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The Origins of Nonsense: An Analysis of Bo'ri'va:r Sap in Khmer

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Spring 2008

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The Origins of Nonsense: An Analysis of *Bo'ri'va:r Sap* in Khmer

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5 May 2008

Contents

Acknowledgments

I would like to thank my consultants, Veasna Keat, Rom Touy and Paul Craij for their interest and participation in my project. Their time, help and wisdom made this thesis possible.

I would also like to thank Noeurng Ourn, my first *lo:k kru:*, for planting the seeds for this project by introducing me to the Khmer language.

Thanks also to Professors John Haiman, Christina Esposito, Erik Davis and James Matisoff for reading the drafts of this thesis and providing valuable advice. I appreciate their time and their interest in my project. I am particularly thankful to John Haiman for his support and advice through this process and throughout my career at Macalester. An ideal adviser, he has both guided me and let me find my own way. I am honored to have had the opportunity to work with him, and am thankful for all that he has done for me.

Introduction

The Khmer language is rife with compounds in which one component has meaning and the other is simply "decorative," as in English "jibber jabber," "razzle dazzle," and "pitter patter." The Khmer are well aware of this phenomenon, and have named the decorative component of these compounds *bo'ri'va:r sap*, which can be translated as "servant word." Technically, the only traits that *bo'ri'va:r sap* share are that they are bound and are semantically opaque; anything can be a servant word as long as it is meaningless and accompanies a meaningful word.[1] However, a vast number of *bo'ri'va:r sap* alliterate, "chime," or rhyme with their master words, and a vast number are distinctly expressive. The phonetically dappled nature of these words, created by tempering identical word-shells with differing vowels or consonants in key places, is often iconic—these words reflect concepts such as fickleness, back-and-forthness and irregularity. *Cawcree:h cawcra:h,* for example, means "helter-skelter." Through reduplication, the word mimics profusion; through vowel alternation, it mimics irregularity. Like onomatopoeias, these compounds tend to have a high sound-to-reality correlation.

In this paper, I will investigate the origins of and motivation for *bo'ri'va:r sap*. I believe the origins are many but the motivation is unique. I would like to propose that:

a) Many compounds with *bo'ri'va:r sap* can be called ideophones. The *bo'ri'va:r sap* in these compounds tend to be spontaneously created forms analogous to the "splish" in

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[1] We will see that the opacity and boundness of these words is often debated and can vary from speaker to speaker.

English "splish-splash" and follow comparable patterns of ablaut. Their definitions and usage vary from speaker to speaker, and their etymologies are up for debate.

b) Many other compounds with *bo 'ri 'va:r sap* are less predictable in form, either because the differing portions of the individual components are seemingly random (stressed-syllable nuclei and codas follow no predictable pattern of alternation), or because the *bo 'ri 'va:r sap* simply does not resemble the "real" word at all (i.e., it does not alliterate, chime *or* rhyme). The *bo 'ri 'va:r sap* in these compounds seem to be created by whatever means possible.

After describing the various types of *bo 'ri 'va:r sap*, I will explore the ways in which they can be created. In particular, I will examine the plausibility of a popular word game as one source of alliterating *bo 'ri 'va:r sap*. Sisowath Porasi has written a book, *Bo 'ri 'va:r Sap in the Khmer Language*, in which he attempts to explain the creation of every servant word using a syllable-reversal game called *Piak Kunloah Kat,* which I like to translate as "Word Splice and Dice." The process involves reversing the rhymes of two related words to create a new, nonsense form that is a phonetic blend of the originals, and assigning this nonsense word to one of the "real" words as a servant. This process always results in alliteration. In a rather convincing example, Sisowath proposes the etymology of the word *tulom* (a *bo 'ri 'va:r sap* that alliterates with *tuliaj* ("spacious") as follows:

tuliaj ⌐ **thom** can be reversed as **tulom thiaj**
spacious   big   Ø   Ø

tulom is then reassigned as a *bo'ri'va:r sap* of **tuliaj**

This would be the equivalent of saying "big and roomy," reversing it to "boomy and rig" and then saying "big and boomy" to mean "big." The specifics of the game can be seen in figures 1 and 2 below. They will be discussed in greater detail in section 7.5.

Word

$$[\sigma_0]$$

σ

σ

onset (rhyme)

onset (rhyme)
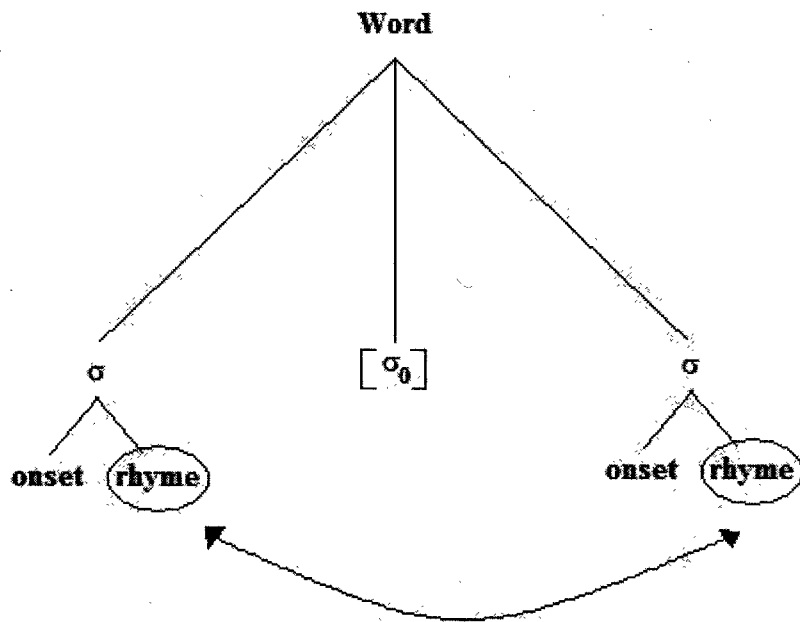
Figure 1: **Rhyme-swapping within a single word.** Within a single word, the rhymes of the initial and final syllables are exchanged.
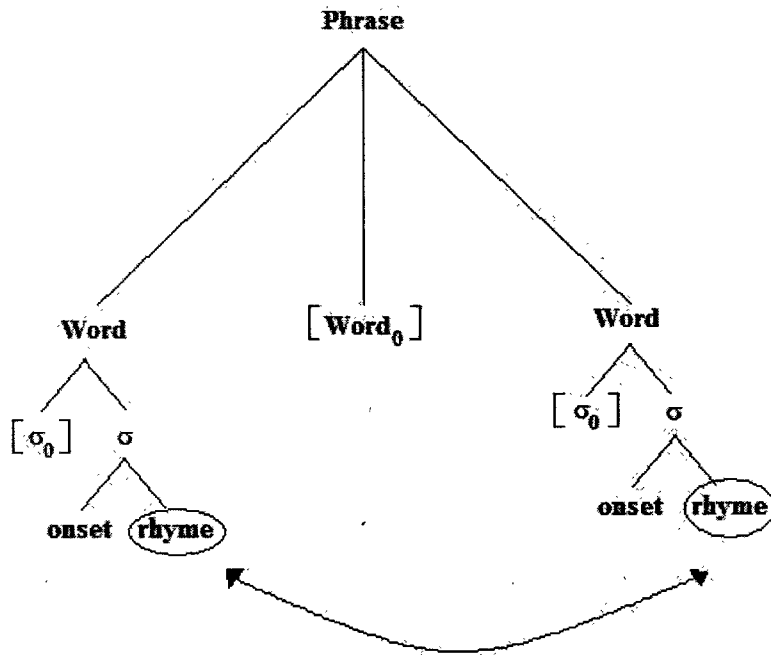
Figure 2: **Rhyme-swapping across a phrase.** Any phrase can be "reversed" via *piak kunloah kat* by swapping the rhymes of the final syllables of the first and last words.

