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Daisy Rosenblum & Carrie Meeker, editors

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Foreward

We are pleased to make the proceedings of the 12th annual Workshop on American Indigenous Languages (WAIL) available as the 20th volume of the Santa Barbara Papers in Linguistics. The organizing committee is grateful for the continuing support of the University of California, Santa Barbara as a whole and the faculty, staff and students of the Department of Linguistics. We wish to express our appreciation for the generosity of the American Indian Cultural Resource Center and Judy Zachary, who opened their lovely space to the conference attendees; the American Indian Graduate Students Association, who provided extensive volunteer help; the American Indian Movement of Santa Barbara, who provided lunch to attendees; Matthew Wager, who designed our poster and t-shirt; and to Associated Students and the Graduate Student Assembly, who provided additional financial support. We thank Aaron Fox for his keynote address, and Chumash Elder Julie Tumamait for the conference blessing. We extend special thanks to Marianne Mithun and Wallace Chafe for their guidance, support, and generosity.

We also thank those who come from near and far to attend the conference and share your work. Thank you for expanding our collective understanding of the indigenous languages of the Americas.

Daisy Rosenblum

Carrie Meeker

Co-coordinators

Uldis Balodis

Jalon Begay

Tim Henry

Joye Kiester

Verónica Muñoz Ledo Yáñez

Rebekka Siemens

Neil Alexander Walker

Organizing Committee

Ablaut and reduplication in Dakota: Revisiting the phonology-morphology relationship

Jesse Saba Kirchner
University of California, Santa Cruz

1 Introduction

In this paper I present a solution for two intertwined puzzles in the morphophonology of Dakota.[1] There is an active ablaut process in Dakota; this process is lexically conditioned in ordinary circumstances, but just in reduplicative contexts the process becomes partially phonologically conditioned. Another challenge that arises from consideration of this ablaut puzzle is that epenthetic vowels appear to "inherit" arbitrary lexical characteristics from adjacent morphemes – something that is impossible according to mainstream theories of morphophonology. I propose an analysis which expands the power of the morphophonological component of the grammar by allowing such inheritance. Such an analysis allows the ablaut and reduplication facts to fall out straightforwardly. It also deepens our understanding of ablaut and reduplication in Dakota, two of the most important phonological processes in that language.

2 Data

Dakota morphology includes a rich inventory of prefixes, suffixes and infixes; in this paper it is suffixes which are most relevant. Suffixes are also the largest and best-understood class of affixes. Suffixes can be divided into (at least) two classes on the basis of morphological and phonological evidence. In particular, phonological properties of the class of suffixes which occur closest to the root do not hold for suffixes which occur further from the root, and vice versa. For example, suffixes close to the root exhibit *ik* → *ič* palatalization but no palatalization of *ek*. Those further from the root exhibit palatalization of derived *ek* sequences, but no palatalization of *ik* (Shaw, 1980).

I analyze these classes in terms of stem-level and word-level phonology, in the framework of Lexical Phonology (Pesetsky 1979, Kiparsky 1982, Kiparsky 1985). This follows previous attempts to analyze Dakota in LP (e.g. Kiparsky 1986), but I make some crucially different assumptions about the classification of certain morphemes and the analysis of certain phonological processes. My analysis in this paper follows Saba Kirchner (2007), q.v. for more discussion of the different assumptions. I begin here only by claiming simply that all suffixes must belong to the stem-level or word-level, and that different phonologies may hold at those levels. The phonology at any

level will be analyzed in terms of Optimality Theory (OT; Prince and Smolensky 1993/2004, Kiparsky 1997).

A fundamental distinction divides roots into two classes: consonant-final (C#) and vowel-final (V#) (Boas and Deloria, 1941). This distinction is effaced at the surface by a stem-level epenthesis process that adds *a* to C# roots. However, the status of a root as to its underlying form can be distinguished by several means, e.g. stress. Stems built from V# roots exhibit peninitial stress (the default pattern in Dakota), while stems built from C# roots exhibit aberrant initial stress:[2]

(1) a. V# words exhibit standard peninitial stress:
/ap^{h}a/ → [ap^{h}á] 'to strike' (140)
/t^{h}ąni/ → [t^{h}ąní] 'to be old' (35)
b. C# words exhibit initial stress:
/šųk/ → [šų́ka] 'dog' (32)
/puz/ → [púza] 'to be dry' (32)

See Shaw (1980) for more diagnostics to classify roots, and the various consequences of this distinction in the morphophonology of Dakota.

2.1 Ablaut

An ablaut process changes low vowels *a* or ą to mid front vowels *e*.[3] Ablaut is most often triggered by the addition of a word-level suffix to an *a*/ą-final stem, as shown in the examples below. (The following abbreviations are used for glosses throughout this paper: ADV, adversative; HAB, habitual; INT, intensifier; NEG, negative; OPT, optative; PL, plural; REP, distributive/plural inanimate.)

(2) Ablaut examples:

a. /ap^{h}a + k'eš/
strike OPT
ap^{h}eč'eš 'would that he struck it' (131)

b. /yatką + xča/
drink INT
yatkexča 'indeed, s/he drank it' (129)

c. /sapa + šni/
black NEG
sapešni 'not black' (129)

d. /yuza + šni/
take.hold NEG
yuzešni 's/he didn't catch it' (154)

However, the process is quite restricted. Ablaut can be said to be doubly lexically conditioned, i.e. it occurs only in cases when a suffix from the lexically determined ablaut-triggering class is attached to an stem from the lexically determined ablaut-target class. Neither class can be defined phonologically, as shown by the examples below. In the following chart, suffixes in the first column trigger ablaut, while the (phonologically similar) suffixes in the third column do not:

(3) Unpredictability of ablaut triggerhood: (130 - 134)

Triggers:		*Non-triggers:*	
-k'eš	'OPT'	-k^{h}eš	'but always; whenever'
-šni	'NEG'	-šna	'HAB'
-ʔ	'TERM'	-š	'ADV'

Suffixes which can trigger ablaut may be referred to as triggers, while those that never trigger ablaut may be referred to as non-triggers. The following data illustrate the different behavior of these two classes of suffixes:

(4) Only affixes from the trigger class induce ablaut:[4]

Triggers:			*Non-triggers:*			
/ap^{h}a + k'eš/	→	ap^{h}eč'eš	/ap^{h}a + k^{h}eš/	→	ap^{h}ak^{h}eš	*ap^{h}eč^{h}eš
/sapa + šni/	→	sapešni	/sapa + šna/	→	sapašna	*sapešna

Although not all suffixes trigger ablaut, it is only suffixes which can trigger ablaut. Roots, prefixes and infixes never trigger ablaut.

Similarly, the ability of a particular root to undergo ablaut or not when an appropriate trigger is present is idiosyncratic. The roots in the first column in (5) can undergo ablaut, while those in the third column never can:

(5) Unpredictability of ablaut targetability: (145 - 149)

Targets:		*Non-targets:*	
ap^{h}a	'to strike'	paza	'to part, separate'
sma	'to be deep'	ska	'white, clear'
yatką	'to drink'	yut^{h}ą	'to touch, feel'
kağa	'to make'	čağa	'to freeze'
yahota	'to choke'	ayuta	'to look at'

The susceptibility to ablaut of these two classes (targets and non-targets) is shown by the following data:

(6) Only affixes from the target class allow ablaut:

Targets:		*Non-targets:*		
/yatką + k'eš/	→ yatkeč'eš	/yut^{h}ą + k'eš/	→ yut^{h}ąk'eš	*yut^{h}eč'eš
/kağa + k'eš/	→ kağeč'eš	/čağa + k'eš/	→ čağak'eš	*čağeč'eš

Shaw (1980) offers convincing evidence that triggerhood and targethood are completely unpredictable properties (at least within the synchronic grammar of Dakota). There is no phonological generalization that allows morphemes to be predictably assigned to one class or another. There is also no correspondence between ablaut behavior of roots and the status of roots as underlyingly C# or V#. It is not surprising that V# roots would behave idiosyncratically, but it is more interesting that the behavior of C# roots is also unpredictable. In the case of these words, it is the final epenthetic vowel which does or does not undergo ablaut. And not all of these

epenthetic vowels behave the same, as shown in the following data:

(7) C# roots exhibit arbitrary ablaut classification:

	Root	*Underlying*	*Surface*	*Gloss*	
Allow:	$\sqrt{\text{sap}}$	/sapa + šni/	[sapešni]	'it is not black'	(129)
	$\sqrt{\text{škat}}$	/wo + škata + g/	[woškateg]	'the game'	(308)
Reject:	$\sqrt{\text{t}^{\text{h}}\text{ąk}}$	/t$^{\text{h}}$ąka + šni/	[t$^{\text{h}}$ąkašni]	'it is not large'	(121)
	$\sqrt{\text{čax}}$	/čağa + s'e/	[čağas'e]	'as if frozen'	(153)

Note that this gives further evidence that the conditioning for ablaut is lexical and not phonological. If the conditioning were phonological, and if all epenthetic vowels are phonologically and phonetically equivalent (something that appears to be true in Dakota), then all epenthetic vowels should behave the same way with regard to ablaut.

2.2 Reduplication

There is one reduplicative affix in Dakota with several functions. It may mark distributive aspect on a verb, or agreement with a plural inanimate subject. Following Saba Kirchner (2007) (and contra Kiparsky 1986), I claim that the reduplicative suffix belongs to the word level. Reduplication typically occurs with verbs and deverbal nouns. Some examples are shown in (8) (underlining indicates the position of the reduplicant):

(8) Typical examples of reduplication:

	Root	*Stem*	*Reduplicated*	*Base gloss*	
a. V#:	$\sqrt{\text{ųspe}}$	ųspe	ųspespe	'to be good'	(329)
	$\sqrt{\text{yamni}}$	yamni	yamnimni	'three'	(329)
b. C#:	$\sqrt{\text{zuk}}$	zuka	zukzuka	'to hang in mucous strings'	(331)
	$\sqrt{\text{ptus}}$	ptuza	ptuptuza	'bent over'	(332)

As we can see in these data, the behavior of the reduplicative affix depends on the shape of the stem to which it is added. Specifically, reduplicative patterns differ for V# and C# roots. When added to a V# words, reduplication copies the final syllable of the base form, and is suffixed to the root, e.g. /ųspe/ → [ųspespe]. With C# words, reduplication acts as if the epenthetic final vowel were not present and copies the final (C)CVC of the root. This copy is infixed within the stem, occurring between the root and the epenthetic vowel, e.g. /zuka/ → [zukzuka].[5]

The claim that reduplication is infixing in some cases and suffixing in others is not self-evidently true. In particular, in a LP framework, a much simpler alternative appears to be available: treat the reduplicant as a stem-level process. Then the reduplicant can always suffix directly to the stem. Exactly such a proposal is made

Kiparsky (1986), and a similar suggestion is made in Shaw (1980). However, this analysis cannot be correct.

As shown in Albright (2004), reduplication creates codas, which are allowed at the word level but actively avoided at the stem level. Epenthesis occurs only in order to relieve codas, which are disallowed at the stem level but allowed at the word level (as seen from the fact that many consonant-final word-level suffixes surface with no epenthesis). Therefore if reduplication occurred before or at the same level as epenthesis, the codas created by reduplication should be repaired by epenthesis as well.

Furthermore, the reduplicant can occur outside word-level suffixes, e.g. the negative morpheme *šni*:

(9) /kağı + šni + RED/
hinder NEG distributive
kağišnišni 'not hindered' (325)

Thus reduplication cannot belong to an earlier level than the word level. (More arguments concerning this claim are given in Saba Kirchner 2007.)

2.3 Interaction of ablaut and reduplication

Ablaut is typically lexically controlled, that is, it occurs only in the presence of a particular class of morphemes. But when reduplicated words are considered for their ability to undergo ablaut, the story changes, and ablaut becomes partially phonologically predictable. V# reduplicated words never undergo ablaut, even if the root belongs to the ablaut target class, and an ablaut trigger is present. For example, the roots *ap^{h}a* 'to strike' and *hąska* 'to be tall' normally allow ablaut, but reject ablaut when reduplicated:

(10) V# ablaut target roots do not allow ablaut when reduplicated:

Word level UR		*Surface form*		
/ap^{h}a + RED + šni/	→	[ap^{h}ap^{h}a̲šni]	*cf.* ap^{h}e̲šni	(351)
/hąska + RED + ʔ/	→	[hąskaska̲ʔ]	*cf.* hąske̲šni	(351)

By contrast, C# roots retain lexical control over ablaut. Thus the ablaut behavior of words based on these roots remains idiosyncratic, and the presence of reduplication does not affect the possibility of ablaut occurring for a given root:

(11) C# roots retain lexical control of ablaut targethood:

	Word level UR		*Surface form*
Root is target:	/$\sqrt{\text{sap}}$a + RED + šni/	→	[sapsape̲šni]
			cf. sape̲šni
Root is non-target:	/$\sqrt{\text{čağ}}$a + RED + šni/	→	[čaxčağa̲šni]
			cf. čağa̲šni

We are left with two puzzles to solve. First, why is ablaut lexically controlled in some cases and phonologically controlled in others? We need an analysis of the processes of ablaut and reduplication that will allow us to explain the behavior they exhibit separately and when they co-occur, as summarized in the following table:

(12) Ablaut and reduplication:

Root type	*e.g.*	*Ablaut:*	*in simple forms*	*with reduplication*
V# – target:	ap^{h}a		✔	*
– non-target:	paza		*	*
C# – target:	kağa		✔	✔
– non-target:	čağa		*	*

We also have the puzzle of epenthetic vowels that seem to "inherit" idiosyncratic lexical information from adjacent morphemes. We must explain why and how the susceptibility to ablaut of a given root is transferred to the epenthetic vowels which follow them, even sometimes following at at distance (in cases of reduplication).

3 Analysis

As mentioned previously, I claim that epenthesis is a stem level process. Ablaut and reduplication occur at the word level.[6]

3.1 Ablaut

A key insight of Optimality Theory is that phonology should change underlying structures only when under pressure to avoid particular marked structures. When we encounter a phenomenon like Dakota ablaut, we therefore consider whether the process serves to preserve underlying structure, or whether it serves the interests of avoiding a marked structure. In this case the process actually yields a more marked structure than we appear to have begun with – we have exchanged a (less-marked) low vowel for a (more-marked) mid vowel.

Such a situation might appear paradoxical. We can resolve it by treating ablaut as a faithfulness effect rather than a markedness effect. (Though cf. Klein (2000) for a view that attributes lexically-conditioned ablaut in Chamorro to markedness rather than faithfulness.) More specifically, we can analyze trigger suffixes as morphemes whose underlying phonological representation includes an unassociated [-back] feature. The phonology will realize this unassociated or "floating" [-back] by changing a stem-final (low) back vowel into a (mid) front vowel when such a vowel is available; otherwise the feature will be unable to be realized.

It may be objected that this analysis is arbitrary, but in fact it is no more arbitrary than the behavior of the language itself. The fact that the class of triggers and the class of non-triggers cannot be phonologically established means that no

general phonological analysis that avoids lexical stipulation will be possible. This analysis does make use of general phonological devices as far as possible, such as the [-back] feature and the use of general constraints to motivate its behavior. The only stipulation that occurs is the assignment of [-back] to an arbitrary group of suffixes. But this stipulation is therefore taking place in the lexicon: exactly the place where idiosyncratic arbitrary stipulation should occur.

Having analyzed ablaut as essentially a resolution of competing faithfulness claims (changing the quality of a segment to prevent an underlying floating feature from disappearing entirely), we must consider which faithfulness constraints are at play in these cases. The most important constraint that loses out is IDENT[back]:

(13) IDENT[back]: The specification of a segment for [+back] or [-back] is identical in the input and output.

The most important winning constraint is *FLOAT:

(14) *FLOAT: No floating features. (cf. Wolf 2006)

Of course many more constraints must be invoked to ensure the proper outcomes here: we need to prevent the floating feature from docking in the suffix or anywhere in the stem except on the final segment; to prevent non-low back vowels from undergoing ablaut; to foreclose Richness of the Base-inspired problems from other floating features causing rampant unattested ablaut-like effects on stem-final vowels; etc. In Saba Kirchner (2007) I lay out the constraints and rankings required to obtain the attested results; here I will simplify matters by only considering IDENT[back] and *FLOAT, which stand in for a block of "losing" and "winning" constraints respectively. (See also Wolf (2006) on the theory and practice of floating features more generally.)

Our basic ranking fact is that *FLOAT must dominate IDENT[back], causing a floating feature to dock on the stem-final low vowel and change its quality. The following tableau shows the core of our analysis of ablaut in Dakota:

(15) Ablaut occurs when an appropriate suffix is present: *ap^{h}e̲šni* 'does not strike' (underlined segment is linked to underlying floating [-back])

ap^{h}a + šni [-back]	*FLOAT	IDENT[back]
a. ap^{h}ašni [-back]	*!	
☞ b. ap^{h}e̲šni		*

This analysis (when fleshed out) will account for non-reduplicative cases where ablaut does occur. But what are we to make of the cases where a trigger suffix meets a non-target stem and ablaut fails to occur? Just as with the analysis of triggers, the distinction between targets and non-targets is completely arbitrary. One of these classes should be defined by some common characteristic in the underlying form of

the morphemes that belong to it.

Since ablaut will occur whenever the right environment is present according to the constraint ranking established above, what we need to define is the class of morphemes which do not allow ablaut. Using similar logic to that which we used in the case of triggers, we can analyze these non-targets as morphemes that bear a particular underlying feature. Unlike in the case of the triggers, however, non-targets are best analyzed as having a morphological feature rather than a phonological one. As a mnemonic we can call this feature [-ABL]. (Note that this does not imply the existence of a feature [+ABL]. [-ABL] is a privative feature, and in its absence ablaut will occur whenever the conditioning environment is present.)

Through an indexed constraint IDENT[back]$_{[-ABL]}$, the phonology is able to make use of this diacritic. This constraint must be ranked as shown in (16). (This is similar to proposals for analyzing lexical strata, e.g. Fukazawa *et al.* 1998, Ito and Mester 1999.)

(16) IDENT[back]$_{[-ABL]}$ ≫ *FLOAT ≫ IDENT[back]

This ranking yields the attested forms for ablaut-rejecting V# roots:

(17) Ablaut is blocked when root is lexically specified [-ABL]:
pazašni 'does not part'

paza$_{[-ABL]}$ + šni [-back]	ID[back]$_{[-ABL]}$	*FLOAT	ID[back]
☞ a. pazašni [-back]		*	
b. pazešni	*!		*

A suppletive analysis has been proposed for similar cases of allomorphy, both from the morphosyntactic side (Perlmutter 1988) and the morphophonological (Mester 1994; Mascaró 2007). We might try extending such an analysis to Dakota, to avoid having to make use of morphological diacritics and constraints indexed to them. But the Dakota ablaut process cannot be analyzed as suppletion, for several reasons.

