Meter in the Old Khotanese Book of Zambasta

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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 to 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 mästä ‘big’ would phonologically syllabify mä•stä, but metrically the first part of the word counts as two moras, that is, the moraic units are mäs•tä. 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:

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 balysā vā irdā ne įndā tcamna pharu balysa nārmāndā
CVCCV CV VCCV CV VCCV CVCCV CVCCV CVCCV CVCCV
but they do not possess the Buddha’s rddhis, by which he conjures up many Buddhas

The Khotanese Brāhmī script digraph yś=/z/ occurs twice in balysa- ‘Buddha’, and the Khotanese digraph tc=/tʰ/ 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, ṅ, t, d, ṇ, t, d, n, p, b, m, y, r, l, v, ś, s, h, stand for single consonants and have mostly values similar to those in Sanskrit. Anusvāra m stands for /n/, /ṅ/ 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, th, th, ph, are /kʰ, cʰ, tʰ, pʰ/. The voiced aspirates transliterated gh, jh, 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=/kʰ/, gy=/gʰ/, js=/dʰ/, ts=/tʰ/, ts=/tʰ/, yś=/z/ and rr=/ɾ/. 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 ṣ/=ṣ~ž/ and s/=s~z/ were doubled to mark the voiceless variant so that in Z double šš and sš 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 CVCCV, nātcana ‘outside’ is CVCCV, and avātsare NAPm ‘Apsaras’ is VCVCCV.

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, aɪ, oʊ/. The exception is the symbol r which is phonologically a vowel in Sanskrit but stands for /i/ in Khotanese. The name NSm badr ‘Bhadra’ counts as CVCCCV and may also be spelled badrā. In addition, there are two new vowel symbols in Khotanese, ā=~/ɛ/ which counts light and ei=/æ/ 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). 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. 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.

\[
\begin{align*}
A &= 5 + 7 + 5 + 7 = 24 \text{ moras} \\
B &= 5 + 6 + 7 = 18 \text{ moras} \\
C &= 7 + 5 + 5 = 17 \text{ moras}
\end{align*}
\]

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

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:

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

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 unmistakeable.

5 Emmerick 1968b:xxi lists the distribution of the three meter types by chapter and line number.
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 pyűṣṭā, the second in -śāṭe. 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 $\overset{\sim}{\sim}$ – and $\overset{\sim}{\sim}$; 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 $\overset{\sim}{\sim}$ –$\overset{\sim}{\sim}$, $\overset{\sim}{\sim}$ –$\overset{\sim}{\sim}$ and $\overset{\sim}{\sim}$ –$\overset{\sim}{\sim}$; 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 HLLHL.

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 chapters. 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 *LLH.

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

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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”.

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final word is rarely\textsuperscript{8} 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:

\[
\begin{align*}
A: & \ 5 + 7 + 5 + 7, \quad B: \ 5 + 6 + 7, \quad C: \ 7 + 5 + 5/6
\end{align*}
\]

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 cadences\textsuperscript{9}, 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 B\textsubscript{1}, B\textsubscript{2} and B\textsubscript{3} according to their frequency. Similarly, the cadences found in the final segment of type C hemistichs I label C\textsubscript{1}, C\textsubscript{2}, C\textsubscript{3}, C\textsubscript{4} and C\textsubscript{5} according to frequency. Below the table I explain each row.

<table>
<thead>
<tr>
<th>Cadence</th>
<th>Here</th>
<th>Emmerick</th>
<th>E. Leumann</th>
<th>M. Leumann</th>
<th>Maggi: only hemistich final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HLLHL</td>
<td>1: ⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽ ⵽</td>
<td>ideal form:</td>
<td>⵽ ⵽ ⵽ ⵽</td>
</tr>
<tr>
<td>2</td>
<td>HXHL</td>
<td>2: ⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽</td>
<td>variant 1:</td>
<td>⵽ ⵽ ⵽ ⵽</td>
</tr>
<tr>
<td>3</td>
<td>LHLHL</td>
<td>3a: ⵽ ⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽ ⵽</td>
<td>variant 4:</td>
<td>(⵽ ⵽ ⵽ ⵽ ⵽) assumed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3b: ⵽ ⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LLLLHL</td>
<td>4: ⵽ ⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽ ⵽ ⵽</td>
<td>variant 2:</td>
<td>(⵽ ⵽ ⵽ ⵽ ⵽ ⵽ ⵽ ⵽) assumed</td>
</tr>
<tr>
<td>B\textsubscript{1}</td>
<td>HL +3</td>
<td>—</td>
<td>⵽ ⵽ ⵽ ⵽</td>
<td>⵽ ⵽ ⵽ ⵽</td>
<td>—</td>
</tr>
<tr>
<td>B\textsubscript{2}</td>
<td>HLL +2</td>
<td>—</td>
<td>&quot;</td>
<td>&quot;</td>
<td>—</td>
</tr>
<tr>
<td>B\textsubscript{3}</td>
<td>HX +2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

\textsuperscript{8} For instance, in the 300 hemistichs of chapter 3 I notice only | dasta hūdvā | 3.8, paśśātətāmā bīṣyo | 3.71, uṣṇorā dukhyau | 3.75, bodhisa|vyau jsa bīṣyau | 3.79, | hauri hambdu | 3.148.

\textsuperscript{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.
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 $\circ\circ\circ/\sim\sim$ while Manu Leumann called this the normal or ideal form and schematized it as $\sim\sim\sim\sim\sim\sim\sim\sim\sim$. Emmerick called it cadence 1 and marked stress $\sim\sim\sim/\sim\sim$. Maggi 2009b who also marked stress preferred $\sim\sim\sim\sim\sim\sim\sim\sim\sim$

The second most common cadence in Z was rendered by E. Leumann as $\sim\sim\sim\sim\sim\sim\sim\sim\sim$, by M. Leumann as variant 1 $\sim\sim\sim\sim\sim\sim\sim\sim\sim$, by Emmerick as $\sim\sim\sim\sim\sim\sim\sim\sim\sim$, 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 $\text{s\text{\textasciitilde}v\text{\textasciitilde}r\text{raysgu}}$ (2.77b) will go back to *$\text{s\text{\textasciitilde}v\text{\textasciitilde}r\text{raysgu}}$ $\sim\sim\sim/\sim\sim\sim$, and an ending like $\text{k\text{\textasciitilde}i\text{\textasciitilde}y\text{\textasciitilde}a\text{\textasciitilde}r\text{\textasciitilde}a\text{\textasciitilde}r\text{\textasciitilde}k\text{\textasciitilde}r\text{\textasciitilde}m\text{\textasciitilde}r\text{\textasciitilde}a\text{\textasciitilde}a\text{\textasciitilde}}$ (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 $B_3$ and $C_5$ as discussed below. The IAP suffix -yau may also appear in the X position (see below “IAP -yau, -yo”). Final long -i which may be phonetically shortened under some conditions is not shortened when in the X position (see below “Shortening of final long -i”). There are enough indications of the special metrical status of these particular 2-mora morphophonological units to use a special symbol, X.

There has been disagreement about what Emmerick called cadences $3a \sim\sim\sim\sim\sim\sim\sim\sim\sim$ and $3b \sim\sim\sim\sim\sim\sim\sim\sim\sim$. 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 $\sim\sim\sim/\sim\sim\sim$. Emmerick, on the other hand, offered,

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

\begin{tabular}{|c|c|c|c|c|c|}
\hline
\text{Cadence} & \text{Structure} & \text{Example} \\
\hline
$C_1$ & HL LL & $\sim\sim\sim/\sim\sim\sim$ \\
\hline
$C_2$ & HL LH & " \\
\hline
$C_3$ & HL LLL & $\sim\sim\sim/\sim\sim\sim$ \\
\hline
$C_4$ & LLL LL & " \\
\hline
$C_5$ & HX LL & " \\
\hline
\end{tabular}
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 ～～～～，and his Kv2/3 ～～～～ (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 ～ as ～～～. 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 ～～～～～ should not be described as a cadence.

Cadence 4 LLLLHL

What E. Leumann listed as ～～～～ with iictus, M. Leumann gave as ～～～～ and called it variant 2. This was called cadence 4 by Emmerick and given as ～～～～～. 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 ～～～～～. 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 ～～～～ 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 HH. 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 [śūtryau 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 Leumans (DKS:293b s.v. bi’sta- ‘shot’). The solution is to transcribe bāstā na. The ā is from contraction and the adjective is the same as 24.413 bāstā, NAPm from bāstaa- ‘pierced’. The aḵsara na as a separate word is found only once more in Z at 24.491 in the phrase mā na vā hvaṇīta which Emmerick translated as ‘do not tell me’ and the Leumans as ‘mir andressets 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 haṃḍārā | bāstā □ na kye | nāndā pahiya (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 B₃ 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 biṣṣa HLL, but frequently at the end of a longer word as in 3.25b balysūtā kāđe 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 maṭṭā tvi, is discussed under Cadence C₃, 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 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, \( \overset{\sim}{\cdots}\overset{\sim}{\cdots} \) and \( \overset{\sim}{\cdots}\overset{\sim}{\cdots}\overset{\sim}{\cdots} \) (1912:16). Manu Leumann in 1936 gave the structure of the last segment in type C as \( \overset{\sim}{\cdots}\overset{\sim}{\cdots}\overset{\sim}{\cdots} \), where \( \sim \) can stand for \( \overset{\sim}{\cdots} \) or \( \overset{\sim}{\cdots} \) or \( \overset{\sim}{\cdots} \) (1933-36:xxiv, xxvii). In his 1971 article he does not discuss the final segment (Glied III) of type C.

