *jsānye*. Formally these words show the pronominal GDS *-(i)ye* ending and are based on *āna*-present participles to the verbs *ṣṭ-* ‘stand’, *āṣ-*³¹ ‘sit’, *śś-* ‘lie’, and *jsā-* ‘go’.

ṣṭānye ‘standing; while’ occurs 15× and is always four moras, e.g.:

- 24.470cd kauśāmā | **ṣṭānye** ṣā□tā | śśāśānā jīye (B:5+6+7)
while in Kauśāmbī: ‘This Śāsana is dying out.’

It is also spelled *ṣṭāniye* 4× (5.97, 22.144, 264, 323, 24.447), confirming that *ṣṭānye* is HLL. *ānye* ‘sitting, dwelling; while’ occurs three times (2.168, 231, 13.65) always four moras, as in:

- 13.65cd ttā śśūkā | **ānye** purrdā □ | mārīño | harbiśśo hīno (A:5+7+5+7)
Then, being alone, he defeated the whole army of Māra.

It occurs once as *āniye* demonstrating the reading HLL:

- 22.151 daśu vīri | **āniye** berā□ñite pharu | ratana vicitra (A:5+12+7)
While on a banner, it will rain down many variegated jewels.

Neither *jsānye* nor *śśānye* features an attested expanded *-iye* or *-āye* spelling but in all cases these words count as four moras in Z indicating original **jsāniye* and **śśāniye* in all cases.

jsānye ‘going; while’ occurs four times (4.74, 79, 13.75, 24.469) always four moras, as in:

- 4.79cd kho rro brātā | **jsānye** kāṣṭā □ | ttey pracai | hūña ttu daiyā (A:5+7+5+7)
just as, when he has thought while awake, for this reason he sees this in a dream.

²⁹ This stem is traditionally listed with short *-u-* as *aysmua-* (Glossar:391a, SGS:322, SuvII:236). The LSm *aysmya* supports long *-ū-* because there appears to be umlauting in the derivation and only long *-ū-* shows umlaut: /azmiya < azmya < azmwya < azmwīa < azmū- + -ṣa/.

³⁰ *duva* appears at 2.189, 4.3, 7.36, 13.14, 149, 14.43, 20.16, 22.283.

³¹ Emmerick in SGS and Bailey in DKS represent this stem as *āh-*. Skjærvø in Suv has *ā'*. The present stem is suppletive with *ās-* in 3Sp.m *āste*, and *āṣ-* everywhere else.

śśānye ‘lying’ occurs six³² times, always four moras, as in:

24.468 paṃdāya | **śśānye** □ ttuṣṣe | tsīndā anāha . (B:5+6+7)
on the way, lying down, they perish protectorless.

īrye NAP ‘wiles’ occurs four times (2.59, 19.76, 23.172, 24.268), always four moras, as in:

2.59ab balysā ttū | harbiśśu butte □ | ttāte badṛ | **īrye** drūje (A:5+7+5+7)
The Buddha perceives all this: ‘These are Bhadra’s wiles, lies.’

One time it is spelled *īriye*, proving that the count is HLL:

23.127 cu nā paḍā | ggāṭhuvo’ ṣṭāni | saṇa vāta | **īriye** daṣṭe (A:5+7+4+7)
The plans, the skilful wiles which were theirs before while among householders,

The *āmjsia*-adjectives are spelled *-CāmjsyV* 9×³³ and *-CāmjsiyV* 2×, with both sequences always HLL. Below are examples of *-ya~-iya* and *-ye~-iye* ending variations:

22.199ab rrundā puṇa | harbiśśā māsta □ | paḍā**mjsya** | hālysa hāmāre (A:5+7+5+7)
All the king’s great merits, past, present, will arise.
13.160ab paḍā**mjsī** | hettu bodhi-cittā □ u vays|ṇā**mjsiya** ṣṣadda . (A:5+12+7)
The first cause of bodhicitta and present faith
22.271ab ttāte anauṣ|kā**mjsye** ṣkaṇṅye □ | trāmu par|sīndā kho bātava (A:5+7+5+7)
These impermanent saṃskāras will pass like lightning.
3.117cd śśau śśau ggurvīcā □ | paḍā**mjsiye** | rrīye bise (C:7+5+5)
Every single particle has excelled the former dwellings.

NAPm *padya* of *padia*- ‘way, manner’ is spelled *padya* 23×³⁴ and *padiya* 2× (14.73, 24.224). No matter if *padya* is read HL or LLL it will always be three moras but the spelling *padiya* shows it is likely always LLL.

The NAPm of the adjective ‘wise’ is spelled *hajva* 6× and *hajuva* once (22.321), while the related noun ‘wisdom’ is spelled *hajvattāti*- 19×³⁵ and *hajuvattāti*- 2× (8.43, 44). Regardless of spelling, the sequence *hajva* always counts LLL, e.g.:

6.2cd biśśā ttuśśā | ttatvatu dharma □ | ṣā **hajva**|ttātā subhūta . (A:5+7+5+7)
all *dharma*s are in reality empty. This is wisdom, Subhūti.

syā~-siyā- ‘goose, *haṃsa*’ occurs six times in all, five with *sy*- (7.44, 45, 46, 17.20, 22.135) and once with *siy*- (7.45). NAPf *siye*, *syē*, and NSf *sya* are always LL as twice in line 7.45:

7.45ab jaḍīgya ūtca □ | ku ṣṭa vittar|kīgya **sya** . (C:7+5+5)
The water of ignorance is where the *haṃsa* of *vitarka* is.
7.45cd ttu buro vāsśeṣā | cu □ vara āy|āre **siye** (C:7+5+5)
So much is discrimination: as *haṃsas* are reflected there.

³² 22.129, 148, 24.411, 468, 513, 514.

³³ *padāmjsyo* 6.7, 11, *padāmsya* 20.13, 22.199, 22.287, *hatādarāmjsya* 9.28, *auṣkāmjysya* 13.121, *oṣkāmjysya* 15.47, *anauṣkāmjysye* 22.271.

³⁴ Including *biśpadya* 2.77, *kṣā’-padya* 3.141, *drai-padya* 14.80.

³⁵ 2.119, 197, 224, 4.115, 6.2, 8.45, 11.21, 24, 26, 29, 31 2x, 32, 39, 42, 46, 14.73, 20.26, 22.299.

It seems that we must reckon with perhaps four categories of forms depending on how they resolve glides and how they are written:

- 1) Some words never resolve the glide: *pyūṣ-*, *byeh-*, *byau-* and the IAP ending *-yau* in *-Cyau*.
- 2) At least one word may or may not resolve the glide and the presence or absence of glide resolution is always written: *tvāy~ttuvāy-*.
- 3) Some words may or may not resolve the glide, and when they do the presence of glide resolution may or may not be written: *jyāre~jiyāre*, *bvāre~buvāre*, *buvāne~bvāne*, *dyāre~dāyāre~diyāre*, *dyāña~dāyāña~diyāña*, *ttye~ttiye~ttāye*, *pyaura~pāyaura~pyora-*.
- 4) Some words always resolve the glide and the extra L syllable may sometimes be written: *biśye~biśśāye~biśśye*, *ysamaśśamdyā~ysamaśśandāya*, *aysmya~aysmiyei* (-) *dva*~(-) *duva*, *ṣṭānye~ṣṭāniye*, *ānye~āniye*, *jsānye*, *śśānye*, *īrye~īriye*, the *āṃjsia*-adjectives, *padya~padiya*, *hajva~hajvuva*, *hajvattāti~hajuvattāti-*, *syā~siyā*.

To determine the metrical count of a particular form containing a sequence *CyV* or *CvV* it is necessary to examine all of the occurrences of that form to see how glide resolution must be reckoned with.

The apostrophe

The function of the apostrophe in Old Khotanese will have to be more fully described elsewhere. Briefly, it shows that a word contains a sequence of two vowels. This sequence arises from the loss of intervocalic **-s- /z/*.

The word *vajsā're* in the three hemistichs below is LLHL for older **vajsāṣāre* < *vajsāṣ-* 'perceive, see' + 3Pp.m *-āre*. For the stem compare the 3Sp.m *vajsāṣde* Z 4.79, the 2Pop.m *vajsāṣī'ru* Z 24.209, and the *āmata*-abstract noun GDSf *vajsāṣā'mate* Suv 6.3.46. In the three hemistichs below, a division between the 5- and 7-mora segments occurs within the akṣara *jsā'*. Phonemically the division is /wadʰẽ|āiē/, LL|HL.

- | | | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 4.46cd | kṣāru vajsā're padīyu □ o ye ddau daindā cu ūtca
they behold ignited lye or see the water as fire (Emmerick: behold burnt lye) | (A:12+5+7) |
| 5.75ab | prrīya kar myau jsa nitāya □ ūtco vajsā're padīyo
The Pretas, because of their <i>karmas</i> , see the water in a river as alight. | (A:5+7+12) |
| 9.7cd | samu hīvya syāmata kūra □ cu na-ro vajsā're parrīyu
It is only their own false appearance if they do not yet behold deliverance. | (A:5+7+12) |

Similarly, from the same stem the *āka*-agent noun *vajsā'kā* in the hemistich below is LLHL for older **vajsāṣākā*.

- | | |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.70cd | ātma vajsā'kā padīmākā □ paysā nākū tsūkā
(A:5+12+5 if <i>*vajsā ṣākā</i>)
the self, the viewer, the creator, the recognizer, and the transmigrator. |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The *āka*-agent noun *nājsā'kā* 'shower' in the hemistich below is LLHL for older **nājsāṣā'kā* for which compare NSm *nājsā'ṣā'kā* Śgs 2.7v3.