On a suppletive analysis, ablauting roots have two distinct underlying forms. But recall that C# words do not behave predictably under ablaut; their epenthetic final vowel arbitrarily may or may not allow ablaut. C# roots would therefore require three suppletive forms: an *a*-final form for most contexts, an *e*-final form for ablaut contexts, and a consonant-final form for some other contexts like compounding, where no epenthetic vowel is present. This analysis would fail to capture many of the generalizations related to epenthesis in Dakota, and it would trade the stipulation of a morphological diacritic for a huge increase in the number of root forms that speakers must learn. (Additional arguments against a suppletive analysis are presented in Saba Kirchner 2007.)

3.1.1 Morphological affiliation and C# ablaut targets

We are now equipped to consider a basic puzzle that confronts us in these data. It is often assumed that affiliation of phonological material to morphemes is invariable. This is made explicit in OT under the name Consistency of Exponence (CoE; Prince and Smolensky 1993/2004):

(18) Consistency of Exponence: No changes in the exponence of a phonologically-specified morpheme are permitted.

A corollary to CoE is that epenthetic segments have no morphological affiliation. But this assumption leads directly to incorrect predictions about C# roots. These words surface with a final vowel which does not belong to the root. With no morphological affiliation, these vowels should always behave in the same way, and either all allow ablaut or all reject ablaut.

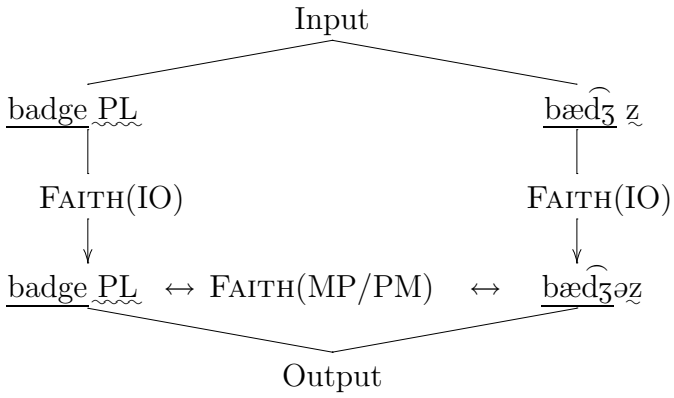
But in fact C# roots determine whether the following epenthetic vowels will allow ablaut or not: e.g. $\sqrt{kağ}a$ 'to make' is a target, while $\sqrt{čağ}a$ 'to freeze' is a non-target.

To explain the facts in Dakota, it is necessary to reject CoE. I propose an analysis of Dakota in which morphological affiliation of phonological material is susceptible to manipulation by the phonology (by GEN, in OT terms).

This work joins other analyses which have questioned or rejected CoE, including Walker and Feng (2004), Łubowicz (2005) and McCarthy and Wolf (2007). These authors challenge CoE for different reasons and consequently develop different alternative models. For concreteness, I here follow the "ternary model" of Walker and Feng (2004). The basic tenets of this model can be summarized as follows: Morphemes and phonological structures exist as discrete entities in both input and output. They are affiliated with one another at each level by correspondence, similar to input-output correspondence relations. The input-output (IO) and morphology-phonology (MP) relations are formalized as in standard OT, and governed by the same kind of constraints (although some particular constraints may only exist for one relation and not the other).

The model is exemplified by diagram (19), showing the derivation of the English word *badges*. Note the following typographic conventions, which I will continue to use below: Root, Affix, *unaffiliated segments*. These conventions are used simply as a convenience and they are not a formal part of the representation.

(19) Correspondence in the morphophonology of *badges*:



It is morphemes, not phonological structures, which bear features like [-ABL].[7] In order for the phonology to determine whether a particular segment is affiliated with a morphological feature, MP correspondence relations are examined to see if the segment in question corresponds to a morpheme with the appropriate feature.

Walker and Feng (2004) propose a constraint which can compel morphological incorporation of unaffiliated segments, MAX-PM:

(20) MAX-PM: Every phonological element in the output is indexed with some morpheme in the output.

When this constraint is ranked high enough to be active, it will favor the affiliation of epenthetic segments with some morpheme. In Dakota, it motivates the affiliation of epenthetic stem-final vowels to the roots that they sit adjacent to. Those roots are the bearers of the [-ABL] feature, so when the epenthetic vowel affiliates to them, it will share their behavior: allowing ablaut if no feature is present, but blocking ablaut if the root is specified as [-ABL].

The attested patterns emerge from the ranking in {MAX-PM, *CODA} ≫ DEP, as shown in (21):

(21) Root affiliation spreads to epenthetic material at stem level: *čağa* 'to freeze'

M: freeze$_{[-ABL]}$ P: čax	MAX -PM	*CODA	DEP
☞ a. čağa			*
b. čağa	*!		*
c. čax		*!	

3.2 Interaction of ablaut and reduplication

We turn then to the remaining puzzle about Dakota ablaut. V# words never allow ablaut when reduplicated, while C# words retain lexical control over whether or not ablaut occurs. To explain the behavior of V# words, we can rely on the insight of McCarthy and Prince (1995). They noted that in the case of these words, the reduplicant itself is the morpheme adjacent to an ablaut-triggering suffix. To account for the non-target nature of these stems, it is only necessary to assume that the reduplicant itself has a [-ABL] feature. This is not unreasonable, since all suffixes (or at least all of those which can satisfy the phonological preconditions for ablaut to occur) must be assigned to the target or non-target class, just like roots. The behavior of reduplicated V# roots is straightforward from that point. The failure of ablaut in these words is not due to underapplication: it is due to the ordinary interaction of ablaut triggers and ablaut non-targets.

The underlying form of the reduplicative morpheme is / $\begin{matrix}\text{M: } \underline{\text{REP}_{[-ABL]}} \\ \text{P: } \underline{\text{RED}}\end{matrix}$ /. The morphological form REP simply points to this particular lexical item. This is distinct from the phonological form, RED, whose output form will be made concrete through the interaction of FAITH-BR constraints (McCarthy and Prince (1995), Spaelti (1999), etc.; though see Raimy and Idsardi (1997), Inkelas and Zoll (2005), and Saba Kirchner (forthcoming) for various theories of reduplication in OT without RED or FAITH-BR.) The constraint rankings we have already motivated will yield the attested outcome, as shown in (22).

(22) Ablaut does not occur with reduplicated V# words:
ap^{h}ap^{h}ašni 'they do not strike'

M: strike REP$_{[-ABL]}$ NEG P: ap^{h}a RED šni [-back]	ID[bk] $_{[-ABL]}$	MAX -PM	*FLOAT	ID [bk]
☞ a. ap^{h}ap^{h}ašni [-back]			*	
b. ap^{h}ap^{h}ešni	*!			*
c. ap^{h}ap^{h}ašni [-back]		*!	*	
d. ap^{h}ap^{h}ešni		*!		*

The final problem is the C# roots, which retain lexical control even in reduplicative environments. Recall that in these words, reduplicants infix in order to be adjacent to footed material. This sets up quite a different situation from that of the V# words, where the reduplicant sits next to the trigger. In these cases the segment adjacent to the trigger is the epenthetic vowel which became morphologically affiliated with the root at the stem level.

We must consider whether that morphological affiliation is now in jeopardy, because the final vowel has become phonologically non-adjacent to the remainder of the

morpheme. This creates a situation like that shown in the following representation, for the word *čaxčağašni*:

(23) /čağa + RED + šni/ → čaxčağašni

Such a structure is marked in that it includes a discontiguous morpheme. This violates a constraint called MorphemeLocality (Łubowicz (2005), q.v. for a formal definition):

(24) Morpheme Locality (M-Loc): No discontiguous morphemes.

Along with this constraint are others which exert contradictory forces, such as the previously-introduced Max-PM. If Max-PM dominates M-Loc, then the stem-final vowel will retain its affiliation, despite being separated from the rest of its morpheme. (Of course more constraints must also be invoked to give a comprehensive account of this interaction.)

Therefore the presence or absence of [-ABL] in the specification of the root will control ablaut behavior for these forms, just as in the simple forms. Thus we derive the attested behavior for C# reduplicative forms:

(25) C# targets allow ablaut in reduplicated words:
sapsapešni 'they are not black'

M: black REP NEG [−ABL] P: sapa RED šni [-back]	Id[bk] [−ABL]	Max -PM	*Flt	Id [bk]	M- Loc
a. sapsapašni [-back]			*!		*
☞ b. sapsapešni				*	*
c. sapsapešni		*!		*	

(26) C# non-targets reject ablaut in reduplicated words:
čaxčağašni 'they do not freeze'

M: freeze REP NEG [−ABL] [−ABL] P: čağa RED šni [-back]	Id[bk] [−ABL]	Max -PM	*Flt	Id [bk]	M- Loc
☞ a. čaxčağašni [-back]			*		
b. čaxčağešni	*!			*	
c. čaxčağešni		*!		*	*

4 Conclusion

In this paper I offered a solution to two puzzles in the morphophonology of Dakota, namely the apparent inheritance of morphological information by epenthetic segments, and the fact that a lexically-conditioned phonological process becomes phonologically conditioned in certain circumstances. The core insights were formalized in an analysis which dovetails with our understanding of other aspects of Dakota morphophonology, such as the C#/V# distinction.

The major theoretical significance of this analysis is that it calls for the abandonment of Consistency of Exponence, joining other work which has raised the same slogan. This analysis is therefore one in which the phonological component of the grammar has much more power than in standard theories. In this analysis phonology not only can see morphemes, but also can manipulate the relationship between phonological and morphological structures.

This analysis also deepens our understanding of Dakota morphophonology. Ablaut and reduplication are active and very important processes which intersect with many other aspects of Dakota phonology. An analysis of ablaut and reduplication therefore has significant implications for any analysis of those processes. Those implications remain to be investigated.

Notes

[1] Many thanks are due to linguists at UC Santa Cruz who helped me improve this work, including Armin Mester, Junko Ito and Jaye Padgett. All errors in this work are the responsibility of the author.

[2] Generalizations in this section about Dakota grammar are due to Shaw (1980) except where otherwise noted. All data citations correspond to Shaw (1980).

[3] In some dialects, a few suffixes trigger ablaut from low vowels to *i̱*. In a subset of these dialects, two suffixes trigger ablaut from *a* to *i*. I do not analyze these cases in this paper, but the analysis presented here should be extensible to these cases as well.

[4] Forms in the non-trigger column of (4) and all forms in (6) and (11) are constructed based on the data and analysis of Shaw (1980).

[5] Two further sub-patterns occur in the reduplication of C# words, involving the location of primary stress. See discussion in Boas and Deloria (1941), Shaw (1980), and Saba Kirchner (2007). This alternation is orthogonal to the reduplicative properties of interest here.

[6] There are also two constructions in which ablaut appears to occur at the stem level. They are outside the scope of our interests here, since reduplication never occurs at the stem level and I am not aware of any data bearing on the interaction between reduplication and stem-level ablaut. See Saba Kirchner (2007) for discussion of these facts, and further argumentation for the level assignments of particular phonology and morphology.

[7] The usefulness of this model is not limited to morphological diacritics. It also offers a principled manner to inform the phonology of morphological information such as whether a morpheme belongs to a particular lexical stratum, and whether it is a root, stem or suffix. See Walker and Feng (2004) and subsequent work for more on the advantages and uses of this model.

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Orthography and Ideology: Examining the Development of Kaw Writing

Justin T. McBride
Kaw Nation and Oklahoma State University

Introduction

This paper is concerned with how a group of language planners has gone about developing a writing system for a hitherto unwritten language, and also how this activity in general serves to codify and promote a particular linguistic ideology whose development parallels that of the orthography. The language is Kaw, also known as Kanza or Kansa, a Dhegiha Siouan language presently of Oklahoma. I begin with a discussion of language ideology and orthography development, followed by a section conceptually linking the two. Thus oriented, I offer a look at the process of devising a practical Kaw orthography. I conclude with a brief statement regarding some of the hidden ideological features of language planning.

It is perhaps fitting that defining language ideology can be difficult. It enjoys multiple definitions and applications in disciplines broadly ranging from linguistics and anthropology to sociology and political science. Many definitions compete with one another, resulting in a concept best defined by its use. That is to say, application of a linguistic ideology theory is necessarily ideological in nature. This self-referential quality of the concept has been present from the very start, as can be seen in early works by Foucault, regarded as a forebear of the movement's modern adherents: "Discourse is not simply that which translates struggles or systems of domination, but *is* the thing for which and by which there is struggle, discourse is the power to be seized [emphasis mine]" (Lippi-Green, 2004: 293). In other words, Foucault is describing a power ideology that is not only expressed in language, but one that is best described as language. The ideological range of use of the term can be seen in its many definitions. Lippi-Green (2004) and Thompson (1984), agree with Foucault, relating the term directly to power relations and social asymmetry as expressed through language. Kroskrity (2000: 5) offers a statement of comparative social neutrality, defining the concept as "speakers' ideas about language and discourse and…how these articulate with various social phenomena." Wolfram and Schilling-Estes (2006: 398) place it more in the realm of the individual's unconscious identity by defining it as "ingrained, unquestioned beliefs about the way the world is, the way it should be, and the way it has to be with respect to language." For additional definitions and applications of language ideology, see Schieffelin, Woolard, & Kroskrity (1998) and Kroskrity (2000).

In this work, I will use a more general definition of the term, based on Silverstein (1979: 193): A language ideology is a set (consistent or otherwise) of beliefs (conscious or otherwise) about the nature and practice of language, particularly in social contexts. This conceptualization is intentionally vague on the topics of (a) identification of the origin and seat of ideology—be it originating in the individual and visible in the group only by shared happenstance, or emanating from the group and only adopted by the individual by default through membership in the group, or some other mechanism entirely—(b) the relationships between the ideology, those who hold it, the language, and

those who use it—that is, this definition is general enough to encompass, say, English speaker's beliefs about Spanish speaker's use of Spanish in the US—and (c) competing ideologies at all levels of analysis—the definition allows for multiple ideologies at play even at the level of the individual.

Orthography as Ideology

Orthography is far more ideologically loaded than it first appears. It can be, for instance, a key factor in distinguishing one speech community from another. A good example of this can be seen in Urdu, the national language of Pakistan, and Hindi, one of several official languages of Pakistan's historic rival India. Katzner (1995: 179) says of Urdu and Hindi that, "the most important difference between them [is] that the former is written in the Perso-Arabic script, while the latter is written in the Sanskrit characters." Here writing is used to separate two mutually intelligible languages—or rather, alongside religion and politics, it serves as yet another way to separate the two speech communities. Nevertheless, Kachru (1987: 471) explains that the two communities share a common variety known as Hindustani. Owing largely to its tradition as an *unwritten* vernacular of the people, Hindustani was "adopted by Mahatma Gandhi and the Indian National Congress as a symbol of national identity during the struggle for freedom." In other words, the Perso-Arabic script has come to represent Pakistani nationality, particularly in contrast to Indian nationality. The Devanagari script of Hindi presently performs the same nationalist role for India. Yet the script-less speech of Hindustani once served to unify the two communities against British occupation in the pre-Partition period. Katzner speaks similarly of Croatian versus Serbian, Romanian versus Moldovan (both pairs distinguished primarily by the use of the roman and Cyrillic scripts, respectively), and Indonesian (Dutch-based roman script) versus Malay (English-based). In North America, Hinton (1994, 2001) says much the same of Hualapai and Havasupai. While different languages, they bear enough structural similarity to be written with the same orthography. Still, each has its own alphabet. Moreover, Schieffelin and Doucet (1994) describe how writing disambiguates French from Haiti's French Creoles varieties.

Writing also has the power to bring disparate speech communities together. What is commonly regarded as Chinese is in fact a complex of "several related but mutually unintelligible 'dialects' that share a common writing system" (Huebner and Uyechi, 2004). Li and Thompson (1987: 813) employ this commonality of writing as a major component in their justification for thinking of Chinese as a single language with a number of unintelligible dialects: "China has always had a uniform written language … This tends to reinforce the idea of 'dialects' as opposed to written languages."

In the case of previously unwritten languages, the most fundamental ideological arguments regarding orthography may be initial attempts to answer the question of whether or not these languages should be written at all. For many this is by no means a foregone conclusion. Both Leap (1981) and Watahomigie and McCarty (1994), for instance, describe Native American communities, or rather members from those communities, rejecting the notion of writing on the grounds that their languages were historically oral, and should remain thus. Other communities may base their rejection on religious grounds. Leap (1991: 30), for example, describes a Ute community with a

strong belief that their language was gifted to them by their Creator. As such, "if the language were meant to be written, written language would already have been provided to the Tribe." Hinton (2001), too, offers a pro vs. con approach to this question, and offers practical and convincing arguments to support either ideological claim.

Today these sorts of debates must, of course, presume the existence of writing at least as a concept. That is to say, very few communities nowadays are utterly unaware of the practice of writing and its uses, a position that separates somewhat the present age from much of human history in terms of the global saturation of this particular language medium. Most people, regardless of speech community affiliation, have seen in their lives what practical roles writing serves for other speech communities, and as such, would not have to develop writing as a concept from the ground-up. Thus, for some, the question of whether or not a language should be written is purely a matter of practicality and social need. Silver and Miller (1997: 118) express this notion by correlating the presence of writing within societies with "a need for the storing and transfer of information on a scale that cannot be handled by oral means." If this is true, then in the case of Native American communities, writing can be equated with either excessive social stratification for which the oral tradition can no longer suffice for proper information storage and transfer, as in the case of the pre-Columbian Maya and Aztec cultures, or the partial or complete breakdown—due to colonization, forced migration, policies of cultural eradication or assimilation, or what have you—of either the social order of the society or the oral tradition itself, as in the case of most other tribal communities that have instituted writing systems. In either case, it is easy to see how ideologies can emerge within the discourse of the affected communities.

Assuming a speech community—a term rarely applied to monolithic groups—can come to terms with the need for writing, additional ideological arguments may involve the questions of who will use the writing system (i.e., who is the orthography for), and how will it be used. In a monolingual speech community, older speakers may not need to use writing on a daily basis, having survived perfectly well without it. Furthermore, for a historically unwritten language, there is no textual corpus to read or teach from. Younger speakers may have to start from scratch to develop writing styles, standardized spellings if so desired, etc. Thus, for young and old speakers alike it is ideology that may be the most important factor governing their embrace of orthography.

As for how the writing will be used, this sort of question must necessarily be brought out of the hypothetical realm and into the reality of today's world. Unwritten languages today frequently fight for animal survival against the ever-present influences of some of the world's major languages. In many cases, these powerful tongues are spoken not only by the descendants of historic colonial powers, but even members of the same groups that claim heritage to the unwritten languages in question. This is especially true of Native American languages in the US, whose monolinguals are all but gone, whose aging bilingual speech communities shrink daily, and whose greater tribal membership is becoming overwhelmingly Anglophonic. Thus, in competing within the same linguistic marketplace as English, a Native American language set to writing today must accomplish two goals. Firstly, it must accomplish all that can be accomplished by English. In other words, the orthography can be used to write texts that will be read by

anyone today just as easily as it is used to write texts that will be read many years from now. All the while, the written Native language must invoke the same sense of modern relevance as English does. Second of all, it must accomplish for the speech community all that *cannot* be accomplished by English. It must index elements of the cultural context that are missed by the mainstream, and serve the daily communicative needs of a community that is by definition and practice not part of the English-speaking majority. This is a tall order for any language—that is, any speech community—let alone a language that is already faced with near certain extinction. Jaffe (1991: 819) sums up this paradoxical ideological position in her discussion of the Corsican speech community within France: "We can readily see this form of resistance, which defines and values Corsican as everything that French is not, as well as the opposing logic … which seeks to prove that Corsican is everything that French *is* [emphasis hers]."