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

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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 śṣamani tsute. For instance, among the 300 hemistichs of chapter 3, there are sixteen 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 ājṛragāḍā hāmātē. 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:

<table>
<thead>
<tr>
<th>HX LL</th>
<th>HX H</th>
<th>LLX LL</th>
<th>LX LL</th>
<th>LX LH</th>
</tr>
</thead>
<tbody>
<tr>
<td>HX LL:</td>
<td>8.22bc</td>
<td>pracaḥ hvatā</td>
<td>8.30b</td>
<td>aysmū śamā</td>
</tr>
<tr>
<td>HX H:</td>
<td>3.21</td>
<td>māitrā tvī</td>
<td>8.16b</td>
<td>pracyā śṣai</td>
</tr>
<tr>
<td>LLX LL:</td>
<td>8.12b</td>
<td>hāṭānai samu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LX LL:</td>
<td>3.132 nārmitai hārā</td>
<td>7.23 ā</td>
<td>chānai hanā</td>
<td>20.69 patā</td>
</tr>
<tr>
<td>LX LH:</td>
<td>24.246d</td>
<td>vāṭi paḍā</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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11 The sixteen are 3.5d pajsama kāde, 33b nātcana samu, 37d skutāna kāde, 45d kumuda pharu, 47b vasuta varā, 53d skutāna buśā, 68d hāmātē ysūrā, 76b hāmātē hve’, 76d hāmātē bij’, 83d kāḍāna bīṣā, 91d aggarā samu, 93a skutāna bīṣā, 119bc yanimā aysu, 127b suḥātā kāde, 130bc śṣamani bīṣū, 131bc śṣamani samu. There are also two related irregular segments, 3.27bc hāmātē thatau LLL LH, and 95b satvāna bīṣā HLL LL.

12 Previous scholarship has regarded this word as LPM of patāraḥaḥ- ‘basis, residence’ with the Late Khotanese LP ending -vā. The stem occurs also in ASF patāraḥo 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 aā-deverbal noun from patāraḥ- ‘be established’. There is reason to suspect the stems originally were patāraḥvaḥā- and patāraḥv-, with -hv- instead of -h-. The pp is patārotta-, with rounded vowel -o-, suggesting a retraction of the consonantal rounding to the preceding vowel with the suffixation: patārotta- < patāraḥv- + -va- + /badēo-/ < badēahv- + -d-/<. It would be odd having a distinctly OKh stem with a clearly LKh ending. The LKh stems are pāraḥ- and pāraḥāḥ- (Khsuf:15a). The LKh LP ending -vā otherwise never occurs in Z (although Emmerick reads 2.66 draḥvā ‘in the gorges’ with Bailey’s ‘in the clefts’ DKS:167a instead of Leumann’s ‘erschecket’ from draḥvāa- Glossar:446a). From the metrical point of view, patāraḥvā 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 patāraḥvā as NSf, kāṣce as NAPf instead of GDSf, and dukhā as GDS instead of NSm. The hemistich contains two parallel equations:

20.69 anācchi hiṣkya □ kāṣce patāraḥvā 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.’

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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 \( \times \) for an akṣara, the graphic appearance of a line is roughly (the number of akṣaras varies):

\[
\begin{align*}
\times \times \times \times \times \times \times \times \times _a & \quad \times \times \times \times \times \times \times \times \times _b & \quad \times \times \times \times \times \times \times \times \times _c & \quad \times \times \times \times \times \times \times \times \times _d \\
\end{align*}
\]

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 . tā kave sūjsīru samudru .

hārā ju kārā ttatvātā ništā samu saṃṇa haṃṭsā-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 kārā | ttatvātā ništā ☐ samu saṃṇa | haṃṭsā-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 always 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  हार्ष्याय रूयाये  त्तु सम्वरु त्रामु
    समु क्षो जु येहवंदये पु—श्शो कमालु पाटल्लां

Here it would look like:

12.49ab  हार्ष्याय | रूयाये □ त्तु | सम्वरु त्रामु  (B:5+6+7)
12.49bd  □ | समु □ क्षो जु येहवंदये पु □ श्शो | कमालु पाटल्लां  (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 | LLLLLH | LLLLLL | HLL L | LLLLLL. 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 HLLLH 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  क्षो तारो त्तरु सुष्पो पाश्ताईमा बि—
    श्यो त्तरु पुष्पो पाश्तिमां  त्तु वरता त्तरु यस्सरां

Here it would look like:

3.71ac  क्षो तारो त्तरु □ | पुष्पो पाश्ताईमा बि □ श्यो ||  (C:7+5+5)
3.71cd  त्तरु पुष्पो पाश्तिमा □ | त्तु वरता | त्तरु यस्सरां  (C:7+5+5)

As with the type B example above, the metrical hemistich boundary is not marked by a column border. The akṣara श्यो of biṣyo 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 | LLLLH | HLL H | LLLLLL | HLLL | HLLL | HLL L. 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 moraically 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

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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  त्ताई हवानु | पिसाई उ’ □ | श्शरु हाङग्गाल्जु . (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 moraically 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. 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 ।ँँँँ 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

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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:

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Counts</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5 + 5 + 5 + 7</td>
<td>(\overbrace{\text{5 morae} + \overbrace{-<del>\cdot</del>\cdot}</td>
</tr>
<tr>
<td>B</td>
<td>11 morae + (\overbrace{-<del>\cdot</del>\cdot} \cdot );</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>(\overbrace{-<del>\cdot</del>\cdot}</td>
<td>\overbrace{\text{5 morae} + \overbrace{-<del>\cdot</del>\cdot} \cdot} ); (Maggi 2009b: 337)</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Counts</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>(\overbrace{5 + \circ} + \overbrace{5 + \circ} );</td>
<td>A: 5 + 7 + 5 + 7.</td>
</tr>
<tr>
<td>B</td>
<td>(\overbrace{5 + \circ} );</td>
<td>B: 5 + 6 + 7</td>
</tr>
<tr>
<td>C</td>
<td>(\overbrace{\circ} + \overbrace{5 + \circ/\circ} );</td>
<td>C: 7 + 5 + 5/6</td>
</tr>
</tbody>
</table>

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\(^\text{15}\) in the hemistich below contained double consonants written as single ones, \(\text{n} \) and \(d\) (Leumann 1912:17):

> 2.22cd śśai śa sar[va]ni ni vātę śt\(\square\) eva ni śśā[d]v[ani p]ūr[ī] . (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

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\(^{15}\) Leumann mistakenly thought that śśād[van]i 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

\[\text{biśśu but te sarvañi balsā} \quad \text{biśśiye ysamaśśandai ttrāṇi}\]

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 /t/, rather than the usual single /t/. 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 /ŏ/. The word o ‘or’ they transcribed ē because it is always long and reads H, e.g.:

\[\begin{align*}
2.16ab & \quad \text{kho ye siyato | hvātā bajśīha | o ūtco | maṃthāte kīśsa} \quad (A:5+7+5+7) \\
& \quad \text{Just as when one pounds sand in a mortar or swirls water in a churn,}

2.107ab & \quad \text{śśai tā ne balsū | ē o balsū | bīṣṭa trāmum} \quad (C:7+5+6) \\
& \quad \text{Even these (would not be able to deceive) the Buddha or the Buddha’s least disciple.}
\end{align*}\]

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:

\[\begin{align*}
8.49ab & \quad \text{cu mara śā īyu | kho rro mahāyāna hvatu} \quad (C:7+5+5) \\
& \quad \text{Whatever there may be here that has also been spoken in the Mahāyāna}

12.37cd & \quad \text{kho rro sūtra | hvīde | ce tū | saṃvaru ṣē} \quad (B:5+6+7) \\
& \quad \text{just as is prescribed in the sūtra for one who gives the saṃvara.}

15.7cd & \quad \text{aśaddā nā | hāde nā daiyā | kho rro | ē ūtco ne daindā} \quad (A:5+7+5+7) \\
& \quad \text{but the unbeliever does not see them, just as the Pretas do not see the water.}
\end{align*}\]

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 divamgarā into an ideal HLLHL 7-mora segment, and all of paramārthā into a 5-mora segment.

\[\begin{align*}
2.241ab & \quad \text{kho aysu divamgarā balsā | paramārthā | bustāmā dātu} \quad (A:5+7+5+7) \\
& \quad \text{Since I, as the Buddha Dīpaṃkara, realized the paramārtha in the Law,}
\end{align*}\]

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.

\[\text{See Hitch, forthcoming, ‘Old Khotanese tt’.}\]
4.39cd
samāntamukha-pāṇirvartto □ balysā | vāstarna | arthā niṣaṣṭe (A:7+7+5+7; not 5+7+5+7)
In the Samantamukhaparivarta, the Buddha has shown the meaning of it in detail.

