Saisiyat Reduplication Revisited[*]

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The present paper aims at complementing Yeh's (2000a-b, 2003) earlier studies on reduplication in Saisiyat by (i) providing a reassessment of her analyses, (ii) making data available in a more exhaustive manner and (iii) reporting new patterns and meanings. Three patterns of reduplication are examined, C*a*-reduplication, partial reduplication – which further includes the following subpatterns: CV-, CVC-, CVV- and -CV- reduplication with overlaps in their semantic functions – and full reduplication. Other issues are also touched on, in particular, the reduplication of certain affixes, and the occurrence of doublet forms. Residual problems regarding the absence of criterion to account for the mapping between a prosodic copying unit and the semantic meaning associated with it are also discussed.

Key words: reduplication, Saisiyat, Formosan languages, reassessment

1. Introduction

1.1 Background information

Saisiyat, an Austronesian language, is spoken in northwest Taiwan. It consists of two dialects, Taai known as the "Northern dialect" and Tungho referred to as the "Southern dialect". The Taai dialect is spoken in Wufeng township, Hsinchu county and the Tungho dialect is spoken in Nanchuang township, Miaoli county. Li (1978) mentions that the difference between the two Saisiyat dialects lies mostly in their phonologies, in that the voiced flap /ɾ/ is preserved in Taai but lost in Tungho.

1.2 Saisiyat phonology

The Saisiyat phonemic system includes 16 consonants, among which 2 glides, and 6 vowels.   In table (1) and (2), phonemes are presented with their corresponding IPA symbols.

(1) Saisiyat Consonants[1]

	BILABIAL		ALVEOLAR		PALATAL		VELAR		GLOTTAL	
PLOSIVE	**p**		**t**				**k**		**ʔ**	
FRICATIVE		**β**	**θ**	**ð**	**ʃ**				**h**	
NASAL		**m**		**n**				**ŋ**		
LATERAL				**l**						
TRILL						**r**				
GLIDE		**w**				**y**				

(2) Saisiyat Vowels

	FRONT	CENTRAL	BACK
HIGH	**i**		
MID		**ə, œ**[2]	**o**
LOW		**æ**	**a**

Several scholars have studied the Saisiyat phonological system (Ogawa and Asai 1935, Chao 1954, Tsuchida 1964, Li 1978, Yeh 1991, 2000a) and their phonemic descriptions vary slightly (see Li 1978 for a short discussion on this matter).

The basic syllable structure of Saisiyat consists of three types: CV *ta.lo.βoŋ* 'bamboo cup', CVC *ŋoʔ.ŋoʔ* 'drum' and CVV *tal.kaa* 'table'. There is no word-initial consonant cluster *#CCV, as in Maga Rukai and Tsou, for instance.   We treat words with #CCVC structure, e.g. [ʃβət] 'hit, beat'; [θβoŋ] 'meet' as being CVCVC underlyingly, cf. *ʃəβət*   and *θoβoŋ*, the surface form resulting from the deletion of the unstressed vowel.   Li (1978:138) has shown that vowel length is phonemic only in Tungho. Conventionally, long vowels are indicated by a colon ':'. While both Li (1978) and Yeh (2000a) are aware that the loss of the voiced flap /ɾ/

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[1] Sounds in the shading cells are voiced and sounds in the blank area are voiceless.

[2] Saisiyat includes six vowels, two more than the four vowels that the Formosan languages generally preserve from PAN.   According to the research carried out by the second author, the vowel /æ/ is a low central back vowel, much closer to /a/ that what has been primarily reported (e.g. Tsuchida 1964), while /œ/ is a slightly rounded, mid central vowel, very close to /o/.   A merger between a/æ on the one hand and o/œ on the other is in progress in Saisiyat (cf. Wu 2004).

results in the occurrence of "zero [consonant, our addition], y and w in different environments" in this particular dialect (Li 1978:136, Yeh 2000:54), this annotation has led to some confusion.   Li (1978:193) records /sæʔoːaz/ [θæʔoːað] 'really' while this word is actually pronounced [θæʔowað].   In the same vein, Yeh (2000) transcribes certain words incorrectly, e.g. /baːiw/ [βaːiw] (Yeh 2000:173) instead of /baiw/ [βaiw] (Li 1978:173).   In this paper, we will consistently indicate two identical vowels as: *aa*, *oo*, *ii*.   Identical vowels might either represent long vowels $(C)V_1V_1$, as in *talkáa* 'table' or belong to two different syllables $(C)V_1.V_1$ as in *ra.ám* 'know'.   To differentiate these, we will indicate the syllable boundary with a dot '.' whenever necessary. Note that stress usually falls on the final syllable.

1.3 Earlier works on Saisiyat reduplication and goals of this paper

Yeh (2000a-b and 2003) describes several types of reduplication in Saisiyat: (i) fossilized reduplication; (ii) C*a*-reduplication; (iii) reduplication with affixes, e.g. locative focus marker[3] -*an*, conveying the meaning "a place full of"; and (vi) first syllable reduplication: CV-, CVC-.   Among these patterns, CVC-reduplication is said to be the most productive in Saisiyat.   Yeh (2000b) mentions that in this pattern, either the whole first syllable of CVC.CVC or the onset of the second syllable along with the first syllable of CV.CVC can be duplicated.   Theoretically, Yeh argues that CVC-reduplication supports the hypotheses developed by Moravcsik (1978) and Marantz (1982:439-40) in that "the shape of the copied material in reduplication is fixed for the reduplication process; the shape is independent of the hierarchical structure of the morpheme being copied."   This is illustrated in (3).

(3) Saisiyat reduplication (Yeh 2000b)

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      k   a   h   œ   y          k   a   h œy  k   a   h   œ   y       a   n
      |   ||  |   |            |   |   |    |   |   |   |   |       |   |
  CVC  +  C   V   C   V   C      C   V   C + C   V   C   C   V   +  V   C
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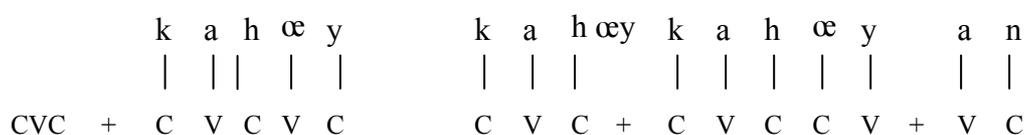
In her Ph.D. dissertation, Yeh (2003) provides an overview of the mapping between forms and meanings carried out by different reduplicated patterns and summarizes her findings in a table we reproduce in (4).