Sisowath's explanation for *bo'ri'va:r sap* would explain the abundance of alliterative compounds in Khmer, and it would also explain the unpredictability of the differing vowels and final consonants within these compounds. An investigation of Sisowath's work shows that his attempt to attribute *all* Khmer servant words to *piak kunloah kat* is probably overly optimistic. Some of the *bo'ri'va:r sap* he lists have very clear alternate etymologies (for example, as borrowings from other languages), and many of his explanations seem a bit far-fetched. In other cases, however, the explanations are more plausible, and if even a few *bo'ri'va:r sap* are formed this way, the phenomenon would shed new light on how we think of language change. Often, *bo'ri'va:r sap* begin their lives bound to their master words, but break their shackles and acquire lives of their own, taking on new meanings that differ slightly from those of the original words. The evidence of this process can be seen on a typical page of a Khmer dictionary, where

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alphabetically approximate (that is, alliterating) words differ only slightly in sound and meaning. For example, it seems plausible that either of the words *trawmaeng* "protruding (of a swelling)" or *trawmaong* "swollen" was originally a *bo'ri'va:r sap* bound to the other, and that the components of the compound *trawmaeng trawmaong* "swollen, bloated" gradually became re-analyzed as slightly different words. Now *trawmaeng* and *trawmaong* exist as separate entries in the dictionary *and* as a compound. Therefore, if *piak kunloah kat* is a plausible explanation for the creation of *bo'ri'va:r sap,* we would have a type of linguistic "exaptation" as described by Roger Lass (1990). Out of the phonetic dust of totally separate words are born *bo'ri'va:r sap*, who, once they have served long enough, become free words of their own.

Piak kunloah kat is admittedly an elaborate game, but such step-by-step processes for word formation are not unheard of. If we think of *bo'ri'va:r sap* as intentional, lexicalized Spoonerisms in a language in which intentional Spoonerisms are a widespread phenomenon and in which the desire for alliteration is incredibly strong, perhaps this word game does not seem so far-fetched.

My main sources for this project were four native speakers of Khmer (Noeurng Ourn, Veasna Keat, Rom Touy Paul Craij, to whom I am greatly indebted and endlessly thankful). The Cambodian words and their glosses that appear in this paper are from these consultants, Sisowath's *Bo'ri'va:r Sap in the Khmer Language,* and Robert Headley's 1977 *Cambodian-English Dictionary.* It is important to note that not all *bo'ri'va:r sap* from Headley's dictionary and Sisowath's collection were recognized by the native speakers, and that the native speakers produced *bo'ri'va:r sap* not found in either dictionary. This is due in part, perhaps, to the fact that the speakers and the

dictionaries do not represent exactly the same dialect of Khmer; some words are archaic and others are specific to certain regions of Cambodia. On average, one consultant recognized 69% and Headley's dictionary recognized 62% of the words in Sisowath's book. This leads me to believe that the nature of these compounds is such that they can be created on the fly and can then be promptly abandoned. Because they always accompany a meaningful word, they can be understood even if they have never before been uttered, and the degree to which these compounds "catch on" and become part of a more universal lexicon varies greatly. I found it often the case that when my consultants did not recognize a form offered by Headley or Sisowath, they had heard or used a *bo 'ri 'va:r sap* that differed by one or two segments. For example, one consultant did not recognize the word *raujej rauja:j* in Sisowath's book, but had heard *raujee: rauja:j,* which did not appear in the book. Neither form appears in Headley's dictionary.

Bo 'ri 'va:r sap are worthy of study because they do not behave how we expect language to behave. Most strikingly, they violate the commonly held "principle of least effort"—the principle that language likes to take shortcuts where it can. Humans, it is thought, like to maximize economy in speech by eliminating as much material as possible while still retaining meaning. *Bo 'ri 'va:r sap* present a problem: if the goal of an utterance is communication, why expend energy on a "word" without meaning?

Similarly, *bo 'ri 'va:r sap* do not conform to the widely held belief in linguistics that no two words can be true synonyms. If two words have *exactly* the same meaning, one must be superfluous. As we will see, however, compounds that contain *bo 'ri 'va:r sap*

are often understood by Khmer speakers to be true synonyms of their meaningful components.

The best understood process of linguistic change is that of simplification. In an effort to maximize economy, languages *lose* features. *Bo'ri'va:r sap,* on the other hand, are an example of this process in reverse: they tell the story of sounds' journeys from meaningless to meaningful. In so doing, they provide clues about where words come from *before* they begin the processes of decay.

Bo'ri'va:r sap can also offer insight into the status of Khmer's register system. There is disagreement among Khmer speakers and Khmer scholars as to whether the historical register distinctions (i.e., "breathy voice" and "clear voice") still exist, or whether these distinctions are manifested today in vowel quality alone. It seems that in spontaneously created chiming compounds with *bo'ri'va:r sap,* it is important that the register of the meaningful word match the register of the servant word. This suggests that while speakers may no longer make the phonological distinction between breathy and modal, they cling to the register complex (or at least the idea of it) in one form or another.

A Note on Transcription

The transcription used in this paper was developed by John Haiman, Noeurng Ourn and me. Khmer's phonemes are represented as follows:

Our Alphabet	IPA Transcription
a	a
a:	a:

aj	aj
ao	ao
aeu	aə
b	b
c	c
d	d
ee	e
ee:	e:
ej	ej
ae	ae
e	ɛ
ea	eə
f	f
h	h
i	i
i:	i:
ia	iə
j	j
k	k
l	l
m	m
n	n
nj	ɲ
ng	ŋ
o	o
o:	o:
oa	oə
aw	ɑ
aw:	ɑ:
au	ɔ
au:	ɔ:
p	p
r	r
s	s
t	t
u	u
u:	u:
ua	uə
v	w
eu	ə

eu:	ə:
w	ɯ
w:	ɯ:
wa	ɯə
'	ʔ

1. Defining *bo'ri'va:r sap*

In the introduction to his book, Sisowath Porasi offers the following definition of *bo'ri'va:r sap* (loosely translated):

> *"Bo'ri'va:r sap"* comes from *bo'ri'va:r* ("servant") + *sap* ("sound," "word") and means "sounds that accompany other words as servants in order to make the compound easy to listen to and beautiful, and to characterize or qualify the original word. [. . .] This type of word has very deep meaning, which is clear, exact, and related to that of the original word."

He goes on to explain that *bo'ri'va:r sap* are, he believes, ancient and deliberate creations. He describes the intentions of his ancestors as a preference for euphony, but dismisses the idea that the words are "meaningless" by suggesting etymologies rooted in the non-servant component of the compound.

Sisowath's definition fluctuates between the terms *bo'ri'va:r sap* (most literally "servant phone") and *piak hae hawm* ("word that accompanies"). The alternation between *piak* and *sap* is an interesting one because we tend to think of words as necessarily meaningful and sounds as having the potential to be meaningless. The alternation between *bo'ri'va:r* and *hae hawm* brings up the issue of whether these are words performing a service or merely sounds coming along for the ride. In any case, a servant

word's most important aspect is its boundness, and its most striking aspect is the unclear status of its meaning. If the question is "Why group these words together at all?" the answer must be that the concept of a "meaningless word" is a startling one, as we are trained that the sole purpose of language is to communicate through signs, and a *bo'ri'va:r sap* seems like a sign without a referent, or "extra" phonetic material. When Sisowath asserts that *bo'ri'va:r sap* "have very deep meaning," he reveals that he, too, is uneasy about what appear to be meaningless words.