- | | |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 12.91cd | sūtrāṇa vātcu □ asamā nājsā'kā vāte
(C:7+5+5 if <i>*nājsā ṣākā</i>)
(or) again if the expositor was not equal to the <i>sūtra</i> . |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------|

The form 1Sp.m *hamjse* ‘I intend’ in the two hemistichs below is HLL, giving an underlying ideal Type A 7-mora segment HLLHL. In Z it is also spelled *hamjsäte* Z 2.64, 23.2, *hamjsä’te* Z 2.124, and *hamjsäte’* Z 14.2, all showing the missing syllable. All spellings reflect phonemic /handʒē/. For the stem *hamjsäs-* ‘intend to’, compare 3Psj.m *hamjsäsā’ro* Suv 6.2.53.

- 5.7ab ttānu aysu | **hamjse**’ hvīye □ | balysānu | hastamu dātu (A:5+7+5+7)
Therefore I intend to declare to you the best Buddha-Law.
- 5.19ab ttānu aysu | **hamjse**’ vaysña □ | paramārthu | hvatāno hvīye (A:5+7+5+7)
Therefore I intend now to proclaim to you in Khotanese the *paramārtha*,

The 2Pp.a form *kä’ta* ‘you all think’ in the 5-mora segment below is LLL for older **käšata*. For the stem *käs-* ‘think’ compare 3Pp.a *käšī’ndä* Suv 14.27.

- 23.97ab arātū | nuṣṭhura nāste □ | ne tta **kä’ta** | tte puña trāma . (A:5+7+5+7)
Terrible envy takes hold of you. You do not think thus: “His merits are so great.”

The 5-mora segments *kšä’-padya* and *ksei’-padiya* ‘sixfold’ in the hemistichs below are LLLLL. *ksä’* and *ksei’* ‘six’ in OKh might otherwise be spelled *kšäša*’ or *kšäta*’ (DKS:68b). All four spellings reflect /tʃä < tʃza < tʃz- + -a/. *ksä’~ksei’* here are LL and *padya~padiya* are LLL.

- 3.141cd vari buru maitra □ | **kšä’-padya** | brahmä puña (C:7+5+5)
there is love, the sixfold (*pāramitā*), the brahma(-*vihāra*)s, merits.
- 24.224ab **ksei’ padīya** | śśandā □ | ārautta hamaggu .
In six ways equally the earth moved.

The reduplicated demonstrative pronoun NSm *šä’* ‘this’ is LL in the hemistich below, for older **šäšä*. It is usually spelled *sei’* • /zēē < zēzē/.

- 5.20cd ne ne ju vara | bitamā tce□ra | nātata **šä’** | hastamā dātā (A:5+7+5+7)
one should not have any doubt at all about: assuredly, this it the best Law.

The NSf demonstrative pronoun occurs as *ša* more than 27 times and as *šā* more than 30 times in Z. It appears three times as reduplicated *šāša* (4.80, 95, 21.16), twice with apostrophe as *šā’* (15.115, 13.144) and perhaps once (21.13) as *šāšā* if this should not be read *šā šā*. There is no reduplicated form **šāša*, but this seems to lie behind the spelling *šā’* with apostrophe which occurs at 15.115:

- 15.115ab hūsta gyaḍīna . □ | hūña **šā’** | samñña umā (C:7+5+5)
You are sleeping through ignorance. In a dream that *samññā* of yours ...

Similarly, *šā* in 7.39 below may be a copyist error for *šā’* reflecting older **šāša* (compare *hūña šā’* in 15.115 above):

- 7.39cd hūña paysendi □ | hūña **šā** | jsīrja samu . (C:7+5+5)
recognizes in a dream: this is merely deception in the dream.

The spelling *šā’* occurs one more time at 13.144 where it counts too long and perhaps *ša* was originally written.

- 13.144ab balysānu | buljsye kādāna | **šā’** vāšana | śrāvaka-yāno (A:5+7+6+7)
For the sake of praise of the Buddhas, there is this statement in the Śrāvakayāna:

The spelling *šā* in 20.60 and 2.88 below may be a copyist error for *šā’* reflecting older *šāša* as a reading HL seems required:

- 20.60ab aysmuī rraysgä . □| **ṣā** ttārā | ośa bisa
(C:7+5+5; if read *ṣā'* for *ṣāṣa* HL)
This is such a bad dwelling for the swift mind.
- 2.88cd ka haḍe sar|vañi tta cū jsāte ku **ṣā** | samu ulatāna .
(A:5+12+7 if read *ṣā'* for *ṣāṣa* HL)
But if he is thus all-knowing, why does he go where only this cemetery is?

The wide array of spellings (5) and metrical treatments (L, LL, H, HL, HH) for the NSF demonstrative pronoun may be explained by several linguistic and orthographic developments. Basic *ṣa* L was reduplicated as **ṣaṣa* LL which through loss of *-ṣ-* became spelled *ṣā' /zāa < zaza/ LL*. Then this common word irregularly simplified to *ṣā /zā/ H* which could then also be reduplicated as *ṣāṣa HL* (possibly also *ṣāṣā HH*) and then the *-ṣ-* could again be lost and the form spelled *ṣā' /zāa < zāza/ HL*.

Whether spelled *hve'* (32×) or *huve'* (3×) NSm 'man' this word appears to always be two moras.

An older, unattested spelling might be **huṣe*. The spellings *hve'* and *huve'* both reflect /huē < huzē/. In *hve'* the *v* reflects the vowel /u/. In *huve'* the *v* is an empty radical used to write the vowel /ē/ with a diacritic. The *v* does not mark a consonant here. These spellings do not show glide resolution as assumed by Emmerick and E. and M. Leumann (see above). Examples of *hve'* as LL:

- 7.41ac hūña ma pulsa □| cu ne rro vā | brātā □ **hve'** || (C:7+5+5; C₁ HL LL)
Do not ask one in a dream, much rather a man awake.
- 23.110cd cu va nā bajā | hārṣtai vīrā □| cīyā **hve'** | yande aretu (A:5+7+5+7)
which would not seriously suffer when a man is envious.
- 24.440ab biśšo karyo | merā □ ṣā **hve'** | ttuśśīma yīndā (B:5+6+7)
That man makes empty all the mother's labour.

This word has two stems. The NSm *hve'~huve'* as shown above reflects the stem *huṣ-* /huz-/ which is also found with the adjective *hvi'ya-* (see below). The other stem *hva'nd-* 'man' is found with all other forms. Seven spellings are attested in Z: *hva'nd-* (35×), *hvaṃ'd-* (24×), *hva'nd-* (22×), *hvand-* (18), *hvqnd-* (5×), *hvaṃd-* (4×), *huvq'nd-* (1×). This last form *huvq'nd-* (Z 16.44) suggests the stem should be two syllables LH. The etymology might suggest LH as well. Bailey offers, **hva'nd-* < **auṣavant-* 'mortal' comparing Av *aoṣah-vant-* 'mortal' and Pashto *ṣāwāi* 'person' (DKS:503b). The stem *hva'nd-* is likely underlyingly, at least in the oldest language, /huand- < *huzand-/. One might predict that it would consistently count LH in meter. But it turns out that most often it counts H, as if read *hvand-*, [hwand-]. For instance, all 24 *hvaṃ'd-* spellings appear to count H, as in these examples, one from each meter type:

- 2.189ab biṣpaḍā | duva hāra śtāka □| balysūña|vūysai **hvaṃ'du** . (A:5+7+5+7)
First of all, two things are necessary for a bodhi-seeking man:
- 19.85cd śšo śśūku | śśārku ka□raṇu | **hvaṃ'dāna** daiyā (B:5+6+7)
one sees each good action as due to a man.
- 20.72 āchei jsāte | ysare □ maraṇā | **hvaṃ'di** nuva . (C:7+5+5)
Illness, old age, death, follow a man.

Similarly, all 18 *hvand-* spellings and all 4 *hvaṃd-* are H. From among the remaining three spelling types, a little less than a quarter of the cases counts LH and the majority counts H. The most common spelling *hva'nd-* appears 35 times of which possibly 8³⁶ instances are LH, e.g.,

- 11.12cd cu ṣā dukhā ysā|ru vātā **hva'ndi** □| ttuto balysa | mulśdu hvatāndā (A:5+7+5+7)
What this woe is in a man's heart, this the Buddhas have called compassion.

³⁶ 4.22, 24, 10.2, 11.12, 13.81, 16.6, 22.247, 24.226

Of the 22 cases of *hva'nd-* possibly 3 times (13.27, 22.122, 24.491) there is a count LH, e.g.,

- 24.491ab kye **hva'ndi** | hūdva gva'³⁷ □| haysge patālste (B:5+6+7)
The man whose two ears, nostrils have been cut off.

The last spelling *hvqnd-* occurs 5 times and once is read LH:

- 11.52ab handarye | **hvandä** hāvu □| daiyā pajsā|mu buljse pyūšde . (A:5+7+5+7)
It one sees another man's blessing, hears of his honour, virtues,

It appears that at the time of the composition of *Z*, older /huand/ was being replaced by /hwand/. This replacement made it linguistically appropriate to write the stem without apostrophe, as it is in about a quarter of the cases. But at the same time there would have been a tendency to keep the apostrophe, partly out of tradition, and partly because it was maintained in the paradigm in NSm *hve'~huve'*.