(4) Forms and Meanings of Reduplication in Saisiyat (Yeh 2003:142)

Reduplication patterns	Meaning	Root

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[3] It is not in co-occurrence with the locative LF marker, but rather with the nominalizer -*an* that reduplication is used to convey the meaning of "a place full of".   This is a widely productive process in the Formosan languages (cf. Zeitoun and Wu forthcoming).

Ca-		Future	Verb roots
		Instrumental nouns	Verb roots
		Reciprocal	Verb roots
CV-		Progressive	AF verbs
CVC-	Increase	Collectivity	Nouns, stative verbs
		Intensification	Stative verbs
		Continuation	Action verbs
		Repetition	Action verbs [+bound]
		Distributivity	Stative verbs, achievement verbs
	Decrease	Diminution	Nouns
		Attenuation	Stative verbs
		Tentative	Action verbs

Yeh (2003) has given a very insightful account of the semantic webs which relate the meanings carried out by various reduplication patterns. Therefore we will not focus that much on this topic (see Zeitoun and Wu forthcoming for more ample discussion on this matter). The goal of this paper is actually two-fold: (i) provide an exhaustive inventory of all (productively used) reduplicative patterns and report new patterns (and new meanings) of reduplication (section 2) to complement Yeh's earlier analyses; (ii) explore in more detail problems that were left unanswered in Yeh's work (section 3). We will, in particular, focus on the following issues: Is there a reduplicative domain in Saisiyat reduplication? Both CV- and CVC- patterns (contra Yeh 2000a-b and 2003) actually carry out quite the same semantic functions. Are there any criteria that may help us to determine which stems should have their CV- or their CVC-template copied? Do reduplicative patterns really have respective correspondent grammatical functions in Saisiyat, as assumed in Yeh (2003)? Concluding remarks are presented in section 4.

This paper does not draw on a particular phonological theory and but rather, provides descriptive generalizations about Saisiyat reduplication which might be useful, if adopting a more formal framework. Our study concerns specifically the Tungho dialect, which is still actively spoken although most Saisiyat people also speak Hakka, Southern Min, Mandarin and Atayal in their daily lives as Saisiyat villages are inhabited with Hakka and Atayal population. Data for this research was

collected by the authors on several field trips[4] to the Tungho village, Nanchuang township, Miaoli County[5] from October 2003 to May 2004.

2. More data on Saisiyat reduplication

Several patterns of reduplication in Saisiyat are attested: (i) C*a*-reduplication; (ii) partial reduplication, including CV-, CVC-, CVV- and -CV- reduplication; (iii) full reduplication.   Lexicalized reduplication is also commonly found, but won't be dealt with in this paper.

2.1 C*a*-reduplication

C*a*-reduplication refers to the copy of the first consonant of the base and the addition of a fixed vowel /a/.   If the vowel of the first syllable is /æ/ (in the base form) – it is usually preceded by the two consonants /h/ or /ʔ/ – the vowel that follows the reduplicated C is /æ/.   In other words, C*æ*- can be treated as an allomorph of C*a*-.

(5)

Root	Gloss	Reduplication	Gloss
hæðæβ[6]	'stab'	hæ-hæðæβ	'knife'
ʔæpiθ	'clip'	ʔæ-ʔæpiθ	'clipper'

C*a*-reduplication usually applies to verbs, a distinction being made between "dynamic" and "stative" verbs.   C*a*-reduplication carries one of the four following semantic functions, some of which being able to overlap in certain words, as will be shown below.   It serves to form:

(i)   instrument nouns, usually derived from dynamic verbs (6)-(6') and less commonly from nouns (7)

(ii)   reciprocal[7] verbs (8)-(8')

(iii)   future tense of (dynamic) verbs marked as B/IF (9)-(9')[8]

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[4] Unless mentioned otherwise, the data presented here is drawn from our own fieldnotes, carried out conjointly by the two authors.

[5] Our two main informants (Chu A-liang and Lalu' Kaibaibaw) grew up in the Tungho village. Lalu' Kaibaibaw moved to Penglai village after she got married.   The Tungho dialect is spoken in both villages.

[6] Yeh (2000b) analyzes C*æ*-reduplication as CV-reduplication.

[7] The notion of "reciprocity" covers that of "collectivity".

[8] The three first functions have been reported in Yeh (2003), but not the fourth one.

> (iv)   intensification together with distributivity (cf. 'all very') of stative verbs
> (10)-(10')[9]

(6)

Root	Gloss	Stem[10]	C*a*-reduplication	Gloss
βaθoʔ	'set a fire'	βaθoʔ	βa-βaθoʔ	'inst. used to set a fire'
ði.ið	'sieve'	ð\<om>iið	ða-ðiið	'sieve'
hiyop	'puff'	h\<om>iyop	ha-hiyop	'puffing pipe'
ka.at	'write'	k\<om>aat	ka-kaat	'pencil'
lotor	'link'	l\<om>otor	la-lotor	'inst. to link'
pamaʔ	'carry on back'	pamaʔ	pa-pamaʔ	'bag'
ræhkal	'boil'	r\<om>æhkal	ræ-ræhkal	'firewood, fuel'
ʃo.aw	'chase'	ʃ\<om>oaw	ʃa-ʃoaw	'stick, instrument used to chase'
ʃapəl	'lay a mat'	ʃ\<om>apəl	ʃa-ʃapəl	'mat'
ti.iʃ	'wipe'	t\<om>iiʃ	ta-tiiʃ	'cloth'
θapœh	'sweep'	θ\<om>apœh	θa-θapœh	'broom'
ʔalop	'hunt'	ʔ\<om>alop	ʔa-ʔalop	'inst. used to hunt'

(6') a.   maʔan   ʃaʃoaw   haynoʔ   ila.[11]
             1S.Gen   stick   where   Asp
             'Where is my stick?'
      b.   ʔiθaaʔ   ka   ʔanoʔ   hahiyop.
             then   what   puffing pipe
             '(Actually), it looked like a puffing pipe.' (extracted from Formosan
             Language Archive)

(7)

Root	Gloss	Reduplication	Gloss
haŋaw	'stairs, ladder'	ha-haŋaw	'inst. (e.g. planks) to make stairs or ladders'

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[9] We checked 33 stative verbs.   Among these, eleven -- that is about one third -- were found not to be able to undergo C*a*-reduplication.   Reasons that would permit to account for their ungrammaticality still need to be worked out.   They include: βain 'lazy', βaŋih 'salty', βosok 'drunk', tikot 'afraid', ʃəlraa 'bright', ʔakœy 'many', ʔanhil 'sweet', ʔawhay 'bad', ʔæðəð 'bitter', ʔæhiθ 'sour'.