Because *bo'ri'va:r sap* are sounds more than words (in the sense that they have no meaning on their own), it is useful to categorize them based on their phonetic properties. The most noticeable and important properties of *bo'ri'va:r sap* are their poetic features: ablaut, alliteration and rhyme. It is also possible (but rare) for *bo'ri'va:r sap* to exhibit none of these poetic features. Therefore, the four categories to be explored are alliterative, rhyming, chiming, and "none of the above." They can be organized and described as follows:

a) Same vowel, different onset, same final consonant (i.e., rhyme)

ca:n kba:n "dishes"

caeng vaeng "crisscrossed, intertwined"

b) Different vowel, same onset, different final consonant (i.e., alliteration)

kawntok kawntwnj "to insist childishly"

tautoah taute:ng "conflicting, annoying"

bawnlae bawnluk "vegetables"

c) Same vowel, same onset, different final consonant (also alliteration)

kawk'a:k kawk'a:j "(laugh) happily"

bawngviah bawngviang "to sneak away, try to avoid someone"

rauleah rauleang "in a scurrying manner"

d) Different vowel, same onset, same final consonant (i.e., ablaut or "chiming")

kaumhi:k kaumhau:k "threaten with gestures or sounds"

ngaungi:h ngaungu:h "stubborn, resisting"

e) None of the above

koal fav "king"

dej tli: "land, soil"

saen pre:n "to offer to spirits"

2. *Bo'ri'va:r sap* as Ideophones

If *bo'ri'va:r sap* are meaningless on their own, they make up for it by (usually) being part of semantically colorful compounds. I propose that many of these compounds can be called ideophones. An ideophone is "A vivid representation of an idea in sound. A word, often onomatopoeic, which describes a predicate, qualificative or adverb in respect to manner, colour, smell, action, state, or intensity" (Doke 118). Tucker Childs, in his description of African ideophones, notes that they rarely occur in isolation, are often

reduplicative, and, for the post part, occur in post-verbal position. Judith Jacob, in an article describing the use of reduplication in poetic Khmer (an area that overlaps significantly with *bo'ri'va:r sap*), notes that

> A large proportion of reduplicative words are attributive verbs which most frequently occur in post-verbal position, modifying the preceding verb; they are thus usually translated into English by adverbs or adverbial expressions. They hardly occur in isolation at all, even when mooted. (229)

Her description reveals that Khmer's poetic reduplicatives bear several of the traits characteristic of ideophones.

A survey of Khmer's *bo'ri'va:r sap* shows that they are very often very expressive. They tend to describe the involuntary or that which cannot be helped, such as emotions (especially loneliness); unrestrained actions (shivering, laughing, gossiping); oscillation (swaying, hesitation); unevenness (bumpiness, deformity, limping); bounty or profusion (blooming); or chaos (spread of fire or disease). These words cannot be called onomatopoeic because they do not imitate sound. Instead, they imitate profusion or lack of restraint through reduplication and oscillation or unevenness through rhyme, ablaut or alliteration.

To determine whether these words could be used as verbs, I often asked my consultants whether the word *so:m* ("please") could precede them. The result was that this often made grammatical sense, but was logically very strange; my consultants were forced to consider whether "Please gossip excessively/shiver uncontrollably/hang this way and that/be all smiles" were acceptable sentences. Similarly, to test whether these words were adjectives, I asked whether they could be followed by the intensifier *nah*

("very"). Again, while these constructions often made grammatical sense, they sounded very unusual to the native speakers. They found it strange to say "very excessively gossipy," "very uncontrollable," or "very all smiley."

Compounds with *bo'ri'va:r sap* are often defined in elaborate or roundabout ways. Direct translations are difficult, and my consultants often had to describe a complex situation in order to convey the appropriate meaning. The meaning was often very colorful (e.g. "as a squirrel moves" or "as an alien's head might be shaped"). I found defining these words like a game of charades. Childs comments on the relationship between ideophones and gesture (196), and I certainly found it to be the case that the two are related. For instance, one consultant gave a lively performance of the word *lee:m leu:m,* "to appear and disappear frequently" by hiding and revealing his face until I caught on.

One problem with calling these compounds ideophones is that, as Childs describes them, ideophones are often "set apart" from the rest of a language by peculiar traits found nowhere else in the grammar or phonology. In Khmer, the peculiarity seems to lie only in semantics; these ideophones look, sound and behave like many other Khmer words. Richard L. Watson notes that this is typical of Southeast Asian ideophones, and suggests that the lack of distinctive phonological characteristics could be due to large phoneme inventories (presumably these languages have enough distinctive sounds that they do not need to introduce new ones in order to be expressive). He also notes that while new phonemes are not introduced to spice up ideophones, "There is always an added enthusiasm in the enunciation of ideophones, as the vividness of meaning is reflected in more vivid, emotionally heightened articulation" (387).

While ideophones seem to be widespread in Khmer compounds containing *bo'ri'va:r sap,* it is useful to make a distinction here between alliterating and chiming compounds. Alliterating compounds are often very expressive, but chiming compounds—that is, compounds in which the final consonants are identical—seem to be almost *exclusively* ideophones. Nearly all of the words listed in Appendices A and B are predicatives, and they have colorful meanings related to the uncontrollable states and motions described above. A closer look at the phonetics and morphology of these compounds suggests that chiming *bo'ri'va:r sap* are spontaneous creations that follow somewhat predictable rules.

3. Chiming Compounds with *Bo'ri'va:r sap*

Judith Jacob, in her article on poetic reduplicatives in Khmer, makes an important distinction between chiming and alliterating constructions. "Chiming compounds," she says, differ from alliterating compounds in that their final consonants are identical—only the vowel nuclei differ (227). These compounds make up 21% of Sisowath's collection of *bo'ri'va:r sap.*

3.1 The Syllable Structure of Chiming Compounds

Chiming compounds are almost exclusively composed of two sesquisyllabic[2] words or two monosyllabic words with complex initial consonant clusters. This means

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[2] James Matisoff (1973) coined the term "sesquisyllabic" to refer to words with 1.5 syllables.

that, typically, chiming *bo'ri'va:r sap* have approximately a syllable and a half. The first ("half") syllable can take one of three forms:

a) CVN-

b) CV-

c) CrV-

C must be an unaspirated stop in options 1 and 3 (or, very rarely, the fricative /s/). In option 2, C must either be the reduplicated initial consonant of the following syllable *or* the consonant /r/[3]. John Haiman argues that the complex initial consonant clusters were originally part of sesquisyllabic words which were further reduced because of Khmer's preference for iambs:

> I contend that possibly ALL the gloriously unusual consonant clusters which I
> have listed as occurring uniquely in the onsets of "extended monosyllables" are
> the remains of original sesquisyllabics that were reduced by the same process
> which is still attested as "casual reduction" today. (1998)

Haiman also notes that the vowels in these initial syllables are extremely restricted—they can be either be *aw* or *au,* depending on the register of the initial consonant. The result is

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[3] *Rau-* seems to be a prefix of some sort that is especially abundant in expressive *bo'ri'va:r sap.* Its meaning often seems to be either intransitive or frequentative. For example, *beh* means "to pluck" and *raubeh* means "to fall off (of fruit)." *Njee:v nja:v* means "the sound of cats crying" and *raunjee:v raunja:v* means "the repeated sound of cats crying." It does not seem strange, therefore, that this "prefix" is so common in compounds with *bo'ri'va:r sap* as it tends to indicate repeated or uncontrollable actions. In English, comparable compounds exhibiting ablaut often have the (no longer productive) frequentative suffix –le or –er (e.g. pitter patter, fiddle faddle, chitter chatter). See the OED's entries on –le and –er for a discussion of their frequentative functions.

that it is easy for the initial syllables of Khmer words to sound alike. Because so many

Khmer words begin with one of these syllables, it seems natural for two of them to form a

pair. As Haiman notes, the restrictiveness of the first syllable allows for flexibility in the

second, and places emphasis on these differentiating factors—in this case, the vowels of

the stressed syllables.