12.8ab
sei bodhisatvā-saṃvara □ cai | abvatu drysde. (B:8+6; not 5+6+7)
This is the Bodhisattva-saṃvara. . . . as keeps it unbroken.

13.9ac
ku śta ākāśa|garbha u mā □ nyu|śśī ku śta rro | hatāḍaru balysā (A:7+7+5+7; not 5+7+5+7)
in which Ākāśagarbha and Mañjuṣrī, 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 times at the end of a 7-mora cadence in the mostly type A Chapter 22, e.g.:

22.270ab
drrai rrāyi | śṣīve hadāya □ | nyānartha | yīndā 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 | śṭāna abasta . □ | uysnora | dātu yanīndi
Unharmed, 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 | cakkru □ u pharu | parrāte uysnora
he turned the Wheel and rescued many beings.

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

14.82ac
cīyā uysnora □ tu skyātu | marā hayārī □ ndā
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 hīṣīndā biśśā
through wrath all beings will go to hell.

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

3.102ab
kho ju ye yśānājā □ | nei’ṇa uysnauru samu
as if one should bathe a being with nectar alone.

---

17 22.198, 238, 258, 270, 303, 322, 334.
There are many words which show the uysnora-effect. M. Leumann also mentioned hamrras\-stu ‘always’, urmaysde ‘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 (m) in the first syllable such as hamggargga, hambirstā, hamkkhiyṣgyo and samītsēra. 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 m as /n/.

There exists a prominent exception to the uysnora-effect. bilsamgga- ‘bhikṣusāṅgha’ 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:

24.464ab  biśśu bilsamggānu □ mlecha | nāndā yṣṭāndā  (B:5+6+7)
The Mlecchas have taken, plundered everything of the Bhikṣusāṅghas.

2.144ab  bilsamggu rro | bradvṣamotte □| biśśa bodhiṣatva kṣamotte  (A:5+7+5+7)
Bhadra asked forgiveness of the Bhikṣusāṅgha, 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 | pāḍā pāṣṭātā bilsamggā.  (A:5+7+5+7)
(put on his) samghāṭa, took a bowl, went out in front for the Bhikṣusāṅgha.

24.461  balysi vāte | gyasta dātā | vīri bilsamggā  (B:5+6+7)
To the Buddha, King, to the Law, the Bhikṣusāṅgha.

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, welch 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~CāyV 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 pyūsa- ‘hear’ for which the initial py- is never written *piy- or *pāy- (compare pyaurā~pāyaurā~pāyora- below), and there is never an extra, non-orthographic mora counted. The frequent stems byēh- ‘obtain (tr.)’ and byau- ‘be found; be’ also are never written.

---

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

---

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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 *-Ciya or *-Câyau.

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 dhāriṇā kṣaya-nāḍa □| ce tvāyātā | harbiśśā vāma . (A:5+7+5+7)

this Kṣayanāṭa-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 ttuvāyā □| 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 3Pm of jī- ‘disappear, be removed’ is spelled jīyāre 12×20, jyāri 1× (2.191), jyārā 1× (15.11), and jīyāre 8×21. The spelling jīyāre is naturally always LH as in

9.21cd nāhuta puṣṣo | kleśa abhā|vu | biśśā kāḍāyānē jīyāre (5+7+5+7) kleśas have utterly disappeared to non-existence, all one’s evil deeds disappear.

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

3.144ab maitre jṣa jīyāre □| dīra kāḍāyānē pharu (C:7+5+5)

Through love, many evil deeds disappear

or LHL with unwritten glide resolution as in

5.18cd trāmu naiṛāṭa-hvånāina □| uysnori | ysaṁtha jyāre (A:5+7+5+7)

so through the nairāṭa-doctrine births cease for a being.

Similarly, the 3Pm 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 buvāre (34×) where it is sometimes LHL, e.g.,

13.53bd śātā □ hīni | śrāvaka-yānā □| batu balysā | gvaṇu bvāre (A:5+7+5+7)

that is the inferior Śrāvakayāna. They little understand the Buddha’s meaning.

and sometimes HL, e.g.,

---

20 jīyāre: 3.139,144, 5.9, 18 12.6, 93, 13.67, 150, 15.8, 22.305, 24.472
22 buvāre: 1.32, 2.121, 3.35, 49, 50, 22.217, 23.4, 23.5.
From the same stem the 1Ssj.m \textit{buvāṇe}–\textit{buvāṇi}–\textit{bvāne} ‘I perceive’ has the spelling \textit{buvā}-twice (2.206, 216) and both times the word counts LHL, e.g.,

\begin{verbatim}
2.206cd avāśā ballyṣūstu \textit{buvāṇi} □| biśśā kliśa | purdu yanini          (A:5+7+5+7)
\end{verbatim}

May I surely realize best \textit{bodhi}. May I be able to overcome all \textit{kleśas}.

Of the four spellings beginning \textit{bvā}-, two (5.113, 11.77) words are HL as in

\begin{verbatim}
5.113cd balyṣūstu | hastamu \textit{bvāne} □| biśśā paṛṛjīṇi uysnora
\end{verbatim}

may I realize best \textit{bodhi}. May I rescue all beings.

and two (12.1, 24.259) are LHL as in

\begin{verbatim}
12.1ab ce yāde prañāḥ ā nu se balyṣūstu \textit{bvāne} .    (B:5+6+7)
\end{verbatim}

One who has taken a vow: ‘May I realize \textit{bodhi},’

The 3Pp.m \textit{dyāre} ‘they appear’ is spelled twice \textit{dāyāre} (5.12, 23.13), twice \textit{diyāre} (2.161, 4.100) and once \textit{diyāri} (4.37), all LHL as might be expected. Of the fifteen cases of \textit{dyāre}, ten\footnote{\textit{dyāre} as HL: 3.113, 137, 4.23, 32, 73, 82, 9.4, 15.47, 21.25, 23.90.} are HL, e.g.,

\begin{verbatim}
9.4cd samu kho purra | āyāte □ ūca | trāmu mara | rūvāna \textit{dyāre}    (A:5+7+5+7)
\end{verbatim}

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.,

\begin{verbatim}
2.165ab cu buro tāte | škogye \textit{dyāre} □ | cā ye mājaṇande \textit{dyāre} .   (A:5+7+5+7)
\end{verbatim}

Whatever these \textit{samskāras} appear, they appear resembling magic.

\begin{verbatim}
23.91cd ne ne varatā | balysa \textit{dyāre} □ | jaḍye paraṇāravāta saindā (A:5+7+5+7)
\end{verbatim}

no Buddhas appear there. To the ignorant (man) they appear parinirvāṇa.

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

\begin{verbatim}
2.162ab crrāma tāte | harbīśā balysa □ | trāma biśśā | satva \textit{dyānā}    (A:5+7+5+7)
\end{verbatim}

As are all these Buddhas, so are all beings to be viewed.

\begin{verbatim}
11.24cd tta tta parehāṇi parāhā □ | śa hajvaṭtātā \textit{dyānā}    (A:5+7+5+7)
\end{verbatim}

‘thus is restraint to be exercised,’ this is to be viewed as wisdom.

The GDSm pronoun in the spelling \textit{ttye} occurs more than 50 times, almost always as two moras. I find only four\footnote{\textit{ttye} as HL: 3.113, 137, 4.23, 32, 73, 82, 9.4, 15.47, 21.25, 23.90.} cases where a reading as one mora may be preferred, e.g.:
The word is spelled *ttiye* twice (11.53, 13.50) and *ttiiye* three times (2.202, 16.3, 24.215). These spellings indicate that the two moras of *ttye* can be LL. This is confirmed by one case of *ttiiye* at the end of a type C hemistic where it appears in a cadence C₄ HL LL:

\[
\begin{align*}
12.120 & \quad \text{ka bodhisattvā} [\square] \text{atārāṇi} | \text{yindā tyye} \quad \text{(C:7+5+5)} \\
& \quad \text{If a Bodhisattva is ungrateful to one}
\end{align*}
\]

Its appearance at the end of a type C hemistic confirms that its shape is LL and not H, since we rarely\(^{25}\) 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* \(10\times^{26}\), 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:

\[
\begin{align*}
23.148ab & \quad \text{samu kho purra | stāryau hamṣta | bendo kāḍe | māstā *pyore*.} \quad \text{(A:5+7+5+7)} \\
& \quad \text{just like the full moon with the stars over a very big cloud}
\end{align*}
\]

