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Spelling out Prefix Concord in Siraya

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Abstract. Based on the data in Adelaar (2011) and Tsuchida (2000), I look into the way how prefix concord is spelled out in Siraya. I started from clarifying some conceptual confusion between prefix concord and classificatory prefixation. Following Adelaar (2011), I argue that prefix concord is different from classificatory prefixation in that prefixes of prefix concord are not a set of morphemes denoting verb types. Unlike classificatory prefixation, prefix concord must involve phonological reduplication without considering morpheme boundaries. Based on Li's (2009) proposal, I argue that prefix concord is a phenomenon of feature realization. The prefixes of prefix concord are underlyingly disyllabic. However, they may be subject to further truncation due to a requirement on the preferred 'size' of truncated forms. The downsizing tendency is conditioned by a drive to maintain lexical contrast. Following Wolf (2008), I propose an OT analysis to realize the feature of prefix concord. And the lexical contrast effect observed in the data is handled in Ichimura's (2006) scheme as regards anti-homophony.

Keywords: prefix concord, prefix harmony, multiple agreement, Siraya

1. Introduction

In his paper about prefix concord (prefix harmony; henceforth PC) in Siraya (Tsuchida 2000), Tsuchida mentions his research motivation as follows: the Siraya verb stem *-lpough* (*'lpux* in Adelaar's spelling) "can, be able" occurs with quite a number of different prefixes, depending on the following verb. That is to say, there are prefixes that are not employed independently. Instead, these prefixes, which are attached to a higher verbal element, are dependent on the form of a lower verb. Hence, they look like a trimmed chunk of the lower verb. By way of example: (From Adelaar 1997:392 (85); emphasis mine.)

(1) ni-**paka**-ĭmməd-ən[1] tĭn **paka**-darikäx neini-än (Siraya; xii:15[2])
PAST-AS[3]-all-UO by him CAUS-healthy them-OBL
'he cured them all'

Regarding the size of these dependent prefixes, Adelaar (1997:392)[4] notes that what attaches to the auxiliaries (or adverbial verbs) are the first one or two syllables of a following verb. As a result, these prefixes are nothing more than a repeated/copied section (or rather, anticipated) of the lower verb in the auxiliary (or the adverbial verb).

An intriguing fact about this kind of copying is that it does not respect morpheme boundaries. Usually, the first one or two syllables plucked from the following verb do not constitute a morpheme or a morphemic bloc by themselves. In other words, these partly reduplicated forms may not conform to any bound or free morphemes or combinations of morphemes. For example: (From Adelaar 2011:215; emphasis mine.)[5]

(2) ...ka Raraman-uhu ka **kmi**-dung **k**-**m**-ĭtta
and Father=2S.GEN LK AS-dark <AO3>see
pää-v'li-a ĭmhu-an tu rämäx (Siraya; vi:18)
give-in.return-SJ 2S-OBL LOC light
'...and your Father who sees in secret will reward you openly'

In the exemplifying sentence above, the *kmi* in *kmi-dung* is not part of a prefix in *k-m-ĭtta*, as pointed out by Adelaar. On the contrary, the reduplicated constellation *kmi* simply reflects the initial syllables of *k-m-ĭtta*, which derives from *kĭtta+-m-* (infix). Under the operation of PC, the first consonant of the root is plucked off and welded together with the infix. Therefore, on empirical grounds, these PC sequences should not be identified with grammatical prefixes.

In this paper, I will try to tease out the generalization behind this phenomenon and provide an optimality theoretic (OT) analysis.

2. Literature Review

Two subsections are provided for reviewing the previous studies. Firstly, I will scour some papers and reference grammars in which PC is claimed to be attested. Secondly, Li's (2009)

[1] The Siraya example sentences have inconsistent spelling in this paper because I reproduced all of the examples from the original texts accordingly. Nonetheless, most of the data for analysis are from Adelaar (2011), which have been consolidated into a single orthography; only six pairs are from Tsuchida (2000).
[2] Indicating the chapter and verse number in the translation of Gospel of Matthew (Gravius 1661).
[3] Anticipating sequence. This is the term used by Adelaar to refer to the higher copy in prefix concord.
[4] Also refer to Adelaar 2012:135-9.
[5] Adelaar gives a different version with respect to the syllabification and gloss of the same sentence in Adelaar (1997:392 (86)), which was published earlier.

proposal for the generation of PC is introduced to lay a foundation for further pursuit.

2.1 Languages attested to show PC

Based on the observations in the previous section, it is clear that prefixes turned out in PC are not ordinary grammatical prefixes. Firstly, they always occur in a dependency with a lower verb, but the grammatical prefixes never do. Secondly, grammatical prefixes are semantically explicit. However, prefixes generated in PC are usually excised parts of a morpheme or products of concatenation of incomplete morphemic parts without a lucid meaning (Tsuchida 2000:115). Although we cannot exclude the possibility that these prefixes of PC are etyma of future grammatical prefixes, it is not appropriate to hastily take them as equivalents of grammatical prefixes before they are lexicalized into grammatical prefixes after the long run, under the assumption that they are (Refer to Tsuchida 2000:127 and Adelaar 2011:139-140). Unfortunately, many previous researchers have not distinguished prefixes of PC from grammatical prefixes, especially from classificatory prefixes[6] (a term coined by Capell (1943)).

For example, Tsuchida (2000) cites studies such as Tsuchida (1990) of Tsou, Nojima (1996) of Bunun, and Ezard (1978) and Osumi (1995) of some Melanesian languages as previous research of PC. However, these studies should be taken, at most, as research on classificatory prefixes (and sometimes mixed with prefixes of PC). Within the literature review in Tsuchida (2000:110), the only one that focuses on PC is Adelaar (1997[1994])[7].[8]

Therefore, we should be wary of any claim that PC is attested in a specific language. These languages include some Formosan languages like Bunun (Nojima 1996, Su 2008), Siraya (Tsuchida 2000, Adelaar 2004), Kanakanavu (C. Wu 2007), Saaroa (Li 2009), Tsou (Chang 2009), and Mayrinax Atayal (C. Wu 2009; cited from Chang 2009:472). In order to not digress too far, I will not inspect these respective claims in this study.[9]

Due to the mentioned confusion, it is inappropriate to take the list of Siraya lexical prefixes directly from Tsuchida (2000:115-120) as the data for investigation into PC in Siraya. The list in question not only lacks full original texts for further confirmation but also includes prefixes that do not pertain to PC; for example, *tœu-* in Tsuchida (2000:120 35; Matthew xiv:13). As shown in the source below, there is no dependency of PC with respect to this prefix (from Garvius 1661; in the source, *tœu-* was typed as *tau-*; emphasis added).

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[6] Here is the definition from Capell (1943:237): A classificatory prefix shows how an action is done - whether by hand, by the foot, by speaking, or in other ways. In Nojima (1996), this term is replaced by "lexical prefixes."

[7] This paper was presented in 1994 and published in 1997.

[8] However, Tsuchida (2000:122) does refer to this formal-semantic identity as a "prefix harmony" effect in Siraya.

[9] Based on the data at hand and my limited knowledge with respect to Austronesian languages, PC is confirmed to be observed at least in Siraya, Saaroa, and Tsou, among the listed Formosan languages.