The related adjective *hvī'ya-* 'human' shows a similar pattern. It occurs just once as *hvīya* (18.2)³⁸ without apostrophe where it counts HL. When written *hvī'yV* with apostrophe, three (5.14, 109, 13.70) of the ten cases count LHL, e.g.,

- 5.14ac kho rro kāṇa|kachavo hva□te ballysä **hvī'yä** | ūtamo ysam□thä (A:5+7+5+7)
as the Buddha has said in the parable of human existence about the one-eyed tortoise.
13.70ab bašdye jsa | **hvī'yu** ysamthu | bye□ha u a|sädetyau vātcu . (A:5+7+5+7)
Through evil action would one obtain human birth and, moreover, through imperfections?

This adjective is derived / (hwīya <) huīya- < huzīya- < huz- + -īya-/ and its distribution may be explained in the same way as that for *hva'nd-*.

The LP *po'* (12×) 'feet' is also spelled *pau'* (1×), *pvo'* (4×) and *pāto'* (3×) in *Z*.³⁹ All count as two moras, probably all LL like *pāto'*. Some examples:

- 3.5 harbiššā namasātāndi gyastä | balysi **pāto'** (C:13+5)
They all worshipped at the feet of the *deva* Buddha.
5.40 vaiśramanā | śśakrā u brahmā | tterā jsai | **pvo'** namasīndä .
(A:5+7+5+7; cadence 4 LLLLHL)
Vaiśravaṇa, Śakra, and Brāhmā do homage with their forehead at his feet.
5.105 kuī rrīṇe | daindi se marā ātā **pau'** ye | harbišše paste (A:5+12+7)
When the queens see him: 'He has come here!', they all fell before his feet.

³⁷ *gva'* is LL and spelled *gguva'* four times: 5.1, 6, 21.23, 22.146.

³⁸ Care must be taken not to confuse the forms of *hvī'ya-* 'human' with the infinitive forms *hvīyā*, *hvīye*, *hvīyi* 'to speak' at 5.7, 19, 25, 22.286, 23.35 2x, 24.437.

³⁹ The source of the apostrophe in these words is the LP suffix *-uvo'~-uṣo'~-vo' /-uō < -uzō/*. Although for Emmerick, for the stem, "*pāa-* is the only possible form" (SGS:305) that form cannot explain the various LP spellings. It also can not lie behind the IAP *pāyau jsa* (*Z* 24.148). Synchronically speaking, a stem *pāa-* might explain all forms of this noun except perhaps the NAP *pā* (*Z* 2.63, etc.). *pāa-* + *-yau jsa* > *pāyau jsa* is a simple derivation. *pāa-* + *-uvo'* has the complication that the "contraction" of *ā+u* results in the deletion of one or the other short vowel. With loss of *u* /pēō < pēzō < pē- + -uzō/ we have *pāto'*. With loss of *ā* /puō < puzō < pē- + -uzō/ we have *pvo'*. The spellings *po'* and *pau'* are ambiguous.

- 22.194 biśśā gyasta | sīra hāmāre | brahmāni | vā **po'** balysä (A:5+7+5+7)
All the gods will be contented. Brahma (will then bow) down (to the ground) at
the Buddha's feet,

Understanding the function of the apostrophe can help us to better understand the meter of Z. What may at first be a bewildering array of spellings, are often just efforts to write two vowels in a row within a word. An akṣara with one orthographic vowel and apostrophe, like *hve'*, *haṃjse'* or *po'* may represent a sequence two vocalic phonemes. Often these are also written with an empty consonantal radical as in *huve'*, *haṃjsäte'*, or *pāto'* in which cases the mora count is obvious.

IAP -yau, -yo

The instrumental-ablative plural suffix *-yau*, *-yo* has a complex and interesting set of behaviors with regard to the meter in Z. In OKh in general this suffix is most often, but not always, followed by the enclitic *jsa* 'with'. The presence or absence of *jsa* can affect the metrical count of *-yau*.

The simplest pattern is when *-yau* is not accompanied by *jsa*. Here, usually the *-yau*, *-yo* counts L.⁴⁰ Three examples from Chapter 2, type A, 5+7+5+7:

- 2.181cd puñ**yau** bve|māte jsa śahāñe □ | ttānau nama|sīmā māḍāna (-yau L)
in merits, wisdom, virtue. Therefore I worship you, gracious one.
2.222ab ka vā vara | dāḍaru ā'te' □ | lakṣa**nyo** | āysäte balysi . (-yo L)
Or if he should remain there longer, ... the Buddha adorned with *lakṣanas*,
2.242ab badṛ bī|nāñāna bū'ṇa □ | spātyau pharu | stav**yo** vicitra (-yau L, -yo L)
Bhadra with lute-music, incense, flowers, many praises

The ending *-yau*, *-yo* appears most often followed by *jsa*. As noted by Emmerick, it appears that *-yau*, *-yo* in this environment is always H (Emmerick 1968:8).⁴¹ In the following three examples from Chapter 2, the sequence *-yau jsa* is in varying environments and counts HL:

- 2.23cd rrayso bī|ḍāndi tcho □ ra | riṣaya śśāv|**yau jsa** balonda (A:5+7+5+7)
(But) the four mighty ṛṣis have sown in vain with their curses.
2.60cd ttuto numad|rūṇo pharāka □ | varatā par|sīndi dukh**yau jsa** (A:5+7+5+7)
this invitation ... 'Many there will escape from woes.'
2.74cd idr**yau jsa** | nvāta u murkha □ | irdi-prā|hālī ttānu (A:5+7+5+7)
who are restricted and simple in senses, there is the *ṛddhiprātihārya*.

There are phrases showing both treatments, where *-yau* alone is L, but *-yau jsa* is HL, e.g.,

- 2.193cd kāḍe thatau | nātu yanā □ ro | biś**yo** par|sāru dukh**yo jsa** (A:5+7+5+7)
would that all beings may be able very quickly to accept (my instruction and)
may they escape from all woes.

E. and M. Leumann had a different analysis of these forms:

Das y der Endung des instr. plur. *-yau* / *-yō* hat nicht Konsonantenwert, sondern bezeichnet Vokalumlaut; *yau yō* ist etwa phonetisch *äu ö*; also bildet dieses y nicht Position, z. B. in *aysuryau* \sim —, *spātyau* \sim —, *suhyau*, *biśyau* (orthographisch für *biśśyau*, \sim —); (1933–36:xxxii)

⁴⁰ The creative interpretation by E. and M. Leumann of *-yau*~*-yo* as "phonetisch *äu ö*" (1933–36:xxxii) and thus the *y* not making position, is discussed below.

⁴¹ I have noticed no counter examples, but I have not checked every occurrence.

Their reasoning may have been based on hemistichs like the type C below containing their examples *suhyau* and *biśyau*.

- 3.65ab **biśyau suhyau jsa** □ | biśśāñe śśāra|tete biśśā (C:7+5+5)
With all their pleasures, all with all their goodness,

It appears that the Leumanns considered the structure of the 7-mora segment *biśyau suhyau jsa* to be LHLHL. For them both cases of *-yau* were H. Rather, it may be preferable to regard the 7-mora segment as having an ideal cadence 1 HLLHL structure where the first *-yau* is L and the second, followed by *jsa*, is naturally H. The syllable *suh-* is L through the *uysnora*-effect.

In the hemistich below, another of their examples *aysuryau* occurs in cadence 3 LHLHL where, in fact, *-y-* makes position.

- 23.105ab nahuṣṣu jsī|dāndi sta rruṃ□du | vā ggīhu | **aysuryau** juśtā (A:5+7+5+7)
‘You deceived King Nahuṣa: “Help fight the Asuras.”’

E. and M. Leumann’s last example, *spātyau* is HL without *jsa* in 2.242 above, and also HL without *jsa* at 5.87, 21.34, 23.140, 23.157. It occurs twice followed by *jsa* in Z. In the first instance, *spātyau jsa* is HHL in a 7-mora segment with irregular structure **HHLHL**:

- 3.60cd **spātyau jsa** hayā|rīndi □ varata | āṇa kāḍe (C:7+6+5)
Sitting there, they are very happy with the flowers

In the second instance, *spātyau jsa* undergoes the *uysnora*-effect and is read as if LHL at the end of a cadence 1 HLLHL:

- 22.231ab ci śśandā|śśajo⁴² yiḍāndā □ | jāggaro | bū’ṇa **spātyau jsa** (A:4+7+5+7)
Those who have performed a *saṃniṣadyā*, a *jāgarikā*, ... with incense, with flowers

In short, there is no evidence that the *-y-* in *-yau* does not make position, and no reason to see vowels like *äü* or *ō* in Old Khotanese.

It would be a simple story if *-yau* with *jsa* would be always H, and without *jsa* always L. However, the story is more complicated as there are cases of *-yau* without *jsa* counting as two moras. The distribution vexed earlier theorists. M. Leumann, still following the notion that *-yau* is a long vowel, maintained it was always H: “Und außerhalb dieser Stellen sind mir auch ohne *jsa* nur Langmessungen der Endung bekannt” (1971:466). Most of his examples are discussed below. Emmerick could sometimes not decide on a metrical value: “It is, of course, probable that *stavyo*, *u’vyau*, and *gguvyo*’ had a metrically short first syllable as is required by Leumann’s scansion, but not certain” (1973:150). As it turns out, those words are actually all HL.

For a long time I thought that the majority of the cases of two-mora *-yau* without *jsa* were due to the word *haṃtsa* ‘with’ which followed. That is, I thought that *haṃtsa* as well as *jsa* would make *-yau* two moras long. The evidence is compelling but misleading.