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 *biṣye--biṣṣāye--biṣṣye* ‘all’ is always three moras. While *biṣye* may be readable as HL, there is evidence suggesting all spellings count LLL. Beside the spelling *biṣye* which occurs \(13\times^{27}\), there are *biṣṣāye* twice (16.7, 23.31) and *biṣṣye* once (19.5). E. and M. Leumann noticed variant spellings for this word in the same phrase with the same mora count (1933–36:xxv):

\[
\begin{align*}
2.4cd & \quad \text{biṣye yasama|śsandai satvā} [\square] | \text{cu va ne kau} | \text{hastari āya} \quad \text{(A:5+7+5+7)} \\
& \quad \text{a being in the whole world. How much less if there should be one better!}
\end{align*}
\]

\[
\begin{align*}
23.31ab & \quad \text{māṇandī | vayasā ni byaude} [\square] | \text{biṣṣāye yasama|śsandai satvā} \quad \text{(A:5+7+5+7)} \\
& \quad \text{In the whole world, there is now no being resembling him}
\end{align*}
\]

The LSm *yṣamaśsandya--śsandāya--śsandiya--śsandita--śṣandya, ‘world’ is always} \(9\times^{28}\) six moras. E. and M. Leumann again noticed two variants, *yṣamaśsandya--ysamasaśandāya*, in the same phrase with the same mora count:

\[
\begin{align*}
22.196cd & \quad \text{panatā *yṣamaśsandya* ba[\square]lyśa | ce biṣṣā dukha | jāndā satsera.} \quad \text{(A:5+7+5+7 if -śṣandya is HLL)} \\
& \quad \text{A Buddha has arisen on earth who will destroy all the woes in saṃsāra.}
\end{align*}
\]

\[
\begin{align*}
22.195ac & \quad \text{ṣa ṣuva biśṣu | vīrā bira[\square]ysde | panatā *yṣamaśsandāya* [\square] balysi} \quad \text{(A:5+7+5+7)} \\
& \quad \text{This news will spread everywhere: ‘A Buddha has arisen on earth.’}
\end{align*}
\]

\(^{25}\) Under Cadence C₅ above the two cases of HX H in Z are listed.


\(^{27}\) *biṣye* 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 *yṣamaśsandaa- ‘world’ occurs at 1.39, 6.3, 23, 20.2, 71, 22.195, 196, 23.53, 24.06. At first glance 6.3 *yṣamaśsandya* appears to count 5 moras as a 5-mora segment in a type A hemistic. However, 1.39 *yṣamaśsandāya* 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.

\(\text{Ars Metrica 2014/11}\)
Another locative singular of a secondary declension, aysmya, LSm of aysmũa-²⁹ ‘mind’, occurs 23 times in Z always written aysmya and apparently always containing four moras, e.g.:

<table>
<thead>
<tr>
<th>2.9ab</th>
<th>ttārthānā</th>
<th>māstā arātā</th>
<th>kāde nu dukhā</th>
<th>aysmya saittā</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A:5+7+5+7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There was great envy on the part of the heretics. It seemed in their mind very much a misfortune.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19.86cd</th>
<th>ttāna hva ndā</th>
<th>aysmya</th>
<th>āḷyćina tcererā</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(B:5+6+7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therefore an example is to be kept in mind by a man.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although this word is never spelled *aysmiya or *aysmāya in Z, it occurs once as aysmiyei (aysmya + -ī) 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.,

<table>
<thead>
<tr>
<th>9.25cd</th>
<th>ttāri dva</th>
<th>yāna biysāṃgya</th>
<th>kye mara stāśindā samtsera .</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A:5+7+5+7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Those two Vehicles are the waking up of those who become weary here in samsāra.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is a group of four words, all often meaning ‘while’ which show similar morphophonological patterning: śṭānu-śṭāniye, āṇye–āṇiye, śśāniye and jsānye. Formally these words show the pronominal GDS -iye ending and are based on āna-present participles to the verbs śṭ- ‘stand’, ās- ³¹ ‘sit’, śś- ‘lie’, and jsā- ‘go’. śṭānye ‘standing; while’ occurs 15× and is always four moras, e.g.:

<table>
<thead>
<tr>
<th>24.470cd</th>
<th>kauśāmā</th>
<th>śṭānye</th>
<th>ś staunchā jiye</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(B:5+6+7)</td>
<td></td>
</tr>
<tr>
<td>while in Kauśāmbi: ‘This Śāsana is dying out.’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>13.65cd</th>
<th>ttā śśukā</th>
<th>āṇye</th>
<th>purrdā</th>
<th>mārīño</th>
<th>harbiśśo hīno</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A:5+7+5+7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Then, being alone, he defeated the whole army of Māra.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It occurs once as āṇiye demonstrating the reading HLL:

<table>
<thead>
<tr>
<th>22.151</th>
<th>dāsu vīrī</th>
<th>āṇiye</th>
<th>berāṇiṇite pharu</th>
<th>ratana vicitra</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A:5+12+7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>While on a banner, it will rain down many variegated jewels.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>4.79cd</th>
<th>kho rro brātā</th>
<th>jsānye</th>
<th>kāṣṭā</th>
<th>tye praca</th>
<th>hūna ttu daiyā</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A:5+7+5+7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>just as, when he has thought while awake, for this reason he sees this in a dream.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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


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 ās- everywhere else.
śśānye ‘lying’ occurs six32 times, always four moras, as in:

24.468  paṃḍāya | śśānye  □ ttuṣe | tśindā anāha .  
  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 | harbisśu butte □| ttāe ba dr | īrye drūje  
  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 | gaṭṭhuvo’ štāni | saṇa vāta | īriye daṣṭe  
  The plans, the skilful wiles which were theirs before while among householders,

The āṃjsia-adjectives are spelled -CāṃjsyV 9×33 and -CāṃjsiyV 2×, with both sequences always HLL. Below are examples of -ya--iya and -ye--iye ending variations:

22.199ab  rūndā puṇa | harbisśa māsta □| paḍāṃjsya | hālysa hāmāre  
  All the king’s great merits, past, present, will arise.

13.160ab  paḍāṃjsī | hettu bodhi-cittā □ u vaysānāṃjsya śpadadda .  
  The first cause of bodhicitta and present faith

22.271ab  ttāe anuṣkāṃjsye śkauṅgye □ trāmu parśindā kho bātava  
  These impermanent sāmkāras will pass like lightning.

3.117cd  śsāu śsau gūrvicā □| paḍāṃjsiye | īrye bise  
  Every single particle has excelled the former dwellings.

The plans, the skilful wiles which were theirs before while among householders.

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 hajya 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  biśśa ttusṣā | ttātatu dharma □| sā hajva(ttāt subhūta .  
  all dharmas are in reality empty. This is wisdom, Subhūti.

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

7.45ab  jaḍiγa ūteca □| ku ṣṭa vittarκiγya sya .  
  The water of ignorance is where the hamsa of vitarka is.

7.45cd  ttu buro vāśśeṣā | cu □ vara āyāre siye  
  So much is discrimination: as hamsas are reflected there.

---

34 Including biśpadya 2.77, ksā’-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: pyūs-, 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-~ttavāy-.
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~jīyāre, bvāre~buvāre, būvānem~bānē, dyāre~dāyāre~diyāre, ḷānān→dāyānā~diyānā~tyē~ttē~ttē, pyaura~pāyaura~pyora-.
4) Some words always resolve the glide and the extra L syllable may sometimes be written: biśye~biśāyē~biśēye, ysamaṣṣamdyā~ysamaṣṣandāya, aysmya~ayountriesi (¯dvā~(¯)dvā, ṣīānē~ṣīānīye, ānē~ānīye, jsānē, sūnē, ērē~ērīye, the āṃjsia-adjectives, padya~padiya, hajvā~hajuva, ḷajvatātī~hajuvattātī~, syā~sīyā.

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 */-*/.

The word vajsā’re in the three hemistichs below is LLHL for older *vajsāsāre < vajsās-‘perceive, see’ + 3Pp.m -ēre . For the stem compare the 3Sp.m vajsāsde Z 4.79, the 2Pop.m vajsāsīru Z 24.209, and the āṃta-abstract noun GDSf vajsās’mate Suv 6.3.46. In the three hemistichs below, a division between the 5- and 7-mora segments occurs within the ākṣara jsā’. Phonemically the division is /wad’ējāē/, LL|HL.

4.46cd ksaru vajsā’re padīyō □ o ye ddau | daindā cu ūcō (A:12+5+7)
they behold ignited lye or see the water as fire (Emmerick: behold burnt lye)

5.75ab prrīya ka[r]myau jsa nītāyē □ | ūcō vajsā’re padīyo (A:5+7+12)
The Pretas, because of their karmas, see the water in a river as alight.

9.7cd samu hīyā | syāmata kūrō □ | cu na-ro vajsā’re parīyō (A:5+7+12)
It is only their own false appearance if they do not yet behold deliverance.

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

5.70cd ātma vajsā’kā padīmākā □ paysā[n]ākō tsūkā (A:5+12+5 if *vajsā’sākā)
the self, the creator, the recognizer, and the transmigrator.