There is often disagreement among sources as to which component of the chiming

compound is the *bo 'ri 'va:r sap*. This suggests that the degree to which each component

of the compound can stand alone is debatable as well, and that there is disagreement as to

the etymology of these compounds, or at least the order in which their components

appeared in the Khmer lexicon. Perhaps this is because many chiming compounds are

nonce forms or original creations (see Paul 174-189). Their etymology is disagreed upon

because they have none.

3.2 The Reversibility of Chiming Compounds

The position of a *bo 'ri 'va:r sap* within a compound is often variable. Speakers

may say "A B" and "B A" interchangeably. This suggests that the order in which the

differing vowels and consonants occur is of no importance to the speakers, and therefore

cannot be predicted. However, it seems that *chiming* compounds are almost exclusively

of a fixed order[4]. It is possible for the *bo 'ri 'va:r sap* in chiming compounds to occupy

either first or second position, but this position can rarely be altered within the

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[4] I have found one instance in which this is not the case. *Sawmlok sawmlee:k,* "to gaze or stare sideways," can also be *sawmlee:k sawmlok.* Note that this compound also fails to conform to the vowel patterns described in Section C.

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compound. This suggests that the order of the vowels for this type of compound *is* important, as we shall see below.

3.3 Vowel Patterns

The vowel nucleus of the second syllable is the most important part of the chiming compound because it is the sound that differentiates the "real" word from the servant word. I have encountered very few words in which the emphasized syllables only differ in their final stops. Perhaps this is because the two words would not be sufficiently phonetically different (especially because final obstruents in Khmer are unreleased). The compounds of this type that *do* exist in Khmer have final consonants of differing sonority (this will be discussed in greater detail in section 5.1).

If one looks at the entire body of *bo'ri'va:r sap* as a whole, there is no discernible pattern of vowel alternation. However, if one isolates the chiming compounds from the other types of compounds, patterns begin to emerge. The following are general phonetic characteristics of chiming compounds:

a) The contrasting vowels are always of the same register. Note that this is less predictable in compounds that simply alliterate, such as *vaut va:*, "temple," in which the first component has a second register vowel and the second component has a first register vowel.

b) The length of the contrasting vowels tends to be the same. If there is a difference, it is usually the case that the *second* vowel is the longer one. This is probably due to the fact that it is the final syllable in the compound, and the final syllable in Khmer is traditionally stressed the most. I have not encountered chiming compounds in which the fourth syllable is shorter than the second.

c) The most common vowel patterns I have encountered are **ae→ao, eu→o**, and **ee:→ a:**[5] for the first register and **i:/ee:→au/o:, i:→eu:, w→ea**, and **i: → ia** for the second register. Over 80% of the chiming compounds elicited from my consultants or extracted from Headley and Sisowath exhibited these patterns.

A list of chiming compounds that exhibit these vowel alternations can be found in Appendices A and B. There does not seem to be a pattern behind these shifts, except that they tend to begin with mid- to mid-high vowels in the first register and high vowels in the second register and result in lower, backer vowels. Christian DiCanio (365) and Eric Schiller (5) note similar patterns. While these instances of ablaut are not as tidy as the English shift from /ɪ/ to /æ/ in compounds like "pitter patter," they are also not as random as the vowels in Khmer compounds that simply alliterate (i.e., those that have differing final consonants). For instance, I have not found any chiming compounds with the following vowel alternations:

*ae→eu

*eu→ae

*eu→ao

---

[5] The vowels *ao* and *o* seem to be interchangeable with the vowel *aw*.

*w → ae

*au: → i:

etc.

To determine the degree to which Khmer speakers have internalized these patterns, I created an survey in which I listed "fake" Khmer words (that is, words that resemble Khmer words structurally) and asked a consultant[6] to make up a *bo'ri'va:r sap* for each "fake word." Eighteen out of nineteen times[7], the consultant supplied a *bo'ri'va:r sap* with an identical final consonant. 84% of the time, the speaker supplied vowels that corresponded with the expected patterns. 100% of the time, the nucleus of the second syllable of the *bo'ri'va:r sap* produced was in the same register as the nucleus of the second syllable of the "real" word[8]. The results of this test can be seen in Appendix C. This test would have to be much longer to be statistically significant, but the results seem to suggest that spontaneously created *bo'ri'va:r sap* favor ablaut, and that the patterns of ablaut are somewhat predictable.

4. Rhyming Compounds with *Bo'ri'va:r Sap*

As Ourn and Haiman (2000: 489) and Jacob (1979: 226) note, rhyming is a much less common phenomenon in Khmer than alliteration or ablaut. It seems that rhyme is preferable to non-rhyme but not to other poetic devices. The following list of rhyming

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[6] The consultant was a male speaker of Khmer from Phnom Penh.

[7] The original survey had 20 words, but one was thrown out because it was recognized by the consultant as a real word.

[8] This was an astonishing result. The Khmer register system seems to have been reduced to a distinction made in the written language between first and second series vowels. These results, however, suggest that the consultant understands the registers as distinct categories that cannot mingle in chiming compounds with *bo'ri'va:r sap*.

compounds is compiled from Headley's *Cambodian-English Dictionary*, Sisowath's

Bo'ri'va:r Sap in the Khmer Language, and from my consultants. It is meant to be a

relatively comprehensive list of rhymes that I have found in the language. Rhymes

accounted for approximately 4% of Sisowath's list of *bo'ri'va:r sap.*

buang suang " to pray, implore"

cav rav "affably, kindly"

ca:ng na:ng "cross-shaped object; crossed, in the shape of a cross"

ca:ng va:ng "director, president"

caeng maeng "twisted, warped"

caeng vaeng "crisscrossed, intertwined"

caeung maeung "indifferent, apathetic, unfriendly, aloof, arrogant, proud"

chao lao "riot, make a tumult; noisily"

caucrau:k maumau:k "to visit too often"

caucrual maumual "to intrude too much"

crawlaeuh baeuh "disrespectful, disrespectfully"

kho:c paunlo:c "spoiled, bad (of people)"

krawvaeun krawtaeun "to work seriously, to try hard"

me:n te:n "surely, exactly, truly"

pa:c rauha:c "spread out"

paeung raeung "not very thick, fine"

sa:k mnja:k "dry, rough of the voice only"

sa:k (paw)tra:k "falling down"

sa:n va:n "tangled, thickly intertwined, disorderly"

sa:ng nja:ng "spreading out in a disorderly manner"

slo:t bo:t "pleasant and modest, docile and quite, polite"

sawl vawl "inexplicit, vague, absentminded, careless"

saw:k njaw:k "skinny and slow"

srual bual "proper, comfortable, well, pleasant, properly"

soj moj "slovenly"

s'a:t ba:t "all clean, clean throughout, clean and beautiful all over, neat, neatly"

ta:k ra:k "ramshackle"

ta:k raukha:k "cracked; torn apart, worn out, deteriorated"

ta:l ha:l "isolated on a large flat expanse of land"

ta:ng ra:ng "unevenly woven e.g. latticework"

taol maol "alone, isolated"

tawh mawh "rude, impolite, nasty, offensive, cutting (of remark)"

tol mol "small, tiny (of a person)"

teung reung "strict, severe"

teu:t raukheu:t "skinny (figure)"

Like the chiming compounds, rhyming compounds tend to be predicative. It is notable that their structure allows for monosyllables without complex initial consonant clusters, which are rare in chiming compounds. The second component has a tendency to begin either with a labial consonant or with /r/. There are rhyming compounds in which

the first component is disyllabic and the second is monosyllabic, possibly because

Khmer's iambic rhythm does not prefer two emphasized syllables in a row.