(3) Ka rou illing-hen ti Jesus [ta anna] ni-tau-avang d'marang hynna mou-snæh tou poulæh tou itou-'nni-en: jrou ka illing-hen ki makoi-lalaulau [ta atta] ni-**tau**-pourough ta neni tou æuma-æuma smala-dyllough tyni-æn.

In the face of this bewilderment, Adelaar argues that PC should be well distinguished from true lexical prefixes; therefore, he calls them "anticipating sequences" in Siraya (2004:333; also refer to Adelaar 1997 and Adelaar 2011). Nonetheless, he further suggests that "anticipating sequences" in Siraya can also be derived from semantic implications or have an iconic relation to the extralinguistic reality and from a dependency with another verb within the sentence (2011:137-40). Since this claim is somewhat dubious and against the narrow/essential definition of PC, I will not include these data herein before they are further validated.

To sum up, as far as I know, previous research on this topic involves some perplexity, and no pertinent study in phonology has been carried out so far.

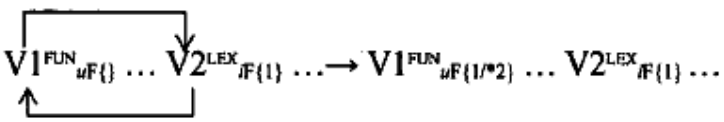
2.2 The feature realization theory of Li (2009)

If prefixes involving PC are supposed to be distinguished from grammatical prefixes, a question should be raised: Where are they from? To my knowledge, Li's (2009) proposal of feature realization is the most widely accepted explanation up to now. I will introduce Li (2009) in this subsection and take it as one of the cornerstones in the analysis that follows.

In his investigation, Li (2009) observes that prefix concord constructions (PCCs) can only occur within the *v*P-level projection. He also suggests that long NP movement and clitic climbing provide evidence of restructuring constructions in PCCs. In his analysis, PCCs are reflexes of multiple agreement (Hiraiwa 2001, 2005; Chomsky 2004) and the prefix concord effect is the realization of a formal feature. The process of multiple agreement and of spelling out feature in Li (2009) is exemplified as follows ((4), (5), and (6) are from Li 2009:194(53a); (54) and (55)):

(4) Kila-ngahlangahl-a ihlaku kila-usepe apuhlu. (Saaroa)
PC{tread}-again-PV 1SG AV.LP{tread}-go.out fire
'I trod out the fire.'

(5)



In Li's analysis, the matrix functional verb *ngahlangahla* "do again," has an uninterpretable and unvalued feature and thus probes into a goal with a matching feature. Under the agreement relationship that is established, the c-commanded Goal—the lexical verb *kilausepe*

"tread out"—values the grammatical feature of the Probe and the value {1} is copied into the Probe. The concord prefix *kila-* is the value spelled out afterward.

A PCC can also involve a many-to-one agreement relationship in which multiple probes and a single goal participate.[10] Below are two examples in Siraya:

(6) Heyru ni-pa-nanang-ən nein Beelzebul ta täi-tălax
when,if PST-V4-name-UO 3P.GEN Beelzebub NOM be.with-house
päx-pĭna-n-ey ki **ma**-saun [**ma**-k'ma-hĭna **ma**-nanang]
think-how.much-UO-SJ.UO DF AS-more AS-like-there AO4-name
ta la-lam tĭn tu tălax?
NOM RDP-companion 3S.GEN LOC house
(Siraya; From Adelaar 2012:276; X:25; emphasis mine)
'If they have called the master of the house Be-el'zebul, how much more will they malign those of his household.'

(7) ...ra ni-**maku**-saun=ăpa **maku**-ton **maku**-langäx ta
but PST-AS-more=ADD AS-loud AO4.invoke-cry(?) NOM
neni (Siraya; Adelaar 2011:134 (227); XX:31; emphasis mine)
3S
'...but they cried the more'

In (6), two functional verbs, *saun* and *k'ma*, are prefixed with the same concord prefix *ma*, which agrees with the c-commanded lexical verb *mananang*. In another example (see (7)), the prefixes in concord are *maku*. In face of these examples, the reader may ask: How can we be sure that these prefixes are generated by PC instead of grammatical prefixation? We can answer this question by observing the form in which the same verb occurs elsewhere. Note that the prefix *ma* is not attached to the verb *k'ma* obligatorily; this is evidenced by the following sentences:

(8) a. Ka ni-**k'ma**='to-hĭna du m-i-rung m-avok
LK PST-LIKE=PRF-there when,if AO3-LOC-sit AO3-have.meal
tu tălax [ti Mattheus],... (From Adelaar 2011:253; ix:10)
LOC house PA Matthew

[10] The many-to-one example given by Lee is dubious because the two PC forms (*ku*) differ from their base (*u*). They look more like classificatory prefixes (lexical prefixes) than products of PC. This issue will be picked up later.
i) Hli-**ku**-muamuari=ku a vutukuhlu **ku**-papuahle um-**u**.(Saaroa; Lee 2009:194(55))
PF.PV-PC{eat}-slowly=1SG.GEN NOM fish AV.PC{eat}-twice AV-eat
"I ate the fish twice slowly."

‘And (it happened such that) as he sat at table in the house (of Matthew)…’

b. ...**k’ma**=ăpa=hĭna ka ăsi h<m>alĭ-’lpux h<m>arivat
like=ADD=there LK NEG <AO3>AS-able <AO3>pass.along
ta timamangki ki darang k’=ăna. (Adelaar 2011:246; xiii:28)
NOM whoever DF path LK=DIST
‘...so fierce that no one could pass that way.’

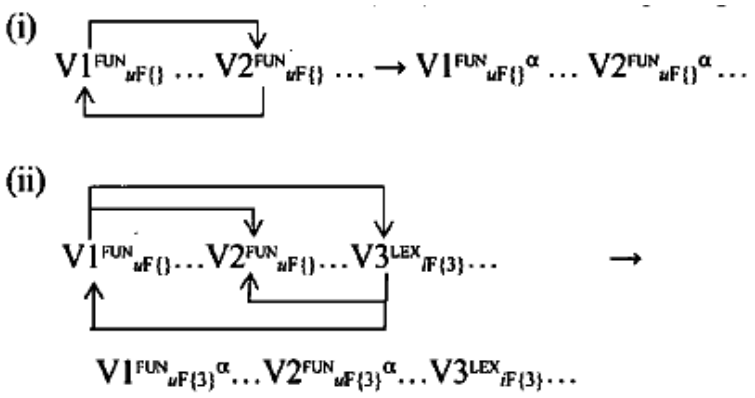
That the prefixes of PC have nothing to do with ordinary grammatical prefixation is demonstrated even more clearly in (9). Note that the iterated prefix *pasi* in *pasi-’lpux* is a disyllabic combination of two prefixes on a lower verb below (*pa-si-lala*).

(9) ...aley ka ăsi=kaw **pasi**-’lpux **pa-si**-lala
reason LK NEG=2S.NOM AS-able CAUS-transform-change
ki sa-saat ka vukŭx pa-ka-äwdim lava pa-ka-pule
DF RDP-one LK hair CAUS-V1-black perhaps CAUS-V1-white
lava (Adelaar 2011:202-3; v:36)
perhaps
‘...for you cannot make one hair white or black.’