The āka-agent noun nūjsā’kā ‘shower’ in the hemistich below is LLHL for older *nūjāsā’kā for which compare NSm nūjsā’sā’kā Śgs 2.7v3.

12.91cd sūrāṇa vātcō □ | asamā nājsā’kā vāte (C:7+5+5 if *nājāsāsākā)
(or) again if the expositor was not equal to the sūtra.
The form 1Sp.m \textit{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 \textit{hamj\textsc{t}e} Z 2.64, 23.2, \textit{hamj\textsc{s}e} Z 2.124, and \textit{hamj\textsc{s}e} Z 14.2, all showing the missing syllable. All spellings reflect phonemic \textit{hand\text caret}/hand\text cue/. For the stem \textit{hamj\textsc{s}a\text{\textsc{s}}} ‘intend to’, compare 3Psj.m \textit{hamj\textsc{s}a\text{\textsc{a}}} ‘ro’ Suv 6.2.53.

5.7ab ttänau aysu | \textit{hamjse} hvīye □| balysānu | hastamu dātu  
\hspace{1cm} (A:5+7+5+7) 
Therefore I intend to declare to you the best Buddha-Law.

5.19ab ttänau aysu | \textit{hamjse} vaysña □| paramārthu | hvatāno hvīye  
\hspace{1cm} (A:5+7+5+7) 
Therefore I intend now to proclaim to you in Khotanese the \textit{paramārth}\textsc{a},

The 2Pp.a form \textit{kā\text{\textsc{a}}} ‘you all think’ in the 5-mora segment below is LLL for older *kāsā\text{\textsc{a}}. For the stem \textit{kāṣ}- ‘think’ compare 3Pp.a kāsī\text{\textsc{a}}dā Suv 14.27.

23.97ab arātū | nuṣṭhura nāste □| ne tta kā\text{\textsc{a}} | ttye puña trāma .  
\hspace{1cm} (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 \textit{kṣ\textsc{a}}-padya and \textit{kṣ\textsc{e\text{\textsc{i}}}}-padiya ‘sixfold’ in the hemistichs below are LLLLL. \textit{kṣ\textsc{a}} and \textit{kṣ\textsc{e\text{\textsc{i}}}} ‘six’ in OKh might otherwise be spelled \textit{kṣ\textsc{a\textsc{a}}} ‘or \textit{kṣ\textsc{a\text{\textsc{a}}}’ (DKS:68b). All four spellings reflect \textit{t‘ēza < t‘ēza < t‘ēz} + -\textsc{a}. \textit{kṣ\textsc{a\textsc{a}}-kṣ\textsc{e\text{\textsc{i}}} here are LL and \textit{padya-\textit{padya} are LLL.

3.141cd vari buru maitra □| \textit{kṣ\textsc{a\textsc{a}}-padya} | brahmā puňa  
\hspace{1cm} (C:7+5+5) 
there is love, the sixfold (pāramitā), the brahma(-vihāra)s, merits.

24.224ab \textit{kṣ\textsc{e\text{\textsc{i}}} padiya} | śśandā □ | ārautta ṭamaggu .  
In six ways equally the earth moved.

The reduplicated demonstrative pronoun NSm \textit{sā} `this’ is LL in the hemistich below, for older *sā\text{\textsc{a}}. It is usually spelled \textit{sei’} /zē < zē\text caret/.

5.20cd ne ne ju vara | bitamā tce\text{\textsc{a}}ra | nātāt ā\text{\textsc{a}} | hastamā dātā  
\hspace{1cm} (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 \textit{sa} more than 27 times and as \textit{sā} more than 30 times in Z. It appears three times as reduplicated sā\text{\textsc{a}} (4.80, 95, 21.16), twice with apostrophe as \textit{sā’} (15.115, 13.144) and perhaps once (21.13) as sā\textsc{ā} if this should not be read sā\textsc{ā}. There is no reduplicated form *\textit{sō\textsc{a}}, but this seems to lie behind the spelling \textit{sā’} with apostrophe which occurs at 15.115:

15.115ab hūṣta ngyāñīna . □| hūṇa sā’ | saṃṭa umā  
\hspace{1cm} (C:7+5+5) 
You are sleeping through ignorance. In a dream that saṃṭa of yours …

Similarly, sā in 7.39 below may be a copyist error for sā’ reflecting older *sā\textsc{a} (compare hūṇa sā’ in 15.115 above):

7.39cd hūṇa paysendī □| hūṇa sā | jsīrj ā samu .  
\hspace{1cm} (C:7+5+5) 
recognizes in a dream: this is merely deception in the dream.

The spelling sā’ occurs one more time at 13.144 where it counts too long and perhaps \textit{sa} was originally written.

13.144ab balysānu | buljye kāḍāna | sā’ vāṣana | śrāvaka-yāno  
\hspace{1cm} (A:5+7+6+7) 
For the sake of praise of the Buddhas, there is this statement in the Śrāvakayāna:

The spelling sā in 20.60 and 2.88 below may be a copyist error for sā’ reflecting older sā\text{\textsc{a}} as a reading HL seems required:
20.60ab aysmuī rraysgā . □ | šā ttārā | oṣa bisa
(C:7+5+5; if read šā ’ for šaṣa HL)
This is such a bad dwelling for the swift mind.

2.88cd ka haḍe sarvāṇī tī cū ċāṣāte ku šā | samu ulatāna .
(A:5+12+7 if read šā ’ for šaṣa 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 ša L was reduplicated as *šaṣa LL which through loss of -ṣ- became spelled šā ’ /zaa < źa/ LL. Then this common word irregularly simplified to šā /źā/ H which could then also be reduplicated as šaṣa HL (possibly also šaṣā HH) and then the -ṣ- could again be lost and the form spelled šā ’ /źa < źa/ HL.

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

An older, unattested spelling might be *huve. The spellings hve ’ and huve ’ both reflect /huē < huē/. 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 ĕ 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 hūňa ma pulsa □ cu ne rrō vā | brātā □ hve ’ ||
Do not ask one in a dream, much rather a man awake.

23.110cd cu va nā bajā | hāṛṣṭāi vīrā □ cīyā hve ’ | yandet arētu
which would not seriously suffer when a man is envious.

24.440ab biśō karyo | merā □ šā hve ’ | ttuśīma yāndā
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- /huż-/ which is also found with the adjective hvī’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×), hvaṃd- (18), hvaṃd- (5×), hvaṃd- (4×), hva ’nd- (1×). This last form hva ’nd- (Z 16.44) suggests the stem should be two syllables HL. The etymology might suggest LH as well. Bailey offers, *hua ’nd- < *auṣavant- ‘mortal’ comparing Av aoṣaḥ-vant- ‘mortal’ and Pashto zāwai ‘person’ (DKS:503b). The stem hva ’nd- is likely underlying, at least in the oldest language, /huanad- < *huzañd-. One might predict that it would consistently count LH in meter. But it turns out that most often it counts H, as if read hva ’nd- [hva ’nd-]. For instance, all 24 hvaｍ ’d- spellings appear to count H, as in these examples, one from each meter type:

2.189ab biśpaḍā | duva hāra šṭāka □ balysuṇa/vüşai hvaṃ’du .
First of all, two things are necessary for a bodhi-seeking man:

19.85cd šōo šśūkū | šśūkū ka raṇu | hvaṃ’dāna dāiyā
one sees each good action as due to a man.

20.72 āchei jśāte | yṣare □ marānā | hvaṃ’di nuva .
Illness, old age, death, follow a man.

Similarly, all 18 hva nd- 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 8 × instances are LH, e.g.,

11.12cd cu šā dukhā yṣāru vārā hvaṇḍi □ ttuṭ balysa | mulṣdu hvaṭānda (A:5+7+5+7)
What this woe is in a man’s heart, this the Buddhas have called compassion.

---

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 □ hayse patälste
The man whose two ears, nostrils have been cut off.

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

11.52ab handarye | **hvaṅdā** āyū □ daiyā paja|m μu buljse pyūṣde . (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, 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 *hvīyV* with apostrophe, three (5.14, 109, 13.70) of the ten cases count LHL, e.g.,

5.14ac kho rro kāṇa|-kachavo hva□te balysā **hvī’yā** | ātam ye yam□thā (A:5+7+5+7) as the Buddha has said in the parable of human existence about the one-eyed tortoise.

13.70ab baśdye jsa | **hvī’yu** yamṣthu | bye□ha u aśādetyau vātcu . (A:5+7+5+7)
Through evil action would one obtain human birth and, moreover, through imperfections?

This adjective is derived /(hwīya <) huīya- < huźīya- < huź- + -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×), *pwo’* (4×) and *pāto’* (3×) in Z.39 All count as two moras, probably all LL like *pāto’*. Some examples:

3.5 harbiśśā namaśātāndi gyastā | balysi **pāto’**
They all worshipped at the feet of the deva Buddha.