Ourn and Haiman (2000) argue that the relative dearth of rhyming compounds in

Khmer is due to the language's practice of prefixation:

> We [. . .] propose that in partially identical parallel structures, the portions labeled
>
> *identical* will tend to align with the portions of *low salience.* Portions labeled
>
> *different* will tend to align with portions of *high salience.* Hence the basis for
>
> grouping words together to form compounds at all in a prefixing language may
>
> tend to be identity in the downgraded portion of the word, and spotlighting on the
>
> salient portion. In Khmer, (and perhaps in exclusively prefixing languages
>
> generally), this will favor parallel structures of the form: Identical + DIFFERENT
>
> That is, alliterating structures. (499)

Because Khmer is both exclusively prefixing and sesquisyllabic, rhyming compounds are

not as appealing a poetic option as alliteration. In rhyme, the emphasized syllables of the

compound must be identical and the unstressed syllables must be different; there is no

"spotlighting on the salient portion."

5. Alliterating Compounds with *Bo'ri'va:r Sap*

The difference between purely alliterating compounds and chiming compounds is

that alliterating compounds do not have to have identical final consonants. The

alliterative *bo'ri'va:r sap* seem to be the least predictable, and therefore, as we shall see,

the most likely candidates for etymologies based on the word game *piak kunloah kat.*

This group can be divided into two categories. The first is alliterating compounds with identical vowels, and the second is alliterating compounds with differing vowels.

5.1 Alliterating Compounds with Identical Vowels

As noted earlier, it is rare for the components of Khmer compounds to differ solely in their final consonant. Some examples are:

biat bian "to menace, to commit aggression"

bawmpeu:t bawmpeu:ng "to expand and then relax"

kca:t kca:j "to separate, dislocate, scatter"

raupat raupa:j "scattering or dispersing in a disorderly manner due to excessive haste"

rautat rauta:j "scattered everywhere"

raupeu:t raupeu:ng "immodest, haughty, proud"

rau'a:k rau'a:j "sincere and warm"

tan tap "dense, thick"

These alliterating compounds are much less frequent than those with differing vowels (discussed in section 5.2). In Sisowath's list, they accounted for approximately 2.5% of *bo'ri'va:r sap*. In each of these compounds, the components' final consonants differ in degree of sonority. I have not encountered any alliterating compounds with identical vowels *and* consonants of the same sonority. This is probably because (as mentioned earlier), the components would not be easily distinguishable from each other. Further, in

all but one of the same-vowel alliterating compounds I encountered, the more sonorous consonant was the *final* consonant in the compound. This conforms to Yakov Malkiel's theory that in irreversible binomials cross-linguistically, the longer component typically takes final position. These alliterating *bo'ri'va:r sap* seem comparable to the chiming compounds in that they follow relatively predictable patterns and are perhaps spontaneous creations. One of the forms offered spontaneously by my consultant in the Khmer "Wug Test"—*caucrop caucroj*—was of this type.

5.2 Alliterating Compounds with Different Vowels

This type of compound makes up the majority of Khmer *bo'ri'va:r sap*. It accounts for 75.3% of Sisowath's list. Some important features are:

a) There is no apparent pattern of vowel alternation. Any vowel can appear in the stressed syllables, and the components of a single compound can belong to different registers.

b) Often, the components of these compounds are reversible (e.g. *khap khawn* or *khawn khap, cha: chaeng* or *chaeng cha:*).

c) There is no apparent pattern for final consonants. Any consonant that can normally appear word-finally in Khmer can appear at the end of either component of these compounds.

d) These compounds have a greater variety of syllable structures. They are more likely than other types of compounds to be monosyllables (although they are still overwhelmingly di- or sesquisyllabic).

e) Many of these compounds are more likely to be thought of as real, "official" words used in everyday discourse rather than playful or poetic speech.

It is misleading to think of this category of compounds as completely separate from rhyming or chiming compounds. Alliterative compounds very often have colorful, ideophonic meanings, and it is possible that many of them are created "on the fly" as well; we have already established that the emphasized syllables in a compound tend to highlight difference and that final consonants tend to be unreleased in Khmer, so it is not improbable that the final sounds of words do not matter as long as they are sufficiently different. However, it is important to focus on the variability of alliterative compounds as opposed to the relative uniformity of the other types. It seems that *because* difference is preferable in the final syllable and because this difference does not have to be strictly regulated (as in ablaut), the means of creating alliterative *bo'ri'va:r sap* are diverse and manifold. This makes alliterative *bo'ri'va:r sap* the most plausible candidates for formation via *piak kunloah kat.*

6. Miscellaneous ("None of the Above") Compounds with *Bo'ri'va:r Sap*

Very rarely, I encountered a compound in which one component was bound and semantically opaque but did not rhyme, chime, or alliterate with its master word. These probably originated as a type of "semantic-doublet" (Khmer has a tendency to couple near-synonyms, which will be discussed in more detail below) which did not happen to alliterate. These account for less than 1% of Sisowath's list of *bo'ri'va:r sap*. Some examples include:

dej tli: "earth, soil"

saen pre:n "to offer food to spirits"

koal fav "king"

Ourn and Haiman note that the *bo'ri'va:r sap "tli:"* in *dej tli:* may be a reduction of *thuli:*, meaning "dust" (2000: 488). It seems reasonable, then, to assume that these "miscellaneous" *bo'ri'va:r sap* were once meaningful words that were paired with synonyms and lost the battle to retain their meaning.

A different example, however, is the compound *ba:t tma:j*, in which *ba:t* means "yes" and *tma:j* has no meaning. Together, the compound means "a 'yes' that is said so often it becomes worthless." One of my consultants offered an etymology for the *bo'ri'va:r sap "tma:j"* using the game *piak kunloah kat:*

ba:j tma:t → *ba:t tma:j*

food vulture   yes Ø

This example stops short of reassigning the new word *tma:j* to alliterate with *tma:t* because its goal is instead to describe *ba:t*. In this case, it seems that the listener is supposed to reverse the words in his or her head to understand the meaning of *tma:j* as something generally negative. Playful expressions such as *ba:t tma:j*, although they do not alliterate, provide realistic examples of rhyme-reversal as a means for the creation of new vocabulary.

7. Possible Origins of Alliterating *Bo'ri'va:r Sap*

We have already seen that rhyming and chiming *bo'ri'va:r sap* are likely spontaneous creations. Where, then, do the less predictable alliterative and miscellaneous servant words come from?

7.1 *Bo'ri'va:r sap* as Nonce Forms

One possible explanation, as discussed above, is that alliterating compounds are spontaneous as well. The evidence for this is that the majority are no different from their chiming counterparts *except* that their final consonants are not identical. In fact, the vowels of alliterating compounds sometimes follow the vowel patterns described for the chiming compounds. Further, the final consonant of Khmer words is not always fixed. Often, words that are written with final palatal consonants /c/ or /ɲ/ are pronounced with velars [k] and [ŋ] and vice versa, depending on the backness of the preceding vowel. Therefore, for some words, it may impossible to have the same final consonant if the vowels differ significantly in backness. Because final stops are unreleased, they can be

viewed as the least important (or least articulated) sound in the word, and therefore open to variation.