The data above suggest that it is unreasonable to consider *pasi* here a lexical prefix by itself because the meaning of *pasi* (“to pour; spread”), used as a single lexical prefix, does not fit into this sentence at all.

For the cases of multiple copies, an analysis with the scheme of multiple agreement is provided as follows (Li 2009:195 (55b)):

(10)



In (10i), the two functional verbs, which are in a Probe–Goal relationship, both have unvalued features of the same type, and the features remain unvalued but the Agree relation is

set and these features are co-valued (refer to López 2002:172). In (10ii), these two probes in a covaluation relation then move to seek another goal to satisfy the Probe–Goal matching. Therefore, the c-commanded lexical verb assigns/spreads the value {3} of its formal feature to the probes. This value is multiply assigned successfully based on the link between the two probes and, in turn, is spelled out as the multiple concord prefix (2009:195).

As described by Boecks (2004:33), multiple agreement resembles "mirror processes like vowel harmony or tone spreading in phonology, where all potential elements between the upper bound and the lower bound are valued due to spreading" (Cited from Li 2009:193)

I will adopt Li's proposal regarding syntax as the premise of this analysis. The concord prefixes observed in Siraya are deemed as a feature spelled out resulting from multiple agreement, as presented above. (Some dissention with respect to the nature of this feature is brought up in section 4.2.)

3. Taking Stock

The data for analysis contain 102 total pairs of prefix concord. These are definitely not all of the prefix concord examples in Siraya texts. However, due to the lack of comprehensive analyses of the extant source texts so far, for the sake of prudence, I will rely on texts that have been well glossed to carry out this research. Among the 102 pairs, only 6 pairs are from Tsuchida (2000); the rest is from Adelaar (2011).

Not all of the 102 pairs are appropriate candidates for this study because they include two suspicious subgroups. In the first subgroup, although the members are grossed as AS (anticipating sequence) by Adelaar, they do not have a lower source in the sentences. Remember that Adelaar counts semantically oriented and extralinguistic usages of lexical prefixes in his definition of prefix concord. The 9 pairs in this subgroup were therefore removed. The second subgroup contains members that are syntactically problematic. According to Li (2009) and Chang (2009), prefix concord respects locality. It is either in *v*P scope (Saaroa; Li 2009) or clause bound (Tsou; Chang 2009). Nonetheless, in the data, some examples have a base that is syntactically higher than where the copy is generated; some have one member of the PC pair occurring in a syntactic island. In total, there are 20 pairs in this subgroup. Of course, we may not rule out the possibility that future research will provide solid evidence to include these excluded pairs.[11] However, in this stage, it is deemed adequate to be conservative with respect to the data issue. As a result, only 73 pairs have been chosen as the objects of this investigation. These pairs are further categorized by their bases. The 30 bases and their corresponding PC forms are listed as follows. (The following base forms include more than a morpheme when the prefix concord form crosses morpheme

[11] At any rate, the extralinguistic pairs will still not be qualified, since they do not have a base of copy in the sentence. They would need a very different method of analysis.

boundaries.) [12]

(11) [13]

base	**PC form**	**base**	**PC form**
ătaral	ăta	pä-i-...	päi-
h<m>arivat	hma	pa-ka-...	paka
k<m>an	k’	pa-p’-(ă)...	papa
k<m>ĭta	kmi	pa-si-...	pasi
kuta	ku	päx-...	päx
ma-...	ma	piä	piää
ma-i-...	mai	pis-...	pis
maki-...	maki	pitĭx	pi
maki-...	**p**aki-	pu-...	pu
maku-...	maku	p-u-...	pu
măta-...	măta	s<m>u-...	su
mattä’i-...	mattäi	sau-...	sau
m-u-...	mu	si-...	si
pa-...	pa	s<m>aki-...	smaki
pää-...	pää	taw-...	t’
pä’ä	pä’ä		

4. Observations and Generalizations

In this section, patterns and generalizations with regard to the data compiled in section 3 will be put forward.

4.1 The patterns of PC partial reduplication

As Adelaar points out, prefix concord does not respect morpheme boundaries. For example, the base with an actor voice infix *k<m>an* “eat-AV” generates *k’* as its copy; *kuta* “to cut out” has part of the root *ku* as its copy; and the disyllabic copy *pasi* is derived from combining the first two morphemes in *pa-si[-lala]* “CAUS-transform[-change].” These examples are evidence that prefix concord is not a pure morphological operation, although morphology and syntax do have their roles in the whole process.

[12] Note that there is an occurrence of a PC copy of *maki-* revealed as *paki*. There are three total pairs in the data whose base is *maki-*, and only one of them has *paki* as its copy. If this is not a typo, then it must involve some phonological process. I will leave this as an exception without looking into it.

[13] A dash and ellipsis following a base indicate different morphemes to which the base is attached.

On the face of it, except *smaki* and *su* (the PC copy of *s<m>u-*), all of the copy forms are either monosyllabic or disyllabic from two adjoining syllables. (I will come back to discuss *smaki* and *su* later.) Moreover, the maximal size of a truncated copy is always of two sequential syllables.

Based on this observation, an educated guess is that the grammar of prefix concord in Siraya generally produces disyllabic copies. Nevertheless, there is a force that compels the truncated forms to be monosyllabic. On the other hand, the grammar prefers to preserve lexical contrast among these prefixes of PC; therefore, the size-reducing force is contained. As a result, most of the prefixes of PC are left to be disyllabic. Presumably, the downsized prefixes either are the ones that can maintain lexical contrast after further truncation (no identical peer) or belong to the bases that enjoyed the highest frequency of use or emerged earlier than their peers at that time.[14] For example, *k<m>ĭta* "to see; ACTOR VOICE" has its copy form as *kmi* and *k<m>an* "to eat; ACTOR VOICE" and then has its copy form as *k'*. This is also revealed between the bases *pitĭx* and *pis-*, which are realized as *pi* and *pis* as their prefix forms of PC, respectively.

Among all the monosyllabic copies, only *t'* does not include the following vowel. I deem this to be a product of phonological reduction. Note that the whole word where the copy occurs reads *ni-t'-ur-uru*, in which this copy is immediately followed by a vowel. The absence of the vowel in this example can be considered a product of some strategy to avoid hiatus.[15] However, this case should not be considered in the same vein with *k'*, which is derived from *k<m>an*. Since prefix concord does not respect morpheme boundaries and the copy is truncated in a linear order, in the latter case, it is impossible for the vowel of the stem to join *k* without wrapping the actor voice infix *m* inside.

Moreover, in disyllabic copies that involve the infix -<*m*>-, like *hma* and *kmi*, an additional vowel that follows the infix is included. This looks somehow unnecessary if we consider the case of *k'*, which is the PC copy of *k<m>an*. The demand for an additional vowel of this infix seems to indicate its relatively weak status, compared with onset consonants. To refrain from digressing too far, I will not continue to explore this issue.