5.40 vaiśramanā | šskārā u brahmā | tterā jsai | **pvo’** namaśāndā .
(A:5+7+5+7; cadence 4 LLLLLH)
Vaiśravaṇa, Śakra, and Brāhmaṇ do homage with their forehead at his feet.

5.105 kuṭ riñe | daindi se marā ṭāa **pau’** ye | harbiśśe paste
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* < *-uō/. 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 < pēō < pē- + -uō/ we have *pāto’. With loss of *ā /pūō < pūō < pē- + -uō/ we have *pvo’. The spellings *po’* and *pau’* are ambiguous.
There are examples that count by the enclitic with regard to the meter in Z. The instrumental IAP obvious. Empty consonantal radical as in ṣa with one orthographic vowel ṣ. What may at first be a bewildering array of spellings, are often just efforts to write two vowels in po’ or spist etwa phonetisch äü Vokalumlaut; yau yō̈. Das y der Endung E. and M. Leumann had a different analysis of these forms:

2.242ab 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). In the following three examples from Chapter 2, the sequence -yau jsa is in varying environments and counts HL:

2.23cd (A:5+7+5+7) (But) the four mighty ṛṣis have sown in vain with their curses.

2.60cd (A:5+7+5+7) this invitation … ‘Many there will escape from woes.’

2.74cd (A:5+7+5+7) who are restricted and simple in senses, there is the rddhiprätihārya.

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

2.193cd 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 ū ɵ; also bildet dieses y nicht Position, z. B. in aṣyau ɔɔ, spoya ɔ, suhyau, biṣyau (orthographisch für biṣyau, ɔ). (1933–36:xxxii)

The creative interpretation by E. and M. Leumann of -yau~yo as “phonetisch ū ɵ” (1933–36:xxxii) and thus the y not making position, is discussed below.

I have noticed no counter examples, but I have not checked every occurence.
Their reasoning may have been based on hemistichs like the type C below containing their examples suhyau and bijsyau.

3.65ab

**bijsyau suhyau jsa** □ | **biśśāñe śśāraṭete biśśā**

With all their pleasures, all with all their goodness,

It appears that the Leumanns considered the structure of the 7-mora segment *bijsyau 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 jśīḍāṇdi** sta rrum□du | vā gṛihu | **aysuryau** justā

“You deceived King Nāhuṣa: ‘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 HHLLL:

3.60cd

**spātyau jsa** hayā|rīndi □ varata | āṇa kāde

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 ssandā∥saño** 42 yidāndā □ | jāγgaro | bū’na **spātyau jsa**

Those who have performed a *sāmnisadyā*, a jāgarkī, … 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 āī or ḍ 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 *ggvyo’* 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 *hamtsa* ‘with’ which followed. That is, I thought that *hamtsa* as well as *jsa* would make -*yau* two moras long. The evidence is compelling but misleading.

The sequence -*yau hamtsa*, -*yo hamtsa* occurs 35-43 times in Z. In 33 cases it clearly and simply counts HHL. Examples of -*yau hamtsa* as HHL from all three meter types:

2.156ab

**vaiśrāmanāḥ** | **gyastyaḥ** **hamtsa** □ | **gyastūṇi** | khāysā papāte

Vaiśramanaḥ, with the devas, prepared divine foods.

24.508cd

**karavātā** | **nalsū□te hā** | **hārvyaḥ hamtsa**

*B:5+6+7*

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42 For -*ssajo* as HL, as if *

43 For -*ssajo* as HL, as if *ssajjo*, see ‘Hidden geminates’, below.
In the morning he went out with the merchants.

3.79ab šāvya hāṃtsa | boḥ dhiṣaiyau jsa biṣyau . (C:7+5+6)
with their Śrāvakas, with all the Bodhisattvas,

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

13.64ab cēvi vaska | yakaḥ hāṃtsa □| rakṣaysyau ṛg hāṃtsa (A:5+7+5+7)
When, against him, with Yakṣas, Rākṣasas, with Nāgas,

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

5.98ab cīyā vara | ātā vīrā kīnthe balṣāḥ | ṣḍamanyau hāṃtsa (A:5+12+7)
When the Buddha came there to the city with the ascetics,

20.1cd ṣḍamanyau hāṃtsa □| pharu bodhiṣatva kāde (C:7+5+5)
with the monks. There were very many Bodhisattvas.

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

Further study seems to reveal that all cases of 2-mora -yau without jṣa occur in the X position in cadences, where normally one finds contracted vowels, including the 33 cases of -yau hāṃtsa discussed above. There are many examples of -yau in the X position without hāṃtsa in 7-mora segments in cadence 2 HXHL, and at least ten 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 hāṃtsa:

2.50cd svi hāṃtsa | biṣṭyaḥ balṣāḥ □| vā nīmanḍraimā tatāṭka (A:5+7+5+7)
I am inviting here tomorrow the Buddha with his pupils.

2.138ab aṣya hastā | mānāmā juauṣā | kyeri halci | pūṃnyau bitte (A:5+7+5+7)
I am like a fighting elephant: however much anyone pierces it with arrows

2.139ab kye mamā śāu | bāṣyā malṣā . □| ūau mā jūṣḍānau tāṭā . (A:5+7+5+7)
Whoever has crushed one of my arms (or) cuts one with thongs,

14.5ab kvā yau vātā | merā □ hāṃtsa | kāśṣya ysāṭā . (B:5+6+7)
He was born at his mother’s side with klesas.

22.243ab śārṇa aṣya|māṇa vasūṭāṇa | kalyāna-ṃāṭiyau aṣkṣu (A:5+7+5+7)
With good, pure mind, always through spiritual advisers,

23.158ab [gyasā]nu | irdyaḥ bāṛi □| buśsānai | n[aunu] vabāde (A:5+7+5+7)
Through the ṛddhis of the gods, fragrant rain rained down (gently).

24.435cd ttu mā gṛṛiḥu | ko va □ biṣyau | karmiyau 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 hāṃtsa:

14.3ab kai ttande | sūtryau hoṭi tāṇe šāhāne . (B:5+6+7)
Would that I may be able (to tell) such great virtues of his (according to) the sūtras

14.53ab crrmyau jṣa | karmiyau vara □| prṛṭyuvo’ āṭa . (B:5+6+7)
By whatever karmas they came there among the Pretas

14.56cd hāvyau yā buhu | karmiyau □ saṃkliṣṭu 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 klešas.

24.384cd samu viparjāyasyau □ samjtsāra haśkaundā  
\textit{Samśāra} is ceated merely by the delusions,

24.425ab samu nā baṃggānyau □ āṣpāta puvaindā
Scarcely is there protection for them in armour.

24.647ab [vī]nafīnyau | byānyau □ inḍrīṇa ṛraysgu.
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 C₄ HL LL with -yau L as it is normally when not followed by jsa:

3.96ab suhutta kā ˈṇa □] hastamyau | suhyau kāde  
One should think of them as greatly blessed with the best blessings.

3.116ab suhutta āre □] tr-adhvyau | suhoby biśśā
They all sit blessed with the blessings of the three times.

They appear to me blessed with the blessings of the three times.

They all go about blessed with all these blessings.

21.15cd cu ne bi hva ˈndi . □] kāścīnyo | pūnyau ysāru  
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 haṃṭsa in place of jsa, this is coincidence. The two cases above (5,98, 20,1) of śṣamanṭyaau haṃṭsa in a 7-mora segment where -yau haṃṭsa appeared to undergo the uṣnora-effect are actually just examples of -yau being L when not followed by jsa. In those cases, -yau haṃṭsa 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 śṣa|manyo haṃṭsa □| pharu bodhiṣatva balonda  
with many monks. There were many powerful Bodhisattvas.

22.246 ttyāy vā | mātrai balysā □] pharākyau śṣa|manyau haṃṭsa .  
(A:5+7+5+7)

Some might consider the hemistich below to be an exception:

22.220cd ttānau jāta | harbiśśā yasamtha □] haṃṭsa klaśīyaau biśśā karma  
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 syllable\textsuperscript{45} 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 ttānau cTTYau | karnyō vari ˈstāni ne hāriṣṭāyā pathīya  
because, while there, they have not in fact refrained from these karmas.

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

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

\textsuperscript{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 /-Cū/:  


Because they thought that *hajvī, gguvrīc-, aysvī* counted LH, they proposed that *vī* was [ŭ]. If *vī* stood for a vowel, then the first syllable of *hajvī, gguvrīc-, 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 hajīa*-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 hanaṣṭaimā gyaḍāna □ | gyaḍa hajvī | hva’ṇdi 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 uysnorā tta kā’ṇu □ | 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, *gguvrīc-,* appears five times48 in Z, all in type C with ideal 7+5+5 structure. In one case *gguvrī- is clearly HH:*

3.32cd  myāṇu nā ṣṭāṣi | panye gguvrīcā mamā (C:7+5+5) In every particle of me space is in the middle of them.