[10] Stems are indicated whenever necessary, since in certain types of reduplication focus affixes (e.g. \<om>/m- etc.) can occur, while in other types they can not.

[11] 1, 2, 3: first, second and third person, Acc: Accusative, AF: Agent Focus, Asp: Aspect, Gen: Genitive, IF: Instrumental focus, Lig: Ligature, Neg: Negation, Nom: Nominative, S: Singular, P: Plural, Poss: Possessive.

(8)

Root	Gloss	Stem	C*a*-reduplication	Gloss
ðiŋaθ	'stick'	ð<om>iŋaθ	ða-ðiŋaθ	'stick to each other'
haŋih	'cry'	h<om>aŋih	ha-haŋih	'cry for each other'
kitaʔ	'see'	k<om>itaʔ	ka-kitaʔ	'see each other'
ləŋəʃ	'wave'	l<om>əŋəʃ	la-ləŋəʃ	'wave at each other'
rakəp	'catch'	r<om>akəp	ra-rakəp	'catch each other'
ʃawiʔ	'tear'	ʃ<om>awiʔ	ʃa-ʃawiʔ	'tear on both sides, tear each other ('s clothes)'
takoo	'kick'	t<om>akoo	ta-takoo	'kick each other'
θβoŋ	'meet'	θβoŋ	θa-θβoŋ	'meet each other'

(8') a. ʔokay   ʔya   <u>ʃaʃβət</u>   hi   ʔamoy.
      Okay   want to   beat each other   Acc Amoy
      'Okay wants to fight with Amoy.'

    b. ʔiθaaʔ   ʔoka   ila…   ʔokaʔ   ila ʔi <u>papanæʔ</u>   ila.
      then   Neg   Asp   Neg   Asp Lig shoot at each other Asp
      'Then, there were no more fights' (extracted from the Formosan Language Archive)

(9)

Root	Gloss	Stem	C*a*-reduplication	Gloss
βa.iw	'buy'	βaiw	βa-βaiw	'will be used to buy'
βœtœʔ	'tie'	βœtœʔ	βa-βœtœʔ	'will be used to tie'
həlal	'dance'	h<om>lal	ha-həlal	'will be used to dance'
ŋo.ip	'forget'	ma-ŋoip	ŋa-ŋoip	'will be forgotten'

(9') hiniʔ   ʃinœʔis   <u>βaβœtœʔ</u>   ka   kakraŋiʔan.
   this   rope   will be used to tie (IF) Acc thing
   'This rope will be used to tie things.'

(10)

Root/Stem	Gloss	Reduplication	Gloss
hopay	'tired'	ha-hopay	'all very tired'
kərpəə	'fat'	ka-kərpəə	'all very fat'
liaβoʔ	'rich'	la-liaβoʔ	'all very rich'
ʃararaʔ	'like'	ʃa-ʃararaʔ	'all want/like very much'
θoβaœh	'big'	θa-θoβaœh	'all very big'

(10')laθia   kakərpəə.

   3P.Nom   all very fat

   'They are all very fat.'

Roots that can have two or more meanings include the following[12]:

(11)

Root	Gloss	Stem	C*a*-reduplication	Gloss
βiliθ	'touch, lift'	βiliθ	βa-βiliθ	1. 'basket arch, handle' 2. 'touch each other'
βœtœʔ	'tie'	βœtœʔ	βa-βœtœʔ	1. 'string' 2. 'tie each other' 3. 'will be used to tie'
hæðaβ	'prick, stab'	h<om>æðaβ	hæ-hæðaβ	1. 'needle' 2. 'prick each other'
pamaʔ	'carry on back'	pamaʔ	pa-pamaʔ	1. 'bag/car' 2. 'carry each other'
panæʔ	'shoot'	manæʔ	pa-panæʔ	1. 'bullet' 2. 'shoot at each other'
raʔœœ	'drink'	r<om>aʔœœ	ra-raʔœœ	1. banquet 2. 'drink together'
ʃo.aw	'chase'	ʃ<om>oaw	ʃa-ʃoaw	1. 'stick' 2. 'chase each other'
ʔaŋaŋ	'scold'	ʔ<om>aŋaŋ	ʔa-ʔaŋaŋ	1. 'quarrel' (N) 2. 'quarrel with each other' (V)

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[12] This list is certainly not extensive.

2.2 Partial reduplication

Partial reduplication can be divided into four subpatterns: CV-, CVC-, CVV- and -CV- reduplication.   The meanings carried by these patterns overlap to some extent, as we will show below.

While Yeh (2000a-b, 2003) gives an account of CV- and CVC-reduplication, CVV- and -CV- reduplication have never been reported in Saisiyat before.   CVC- is by far the most productive pattern, -CV- reduplication the least productive.

2.2.1 CV-reduplication

Yeh (2003:127) reports that the function of CV-reduplication is to indicate the progressive aspect of AF verbs.   She provides the following examples to support her analysis[13] but our informants rejected (12a) and gave a different meaning for (12c) (continuation instead of progressive).   Sentences (12b) and (12d) were both accepted by our informants, but we did not get a progressive interpretation for any other verb undergoing CV-reduplication we asked for.   Reasons for such a discrepancy might lie in the fact that we strictly worked only with one dialect, Tungho, while Yeh (2003) drew her data from the two Saisiyat dialects, Taai and Tungho.

(12) a. yako   k<om>itaʔ   hizaʔ   ŋyaw   <u>so-s<om>iʔæl</u>
         1S.Nom   see<AF>see   that   cat   CV-eat<AF>eat
         ka   ʔalaw.
         Acc fish
         'I saw that cat eating fish.' (ungrammatical according to our informants)
   b. sia   kahia:iʔ m-wa:iʔ hiniʔ   yako
       3S.Nom   yesterday AF-come this   1S.Nom
       <u>to-t<om>alek</u>.
       CV-cook<AF>cook
       'When he came yesterday, I was cooking.'
   c. korkoriŋ hitaʔ   <u>ho-h<om>æŋih</u>.
       child   there   CV-cry<AF>cry
       'The child is crying over there.' (Translated as: 'The child keeps crying over there.')