The sequence *-yau haṃtsa*, *-yo haṃtsa* occurs 35⁴³ times in Z. In 33 cases it clearly and simply counts HHL. Examples of *-yau haṃtsa* as HHL from all three meter types:

- 2.156ab vaiśramaṇā | **gyastyau haṃtsa** □ | gyastūñi | khāysā papāte (A:5+7+5+7)
Vaiśramaṇa, with the devas, prepared divine foods.
24.508cd karavātā | naltu□te hā | **hārvyau haṃtsa** (B:5+6+7)

⁴² For *-śśajo* as HL, as if **-śśajjo*, see ‘Hidden geminates’, below.

⁴³ 2.2, 47, 61, 80, 85, 86, 156, 3.79, 5.36, 37 2×, 91, 98, 6.4, 13.64 2×, 14.55, 100, 92, 20.1, 22.202, 203, 204, 246, 255, 328, 335, 23.22, 144, 148, 167, 24.215, 255, 273, 508.

- 3.79ab In the morning he went out with the merchants.
 śāvya**u haṃtsa** | bo□dhisat|vyau jsa biśyau . (C:7+5+6)
 with their Śrāvakas, with all the Bodhisattvas,

A further prominent example is a hemistich where the sequence *-yau haṃtsa* occurs twice and both cases count HHL:

- 13.64ab cvī vaska | yakṣya**u haṃtsa** □| rakṣaysyau |nāgyau **haṃtsa** (A:5+7+5+7)
 When, against him, with Yakṣas, Rākṣasas, with Nāgas,

The two examples where *-yau haṃtsa* counts LHL, both with the phrase *ṣṣamanyau haṃtsa* ‘with the ascetics’, might be regarded as exhibiting the *uysnora*-effect. This might shorten the *-yau* to make the phrase a cadence 3 LHLHL:

- 5.98ab cīyā vara | ātā vīra kī□nthe balysā | **ṣṣamanyau haṃtsa** (A:5+12+7)
 When the Buddha came there to the city with the ascetics,
 20.1cd **ṣṣamanyau haṃtsa** □| pharu bodhi|satva kāḍe (C:7+5+5)
 with the monks. There were very many Bodhisattvas.

Thus it may be argued that all 35 cases of *-yau haṃtsa* in Z, count, underlyingly, as five moras. But this is incorrect.

Further study seems to reveal that all cases of 2-mora *-yau* without *jsa* occur in the X position in cadences, where normally one finds contracted vowels, including the 33 cases of *-yau haṃtsa* discussed above. There are many examples of *-yau* in the X position without *haṃtsa* in 7-mora segments in cadence 2 HXHL, and at least ten⁴⁴ examples in 6-mora segments in cadence B₃ HX +2. There may be five cases in cadence C₅ HX LL but the evidence is ambiguous.

Some examples of *-yau* appearing in the X position in cadence 2 HXHL without *haṃtsa*:

- 2.50cd svī haṃtsa | biṣṭya**u** balysu □| vā niman|drimā ttatīka (A:5+7+5+7)
 I am inviting here tomorrow the Buddha with his pupils.
 2.138ab aysu hastā | māñāmā jau□ysā | kyeri halci | pūrnyau bitte (A:5+7+5+7)
 I am like a fighting elephant: however much anyone pierces it with arrows
 2.139ab kye mamā śśau | bāysū malstā . □| śau mā jūṣ|ḍānyau ttāṣḍā . (A:5+7+5+7)
 Whoever has crushed one of my arms (or) cuts one with thongs,
 14.5ab kvā'ysu vātā | merā □ haṃtsa | klaiśyo ysātā . (B:5+6+7)
 He was born at his mother's side with *kleśas*.
 22.243ab śśārna ays|mūna vasutā□na | kalyāṇa-|mātryau auṣku (A:5+7+5+7)
 With good, pure mind, always through spiritual advisers,
 23.158ab [gyastā]nu | irdyau bāri □| buśśānai | n[*aunu*] vabāḍe (A:5+7+5+7)
 Through the *ṛddhis* of the gods, fragrant rain rained down (gently).
 24.435cd ttu mā ggīhu | ko va □ biśyau | karmyau parsu (B:5+6+7)
 Help me in this. Would that I may escape from all *karmas*.

Some examples of *-yau* appearing in the X position in cadence B₃ HX +2 without *haṃtsa*:

- 14.3ab kai ttande | sūtryau ho□|tāne ṣṣahāne . (B:5+6+7)
 Would that I may be able (to tell) such great virtues of his (according to) the
sūtras
 14.53ab crrāmyau jsa | karmyau vara □| prīyuvu' āta . (B:5+6+7)
 By whatever *karmas* they came there among the Pretas
 14.56cd hävyau yā buhu | karmyau □ sam|kliṣṭu dāyāmā (B:6+6+7)

⁴⁴ Besides the six cases listed below there are also 14.52, 19.12, 24.397 and 24.653.

- through our own *karmas* we see him afflicted with *kleśas*.
 24.384cd samu vipar|yāsyau □ sam|tsārā haṣkaundā (B:5+6+7)
Samsāra is ceated merely by the delusions,
 24.425ab samu nā baṃ|ggāmyau □ ās|pāta puvaindā (B:5+6+7)
 Scarcely is there protection for them in armour.
 24.647ab [vi]natīnyau | byānyau □ in|drinā rraysgu. (B:5+6+7)
 With the bridles of the Vinaya, ... of the senses ... quickly

The examples of C₅ with *-yau* in the X position are ambiguous since the cadence HX LL could also be interpreted as C₁ HL LL with *-yau* L as it is normally when not followed by *jsa*:

- 3.96ab suhautta kā'ñā □| hastamyau | suhyau kāḍe (C:7+5+6)
 One should think of them as greatly blessed with the best blessings.
 3.116ab suhautta ā're □| tṛ-adhvyau | suhyo biśśā (C:7+4+6)
 They all sit blessed with the blessings of the three times.
 3.116cd suhautta saindā □| tṛ-adhvyau | suhyo mamā . (C:7+4+6)
 They appear to me blessed with the blessings of the three times.
 3.129cd suhotta tsīndī □| ttyau suhyo | biśyau biśśā . (C:7+5+6)
 They all go about blessed with all these blessings.
 21.15cd cu ne bī hva'ndī . □| kāṣcīnyo | pūnyau ysāru (C:7+5+6)
 Why will she not pierce a man's heart with the arrows of sorrow?

The metrical distribution of *-yau* is therefore threefold. It counts as two moras when followed by *jsa* or when in the X position. Everywhere else it counts as one mora. Even though most cases of *-yau* without *jsa* counting as two moras feature *haṃtsa* in place of *jsa*, this is coincidence. The two cases above (5.98, 20.1) of *ṣṣamanyau haṃtsa* in a 7-mora segment where *-yau haṃtsa* appeared to undergo the *uysnora*-effect are actually just examples of *-yau* being L when not followed by *jsa*. In those cases, *-yau haṃtsa* is not underlyingly five moras but four. When that same phrase straddles a segment boundary, and the *-yau* occupies the X position, then it does count as five moras, as it does twice in Z in cadence 2 L|HXHL|:

- 2.2cd pharākyau ṣṣa|manyō haṃtsa □| pharu bodhi|satva balonda (A:5+7+5+7)
 with many monks. There were many powerful Bodhisattvas.
 22.246 ttīyā vā | māttrai balysā □| pharākyau ṣṣa|manyau haṃtsa . (A:5+7+5+7)

Some might consider the hemistich below to be an exception:

- 22.220cd ttānu jāta | harbiśśā ysamtha □| haṃtsa klaiś|yau biśśā karma (A:5+7+5+7)
 Therefore have all births been removed for you, all karmas with *kleśas*.

That is, it could be argued that *-yau* is in cadence 1, HLLHL. However, the pronoun *biśśa*- 'all' does occasionally read with an initial H syllable⁴⁵ so this is probably a cadence 3 LHLHL. Another somewhat challenging example has *-yo* in the X position in cadence 2 but the 7-mora segment is fused with the 5-mora segment which follows it:

- 22.311 ttāna cu ttyau | karmyo vari ṣṭāni ne hār|ṣṭāyā pathīya (A:5+12+7)
 because, while there, they have not in fact refrained from these *karmas*.

Reversing the two words *vari ṣṭāni* would give a segment break *ṣṭāni | vari*. That was possibly the original order.

Until now, the metrical distribution of *-yau* has been a puzzle. A breakthrough came with the

⁴⁵ E. and M. Leumann list 24 cases of *biśśa*- with a long first syllable (Glossar:474b) but not the example here.

identification in these pages of cadence B₃ HX +2, containing the X position. This is usually filled with a contracted vowel, but when anything else appears there it is always *-yau* counting as two moras. This enabled the observation that the same thing happens with cadence 2, HXHL, where *-yau* in the X position also counts as two moras. The distribution is now clearly defined. But a new puzzle arises. What is common between contracted vowels and *-yau* that enables both to occupy the X position? And how are they both different from ordinary H syllables which never appear there?