Now, let us turn to the apparently exceptional case: *smaki*. Today, no native Siraya speaker is available to consult or figure out the timbre of the syllables. However, similar

[14] The alternative presupposition is to say that the grammar of prefix concord in Siraya generates monosyllabic copies. In order to enhance lexical contrast, an additional syllable is attached to these prefixes. In each group composed by prefixes that share an identical form, there is one member exempted from the additional attachment due to its special status. Different presuppositions weigh in on the analysis method. Under the assumption that prefixes of PC are derived by feature realization, the attachment for lexical contrast looks relatively implausible. The reason is that lexical contrast in anti-homophony is based on comparison between output forms after the derivation is done. To allow an additional syllable obtained by reduplicating the second syllable of the base implies that the accomplished derivation can be repeated, which makes this alternative seem to be less elegant.

[15] However, hiatus is not totally impossible in this language. Its occurrence is conditioned, and different strategies are employed to prevent some cases of hiatus from surfacing. I will not go into this in this study.

syllabic structures are still found in other extant Formosan languages. One of these examples is *sra* "land" in Amis. According to my Amis informant, the consonantal sequence in spelling is not pronounced in a way that resembles a complex onset (a consonant cluster); instead, the initial *s* is pronounced somewhat separately, with a schwa inserted as its nucleus. Nonetheless, the syllable status of this kind of initial *s* is shaky for its relative lightness.

In Mon-Khmer languages and Burmese, the term "minor syllable" is used to depict a reduced (minor) syllable followed by a full tonic or stress syllable in a word. Moreover, a minor syllable has a reduced vowel, a schwa,[16] just like the initial *s* in Amis. This iambic pattern is sometimes called sesquisyllabic, a term that literally means one and a half syllables (Matisoff 1973).

According to Pittayawat (2009), prosodic words in a sesquisyllabic language can be either monosyllabic or sesquisyllabic. The Malayo-Polynesian language Jarai is one of these languages. Note that Malayo-Polynesian languages are subsumed as a subgroup of Austronesian languages. See the Jarai examples:

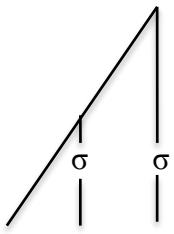
(12) (Jarai; from Lee 1966)
/pui/ 'fire'
/blan/ 'moon'
/m̥.ta/ 'eye' pronounced [məta]

Among the three words in (12), /blan/ is pronounced as a monosyllabic word, while /m.ta/ is pronounced sesquisyllabically.

Moreover, Pittayawat (2009) claims that many sesquisyllabic etyma in Proto-Tai clearly have Austronesian correspondents. These relevant etyma lost the vowel of their first syllable.[17]

Based on these observations, it seems reasonable to suggest that a morpheme like *smaki* can be taken as disyllabic without incurring severe problems. Given that prosody and syllabic structure are not what we are mainly concerned in this study, I will assume that the prefix of PC, *smaki*, is composed with an initial minor syllable (see (13)) and that, prosodically, it is not distinct from other disyllabic morphemes.

(13)



[16] The syllabicity of a minor syllable is also described as carried by a neutral vowel or a syllabic consonant, i.e. no phonological vowel in the first syllable (Pittayawat 2009).
[17] Readers may refer to Pittayawat (2009) for the details.

s ma ki

If the suppositions above are on the right track, then the only exception that we have will be *su* (the PC copy of *s<m>u-*). Under the prerequisite that PC truncation respects the linear order, there is no way to suggest that the PC form skips the infix <*m*> to acquire the vowel behind it. The sole solution available, then, is to consider *u* here a phonetic symbol employed to transcribe a schwa sound. This surmise is sensible because the source was known to be transcribed phonetically, instead of being transcribed by a phonemically based orthography. The following variants lend support to this view (From Adelaar 2011:375).

(14) a. **sŭbad** / sa-**s'bad**-an
b. **subŭx** / na sa-sa-**s'bŭx**

Note that the argumentation made so far would only be tenable under a precondition that the copy forms of PC are part of the lexicon. In other words, each verbal combination of morphemes is supposed to correspond to a sole truncated shape when PC occurs. For every verbal constellation, speakers at that time must memorize its PC form. Regarding psychological plausibility, since the size of the PC forms is limited to no more than two syllables, what speakers really had to learn by heart would be narrowed down to the privileged verbal combinations that have a monosyllabic PC form.[18] Despite these PC forms being listed in the lexicon and being possible embryos of new grammatical prefixes, they are essentially different from grammatical prefixes because PC forms are nothing more than realizations of a morph that is realized by an abstract feature; therefore, unlike classificatory prefixes, they are semantically void by themselves.

4.2 On the nature of the uninterpretable feature

According to Li (2009), the copies of PC are only realizations of an abstract feature. Li (2009:195-6) argues that the multiple agreement that produces prefix concord is triggered by the grammatical feature F on functional verbs, which is a verb-type feature ([CLASS]); the term [CLASS] here, in Li's proposal, is intended to link the classificatory prefixes that indicate how an action is done - whether by hand, by foot, by speaking, or in other ways (Capell 1943:237). I agree with Li's suggestion that the trigger of PC is a single uninterpretable feature. However, I do not concur with his claim that this feature is a semantics-oriented feature, which is a verb-type feature connected with classificatory prefixes.

Aside from proposing that PC prefixes are essentially classificatory prefixes (which I

[18] The underlying PC form of a root, under this hypothesis, is supposed to be the first syllable of itself, with or without a following slot for an additional syllable.

have argued against in the literature review section, especially the relevant discussion with regard to (6-9)), Li suggests that syllabic sequences of concord prefixes are not (full) copies of the embedded lexical verbs in **some** PCCs. In my opinion, he is only partly right. It is true that the PC prefixes do not make full copies of their bases, but saying that they can even surface without reduplicating the bases (as illustrated in Li 2009:196(57)) will simply incur the same problem of conceptual confusion mentioned in section 2.1.[19] Here is an additional example to demonstrate that prefixes of PC are not classificatory prefixes.

(15) ... ka **mu**-darim-a **m-u**-khĭt ta khĭt.
LK AS-bottom-SJ AO3-MOT-tear.off NOM rent
(Adelaar 2011:256; ix:16; emphasis mine)
'...and a worse tear is made.'

By glossing *mu* in *mu-darim-a* as a classificatory prefix (which is not attested in the lexicon in Adelaar (2011)), one would be obliged to specify the verb type that the prefix denotes. However, what kind of verb type can we propose here (pertinent to the lexical verb *khĭt* "to tear")? Compared with analyzing it as a copy due to PC, it is quite unnatural and onerous to specify its semantic content as a classificatory prefix.

By acknowledging the distinct phonological (reduplication or no reduplication) and semantic (a grammatical prefix or a semantically void one) behaviors between PC prefixes and classificatory prefixes, I do not agree with Li in his proposal with respect to the nature of the relevant feature, although I follow his analysis in which PC is realized from an uninterpretable feature valued via multiple agreement.

Although I argue against the proposal that the feature in question is a verb type, I will not specify the nature of this feature. A noteworthy point is that PC is not obligatory. In other words, this operation is probably relevant either to information structure (focus or topic) or pure phonology. If Li's (2009) syntax-oriented scheme is on the right track, the former looks like a relatively promising candidate (without considering syntax derivation in the PF-complement, e.g., Embick and Noyer 2001, or post-syntactic processes at the syntax-phonology interface, e.g., Newton 2007). With the scarcity of pertinent research, at this stage, nothing more can be proffered regarding the genuine function of PC.

