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Papapana Re~redu~reduplicates: Multiple Reduplication in an Endangered Northwest Solomonian Language

Ellen Smith

UNIVERSITY OF NEWCASTLE

Although Austronesian languages display a wide range of formal reduplicative patterns, multiple reduplication is reported only for Thao and Mokilese, and is practically unattested in Western Oceanic languages, including those of the Northwest Solomonian (NWS) subgroup. This paper investigates the functions and typologically rare patterns of multiple reduplication in Papapana, a previously undescribed and undocumented, highly endangered language (NWS, Western Oceanic) of Papua New Guinea. Both derivational and inflectional reduplication in Papapana involve leftward, monosyllabic or disyllabic copying. Inflectional reduplication always occurs in combination with another morpheme: (i) negative markers in prohibitives, (ii) the reciprocal marker *vei* in reciprocal constructions, or (iii) postverbal subject-indexing enclitics to express imperfective aspect. Although monosyllabic and disyllabic copying are typically Oceanic, some verbs in Papapana also display the cross-linguistically rare phenomenon of multiple reduplication to make a distinction between subtypes of imperfective aspect. Papapana also has unusual reduplication constructions because the preverbal comitative applicative marker *me* and the preverbal reciprocal marker *vei* can be reduplicated instead of the verb, and despite allowing multiple reduplication in imperfective aspect constructions, it is not permitted in constructions expressing both imperfective and reciprocal meanings. These features of Papapana reduplicative constructions call into question the status of the reduplicant as an affix or clitic, and the nature of multiple reduplication as a unitary or serial process, and these issues are debated in light of a typological comparison with related and unrelated languages.

1. INTRODUCTION.¹ Austronesian languages are well known for reduplication. Reduplication is a pattern where “the double or multiple occurrence of a sound string, syllable, morpheme or word within a larger syntagmatic unit is in systematic contrast with its single occurrence,” and the repeated elements fill functionally nondistinct positions (Moravcsik 1992:323). Although there is a range of formal patterns, Austronesian

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reduplication typically involves CV (syllable) or CVCV (foot) reduplication and affects numerous word classes for various purposes, including derivation, valency-changing, and plural-marking. This paper describes the functions and typologically unusual forms of reduplication in Papapana, a highly endangered language belonging to the Northwest Solomonic (NWS) subgroup within the Western Oceanic branch of the Austronesian family, and spoken by 104 fluent speakers on the northeast coast of Bougainville island, Papua New Guinea.

Reduplication in Papapana has both derivational and inflectional functions, and both involve leftward, continuous, monosyllabic or disyllabic copying. The choice between the two is generally lexically determined. Derivational reduplication may occur independently, where it most commonly derives nouns and adjectives, or it can occur in combination with a derivational suffix to derive location nouns or augmented dyadic nouns. Inflectional reduplication always occurs in combination with another morpheme, with postverbal subject-indexing (PSI) enclitics to express imperfective aspect, with the preverbal negative markers *ae* and *te* in prohibitive constructions, or with the reciprocal marker *vei* in reciprocal constructions. Although monosyllabic and disyllabic copying are typically Oceanic, some verbs in Papapana also display the cross-linguistically rare phenomenon of multiple reduplication to express a subtype of imperfective aspect.² Multiple reduplication is attested in some non-Oceanic Austronesian languages such as Thao (Blust 2001b; Chang 1998) and in some Central-Eastern Oceanic languages such as Mokilese (Harrison 1974), but it is practically unattested in Western Oceanic (including NWS) languages. Papapana also has unusual reduplication constructions because the preverbal comitative applicative marker *me* and the preverbal reciprocal marker *vei* can be reduplicated instead of the verb, and despite multiple reduplication being allowed in imperfective aspect constructions, it is not permitted in constructions expressing both imperfective and reciprocal meanings. These features of Papapana reduplicative constructions call into question the status of the reduplicant as an affix or clitic, and the nature of multiple reduplication as a unitary or serial process.