The selection or design of the orthography offers a further set of complicated ideological hurdles. How exactly should the system represent the language? Should spellings be standardized? How should it look on the printed page? How should it work in a practical setting? Language planners within the community must come to terms with each of these questions, either directly or indirectly. Some planners have attempted to answer these questions once and for all, regardless of the speech community. Baker (1997: 93-95) summarizes and then sternly critiques a 1953 UNESCO report's heavily ideology-laden proposed strategy for globally standardizing this phase of orthographic development. The report recommends a strong correlation between spelling and pronunciation, phonemic agreement, typographic simplicity, pronouncements against diacritics and the potential overuse of "new characters," and pronouncements for digraphs and congruence with the prevailing languages of the nation-state. Baker portrays these principles as arbitrary, and overly favorable of colonially important languages, perhaps even with established literacy traditions. Hébert and Lindley (1985: 188), after Bauman, offer a similar recommendation for evaluating orthographies based on their "simplicity, economy, relationship of grapheme to phonetic, phonemic, or morphological language level, word length, redundancy, and internal consistency." However, even here, design feature concepts are open to ideological debate and influence. For instance, what constitutes simplicity? Is an alphabetic system more or less simple than a syllabic or logographic system?

Finally, once these major ideological hurdles have been satisfactorily overcome, the real work begins: The writing system must be implemented. This, too, is an ideological exercise. How should it be taught? Who is to learn first? When is it not appropriate to use the writing system? Many of these sorts of questions may be answered indirectly by the speech community without much participation from active language planners. But they are nevertheless answered, and they are all ideological in nature. In the end, one may see the after-effects of these orthographic and ideological debates coalesce in the form of a shared group social identity among users of the writing system within the speech community. That is not to say that all orthography users will share the very same ideological positions, but that the ideology that has informed the orthography they use has also informed their *identities*, perhaps in the ways described above. In short, orthography and ideology affect social identity.

Case Study: A Practical Kaw Orthography

Background

Ideological consideration of Kaw begins with how the language is referenced. Scholars generally use the term 'Kansa,' pronounced as [ˈkʰænzə]. The tribe has an officially stated preference for 'Kanza,' pronounced as [ˈkʰanzə], as the English translation of the words *Kaáⁿze Íe* and *Kaáⁿze Níkashiⁿga*, 'Kanza language' and 'Kanza people,' respectively, but tribal members overwhelmingly use 'Kaw,' [kʰa:], to refer to both the language and the people. Because this latter practice is so widespread, I will use 'Kaw' in this work.

Kaw is a member of the Dhegiha branch of the Mississippi Valley Siouan languages, most closely related to Quapaw, Omaha-Ponca, and especially Osage, with which it is mutually intelligible. Reliable size estimates for the tribe vary depending on the era, but it was once spoken by as perhaps 5,000 or more individuals divided among several semi-nomadic bands in a Kaw homeland consisting of what is now central Missouri and southern Iowa, and later in a few semi-permanent villages scattered along the waterways of central Kansas, from Kansas City westward up to and slightly beyond the eastern border of Colorado in what was once their hunting territory. This territory shrank considerably until the 1870s, when the tribe was forcibly removed from Kansas to a small reservation in what is now north central Oklahoma (Unrau, 1971: 108). By the time of statehood in 1907, there were only about 200 Kaws, probably less than half of which were traditionalist full-bloods and speakers of the language. No fluent speakers were left by the mid-1980s, and the last full-blood Kaw died in early 2000.

What is known of the language comes primarily from two surveys conducted nearly a century apart. The first is that of BAE ethnographer James Owen Dorsey, working with the tribe a few years after their removal to Indian Territory. The second is that of Robert L. Rankin, working with three of the last fluent speakers of the language in the 1970s. Rankin collected nearly 60 hours of salvage interviews from this fieldwork, and has compiled extensive field notes, a brief grammar sketch, a 4,500-word lexicon, and numerous papers using Kaw data. It is from this body of work that the tribe has based its subsequent language revitalization efforts, with Rankin as consultant. The tribe currently maintains a two-person Language Department—including anthropological linguist Linda A. Cumberland as Project Coordinator and me as Director. We teach Kaw within the local community and via the Internet as a distance-learning enterprise.

It is important to note here that Kaw has no speech community. With fluency unattested for at least a quarter century, even partial speaking proficiency has long since shifted away, leaving the tribe 100% Anglophonic. All those who can now speak Kaw do so at beginner or advanced beginner levels of proficiency, and are either students or teachers involved with the tribal language revitalization efforts. Furthermore, the three professionals working on the language are all non-Kaw, and only one is of Native American heritage. This leaves the lion's share of the responsibility for the preservation of the language—and the ensuing orthographic selection, development, and implementation of interest here—in the hands of those who are affiliated with the tribe only by way of professional agreements to revitalize the language.

A brief history of Kaw writing

The earliest attested examples of written Kaw language are proper names and small vocabularies, all collected by non-Kaws and mostly written in the folk writing methods still employed by, say, English speakers attempting to sound out non-Anglophonic speech visually. These folk methods are of course personally conditioned, and are utterly inconsistent, often even within the same word. An example of this can be found in the 1902 Kaw Allotment Roll where the five-syllable Kaw name *Zá^{n}je Omá^{n}yi^{n}*, 'Walks in a Highland Forest,' is expressed as *So-Jun-Wah* by the agent compiling the list (Office of Indian Affairs, 1904).

The first serious attempt to capture the language with an internally consistent and regular writing system was made by Dorsey in the early 1880s, using the alphabet recommended for BAE field research. There is at least some evidence that he may have intended this writing system to be used by tribal members at some point: Among the 24 texts he elicited from Kaws in the field, he collected three would-be letters from Kaw adults written in the BAE system to others, including one to a non-Native off-reservation. This would seem to indicate that he believed that Kaw could serve everyday purposes in written form. His handful of adult male informants appeared to have agreed.

For the most part, Dorsey's Kaw orthography is systematic and fairly reliable, with exceptions arising from his failure fully to grasp Kaw phonology, including a four-way stop series. The stops include phonemes that are voiced, voiceless tense, voiceless aspirated, and voiceless glottalized. In the velar position, for example, Dorsey failed to perceive a consistent distinction between the first three of these. Thus, he represented the phoneme [g] as either *g* or *k̲*, the phoneme [k:] (voiceless tense, i.e., unaspirated word-initially and geminated elsewhere) as either *k̲* or *k*, the phoneme [k^{h}] as *k*, and the phoneme [k'] as *k'*. His treatment of vowels was similarly wanting in that he failed to perceive distinct secondary stress and phonemic vowel length, and tended to analyze [o] and [õ] as some variety of [u], a vowel that is unattested in Kaw. Thus, he represented these mostly as *u* and *u^{n}*, respectively. Despite these matters, and a few curious spellings (such as *c* for [š], *j* for [ž], *q* for [x], and *x* for [γ]) his adaptation of the BAE orthography for use with Kaw is still useful.

In the time between Dorsey and Rankin, the few extant Kaw writings were once more indicative of folk spellings. There were a few exceptions, such as the writings of A. B. Skinner, a BAE researcher working with the Kaws a few years after statehood. His system still owes much to the BAE system, but is far less consistent and reliable than Dorsey's attempts. Another example is from a decade or so later, but the actual writer is unknown. The specimen is the written text of a Kaw speech delivered by tribal member Pete Taylor at a monument dedication near Council Grove, Kansas. The orthography employed seems to be a marriage of folk and systematic writing. But this is the only known sample of such writing. The language then appears to go unwritten for another half century, during which time tribal language use tips toward English.

Rankin's work with Kaw begins in the early 1970s. Coming from a pure linguistics background, his initial Kaw text materials are written in a form of the IPA modified slightly to account for certain quirks of Kaw phonology, such as the geminate

consonants described above. His first publication on Kaw, a brief grammar sketch written about a decade after his fieldwork, refined this system somewhat. In this document, Rankin offers what has become accepted as the Kaw phoneme inventory:

Table 1, Kaw phonemes (adapted from Rankin, 1989: 305).

	Labial	Alveolar	Palatal	Velar	Glottal
Voiced stop or affricate	b	d	ǰ	g	
Voiceless tense	pp (p:)	tt (t:)	čč (č:)	kk (k:)	
Voiceless aspirated	ph (p^h)	th (t^h)	čh ($č^h$)	kh (k^h)	
Voiceless glottalized	pʔ (p')	tʔ (t')	cʔ (ts')	kʔ (k')	ʔ
Voiced fricative		z	ž	ɣ	
Voiceless		s	š	x	h
Approximant	(w)	l	y	(w)	
Nasal	m	n			

	Front	Middle	Back
Oral high unrounded	i		
Nasal	į (ĩ)		
Oral high rounded	ü (y)		
Oral mid unrounded	e (ɛ)		
Oral mid rounded			o
Nasal			(õ)
Oral low unrounded		a	
Nasal		ą (ã)	

It is worth noting that Rankin did not intend his orthography as a practical writing system for the Kaw tribal membership, but as a system of linguistic record and analysis. Likewise, his work on Kaw is intended for academic readers, not necesasarily Kaws.

It was not until the late 1990s that any efforts were made to promote written materials among Kaws. The first of these publications was a small vocabulary brochure and accompanying audiotape devised by the Kaw Nation Language Department in consultation with Rankin. For the brochure, an alphabet was devised based directly on Rankin's analytic writings. The only difference was the substitution of a post-posed superscript *n* for the nasal hook (or ogonek). The alphabet was quickly adopted by the tribe, and was used on the signage of at least one building on the tribal property. It is upon this background that the discussion of practical orthography development is set.

Need recognized

The need for a practical orthography became immediately apparent when I took over the directorship of the Language Department in 2001. After more than two years of active community language teaching using the Rankin orthography, the tribe's own Language Teacher at the time, Kelly Test, had insufficient productive grasp of the system. Her receptive skills were similarly less than ideal, but were more than compensated for by her mastery of Kaw vocabulary acquired aurally from the salvage interview recordings. My sense was that she had learned hundreds of Kaw words and

phrases, selected a few for use in class, and memorized their spellings, which were taught to her directly by Rankin. Accordingly, the writing of these vocabulary items was little more than an afterthought to the departmental teaching materials, added awkwardly to the bottom of otherwise clear visual aids. But the inclusion of Kaw writing on the materials would remain foreign to her students and not promoted as a medium on par with speech.

My suspicions were confirmed again and again in my dealings with former students of hers as well as those who had purchased the brochure and audiotape. They appeared unable to use the Rankin orthography at all, especially in keyed media such as email. I had one such communication with a tribal member who had learned what vocabulary she knew from that first brochure. She was unable to ask me an email-based question regarding the pronunciation of a Kaw word she had seen because she simply could not key it into her email client. Some students seemed perplexed that words should begin with a pair of the same consonant, such as *tta* for 'deer,' which they were unable to pronounce satisfactorily. Some could not guess what sound *c?* represented—or even *?* for that matter. Some failed to notice stress marks, which at the time were written as stand-alone characters after the stressed vowels, but noticed the apparent space they made between syllables, and simply reinterpreted stress marks as spaces. Some saw the superscript *n* as double-quotes. Still others were confused by the very real similarity between *γ* and *y* on the printed page. It was at this point that the Language Teacher and I set out to reform the orthography. We also arrived at our first ideological principle:

(I) Kaws should be able to read written Kaw with minimal difficulty.

This in turn assumes a higher-order principle:

(II) Kaw language should be written.

But if it was to be written, what would it be used for? And who would use it? As for the first question, we had the sense that if Kaw was ever going to be revitalized as the heritage language of the Kaw people, it would have to be relevant to their lives today. This meant it would have to be used for daily communication such as writing notes, making lists, and other ordinary orthographic tasks. Thus, our next principle:

(III) Any orthography for the Kaw language should be practical.

Moreover, we already had a technical spelling system for recording and analyzing Kaw data. A practical system would ideally suffice for technical use, but would simply be easier to deal with. Nevertheless, its real purpose would be for communication.

As for the question of who would use a practical orthography, it must be reiterated that Kaw is a language without a speech community. There is no Kaw speaker to whom language planning questions can be directed, and no speaker intuition to guide language planning processes. The average Kaw tribal member enjoys no sense of familiarity with the sounds and rhythms of the language whatsoever. It is as foreign as the most exotic African, Asian, or Australian language she may have heard of but never heard—more foreign even than Zulu, Khmer, or Walpiri, all of which may have been heard on television or in the movies. As such, we were in a unique position. We needed to carve out a future speech community to include both our potential body of students and oursleves—one for which neither our prospective students nor we were presently members—all with no speech community to have as a model. We were therefore forced to assume a role similar to that of an established speech community for the Kaw

language, even though we were not speakers! This fact led us to our next principle:

(IV) We Kaw language planners must be informed gatekeepers. As such, we must master its systemic knowledge, including its orthography.

In other words, if the task of devising a practical Kaw writing system was on our shoulders, we should master it.

Initial attempts

Having discovered the need for reform and with no speaker community for guidance, we turned to practical matters. What would reform of Rankin's system entail? What would need to change? How should change look? At this stage of the Kaw revitalization efforts, the amount of printed material was minimal. However, we were unwilling to alter substantially Rankin's lexicon, the one work of great size and import. This document was fundamental in our growing understanding of the language. If it was to be of future help to us, it could not be altered beyond the point that the consistency of its Kaw forms was lost. Our work cut out for us, we were left with another principle:

(V) A practical Kaw orthography must be maximally congruent with the available linguistic material on Kaw.

In practical terms, this meant the lexicon was our starting point, and that our reforms should be 1:1 substitutions of the Rankin orthographic characters with new characters.

We started with some of the problems we had noticed. Double stops seemed to confuse learners. This was aggravated by the fact that Rankin wrote stops as single letters after fricatives, yielding *tta* for 'deer' but *xta* for 'love.' Since the use of single stop characters was already used to represent unaspirated stops, it seemed only logical to drop a redundant character in the double stops. Thus, *tta* became *ta*. We simply had to stipulate that Kaw *p*, *t*, and *k* (and *č*) were tense consonants, and as such, were not pronounced the same as English *p*, *t*, and *k*. This is the essence of our next principle:

(VI) Most potential Kaw speaker/readers will have English speaker intuitions that must be indexed in some manner when English and Kaw orthographies are incongruent.

Stress marking had to be changed. It was currently marked *after* stressed vowels, creating divisions in words. A word like *ni`skü´we*, 'salt,' looked at a casual glance like three words linked by apostrophes. We instead placed stress over vowels using diacritics. However, this facilitated the dropping of dieresis (umlaut) from *ü*. But since Kaw has no [u] sound, and we could simply stipulate that Kaw *u* is fronted. Thus, *ni`skü´we* became *nìskúwe*. We then questioned how necessary stress marking was for single-syllable words. The vast majority of these words receive primary stress in the language. We were coming to regard extraneous diacritics as something of a nuisance, so we felt justified making the ruling that the stress was unneeded for monosyllabic words—note that we would later regret this decision. This led us to our next ideological principle:

(VII) Diacritics are a necessary evil restricted to situations for which no other practical solution exists.

This caused us to question of the use of hacek in *č* (we had already halved *čč*), *čh*, *š*, and *ž*. We figured Anglophones would recognize English digraphs more easily than new ones. This quickly yielded *sh* and *zh*, which we assumed would pose no problems for

English speakers, even if they co-occurred in a word with h (such as *Hishá*, 'Caddo'). But we stopped short of substituting *ch* for *č*, which would force *chh* in the case of *čh*; we thought this just as confusing as the existing symbol. We initially questioned the value of retaining *č*, and proposed the use of *c*. However, we felt that English speakers were likely to pronounce *c* as either [s] or [k^h] rather than [č:]. Furthermore, *c* was already used in *c?* for [ts']. So, we retained *č*. Again, we would later regret this. Nevertheless, we had a new principle, something of a complement to principle (VII):

(VIII) English speaker intuition is valuable. Appeal to it when possible.

Like hacek, we regarded the use of glottal 'pothook' *ʔ* as problematic. This character is simply not a part of an English speaker's ken. Furthermore, IPA represented ejectives with an apostrophe without undue difficulty. Since we had already dropped apostrophes from the marking of stress, they were available again. We were revising *c?* anyway, so we felt comfortable in changing it to *ts'*. Our justification for this is that *c* is simply an ambiguous character, one to which English speakers have set no default value. Or, rather, if there is such a value in the mind of some, it is certainly not [ts].

There is no convenient way to write nasal vowels in the roman script. One strategy was to insert to *m* before labials and *n* before velars. Such environments give rise to audible epenthetic glides, which students perceive and therefore expect. But what to do with nasal vowel-final words, nasals before alveolars, and so on? Speakers of some languages have agreed to assign double duty to *m* and *n* in all cases, even in vowel-final syllables, such as Portuguese *sim*, 'yes,' and French *fin*, 'end.' But this is not an English practice. Adopting it for Kaw would pose problems for a word such as *iná*^{n}, 'mother,' where *n* would serve as both a consonant and half of a vowel digraph in a spelling like **inán*. This creates unacceptable ambiguity in V_1V_2 environments where V_1 is nasal:

(IX) Kaw spellings should be unambiguous, allowing only one reading.

Still, we saw no good way to reform the use of superscript *n*. While not consistently easy to type on an ordinary keyboard, we allowed for character substitutions. When not available, a capital N or a tilde (~) could mark nasalization. This gave us leeway on other difficult characters, such as *č* (substituted with *c*), accented vowels (which could revert to apostrophes with minimal ambiguity given Kaw's vowel-final syllable structure), and *ɣ* (replaced by gh). This led to our next principle:

(X) The Kaw orthography must be easy to type. When characters pose difficulty, they should have dedicated substitution characters.

Our final reforms regarded discursive conventions. After all, orthography is not simply a spelling system, but a full writing system. We chose to maintain all punctuation and capitalization conventions of English, simply because of familiarity. Some are actually redundant with certain features of Kaw grammar, such as oral punctuation at both the sentence and discourse level and a system of quotative/reportative particles. Nevertheless, we felt that a printed page of Kaw text should be identifiably structured, giving Anglophonic Kaw students a graphic snapshot of the material in a familiar format. This led to our eleventh principle:

(XI) Kaw writing should resemble English to provide a sense of familiarity.

We did not change several elements of the Rankin system, including the Euro-centric use of *a*, *e*, *i*, and *o* for oral vowels. While innocuous to scholars, this practice is a

source of consternation to many exclusive Anglophones. We retained these spellings not only because of convenience, but also to maintain continuity with other Dhegiha language materials (sweeping changes to the Osage orthography came later):

(XII) Due to the high degree of intelligibility among Dhegiha languages, the Kaw orthography should be similar to other Dhegiha orthographies.