I wrap up this section with a table comparing my view of PC with those of others.

[19] For me there is no evidence to show the example in Li (2009:196 (57b)), in which no reduplication is involved, is a case of PC instead of general classificatory prefixation.

(16)

	The range	**The feature**
This study	Prefixes of PC only include those that are phonologically identical to the initial syllable(s) of the lower verbal element.	A formal feature irrelevant to the verb type and classificatory prefixes
Adelaar (1997 et seq.)	Prefixes of PC also include prefixes derived from semantic implications or having an iconic relation to the extralinguistic reality	
Li (2009)	Prefixes of PC are not distinguished from the classificatory prefixes (implied by his examples).	[CLASS], pertinent to verb types and classificatory prefixes
Tsuchida (2000) (and others)	Prefixes of PC are not distinguished from the classificatory prefixes	

5. An OT Analysis

Based on the proposal of feature realization from Li (2009), I adopt Wolf's (2008) Optimal Interleaving to come up with an analysis; to explicate the contrast effect of realized items, I will introduce an anti-homophony constraint and Minimal Pair Analysis proposed in Ichimura 2006.

5.1 Wolf (2008) and realizing prefixes of PC

Taking OT with Candidate Chains (OT-CC; McCarthy 2007) as its foundation, Wolf (2008) proposes a scheme called Optimal Interleaving (OI). In his proposal, morphology and phonology proceed in rotation (as the term "interleaving" suggests), and, moreover, morphemes and morphs are distinguished as two different notions. According to Wolf, a morpheme is a (possibly null) bundle of morphosyntactic features, and a morph is a lexically-listed, phonologically-contentful item which is used to express or "spell out" a morpheme. In Wolf's proposal, the morphosyntactic features of bundles of morphemes and of morphs are "feature structures" (FSes), and a morph is an ordered pair consisting of an FS and a phonological underlying representation (UR).

As interleaving suggests, phonology and morphology are sufficiently closely integrated such that when their demands conflict, languages may vary as to which one wins out.

Additionally, words are built serially, with one morph added at a time, and phonological processes may need to be ordered in a particular way relative to the various stages of word-building.

Resembling OT-CC, candidates in OI are chains of intermediate forms by which the input is gradually converted into the output. The input serves as the first link in every chain. Between the input and output, there may be intermediate forms that are the steps of a derivation, and the last link is the potential surface form proffered to EVAL by each chain. With this form of candidates, an OT grammar would not involve simply selecting the best surface form; rather, it would require selecting the best derivation that could be undertaken beginning from the input in question.

Furthermore, there are two key inviolable well-formedness conditions regarding the derivation in chains: Gradualism and Harmonic Improvement. The former requires that each link in the chain differ from the previous link by only a single step (e.g., familiar phonological operations such as deletion of a single segment, epenthesis of a single segment (McCarthy 2007)). The latter demands that each non-initial link of the chain must be more harmonic than the immediately preceding link.

Lastly, when choosing the winning candidate, phonological markedness constraints evaluate only the last form in the chain (the candidate surface form).

Assuming that PCs are realizations of a specific feature, I propose that the higher verbs in a PC dependency have an additional morpheme (a one-member bundle of morphosyntactic features) with a feature structure. This morpheme is spelled out by a lexically-listed morph with a phonological underlying representation. Since the nature of this feature has not been properly identified, I will simply refer to it as "PC feature." Consequently, the input of a higher verb in a PC dependency is proposed to be /PC-VERB/.[20] Through multiple agreement, the matching feature of the lower verb is valued to PC, which is realized as the morph of the corresponding PC form of the lower verb. Per the previous sections, the morphs of PC are listed in the lexicon; they are a truncated copy of the lower verbal element. Based on this, we can assume that all morphs of PC in the underlying representation are trimmed copies of verbal elements. In cases of multiple copies, an identical matching value is assigned to several higher verbs and the same morph is multiply realized.

Based on our observations in section 3 and 4, no phonological alteration of the copies occurs in true prefixes of PC, except truncation. By ranking IO-CORRESPONDENCE constraints highly, the morphs of PC may surface in their underlying forms. A generalized IO-CORRESPONDENCE constraint is defined below.

[20] In order to focus on the analysis of PC, I exclude all other affixal elements. The term VERB here does not denote a root, but a composition of morphemes that functions as a verbal element.

(17) IO-CORR[21]

a. Let α be a segment in the Input, and β be a correspondent of α in the Output. If α is [γF], then β is [γF]. (IDENTITY [F])
b. Input segments must have output correspondents. (MAXIMALITY)
c. Output segments must have Input correspondents. (DEPENDENCY)
d. The output reflects the precedence structure of the input, and vice versa. (LINEARITY)
e. The portion of the Input standing in correspondence forms a contiguous string, as does the correspondent portion of the Input. (CONTIGUITY)

In Wolf's theory, prefixes and suffixes are diacritically marked (refer to Wolf 2008:227). And the LINEARCORRESPONDENCE is conditioned by the MIRROR constraint, which is defined below (from Wolf 2008:24 (81)).

(18) MIRROR

a. Let M_1 be a morpheme and μ be a morphosyntactic constituent sister to M_1, where μ dominates the morphemes M_2, … M_n.
b. Let M_1´, … M_n´ be morphs (if any) whose feature-structures correspond, respectively, to those of M_1, … M_n.
c. Let p_1, … p_m be the phonological exponents (if any) of all of the morphs M_2´, …Mn´. (A phonological exponent of a morph M means any piece of output phonological structure which has a correspondent in M's underlying form.)
d. If morph M_1´ is a prefix, assign a violation-mark for every p_i which linearly precedes some exponent of M_1´.
e. If morph M_1´ is a suffix, assign a violation-mark for every p_i which linearly follows some exponent of M_1´.

As shown by the data, linear correspondence between PC prefixes and their stems is rigid.[22] This indicates that MIRROR is also a highly ranked constraint. Furthermore, no empirical evidence suggests that there is a ranking relationship between IO-CORR and MIRROR.

Nonetheless, we cannot completely exclude the possibility that a valued matching value is left not spelled out. If the morph is not spelled out, then no violation of IO-CORR or MIRROR will occur. Following Li (2009), the assumption is that spelling out the feature is a

[21] UNIFORMITY, which requires that no element of the output have multiple correspondents in the input, is not included. This notion is expressed in the constraint CONTRAST of anti-homophony in this study.
[22] Again, as mentioned in footnote 17, we will not take other affixal elements into consideration in order to not complicate the analysis.

must, because no overt form may be perceived if the feature is not realized.[23] In other words, given the fact that the only known sign of PC dependency is the occurrence of a prefix(es), no counter-part of unrealization to make a minimal pair is available. Without sufficient understanding of the feature in question, one can only assume that prefixation is the only way to perform the unknown function of PC. Therefore, the constraint M-Parse, which requires an input to have an output, is employed to militate against unrealization. The definition of this constraint is provided below (Alain and Smolensky 2002):

(19) M-Parse
Morphemes are parsed into morphological constituents.

Based on the previous assumption, the data should not violate this constraint. Candidates are not allowed to violate M-Parse in order to satisfy IO-CORR and MIRROR. Therefore, M-Parse is ranked higher than the aforementioned constraints.