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[13] We have kept the original transcriptions, except that to match our own orthography, we have replaced romanized letters by their IPA equivalents.   We have also preserved Yeh's (2003) original glosses.   Note that in her transcriptions, /s/ and /z/ correspond to /θ/ and /ð/ in the dialect investigated here.

d. lasia   so-s<om>ahœlka   kakraŋiʔan

3P.Nom   CV-burn<AF>burn Acc thing

'They are burning things.'

In the data we collected, CV- reduplication applies to both nouns and verbs and carries different functions:

(i) nouns usually suffixed with the locative nominalization marker *-an* may either indicate increase (cf. "a place full of") as shown in (13)-(13') or diminution (including meanings like "fake", "small" etc…), as shown in (14)-(14'):

(13) CV-reduplication on nouns: Increase

Root	Gloss	Reduplication	Gloss
raromæh	'bamboo'	ra-raromæh-an	'a place full of bamboo'
tawmoʔ	'banana'	ta-tawmoʔ-an	'a place full of bananas'
ʔi.ok	'orange'	ʔi-ʔiok-an	'a place full of oranges (orange garden)'

(13')yako   ʃomilʔæl   ray   rararomæhan.

1S.Nom   live   at   place full of bamboo

'I live in a place full of bamboo.'

(14) CV-reduplication on nouns: Diminution

Root	Gloss	Reduplication	Gloss
βoay	'fruit'	βo-βoay	'small fruit which has just blossomed'
tawʔan	'house'	ta-tawʔan	'small house for children to play'

(14')ʔinoka=korkoring=ʔa   tatawʔan…

Poss=child=Poss   doll house

'the doll house of the child…'

(ii) reduplication of stative verbs in co-occurrence with the suffix *-an* yields an attenuation meaning, as shown in (15)-(15'):

(15) CV-reduplication on stative verbs: Attenuation[14]

Root/Stem	Gloss	Reduplication	Gloss
βa.in	'lazy'	βa-βain-an	'a little lazy'
ma.iθ	'hard'	ma-maiθ-an	'a little hard'
ʃi.æʔ	'happy'	ʃi-ʃiæʔ-an	'a little happy'

(15')korkoriŋ βaβainan,   kayniʔ   k<om>aat.

   child   a little lazy   Neg   write<AF>write

   'The child is a little lazy, he does not want to write.'

  (iii) dynamic verbs might either be given a continuous or repetitive interpretation, as shown in (16)-(16') and (17)-(17') respectively:

(16) CV-reduplication on dynamic verbs: Continuation

Root	Gloss	Stem	Reduplication	Gloss
hiyop	'blow'	h<om>iyop	h(<om>)i-hiyop	'keep on blowing'
ko.ih	'dig'	k<om>oih	k(<om>)o-koih	'keep on digging'
ʔyalatar	'chat'	myalatar	mi-myalatar	'keep on chatting'
ʃatər	'see off'	ʃ<om>atər	ʃ(<om>)a-ʃatər	'keep on seeing off'
ʃo.aʃ	'rub'	ʃ<om>o.aʃ	ʃ(<om>)o-ʃoaʃ	'keep on rubbing'
tilhæhæl	'help'	t<om>ilhæhæl	t(<om>)i-tilhæhæl	'keep on helping'

(16')ʔiðiʔ   ʔi   hihiyop

   NegImp   Lig   keep on blowing

   'Do not keep on blowing.'

(17) CV-reduplication on dynamic verbs: Repetition

Root	Gloss	Stem	Reduplication	Gloss
hayap	'fly'	h<om>ayap	ha-hayap	'fly here and there'
tayʔitol	'climb'	t<om>ayʔitol	ta-tayʔitol	'climb here and there'

(17')hiðaʔ   kaβkaβæhææ   homahayap

   that   bird   fly here and there:AF

   'That bird flies here and there.'

  The meanings of CV-reduplication can be summarized as follows:

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[14] Out of 40 stative verbs, only three were found to have a CV- syllable reduplicated.

(18) Meanings of CV- reduplication

Reduplication patterns	Meaning		Root
CV-	Increase	Collective/locative (+ -*an*)[15]	Nouns
		Continuation	Dynamic verbs
		Repetition	Dynamic verbs
	Decrease	Diminution (+ -*an*)	Nouns
		Attenuation (+ -*an*)	Stative verbs

2.2.2 CVC-reduplication

Forms and meanings of CVC-reduplication are adopted from Yeh (2003) with some modifications, cf. (19). Since our data collection draws on a different dialect, we illustrate these with examples taken from our own corpus (ex. (20)-(26)).

A comparison between tables (18) and (19) shows an overlap of semantic functions between CVC-reduplication and CV-reduplication.

(19) Meanings of CVC-reduplication

Reduplication patterns	Meaning		Root
CVC-	Increase	Collective/locative (+ -*an*)	Nouns
		Continuation	Dynamic verbs
		Repetition	Dynamic verbs
	Decrease	Diminution (+ -*an*)	Nouns
		Attenuation (+ -*an*)	Stative verbs

(20) CVC- reduplication on nouns: Collective/locative

Root	Gloss	Reduplication	Gloss
ʔœmæh	'ground'	ʔœm-ʔœmæh	'(dried) field'
		ʔœm-ʔœmæh-an	'mountain'
ßatoʔ	'stone'	ßat-ßatoʔ-an	'a place full of stones'
kahœy	'tree'	kah-kahœy-an	'a place full of woods, forest'
paŋraŋ	'pineapple'	paŋ-paŋraŋ-an	'a place full of pineapples'
rokol	'taro'	rok-rokol-an	'a place full of taros'
ʔæwpir	'sweet potato'	ʔæw-ʔæwpir-an	'a place full of sweet potatoes'

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[15] In two instances, we found C*a*-…-*an* with this meaning, cf. *timæʔ* 'cook dishes' > *ta-timæʔ-an*, 'vegetable garden' and *romiʃ* > *ra-romiʃ-an* 'a face full with a beard'.

(20')yako θ<om>iʔæl ka walwaloʔ.

    1S.Nom eat<AF>eat Acc honey

    'I ate honey.'