Except by dropping duplicates we opted not to change the spellings for the stops, despite the fact that English speakers tend to pronounce *p*, *t*, and *k* as aspirates—Kaw's *ph*, *th*, and *kh*. Here, principle (XII) guided us, but the solution is not perfect. Kaw has far fewer aspirated stops than tense stops, making the latter more important for students to master. We have never been able to solve this problem to our satisfaction.

In Dorsey's time the aspirate [t^h] was undergoing a transition that had come to fruition before the birth of the last generation of fluent speakers. It had merged with [$č^h$] before front vowels and [k^h] before non-front vowels. Thus, Dorsey gathered only a scattered few examples of [t^h] while Rankin recorded none. Why then preserve it in the orthography? Likewise, the glottalized stop [t'] occurs in exactly two words in Kaw, which are probably loanwords—for this reason, Rankin does not list it as a Kaw phoneme. Nevertheless, the words and the phone were known to both Dorsey's and Rankin's informants. Should it be preserved? We decided, no, the first did not have a place in the orthography while the second did—hence, our (seemingly) final principle:

(XIII) Kaw writing should reflect the language at the time of its emergence.

A few refinements

This orthography served for several years. However, its limitations gradually became obvious. First was the retention of *č* and *γ* despite the substitutes *c* and *gh*. True, we had rejected use of *c* on grounds of ambiguity, but users found *č* no easier to read or write. Opting for *gh* over *γ* was to distinguish the latter from *y*, especially in italics. Implicit in revisiting a seemingly final orthography is another ideological principle:

(XIV) The Kaw writing system should be flexible enough to accommodate changes when necessary.

Another change was to discontinue use of on-the-line *m* and *n* to represent nasal vowels before labials and velars. While the glides are produced in speech, we were unable to teach students when to write the nasals one way as opposed to another. This was further complicated in word-formation processes such as verb inflection. For instance, a verb form may consist of a nasal vowel-final prefix, a velar-initial and nasal vowel-final root, and a labial-initial suffix. An example is *ank'ímbe*, 'we packed it on our backs,' with the pronoun prefix *a^n(g)-*, 'A1D/P,' root *k'i^n*, 'pack on the back,' and aspect suffix *-(a)be*, 'NON-CONTINUATIVE.' Here it is difficult to explain why the headword forms of the morphemes may be listed with superscript *n*, while the surface form bears no superscripts. Instead, we opted to spell all nasals with the superscript to avoid confusion, turning *ank'ímbe* into *a^nk'i^nbe*. This is the nature of our final ideological principle:

(XV) Kaw spellings should be predictable and regular for production as well as reception.

Note that we did not abandon the use of the inconvenient superscript *n,* partially out of deference to the practical Omaha and Ponca orthographies that retain this character and

partially out of handiness—capital *N* is a consonant and ~ is choppy on the printed page.

A few nagging questions—especially phonemic vowel length and stress patterning—notwithstanding, today we have a 36-letter alphabet consisting mostly of single characters, but with several digraphs, and one trigraph: *a*, *a*^{n}, *b*, *c*, *ch*, *d*, *e*, *g*, *gh*, *h*, *i*, *i*^{n}, *j*, *k*, *kh*, *k'*, *l*, *m*, *n*, *o*, *o*^{n}, *p*, *ph*, *p'*, *s*, *sh*, *t*, *t'*, *ts'*, *u*, *w*, *x*, *y*, *z*, *zh*, and *'*. The only nonstandard characters in this orthography are the superscript *n*, more or less unambiguously replaceable by either *N* or ~, and stressed vowels, ambiguously replaceable by vowel plus an apostrophe (*'* is reserved for the glottal stop).

Critical review

After our orthographic review process, we were left with much more than an alphabet, but with a set of guiding principles and beliefs about Kaw writing. These principles, restated and rearranged somewhat, can be expressed as follows:

The Kaw language should be written (II).
The Kaw orthography should:
...be practical (III).
...be easy to read (I).
...be unambiguous (IX).
...be predictable and regular for both production and reception (XV).
...be congruent with the available Kaw literature (V).
...be congruent with the other Dhegiha orthographies (XII).
...be congruent with the English orthography (XI).
...appeal to English speaker intuition (VIII).
...provide stipulations for incongruence with English orthography (VI).
...provide dedicated substitutions for inconvenient characters (X).
...provide opportunities for revision (XIV).
...reflect state of Kaw language at time of its emergence (XIII).
...use diacritics only when necessary (VII).
The Kaw language planners should master the orthography (IV).

A few questions about our orthographic development process remain. For starters, is it done, or is there more work to be done? We consider the process semi-organic. We Kaw language planners recognize how disconcerting is the prospect of revising the orthography again, making years of language materials irrelevant. Nevertheless, we are always learning more about the language, and we may learn something that will cause us to change our thinking on the orthography. Vowel length and stress issues demonstrate this. But we feel we cannot wait until we know everything before acting.

Another question concerns the ideological principles themselves. Did they arise from the development process, or did the development process arise from them? This paper's initial argument connecting ideology and orthography would seem to indicate that ideology of higher order, a concept that merely results in symptomatic orthographic choices. Yet, in the Kaw language discussion, it may appear that ideology fell out of our orthographic choices. Truth be told, this is mostly irrelevant. In the end, the two can be shown as correlative and co-influential. That is to say, ideology informs orthography just

as much as the reverse. This can be seen in shared outlook or group social identity common to the speech community. With Kaw, however, there is simply no community to speak of. Not yet, anyway.

This raises other questions. Was our development process exclusively top-down language planning? If so, how applicable is it to other language planning scenarios? Greater still, what relationship should the language planner have to the speech community? These are difficult questions. The answer to the first is, yes, Kaw writing was regrettably developed with little community input. Equally unsatisfying is our justification: Most Kaw language knowledge accrues to a Language established by the tribal administration to make language decisions on behalf of the people. Applicability is another issue altogether. While not directly applicable to other communities, the ideological (and practical) issues we faced are similar to those faced by any community without written language. Plus, the products orthographic development processes will be the same: Orthography and ideology. As for the language planner's role in the speech community, any answer will be ideological in nature. As such, there is no single solution; the question must be asked and answered for each language and speech community.

The last set of questions regards identity formation. I have so far argued that orthography codifies ideology with social ramifications, especially with respect to group social identity. If so, what identity issues arise from our development of a practical Kaw writing system? Is it exclusive, i.e., does it favor a particular group? Is it a good match for the social situation among the Kaws today? Again, we are unable to give satisfactory answers here. The newest version of the orthography is new development. The number of students advanced enough to have worked with it to any degree is around ten, only six of which can use it for both reading and writing. Thus, we do not yet have sufficient data to answer. If our efforts continue, we expect to observe the burgeoning of a shared outlook or sense of community among students. Regarding exclusivity, the answer is sadly yes. The system seems to exceed some sort of threshold beyond which it is sufficiently different from English writing as to pose difficulties for adults who have never studied a second language, presumably because of conflicts with their English speaker intuitions (which, of course, we have made efforts to appeal to). To date we have found no solution to this exclusion. We lack sufficient tribal demographic data to say how large a segment of the Kaw population falls into this category, but if intuition serves, it is substantial. So, the best we can say is that the orthography is a less than perfect fit for the *tribe*. However, we know it works for the *language*, and we have seen progress in the writing skills of at least two younger advanced students for whom Kaw is only the second language they have studied. Perhaps the fit skews toward Kaw youth. If so, prospects are good that writing can develop with increased tribal youth-targeted pedagogy.

Conclusion

I have attempted to demonstrate the connection between orthography and ideology firsthand. I have shown how the development of a practical writing system for the Kaw language entailed the development of a system of beliefs about Kaw language and its use. It still remains to be seen how the two products will affect the future of Kaw language revitalization efforts. But given the social effects of orthographic selection in

other speech communities, particularly for identity formation, we Kaw language planners expect to see effects of our actions at some point, probably in terms of a shared outlook or sense of community among student users of the orthography.

The case of the Kaw language planning ideology may have sounded far-fetched just a few decades ago: A tribe with no living speakers of their heritage language hires outsiders first to learn the language and then to teach it to tribal members. Furthermore, the ideology presented above is a very specialized application of the concept involving, not speakers, but language planners whose knowledge of the language is only slightly less tenuous than their students. Nevertheless, these are the facts in the case of Kaw. Bear in mind that Native American languages continue to fall out of use while some tribes gain more resources through economic development and grant opportunities, and that language planning professionals tend to come from outside of the Native American community by simple statistics. Thus, such odd pairings are likely to become more common in the coming years than ever before. Thus, word of caution is in order. Language planning is a necessarily ideological enterprise. The language planner—whether or not she is aware of the fact—is an ideologue. Her decisions may seem innocuous, but they code for a particular set of beliefs that she intends will guide the future of the language and speech community by helping to form group social identity. Accordingly, it is best for such individuals to be cautious of their actions. In the case of orthography development, the unintended exclusion of possible writers and readers is a real concern, which also affects identity formation. It is therefore wise to keep in mind the premises of the ideological arguments whose conclusions are codified in orthography.

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Grammaticalization of the generalized Kampan applicative-*ako* (Arawak)

Elena Mihas
University of Wisconsin-Milwaukee

1. INTRODUCTION**.** The present study is concerned with the Kampan semantically unspecified applicative [1] *–ako* and addresses the following issues: (1) What are the synchronic usages of the *ako*-applicative? (2) What are the pathways of the suffix's diachronic development? (3)What is a possible motivation for its historical development? The analysis draws on the corpus of over 300 sentences with *ako*-applicatives collected from texts, grammars, dictionaries, and other secondary sources.

The organization of this paper is as follows. Section 1 offers a brief typological profile of the Kampan subgrouping of Arawak; section 2 presents an outline of the prior research on the applicative *-ako* and discusses its origin; section 3 provides an analysis of the synchronic uses of the *ako*-applicative, discusses their motivation, and proposes pathways of the suffix's development; section 4, by way of conclusion, explores some theoretical implications of this research for the cross-linguistic study of generalized applicatives.

1.1. TYPOLOGICAL PROFILE OF THE KAMPAN LANGUAGES. There are 10 languages in the Kampan subgrouping of Arawak languages of Peru, divided into Northern (Caquinte, Asháninka, Ashéninka Pichis, Ashéninka Perené, Ashéninka Ucayali, Ashéninka Apurucauyali, Ashéninka Pajonal) and Southern (Nomatsiguenga, Machiguenga, Nanti) branches. Kampan languages are polysynthetic and agglutinating, mainly suffixing. The predicate structure is given in Figure 1.

person proclitics A/S	prefixes	VERB ROOT	incorporated noun	suffixes		person enclitic(s) O	clausal enclitics
				derivation	inflection		

Figure 1. The predicate structure of the Kampan verb

Two sets of pronominal cross-referencing clitics are used to mark the nominative-accusative system of grammatical relations. The A argument of transitive verbs and S argument of intransitive verbs are coded by the same set of person proclitics while the O argument of transitive verbs is expressed by a different set of person enclitics. A set of pronominal forms for the Asheninka language varieties is shown in (1).

(1)		1SG	2SG	3SG.m	3SG.n.m.	1INCL.PL[ii]
	A,S	n(o)-	p(i)-	i(r)-	o(Ø)-	a(Ø)-
	O	-na	-mi	-ri	-ro/-ni	-ai

Pronominal forms distinguish genders only in the 3p SG, masculine and non-masculine (inanimate objects are referred to by the non-masculine gender). Pronominal forms make

a number distinction for the 1p while the 2p and 3p plural is indicated by a plural morpheme.

Basic verbal clauses have the basic constituent order VSO or SVO. Like many other Arawak languages, Kampan languages do not have any case marking on core constituents (A, S, O) and possess only one peripheral case marker, a polyfunctional locative–*kV*. Kampan languages exhibit complex applicative systems, as seen in Table 1.

	Asha	APi	APe	AUc	APaj	AApu	No	Ma	Ca	Na
benefactive/ malefactive	-nV, -anoNt	-veNt	-veNt	-βiNt	-nV	-βiNt	-ben/ -bin	-nV	-noNt	
substitutive	-veNt							-veNt	-βent	
comitative/ causative	-akaa	-akag	-akag	-akag	-akag	-akag	-ka(g)	-aka(g) -ag	-aka	
instrumental							-an	-aNt	-aNt	-aNt
allative							-te			
reason	-aNt	-aNt		-aNt	-aNt	-aNt	-biri	-veNt	- βeNt, -aNt	
separative	-apitsa						-pi	-apitsa	-apitsa	-apitsa
presence	-imo	-pitha		-pitha		-pitha	-mo	-imo	-imo	-imo
reference	-ako, -imeNt	-ako	-ako	-ako	-ako	-ako	-có/-gó	-ako	-ako, -imeNt	-ako
purpose	-ashi	-ashi		-asi		-asi	-si	-ashi	-ashi	

Table 1. Applicative systems of Kampan languages[iii]

Table 1shows that Kampan languages have elaborate applicative systems, including two semantically unspecified (generalized) applicatives like *–ako* 'with reference to' and *–imo* 'in the presence of'. The dearth of morphosyntactic alternatives to most of the applicative derivation in Kampan languages makes the use of applicatives almost mandatory.

2. PRIOR RESEARCH ON THE *AKO*-APPLICATIVE**.** In Kampanist literature, this derivational suffix was isolated based on the fact that it indicated an additional object or complement for the verb. One of the early identified functions of the Kampan *ako*-applicative was dative, with an attested variety of other senses e.g. 'on', 'about', 'to', 'with', 'for', 'of/from' (D. Payne 1981, 1984; J. Payne 1989; Wise 1986; Shaver 1996). The use of the term 'dative' was meant to emphasize the main function of the applicative suffix *–ako* to code peripheral recipient arguments promoted to the direct object status. Alternatively, the basic senses of the suffix were defined in Kindberg (1961:530, 1980:462) and Payne (2002:493) as 'concerning'/ with respect to' (about) and 'containing' (in). More recent studies state the basic concept of the suffix with less emphasis on the 'contained' and 'recipient' senses but rather as somehow referring to the object or indicating that the

object is somehow involved e.g. García Salazar (1997:28), Snell (1998:48), Wise (2002:592), Michael (2008:247, 287).

The *ako*-applicative marker can be derived from intransitive or transitive bases (J. Payne 1989: 243). Most Kampanist scholars list the applicative *–ako* under the rubric of argument-adding or valence-increasing derivational operators (Michael 2008:279; Payne 1981:39; Payne, Payne, & Sanchez 1982:55; García Salazar 1997:28; Shaver 1996:42; Snell 1998:46; Wise 1986:591; 2002:336). It was noted that the suffix does not always control object agreement on the verb (J. Payne 1989:243). Non-local participants, when added to the core arguments of intransitive and transitive verbs, generally increase the verb valence. The derived verb in (3) *-ts^{h}irini-t-ako* 'get dark on' becomes fully transitive, as demonstrated by the presence of the plural circumfix *–yi- …-ni*, marking agreement with the patient direct object.

(3) *Asheninka Apurucayali*
*Ø=ts^{h}irini-t-**ako**-iy-an-ak-i-Ø-ni*
[3n.m.A]-get.dark-**APPL**-PL-DIR-PRF-REAL-[3.O]-PL
'The night came upon them.' (Payne 1981:40)

In contrast, local participants in *ako*-applicative derivation typically do not increase the valence of the verb, formally signaled by a cross-referencing object enclitic on the verb and a referent NP (Payne 1989:243; Snell 1998:48; Swift 1988:70). As seen in (4), the *ako*-applicative occurs without a cross-referencing direct object enclitic and a lexical NP.

(4) *Asheninka Apurucayali*
*i=kiy-**ako**-t-apa-ak-i=ri*
3m.A-dig-**APPL**-EP-DIR-PRF-REAL-3m.O
'They dug them out (from the ground).' (Payne 1981:40)

The local participant in (4) does not have grammatical characteristics of central participants: it does not control object agreement and does not require an overt presence of the applied object. Local participants are not normally expressed at the syntactic level in *ako*-derivations and have to be inferred from the context. Though the added local argument, which the speaker believes to be pragmatically retrievable from the context, is *not* obligatorily expressed in the *syntax*, *ako*-applicative derivation incorporates the added argument *semantically* into the predicate frame, evidenced by the periphrastic expressions added to the translations of the sentences.

2.2. ORIGIN OF *–AKO*. The origin of many Kampan applicatives, including *–ako,* is difficult to pinpoint, as noted in Kampanist scholarship (Wise 2002:341). The *ako*-applicative appears to have evolved from a verbal classifier. Phonological and distributional facts seem to point in this direction. Kampan languages use a verbal classifier *-ako* with the meaning 'vessel', 'recipient', or 'cavity' (Payne 1991:249; Michael 2008:341), affixed to verbal stems. In general, Kampan verbal classifiers characterize the referent of a noun in terms of shape (point-like, elongated, cylindrical, etc.), consistency (rigid, soft, liquid,

etc.), and arrangement *(*contained) and usually refer to a core argument in S or O function. Example (6) shows a verbal classifier referring to an S.

(6) *Nanti*
*o=maka-**kita**-an-ak-i*
3n.m.S=rot-**CL:mat-**DIR-PRF-REAL
'It (mat) began to rot.' (Michael 2008:333)

Sources point out that verbal classifiers may extend their functions to peripheral locative arguments (Aikhenvald 2000:162; Michael 2008:332-335), as seen in (7).

(7) *Nanti*
a. *i=hok-**ha**-i*
3m.S-throw-**CL:LIQUID**-REAL
'He threw it [a fishing net] into the water.'
b. *o=sotog-**meni**-ak-i* *kochara*
3n.m.S-come.out.of-**CL:FLAT.RIGID.THIN**-PRF-REAL spoon
'The spoon came out of the hole [in the bag].' (Michael 2008:334)

In (7a), the verbal classifier *–ha* 'liquid' characterizes the locative argument in terms of its consistency while *–meni* 'flat.rigid.thin' in (7b) refers to the locative peripheral constituent's properties of shape and consistency. In (8), the verbal classifier *–ako* 'vessel' indicates the locative argument's arrangement as contained.

(8) *Ashéninka Pichis*
a. *hi=ña-apa-ak-e=ro* *o=pashik-**ako**-t-ak-a*
3m.S-see-DIR-PRF-REAL-ADV 3n.m.S.-fill-**CL:VESSEL**-EP-PRF-REAL
pyaarentsi *inchatona-ki*
masato tree-LOC
'Buscaron donde estaba el *masato* [They discovered *masato* [in a container] near the tree].' (Anderson 1985:20)
Machiguenga
b. *o=vit-**ako**-a-t-e=ro*
3n.m.A-put-EP-**CL:VESSEL**-REGR-EP-PRF-REAL=3.O
'Lo dejó allí in un deposito [She left it there in a pot].' (Grosh 1996:86)
Caquinte
c. *Ø=am-**ako**-t-ak-e=ro* aisa *kachofari*
3n.m.A-bring-**CL:VESSEL**-EP-PRF-REAL-3n.m.O also
'Ella tambien trajo *kachofari* (en un recipiente) [She also brought *kachofari* (in a pot)].' (Swift 1988:70)

The 'container' semantics of the verbal classifier *–ako* in (8) is less abstract, compared with the basic locative meaning of the homophonous applicative suffix *–ako* in (9).