Shortening of final long *-ī*

Like final *-e* and *-o* (*-au*), final *-ī* appears also to be short in some cases. The distribution is not completely clear but there are some interesting patterns. E. and M. Leumann had a theory to explain some of these, giving *-Cvī* the value */-Cū̄/*:

Auch *v* bildet in den metrisch *◡*-messenden Fällen des Typus *hajvī ggurvīc-* oder *aysvī* (aus *aysu i* ‘ich ihn’) keine Position; das ist neben dem Wort *uv’ə / uī’*, dem Umlaut *kūra- / kuīre*, dem Gen. *sarvai sarvai* zu *sarau* und dem Wechsel *kuī / kvī* aus *ku i* auch einer der Gründe, warum hier für *vī* die Aussprache *ū̄* vermutet ... wird. (1933–36:xxxiii)

Because they thought that *hajvī, ggurvīc-, aysvī* counted LH, they proposed that *vī* was [ū̄]. If *vī* stood for a vowel, then the first syllable of *hajvī, ggurvīc-, aysvī* would be open and the forms would count LH. While the logic is admirable the conclusion is incorrect. In Chapter 2, the Leumanns’ first example, *hajvī*, GDSm of *hajūa*⁴⁶ ‘wise’, occurs five times,⁴⁷ always in a 5-mora segment where the cadence is highly variable. All cases are three moras long and it is not possible to tell whether the three moras are organized as LH, HL or, with glide resolution, LLL. The first two cases:

- 2.133ab *aysu hanaṣ|ṭaimā gyaḍīna □ | gyaḍa hajvī | hva’ndi anārra .* (A:5+7+5+7)
I have failed through ignorance. The ignorant are guiltless in the eyes of a wise man.
- 2.199ab **hajvī** *uys|norā tta kā’ñu □ | ku ne kuśśala-|mūla gguhaimā .* (A:5+7+5+7)
The wise should reflect thus: “May I not harm the merit-roots.”

The Leumanns’ second example, *ggurvīc-*, appears five times⁴⁸ in Z, all in type C with ideal 7+5+5 structure. In one case *ggurvī-* is clearly HH:

- 3.32cd *myāñu nā ātāśi □ | panye ggur|vīcā mamā* (C:7+5+5)
In every particle of me space is in the middle of them.

In the other four cases *ggurvī-* also likely HH but the evidence is not obvious because the first syllable in all cases is reduced to one mora by the *uysnora*-effect, e.g.,

⁴⁶ Until now, this stem has been listed as *hajua-*, with short *u*.

⁴⁷ 2.133 and 199 are given below. There are also 204 | *hajvī uys|naurā*, 218 | *dukhā hajvī* |, 219 | *suhā hajvī* |.

⁴⁸ 3.32 and 2.111 are given below; 3.87 *cu vara ggurvīca*, 90 *panāñā ggurvīca*, 117 *śśau śśau ggurvīcā*, are all 7-mora segments.

- 2.111ab ni vara **ggurvīci** . □ | śau tcaramu | kašte aña (C:7+5+5)
Not even one particle there would fall out of place.

E. and M. Leumann interpreted the 7-mora segment above as having cadence 4 LLLLHL with the first syllable being open and *vī* being a vowel. But such an interpretation is less likely than a cadence 4 with the well-attested *uysnora*-effect. The evidence does not support *vī* being a vowel. The stem occurs twice more in *Z* as *grvīca* as HL in a type C_1 **HL** LL cadence, which is ambiguous evidence on this point.

- 3.111ab ttri-adhva kṣetra □ | śśāña śśāña mā | **grvīca** mamā (C:7+5+5)
I have the kṣetras of the three times in every single kṣetra of mine.
3.112ab tṛ-adhva bhyūbha □ | paniña ttiña | **grvīca** mamā (C:7+5+5)
The manifestations of the three times are all in every single kṣetra of mine.

E. and M. Leumanns' third example, *aysvī*, does count as three moras but there is no way to decide if it is HL or LH. There are three examples in *Z*. The first two hemistichs below feature *aysvī* in a 5-mora segment. The third, 23.52cd, features the word in a 7-mora segment, *aysvī tanīmā*, which Leumann would assume is in cadence 3 **LHLHL** but it could also easily be in cadence 1 **HLLHL**.

- 2.52ab **aysvī** vā | ttīyā hamī □ hīmā thatau mamdru pātcu (A: 5+18)
then I will quickly change it afterwards by a spell
12.82cd **aysvī** auṣ|ṭaimā □ kṣame|vāñī vātcu (B:5+6+7)
'I have angered him,' he should then ask forgiveness.
23.52cd mamā parya | **aysvī** tanī □ mā | nai handarā | tcāraṇā trāmu (A:5+7+6+7)
Order me. I will make it. No one else is so capable of it.

While the Leumanns correctly noted that *hajvī* and *aysmvī* are read as three moras (they were incorrect about *ggurvīc-*) it appears that what is relevant here is not the *-v-* but rather the *-ī*. I have examined all cases of final *-ī* in words of more than one syllable in Chapter 2. There are numerous cases where this *-ī* must be read as L. The cases are organized by structure as *-VCī*, *-VCCī*, *-VCCī* and *-VCCī*.

Most telling may be the three examples in Chapter 2 where the structure *-VCī* counts as three moras. Since the penultimate long vowel must be H, the final *-ī* must be short:

- 2.151ab subhū**tī** tta | hvate atāṣṭā □ ṣei tvānai | hori anamttā (A:5+12+7)
Subhūti spoke thus to him: 'Inconceivable is this your gift, boundless'
2.190cd ttatutu biso | bryandama pū □ ra | ṣṣai hī**vī** | jīvātu yāva (A:5+7+5+7)
wealth, house, most beloved sons, even up to one's own life.
2.239ab mahāv**yū**|**bhī** nāma buddha-|kṣe □ tri vasutu | buljsā-jserā . (A:5+8+6+7)
in the pure, praiseworthy Buddha-field called Mahāvvyūha.

The same structure, *-VCī*, counts as four moras in seven⁴⁹ places in Chapter 2, six times with the *-ī* in the X-position in cadence 3 HXHL. Two examples:

- 2.130ab ātāsi | ṣṭā**nī** gurṣte □ | vaiśramani | badra kho nātā (A:5+7+5+7)
Standing in the sky, Vaiśravaṇa called to him: 'Bhadra, as a Naga's ...'
2.178cd ko thu nrhī|yai biśśā ttirtha □ | ggei' śśātai | dā**tī** cakru . (A:5+7+5+7)
when you subdued all the heretics (and) you turned the Wheel of the Law.

⁴⁹ 2.130, 178 and 177 are given below. The other 4 cases of HXHL are 2.73 *prār|hālī ttandā*, 74 *irdi-prār|hālī ttānu*, 77 *pātī hva'ndu*, 147 *trāmī āya*.

There is one case of four-mora $-VC\bar{C}\bar{i}$ with $-\bar{i}$ not in the X position:

- 2.177ab tterä kšamo|vī brya balysa □ | samu kho śśan|dā ne ju oysa .
(A:5+7+5+7; counting *tterä* LL and *brya* LL)
So forgiving are you, beloved Buddha: like the earth, you do not get angry.

There is only one word ending in $-VCC\bar{i}$, which counts as three moras. The penultimate long vowel and consonant cluster should guarantee a reading HL.

- 2.27ab parāśśani | ttārthā tta hvate se □ | vaittāḍvī | vaska paśśāmā . (A:5+7+5+7)
The heretic Parāśara spoke thus: ‘Let us set on him a *vetāla*,

At the same time, there are five⁵⁰ examples in Chapter 2 of $-VCC\bar{i}$ counting as four moras. There are two examples (2.52, 110) in 5-mora segments, such as,

- 2.52cd kho rru paḍā | vāta ulatā□na | khāysvī ju | vaska ne pīpe (A:5+7+5+7)
as the cemetery was before. I will not prepare food for him.

There are also three examples (2.59, 225) in cadence 2 HXHL with $-\bar{i}$ in the X position, such as,

- 2.110cd škondī pātcu | ba□lysu yuḍu | yīndā thatau (C:7+5+6)
the Buddha could quickly create it again.

E. and M. Leumanns’ *hajvī* and *aysvī*, assuming there is no glide resolution, have the structure $-VC\bar{C}\bar{i}$. In Chapter 2, there are 18 examples of $-VCC\bar{i}$ counting as three moras⁵¹, and 5 cases as four moras (see below). Two examples of the three count are in the 5-mora segments *māñandī* and *cu ne bustī*:

- 2.4ab dātena bve|māte jsa puñyau j[sa] □ | māñandī | haṃdarā niṣṭi (A: 5+7+5+7)
in appearance, in knowledge, in merits, there is not another resembling him
2.53cd cu ne bustī | śā ulatāna □ | cū tsutai | myāño muḍāni (A: 5+7+5+7)
“why did you not realize (that) this was a cemetery? Why did you go into the
midst of corpses?”

Two more of the eighteen examples of the three count for $-VCC\bar{i}$ occur with the name *mañjuśrī* ‘Mañjuśrī’ which has long $-\bar{i}$ in Sanskrit. This shows that the shortening of final $-\bar{i}$ is probably not related to its origin.

- 2.79ab bodhisat|vai karā vīrā □ | mañjuśrī | samanta-bhadṛ (A: 5+7+5+7)
In his circle were Bodhisattvas, Mañjuśrī, Samantabhadra
2.153ab mañjuśrī | tta hvate bodhisatvā □ cā’ya-|nārmāta bhadra . (A:5+12+7)
The Bodhisattva Mañjuśrī spoke thus: ‘... as created by magic, Bhadra’

As mentioned above, there are five⁵² examples of $-VCC\bar{i}$ as four moras. In the first example below $-\bar{r}\bar{i}$ *hvate crrāma* is cadence 1 HLLHL, and in the second *ḍṛṣṭī rraṣṭa* is cadence 2 with the

⁵⁰ 2.52 and 110 are given below. 2.146 *trāmvī rro* is a 5-mora segment. 2.59 *trāmvī jsāte*, 225 *mākṣī vīrā* are both HXHL with $-\bar{i}$ in the X position.