(21) CVC- reduplication on nouns: Diminuation

Root	Gloss	Reduplication	Gloss
lœhoŋ	'mortar'	lœh-lœhoŋ	'small mortar'
maʔiyæh	'person, human being'	maʔ-maʔiyæh	'doll'
ʃiβaiʔ	'snake'	ʃiβ-ʃiβaiʔ	'worm'
waθal	'sea'	waθ-waθal	'lake'

(21')hiniʔ maʔmaʔiyæh ʔawhay ila

    this doll bad Asp

    'This doll is broken.'

(22) CVC- reduplication on stative verbs: Attenuation[16]

Root/Stem	Gloss	Reduplication	Gloss
haraiʔ	'dirty'	har-haraiʔ-an	'a little dirty'
kərpəə	'fat'	kər-kərpəə-an	'a little fat'
lihpihan	'thin'	lih-lihpihan(-an)	'a little thin'
ŋalpæʔ	'broad'	ŋal-ŋalpæʔ-an	'a little broad'
ʃararaʔ	'like'	ʃar-ʃararaʔ-an	'like a little'
ʃilʔiʔ	'heavy'	ʃil-ʃilʔiʔ-an	'a little heavy'
θopaloy	'big'	θop-θopaloy-an	'a little big'
ʔawhay	'bad'	ʔaw-ʔawhay-an	'a little bad'

---

[16] In Saisiyat, reduplication can not apply to roots with two initial syllables that are identical, cf. *kalkalœh* 'loose' > *kalkalœh-an*, but not **kal-kalkalœh-an*, *ʔæʔæʔiw* 'dry' > *ʔæʔæʔiw-an*, but not **ʔæ-ʔæʔæʔiw-an*.

(23) CVC- reduplication on dynamic verbs: Continuation

Root	Gloss	Stem	Reduplication	Gloss
βiliθ	'touch'	βiliθ	βil-βiliθ	'keep on touching'
halay	'hang'	h<om>alay	h(<om>)al-halay	'keep on hanging'
lotor	'link'	l<om>otor	l(<om>)ot-lotor	'keep on linking'
pamaʔ	'carry'	pamaʔ	pam-pamaʔ	'keep on carrying'
raʔœœ	'drink'	r<om>aʔœœ	r(<om>)aʔ-raʔœœ	'keep on drinking'
ʃapəl	'lay a mat'	ʃ<om>apəl	ʃ(<om>)ap-ʃapəl	'keep on laying a mat'
toβa	'poison (fish, insects, small animals)'	t<om>oβa	t(<om>)oβ-toβa	'keep on poisoning'
θapœh	'sweep'	θ<om>apœh	θ(<om>)ap-θapœh	'keep on sweeping'
ʔæpiθ	'clip'	ʔ<om>æpiθ	ʔ(<om>)æp-ʔæpiθ	'keep on clipping'

(24')yako   <u>pampamaʔ</u>   ka   korkoriŋ

    1S.Nom   keep on carrying on back   Acc   child

    'I keep on carrying a child on (the) back.'

(25) CVC- reduplication on dynamic verbs: Repetition

Root	Gloss	Stem	Reduplication	Gloss
ŋoip	'forget'	maŋoip	maŋ-maŋoip	'often forgets'
paθay	'die'	maθay	maθ-maθay[17]	'die one after another'
panraan	'walk'	manraan	man-manraan	'take a walk, walk here and there'

(25')yako   <u>maŋmaŋoip</u>   ka   rarooʔ   niʃoʔ

    1S.Nom   often forget   Acc   name   2S.Gen

    'I often forget your name.'

    There are cases of doublets, as the following data illustrate:

---

[17] We subsume the notion of "distributivity" (for the verb "die") and "tentative" (for the verb "walk") proposed by Yeh (2003) under the term "repetition".

(26)

Root	Gloss	Reduplication		Gloss
ʃatər	'see off'	ʃa-ʃatər	ʃat-ʃatər	'keep on seeing off'
tilhæhæl	'help'	ti-tilhæhæl	til-tilhæhæl	'keep on helping'

(26')laθia   tiltilhæhæl   yakin.

　　3S.Nom　　keep on helping　　1S.Acc

　　'They keep on helping me.'

In one instance, we found a different meaning attributed for CV- vs. CVC-reduplication. Compare: *laŋoy* 'immerse, soak in water' > *l(*<om>)a-laŋoy* 'swim'[18] (continuous meaning) vs. *l(<om>)aŋ-laŋoy* 'have a swim, swim here and there' (repetitive meaning).

2.2.3 CVV-reduplication

CVV-reduplication generally copies two identical vowels that occur in two distinct syllables and produces a CVV-CV.VC output, i.e., the reduplicant represents a long vowel while the root is disyllabic. It mainly applies to words with a CV.VC syllabic sequence. CVV-reduplication entails at least[19] two meanings 'continuation' and 'attenuation', respectively illustrated in (27)-(27') and (28)-(28') and summarized in table (29).

(27) CVV-reduplication on dynamic verbs: Continuation

Root	Gloss	Stem	Reduplication	Gloss
ka.at	'write'	k<om>a.at	k(<om>)aa-ka.at	'keep on writing'
pa.atol	'sing'	ma.atol	paa-pa.atol/maa-ma.atol	'keep on singing'
ti.iʃ	'wipe'	t<om>i.iʃ	t(<om>)ii-ti.iʃ	'keep on wiping'
θa.aβ	'burp'	θ<om>a.aβ	θ(<om>)aa-θa.aβ	'keep on burping'

---

[18] Yeh (2003:125) mentions two forms for this verb. She points out that the first takes the *<om>* infix, and refers to the swimming of fish, as in. *l<om>aŋoy* (e.g. ʔalaw kama l<om>aŋoy ay ba:laʔ 'Fishes swim in the river'. The second form does not take the *<om>* infix, but gets reduplicated, cf. *la-laŋoy*, and refers to the swimming of human beings (e.g. hi ʔobay ra:am a tomalan la-laŋoy ''Obay is very good at swimming.'). Her hypothesis regarding the second form as an instance of Ca-reduplication might be challenged. Except for the fact that *la-laŋoy* cannot be infixed with *<om>*, there is no way to decide whether this verb has undergone CV- or C*a*- reduplication. The meaning given above tends to show that CV- reduplication is more likely.