This paper first provides an overview of Papapana phonology (section 2) before describing the formal properties of reduplication (section 3), its derivational functions (section 4), and its inflectional functions in imperfective aspect and prohibitive constructions (section 5). Section 6 investigates reduplication in reciprocal constructions, and the optional reduplication of the aforementioned valency-changing markers. Section 7 briefly describes some remaining instances of reduplication that appear to be nonproductive or are ambiguous. Section 8 provides a typological comparison of related and unrelated languages and, in light of this, questions the status of Papapana reduplicants and the nature of the reduplication process, before concluding in section 9. The analysis is based on a corpus of 60 hours of annotated primary data, collected by the author in the field as part of a documentation and description project. The analysis is exemplified as much as possible by spontaneously produced utterances from text recordings (indicated by *T* in the data reference), but elicited data have been used (indicated by *E*) when that was not

2. Although one might wonder whether the name *Papapana* is an example of multiple reduplication, this is unlikely since *pana* denotes 'all' but rarely occurs as a root, and multiple reduplication does not have a transcategorical derivational function in Papapana. Instead, it is likely that *Papapana* is derived by reduplication from *papana* 'place, side'.

possible or when they more clearly exemplify the analysis than text data. When data come from unrecorded elicitation sessions, the example is referenced as *Fieldnotes*, and where analysis is built on the corpus as a whole, no reference is given. Leipzig glossing conventions (Comrie, Haspelmath, and Bickel 2008) are followed, whereby the reduplicant (the “copy” component) and the base (the “source” component) are separated by ~, but instead of following the Leipzig practice of giving a semantically specific gloss for the reduplicant, the reduplicant is glossed as *RD*.³

2. PHONOLOGICAL OVERVIEW. As is typical of Oceanic languages, Papapana has five monophthongs: /i/, /e/, /a/, /ɔ/, /u/. Vowel length is contrastive in Papapana for the three front unrounded vowels /i/, /e/, and /a/, but has a low functional load. Seven vowel combinations in Papapana are realized as diphthongs: /eɪ aɪ ae aɔ oɪ œ/. An examination of the stress regime in Papapana demonstrates that these vowel sequences are diphthongs as they form one syllable in both root and stem forms, and there is no glide creation between the two vowels. However, the diphthongs do not appear to be phonemic, as in reduplication only the first vowel of a diphthong is reduplicated (see section 3).

Papapana’s consonant system consists of fourteen phonemes: /p/, /b/, /t/, /d/, /k/, /g/, /ʔ/, /m/, /n/, /ŋ/, /r/, /β/, /s/, /w/. The glottal stop is phonemic, but may also occur as epenthetic glottal insertion in reduplicated forms to break the hiatus between two identical vowels (see section 3). The orthographic representations of Papapana phonemes and diphthongs used in this paper are shown in table 1.

TABLE 1. PAPAPANA ORTHOGRAPHY

Vowel	Orthographic Symbol	Diphthong	Orthographic Symbol	Consonant	Orthographic Symbol
/i/	i	/eɪ/	eɪ	/p/	p
/i:/	i:	/aɪ/	ai	/b/	b
/e/	e	/ae/	ae	/t/	t
/e:/	e:	/aɔ/	au	/d/	d
/a/	a	/aɔ/	ao	/k/	k
/a:/	a:	/oɪ/	oi	/g/	g
/ɔ/	o	/œ/	oe	/ʔ/	‘
/u/	u			/m/	m
				/n/	n
				/ŋ/	ng
				/r/	r
				/β/	v
				/s/	s
				/w/	w

3. Abbreviations in all examples have been modified to follow the Leipzig glossing rules. In addition, the following abbreviations are used: AN, animate; AUG, augmentative; CAP, capability; CF, counterfactual; CLI, Class I; CLII, Class II; COLL, collective; CONST, construct morpheme; DER, derivational morpheme; DETR, detransitivizer; DIM, diminutive; EMPH, emphatic; HORT, hortative; HUM, human; IMM, immediate; INAM, inanimate; INTS, intensifier; NHUM, nonhuman; NSPEC, nonspecific; ORD, ordinal; PART, partitive; PERS, personal; PLURACT, pluractionality; POSS, possessive pronoun; PREP, preposition; PROH, prohibitive; PSSR, possessor; REAL, realis; RD, reduplicant.