7.2. Former Synonyms

Another possible explanation is that the components of these compounds were originally synonyms. As Ourn and Haiman (2000) note, Khmer (and other Southeast Asian languages) tend to have an abundance of "semantic doublets"—that is, compounds in which the components have related meanings. If these words, by sheer luck, alliterated, they were probably more likely to survive as a compound. Over time, it is possible that one of the words became bound to the other, as we saw earlier in the example of *dej tli:*. In the paper "Lexicological Significance of Semantic Doublets in Thai," Peansiri Vongvipanond (1992) proposes that the formation of doublets "can be viewed historically as a practical process for guaranteeing accurate communication that later develops into a synchronic lexicological process for creating new words in the language" (153). She cites Somdej Phramaha Weerawong's *Central Thai and Isan Thai Dictionary,* proposing that near-synonyms are paired "to guarantee that readers can get [a word's] correct tone, since tones were not usually marked in earlier writing and tones do differ among dialects" (149). While this may be the case for Thai, there is no evidence to suggest that Khmer, a non-tonal language, uses doublets for phonetic clarification. Vongvipanond also discusses the theory that doublets are used to translate borrowings. There is evidence for this process in Khmer, as many loan-words are paired with their Khmer counterparts. Christian DiCanio notes that the Thai word *kriam* ("dry") joined the Khmer word *krawh*

("dry") to form the compound *kriam krawh* (3). It is unclear, however, whether the motivation for these pairings is clarification or something else. Finally, Vongvipanond proposes what she calls the "lexicological hypothesis," which states that the individual semantic doublets work together to create a semantically distinct compound. Due to the competition between the semantic doublet and its components, each word can take on a new meaning, and "one or both of the components may lose out in this competition," causing them not to be "morphologically transparent any more except to trained linguists" (151). This is certainly often the case with Khmer.

Sometimes, a *bo'ri'va:r sap* can *alter* the meaning of its master word. One example of this is the compound *raubawh raubaw:*, which means "various things." It is composed of *raubawh* ("thing") and *raubaw:*, a *bo'ri'va:r sap*. While *raubaw:* has no meaning on its own, it has some influence on the compound's overall meaning. Perhaps this is a means by which it can acquire some of its own meaning and eventually break free.

Vongvipanond briefly discusses the idea that semantic doublets are motivated by euphony (i.e., that they are the result of a desire for alliteration and for a reduction in monosyllabicity), and seems to dismiss this hypothesis in favor of the practicality and lexicological hypotheses. Interestingly, however, she notes that "semantic doublets may serve as the more elegant synonyms of the words that are their own components" (151). While she is proposing that the *semantic* nuances of the components lead to a more elegant whole, I believe it is often the case in Khmer that the components of a "semantic doublet" and the doublet itself can be viewed as exact synonyms whose varying degrees

of "elegance" lie in their phonetics alone. Whether a speaker opts to say one or the other is a matter of sound and rhythm rather than meaning.

7.3 "Conscription"

Another means by which *bo'ri'va:r sap* are created is what John Haiman calls "conscription." This is a process "whereby a root may simply hijack an alliterating word whose independent meaning is completely irrelevant" (Haiman 2008: 21). Two semantically unrelated but phonetically similar words get lumped together. An example of this phenomenon is the word *sawmbok sawmbo:*, which means "property." On its own, *sawmbo:* means "property." On its own, *sawmbok* means "nest." When I asked my consultants the difference in meaning between *sawmbok sawmbo:* and *sawmbo:*, they replied that there was no difference whatsoever. This suggests that euphony rather than clarification or specification is the force behind such compounds.

7.4 Phonetic Assimilation

An ideal situation for Khmer would be one in which synonyms are paired and they happen to alliterate. When this is not the case, Khmer has a way of coping: the second component of a semantic doublet may assimilate phonetically with the first. One example of this phenomenon is the word *mho:p mha:r*, which means "food." It is likely that this compound originated as *mho:p aha:r*[9] (a semantic doublet whose components

---

[9] *Mho:p aha:r* and *mho:p mha:r* coexist in Khmer as words for "food."

each mean "food"), and that a desire for alliteration prompted the formation of the *bo'ri'va:r sap* "*mha:r.*"

Another example of this type of assimilation can be seen in the family of words *bawnlae* "vegetable," *bawnluk* "side of vegetables," *awnluk* "salad greens," *awnlej* "various vegetables" *bawnlae bawnluk* "mixed vegetables," and *awnluk awnlej* "mixed greens." While I have no way to determine the true etymology of these words, it seems that *bawnlae* and *awnluk* were perhaps the "originals," which, when they combined, assimilated phonetically (i.e., *awnluk* became *bawnluk*).

7.5 *Piak Kunloah Kat*

Sisowath Po'rasi: explains the etymology of all *bo'ri'va:r sap* using the word game *piak kunloah kat*. We have seen evidence above that a number of forces drive the formation of these compounds. These phenomena, however, cannot account for all (or even a majority) of alliterative *bo'ri'va:r sap*, so it is important to investigate thoroughly the plausibility of Sisowath's proposal.

7.5.1 Description

Piak kunloah kat (literally "word + exchange + cut") can be translated roughly as "Word Splice and Dice." It is a rhyme-swapping game whereby multisyllabic single words as well as entire phrases can be "reversed," often with comical results.

7.5.2 Structure and Rules

Within a single word, the rhymes (nuclei and codas) of the initial and final syllables are reversed (see Figure 1, reproduced below)
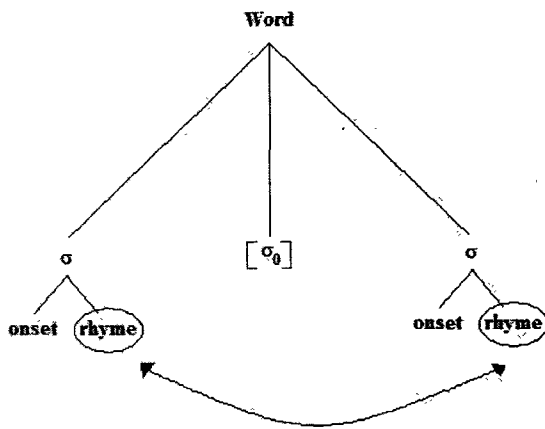

Figure 1: *Rhyme-swapping within a single word.*

If the word has only one syllable, the process cannot be applied. If the word has two syllables, their rhymes are exchanged (e.g. *krawhawm* "red" → *krawmhaw:*[10]). If the word has more than two syllables, the rhymes of the first and last syllable switch, leaving the middle syllables intact.

When one wishes to reverse an entire phrase, the rhymes of the final syllables of the first and last words are swapped.

---

[10] Note that the vowel is elongated here, as Khmer does not permit short vowels word-finally. Typically Khmer deals with final short vowels (the result of borrowings from Indic languages) by adding an inorganic glottal stop, as in *aju'*, "age."
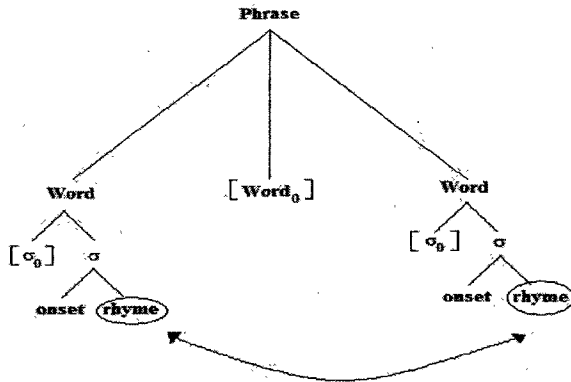
Phrase

Word   [Word₀]   Word

[σ₀] σ   [σ₀] σ

onset (rhyme)   onset (rhyme)

Figure 2: *Rhyme-swapping across a phrase.*

This is the process that Sisowath proposes as the etymology for *bo'ri'va:r sap*. When only two words exist in the phrase, their rhymes switch places. Examples include:

mdawng tiat "another time" → *mdiat tawng* (nonsense)

mda:j knjom "my mother" → *mdom knja:j* (nonsense)

ckae nuh "that dog" → *ckuh nae* (nonsense)

daeum cheu: "tree" → *deu:m chaeu* (nonsense)

When more than two words exist in a phrase, the rhymes of the final syllables of the first and last words switch places, and the syllables between them are left intact. Examples include:

sawso:ng pcoap teuv beh daj → *sawsaj pcoap teuv beh do:ng*

Ø   attach to   Ø   vein attach to   heart

(This is used to explain the origin of the *bo'ri'va:r sap* "*sawso:ng*" in the compound *sawsa:j sawso:ng* "vein.")

je:k   *srum* →   *jum*   *sre:k*

Ø   Ø   cry   shout

(This is used to explain the origin of the *bo'ri'va:r sap "je:k"* in the compound *jum je:k* "cry.")