⁵¹ The eighteen cases are at hemistichs 4ab, 52ab, 53cd, 79ab, 133ab, 152ab, 153ab, 155ab, 169cd, 197cd, 199ab, 201ab, 204ab, 218ab, 219ab, 228cd, 234ab, 243ab.

⁵² 2.147ab and 2.196cd are given in the text. The others also count H: 2.82cd *bad|rī karaṇāni*], 154ab H in a 12-mora group, 169ab *palimjvī* | (technically $-VCCC\bar{i}$).

-ī as X in HXHL:

- 2.147ab śśāriput|rī hvate crrāma □ | vaṭhāyā | badrra aysmūna (A:5+7+5+7)
 Śāriputra spoke thus to him: ‘As the pupils in mind,’
 2.196cd ttyau jsa hār|ṣṭāyā pathīsti □ | bvemāte jsa | **drṣṭī** rraṣṭa (A:5+7+5+7)
 from these one really refrains: with knowledge one has correct doctrine.

The final structure to be examined is *-VCī*. Chapter 2 contains 19 examples.⁵³ Two of the cases are in overly long, metrically awkward foreign words, 149 *mudgalyāyanī* and 239 *mahāvvyūbhī* which are both supposed to constitute a 5-mora segment. The remaining 17 always count as three moras, never as two. That is, the *-ī* seems to always be long. Some examples from Chapter 2:

- 2.91ab āśīrī | kālodātā | būsyaū jsa | badru tta brraṣṭe . (A:5+7+5+7)
 The Ācārya Kālodāyīn thus questioned Bhadra with jokes.
 2.106cd jsīḍu yanāma □ | satā **salī** | vaṣṭa biśśā (C:7+5+5)
 we could all deceive ... in a hundred years

It is a puzzle why the *-ī* in *-VCī* cannot be shortened. This may not be pertinent, but all cases in chapter 2 are found in 5-mora segments.

It may be useful to compare in a chart the distributions of L, X and H in multisyllabic words ending in *-ī*.

	<i>-VCī</i>	<i>-VCCī</i>	<i>-VCCī</i>	<i>-VCī</i>
<i>-ī</i> = L	3	1	18	0
<i>-ī</i> = X	6	3	1	0
<i>-ī</i> = H	1	2	4	17

From this we may perhaps conclude that, in a multisyllabic word ending in *-ī*, if the penultimate syllable is H, then the final *-ī* may be shortened.

Hidden double d

As mentioned above, E. Leumann already in 1912 noticed cases of double consonants being written as single in words of Indian origin. His example involved *ñ* and *d* (1912:17). As it turns out, most cases of this phenomenon involve the palatal stops and nasal (see below). Otherwise, I have only noticed a few cases involving *d*, all of which were noted by E. and M. Leumann (1933–36) who transcribed *d[d]*. The Khotanese spelling of what is *Śuddhodana* in Sanskrit occurs eight⁵⁴ times, probably always⁵⁵ with single *d*, e.g.,

- 5.22cd hālsto vā | byūtā ku ysātā □ | rrundā **śśādūtani** kṣīra .
 (A:5+7+5+7 if *śśād|dūtani)
 He returned to where he had been born in the land of King Śuddhodana..

⁵³ The 19 examples of *-VCī* in Chapter 2 are in hemistichs 53ab, 54ab, 55bd, 68cd, 83cd, 86cd, 91ab, 92dc, 106cd, 126cd, 133cd, 145ab, 148cd, 149ab, 151cd, 159ab, 200ab, 231ab, 239cd.

⁵⁴ 2.22, 5.19, 22, 13.54, 70, 24.188, 200, 232.

⁵⁵ In four cases (13.70, 24.188, 200, 232) the 6-mora word is used as a 5-mora segment, but these are likely cases of metrically awkward foreign words.

The related words *ṣṣaddā-* ‘belief’ (cf. Skt *śraddhā*) and *ṣṣadda-* ‘faithful’ (cf. Skt *śraddhā*) can both be written with either double or single *d*. With single writing⁵⁶ the meter still shows two consonants, e.g.:

- 14.32ab kho nātāmā | hota □ kuśśala-|mūla u **ṣṣada** (B:5+6+7)
As are their niyāma, power, roots of merit, and faith,
22.267cd **ṣṣadā** kāḍe | mulysgyaṣṣe rraṣṭā □| drraiṇu rata|nānu praysamnnā
faithful, very compassionate, upright, devoted to the Three Jewels.

Hidden palatal geminates

E. and M. Leumann noted some foreign words in which a double consonant was sometimes written as double and sometimes as single: *sarvañña~sarvaṃñña* ‘*sarvajña*, all-knowing’, *anācce~anice* ‘*a-nitya*, impermanent’, *pravajjo~pravajo* ASf ‘*pravrajyā*, going forth’ (1933–36:xxxv). Not noted by the Leumanns is that besides the few cases of hidden double *d*, all cases of hidden geminates appear to involve the palatal stops and the nasal. Orthographic *VñV*, *VcV* and *VjV* commonly stand for /VññV/, /VččV/ and /VjjV/ in Prakrit loans. I have not noticed hidden geminates behind the palatal signs *ś* or *y*. The pattern is puzzling.

The Leumanns’ first example, *sarvañña~sarvaṃñña*, is not straightforward and is discussed farther below.

The Leumanns’ third example, *pravajjo~pravajo* has a straightforward metrical distribution. Whether spelled *pravajjo* (6×⁵⁷) or *pravajo* (9×⁵⁸) it is always LHL, confirming underlying /j/. In the examples below *pravajo* occurs in the type 1 cadence HLLHL:

- 14.24ab kye vā samu | hāḍe □| vaysña | nāte **pravajo** (B:5+6+7)
For some, however, only now has he taken up *pravrajyā*.
22.228cd māsṭā bise | tsāte paśśāndi □| mamā vīrā | nāndā **pravajo** (A:5+7+5+7)
they have left great, wealthy houses, have undertaken *pravrajyā* under me.

Their second example, *anācce~anice*, is much less convincing but probably still correct. The sequence *aniccV* occurs ten times⁵⁹ and *anāccV* seven times⁶⁰ always naturally LHL. There is just one spelling with single *-c-* in *anice* 22.101. Here the meter is not ideal but a 4-mora LHL reading is preferred over a 3-mora LLL reading:

- 22.101ab **anice** | harbiśśā ṣkoṅgye □| anātme | harbiśśā ṣkauṅgye . (A:4+7+4+7)
Impermanent are all the saṃskāras. Without self are all the saṃskāras.

It is useful to list some other examples of the phenomenon to further establish its validity. The first syllable of *viñāna-* (11×⁶¹) and *viñānaja-* (1× 4.105) is always H as in

- 4.27cd **viñāni** | kāṣṭe asaṃñi □| saṃñña ṣṣai | rūvī niśṭā . (A:5+7+5+7)
The *vijñāna* has meditated without *saṃjñā*. It has not even the *saṃjñā* of form.

⁵⁶ *ṣṣaddā-* is spelled *ṣṣadā-* at 2.143, 14.32. *ṣṣadda-* is spelled *ṣṣada-* at 2.92, 15.5, 22.267. The related *ṣṣadātai* ‘believer’ 12.130 appears to be a 6-mora foreign word in a 5-mora segment.

⁵⁷ 22.203, 204, 205, 208, 290

⁵⁸ 14.24 and 22.228 are given below. The other cases are 22.172, 199, 202, 206, 213, 214, 24.256.

⁵⁹ 2.195, 228, 6.5, 13.119, 18.40, 20.50, 21.21, 22.198, 23.95, 24.318.

⁶⁰ 13.150, 152, 18.45, 20.66, 67, 69, 71.

⁶¹ 4.27, 47, 72, 81, 100, 103, 109, 5.60, 81, 84, 6.37.

The two spellings *vijñāna-* (5.82, 84) show Sanskrit influence. The underlying double /ññ/ is confirmed by the one spelling *viññāna-* with anusvāra:

- 6.37ab viññānā | tīma hārāṇu □ | **viññānā** | trāmā kho cā'yā
Vijñāna is the seed of things. Vijñāna is such as magic,

There is one case each of *araṃṇā-* and *araña-* ‘forest’. Both count LHL:

- 11.40ab paśśāta-jīvāte āste □ | **araṃṇā** | śī vari horā . (A:4+7+4+7)
(If) one sits in a forest having given up life, therein is giving.
6.18cd tte buḍaru | śśādā kye tsāṣṭu □ | hoda ṣṣave | āste **arañi**⁶² . (A:5+7+5+7)
He has greater merit who sits calmly in a forest for seven nights

There are four cases each of *śśuṃṇā-* (3.110, 4.77, 7.34, 24.381), and *śśuñā-* (3.109, 3.110, 4.97, 13.119) ‘empty’.⁶³ All have a heavy first syllable regardless of spelling:

- 3.110ac ne **śśuṃṇi śśuñi** . □ | āvaraṇu | yīndā yu□ḍu (C:7+5+7+5)
The empty, as empty, cannot cause obstruction.
4.97cd ttrāmu pari|kalpe paysendā □ | ttāteñe pari|kalpi jsa **śśuñe** . (A:5+7+5+7)
so by this *parikalpa* one recognizes the *parikalpas* as empty.