Papapana employs a simple syllable structure consisting of an optional consonant onset and a vowel nucleus. Consonant codas are prohibited, except in English or Tok Pisin loanwords such as /siks.ti/ ‘sixty’ and /sis.pai/ ‘ceasefire’. Papapana syllables are therefore always open, consistent with the widespread Oceanic pattern in which syllable structures tend to be a simple CV type (Lynch, Ross, and Crowley 2002:34). When present, onsets consist of one consonant, and any of the consonant phonemes may appear. Consonant clusters are only attested in loan words, such as /sku.na/ ‘ship’, /sku.ru/ ‘school’, and /stɔ.a/ ‘store’. Nuclei can be simple or complex, containing either a monophthong (thus *monomoraic*, or *light*) or a long vowel or diphthong (*bimoraic*, or *heavy*). The syllable structure can be described as (C)V(V), and possible Papapana syllable structures are consequently V, VV, CV, CVV. In a limited set of loan words, CCV, CVC, and CVCC are possible. Papapana is, therefore, quite constrained with regard to syllable structure, allowing only three of the ten syllable types outlined by Blevins (1995:217), since in Blevins’s (1995) typology, ‘V’ encompasses monophthongs and diphthongs. The minimal root in Papapana consists of a single syllable. Roots of one, two, three, or four syllables are common. Since a number of affixes and clitics may be attached to roots, stems of five or more syllables are much more common than roots of this length.

Feet are left-aligned syllabic trochees and word stress is predictable, with primary stress falling on the first syllable of the first foot, which is unusual for Oceanic languages, since stress usually falls on the penultimate syllable of a word (Lynch, Ross, and Crowley 2002:35). Prefixes and proclitics form phonological but not prosodic words with roots, and affixation or cliticization to the left of the root does not generally alter stress assignment (1), unless morphological concatenation of a prefix or proclitic to an onsetless root results in the formation of a long vowel or diphthong, in which case the stress is adjusted and falls on the vowel of the prefix or proclitic (2), since it is no longer prosodically possible to assign stress to the first vowel of the root as that vowel now forms part of a long vowel or diphthong. Stress assignment, therefore, follows diphthongization. With monosyllabic roots, the prefix or proclitic forms a foot with the root to allow stress assignment, and it is the prefix or proclitic that carries the stress, following regular stress assignment patterns (3). Affixation and cliticization to the right of the root do not alter stress alignment, and stress remains left-aligned with the suffix or enclitic participating in the stress regime.

- (1) /na=bɔrɔ/ ‘SPEC[CLI]=pig’ → [na.'bɔ.rɔ]
 (2) /na=inu/ ‘SPEC[CLI]=house’ → ['nai.nu]
 (3) /na=nɔ/ ‘SPEC[CLI]=mosquito’ → ['na.nɔ]

3. FORMAL PROPERTIES OF REDUPLICATION. Reduplication may have a derivational or inflectional function in Papapana. Derivational reduplication (section 4) may occur without further derivational morphology. However, some derivational reduplication occurs in combination with the derivational suffix *-na*. Inflectional reduplication always occurs in combination with another morpheme: with postverbal subject-indexing (PSI) enclitics to express imperfective aspect (5.1), with the preverbal negative markers *ae* and *te* in prohibitive constructions (5.2), or with the reciprocal marker *vei* in reciprocal constructions (6.1). For both derivational and inflectional functions, reduplication involves leftward

copying and is continuous, as the reduplicant occurs to the left of and adjacent to the material that is copied. Reduplicants may be monosyllabic or disyllabic.