Recall that in section 4.1 it is suggested that the further truncation of prefixes of PC is compelled by a preference regarding the size of truncated forms. In Kager (2004), it is proposed that truncated forms are morphological *stems*, and accordingly they must fulfill all relevant prosodic requirements for stems (2004:264).

In this vein, Kager further suggests that the maximum size of the truncated form can then be modeled by morphoprosodic alignment constraints. A cross-linguistically common size of truncated forms is a heavy syllable (Mester 1990). Kager states this idea as follows:

(20) Truc=σ (Kager 2004:265(21))
A truncated form equals a syllable.

Based on the observation that the morphs of prefixes in a PC dependency are copies of the first two syllables of their bases, which are subject to further truncation, we learn that Truc=σ dominates IO-CORR.

In addition, the data also shows that the direction of truncation is always regressive. If progressive truncation is allowed,[24] we may get outputs which are not attested. A constraint to block progressive truncation is defined as follows.

(21) *ProgTruc
No progressive truncation.

[23] In other languages with available consultants, it is possible to explore whether there is another way(s) to fulfill the function (whatever it may be) of PC; for example, by accentuation or intonation. However, the language in question gives us nothing but source texts.
[24] Progressive truncation is attested in languages like Russian. Refer to McFadden 1967 and Mester 1990, among others.

Since no monosyllabic prefix of PC in Siraya is a copy of the second syllable of its base, this constraint must be undominated.

So far, we have obtained the following hierarchy of constraints: M-Parse, Truc=σ, *ProgTruc >> IO-CORR, MIRROR.

Section 4.1 also points out that the requirement for the size of truncated forms is conditioned by lexical contrast. In order to deal with the issue of lexical contrast, Ichimura 2006 will be introduced in the next subsection.

5.2 The anti-homophony adaptation and Ichimura 2006

Thus far, I have proposed following Wolf 2008 to analyze the feature realization. However, the analysis would not be comprehensive unless the lexical contrast effect observed in 4.1 is included.

In section 4.1, based on the observations of the prefix forms of PC, it is suggested that a force that prevents the prefixes from having an identical form to another base blocks any further truncation initiated by the size requirement of truncated forms. The strategy for maintaining lexical contrast is reminiscent of that discussed in the literature on anti-homophony.

Previous research has shown that a phonological process can be blocked in order to avoid homophony created by neutralization of distinct inputs (Crosswhite 1999, 2001; Kenstowicz 2002, Morrill 2002, Kawahara 2003, Itô and Mester 2004; Blevins 2004; Gessner and Hansson). Furthermore, researchers suggest that anti-homophony blocking occurs only within an inflectional paradigm. It is not usually considered strong enough to block inflectional morphology (Albright 2003). Moreover, past research has simply assumed that anti-homophony blocking is a productive process without providing clear examples for this assumption (Ichimura 2006:25).

By providing evidence from Japanese data, Ichimura 2006 claims that anti-homophony blocking has proven to be productive, and it occurs even in transparadigmatic (or nonparadigmatic) relationships, that is, between words that belong to different paradigms.

Although it is reasonable to suggest that prefixes of PC belong to a single paradigm, their bases are morphologically unrelated. The anti-homophony operation with respect to PC conforms to Ichimura's (2006) observation that anti-homophony blocking can also occur between words that are seemingly morphologically unrelated.[25]

Anti-homophony, as discussed in Ichimura (2006), is a monitoring system between outputs of words used to avoid surface neutralization of the underlying forms. According to Ichimura, this monitoring system is one type of correspondence between the two outputs, but

[25] The morpheme/morph of PC has an ambiguous status that it is triggered by a single feature. However, the phonological realization of the morph has a reduplicated form of a lower verbal element as its base. These bases have no morphological relationship to one another.

it is different from the conventional output-output correspondence (e.g., BT-Identity) because the two outputs in anti-homophony are the result of independent phonological phenomena. This monitoring system only looks to see if one output is appropriate for the other (2006:96-7). Ichimura proposes that the monitoring system is realized as a constraint embedded in the phonological grammar. Below is its definition (2006:97 (107)).

(22) CONTRAST: *Contrastiveness* in underlying forms between words with the same major lexical category must be maintained in surface forms.
Contrastiveness: Given two strings S_1 and S_2, *contrastiveness* is a relation from the elements of S_1 to those of S_2 whereby the relation of correspondence is less than perfect, i.e. such that evaluation finds a violation of at least one of the constraints in Correspondence Theory (McCarthy and Prince 1995), such as MAXIMALITY, DEPENDENCE, IDENTITY[F], CONTIGUITY, LINEARITY, and ANCHORING.
Major lexical categories: noun, verb, adjective and adverb

The brief definitions of the constraints of Correspondence Theory are listed below (Ichimura 2006:97 (108)).

(23) MAXIMALITY: No deletion
DEPENDENCE: No epenthesis
IDENTITY[F]: No feature changes
CONTIGUITY: No medial epenthesis or deletion of segments
LINEARITY: No metathesis
ANCHORING: No epenthesis or deletion at edges

Ichimura illustrates how we determine whether words are "contrastive" by the minimal pair in Japanese, *ore-ru* "break, PRES" and *ori-ru* "get off, PRES'. The table below evaluates if /ore-ru/ → /ori-ru/ violates any of the constraints (2006:97-8).

(24) Ichimura 2006:98 Table 6
"Contrastiveness" evaluation: /ore-ru/ and /ori-ru/

/ore-ru/	MAX	DEP	IDENT	CONTIG	LINEAR	ANCHOR
/ori-ru/		*				

The table above is not evaluating the phonology of the language. The constraints and their violations also have nothing to do with a synchronic morpho-phonological evaluation. In Ichimura's proposal, it is simply a means for us to assess whether two input forms contrast with one another. If there is a violation of any of these constraints, these two words are

"contrastive." As shown in the table, the input /ori-ru/ (at least) violates DEP because the change from /e/ to /i/ involves an epenthesis of [high] feature. Therefore, the two inputs are "contrastive" (2006:98).

In addition to illustrating contrastiveness, Ichimura suggests that the aforementioned constraint CONTRAST penalizes a merger of two distinct inputs (2006:99)[26].

To make the constraint CONTRAST work in a table, the scheme called "Minimal Pair Analysis" (henceforth, MPA) in Ichimura (2001) is employed. By applying MPA, it becomes possible to evaluate the interaction of the phonological process of outputs (either a pair or triplet). The utilization of CONTRAST and MPA is demonstrated by the nasal assimilation (*r* to *n*) driven by syncope in Japanese. According to Ichimura, the blocking of contraction of the word /re-nai/ indicates that the anti-homophony requirement is more important than contraction by syncope of the base final vowel /e/. The relevant constraints are ranked as following: INITIAL-C, CONTRAST >> FINAL-C>>MAX-V (Ichimura 2006:101-3).

(25) (Ichimura 2006:103 Table 51)

Minimal Pair Analysis: /wakar-anai/ and /wakare-nai/ with CONTRAST

INITIAL-C, CONTRAST >> FINAL-C>>MAX-V

Below are the brief definitions of these constraints.