The above examples were recognized by one of my informants as etymologies he had learned in grade school.

I have separated the rules of the game into rules for "word reversal" and rules for "phrase reversal" because they produce different results. This, of course, brings up the question "What is a word?," which is a difficult question to answer when discussing compounds. *Piak kunloah kat* has interesting implications for how speakers of Khmer perceive word boundaries. For instance, *sala: rian* (literally "place" + "study"), a compound meaning "school," can be reversed either as *salian ra:* or as *sian lara:*, depending on whether the speaker perceives it as two words or one, respectively. (My consultants opted for *salian ra:*, but accepted *sian lara:* as a possible reversal.) Compounds with *bo'ri'va:r sap*, it seems, are typically treated as two words consisting of two syllables each in one phrase rather than a single unit with four syllables. For instance, *raupeul raupo:c* would not become *ro:cpeul raupau:* (i.e., the result of swapping the very first rhyme and the very last rhyme), but *raupo:c raupeul.*

7.5.3 Usage

My consultants have informed me that many people play this word game and many more are familiar with it. The game is often used for comedic purposes. Typically, words that are reversed are taboo or impolite. One informant remembered an instance of *piak kunloah kat* in a comedy sketch. One man says to another, "You have a small *ka:j daw:*." *Ka:j daw:* is meant to recall phonetically the word for "penis" (*kdaw:*). The recipient of the insult becomes outraged, and the insulter says, "Get your mind out of the gutter! I meant that you have a small *kaw: da:j!*" *Kaw: da:j,* the reversed form of *ka:j daw:,* means "wrist."

While none of my informants said they played this game on a regular basis, they were all familiar with it, and noted that those who could manipulate the game well for comedic effect were often held in high regard.

We have seen that in the above processes for creating *bo'ri'va:r sap,* there is a tendency to "Khmerize" foreign words or prestigious Indic terms. *Aha:r,* originally a Sanskrit word, sounds more like a Khmer word when it is paired with the native *mho:p.* *Piak kunloah kat* could also be used to "Khmerize" foreign words by blending them phonetically with native words. While assimilation is a typically a natural process—borrowed words begin to conform to the borrowing language's phonotactics—Khmerization through *piak kunloah kat* can be seen as a more deliberate assimilation, or an attempt at humor. When a prestigious Pali or Sanskrit word is molded into a Khmer one for the sake of a dirty joke, there may be delight in the subversion. Words are often created in the spirit of play.

7.5.4 Similar Phenomena in Other Languages

Varieties of this game are widespread among other Southeast Asian languages. In Thai, a process called "flipped words" is "at times used to make a 'new' word for various purposes; [it] may be used in poetry for the purpose of rhyming or may be used to conceal vulgar words" (Iwasaki and Ingkaphirom 46). Marc Brunelle has used the same word game (called "inverted speech") to describe an emerging register complex in Eastern Cham. He too notes that the result of the game has a "comical and often sexually explicit meaning" (123).

7.5.5 Feasibility and Problems of *Piak kunloah kat* as a Possible Origin of *Bo'ri'va:r Sap*

It will be impossible to know whether *piak kunloah kat* is a real method for the formation of *bo'ri'va:r sap* until we see it in action. Unfortunately, it is possible that this was once a productive process but is no longer.

Many of Sisowath's proposed origins of *bo'ri'va:r sap* sound to me suspiciously like folk etymologies. They are often brilliantly clever, but almost *too* elaborate. But I remind myself that words very often have very interesting birth stories, and that the formation of words through intricate word games (e.g. "stairs"→"apples and pears"→"apples" via Cockney Rhyming Slang) is not an unfamiliar phenomenon.

While Sisowath's explanations have their problems, I believe that at least some and perhaps many Khmer *bo'ri'va:r sap* are formed via *piak kunloah kat.*

Discussion and Conclusions

When I was growing up, my dad often told me that he wanted my bedroom "spic and also span"—a phrase he took from the movie *Stalag 57*. This phrase delighted him, I suspect, because the addition of "also" to "spic and span" highlights the phrase's peculiarity: its components are meaningless when separated. Compared to English, Khmer has significantly more words like "spic and span," and, in conducting this research, I hoped to determine why. I set out to investigate how people create *bo'ri'va:r sap* and *why* they do it. I conclude that the methods for the formation of these words are many and that they range from spontaneous creation to intricate and deliberate splicing and dicing. The goal of these processes is an alliterative servant word (or, much less frequently, a rhyming one). I believe that "chiming" compounds are more likely to be spontaneous creations, and alliterative compounds with differing final consonants are more likely to be formed by other means, including *piak kunloah kat*. I also believe that many of these words can be considered ideophones. As Doke puts it, they are "vivid representations"—that is, we can almost *see* the meaning of the word when we hear it.

I found it intriguing that alliterative words in Southeast Asian languages were either described as "more elegant" or "less dignified." The majority of the time, my consultants had either never seen the *bo'ri'va:r sap* in written form because they were only used in "informal language", or had *exclusively* seen them written because they appeared only in poetry or song. Judith Jacob also notes that alliteration in Khmer can be categorized into "poetic" and "plain" speech. Why are the same features seen in one context as elegant and in another as vulgar? This question led me to contemplate my own

experience with rhyme, alliteration and ablaut in English. We are most likely to use these features, I believe, when we are most and least conscious of our language. We are most conscious when we are writing poems, songs, or speeches or are creating slogans or brand names; we are least conscious when we are talking to family, good friends, babies[11], or pets (I call my dog "Maggie Waggie"). If our speech is undignified when we are shooting the breeze, at least it is relatively uncontrived, and perhaps this "honesty" or spontaneity is what we seek to reproduce when we write flowery poems or when we create new *bo'ri'va:r sap*.

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[11] See Miall & Dissanayake (2003) for a discussion of the poetic features of Motherese.

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Appendix A: Index of First Register Chiming Compounds with *Bo'ri'va:r Sap*

ae-→ao, aw

chaep chawp	"flatter, suck up to"
ka:khaek ka:khaok	"rattling sound"
kawkaeng kawkaong	"rude, impolite, pretentious"
kraw'aeng-kraw'aong	"bogus, fraudulent, counterfeit"
naeng nawng	"kind of shackle"
njaek njawk	"sound of a chicken squawking"
pawpac pawpaoc	"talkatively, noisy and repetitious"
pawpraek pawpraok	"continuous crunching sound"
prawhaeng prawhaong	"have holes or rips; to be torn open"
prawtaeng prawtaong	"hang onto a branch of a tree in order to avoid falling"
raukhaek raukhaok	"hanging awkwardly"
raupaek raupaok	"in a disorderly manner"
rautaek rautaok	"sloppy (of clothing)"
rautaeng rautaong	"hanging down close to each other unevenly"
rau'aek rau'aok	"noisily talking"
taek taok	"in a swinging, dangling or hanging manner"
tael taol	"having no support or backing, vagrant"
taeng taong	"precariously"
tawtael tawtaol	"completely without support, completely alone"
tawtaeng tawtaong	"pendulous, hanging precariously"
traet traw:t	"unemployed, workless, idle"