Cross-linguistically, leftward copying is the most common directionality (Rubino 2005:14) and reduplicative constructions are most likely to be continuous (Rubino 2005:18). In NWS languages, too, leftward, continuous reduplication is typical, and reduplication may be monosyllabic, as in Banoni (Lincoln 1976; Lynch and Ross 2002) and Kokota (Palmer 2009a); disyllabic, as in Kubokota (Chambers 2002); or monosyllabic or disyllabic, as in Hoava (Davis 2003) and Torau (Palmer 2007). Papapana is typologically unusual, however, as some verbs also display the cross-linguistically rare phenomenon of multiple reduplication to express a subtype of imperfective aspect. Multiple reduplication in Papapana may involve two monosyllabic reduplicants, or a monosyllabic reduplicant followed by a disyllabic reduplicant. All monosyllabic and disyllabic reduplicants behave phonologically in the same way, regardless of their function or their occurrence with other morphemes, and the remainder of this section discusses the formal properties of monosyllabic and disyllabic reduplication.

Both derivational and inflectional reduplication may involve monosyllabic copying of the initial syllable of the base as in (4)–(7). Syllable reduplication has a derivational function in (4) and (5), where it derives a noun from a verb (4) or an adjective from a noun (5), and an inflectional function in (6) and (7), negating an imperative and expressing imperfective aspect, respectively. If the root is monosyllabic, then, of course, the whole base is reduplicated, giving the appearance of full reduplication as in (4b) and (7).

(4) a. /dɔβi/ ‘to spit’ → /dɔdɔβi/ ‘lung’

b. /de/ ‘to carry’ → /dede/ ‘bag’

(5) /reβasi/ ‘blood’ → /rereβasi/ ‘red’

(6) /ɔte tɔtɔnu/
 o=te to~tonu
 2SG.SBJ=PROH RD~stand
 ‘don’t stand up’

(7) /ewawaena/
 e=wa~wa=ena
 3SG.SBJ=RD~talk=3SG.IPFV
 ‘he is talking’

Both derivational and inflectional reduplication may also involve disyllabic copying of an entire initial foot, as in (8)–(12). Foot reduplication also has a derivational function in (8)–(10), deriving adjectives from nouns (8), a noun from a verb (9), and, with the derivational suffix, an augmented dyadic noun from a kinship-term noun (10). It also has an inflectional function in (11) and (12), negating an imperative and expressing imperfective aspect, respectively. If the root is disyllabic with no diphthongs, then the whole base is reduplicated, giving the appearance of full reduplication, as in (9)–(12).

(8) a. /reβasi/ ‘blood’ → /reβareβasi/ ‘bloody’

b. /asire/ ‘turmeric’ → /asiasire / ‘yellow’

(9) /tɔʔɔ/ ‘to cut’ → /tɔʔɔtɔʔɔ/ ‘knife’

- (10) /sina/ ‘mother’ → /sinasinana/
 sina~sina-na
 RD~mother-DER
 ‘mother and two daughters’
- (11) /ɔte βəʔəβəʔə/
 o=te vo‘o~vo‘o
 2SG.SBJ=PROH RD~call.out
 ‘don’t shout’
- (12) /etamutamüena/
 e=tamu~tamu=ena
 3SG.SBJ=RD~eat=3SG.IPFV
 ‘he is eating’

For both monosyllabic (13) and disyllabic (14) reduplication, if the initial syllable of the base consists of a diphthong, only the first vowel of the diphthong is copied, and it is accompanied by any preceding onset consonant; this is support for the hypothesis in section 2 that diphthongs are not phonemic. Papapana is, thus, similar to Hoava, where vowels can be combined into pairs with the weight of two syllables, and words beginning with CVV only reduplicate the first syllable, despite the fact that disyllabic copying occurs in the language (Davis 2003:25, 32). In Torau, too, inflectional reduplication copies only the melody of the first vowel of a diphthong, accompanied by any preceding onset consonant; however, in Torau, the copied single mora then lengthens to generate a complete bimoraic foot with the melody of the copied vowel (except when the copied mora of the base is not preceded by an onset consonant) (Palmer 2007:510).