INITIAL-C demands that every suffix be consonant-initial; FINAL-C demands every base of affixation is consonant-final; MAX-V demands no deletion of vowels.

/waka**r**-**a**nai : waka**re**-nai/	INITIAL-C	CONTRAST	FINAL-C	MAX-V
a. waka**ra**nai : waka**re**nai	*!:		:*	
b. ☞ waka**n**nai : waka**re**nai			:*	*:
c. waka**ra**nai : waka**n**nai	*!:			:*
d. waka**n**nai : waka**n**nai		*!		*:*

In the table above, the asterisks are placed on either the left or right side of the colon to show which output violates the constraint.

By the same token, the condition of downsizing the prefix size of PC can also be analyzed accordingly.

5.3 Analyzing prefixes of PC

In this section, I will employ the two aforementioned theoretic schemata to provide an analysis of prefixes of PC in Siraya. Before proceeding, we must answer the following question: Is Wolf's (2008) OI compatible with Ichimura's (2006) proposal with respect to

[26] Note that Ichimura argues that CONTRAST is a phonology-internal device. Refer to section 4.4 of his dissertation.

anti-homophony? The answer is positive. Although the derivation process in each rLUMSeq (reduced localized unfaithful mapping sequence) in OI is independent (there is no interaction amongst rLUMSeqs and they cannot see each other), their last links are visible to EVAL and evaluated by markedness constraints. Therefore, it is unproblematic to subject the OI outputs to anti-homophony evaluation. In a broad sense, CONTRAST is just another markedness constraint from a different perspective. If markedness constraints can inform the last link of each rLUMSeqs (the Outputs), there is no reason that these Output forms cannot be monitored by anti-homophony. Remember that it is during the derivation process that rLUMSeqs cannot see each other. The final Outputs are generated by the derivation processes; as such, they are ready to be compared in minimal pairs as members of one group.

Apart from the compatibility, before we can continue, we must fit the constraint CONTRAST into the hierarchy outlined in section 5.1. Previous discussions have reiterated that the requirement of lexical contrast downsizing the prefixes of PC is blocked by the requirement of lexical contrast. For this reason, CONTRAST should dominate Truc=σ. By transitivity, we have the following ranking hierarchy:

(26) CONTRAST >>M-Parse, Truc=σ, *ProgTruc >> IO-CORR, MIRROR>>other markedness constraints

Below are examples for demonstrating the proposed analysis. For reasons of clarity, the discussions of OI and MPA/CONTRAST will be separated.

The first instance is from (15). See the table as follows.

(27) (From (15); the symbol "-" that indicates morpheme boundary is ignored.)

/PC-VERB/ mukhĭt (base)	M-Parse	Truc=σ	*ProgTruc	IO-CORR	MIRROR
a. ☞ **mu**darima rLUMSeq: <insert-root,... insert-affix, Max>[27]				*	
b. /PC/-darima rLUMSeq: <insert-root ...>	*!				
c. **muk'**darima rLUMSeq: <insert-root,... insert-affix>		*!			
d. **k'**darima rLUMSeq: <insert-root,... insert-affix, Max>			*!	*	
e. **nu**darima rLUMSeq: <insert-root,... insert-affix, Max, Dep>				**!	

In this table, candidate *b* is less harmonic than *a* due to the unrealization of the PC feature. A disyllabic prefix is realized as the morph of PC in candidate *c*; however, it is inferior because it violates the size requirement. The prefix of candidate *d* is truncated to fit the preferred size of truncated forms. Nonetheless, it has the wrong directionality to be truncation. As for candidate *e*, deletion of [labial] feature not only changes its onset consonant but also violates the faithfulness constraint. As a result, candidate *a* wins.

Based on the prefix forms of PC compiled in (11), *mu-* is the only form that begins with the syllable *mu-*. No lexical contrast issue is involved in this instance.[28]

Now let's turn to an example where lexical contrast is concerned. In Matthew xiii:18, the prefix of PC *pa-* is realized in ***pa**-u-arux* which has ***pa**-taw-avang* as its base.

[27] The ellipsis indicates the irrelevant affixation operations with respect to the stem. The following are the same.
[28] This conclusion is only drawn by examining the data at hand. Even there exists another form that begins with mu-, our analysis would still be capable of accounting for it.

(28)

/PC-VERB/ patawavang (base)	M-Parse	Truc=σ	*ProgTruc	IO-CORR	MIRROR
a. ☞ **pa**uarux rLUMSeq: <insert-root,... insert-affix, Max>				*	
b. **pat**uarux rLUMSeq: <insert-root ... insert-affix, Max, Dep>				**!	

In (28), candidate *b* is less harmonic because of its violation of IO-CORR caused by inserting a consonant. Therefore, candidate *a* is the winner. Thus far, this example has nothing obviously different from the previous one.

Now consider the other prefix of PC that also begins with *pa*, *pasi*. This prefix is found in *pasi-'lpux*. And the verbal element *pa-si-lala* is its base (Matthew v:36).

(29)

/PC-VERB/ pasilala (base)	M-Parse	Truc=σ	*ProgTruc	IO-CORR	MIRROR
a.💣 **pa**'lpux rLUMSeq: <insert-root,... insert-affix, Max>					*
b. **pasi**'lpux rLUMSeq: <insert-root ... insert-affix >		*!			

As shown above, without the consideration of lexical contrast, the attested candidate *pasi-'lupux* will not be selected by EVAL.

To examine lexical contrast, we need to conduct Ichimura's MPA. Assume *pa* from *pa-taw-avang* is privileged of maintaining the monosyllabic form.[29] These two prefixes are evaluated together in the following table.

(30) Minimal Pair Analysis: /**pasi**uarux/ and /**pasi**'lupux/ with CONTRAST

/**pasi**uarux : **pasi**'lupux/	CONTRAST	M-Parse	Truc=σ	*ProgTruc	IO-CORR
a. **pa**uarux : **pa**'lupux	*!				*ː*
b. ☞**pa**uarux : **pasi**uarux			:*		*ː

[29] Recall that the monosyllabic form is reserved for the base that is used most frequently and/or emerged first.

Taking CONTRAST into consideration by MPA, we are able to successfully obtain the attested pair, the pair in (30b).

6. Concluding Remarks

In this study, I reviewed previous research on prefix concord and highlighted the confusion which surrounds both its definition and the data documenting it. Aside from my disagreement with Li's (2009) specification of the feature's nature, I adopted Li's proposal that prefix concord is a phenomenon of feature realization. Following Wolf (2008), I came up with an analysis to realize prefix concord. Additionally, the lexical contrast effect observed in the data was tackled by employing Ichimura's (2006) scheme regarding anti-homophony.

Due to a lack of understanding of prefix concord, I am unable to identify either its function or nature. Additional research is needed to reveal why and how speakers use prefix concord. And this will definitely lead us to a better apprehension of prefix concord in semantics, syntax, and phonology.

References

Adelaar, K. Alexander. 2011. Siraya - Retrieving the Phonology, Grammar and Lexicon of a Dormant Formosan Language. De Gruyter Mouton.

Adelaar, K. Alexander. 1999. Retrieving Siraya Phonology: A New Spelling For a Dead Language. *Selected papers from the 8ICAL*: 313-354.