[19] We suspect that it might actually carry out the same semantic functions as CVC- and CV-reduplication, though we have been unable so far to uncover such data.

(27')ʃoʔo   ʔampowaʔ   komaakaat?

 2S.Nom   why   keep on writing

 'Why do you keep on writing?'

(28) CVV-reduplication on stative verbs: Attenuation

Root/Stem	Gloss	Reduplication	Gloss
βo.ok	'rotten'	βoo-βo.ok-an	'a little rotten'
ra.am	'know'	raa-ra.am-an	'know a little'
ʔi.iðoʔ	'deep'	ʔii-ʔi.iðoʔ-an	'a little deep'

(28')yako   raaraaman   ila ka manoʃaiʃiyat

 1S.Nom   know a little   Asp Acc Saisiyat language

 'I know a little Saisiyat.'

(29) Meanings of CVV-reduplication

Reduplication patterns	Meaning		Root
CVV-	Increase	Continuation	Dynamic verbs
	Decrease	Attenuation (+ -an)	Stative verbs

There are, however, a few exceptions with our data. In (30), the vowel becomes a long vowel, once the syllable is reduplicated; in (31), two different vowels are reduplicated.

(30)

Root	Gloss	Stem	Reduplication	Gloss
ʃa.il	'hide'	ʃ<om>a.il	ʃ(<om>)aa-ʃa.il	'keep on hiding'

(31)

Root	Gloss	Reduplication	Gloss
ko.ih	'dig'	ko-koih ~ koi-ko.ih	'keep on digging'
ʃo.aw	'chase'	ʃoa-ʃo.aw	'keep on chasing'

(31')a. θia   ʔokay   kokoih/koikoih.

 3S.Nom Neg:Lig   keep on digging

 'He did not keep on digging.'

2.2.4 -CV-reduplication

-CV- reduplication is a very unproductive pattern. We found it in only two instances (where two meanings "repetition" and "continuation" were obtained). They both exhibit doublet forms:

(32)

Stem	Gloss	Reduplication	Gloss
h<om>ayap	'fly'	h(<om>)ay*a*yap ~ h(<om>)a-hayap	'fly here and there'
maariæʔ	'swell'	maa*ri*riæʔ ~ *maa*-maariæʔ	'keep on swelling'

2.3. Full reduplication and serial reduplication

Yeh (2003:113) says that "full reduplication at *morphological level* such as *poŋæh-poŋæh* 'flowers everywhere' appears to be *rare*, though it is *productive at syntactic level*." (portion italicized by the authors). Our data shows that this is not entirely correct. Morphologically speaking, full reduplication is certainly not as productive as other patterns of reduplication, e.g. C*a*- or CVC-reduplication, still exists.

To occur, though, it needs a trigger:[20] one of these triggers consists of the suffixation of the base with -*an* (on nouns), as shown in (33).

(33) Full reduplication triggered by -*an*

Root	Gloss	Reduplication	Gloss
kahœy	'tree'	kahœy-kahœy-an	'forest'
poŋæh	'flower'	poŋæh-poŋæh-an	'garden'
waloʔ	'sugar'	waloʔ-waloʔ-an	'place full of sugar'

(33')yako   θ<om>iʔæl   ka   walwaloʔ   ʔiθaaʔ   maʔan
    1S.Nom   eat<AF>eat   Acc honey   then   1S.Gen
    himaʔ   <u>waloʔwaloʔan</u>.
    hand   place full of sugar

---

[20] The verb *kitaʔ* 'see' was recorded as undergoing full reduplication, with no apparent trigger, though. cf. *kitaʔ-kitaʔ* 'have a look', as in (i). (ii) shows that the occurrence of the infix <*om*> is forbidden.

  (i) a. yako   <u>kitaʔkitaʔ</u>   ka   korkoriŋ.
        1S.Nom   have a look Acc   child
        'I had a look at a/the child'
     b. *yako   <u>k<om>itaʔkitaʔ</u>   ka   korkoriŋ.
         1S.Nom   have a look   Acc   child

'I ate honey and my hands are full of sugar.'

The second trigger involves C*a*- reduplication (on dynamic verbs), as in (34). In this latter case, C*a*-reduplication occurs first on the base, cf. *haŋih* 'cry' > *ha-haŋih* 'cry for each other'. The stem then further undergoes CVCV-reduplication, cf. *ha-haŋih-haŋih*. As in other Formosan languages (cf. Rukai, Paiwan, Puyuma, see Zeitoun 2002), when C*a*- appears along with full reduplication, it indicates a "plurality of participants" in reciprocals. The co-occurrence of C*a*- + full reduplication yields a pattern of "serial" reduplication, defined by Blust (2001) as involving the reduplication of a segment that has already been reduplicated.[21]

(34) Full reduplication triggered by C*a*- reduplication yielding serial reduplication

Root	Gloss	Reduplication	Gloss
haŋih	'cry'	ha-haŋih-haŋih	'cry for one another'
kotih	'pinch'	ka-kotih-kotih	'pinch one another'
roton	'gather'	ra-roton-roton	'gather all together'

(34')laθia   hahaŋihhaŋih.

   3P.Nom   cry for one another

   'They cry for one another.'

A few occurrences of C*a*-followed by CVC-, CVV- and CV- were also found. These three patterns refer to a reciprocal action occurring repeatedly.

(35) C*a*-reduplication with partial reduplication yielding serial reduplication

Root	Gloss	C*a*- + partial reduplication	Gloss
koβææh	'call for help'	ka-koβ-koβææh	'keep on calling each other for help'
tilhæhæl	'help'	ta-til-tilhæhæl	'keep on helping each other'
kaaθ	'bite'	ka-kaa-ka.aθ	'keep on biting each other'
kiim	'seek'	ka-kii-ki.im	'keep on looking for each other'
ʃoaw	'chase'	ʃa-ʃoa-ʃoaw	'keep on chasing each other'

2.4 Reduplication of affixes

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[21] In opposition to "triplication" which consists of the reduplication of the same or the totality of the root twice in a unitary process.

As shown in Yeh (2003:132), the infix *<om>* can be reduplicated, this leads to doublet forms[22], as in (37). Other prefixes can also be reduplicated, the AF prefixes *m-* and *ma-* and a number of verbalizers[23].