(9) *Ashéninka Pichis*

a. *i=N-kitat-**ako**-t-apaint-e=ri* *samampo-ki*
3m.A-IRR-bury-**APPL**-EP-quickly-IRR-3m.O ashes-LOC
'Ponía las *patarashcas* en las cenizas [He would bury *patarashcas* quickly in the ashes (of the fire)].' (Anderson 1985:126)

b. *hi=ñaa-tzi-i=ri* *h=otet-**ako**-ye-t-ak-e=ri* *apite*
3m.A- see-EP-REAL-REL 3m.A-place-**APPL**-DISTR-EP-REAL-3m.O two
imeretote
anchoveta
'Encontró dos *patarashcas* de *anchovetas* [He found what his friend placed inside, two *patarashcas* of the *anchovetas*].' (Anderson 1985:130)

In (8) and (9), both the verbal classifier *-ako* and the applicative marker *–ako* are used without the lexical NP or cross-reference marking of the locative argument on the verb. In both cases, the suffix is postposed to the verb stem. Both suffixes are employed with the same class of theme/place verbs e.g. 'fill Y with X', 'leave X in Y', 'bury X in Y', 'place X in Y' where X is a theme argument which undergoes a change in location Y. However, the applicative suffix in (9) has a more abstract locative meaning. Evidently, at some point in its evolution, the spatial verbal classifier with the 'container' semantics extended its function to a more abstract inessive sense, acquiring a locative function within verbal morphology, as seen in (10).

(10) *Asháninka*
*y=ar-**ako**-t-i*
3m.S-fly-**APPL**-EP-REAL
'Él vuela (adentro de un avión) [He flies on the plane].' (Kindberg 1980: 463)

Our data e.g. (8), (9) and (10) tentatively support the claim that the applicative *-ako* has developed from a verbal classifier. The immediate postverbal position of the classifier *-ako* points to its origin as the grammaticalized inalienable noun since incorporated nouns tend to follow the verb stem in Kampan languages. In my data, the affixal slot of *–ako* is nearly always found after the verb stem. The fixed postverbal ordering of the suffix provides preliminary evidence that it may have originally developed from an incorporated noun and later evolved into an applicative.

3. SYNCHRONIC USES OF THE APPLICATIVE *–AKO*. This section will investigate a possible role of the *container* image schema in the evolution of the applicative *–ako* and will provide an analysis of the proliferation of the suffix's senses, using a cognitive-diachronic approach.

3.1. THEORETICAL ASSUMPTIONS ABOUT THE GRAMMATICALIZATION PATHWAYS OF LOCATIVE MORPHEMES AND THE *CONTAINER* IMAGE SCHEMA. This study considers a few diachronic studies of grammaticalization pathways of locative morphemes (Heine & Kuteva 2002; Peterson 2007; Rice and Kabata 2007) as a foundation for our analyses of multiple senses of the generalized Kampan applicative *-ako*. The sources treat

grammaticalization as a strategy 'of linguistic processing whereby more abstract functions are expressed in terms of forms for concrete objects', whose effects are essentially the same across languages (Heine & Kuteva 2002:5-6). In many languages, locative morphemes are found to grammaticalize to markers of cause, standard of comparison, concern (*about*), progressive aspect, possession, to existential copulas and subordinators of temporal, causal, and modal clauses (Heine & Kuteva 2002:199-206). The range of possible semantic extensions of the allative-locative morpheme may exceed thirty including spatio-temporal (ablative, duration, time), social (recipient, addressee, beneficiary, possessor, human source, comitative, etc.), mental (conceptual, emotional, perceptual), logical-textual (purpose, reason, subordinator, manner, equivalent, infinitive, etc.), and miscellaneous other senses (instrumental, accusative, ergative) (Rice & Kabata 2007: 473-4). Cross-linguistic surveys of applicatives demonstrate that locative applicatives tend to cluster with instrumentals, reflecting a cross-linguistic trend to be coded by the generalized applicative (Peterson 2007:204). There is also strong cross-linguistic evidence that locative, circumstantial (*a.k.a*. reason, motive, purpose, stimulus, cause), and instrumental senses in applicatives are marked by a single, generalized applicative marker (Peterson 2007:204-207). Thus, based on these observations, a generalized applicative marker with a basic local sense will likely to grammaticalize to circumstantial and instrumental uses. It is also possible that the evolution of the Kampan generalized applicative *–ako* with the original spatial sense will involve multiple extensions of the locative morphemes attested cross-linguistically.

Cognitive analyses have been helpful in explaining grammatical phenomena as reflections of deeper cognitive and conceptual processes by emphasizing that linguistic structure can only be understood and described in the context of a broader account of cognitive functioning. One of the fundamental notions of cognitive approach, image schema, is used in this study as a broader context of the semantic evolution of the applicative *–ako* with the basic locative meaning. Image schemas are defined as gestalts, highly schematic knowledge structures which function to metaphorically extend our understanding of things to a large range of abstract concepts (Lakoff 1987:272). In addition to the spatial property of location (*in/out*), the configuration of the *container* image schema includes direction (*into/out of*) (Clausner 1994:190), as seen in Figure 2.

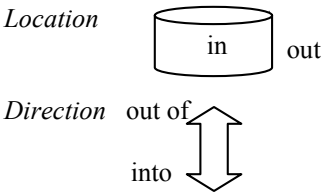

Figure 2. Spatial properties of the *container* image schema (adapted from Clausner 1994:191)

As Figure 2 shows, the concepts associated with the spatial *container* image schema are the static notion of location *in/out* and the dynamic construals of goal *into* and source *out of*. The dynamic nature of the spatial *container* image schema is illustrated in (12).

(12) *Asháninka Pichis*
*hi=noshik-**ako**-t-ak-e=ri*
3m.A-pull-**APPL**-EP-PRF-REAL-3m.O
'El hombre jaló su cordel [the man pull his string (out of the water)].'(Anderson 1985:56)

The applicative marker *–ako* in (12) encodes movement out of contained matter, the water. Image schemas also structure non-physical experiences via metaphor (Lakoff 1987:272). For example, an act of sensory perception can be construed metaphorically, by mapping the concept of movement into/out of container from the source domain of SPACE to the domain of VISION. The experiencer is perceived as moving in the perceptual space towards the perceptual goal/target, as shown in (13).

(13) *Machiguenga*
*i=ne-veNt-**ako**-ge-t-av-ak-a=ri*
3m.A-see-REAS.APPL-**APPL**-DISTR-EP-DIR-PRF-REAL-3m.O
'Lo observó desde lejos [He looked at him from afar].' (Grosh 1996:80)

In (13), the goal sense 'to' of *–ako* is metaphorically transferred to an act of sensory perception when the experiencer is construed as moving towards the perceptual target. It should be noted that the spatial *goal* and *container* image schemas partially overlap, sharing the concept of directed motion towards a destination/target. Both notions are used in this analysis, depending on what shades of the semantic meaning of *–ako* are discussed. In sum, before proceeding to the investigation of synchronic uses of the applicative –ako, I propose that the development of the suffix *–ako* is likely motivated by the *container* image schema, available to structure speakers' conceptualizations.

3.3. SYNCRONIC USES OF THE APPLICATIVE *–AKO*. Senses of Kampan *ako*-applicatives, derived from intransitive verbs, vary from accusative to stimulus to comitative to locative, as shown in (14).

(14)

-tzina-ako-	'take off in'; cf. *-tzina-* 'go up'(APaj)
-ayiit-ako-	'land in'; cf. *–ayiit-* 'go down' (APaj)
-ar-ako-	'fly in'; cf. *–ar-* 'fly' (Asha)
-arëto-ako-	'arrive in'; cf. *–arëto-* 'arrive' (No)
-tiɣari-ako-	'roam in'; cf. *-tiɣari-* 'roam' (Ca)
-amaat-ako-	'go down river'; cf. *–amaat-* 'swim' (APi)
-toNk-ako-	'rise above'; cf. –toNk- 'go up the hill' (APi)
-kis-ako-	'be angry about'; cf. *–kis-* 'be angry' (Ma)
-katsit-ako-	'feel pain on account of'; cf. *–katsit-* 'feel pain' (APi)
-pok-ako-	'come to get into'; cf. *–pok-*'come' (APaj)
-tsirini-ako-	'get dark on smb'; cf. *–tsirini-* 'get dark' (AApu)
-parya-ako-	'fall on smb' (about rain); cf. *-parya-* 'fall'(APi)
-samë-ako-	'sleep with'; cf. *–sam-* 'sleep' (No)
-komot-ako-	'dam.the.river with'; cf. *–komote adv.* 'downriver' (No)

Locative senses (goal and location) and the purpose reading of the applicative *–ako* are represented in (15).

(15) *Ashéninka Pichis*

a. *o=toNk-**ako**-wai-t-ashi-t-an-ak-a* *hiñaa kipachi-ki*
3n.m.S-go.up-**APPL**-CONT-EP-PURP-DIR-PRF-REAL water land-LOC
'El agua subió sobre las colinas en la tierra [The water rose above the hills on earth].'
(Payne & Payne 1983: 137)

Ashéninka Pajonal

b. *a=tzina-**ako**-t-ak-a*
1PL-take.off-**APPL**-EP-PRF- REAL
'Partimos [We took off (inside the plane)].' (Heitzman 1991:128)

c. *n=apiit-**ako**-t-ak-a* *no=pok-**ako**-t-ak-i*
1SG.S-repeat-EP-PRF-REAL 1SG.S-come-**APPL**-EP-PRF-REAL
'Al día siguiente otra vez vine [The next day I came another time (to take the plane)]'.
(Heitzman 1991:129)

The path and location senses of the derived applicative motion verbs *–toNk-ako* 'go up above' and *-tzina-ako* 'take off in' in (15a-b) are clearly motivated by the suffix's original local meaning. The purpose function of the applicative *–ako* in (15c) may be explained by the speakers' conceptual mapping of physical destinations to mentally projected intentions.

My data show that stimuli and accusatives are common companion senses of the *ako*-applicative with the basic locative sense, as seen in (16).

(16) *Machiguenga*

a. *i=kis-**ako**-t-an-ak-e=ro*
3m.A-be.angry-**APPL**-EP-DIR-PRF-REAL-3n.m.O
'Él se molestó por causa de ella [He was angry about her].' (Snell 1998:48)

Ashéninka Pichis

b. *kooya Ø-katsit-**ako**-t-ak-e* *eentsite*
woman 3n.m.A-feel.pain-**APPL**-EP-PRF-REAL her.baby
'La mujer dio la luz a un hijo [The woman felt pain on account of her son (the woman gave birth to a son)].' (Anderson 1985:96)

The stimulus argument of the experiential applicative verb *-kis-ako-* 'be angry about' in (16a) can be construed as an emotional destination, figuratively targeted by the speaker's emotional response. The experiential verb *-katsit-ako-* 'be in pain on account of' in (16b) also expresses causal semantics. The pain can be construed as moving from the causer/ source of sensation (the baby), towards the causee/sensation target (the woman in labor).

The accusative sense of the *ako*-applicative in (17) is seemingly counterintuitive. However, cross-linguistic studies show that locative morphemes, in the course of their diachronic development, often extend their basic spatial meaning to more abstract senses (Heine & Kuteva 2002; Rice & Kabata 2007).

(17) Ashéninka *Apurucayali*
a. *Ø=ts^{h}irini-t-**ako**-iy-an-ak-i-[3.O]-ni*
3n.m.A-get.dark-**APPL**-PL-DIR-PRF-REAL-[3.O]-PL
'The night engulfed them.' (Payne 1981:40)
Ashéninka Pichis
b. *ikanta h=iyaa-t-ak-e ari i-parya-**ako**-t-ak-e inkane*
CON 3m.S-go-EP-PRF-REAL CON 3m.S-fall–**APPL**-EP- PRF-REAL rain
'Comenzó a caer una fuerte lluvia [He walked and the heavy rain struck him].'
(Anderson 1985:116)

The semantic patients in (17) are directly affected human targets, expressing the endpoint of the conceptual event. When found with 'nature' verbs, the *ako*-applicative seems to convey a meaning of an adversative, detrimental action carried out on the patient.

Concomitant function in (18) is marginally attested with *ako*-applicative intransitive verbs in my dataset.

(18) *Nomatsiguenga*
*i=komo-t-o**ko**-k-e=ri pabati otsegoha*
3m.A-dam.stream-EP-**APPL**-PRF-REAL-3m.O father stream
'He dammed the stream with his father.' (Wise 1971: 50)

In (18), the applicative verb *–komo-t-oko* 'dam with' indicates that the father is somehow involved in the construction project. The father's involvement is not necessarily direct but influential enough to consider him an associate in this undertaking.

3.2. SENSE TYPES OF THE AKO-APPLICATIVES DERIVED FROM TRANSITIVE VERBS. *Ako*-applicative derivations from transitive bases show a strong commitment to the local, stimulus, accusative semantic functions, as seen in (19).

(19)

-check-ako-	'cut off'; cf.-*chek-* 'cut' (APi)
-seroNk-ako-	'slice off'; cf. *–seroNk-* 'slice' (Na)
-atsik-ako-	'bite off'; cf. *–atsik-* 'bite' (APi)
-kiy-ako-	'dig from'; cf.-*kiy-* 'dig' (AAp
-ook-ako-	'leave in'; cf. *–ook-* 'leave', 'abandon', 'forget'(APi)
-ashit-ako-	'lock up in'; cf. *–ashit-* 'possess' (APi)
-tashit-ako-	'roast on'; cf. *–tashit-* 'roast' (AP
-tatsiNk-ako-	'push to'; cf. *–tatsiNk-* 'push' (APi)
-p-ako-	'give to'; cf. *–p-*'give', 'feed' (APaj)
-kaim-ako-	'call out to'; cf. *–kaim-* 'call', 'shout' (APi)
-amen-ako-	'look at'; cf. *-amen-* 'look', search' (AApu)
-ña-ako-	'look at'; cf. *-ña-* 'see', 'find' (APi)
-kem-ako-	'hear about'; cf.*–kem-* 'hear', listen','understand' (APi)
-iyot-ako-	'know about'; cf. *–iyot-* 'know'(APi)
-kinkithashirya-ako-	'think about'; cf. *-kinkithashirya-* 'think' (APi)
-ira-ako-	'cry about'; cf. *–ira-* 'cry, lament' (APi)
-keNketsa-ako-	'tell about'; cf.-keNketsa- 'tell' (Asha)

-kiNkitha-ako-	‘tell about’; cf. –kiNkitha- ‘tell’, ‘preach’ (AApu)
-kamaNt-ako-	‘inform about’; cf.cf.*-kamaNt-* ‘inform’, ‘advise’ (APi)
-kaNt-ako-	‘speak about’; cf.*-kaNt-* ‘say’ (APi)
-pantha-ako-	‘sing about’; cf. *–pantha-* ‘sing’ (APi)
-oosot-ako-	‘tie with (rope)’;cf. *–oosot-* ‘secure’, ‘tie’ (AUc)
-pashik-ako-	‘wrap with (leaves)’; cf.*-pashik-*’fill’,‘cover’ (APi)
-kathat-ako-	‘pull with (rope);cf. *-kathat-* ‘take by hand’ (APi)
-kov-ako-	‘want from’; cf.*-kov-* ‘wish’, want’ (APi)
-oirik-ako-	‘seize from’; cf. *–oirik-* ‘seize’,‘grab’ (APi)
-tsoin-ko-	‘destroy’, ‘finish with’; cf.*-tsong-* ‘finish’, destroy’(No)
-tsa-ako	‘open up’; cf.*-tsa*-untie, loosen’ (Ma)
-ta-ako-	‘burn up’; cf.*-tag-*‘burn’ (APi)
-keNt-ako-	‘pierce’; cf. *–keNt-* ‘sting’, ‘poke’, ‘pierce’

Similar to the *ako*-applicative constructions derived from intransitive verbs, locative *ako*-applicatives are common with transitive verbs, as seen in (20).

(20) *Ashéninka Ucayali*
a. *o=N-tim-ach-e* *a=thochi-**aako**-t-e=ri* *inchapooki-ki*
3n.m.S-IRR-exist/be-CONT-IRR 1PL.A-search-**APPL**-EP-IRR-3m.O plant-LOC
‘(Será necesario) buscarlo entre las plantas [We’ll look for it between the plants].’
(García Salazar 1997:65)
Nanti
b. *no=kig-**ako**-ak-i=ro*
1.A-dig-**APPL-**PRF-REAL-3n.m.O
‘I dug it up [from the ground].’ (Michael 2008:288)
Ashéninka Pichis
c. *pok-apa-ak-e* *kamaari,* *h=otatsiNk-**ako**-tzi-t-ak-e=ne=ri*
come-DIR-PRF-REAL demon 3m.A-push-**APPL**-EP-PRF-REAL-3.O-REL
irovarite, *parya-an-ak-e* *osaaviki*
his.food fall-DIR-PRF-REAL down
‘El demonio se acercó al oso empujando su comida hasta que cayó al suelo [The demon approached the bear and pushed the food causing it to fall down]’.(Anderson 1985:138)

Locative, ablative, and allative senses of the *ako*-applicative in (20) are highly relevant to the suffix’s original locative semantics. In my data, the recipient and addressee senses are also found with the *ako*-applicative verbs. Goal-based recipient and addressee senses are illustrated in (21).

(21) *Ashéninka Pajonal*
a. *no=p-**ako**-ts-imo-tsi=ro=ri* *Irena Irokarto paño*
1SG.A-give-**APPL**-EP-PRES-PRF-3n.m.O-3m.O scarf
‘I gave Richard the head scarf in Irene’s presence.’ (Wise 2002:336)
Ashéninka Pichis
b. *i=kaim-**ako**-t-apa-ak-e=ri* *sintsini*
3m.A-call-**APPL**-EP-DIR-PRF-REAL-3m.O strongly
‘He called out to him [upon his arrival].’(Payne 1984:75)

In (21a), the applicative verb *-p-ako-* 'give to' incorporates into its argument structure the recipient participant whereas in (21b) the applicative verb *-kaim-ako* 'call out to,' subcategorizes for the addressee. Expressing a human endpoint of an action, both the recipient and the addressee senses can be construed as metaphorical destinations, branching off the original locative use of *–ako.*

In my data, experiential *ako*-applicative verbs are found to subcategorize for figurative perceptual, emotional, and conceptual stimuli. These types of stimuli are common uses of *ako*-applicatives in Kampan languages, as seen in (22).