Adelaar, K. Alexander. 1997. Grammar notes on Siraya, an extinct Formosan language. *Oceanic Linguistic* 36:362-397.

Adelaar, K. Alexander. 2004. The coming and going of 'lexical prefixes' in Siraya. *Language and Linguistics* 5(2):333–62.

Albright, Adam. 2003. A quantitative study of Spanish paradigm gaps. In Proceedings *the West Coast Conference on Formal Linguistics 22*, eds. G. Garding and M. Tsujimura, 1-14, Sommerville, Mass.: Cascadilla Press.

Blevins, Juliette. 2004. Antigemination: natural or unnatural history. In *Proceedings of Berkeley Linguistics Society 29*.

Capell, Arthur. 1943. *The Linguistic Position of South-Eastern Papua.* Sydney: Australasian Medical Publishing CO.

Chang, Henry Y. 2009. Adverbial Verbs and Adverbial Compounds in Tsou: A Syntactic Analysis. *Oceanic Linguistics* 48:2 439-476. University of Hawai'i Press.

Crosswhite, Katherine. 2001. *Vowel reduction in Optimality Theory*. New York and London: Routledge.

Crosswhite, Katherine. 1999. Intra-paradigmatic homophony avoidance in two dialects of Slavic. In *UCLA Working Papers in Linguistics 1: Papers in Phonology*, ed. Matthew Gordon, 48-67. Los Angeles: UCLA Linguistics Department.

Embick, David and Rolf Noyer. 2001. Movement Operation after Syntax. *Linguistic Inquiry* 32:4, 555-595.

Ezard, Bryan. 1978. Classificatory prefixes off the Massim Cluster. *Second International Conference on Austronesian Linguistics: Proceedings.* ed. by S. A. Wurm and L. Carrington, 1159-1180. Pacific Linguistics C-61. Canberra: Australian National University.

Gessner, Suzanne and Gunnar Ólafur Hansson. 2004. Anti-homophony effects in Dakelh (Carrier) valence

morphology. in *Proceedings of the Thirtieth Annual Meeting of the Berkeley Linguistics Society*. Eds. Marc Ettlinger, Nicholas Fleisher, and Mischa Park-Doob. 93-104. Berkeley: Berkeley Linguistics Society.

Gravius, Daniel. 1661. *Het heylige Euangelium Matthei en Johannis. Ofte Hagnau ka d'llig matiktik ka na sasoulat ti Mattheus ti Johannes appa.* Amsterdam: Michiel Hartogh.

Ichimura, Larry K. 2006. Anti-homophony Blocking and its Productivity in Transparadigmatic Relations. Ph.D. dissertation. Boston University.

Ichimura, Larry. 2001. Phonological blocking in Japanese casual speech. *Formal Approaches to Japanese Linguistics 3: MIT Working paper in Linguistics*. Vol. 41, 1-18.

Itô, Junko and Ralf-Armin Mester. 1986. The phonology of voicing in Japanese: Theoretical consequences for morphological accessibility. *Linguistic Inquiry*. Vol. 17, Number 1, Winter 1986. 49-73.

Kawahara, Shigeto. 2003. Root-controlled fusion in Zoque: Root-faith and neutralization avoidance. Ms., University of Massachusetts, Amherst, Mass. [Rutgers Optimality Archive 599-0403]

Kenstowicz, Michael. 2002. Paradigmatic uniformity and contrast. In *MIT Working Papers in Linguistics*. Vol. 42. *Phonological answers (and their corresponding questions)*. 141-163

Lee, Ernest W. 1966. Proto-Chamic phonologic word and vocabulary. PhD dissertation. Indiana University.

Li, Chao-Lin. 2009. The Syntax of Prefix Concord in Saaroa: Restructuring and Multiple Agreement. *Oceanic Linguistics* 48:1 p.172-212

López, Luiz. 2002. On agreement: Locality and feature valuation. *Theoretical approaches to universals*, ed. by Artemis Alexiadou, 165-209. Amsterdam: John Benjamins.

Matisoff, James. 1973. Tonogenesis in Southeast Asia. *Consonant types & tones*. Ed. L. M. Hyman. 71-95. Los Angeles: The Linguistic Program, University of Southern California.

McCarthy, John J. 2007. *Hidden Generalizations: Phonological Opacity in Optimality Theory*. London: Equinox.

McCarthy, John J. and Alan S. Prince. 1995. Faithfulness and reduplicative identity. In *University of Massachusetts Occasional Papers 18, Papers in Optimality Theory*, eds. Jill N. Beckman, Laura Walsh Dickey and Suzanne Urbanczyk, 249–384. Amherst, Mass.: Graduate Linguistics Student Association.

Mester, R. Armin. 1990. Patterns of truncation. *Linguistic Inquiry* 21. 478–85.

McFadden, Kenneth Dallas. 1967. *Russian Conjugation*. Ph.D. dissertation. The University of British Columbia.

Morrill, Tuuli. 2002. Truncation patterns in colloquial Finnish. Ms., Boston University.

Newton, Glenda. 2007. Exploring the Nature of the Syntax-phonology Interface: A Post-syntactic Account of the Old Irish Verbal System. *Nanzan Linguistics: Special Issue 1, Vol. 2,* 19-44.

Nojima, Matoyasu. 1996. Lexical prefixes of Bunun verbs. *Gengo Kenkyu*. *Journal of the Linguistic Society of Japan*. No. 110 p.1-27.

Osumi, Midori. 1995. *Tinrin grammar*. Oceanic Linguistics Special Publication No. 25. Honolulu: University of Hawai'i Press.

Pedgett, Jaye. 2001. Contrast Dispersion and Russian Palatalization. Eds. Elizabeth Hume and Keith Johnson. *The Role of Speech Perception in Phonology*. Academic Press. 187-218.

Pittayaporn, Joe Pittayawat. 2009. Austronesian etyma and Proto-Tai sesquisyllabicity. Paper presented at the 11th International Conference on Austronesian Linguistics. Aussois, France. June 22-26.

Prince, Alan, and Paul Smolensky. 2002. *Optimality Theory: Constraint Interaction in Generative Grammar*. Oxford: Blackwell. [ROA-537]

Su, Yi-fan. 2008. *Adverbials in Takituduh Bunun*. M.A. Thesis. National Tsing Hua University.

Tsuchida, Shigeru. 2000. Lexical Prefixes and Prefix Harmony in Siraya. In *Grammatical analysis: Morphology, syntax, and semantics: Studies in honor of Stanley Starosta*, ed. by Videa P. de Guzman

and Byron W. Bender, 109–28. Honolulu: University of Hawai‘i Press.
Tsuchida, Shigeru. 1990. Classificatory prefixes of Tsou verbs. *Tokyo University Linguistic Papers ’89,* 17-52.
Wolf, Matthew Adam. 2008. Optimal Interleaving: Serial Phonology-morphology Interaction in a Constraint-based Modal. Ph.D. dissertation. University of Massachusetts Amherst.
Wu. Chun-ming. 2009. On the linking constructions V-’i’-V in Mayrinax Atayal. Talk given at National Tsing Hua University, May 27. Paper also presented at ICAL–11, Aussois, France. June 22–25.
Wu. Chun-ming. 2007. Prefix copy in Kanakanavu. MS, National Tsing Hua University.

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