Although there is no spelling hinting at a geminate in the present stem *sāj-* ‘succeed’ (Skt *sidhyati*, cf. Pāli *sijjhati*), the two cases in Z confirm /j̄j̄/. In both the metrical division is **sāj̄j̄indā*:

- 22.326cd cu vara hvate | buljse hāva □ | ne-rne **sāj̄indā** ttu kālu (A:5+7+5+7)
The virtues, blessings mentioned in it will not be fulfilled for them at that time.
12.4ab pprañhānai | harbiśśā □ **sāj̄indā** kho yande (B:6+6+7)
All his vows succeed when he undertakes ...

The loanword ppp *ucāta-* ‘gathered (tr)’ (cf. Skt *uccita-*) occurs once but underlying /čč/ is clear with the metrical division **uc|cātāndā*:

- 13.138ab ttā vā **ucātāndā** vara ā□hāro biśśā | burṣṭa hatcasta (A:5+12+7)
Others gathered the ashes there. All the broken pieces

Similarly, the loanword *sāraja-* ‘gratification’ (cf. Skt *saṃrañjana-*) occurs once but underlying /j̄j̄/ in **sāraj̄j̄ā* is clear:

- 10.13bd **sā□raj̄j̄ā** | samai-prahāṇā □ | śśīla-pā|rāmato kaṣṭa (A:5+7+5+7)
the *saṃrañjana*, the *samyakprahāṇa* are included in the śīlapāramitā.

With the principle of the hidden palatal geminates in loanwords established beyond question, we can now turn to the Leumann’s first word, *sarvañā-~sarvaṃṇā-*. This appears to have a unique three-fold distribution. When spelled *sarvaṃṇā-* with anusvāra (9×) the second syllable is naturally probably always H. When spelled *sarvañā-* (45×) the second syllable would similarly always be H if not for a curious large class of exceptions: when the phrase *sarvañā- balysa-* ‘all-knowing Buddha’ occurs in a 7-mora segment, the second syllable appears to be always L.

There are eight clear examples of *sarvaṃṇā-* with heavy second syllable. The NSm

⁶² M. Maggi notes Pali *arañña* (p.c.)

⁶³ There are four cases of the related word *śśuṃṇahā-* ‘śūnyatā, emptiness’ (6.26, 35, 7.24, 33), but there are no instances of **śśuñahā-*.

sarvaṃñā~sarvaṃñi occurs five times (4.105, 13.66, 103, 105, 20.22), always counting HHL as in,

- 20.22ab āysda nā yanda □| **sarvaṃñi** | balysā thatau (C:7+5+5)
the all-knowing Buddha would quickly protect them

The NAPm or VSm *sarvaṃñā* occurs 3 times (3.9, 19, 11.62), always HHL as in,

- 11.62cd **sarvaṃñā** | hastama śśāstāra □ ce ysama|śśandai trāṇa (A:5+12+7)
The all-knowing best teachers who are the strongholds of the world.

The one possible exception is the lone example of ASm *sarvaṃñu* in:

- 2.54cd **sarvaṃñu** ye | jsīḍu ne tīdā □| drūjyau jsa | ſeitā maha jsīḍe (A:6?+7+5+8?)
One cannot deceive with lies one who is all-knowing. He has deceived us.

Unskilled LKh copyist influence is however strong here, with *tīdā* in place of *yīndā*, and the unique blended pronoun *ſeitā* combining two common variants of the NSm, *ſei* + *ſātā*, either of which would make correct meter. It is plausible that *ye* is a later addition. *sarvaṃñV* was likely always HHL.

The forms without anusvāra show a two-fold distribution. They count metrically the same as the *sarvaṃñā*- forms except when they are in a 7-mora segment consisting of the phrase *sarvañā-balysa*- ‘all-knowing Buddha’. For instance consider the VSm/NAPm *sarvañā* which occurs 15 times. Six times (2.20, 71, 3.82, 13.1, 140, 141) it is clearly HHL as in:

- 13.1cd **sarvañā** | hastama śśāstā □ra kye ysama|śśandai trāṇa (A:5+12+7)
the all-knowing best teachers who are the strongholds of the world.
2.71cd ka tā bāḍā | **sarvañā** saitā □| irdyo jsa | hā usahyāmā (A:5+7+5+7)
If it seems time to you, All-knowing One, let us deign to go hence with *rddhis*.

Two of the six examples of HHL occur in the phrase *sarvañā balysa* but the phrase is not in a 7-mora segment. Rather in both cases the phrase straddles a segment boundary and *sarvañā* fills a 5-mora segment:

- 3.82cd pruhauṣṭa ā’re □| **sarvañā** | balysa biśśā (C:7+5+5)
All the all-knowing Buddhas sit clad ...
13.140cd **sarvañā** | balysa ttā dharma □| karā śrāvaka-|yāñā ni īndi . (A:5+7+6+7)
the all-knowing Buddhas, these *dharmas* are not found at all in the Śrāvakayāna,

The remaining nine examples⁶⁴ of *sarvañā* are all in the phrase *sarvañā balysa* ‘all-knowing Buddha’ when it occurs as a 7-mora segment, as in:

- 2.182cd āysda yanu | **sarvañā ba** □lysa | cu aysu sam|tsera yuḍaimā (A:5+7?+5+7)
Protect (me), all-knowing Buddha. What ... I have done in *samsāra*,
5.50ab trāmu mulys|ḍīgyo pyauru □| sāñā vā | **sarvañā balysa** (A:5+7+5+7?)
so, all-knowing Buddha, make the cloud of your mercy rise up,

A similar distribution is seen with the NSm phrase *sarvañi balysā*, which occurs in precisely that spelling⁶⁵ sixteen times. The two cases where that phrase occurs outside a 7-mora segment show the double /ññ/ and count HHLHL:

⁶⁴ 1.81, 2.64, 132, 182, 5.50, 15.31, 114, 22.188, 257.

⁶⁵ We curiously never find *sarvañā balysā, but there is NSm sarvaṃñā balysā at 13.66.

2.113ab	biśśā ttā ggurvīkya sa □ rvañi balysā thatau .	(C:7+5+5)
	all these particles the all-knowing Buddha quickly	
23.164ab	cīyā [hā bū]śāta' ātā □ sarvañi balysā ttu kālu	(A:5+7+5+7)
	When at that time the all-knowing Buddha came to the staircase,	

However, in all fourteen⁶⁶ instances where the phrase constitutes a 7-mora segment it seems to count like a typical cadence 1, HLLHL, as in:

2.3cd	biśśu butte sarvañi ba □ lyśā biśye ysama śśandai ttrāñi	(A:5+7+5+7)
	The all-knowing Buddha, the stronghold of the whole world, knows all.	
19.89cd	hatāro śśama nānu □ vānyo sarvañi balysā	(B:5+6+7)
	the all-knowing Buddha ... in the Vinaya for monks	

This three-fold distribution is odd. Note that there are many cases of *sarvañā-balysa-* making up a 7-mora segment, but none of *sarvañā-balysa-* with anusvāra (ṁ) in that environment. This suggests that in that special environment, *sarvañā-* was not a spelling variant for a form containing underlying /ññ/, but that it was read as it was written with single /ñ/.

One more word involving a hidden palatal geminate, perhaps the most common of all such words, will be examined. The Prakrit loanword corresponding to Skt *pratyaya* 'cause' in OKh exhibits multiple stems. M. Leumann identified three stems, *praca-*, *pra[c]ca-*, and *pra[i]ya-* (Glossar:466b). Emmerick, in his analysis of the NAP of the *aa-*declension wrote:

pr(r)acyā Z 5.54,76; 8.16 (*pr(r)acya* in Z 8.21; 13.41 is the *a-*decl. form < **pracaya-*, cf. NWPkt *prace*'a DhP 88; the spelling *pracyaa-* is due to *praca-* + *pracya-*). (SGS:299)

Some improvements can be made on these analyses, partly with the aid of the meter of Z. It appears that all attested singular forms reflect the stem *pr(r)acaa-*, and these occur only in N, GD and IA. For example, in Z for the singular there is NSm *pracai*, GDSm *pr(r)acai*, and IASm *pracaina*. For alternate spellings outside of Z there only appears to be NSm *pracei* (Sgh[18] 146.2). The plural is more complex. It similarly occurs only in NA, GD and IA. The IAP *pr(r)acyau* (*jsa*)⁶⁷ could reflect any of the suggested stems, but the GDPm *pracyānu* (8.14, 15, 26) can reflect only a stem beginning *pracy-*. In Z, the NAPm is thrice *pr(r)acyā* (5.54, 76, 8.16) and twice *pr(r)acya* (8.21, 13.14; see below). This seems to imply that the plural stem could be either *pracyaa-* or *pracya-*. In Suv[Or] the NAPm occurs three times, twice *pracya* (2.7, 10.63), and once *pracā* (0.5).⁶⁸ It appears then that the NAPm can actually reflect three different stems, *pracyaa-* (> *pracyā*), *pracya-* (> *pracya*), and, with one example in the corpus, *praca-* (> *pracā*), which is otherwise restricted to the singular.

An interesting feature of this word is that the first syllable, regardless of spelling, appears to always be metrically heavy. With the plural forms *pracyā*, *pracyānu* and *pracyau* the *-cy-* cluster ensures that the the first syllable is H. With the singular forms *pracai* and *pracaina* the single *-c-* suggests that the first syllable should be L but apparently it never is.

The singular forms of this word occur in Z 28 times. There are *pracai* (16×⁶⁹), *prracai* (1×, 12.70cd), *apracai* (1×, 2.236ab), and *pracaina* (10×⁷⁰).