(22) *Asháninka Apurucayali*
a. *h=amin-**ako**-t-apa-ak-i=ri*
3m.A-look-**APPL**-EP-DIR-PRF-REAL-3m.O
'He was looking at him.' (Payne 1981:40)
Nanti
b. *no=kem-**ako**-ak-i-=ri*
1A-hear-**APPL**-PRF-REAL-3n.m.O
'I heard about him.' (Michael 2008:288)
Asheninka Pichis
c. *ipaitaka p=ira-**ako**-t-a=ri?*
WH 2A-cry-**APPL**-EP-REAL-REL
'¿Por qué están llorando? [What are you crying about?]' (Anderson 1985:88)
d. *tecatsi i=N-kinkithashirya-**ako**-t-e=ro*
NEG.REAL 3m.A-IRR-think-**APPL**-EP-IRR-3n.m.O
'Ellos no pensaron (que les iba a pasar algo) [They didn't think that something was going to happen to them].' (Anderson 1986:82)

The transitive applicative verbs *-amin-ako* 'look at', *–kem-ako-* 'hear about',*–ira-ako-* 'cry about', *-kinkithashirya-ako-* 'think about' in (22) select a perceptual, emotional, or conceptual target. The acts of sensory perception in (22a-b), emotional response in (22c), and cognitive activity in (22d) can be construed as a figurative movement of the perceiver/ emoter/cognizer towards a perceptual/emotional/conceptual target.

Another type of the stimulus usage of the *ako*-applicative is attested with utterance verbs[iv]. Based on a causal relationship between the content of utterance (indirect causer) and the addressee (causee), oblique arguments in (23) are interpreted as stimulus participants causing the addressee (experiencer) to become aware of some other entity.

(23) *Asháninka*
a. *i=kamaNt-**ako**-t-ak-e=na=ro*
3m.A-inform-**APPL**-EP-PRF-REAL-1.O-3n.m.O
'He informed me about it.' (Kindberg 1961:530)
Caquinte
b. *no=ßetsa-t-**ako**-t-ah-e-npa=ri iɣentiheɣi*
1SG.A-speak-EP-**APPL**-EP-REGR-IRR-REFL-3m.O brother
'Hablaré otra vez sobre mi hermano [I'll speak one more time about my brother].' **(**Swift 1988:70)

The utterance events with applicative verbs ‘speak/inform about’ in (23) can be construed as involving figurative motion from the speaker to the communicative target of the utterance. The accusative reading of *–ako* can also be grounded in the concept of directed motion, with a directly involved and totally affected semantic patient construed as the endpoint of an action, as seen in (24).

(24) *Nomatsiguenga*
a. *pi=tsoin-**kó**-ke=ri* *itsenko*
3n.m.A-finish-**APPL**-PRF-3m.O his.pants
‘(Las espinas) le destruyeron los pantalones [(Thorns) destroyed his pants].’
(Shaver 1996:65)
Ashéninka Pichis
b. *i=keNt-**ako**-t-ashit-ak-a=ri* *inchataatoki*
3m.A-pierce-**APPL**-EP-INT-PRF-REAL-3n.m.O stick
‘Picaron el palo [they pierced the stick with the arrows].’ (Anderson 1986:74)

In (24), semantic patients are targets, directly affected by the A participant’s actions to their detriment; the thorns destroy the pants in (24a) and the stick is splintered by the arrows in (24b).

The use of *–ako* in (25) to encode miscellaneous other roles on transitive verbs such as comitative, instrumental and benefactive is probably more representative of those Kampan languages which lack distinct verbal morphology to mark these uses.

(25) *Ashéninka Apurucayali*
a. *pi=N-osi-**ako**-t-i=na*
2.A-IRR-pull-**APPL**-EP-IRR-1SG.O
‘You pull with (for) me.’ (Payne 1981:40)
Ashéninka Ucayali
b. *Ø=ooso-t-**ako**-t-e=ro*
1PL.A-secure-EP-**APPL**-EP-IRR-3n.m.O
‘La amarramos (con algo) [We’ll tie it down with something)].’ (García Salazar 1998:28)
Nanti
c. *i=nat-**ako**-ak-i=na*
3m.A-carry-**APPL**-PRF-REAL-1.O
‘He carried [it] for me.’ (Michael 2008:361)

Ashéninka Apurucayali and Ashéninka Ucayali do not have morphologically distinct comitative or instrumental applicative markers, which might explain the use of *ako*-applicatives in (25a-b) to code these thematic relations. To compensate for the lack of a morphologically distinct benefactive applicative form, Nanti uses the applicative *–ako* to code this function, as seen in (25d).

4. CONCLUSIONS. In this study, the synchronic uses and grammaticalization pathways of the generalized Kampan applicative *–ako* have been examined. The Kampan applicative suffix *-ako* with the basic locative meaning is shown in Figure 3 to have multiple senses.

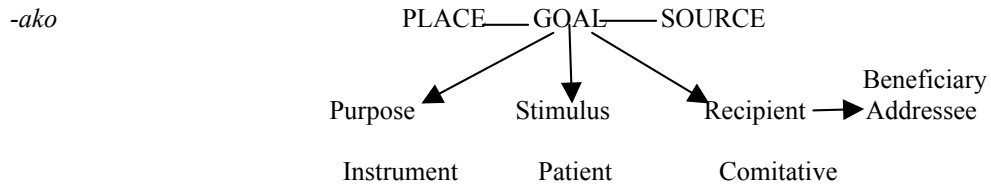

Figure 3. Proposed semantic functions of the applicative suffix *–ako*

Figure 3 illustrates multiplicity of usages of the generalized applicative marker *–ako* and a variety of extension pathways available to the applicative marker with a starting locative sense. Clearly, the evolution of *-ako* is a multidimensional grammaticalization process. The general locative sense of the applicative *–ako* (place, goal, source) is shown to have spawn a few extensions such as purpose, stimulus, recipient, addressee. The benefactive, comitative, instrumental, and patient functions are not shown to be linked to any specific sense in Figure 3 since I lack sufficient cross-linguistic data to make generalizations about which sense serves as the source of their development. To explain the position the benefactive sense in the vicinity of the recipient and addressee senses in Figure 3, I draw on cross-linguistic evidence indicating that recipient, addressee and beneficiary, both typically human and similar semantically, are often marked by the same morpheme (Rice & Kabata 2007:480-481). The placement of semantic patients in Figure 3 close to the area of semantic stimuli is meant to represent a possible interdomain percolation between these two senses since both stimuli and patients can be construed as targets of a goal-based action. The schematic position of the instrument and comitative functions of *–ako* in Figure 3 is preliminary. The model of the causal chain indicates that cause, comitative and instrument thematic roles are frequently coded by the same piece of morphology (Croft 1991:187), thus, the instrument function of the applicative *–ako* is tentatively linked to the stimulus and purpose senses of *–ako*.

The attested senses of the generalized applicative *–ako* are likely to be motivated by the schematic options available for its grammaticalization, based on its starting sense. The spatial *container* schema might have served as a determinant of the evolution of the *-ako* senses, from the basic local destinations to mental emotional and perception destinations (stimulus/cause) to social (to recipient, addressee, beneficiary) to logical (purpose), to directly affected physical targets (accusative). Instrumentals and especially comitatives are marginally attested in our data, though the incidence, in particular, of instrumentals which presuppose a more abstract causal sense, probably reflects a higher degree of the suffix's grammaticalization.

This analysis is likely to have consequences for the discussion of grammaticalization routes resulting in applicative markers. The generalized Kampan applicative *–ako* is probably derived from a noun source via an interim stage of the verbal classifier. This grammaticalization pathway of the applicative *–ako* might have involved an extension of the function of the verbal classifier with a diffuse 'container' meaning to a more abstract spatial function of the applicative marker.

This study has confirmed a cross-linguistic tendency for a generalized applicative marker to code both circumstantial (cause, reason, purpose, motive) and local participants

(Peterson 2007:206). In Kampan languages, the same applicative morphology marks locative (place, goal, source) and causal (purpose and four types of stimuli) senses.

A final observation addresses a cross-linguistic tendency concerning stimulus applicatives. This study has verified the affinity of stimulus applicatives to occur in languages which have other applicative types, or to be one of the semantic functions of a generalized applicative marker (Peterson 2007:207). In particular, the Kampan generalized applicative *–ako* has been found to exhibit a richly attested stimulus function.

Notes

[i] Typical applicative derivation is a transitivizing operation whereby an applicative verb is overtly marked for the semantic role of an added direct object (Payne 1997:186; Peterson 2007:1-2). While a prototypical semantic role of direct object is that of patient or theme, in applicative constructions, peripheral participants with semantic roles other than patient and theme are 'centralized' or promoted to the core arguments.

[ii] The following abbreviations are used in this paper:1-first person, 2-second person, 3-third person, A-subject of transitive verb, ADV-adverbial clause marker, APPL-applicative, CL-classifier, CON-connector, CONT-continuous, DIR-directional, DISTR-distributive, EP-epenthetic, IMP.PASS-impersonal passive, INCL-inclusive, IRR-irrealis, LOC-locative, m-masculine, n.m.-non-masculine, O-object of transitive verb, PL-plural, PRES-presential, PRF-perfective, PURP-purpose, REAL-realis, REF-referential, REGR-regressive, REL-relaive, S-subject of intransitive verb, SG-singular,WH-question word.

[iii] Sources for Table 1: Asháninka (=Asha) Kindberg 1975, 1980; Ashéninka Pichis (=APi) D. Payne 1980, 1983, 1984; J. Payne 1989; Ashéninka Perené (=APe) Payne 1989; Ashéninka Ucayali (=AUc) García Salazar 1997; Ashéninka Pajonal (=APaj) Heitzman 1991; Ashéninka Apurucayali (=AApu) Payne 1981; D. Payne, J. Payne, & Sanchez 1982; Nomatsiguenga (=No) Wise 1971; Shaver 1996; Peterson 2007; Machiguenga (=Ma) Snell 1998; Caquinte (=Ca) Swift 1988; Peterson 2007; Na (=Nanti) Michael 2008. Wise 1989, 1990, 1991, 2002 and Payne 2002 deal with valence operators in the Arawak family.

[iv] An alternative interpretation is to treat a verb of utterance as subcategorizing for the speaker, the content of the utterance and the addressee. In this case, the content of the utterance is a metaphorical theme.

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Updating the Sauk lexicon:
Strategies and implications for language revitalization[1]

Olivia N. Sammons
University of Alberta

Our kids are modern kids. They see and experience a lot, and they don't have Blackfeet words for their experiences. They dance to MTV. We Blackfeet don't have words for that. But then I think of when the Blackfeet saw the first horses. They didn't have words for that, either. One Blackfeet man said, "ponoka" ("they are elk"). The other guy said, "Naaaa, those are too big. Those are imita, a dog." Another guy looked and decided that they were too large to be dogs but that they weren't quite elks. So he combined the words to get elk-dog, or ponoka imita. We use that word today (Kipp 2007:42).

Both language and culture are constantly changing. To remain viable, languages must adapt to reflect the cultural changes happening around them. According to Hinton and Ahlers, "Language (like culture) is changeable, and if it is not abandoned in favor of another language, it may still change to express new culture and new values. In the changed world in which native language activists find themselves, one can barely find anything to speak about that does not touch on modern culture" (1999:56). For healthy languages, such as English and Spanish, this process usually occurs naturally, especially through the speech of younger generations. However, when there ceases to be a population of young speakers, new words stop being created. Eventually the language becomes less relevant to society. This shift is especially true in the case of highly endangered languages, where growth no longer occurs naturally. These situations often require a more deliberate approach. The creation of new words is a useful tool for the expansion of language use into new domains, including the expression of modern culture in indigenous languages. New words can enable speakers of endangered languages to express themselves within the context of a modern society rather than code-switching into a dominant language, showing that their language is vital and growing, as opposed to weakening and diminishing. Creating new words is also a vital component of language planning and can aid in the development of curriculum for immersion education. In this study, I examine the methods through which vocabulary expansion is taking place in Sauk, a member of the central branch of the Algonquian language family.

1.0 Language Background and Status

The Sauk language is spoken in central Oklahoma by members of the Sac and Fox Nation. At the time of contact, the Sauk were located in the Saginaw Bay and River area of present-day eastern Michigan, prior to removal to Indian Territory in 1867 (Whittaker 1996:362). Mesquakie, Kickapoo, and Sauk are all mutually intelligible with one another,

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and thus are considered to be dialects of the same language (Mithun 1999:333). Speakers and community members consider the three to be separate but related languages.

Today, of the 3,490 enrolled tribal members, only four conversationally fluent speakers remain, all over the age of seventy. Speaker population has declined drastically over the last ten years, and the last fully fluent speaker died in 2004 **(**Sauk Language Department 2008:1). Today's Sauk speakers were raised in bilingual Sauk-English households. They are conversationally fluent, meaning that they are conversant on most topics, but at times have difficulty accessing words due to the fact that English has been their dominant language for the past thirty years or more. Additionally, a few adults are learning Sauk as a second language. Sauk is therefore at the highest level of language endangerment, Stage 8 out of 8 according to Fishman's Graded Intergenerational Disruption Scale. This stage of language endangerment is characterized as a handful of elderly speakers who are geographically and socially isolated. They do not use the language on a daily basis and are beyond child-bearing age (1991:88-90).

1.1 Sauk Language Revitalization

Significant efforts are underway within the community to revitalize the language. The Sauk Language Department, located in Stroud, Oklahoma, was established in 2005 as a permanent infrastructure dedicated to the revitalization of the Sauk language. In 2007, a Sauk language survey was conducted within the community, in which 85.6% of respondents indicated full support of an immersion program. Current revitalization efforts include evening community classes, summer preschool immersion camps, teacher training, and Master-Apprentice language learning to train future Sauk language teachers. They do not follow the traditional Master-Apprentice (MA) model in which one speaker, or "Master", is paired with one learner, or "Apprentice". Instead, they have implemented a modified version better suited to their needs and the reality of their situation. There is one MA team composed of three Sauk language speakers and three second language learners. MA team members alternate between meeting in group and individual sessions at the language department office. Sauk language teacher trainees participate in MA sessions for approximately twelve contact hours per week. With plans for a future immersion school, language acquisition and instruction are the priorities for the department because this is the vehicle through which the language can be transmitted to new speakers. Additionally, within the past four years, the Sauk Language Department has produced several in-house pedagogical materials, including games and lesson plans for community classes, two pilot immersion schools, and summer language camps, and is actively making audio recordings to supplement them.

1.2 Why Create New Words?

When Sauk was widely spoken as a household language, words referring to new elements in Sauk culture and environment developed naturally. For example, the language contains words for 19th century farming terms, such as 'hoe' and 'plow'. Words for diseases such as cancer and diabetes, and many 20th century car-related words, such as 'drive', 'seat belt', and 'motorcycle' have also been incorporated into the language. However, by roughly the mid-20th century, Sauk had largely ceased to be a language of

daily communication and the vocabulary ceased to include words for new technologies and modern concepts.

1.3 Sauk Methods Employed

With future plans for an immersion school, the types of words being created in Sauk directly relates to the focus of their current revitalization efforts. In the immersion school, Sauk will be the only language used in the classroom, and English will not be spoken. When the language department was first created, staff members came up with a list of teaching-specific vocabulary items to be coined. This list included words for games and toys found in a preschool, and disciplinary commands, among others:

(1) *balloon, bulldozer, chalkboard, crayons, Play-Doh, puppet, slide, jump rope, library, roller skates, water fountain*

However, as the Master-Apprentice program has progressed, speakers and language department staff realized that they needed new words for many everyday objects. Today, the need for new words to be coined often arises naturally during Master-Apprentice sessions and other language work. Frequently during one of these sessions the need will arise for a term or expression for which no Sauk equivalent exists. The speaker will either coin a word on the spot or find a way to talk around it. If a word is repeated enough, the apprentices catch on to it and eventually begin to use it themselves as well. Examples of household words that have been created include the following:

(2) *sink, bathtub, curtain, couch, kitchen, paper towels, fly swatter, clothes hanger, umbrella, toothbrush*

Occasionally, speakers have difficulty coining certain new words immediately and need time for reflection. These words are noted and brought up during semi-regular Sauk Language Advisory meetings. The purpose of these meetings is to meet with speakers to help Sauk Language Department staff with a variety of tasks, and so is not specifically focused on coining new words. This team is composed of two to three native bilingual Sauk speakers. The remaining one to two members of this team are employed by the Sauk Language Department. These include a director who is a second language speaker and curriculum developer, and a technical assistant who understands a large amount of Sauk but does not speak it. It should be noted that the Sauk Language Department has preferred to maintain an informal approach to creating new words rather than creating an official committee, as the Hawaiians and Alutiiq have done (Kimura and Counceller 2008). The speakers and staff may have felt they did not need permission, or that there was no one to whom they could turn to grant the official authority to coin and implement new words into the language.

When there are new words to be coined, the team meets together to brainstorm and come up with possible options. Those are noted, and then returned to at a later date. Sauk Language Department staff will usually verify a term with speakers two to three times before it becomes approved. Once a new word has been approved, it is audio recorded and can be used for various instructional purposes. This process remains very fluid.

New Sauk words are developed by and for three main groups of people. These include current L2 learners, elders, and future Sauk speakers. The main purpose of filling in lexical gaps in Sauk is to strengthen the language and enable future Sauk language immersion teachers to conduct classroom teaching entirely in Sauk. Thus, new words are made primarily for the current Sauk language teacher trainees and future Sauk language speakers. The teacher trainees take part in Master-Apprentice sessions, write lesson plans, develop teaching curricula materials, and teach Head Start and community language classes. The elders may or may not incorporate these new words into their vocabularies because they did not grow up using them and may not have as much of a need for them as second language speakers.

At the moment, the language department is not actively distributing the new words. Community language classes typically cover more basic vocabulary, such as animals, colors, food, and so on, and thus the need to distribute new words is not pressing. However, these words are likely to become more and more integrated into daily use through immersion teaching in the future.

2.0 Linguistic Strategies

2.1 Lexical Borrowing

One of the earliest means of incorporating new words into the Sauk language was lexical borrowing. In the case of Sauk, the types of items borrowed that are known and discussed here are all items introduced as a result of European contact, consisting mainly of animals, foods, days of the week, and technological innovations. Borrowings can be found for different stages in history, including early European contact (pre-removal), post-removal to Oklahoma, and 20th century items. Almost all of the borrowed words come from English, and are adapted to Sauk phonological patterns. A few items may have been borrowed from French and other Native languages, but this is not common, and it is difficult to be certain of their origin. The scope of this study is not an early comparative work with other Algonquian languages, and thus these are not fully investigated. However, no overt borrowing with neighboring or related Native languages, such as Mesquakie and Kickapoo, appears today.

The following are examples of older borrowings that became incorporated into the lexicon relatively soon after European contact.

(3) *kâshôha* ‘cat’
(4) *kôhkôsha* ‘hog, pig, pork’

(data from Whittaker 2005)

The terms *kâshôha* and *kôhkôsha* closely resemble their French counterparts, *chat* and *cochon*, respectively. Goddard proposes, at least for Delaware and Munsee, that these terms were picked up from overhearing Dutch people giving hog-calls. “Munsee *kó:ško:š* “pig”… This word must reflect reduplication of the syllable [ku:š] used in some Flemish dialects in designations and calling terms for pigs; most likely it was taken directly from the hog-call… (1974:155).” These borrowings could also be due to French influence or sound symbolism. Although it is difficult to be certain of their origin, the fact that these

terms are represented very similarly in several Algonquian languages does reveal that these are older borrowings, most likely from the period of early European contact.