(36) Reduplication of the AF affix *<om>*

Root	Gloss	Stem	Reduplication	Gloss
kpəə	'squeeze'	k<om>pəə	kom-kompəə~k<om>əp-kpəə	'keep on squeezing'
ʃiβœh	'pour'	ʃ<om>iβœh	ʃom-ʃomiβœh~ʃ<om>iβ-ʃiβœh	'keep on pouring'
ʃβət	'hit, beat'	ʃ<om>βət	ʃom-ʃomβət~ʃ<om>əβ-ʃβət	'keep on beating'
tβoŋ	'bark'	t<om>oβoŋ	tom-tomβoŋ~t<om>oβ-toβoŋ	'keep on barking'
tokaw	'jump'	t<om>okaw	tom-tomkaw~t<om>ok-tokaw	'keep on jumping'

(36')a. ʃoʔo   ʃomʃomβət   yakin.
        2S.Nom   keep on beating   1S.Acc
        'You keep on beating me.'

   b. ʃoʔo   ʃ<om>əβʃβət   yakin.
        2S.Nom   keep on beating<AF>   1S.Acc
        'You keep on beating me.'

(37) Reduplication of the prefix *m-*

Root	Gloss	Stem	Reduplication	Gloss
karmaʔ	'steal'	marmaʔ	mar-marmaʔ	'keep on stealing'
paatol	'sing'	ma.atol	maa-maatol	'keep on singing'
panæʔ	'shoot'	manæʔ	man-manæʔ	'keep on shooting'
panraan	'walk'	manraan	man-manraan	'take a walk'
paθay	'die'	maθay	maθ-maθay	'die one after another'
pæʔrəm	'sleep'	mæʔrəm	mæʔ-mæʔrəm	'keep on sleeping'
ʔaraʃ	'bring'	maraʃ	mar-maraʃ	'bring often'

(38) Reduplication of the prefix *ma-*

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[22] In one instance, we even got triplet forms: *θʔok* 'belch' > *θom-θomʔok* ~ *θ<om>ʔok-ʔok* ~ *θ<om>ʔoθʔok* 'keep on belching'.

[23] For reasons still not understood, other prefixes can not undergo reduplication, cf. *ti-kakaw* > *ti-kak-kakaw*, but not * *tik-tikakaw*.

Root	Gloss	Stem	Reduplication	Gloss
ŋoip	'forget'	ma-ŋoip	maŋ-maŋoip	'forget often'
ʃaəŋ	'sit'	ma-ʃaəŋ	maʃ-maʃaəŋ	'keep on sitting'
ʔaðəm	'fontanel'	ma-ʔaðʔaðəm	maʔ-maʔaðʔaðəm	'keep on thinking'

(39) Reduplication of other verbalizers

Root	Gloss	Stem	Gloss	Reduplication	Gloss
hæʔtiʃ[24]	sneeze	min-hæʔtiʃ	'sneeze'	min-minhæʔtiʃ	'keep on sneezing'
ŋəθəl	nasal mucus	hin-ŋəθəl	'clear one's nose'	hin-hinŋəθəl	'keep on clearing one's nose'
romiʃ	beard	paw-romiʃ	'shave'	paw-paw-romiʃ	'keep on shaving'

(39')θia   minminhæʔtiʃ.

   3S.Nom   keep on sneezing

   'He keeps on sneezing.'

3.   Residual problems

3.1 The /a/ vowel in C*a*-reduplication

In C*a*- reduplication, the vowel occurring in the base is replaced by the vowel /a/. The occurrence of /æ/ (yielding C*æ*-) results from the vocalic assimilation to a glottal sound in the base form (see also section 2.1).

### 3.2 "Breaking" of syllable boundaries and implications

One theoretical assumption when dealing with reduplication is that the reduplicant form is a prosodic unit.   It has been tested in many languages that prosodic units, such as the mora or the syllable, play an important role in the reduplicative domain (e.g. McCarthy and Prince 1990).

Saisiyat exhibits various syllabic sequences: CV.CVC, CVC.CVC, CV.VC, CV.VC(VC), C.CVC[25].   One may suggest that the copying domain of CVC-, CV- is the first syllable of the base as illustrated as follows:

[24] This is a bound root, which cannot occur independently.

[25]As mentioned above, the CCVC structure, e.g. [ʃβət] 'hit, beat'; [θβoŋ] 'meet', is treated underlyingly as CV.CVC, the surface form resulting from the deletion of the unstressed vowel.

(40) Partial reduplication

BASE   **RED**

$$\left.\begin{array}{l} \text{CV.VC} \\ \text{CV.CVC} \end{array}\right\} \xrightarrow{\textbf{CV-red}} \begin{array}{l} \underline{\text{CV}}\text{-CV.VC} \\ \underline{\text{CV}}\text{-CV.CVC} \end{array}$$

$$\text{CVC.CVC} \xrightarrow{\textbf{CVC-red}} \underline{\text{CVC}}\text{-CVC.CVC}$$
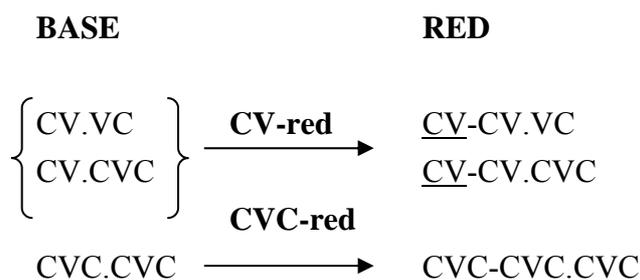
However, this is not true. CV-reduplication might duplicate the first syllable of a base CVC.CVC without copying the coda. CVC-reduplication might also copy segments across the syllable boundary from the base in CV. CVC structure, in which the onset of the second syllable can be reduplicated and become the final coda of the reduplicant (this has been reported also by Yeh 2000b). CVV-reduplication copies the initial vowel of the second syllable in CV.VC. This is summarized in the following table, with examples afterwards (we refer to such a phenomenon as "breaking" of a syllable boundary, for use of a better term).