eu → o, aw

cawceuc cawco:c	"gossip, chatter, jabber; incite with gossip"
cawceunj cawconj	"impolite, rugged, unpolished"
cawceuk cawcok	"flatter, be a seeker of favor"
creuc cro:c	"sound of a whistle"
creum crom	"to hesitate"
creunj cronj	"hesitate, be timid"
neh nawh	"this way and that, here and there"
neum nom	"bashfully and awkwardly"
neung nong	"music played on small gongs"
njeh njawh	"tease, gossip"
njaunjeh njaunawh	"in a gossipy or bragging manner"
njeunj njonj	"become apprehensive and fidgety"
pawpleuc pawplo:c	"talkative, garrulous, tricky"
pawpeul pawpo:c	"mischievous, devilish, cunning"
raubeunj raubonj	"devious, sneaky; unruly, nasty"
raudeup raudop	"uneven, rough, bumpy, rugged; in a stammering manner"
raukheuk raukhawk	"loose, not snug"
raukheunj raukhonj	"rugged or rough, not smooth"
raumeuk raumawk	"small, tiny, little"
raumeung raumawng	"bumpy, rugged, rough, uneven"
rauneum raunom	"shy, timid, timorous"

raunjeuc raunjo:c	"gossip excessively; in a gossipy manner"
raungeuk raungawk	"limp, soft and flabby"
raupeh raupawh	"unimportant"
raupeuk raupok	"small, unimportant and varied"
rauteuk rautok	"hesitant; trivial"
rauteup rautop	"uneven, unevenly"
rauveuk rauvawk	"soft and flexible, very soft"
teh tawh	"to do odd jobs, by means of odd jobs"
teuk tok	"sound made by certain objects falling"
teunj tonj	"helter-skelter, aimlessly"

ee → a:

cawcree:h cawcra:h	"helter-skelter"
kawkee:p kawka:p	"feverishly"
kawntree:k kawntra:k	"ragged, tattered"
krawnjee:ng krawna:ng	"angry, cantankerous"
krawvee:m krawva:m	"spotted, marked, dotted"
k'ee:ng k'a:ng	"arrogant, immodest, noisy"
pdee:h pda:h	"careless, lazy, disorderly"
pawpree:v pawpra:v	"continuous sound of chains clanking"
pree:v pra:v	"sound of repeated crunching"
prawhee:t prawha:t	"insipid"
raukhee:k raukha:k	"in ruins, fallen apart"

raunjee:v raunja:v	"sound of a cat crying repeatedly"
rautee:j rauta:j	"very long"
rautee:k rauta:k	"very sloppy"
rautee:v rauta:v	"as a monkey crawls"
tawtee:ng tawta:ng	"ramblingly"
trawdee:p trawda:p	"lamentable, poor"

Some Exceptions[12]:

cawco:c cawca:c	"to gossip"
kaok ka:k	"talk loudly"
kaong ka:ng	"arrogant person"
kdeup kdiap	"bud"
kawmpee:c kawmpo:c	"sparsely (vegetated)"
raulo:ng raula:ng	"sound of bragging or rude talk"
tawto:ng tawta:ng	"make noise; noisily"
tawteh tawtah	"to try hard to attain a goal"
pawpak pawpaeuk	"tremblingly, shakingly"
rautee:t rauto:t	"uneven"
ngaok nga:k	"to yell at, to talk loudly; loudly"

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[12] While these compounds do not follow the predicted patterns, they do not seem to be viewed as out of the ordinary by any of my consultants.

Appendix B: Index of Second Register Chiming *Bo'ri'va:r Sap*

w/u → ea/e:

kauklwk kaukleak	"bumpy, high and low"
kawnthwng kawntheang	"spread apart (of legs)"
kaukrwng kaukreang	"rugged, uneven"
kaukwk kawkeak	"sound of water falling or boiling"
kaumrwng kaumreang	"rugged, uneven"
kraumwng kraumeang	"to strike something out of someone's hands, to sweep off or away"
maumwng maumeang	"half-asleep"
njaunjwm njaunje:m	"to be all smiles"
pauplwk paupleak	"spotted, dappled"
raupuk raupeak	"falling or dropping repeatedly"
tautwng taute:ng	"thwartingly, obstructively"

i: → ia

krauvi:h krauviah	"to swing hands or legs strongly, flail when angry"
rauki:m raukiam	"visible through the skin"
ngaungi:h ngaungiah	"impolitely, rudely"
cawngkri:ng cawngkriang	"deformed"
crawki:ng crawkiang	"unbecoming; bad-mannered"
tauti:m tautiam	"slowly, hesitantly"

tauti:ng tautiang	"to pester; helter-skelter"
paupli:m paupliam	"very flashy; very bravely"
rauli:p rauliap	"scarce, lacking"
rauli:m rauliam	"on the brink of tears"
tautri:p tautriap	"with great difficulty"
rauti:h rautiah	"helter-skelter"
rauvi:t rauviat	"fragile"
rauvi:m rauviam	"scarred; wrigglingly"
rauvi:h rauviah	"in a hurry"
rauji:k raujiak	"ragged, tattered"
tauti:h tautiah	"to walk erratically"

i:/ee: → o: / au:

tautri:m tautrau:m	"weakly"
klee:ng klo:ng	"rocking back and forth"
ngee:k ngo:k	"balancing, rocking, oscillating"
ngee:ng ngo:ng	"confused, dizzy"
ngi:ng ngo:ng	"have vertigo, be dizzy"
raukee:ng rauko:ng	"warped"
kaumhi:k kaumhau:k	"threaten with gestures or sounds"
ngaungi:h ngaungu:h	"stubborn, resisting"
kaukri:h kaukru:h	"stubborn"
tautri:p tautrau:p	"slowly and sneakily"

tautree:t tautro:t	"shaky, unsteady"
kawmpi:k kawmpau:k	"bumpy"
rauji:k raujo:k/raujee:k raujo:k	"balancing, rocking back and forth"
sawmki:m sawmkau:m	"too skinny"
rauli:ng raulo:ng	"tearful"
rauji:k raujo:k	"rocking back and forth"
rauji:ng raujo:ng	"hanging unevenly"
raujee:k raujo:k	"balanced, swinging back and forth"
raujee:ng raujo:ng	"hanging or dangling unevenly"

i: → eu:

crawpi:h crawpeu:h	"crooked"
tauti:m tauteu:m	"stealthily"
pi:m peu:m	"slow and hesitant"
paupi:m paupeu:m	"gropingly"
rauki:m raukeu:m	"in a scuttling or sidling manner"
rauvi:k rauveu:k	"to twitch, squirm"

Some Exceptions

raukwp raukup	"bumpy"
raungeak raungeu:k	"bouncy"
paupleak paupleu:k	"slowly and dazedly"
raungi:k raunge:k	"soft and limp"

raungkiak raungkeu:k   "to shake loose"

kauki:m kaukw:m   "bumpily (as a child crawls)"

Appendix C: The Results of the Khmer Wug Test

Bold font indicates the form supplied by the consultant.

(First Register)

1. kawkee:t **kawka:t**

2. kawkaep **kawkawng**

3. kawkeup **kawkop**

4. kawntree:p **kawntra:p**

5. kngaeng **kngawng**

6. krawnjee:k **krawna:k**

7. krawnaeng **krawnjawng**

8. cawceup **cawcop**

9. cawcaeng **cawcaong**

10. cawcree:k **cawcro:k**

(Second Register)

11. kaukri:c **kaukro:c**

12. kaukrwng **kaukreang**

13. kaukri:p **kaukro:p**

14. caucrop **caucroj**

15. tautrwng **tautreang**

16. rauli:k **raulwk**

17. rauhi:k **rauhiak**

18. raumi:k **raumeu:k**

19. pauphwng **paupheang**