The word for 'coffee' is another example of a word that would have been introduced after European contact. Although it is not exactly clear whether coffee was introduced pre-or post-removal, it is evident that the borrowing for 'coffee' has been in the language for a long time. It takes the inanimate third person singular suffix *–wi* to derive a word for the color brown:

(5) *kâhpîhâtêwi*
kâhpî-hâtê-wi
coffee-color-0s/IND[2]
'brown'

(data from Whittaker 2005)

After removal to Indian Territory, many words for new items became integrated into the Sauk language. For example, the borrowed term for 'molasses' is clearly a result of post-removal contact with Southern crops and culture.

(6) *hêmpêkêha* 'hamburger'
pinachi pathêhi 'peanut butter'
pishkitani 'biscuit'

(data from field notes 2008-09)

(7) *châkanetîhi* 'cocoa, chocolate'
chînîhi 'chili'
chîthi 'cheese'
êshkwîmi, âshkwîmi 'ice cream'
kâhpîhi 'coffee'
kechapi 'ketchup'
mashteti 'mustard'
menêshishi 'molasses, sorghum, syrup, maple syrup'
miniki 'milk, commercial milk' (as opposed to *nônâkanâpowi*, breast milk)
ôchimîni, otîmîni 'oatmeal'
panênêhi 'banana'
patêhi 'butter'
tânapi 'turnip'

(data from Whittaker 2005)

[2] Abbreviations used are as follows: 0p=third person inanimate plural, 0s=third person inanimate singular, 1=first person, 12=first person plural inclusive, 1p=first person plural exclusive, 2=second person, 3=third person proximate, 3'=third person obviative, 3pl=third person proximate plural, ANIM=animate, CONJ=conjunct, DIM=diminutive, INAN=inanimate, IND=independent indicative order, INDEF=third person indefinite, LOC=locative, NA=noun, animate,NI=noun, inanimate, NOM=nominalizer, PL=plural, POSS=possessive, SG=singular, UN=unknown morpheme, VAI=verb, animate intransitive

Besides food, borrowings for other items can be found as well.

(8)	*âtomôpîna*	'car'
	kanâkwa	'clock'
	kâteni	'cotton'
	shkon-	'school, schoolhouse'

The Sauk language also borrowed terms for days of the week from English.

(9)	*Manitîheki*	'Monday, on Monday'
	Toshtîheki	'Tuesday, on Tuesday'
	Wêneshtîheki	'Wednesday, on Wednesday'
	Thêshtîheki	'Thursday, on Thursday'
	Pwâtîheki	'Friday, on Friday'
	Thêtitîheki	'Saturday, on Saturday'
	Thanitîheki	'Sunday, on Sunday'

(data from Whittaker 2005)

The existence of terms for nationalities such as Czech and German is indicative of the immigrant groups that the Sauk would have had contact with post-removal.

(10)	*Chêmanîha*	'German'
	Mêhikôha	'Hispanic, Mexican'
	Pohîmina	'Czech' (Bohemian)

(data from Whittaker 2005)

Many of the early settlers on the plains were German and Czech. The word *Pohîmina* for 'Czech' comes from the label 'Bohemian'. A large Czech settlement, known today as Prague, Oklahoma, neighbors Sauk territory.

After removal, many words were integrated into the Sauk language until roughly after WWII, when a noticeable break in vocabulary development occurred. Widescale involvement in the war, a disruption of the traditional economy, and exogamy were significant factors for many tribes in the shift from the Native language to English as an everyday language. Until recently, few borrowings or other coined terms for words were integrated into the language after this time period.

As illustrated by the above examples, borrowing has been a fairly productive process in Sauk in the past. The words listed above have been fully incorporated into the vocabulary and most are included in the concise dictionary. While in general borrowings are now avoided as a strategy to create new words, there is no drive to eliminate borrowed words that have already become incorporated into the lexicon. The question remains as to why some words are borrowed while others are invented.

2.2 Calques

Calques, or loan translations, are another technique used to create new words in a language. Calques are a direct result of language contact, and thus familiarity with both a contact language and the target (or Native) language is necessary to form them (Silver and Miller 1997:247). While perhaps a step above borrowing, this strategy still shows heavy influence from a more dominant language. Those involved in the process of creating new words in Sauk have expressed an explicit aversion to calques, and thus the language contains only a select few examples:

(11) *kêmiyâni-pîthehkâhi*
rain-coat
'raincoat'

(12) *nimêthaho* *thapâpi*
jump rope
'jump rope'

(13) *pathethota* *nemôha*
hot dog
'hot dog'

(14) *têtepithâhi-papîni*
wheel-chair
'wheelchair'

(15) *thâkichêhikani* *methenahikani*
toilet paper
'toilet paper'

(16) *wichêno* *pahkwêshikani*
playdough/flour/bread
'Play-Doh'

It should be noted that Sauk speakers often find these constructions humorous and use them jokingly, particularly the form for 'hot dog'. Notice also that in example (15), the term for 'toilet paper' is an example of both semantic extension and a calque, since the word for 'toilet' *thâkichêhikani* literally means 'outside-object'.

Calques may initially seem like an ideal way to create new words, and this was one of the first strategies to be experimented with by the language department staff. However, the language workers have gradually come to the realization that this strategy results in forms that are merely borrowed concepts from English and are not truly representative of Sauk language structure or traditional thought processes. Although entirely composed of Sauk morphemes, these constructions are still very much dominated by an English mentality. Those involved in Sauk lexical development have discovered that there are better, more "Sauk" ways of expressing new concepts and ideas. Thus, notions of language purity may play a part in how new words are formed, especially when it comes to a language's receptiveness to calques.

2.3 Semantic Extension and Narrowing

Semantic extension is a common means through which modern concepts are expressed in Sauk. Semantic extension, as it is used here, refers to the process of assigning new, modern meanings to terms that already exist in the language, but which are no longer in use. Thus, speakers can use the language's own resources by assigning new meanings to words that already exist. The following table provides examples of semantic extension in Sauk.

Table 1: Sauk Semantic Extensions

Word	Original Meaning	Extended Meaning
ahpahikani	'patch'	'Band-Aid'
akôchikani	'pothook'	'clothes hanger'
akwîweni	'robe', 'wrap', 'cover'	'bedspread', 'sheet'
mashishkiyeni	'hay', 'grass'	'weeds'
methenahikani	'relating to wood'	'paper', 'book', 'ticket', 'menu', etc.
môtâhi	'glass'	'drinking glass', 'bottle', 'jar'
nepitheki	'where water comes from'	'water fountain'
shkotêwi	'fire'	'train', 'electricity', 'oven', 'stove'
thâkichi	'outside'	'bathroom' (compare English 'outhouse')
wâthênikani	'(natural) light'	'flashlight', 'lamp', 'light', 'lightbulb'

It is important to note that some of the extended meanings can co-exist with their original meanings, notably *shkotêwi*, which can mean both 'fire' and 'train', as well as *thâkichi*, which can mean either 'outside' or 'bathroom', depending on the context. The original meaning has not been lost, but has simply adopted an extended meaning. The same is true of *akôchikani*, whose original meaning is still in active use today.

Semantic narrowing refers to the process of taking a previously broad term and limiting its meaning. Only one example of semantic narrowing was found in the Sauk data. In the past, the term *(a)thawâwi* was pronounced interchangeably with or without the initial vowel, and was used to refer to both the color 'yellow' and the color 'orange'. Recently, however, the language department staff have entertained the idea of narrowing its meaning by assigning color designations to each of the two possible pronunciations. Thus, *thawâwi* would only mean 'yellow', and *athawâwi* would only mean 'orange'. The desire to create this distinction stems largely from the fact that many of the games played during Sauk language camps and classes require color differentiation. The decision to implement this change has not yet been resolved and is still open to debate.

2.4 Compounding

Lexical compounding is likely to be one of the most common processes in the development of Sauk neologisms. Sauk compounds are right-headed. The two most common types of noun compounding are prenoun[3] + noun compounds and noun + noun compounds.

Prenoun + Noun Compounds

The following are notable examples of new prenoun + noun compounds in Sauk.

[3] In standard Algonquian terminology, the term 'prenoun' refers to optional bound morphemes that may be compounded to a noun stem to express location, number, color, and other adjectival notions such as old, new, and young (Valentine 2001:152).

(17) *chaki ahkothikani*
chaki + ahkothi-kan-i
small + climb-NOM-INAN
'stool, step stool'

(18) *kenwâkipapîni*
kenwâki + papîni
long + chair
'couch, bench'

(19) *kenwaki nekwêkani wishkeno*
long + neck + bird
'flamingo'

(20) *mahkatêpethikâhkwa*
makatê + pethikâhkwa
black + board
'chalkboard, blackboard'

(21) *meshitêtêpithoni*
meshi + têtêpithoni
big + wheel
'ferris wheel'

(22) *meshotêneki*
meshi + otêneki
big + town
'Oklahoma City; Tulsa'

(23) *wishikiyâki mâkohkwayi*
wishikiyâki + mâkohkwayi
hard + hat
'helmet, hard hat'

Noun + Noun Compounds

Noun + noun compounds are especially common in Sauk. The nouns may be derived or underived. The following is a sampling of new terms that have been constructed using this process.

(24) *ahshkotêwi pîtahikani*
ahshkotêwi pîtahi-kan-i
fire come.in-NOM-INAN
'outlet, electrical outlet'

(25) *meshwêhi wîtheniweni*
meshwêhi wîtheniweni
rabbit food
'salad, lettuce'

(26) *methenahikanani âchimôni*
methenahikanani âchimô-n-i
papers tell.story-NOM-INAN
'newspaper'

(27) *nêmoweni pehkwâhki*
nêmoweni pehkwâhki
breath ball
'bubble, balloon'

(28) *nîshwi têtepithâhani*
nîshwi têtepithâhani
two wheels
'bicycle'

(29) *otêweni mîhkechêwîta*
otêweni mîhkechêwîta
town worker
'city worker'

(30) *pîwâpehkwi âchimôni*
pîwâpehkwi âchimô-n-i
metal tell.story-NOM-INAN
'telephone'

(31) *pîwâpehkwi wînêtepi*
pîwâpehkwi wînêtepi
metal brain
'computer'

(32) *shkotêwi nîhkânîta*
shkotêwi nîhkânîta
fire leader
'fire chief'

(33) *tâwakani* *wâpamôni*
tâwakani wâpamô-n-i
ear look.NOM-INAN
'otoscope'

(34) *têtepithonani* *mahkathêhani*
têtepithonani mahkathêhani

wheels shoes
'roller skates'

(35) *wîpitani* *pînahikani*
wîpitani pînahi-kan-i
teeth clean-NOM-INAN
'toothbrush, toothpaste'

Verb + Noun Compounds

No new constructed forms from verb + noun compounds were found in the body of Sauk neologisms. More investigation is needed to determine whether this is simply a gap in data or speakers are not readily producing these types of compounds.

2.5 New Derivations

Many indigenous languages also turn to their own internal resources to build words for introduced concepts and objects (Grenoble & Whaley 2006: 182). That is, they utilize their own traditional derivational processes to fill in lexical gaps rather than the use of calques or borrowing from other languages. Furthermore, affixes, a built-in resource of Native languages, can be used to create nouns from verbs, and verbs from nouns.

Suffixation is one of the more commonly used strategies for producing new derivations in Sauk. Through this process, noun finals[4], usually nominalizers, are suffixed to stems. The most frequently employed noun finals are */-kan-/*, */-wen-/*, */-kân-/*, and */-(h)ikânek-/*.

/-kan-/ Nominalizer

One of the most common nominalizers in Sauk is */-kan-/*. This suffix is attached to animate intransitive (VAI) verb stems (initials)[5] to create inanimate nouns. Jones cites *-gAn-* as a nominal suffix that expresses instrumentality in Fox (1911:812). The inanimate marker */-i/* follows this noun final.

(36) *ahpethi-kan-i*
heat-NOM-INAN
lit., anything that heats up
'oven, microwave, toaster'

(37) *âhtêni-kan-i*
turn.off-NOM-INAN
lit., something that turns off
'fire extinguisher'

[4] Noun finals occupy the last slot in the stem structure of words. They typically designate the word's part of speech and carry a lexical meaning. They may be either concrete or abstract (Valentine 2001:1025).

[5] Initials, or roots, occupy the first slot in the noun template. They are the only elements that are required to form a noun. Initials can be either roots or stems, simple or complex (Voorhis 1983:77; Valentine 1033).

(38) *anwêni-kan-i*
noise-NOM-INAN
'CD player, radio, iPod, instrument (musical)'

(39) *chîkakohi-kan-i*
brush, sweep-NOM-INAN
'broom'

(40) *êhnekwâkîhi-kan-i*
measure-NOM-INAN
lit., something you measure with
'ruler, measuring tape'

(41) *kâthihi-kan-i*
wipe-NOM-INAN
lit., anything that wipes off
'eraser, dish towel'

(42) *kepâkohi-kan-i*
enclose-NOM-INAN
'fence, gate, jailhouse, enclosure'

(43) *mâtakohi-kan-i*
cover-NOM-INAN
'umbrella, cover, tent cover, tablecloth'

(44) *nôtenwi-kan-i*
it.blows.-NOM-INAN
'fan'

(45) *ôchê-pahkachi-kan-i*
fly-strike-NOM-INAN
'fly swatter'

(46) *ô-têhi-pethetahi-kan-i*
3POSS-heart-listen-NOM-INAN
'stethoscope'

(47) *pâshkethi-kan-i*
shoot-NOM-INAN
'gun, rifle'

(48) *pehshkâshi-kan-i*
turn.on-NOM-INAN
lit., anything you use to turn on
'light switch, lighter'

(49) *shoshkwahi-kan-i*
be.slippery-NOM-INAN
'slide, sled'

(50) *thîkachi-kan-i*
be.frozen-NOM-INAN
'freezer'

(51) *wishkwê-tonêmohi-kan-i*
loud-mouth-NOM-INAN
lit., an object that makes your mouth loud
'microphone'

/-kân-/, /-(hi)kân-ek-/ Noun Finals

Another highly productive strategy is the suffixation of the noun final */-kân-/* to initials to form inanimate nouns. This noun final differs from the nominalizer */-kan-/* in the previous section because it has vowel length. According to Jones, the noun final */-kân-/* is a collective term for place and is most often used for enclosures (1911:813). Voorhis glosses this same final as 'house' or 'building' (1988: 153):

(52) *shôniyâhi-kân-i*
money-building-INAN
'bank, financial institution'

This noun final may also take the locative suffix *-ek-* immediately preceding the inanimate marker *-i*:

(53) *-ikân-ek-i*
NI.building-LOC-INAN

(54) *shôniyâhi-kân-ek-i*
money-building-LOC-INAN
'bank'

These two constructions, */-kân-/* and */(hi)-kân-ek-/*, are used interchangeably by Sauk speakers to convey the meaning of a room, building, place or structure:

âhkomatamo-hikâneki	sick-building	'hospital'
athen-ikâneki	stone-building	'brick house, stone house'
âtomôpîn-ikâneki	car-building	'garage'
ayôwen-ikâneki	tool-building	'tool shed'
chîtap-ikâneki	sit-room	'living room, sitting room'
kothekwan-ikâneki	heavy-room	'weight room, gym'
mamatamo-hikâneki	pray-building	'church'
mashishkinenîha-hikâneki	doctor-building	'clinic'
wîthen-ikâneki	food-building	'restaurant, dining room, cafeteria'
Mehikowîthen-ikâneki	Mexican.food-place	'Mexican restaurant'
meno-hikâneki	drink-place	'saloon, bar'
methenahikan-ikâneki	book-place	'library'
nepê-hikâneki	sleep-room	'bedroom'
pîhkô-hikâneki	bingo-place	'bingo house'
tawê-hikâneki	trade-place	'store'
thâkichihê-hikâneki	outside-place	'bathroom'
tôskashâ-hikâneki	horse-building	'barn'
wâchaho-hikâneki	cook-room	'kitchen'

<u>*/-wen-/* Nominalizer</u>

The nominalizer */-wen-/* is also added to verb stems to derive new inanimate nouns. These nouns may be either abstract or concrete. This nominalizer appears to occur less often than */-kan-/*.

(56) *amokwî-wen-i*
UN-NOM-INAN
lit., it's eating you
'cancer'

(57) *achikwathô-wen-i*
sew-NOM-INAN
'sewing machine'

(58) *ahpemeki-wen-i*
up-NOM-INAN
'step'

(59) *tashîhkâno-wen-i*
play-NOM-INAN
'toy'

2.6 Participles as Locative Expressions

Finally, another strategy being used is the creation of participles from verbs. Speakers often prefer this strategy to coining new nouns. Participles are verbs, carry a noun-like meaning, and function as nouns within sentences (Valentine 2001:1045). Thus, they are somewhat of a cross between nouns and verbs. Participles may be fully inflected for all of the verbal categories except the iterative.

The construction of participles is quite common in Algonquian languages. According to Valentine, many Nishnaabemwin participles for new or introduced concepts, notably technological items and human roles, have become lexicalized:

(60) *baatewaagmiseg* 'beer' NI
(61) *endzhi-mzinaatesjigeng* 'movie theater' NI

(Valentine 2001:210).

The participles that are formed describe the event or action associated with the object. Participles are constructed by attaching two preverbs[6] to a verb inflected in the conjunct order[7] to describe the action that takes place:

(62) *e-tashi-hanenwî-wâchi*
CONJ-place.where-bathe-3PL
'where they bathe, the place where they bathe'

In the above example, *e-* is a preverb signaling the conjunct order, and *tashi-* is a relative preverb indicating where an event or action takes place. This closely resembles the Kickapoo preverb *tasi-* with the same meaning:

(63) *tasi-* 'there, at that place' (relative)
(64) *tasikeekeθaapamea* 'he peeps at him at that place'

(Voorhis 1974:48).

Thus, rather than coining a noun for bathtub, speakers prefer to describe the action surrounding this object. The following are further examples of participles formed using this construction. Note that because the participles are essentially verbal, they can inflect for any subject, although they are most often inflected for nonspecific subjects (3PL and 3 INDEF).

[6] The term 'preverb' refers to optional elements that are prefixed to verb stems. They are used to express a range of meanings, such as tense, aspect, manner, and direction (Valentine 2001:154).

[7] The conjunct order is an inflectional system that signals that a verb is dependent.

(65) *e-tashi-chîtapi-wâchi*
CONJ-place.where-sit-3PL
lit., where they sit
'living room'

(66) *e-tashi-pêkohikê-wâchi*
CONJ-place.where-dry-3PL
lit., where they dry
'clothes dryer, clothesline'

(67) *e-tashi-wâchaho-wâchi*
CONJ-place.where-cook-3PL
lit., where they cook
'kitchen'

(68) *e-tashi-pâkâtowê-wâchi*
CONJ-place.where-play.ball-3PL
lit.: where they play ball
'basketball court, baseball field, baseball diamond, etc.'