(41) Saisiyat reduplication

Reduplication   CV-reduplication   CVC-reduplication   CVV-reduplication

Base and $\left\{\begin{array}{l} \underline{\text{CV}}\text{-CV.VC} \\ \underline{\text{CV}}\text{-CV.CVC} \\ \underline{\text{CV}}\text{-CVC.CVC} \end{array}\right\}$ $\left\{\begin{array}{l} \underline{\text{CVC}}\text{-CVC.CVC} \\ \underline{\text{CVC}}\text{-CV.CVC} \end{array}\right\}$ $\left\{\begin{array}{l} \underline{\text{CVV}}\text{-CV.VC(VC)} \\ \underline{\text{CVV}}\text{-CV.VC} \end{array}\right\}$
Reduplicant

breaking of syllable boundary
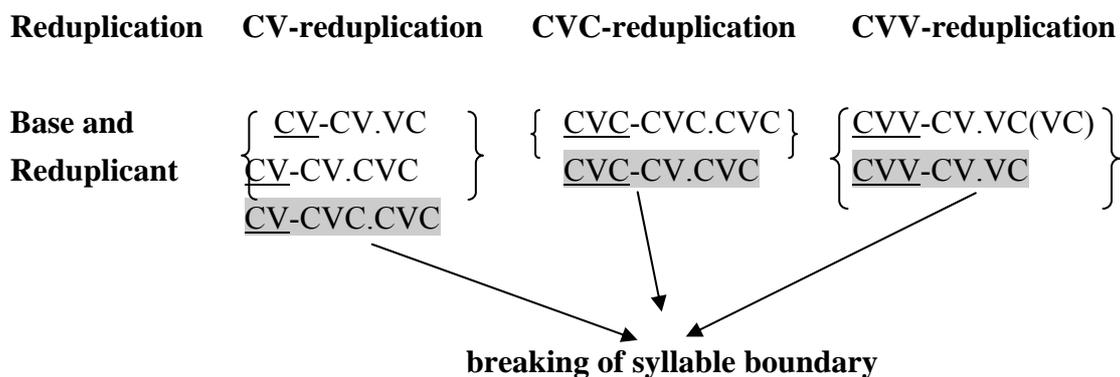
(42) "Breaking" of syllable boundary in CV-reduplication

Root	Gloss	Reduplication	Gloss
tiʃkoβaœh	'answer'	ti-tiʃkoβaœh	'keep on answering'
tilhæhæl	'help'	ti-tilhæhæl	'keep on helping'
tawʔan	'house'	ta-tawʔan	'small house for children to play'
tawmoʔ	'banana'	ta-tawmoʔ-an	'a place full a bananas'

(43) "Breaking" of syllable boundary in CVC-reduplication

Root	Gloss	Reduplication	Gloss
ðiŋaθ	'stick'	ðiŋ-ðiŋaθ	'keep on sticking'
haβaiʔ	'blow'	haβ-haβaiʔ	'keep on blowing'
lœhoŋ	'mortar'	lœh-lœhoŋ	'small mortar'
βatoʔ	'stone'	βat-βatoʔ-an	'a place full of stones'

(44) "Breaking" of syllable boundary in CVV-reduplication

Root	Gloss	Reduplication	Gloss
ka.aθ	'bite'	kaa-ka.aθ	'keep on biting'
kə.əβ	'cut'	kəə-kə.əβ	'keep on cutting'
ra.am	'know'	raa-ra.am-an	'know a little'

From the perspective of moraic phonology, one may suggest that the reduplication processes in Saisiyat involves "light syllable reduplication" and "heavy syllable reduplication", requiring one mora or two moras respectively. Yeh (2000b) argues that CVC-reduplication is the most productive pattern in Saisiyat and our own corpus confirms her analysis: out of 217 lexical items, only 23 were found to have CV-reduplication. It might thus be so because in Saisiyat, the CVC syllable structure is predominant. However, referring to Saisiyat syllable structure in order to account for its dominant reduplication pattern is not really satisfying and altogether rather quite circular, as it raises the following question: which copying unit yields which meaning? In Saisiyat we cannot specify the prosodic unit of a reduplicant since semantic meanings carried out by CVC-/CV-/CVV-/-CV- reduplication overlap partially/totally.

4. Conclusion

This paper has attempted to present further clarification with regards to the different aspects of Saisiyat reduplication.

We have provided an extensive inventory of Saisiyat reduplication patterns and reported new data, cf. (45) with additional evidence that affixes can be reduplicated in Saisiyat given and several series of doublets found.

(45) Forms and Meanings of Reduplication in Saisiyat: a reassessment

Reduplication patterns	Meaning		Root
C*a*-	Instrumental nouns		Dynamic verb roots
	Reciprocal		Dynamic verb roots
	Future (I/BF)		Dynamic verb roots
	Intensification & collectivity		Stative verb roots
CVC- & CV-	Increase	Continuation	Dynamic verb roots
		Repetition	Dynammic verb roots
		Collective/locative (+-*an*)	Nouns
	Decrease	Diminution (+ -*an*)	Nouns
		Attenuation (+ -*an*)	Stative verbs
CVV-	Decrease	Attenuation (+ -*an*)	Stative verbs roots
	Increase	Continuation	Dynamic verb roots
-CV-	Increase	Continuation	Dynamic verb roots
		Repetition	Dynamic verb roots
Full Reduplication + -*an*	Collective/locative		Nouns

(46) Serial reduplication in Saisiyat: Forms and Meanings

Reduplication patterns	Meaning	Root
C*a*- + full reduplication	Reciprocal + plurality	Dynamic verb roots
C*a*- + CVC-/CVV-/CV- reduplication	Reciprocal + repetitive	Dynamic verb roots

However, one question remains unanswered: the meanings carried out by the different subpatterns included in partial reduplication overlap and there is no criterion to decide when the copying unit, whether a light or a heavy syllable, applies to the base, i.e., there is no criterion to help us account for the mapping between a certain prosodic copying unit and the semantic meaning associated to it. There is also a tendency in Saisiyat to reduplicate heavy syllables, but this is only a tentative conclusion.

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本文試著補充葉美利教授（2000a-b, 2003）對賽夏語重疊詞的研究，並重新檢視葉美利教授的分析以及提供更加豐富的語料和新的重疊形式及語意。重疊形式有三類，分別為 C*a*-重疊、部分重疊以及全部重疊。部分重疊包含 CV-， CVC-，CVV- 以及 -CV-，然而這些部分重疊形式的語意功能並沒有明顯的區分。本文亦特別探討疊形式與特定詞綴的互動關係，以及同義不同音詞的呈現。最後本文提出在賽夏語中，缺乏如何判定音韻重疊單位及其對應之語意功用的準則問題。

關鍵詞：重疊詞賽夏語、台灣南島語、重新檢討