The form *pr(r)acai* occurs in 7-mora segments in type 3 cadence **HXHL**. Some examples:

⁶⁶ 1.82, 2.3, 13.20, 89, 90, 94, 96, 14.86, 15.4, 19.89, 23.15, 92, 113, 170.

⁶⁷ The IAPm occurs ten times: *pracyau* 5.54, 72, 10.2, 10, 13.42, 122; *pracyau* 5.54, 72, 8.16, 23.

⁶⁸ But also in Suv[Or] the IAP *pracyau* (0.5) and the GDP is *pracyānu* (5.10), both agreeing with Z.

⁶⁹ *pracai* is found at 2.103ab, 2.149cd, 2.201cd, 2.235cd, 4.79cd, 5.72cd, 5.53cd, 5.80ab, 5.84ab, 8.22ab, 13.104cd, 22.213cd, 24.266ab, 24.382ab, 24.383ab, 24.384ab.

⁷⁰ *pracaina* occurs at 4.67ab (2×), 5.68cd, 7.4ab, 12.58ab, 12.80ab, 13.124ab, 18.31ab, 23.94cd, 24.383cd.

- 2.103ab nā śā vina | **pracai** mästä | biśśa bhūma-|dīvata badra . (A:5+7+5+7)
The whole great earth deity, Bhadra, does not (move) without cause.
- 5.80ab tsūkā här|ṣṭāyā ni byaude | ttāna cu ttārā | **pracai** näštā . (A:5+7+5+7)
A transmigrator does not really exist, because there is not such a *pratyaya*
- 24.382ab vina ātme | jīvāte samu | **pracai** īñi . (B:5+6+7)
without life, self, due merely to *pratyaya*

It also occurs in cadence B₃, that is, in 6-mora segments accompanied by two moras, HX LL and HX H. Some examples:

- 12.70cd ne ne ju maṃ | **prracai** karā | baśdā āya (B:5+6+7)
May there be no sin at all because of me!
- 24.383cd vāna hettu-|**pracai** här|ṣṭāyā ne byore (B:5+6+7)
Apart from *hetu* and *pratyaya* they do not really exist.

In both of the preceding environments it seems clear that the first syllable of *pr(r)acai* counts H.

There are two cases of singular forms, *pracai* and *apracai*, where it could be argued that the syllable in question should be read L. Both forms appear in what is ideally a 5-mora segment:

- 2.236ab ttrāmu mā|ñamindā ne balysā | **apracai** | khanau nijsaṣḍe . (A:5+7+6+7)
Similarly the Buddha does not show a smile without a *pratyaya*.
- 5.72cd kau ju varā | dyākā vātāya | vāna **pracai** | haṃ vātā⁷¹ दौरा (A:5+7+6+7)
If there were a viewer there, they would always see without *pratyaya*.

Since *pr(r)acai* counts 16 times as HH (or HX), the two examples above are likely best regarded as showing overlong segments. It is most likely that the first syllable of *pr(r)acai* was always H.

The IASm form *pracaina* mostly appears at the end of 7-mora segments where it experiences the *uysnora*-effect. If the *uysnora*-effect were not established, these forms would suggest that *pracaina* has a light first syllable. Some examples:

- 5.68cd haṃdarī|mānu **pracaina** | nitcīmā | saindā jaḍīna (A:5+7+5+7)
By reason of the internal ones the external ones appear through ignorance.
- 12.80ab ne tto ggaṃjso | pehāte sat|vānu **pracaina** (B:5+6+7)
he does not commit this fault for the sake of beings
- 18.31ab sīśe **pracaina** □ | pharu rakṣaysa | rāmā jsate (C:7+6+5)
On account of Sītā, Rāma slew many *rākṣanas*.

In other positions, *pracaina* is clearly 5 moras:

- 4.67ab hettu-**pracaina** abhāvā | hettu-**pracaina** kāti'ndi . (A:12+12)
The unreal is due to *hetu* and *pratyaya*. By means of *hetu* and *pratyaya* do they think.

⁷¹ It might be preferable to transcribe *haṃ vātā* (*haṃ vite* 11.6, *haṃ vāte* 2.139, 10.5, 11.73, 22.119) ‘always’ as one word, *haṃvātā*. It derives from *hamu vātā* (2.214, 14.35, *hamu vāte* 2.214, 22.102) but the loss of *-u* is possible because of the following *v-*: /hamwēdē < hamuwēdē/. The loss of *-u* does not change the moraic count, so the contraction is linguistic rather than metric. Also, all words otherwise end in a vowel, and *haṃ* /ham/ would be perhaps the only consonant final word. Similarly, *hamu vīrā* 3.17, *haṃ vīrā* 10.9, *haṃ vīri* 6.10, 11.13 ‘always’ might better be treated as one word. *haṃ vātā* also occurs in Suv[Or] 5.11 which is not a metrical text and is described as “pure OKh” by Skjærvø (SuvII:16).

- 24.383ab **pracaina** | hettuna ttäte | harbiśśā škaumgye (B:5+6+7)
All these *saṃskāras* are due to *pratyaṃya*, to *hetu*.
- 13.124ab hori **pr|caino** cu ro jsīnāna hama|raṣṭo pathīyā
(A:5+12+7; *pracaino* HHH, -a + ū)
It is because of liberality and also because he has always refrained from taking
life

There is no doubt that *pr(r)acai* is HH (or HX) and *pracaina* is HHL. The singular stem likely contains the hidden geminate [čč]. In theory it could also be [čy] but then one might expect at least one singular form beginning *pr(r)acy-*.

There is one more wrinkle with these stems. Two of the three cases of NAPm *pr(r)acyā* in Z (5.54, 76, 8.16) clearly count HX and as four moras:

- 5.76cd phara varata | **pracyā** tsī□ndā | ttāna padī|mākā ne byaude . (A:5+7+5+7)
There the *pratyaṃyas* become many. Therefore, no creator exists.
- 8.16ab prracyau tcei'mā | ttā rro □ hamata | **pracyā** ṣṣai .
(C:7+5+5; -yau is X)
The eye is due to *pratyaṃyas*. Even these *pratyaṃyas* themselves

The third case probably counts HH and four moras but is part of an irregular segment:

- 5.54cd ku ye **pracyā** | rraṣṭu payse□ndā | puṣṣo ātma-|saṃñā nihuśdā (A:6+7+5+7)
When one rightly understands the *pratyaṃyas*, the *saṃjā* of self utterly disappears

But curiously the two cases of NAPm *pr(r)acya* appear to also contain four moras:

- 13.41ab hoda ttäte | **pracya** sūttro . □ | kho bodhi-|cittā upāta . (A:5+7+4+7)
Seven are those causes in the *sūtra* so that the arising of *bodhicitta* is possible.
- 8.21ab **pracya** hvā|ññindā □ se ṣā | ttāru panate (C:6+5+6)
They describe the causes (Emmerick: Of the *pratyaṃyas* they teach), 'This has made that arise.'

In both cases the greatest metrical regularity is attained if *pracya* is four moras. In 13.41 it is in a 7-mora segment with *sūttro* which is three moras. In 8.21 the normally 7-mora segment would count 5 with an HL reading or 6 with HH which is better but not ideal. The metrical count for the *pr(r)acya* forms is the reason for E. and M. Leumann's stem *prac[ci]ya-*. They assume glide resolution which may be the best explanation for the meter count. A less likely possibility is that the long *-ā* diacritic was twice omitted.

In summary, this noun has a singular stem *pr(r)acaa-* where *-c-* is always written single but read double. The noun has a plural stem *pr(r)acya-* which, following Emmerick, was in process of being transferred to the *aa*-declension under the influence of the singular stem. There is one case of the singular stem being used for the NAP (*pracā* Suv[Or] 0.5).

The more that the meter of Z helps us to understand Old Khotanese morphophonology, the more elegant and regular becomes our impression of the meter in Z. What at first may appear to be a metrical irregularity may be a clue to word structure not apparent in writing. When such a hidden feature of the language is revealed, then the metrical irregularity becomes a regularity. Our understanding of the language grows as does our appreciation of the consistency and brilliance of the composer of that ancient Buddhist poem.

Technical Abbreviations

C	any consonant
V	any vowel, short, long or diphthong
V̆	any short vowel
V̄	any long vowel
1S, 2S, 3S	first, second, third person singular
1P, 2P, 3P	first, second, third person plural
p, iv, op, sj, ij	present indicative, imperative, optative, subjunctive, injunctive
a, m	active, middle
NS, AS, GDS, IAS, LS	nominative, accusative, genitive-dative, instrumental-ablative, locative singular
NAP, GDP, IAP, LP	nominative-accusative, genitive-dative, instrumental-ablative, locative plural
m, f	masculine, feminine
H, L	Heavy, Light moraic count
X	heavy moraic count in cadence 2 HXHL
□	space between orthographic columns
	metrical segment boundary
	metrical hemistich boundary

Bibliographic Abbreviations:

DKS	Bailey 1979
Glossar	M. Leumann, <i>Glossar</i> , in E. and M. Leuman 1933–36, p.385–530
IOL Khot	transcription (and translation) in Skjærvø 2002
JS	Dresden 1955
KT3	Khotanese Texts III in Bailey 1969
Sgh	Canevascini 1992
SGS	Emmerick 1968a
Śgs	Emmerick 1970
Suv	Skjærvø 2004a and 2004b
SuvI	Skjærvø 2004a
SuvII	Skjærvø 2004b
Z	Emmerick 1968b

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