(69) *e-tashi-tashîhkâno-wâchi*
CONJ-place.where-play-3PL
lit.: where they play
'playground'

These participles can also be combined with associated words, resulting in a phrase to express a single concept:

3rd person plural

(70) *e-tashi-wâkwapito-wâchi* *o-kâtani*
CONJ-place.where-rest-3PL 3POSS-feet
lit., where they rest their feet
'footstool'

(71) *e-tashi-wâchaho-wâchi pahkwêshikani*
CONJ-place.where-cook-3PL bread
lit., where they cook bread
'stove, oven'

(72) *e-tashi-kashkihtô-wâchi* *shkotêwi*
CONJ-place.where-make-3PL fire
lit., where they make fire
'fireplace, campfire'

3rd person indefinite

(73) *e-tashi-kôken-ameki* *shehkîtâkani*
CONJ-place.where-wash-INDEF clothes
lit., where they (indefinite) wash clothes
'washing machine, washer'

(74) *e-tashi-kôken-ameki* *nâkanani*
CONJ-place.where-wash-INDEF dishes
lit., where they (indefinite) wash dishes
'kitchen sink, dishwasher'

(75) *e-tashi-pêko-hemeki* *shehkîtâkani*
CONJ-place.where-dry-INDEF clothes
lit., where they dry clothes
'dryer, clothes dryer'

etashi- vs. *–(h)ikâneki*
In some cases, both *etashi-* and *–(h)ikâneki* constructions can easily be formed:

(76) 'living room'
a. *etashichîtapiwâchi* 'where they sit'
b. *chîtapikâneki* 'sitting room'

(77) 'kitchen'
a. *etashiwâchahowâchi* 'where they cook'
b. *wachâhohikâneki* 'cooking room'

These forms can be used interchangeably and appear to solely depend on individual speaker preference.

3.0 Issues and Challenges

The process of creating new words in a revitalization project can present many challenges, both linguistic and social. Some linguistic challenges include the role of nouns versus verbs and semantic vagueness. Some of the more socially-oriented challenges include new words not catching on and choices about borrowing. In this section, I discuss each of these challenges that have arisen and how they have been addressed in Sauk.

3.1 Status of Nouns versus Verbs

While the focus of this study is on the creation of new nouns, it is important to be aware of the large role that verbs play in Algonquian languages. A major factor in creating new words is that the individuals who are involved in this process are also native speakers of English, and thus prone to approach the process from an English frame of mind. Sauk, like other Algonquian languages, is polysynthetic and most of the meaning conveyed is carried by the verb. With its rich verbal agreement for nouns, verbs, and indirect objects, a single verb in an Algonquian language has the potential to be translated into English as an entire sentence. Independent clauses have fairly free word order, and independent noun phrases can be dropped entirely within strings discourse. In English, however, the noun-to-verb ratio is much higher than that of polysynthetic languages (Mithun 2007:9). This propensity towards nouns is especially evident in terms of language teaching methodology, where the majority of vocabulary learned first consists of nouns for colors, numbers, and animals. This major structural difference between Sauk and English can therefore be problematic for native English speakers trying to coin new Sauk words.

Members of the Sauk language team have become increasingly aware of the importance of verbs as they have become more involved in the project. This awareness

can be seen by the transformation of strategies for vocabulary items such as ‘bathtub’, ‘sink’, and ‘clothes dryer’. Initially, several coinages were proposed involving the compounding of the noun *mahkahkwi*, meaning ‘bucket’ or ‘box’, to noun initials. These compounds later proved to be semantically unacceptable, as indicated by the asterisk (*):

(78) *anenwi-mahkahkwi*
bathing-bucket
*‘bathtub’

(79) *kôkeni-mahkahkwi*
wash-bucket
*‘washtub, washbowl, sink’

(80) *pêhkway-mahkahkwi*
dry-bucket
*clothes dryer

(81) *têhkiyâki-mahkahkwi*
cold-bucket
*‘air conditioner’

Although created by the speakers themselves, they did not associate these forms with the intended meaning when presented with them at a later date. These constructions were linguistically successful because they were grammatically correct. Semantically, however, they fell flat and were too foreign conceptually to convey the intended meaning. However, a few examples of compounding with *mahkahkwi* were both linguistically and semantically successful:

(82) *methenahikani-mahkahkwi*
paper-bucket
‘mailbox’

(83) *methikwa-mahkahkwi*
ice-bucket
‘refrigerator’

(84) *nêkawi-mahkahkwi*
sand-bucket
‘sandbox’

(85) *wînyaki-mahkahkwi*
dirty-bucket
‘trash can’

The reasons why some of these compounds were successful while others were not remain unclear. One possible explanation is that these compounds tend to be taken literally and thus the figurative meaning is blocked. Generally speaking, the meaning that compounds give is often idiomatic. In English, a *hot dog* is not actually a dog that is hot, a *couch potato* is not a type of potato, nor is a *chatterbox* a box that chatters. Thus, the meanings associated with compounds are not always predictable based on the meanings of their component parts. This lack of success may also have been due to the fact that these very nounlike constructions were not organic enough to the language and its conceptual thought processes.

As seen previously, after determining that these compounds were unsuccessful, the Sauk language team has adopted a different strategy, that of forming participles from verbs. An examination of the possibilities that speakers generate while brainstorming can be extremely informative. Such observation can reveal their thought processes and what they find most salient about the object before finally deciding upon the best choice for a new word. Consider the following options for ‘air conditioner’:

(86) a. *têhkiyâki* *mahkahkwi*
cold bucket
'cold bucket'

b. *iniwêchi* *têhkiyâki*
that's why it's cold
'that's why it's cold'

c. *potachi-kani*
blow-NOM
'the thing that blows'

d. *potachi-kani* *têhkiyâki*
blow-NOM cold
'the thing that blows cold'

e. *etashi-wêchimikaki* *têhkiyâki*
place.where-UN cold
'where the cold air comes from'

The first choice that the Sauk language team came up with as a word for 'air conditioner' was *têhkiyâki mahkahkwi*, which literally means 'cold bucket'. However, when a language worker asked one of the speakers to turn on the "cold bucket" and they did not understand, it was determined that they needed to coin another term. The next option they produced was *iniwêchi têhkiyâki*, meaning 'that's why it's cold'. This broad description was problematic because it could apply to many concepts besides an air conditioner, such as snow, wind, and so forth. They found the third option, *potachikani*, meaning 'the thing that blows', unacceptable for the same reason. Again, this could be interpreted as several items besides an air conditioner, such as a fan or even a heater. Next they came up with *potachikani têhkiyâki*, meaning 'the thing that blows cold'. This expression was slightly more specific, but still not quite what the speakers were aiming for. After considering several options, they finally decided upon *etashiwêchimikaki têhkiyâki*, meaning 'where the cold air comes from'. The speakers were much more comfortable with this construction, largely because of its verb-like quality and lack of overlap confusion.

What is at stake in relying solely on nouns to coin new terms is retaining the true nature of the language. With strategies accessible such as the formation of participles, one might even question the necessity of coining new nouns at all. The need to continue developing new nouns in Sauk will depend largely on the purposes for which the language is used and whether or not it is possible to convey the same ideas using verbs. In the Sauk Master-Apprentice sessions, when an object comes up for which no Sauk word exists, speakers have generally learned to talk around the noun, rather than code-switching into English. Because staying in the language is more important than having a word for every object that arises in conversation, it may not be necessary to coin a large number of nouns for modern objects.

3.2 Semantic Vagueness

Due to extension, there is considerable semantic vagueness for many of the Sauk neologisms, as in the following examples:

(87) *wathêni-kan-i*
light-NOM-INAN
'(natural) light, flashlight, lamp, light bulb'

(88) *methenahi-kan-i*
wood-NOM-INAN
'paper, book, menu, ticket'

(89) *ahpethi-kan-i*
heat-NOM-INAN
'stove, oven, microwave, toaster'

(90) *shkotêw-i*
fire-INAN
'fire, train, electricity, stove, oven'

(91) *anwêni-kan-i*
noise-NOM-INAN
'CD player, any kind of musical instrument (clarinet, guitar, etc.)'

In example (87), the basic meaning of the root, 'light' is extended to refer to any type of light-bearing object, from a flashlight, to a lamp, and even a light bulb. In example (88), *methenahikani* can be used for any type of object made out of paper, whether this is actual paper itself, a book, a menu, or even a traffic ticket. Thus, these forms can encompass a wide range of meanings. This vagueness may or may not impede communication, so long as the appropriate meanings can be apprehended through context or clarification. In a recent Sauk Master-Apprentice session, for example, a speaker directed an apprentice to pick up a book and place it on the table. She used the word *methenahikani* and the apprentice immediately picked up a piece of paper. Afterwards, the speaker expressed feeling misunderstood, and voiced the need for a separate word to distinguish 'book' from 'paper' in Sauk. Although in this situation the learner was oblivious to the possibility that the speaker could have been asking for a book rather than a piece of paper, a fluent speaker would likely have asked for clarification, thus negating the need for two separate words. Contextual cues, whether visual or conversational, therefore become extremely important in negotiating meaning in cases of semantic vagueness.

The occurrence of semantic vagueness is a common phenomenon in any language. In English, for instance, the term *wood* can be used to refer to either a small segment of a tree or to a whole group of trees. Likewise, a *crane* may be a type of bird or a specialized type of machinery used to lift heavy objects. It is even possible to *crane* one's neck. However, this multiplicity of meanings typically does not lead to confusion in everyday communication. Speakers can usually discern the intended meaning through context or conversational clarification strategies. Thus, the existence of semantic vagueness in Sauk is not necessarily problematic in and of itself. The potential for problems to arise lies in situations where speakers and learners may impose English expectations onto Sauk. By trying to apply an English set of conceptual and lexical categories onto the language, whether intentionally or unintentionally, part of what is unique and distinctly "Sauk" may be lost or even viewed as inadequate when evaluated by the standards of English. Such reactions are contrary to the goals of language revitalization and should therefore be avoided.

3.3 Choices about Borrowing

Ideology of Borrowing

In endangered language communities and the field of language revitalization, a great deal of debate surrounds linguistic borrowing. Although borrowing new terms is a natural outcome of contact, revitalization efforts in Native American communities have been increasingly resistant to borrowing from English. Borrowing tends to be consciously avoided in cases of indigenous language revitalization in an effort to create a clear separation between the dominant language and the indigenous language. The relationship

between language and identity can be seen through this resistance to borrowing. Borrowing is increasingly avoided as the need to establish an identity that is separate from the dominant culture becomes more acute.

Borrowing from a Dominant Language

Borrowing from European languages has been a common phenomenon across the languages of North America since the time of contact (Mithun 1999:311). According to Silver and Miller, "Almost all the languages of the Americas have loanwords from colonial languages, notably from Danish, French, Russian, English, Spanish, and Portuguese" (1997:330). Algonquian languages in the Northeast have borrowed words from Dutch, languages in Canada and Louisiana from French, languages in California and the Southwest from Spanish, and languages in Alaska from Russian (Mithun 1999:312-13). An observation of the specific words and types of words that have been borrowed can shed light on the dynamics of European contact over time. In describing the abundance of Dutch loanwords in Delaware, another Algonquian language, Goddard states, "…the large contingent of loanwords from Dutch gives important testimony on the nature of the contacts between the Indians and the colonists of New Netherland" (1974:153). These loanwords reveal a great deal of historical insight into the types of animals, European cultural items, and trade goods that were introduced and circulated after contact (Goddard 1974:159).

Borrowing from Related Native Languages

In many language revitalization programs today, if borrowing does occur, it is more likely to be from a surrounding indigenous language, rather than the dominant language. Borrowings have always occurred between Native languages in North America. Borrowing from other related indigenous languages may be a more welcome alternative for many communities than borrowing from a dominant language. Currently, Hawaiian commonly borrows from other Polynesian languages (Hinton 2001:168). According to Grenoble and Whaley, "The possibility of borrowing words from related languages and adapting them to the phonemic and morphemic systems of the local language may be an attractive solution for many communities. This has the advantage of avoiding any sense of accommodation to a language of wider communication" (2006: 181-2).

The need to borrow from other indigenous languages has not been explicitly addressed in Sauk. However, if the need were to present itself, the most likely languages to borrow from would be Mesquakie and Kickapoo. Cree and Ojibwe may provide additional alternatives due to the fact that they are still widely spoken and thus more likely to have terms for a wide array of modern objects.

4.0 Implications for Language Revitalization

4.1 Traditional versus Modern Language Use and Linguistic Purism

According to some members of endangered language communities, traditional ideas should be expressed in the traditional language while mainstream ideas should be expressed in the mainstream language (Hinton 2001:16). This attitude compartmentalizes

not only language, but traditional and modern ways of life. If this separation occurs and persists, then there is never a need to develop new vocabulary items because introduced items and concepts should only be expressed in the mainstream language. Cultural factors, as well as personal biases, can influence choices about what words or types of words should be coined. According to Wilson et al., community members

> …may still believe that Indigenous languages are not practical for the modern world…, or that their children might face a disadvantage if they are taught to speak the Indigenous language fluently. They may like the idea of children learning numbers, colors, and animal words, but they may be more uncomfortable with children speaking about computers, microwave ovens, and convenience stores in the indigenous language, especially if they have to create new words to do so. [Wilson and Yellow Bird 2005:116]

Other influences are language attitudes relating to linguistic purism and resistance to language change. The notion of linguistic purism refers to the idea that one form of a language, usually older, somehow represents a "purer" version than its other forms. This idea of language purity is problematic in any language because languages are constantly changing, making it difficult to determine what is "pure". What was considered pure fifty years ago is very different from what would be considered pure today. According to Trudgill, "All languages change all the time. It is not very well understood why this is the case, but it is a universal characteristic of human languages. The only languages which do not change are those, like Latin, which nobody speaks" (1998:1). However, some individuals feel uncomfortable about the unnaturalness of forming new words so deliberately, and would prefer their language to become extinct than to exist in an altered form. This attitude is contrary to the goals of language revitalization, which actually seek to reverse language shift by carrying language use into new domains. For many communities, a more natural approach to language change is simply not an option. The languages are no longer being used for daily communication and speaker populations are diminishing rapidly. If there is to be any input by the remaining speakers as to how these concepts will be expressed in the Native languages, it must happen now.

4.2 The Role of L2 Learners

Kimura and Counceller assert that neologisms are often more necessary for second language learners than native Hawaiian speakers because they are more proactive about using the language in all domains, while the native speakers, though they have knowledge of the language, may no longer be active users of the language (Kimura and Counceller 2008:124-5). Thus, because of their proactive approach and need to use the language in the classroom, L2 learners are often much more likely to be aware of the need for modern vocabulary and to integrate these new terms into their own vocabularies than are native Hawaiian speakers. Furthermore, although they are not native speakers, Kimura points out that L2 learners can be particularly helpful in the process of creating new words for several reasons. One challenge from a logistical standpoint in producing these forms is that older speakers may be unfamiliar with the modern technological vocabulary, even in English (Hinton 2001:168). For instance, relatively few 70-year-olds are familiar with the concept of a blog, iPod, or texting. L2 learners can help in this way

because they tend to be much more familiar and comfortable with modern technological inventions. Additionally, they often have much more overt knowledge of the structure of the language than do native speakers. This knowledge can be beneficial and L2 learners can work with speakers to develop new terms in the language: "Serious second language learners, who have acquired their language well, generally have a great advantage of knowing how the language works through second language acquisition" (Kimura and Counceller 2008:125). They are familiar with traditional word formation strategies and can draw upon this knowledge to know how component parts fit together. Moreover, in cases where the remaining speakers may not have used the language in a long amount of time, they can help to trigger the memories of elder speakers by providing them with possible options for coinages. Though these may not be the actual coinages that are chosen, they can give elders a jumping off point and help to get them thinking in the language.

4.3 An Ongoing Process

Beyond the noun-verb difference, as seen with the *mahkahkwi* examples described above, speakers have at times decided that they wanted to change a word that they had previously been coined, either because they did not recognize it later or because they wanted to describe something in a different way by focusing on a different aspect of the object.

(92) *wîchêno* *nîhkânîta*
play leader
*'coach'

The formation in example (92) was unsuccessful because a coach is not actually someone who plays in a game. This construction may however be more appropriate as a word for a team captain. Cases such as this demonstrate the speakers' desire to coin new words that will be readily identifiable based on their component parts. Such identifiability will in turn will aid those who are trying to learn Sauk as a second language by making the meanings more accessible.

Updating a language's lexicon is an evolving process and is never completely finished. Some words that have been recently coined may at some point in the future be deemed unrecognizable.

5.0 Conclusion

Sauk language speakers and learners seem to enjoy developing new words. This task involves the speakers in language revitalization and challenges them to use the language in ways which they may not have previously. In much the same way, speakers of modern English also enjoy experimenting with possibilities for new words. Although creating new words is much more of a prompted effort in Sauk than in English, speakers still appear to derive amusement and satisfaction from participating in this process.

As we have seen, several strategies are being used to create new words in Sauk today, many of which mirror those that have been used in the past. These include borrowing, semantic extension and narrowing, calques, compounding, suffixation of noun finals, and participles. Of these, the latter three tend to be the most productive. The

fact that these three strategies are the most productive today is not surprising since they have been the primary means through which new words have entered the language in the past. Thus, though some may argue that coining new words is an unnatural process and that it changes the language, this study reveals that speakers are in fact continuing to follow the natural processes that have always been used to derive new words. This is significant as L2 speakers and "rusty" or isolated Native speakers are often challenged in their home communities as to the so-called "purity" of their language use. Furthermore, L2 learners play a critical role in the development and use of new words. They can be of assistance by being conscious of the manner in which terms are elicited from speakers. Sauk speakers will often provide direct translations (calques) when English terms are initially elicited. Working with native speakers, L2 learners can be a driving force in the creation of new words. They know how to analyze the possibilities that speakers generate and can guide them towards more natural, Sauk-like options.

Some of the main challenges that have arisen for the Sauk in creating and using new words include the role of nouns versus verbs, semantic vagueness, and choices about borrowing. In each of these cases, it is important to consider the influence of English on how people approach the Sauk language. In general, the speakers prefer more verb-like formations, such as participles, over nouns. This propensity towards verb formations falls in line with the basic polysynthetic structure of the language. Participles are extremely productive and the patterns can be easily taught so that L2 learners can continue to make new words when they are confronted with the need to express concepts or objects for which no Sauk word exists.

This study offers a point of comparison for other language revitalization programs that are developing new words. It also presents some of the strategies that have been used and some of the main challenges that have been addressed. Overall, it appears that language-internal processes such as semantic extensions, nominalization, compounding, and participles, are more favorable for integrating new words into Sauk than language-external means such as borrowings and calques. Present and future Sauk language learners now have many more possibilities to express themselves in the context of modern society than they did even ten years ago. Only time will reveal the extent to which these new words are successfully integrated into the language by future Sauk speakers.

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