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

---

46 Until now, this stem has been listed as *haja*-u, with short û.
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 211 are given below; 3.87 cu vara gguvrīcā, 90 paṇāṇa gguvrīcā, 117 śśau śśau gguvrīcā, are all 7-mora segments.
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 C₃ HL LL cadence, which is ambiguous evidence on this point.

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 LHHL but it could also easily be in cadence 1 LHHL.

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

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

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

<table>
<thead>
<tr>
<th>2.130ab</th>
<th>ātāśi</th>
<th>ṭiṣṭi gurṣte</th>
<th>vaisramani</th>
<th>badra kho nātā</th>
<th>(A: 5+7+5+7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing in the sky, Vaiśravaṇa called to him: ‘Bhadra, as a Naga’s …’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.178cd</th>
<th>ko thu nṛ̤ḥiṣai bīśā tiṛṣṭha</th>
<th>ggei ’śśātai</th>
<th>dātī cakru</th>
<th>(A: 5+7+5+7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>when you subdued all the heretics (and) you turned the Wheel of the Law.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

49 2.130, 178 and 177 are given below. The other 4 cases of HXHL are 2.73 prā̤hāli ātandā, 74 irdiprā̤hāli ātānu, 77 pāti hva ‘ndu, 147 trāmī āya.
There is one case of four-mora -VČČi with -i not in the X position:

2.177ab tterā kšamoḷi brya balysa □| samu kho śśanđā ne ju oysa .
(A:5+7+5+7; counting tterā 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 -VČČi, which counts as three moras. The penultimate long vowel and consonant cluster should guarantee a reading HL.

2.27ab parāśani | tārthā tta hvate se □| vaitādvi | vaska paśāmā .  
(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 -VČČi 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 | khāyśvī ju | vaska ne pīpe
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 -i in the X position, such as,

2.110cd śkondi pātcu | balṭysu yuḍu | yṁdā thatau
the Buddha could quickly create it again.

E. and M. Leumanns’ hajvī and aysvī, assuming there is no glide resolution, have the structure -VČČ. In Chapter 2, there are 18 examples of -VČČi counting as three moras51, and 5 cases as four moras (see below). Two examples of the three count are in the 5-mora segments māṇandī and cu ne bustī:

2.4ab dātena bve|māte jsa puṇyau j[sa] □ | māṇandī | haṃdarā niṅtī  
(A: 5+7+5+7)
in appearance, in knowledge, in merits, there is not another resembling him

2.53cd cu ne bustī | ṣā ulatāna □ | cū tsutai | myāṅo muḍānī
“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 -VČČi occur with the name manjuśṛ ‘Maṇjuśrī’ which has long -i in Sanskrit. This shows that the shortening of final -i is probably not related to its origin.

2.79ab bodhisat\{vai karā vīrā □ | manjuśṛi | samanta-bhadṛ
In his circle were Bodhisattvas, Maṇjuśrī, Samantabhadra

2.153ab manjuśṛi | tta hvate bodhisatvā □ cā ya-ṝnāṁmā bhadra .  
(A:5+12+7)
The Bodhisattva Maṇjuśrī spoke thus: ‘… as created by magic, Bhadra’

As mentioned above, there are five52 examples of -VČČi as four moras. In the first example below -rī hvate errāma is cadence 1 HLLHL, and in the second ċṛṣṭī rraṣṭa is cadence 2 with the

50 2.52 and 110 are given below. 2.146 travī rro is a 5-mora segment. 2.59 travī jṣāte, 225 mākṣī vīrā are both HXHL with -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 badṛi karāṇāni, 154ab H in a 12-mora group, 169ab ḫalimjvī | (technically -VČČČi).
-ī as X in HXHL:

2.147ab  śšāripuṛī hvate errāma □ | vaṭhāyā | badrā aysmūna  
Šāriputra spoke thus to him: ‘As the pupils in mind,’

2.196cd  jtyau jsa hārṣṭāyā pathiṣṭi □ | bvemāte jsa | drṣṭī rraṣṭa 
from these one really refrains: with knowledge one has correct doctrine.

The final structure to be examined is -VCī. Chapter 2 contains 19 examples. Two of the cases are in overly long, metrically awkward foreign words, 149 mudgalyāyanī and 239 mahāvyūbhi 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  āśirī | kālodātā | būṣyau jsa | badru tta brūraṣte. 
The Ācārya Kālodāyin thus questioned Bhadra with jokes.

2.106cd  jśīdu yanāma □| satā saḷī | vaṣṭa biśśā 
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.

<table>
<thead>
<tr>
<th></th>
<th>-VCī</th>
<th>-VCcī</th>
<th>-VCcī</th>
<th>-VCī</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ī = L</td>
<td>3</td>
<td>1</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>-ī = X</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>-ī = H</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

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 ṇ 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 eight times, probably always with single d, e.g.,

5.22cd  hālsto vā | byūttā ku yṣātā □| rrunḍā śśādūtani kṣira. 
(A:5+7+5+7 if *śśād[ḍ]ūtani) 
He returned to where he had been born in the land of King Śuddhodana.
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: sarvaññ–sarvamñña ‘sarvajña, all-knowing’, anāccej–anice ‘a-niña, impermanent’, pravajo–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/, /VcçV/ and /VjñV/ in Prakrit loans. I have not noticed hidden geminates behind the palatal signs $s$ or $y$. The pattern is puzzling.

The Leumanns’ first example, sarvaññ–sarvamñña, is not straightforward and is discussed farther below.

The Leumanns’ third example, pravajo–pravajo has a straightforwardmetrical distribution. Whether spelled pravajo (6$^{57}$) or pravajo (9$^{58}$) it is always LHL, confirming underlying /j/. In the examples below pravajo occurs in the type 1 cadence HLLH:

14.32ab kho nātāmā n hota □ kuśala-|mūla u āṣad (B:5+6+7)  
As are their niyāma, power, roots of merit, and faith,
22.267cd āṣadā kāde | mulyagṣyaśe rraṣṭā □ draiva-natajña|nu pryasraṁnā faithful, very compassionate, upright, devoted to the Three Jewels.

Their second example, anāccej–anice, is much less convincing but probably still correct. The sequence aniceVoccurs ten times$^{59}$ and anāccejseven times$^{60}$ 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 | harbiśśa śkolonge □ anātme | harbiśśa śkauñge . (A:4+7+4+7)  
Impermanent are all the saṁskāras. Without self are all the saṁskāras.

It is useful to list some other examples of the phenomenon to further establish its validity. The first syllable of viññā- (11$^{61}$) and viññāja- (1× 4.105) is always H as in

4.27cd viññāni | kāṣte asaṁñi □ saṁña śṣai | rūvī nīstå . (A:5+7+5+7)  
The viññāna has meditated without saṁjña. It has not even the saṁjña of form.

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$^{56}$ śsadā- is spelled śsadā- at 2.143, 14.32. śadda- is spelled śada- at 2.92, 15.5, 22.267. The related śśādāti ‘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.


$^{60}$ 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 *viññāna- (5.82, 84) show Sanskrit influence. The underlying double /ṅ/ is confirmed by the one spelling *vimñāna- with anusvāra:

6.37ab  viññā | tīṁa hārānu □| viṁñānā | trāmā kha cā yā
Vijnāna is the seed of things. Vijnāna is such as magic,

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

11.40ab  paśśata-[jįvāte āste □| araṃnā | śī vari horā . (A:4+7+4+7)
(If) one sits in a forest having given up life, therein is giving.

6.18cd  tte ṣuḍaru | śśādā kye tṣāstu □ | hoda ṣhāve | āste araṇī62 . (A:5+7+5+7)
He has greater merit who sits calmly in a forest for seven nights

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

3.110ac  ne śṣumṇi śṣuṇi . □ | āvaraṇu | yīndā yu□ḍu (C:7+5+7+5)
The empty, as empty, cannot cause obstruction.

4.97cd  trāmu parijkalpe paysendā □ | tātēfe parijkalpi jsa śṣuṇe . (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 sījhati), the two cases in Z confirm /jj/. In both the metrical division is *sājjīndā:

22.326cd  cu vara hvate | buljse hāva □ ne-r̥e sājīndā tu kālu (A:5+7+5+7)
The virtues, blessings mentioned in it will not be fulfilled for them at that time.

12.4ab  prraṇāhānai | harbissā □ sājīndā 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 *ucčētāndā:

13.138ab  tā va ucātāndā vara āḥhāro bissā | burṣṭa hatcaasta (A:5+12+7)
Others gathered the ashes there. All the broken pieces

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

10.13bd  sā□rajā | samai-prahāṇa □| śśīlā-pārāmato kāṣta (A:5+7+5+7)
the samraṇjana, 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, *sarvaṇa-~sarvaṃṇa-*. This appears to have a unique three-fold distribution. When spelled sarvaṃṇa- with anusvāra (9×) the second syllable is naturally probably always H. When spelled sarvaṇa- (45×) the second syllable would similarly always be H if not for a curious large class of exceptions: when the phrase sarvaṇa- balyṣa- ‘all-knowing Buddha’ occurs in a 7-mora segment, the second syllable appears to be always L.

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

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62 M. Maggi notes Pāli araṇī (p.c.)
63 There are four cases of the related word *śṣumṇahā- ‘śuṇyatā, emptiness’ (6.26, 35, 7.24, 33), but there are no instances of *śśuṇahā-.
sarvaṃñā–sarvaṃṇi occurs five times (4.105, 13.66, 103, 105, 20.22), always counting HHL as in,

\[20.22ab \text{āysda nā yanda } \square | \text{ sarvaṃṇi } | \text{ balysā thatau} \quad (C:7+5+5)\]

the all-knowing Buddha would quickly protect them

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

\[11.62cd \text{ sarvaṃṇa} | \text{ hastama śāstāra } \square | \text{ ce ysama|śsandai trāna} \quad (A:5+12+7)\]

The all-knowing best teachers who are the strongholds of the world.

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

\[2.54cd \text{ sarvaṃṇu} | \text{ ye } | \text{ jśiḍu ne tīḍā } \square | \text{ drūjyau jsa } | \text{ śeitā maha jśdec} \quad (A:6?+7+5+8?)\]

One cannot deceive with lies one who is all-knowing. He has deceived us.

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

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

\[13.1cd \text{ sarvaṇa} | \text{ hastama śāstāra } \square | \text{ kye ysama|śsandai trāna} \quad (A:5+12+7)\]

the all-knowing best teachers who are the strongholds of the world.

\[2.71cd \text{ ka tā bādā } | \text{ sarvaṇa} | \text{ saita } \square | \text{ jrdya jsa } | \text{ hā usahyāmā} \quad (A:5+7+5+7)\]

If it seems time to you, All-knowing One, let us deign to go hence with ṛddhis.

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

\[3.82cd \text{ pruhausuṭa } \text{ a’re } \square | \text{ sarvaṇa} | \text{ balysa biśśā} \quad (C:7+5+5)\]

All the all-knowing Buddhas sit clad …

\[13.140cd \text{ sarvaṇa} | \text{ balysa tā dharmas } \square | \text{ karā śṛavaka-ṛjaṇa ni ūndi } . \quad (A:5+7+6+7)\]

the all-knowing Buddhas, these dharmas are not found at all in the Śrāvakāyāna,

The remaining nine examples\(^\text{64}\) of sarvaṇa are all in the phrase sarvaṇa balysa ‘all-knowing Buddha’ when it occurs as a 7-mora segment, as in:

\[2.182cd \text{ åysda yamu } | \text{ sarvaṇa ba } | \text{ balysa } | \text{ cu aysu sam|tsera yudaiṁā} \quad (A:5+7?+5+7)\]

Protect (me), all-knowing Buddha. What … I have done in samsāra,

\[5.50ab \text{ trāmu mulyś|dgyo pyauru } \square | \text{ śāṇa vā } | \text{ sarvaṇa balysa} \quad (A:5+7+5+7?)\]

so, all-knowing Buddha, make the cloud of your mercy rise up,

A similar distribution is seen with the NSm phrase sarvaṇi balṣā, which occurs in precisely that spelling\(^\text{65}\) sixteen times. The two cases where that phrase occurs outside a 7-mora segment show the double /ṁḥ/ and count HHLHL:

\[\text{\textsuperscript{64} 1.81, 2.64, 132, 182, 5.50, 15.31, 114, 22.188, 257.} \]

\[\text{\textsuperscript{65} We curiously never find *sarvaṇi balṣā, but there is NSm sarvaṇā balṣā at 13.66.} \]

\[\text{\textsuperscript{ Ars Metrica 2014/11}}\]
2.113ab biśā tā ggurvīkya | sa▁rvaṇī | balysā thatau .
all these particles the all-knowing Buddha quickly
(C:7+5+5)

23.164ab cīyā jhā | būjśūta ātā □| sarvaṇi | balysā tu tu kālu
When at that time the all-knowing Buddha came to the staircase,
(A:5+7+5+7)

However, in all fourteen\(^{66}\) instances where the phrase constitutes a 7-mora segment it seems to count like a typical cadence 1, HLLHL, as in:

2.3cd biśū butte | sarvaṇi ba▁lyṣā | biyē yṣamaśśandai trāṇi
The all-knowing Buddha, the stronghold of the whole world, knows all.
(A:5+7+5+7)

19.89cd hatāro śṣaṁānānu □ vānyo | sarvaṇi balysā
the all-knowing Buddha ... in the Vinaya for monks
(B:5+6+7)

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

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 prataya ‘cause’ in OKh exhibits multiple stems. M. Leumann identified three stems, pracaa-, pra[c]caa-, and prac[i]ya-(Glossar:466b). Emmerick, in his analysis of the NAP of the aa-declension wrote:

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

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 \( pr(r)acaas- \), 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 pracin (Sgh[18] 146.2). The plural is more complex. It similarly occurs only in NA, GD and IA. The IAP \( pr(r)acyau (jaa) \)\(^{67}\) 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 pracya- 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, pracya- (> pracy), pracya- (> praca), and, with one example in the corpus, pracaa- (> 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 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 \( pr(r)acaas \) 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 ṣā vina | prcai māstā | biśa bhūma-ṛ̠favita badra .
   The whole great earth deity, Bhadra, does not (move) without cause.

5.80ab tsūkā hār|ṣṭāyā ni byaude | tāna cu tārā | prcai nāstā .
   A transmigrator does not really exist, because there is not such a pratayaya

24.382ab vina ātme | jivāte samu | prcai iti .
   without life, self, due merely to pratayaya

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 mam | prcai karā | baśdā āya
   May there be no sin at all because of me!

24.383cd vāna hettu-prcai hār|ṣṭāyā ne byore
   Apart from hetu and pratayaya 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, prcai and aprcai, 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 mājaṇiṇḍā ne balysā | aprcai | khanau nijsaḍe .
   Similarly the Buddha does not show a smile without a pratayaya.

5.72cd kau ju vārā | dyākā vātāya | vāna prcai | haṃ vātā³⁷ daira
   If there were a viewer there, they would always see without pratayaya.

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 hāmḍar|mānu pracaina | nitémā | saīndo jaṇina
   By reason of the internal ones the external ones appear through ignorance.

12.80ab ne tto ggmjso | pehāte sat|vānu pracaina
   he does not commit this fault for the sake of beings

18.31ab sīc pracaina □| pharu rakṣayṣa | rāmā jṣate
   On account of Sītā, Rāma slew many rakṣanas.

In other positions, pracaina is clearly 5 moras:

4.67ab hettu-pracaina abhāvā | hettu-pracaina kāfįndi .
   The unreal is due to hetu and pratayaya. By means of hetu and pratayaya do they think.

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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 haṃ vātā (2.214, 14.35, haṃ vāte 2.214, 22.102) but the loss of -u is possible because of the following v-ː < haṃvēdē. 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, haṃ vērā 3.17, haṃ vērā 10.9, haṃ vērī 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).
There is no doubt that \textit{pr(r)acai} is HH (or HX) and \textit{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 \textit{pr(r)acya-}.

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

5.76cd phara varata \textit{pracyā} tsīṇāndā | ttāna padīṃmākā ne byauḍe . \quad (A:5+7+5+7)

There the \textit{pratyayas} become many. Therefore, no creator exists.

8.16ab \textit{pracyau tcei mā} | ttā ro □ hamatā \textit{pracyā șṣai} .

(C:7+5+5; -\textit{yau} is X)

The eye is due to \textit{pratyayas}. Even these \textit{prathyayas} themselves

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

5.54cd ku ye \textit{pracyā} | rraṣṭu payscūndā | puṣṣo åtma-ṣamṇa nihuśdā \quad (A:6+7+5+7)

When one rightly understands the \textit{pratyayas}, the \textit{sāṃjā} of self utterly disappears

But curiously the two cases of NAPm \textit{pr(r)acya} appear to also contain four moras:

13.41ab hoda ttāte \textit{pracya} sūtro . □ | kho bodhi-çittå upāta . \quad (A:5+7+4+7)

Seven are those causes in the \textit{sūtra} so that the arising of \textit{bodhicitta} is possible.

8.21ab \textit{pracya} ṭvāïṇāndā □ se șā | tāru panate \quad (C:6+5+6)

They describe the causes (Emmerick: Of the \textit{pratyayas} they teach), ‘This has made that arise.’

In both cases the greatest metrical regularity is attained if \textit{pracya} is four moras. In 13.41 it is in a 7-mora segment with \textit{sūtro} 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 \textit{pr(r)acya} forms is the reason for E. and M. Leumann’s stem \textit{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 \textit{pr(r)acaa-} where -c- is always written single but read double. The noun has a plural stem \textit{pr(r)acya-} which, following Emmerick, was in process of being transferred to the \textit{aa-declension} under the influence of the singular stem. There is one case of the singular stem being used for the NAP (\textit{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
- **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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