- (13) a. /βeioŋə/ ‘to wear’ → /βeβeioŋə/ ‘clothes’
 b. /ɔema/ ‘taro garden’ → [ɔʔəemana]
 o~oema-na
 RD~taro.garden-DER
 ‘bush’
- (14) /raβaɪ/ ‘dirt’ → /raβaraβaɪ/ ‘black/dirty’

If the initial syllable of the base is onsetless, only the nucleus is reduplicated, and epenthetic glottal insertion occurs between the reduplicant vowel and the base vowel in order to break the hiatus between the two identical vowels, as in (13b) and (15). It could be that there is actually an initial glottal stop onset in (13b), but since articles do not occur with this noun it is not possible to test this. However, (15) shows that the glottal stop is epenthetic, as if it were part of the onset there would be a glottal stop between the subject proclitic and the reduplicant.

- (15) [ejaʔaputuwena]
 e=a~aputu=ena
 3SG.SBJ=RD~sleep=3SG.IPFV
 ‘he sleeps’

In the following three vowel-initial verbs (16)–(18), and in the verb *ubete* ‘to lie down’, the verb loses the initial vowel prior to reduplication; however, the motivation for this is unclear.

- (16) /iɾɔmɔ/ ‘to drink’ → /eɾɔɾɔmɔena/
 e=ɾɔ~ɾomɔ=ena
 3SG.SBJ=RD~drink=3SG.IPFV
 ‘he is drinking’
- (17) /umunu/ ‘to sit’ → /ɔae mumunu/
 ɔ=ae mu~munu
 2SG.SBJ=NEG RD~sit
 ‘don’t sit down’
- (18) /ɔrete/ ‘to walk’ → /iɾereina/
 i=re~rere=ina
 3PL.SBJ=RD~walk=3PL.IPFV
 ‘they are walking’

In Papapana, the reduplicant is not part of the same prosodic domain as the base. Since one syllable does not satisfy word minimality, monosyllabic reduplicants are not stressed (19), whereas disyllabic reduplicants are stressable because they form one foot and thus satisfy word minimality (20). Primary stress, however, still rests on the base; therefore, rather than the leftmost foot carrying primary stress, the rightmost foot is the head foot.

- (19) /buburisi/ ‘womb’ → [bu.ˈbu.ri.si]
 (20) /ariari/ ‘cemetery’ → [a.ri~ˈa.ri]

4. DERIVATIONAL REDUPLICATION. Reduplication has several derivational functions in Papapana. In the absence of other derivational morphology, reduplication most commonly derives nouns from verbs, and adjectives from nouns or other adjectives (4.1). Reduplication may also occur in combination with the derivational suffix *-na* to derive location nouns from verbs, and augmented dyadic nouns from kinship nouns (4.2). Other productive methods of transcategorical derivation in Papapana include zero-derivation,⁴ which derives nouns and verbs from other lexical categories, the derivational suffix *-na* used without reduplication to derive minimal dyadic nouns from kinship nouns (4.2.2), and the causative prefix *va-* used to derive ordinal numerals from cardinal numeral modifiers.

4.1 REDUPLICATION ONLY. Derivations involving only reduplication are phonologically unpredictable, as the reduplicant may copy the initial syllable or the first two syllables of the base to derive nouns from verbs (4.1.1), or adjectives from nouns or other adjectives (4.1.2). There is also one example of disyllabic reduplication deriving the noun *putepute* ‘fan’ from another noun *pute* ‘wind’. There are some postverbal adverbs, ‘*uru’uru* ‘around and about’, *matamata* ‘early’, and *banubanu* ‘consecutively’, which may have undergone disyllabic reduplication, but synchronically there is no obvious link between the adverbs and the roots ‘*uru* ‘island’, *mata* ‘eye’, and *banu* ‘carry’. Other postverbal adverbs (such as *papasi* ‘quickly’ and *muramura* ‘firmly’) appear to be reduplicated but are not synchronically reduplicated, as no corresponding root exists.

4. An alternate term for *zero-derivation* is *conversion*. By using the term *zero-derivation*, I am not claiming there is a zero-derivational morpheme.

4.1.1 Derived nouns. A noun can be derived from a verbal root through reduplication, a common process for nominalizing verbs in Oceanic languages (Lynch, Ross, and Crowley 2002:38). There is no grammatical, semantic, or phonological motivation for which type of reduplication is employed, though monosyllabic reduplication is far more common. The resulting nouns occur with an article, although *tamutamu* ‘food’ and *to’oto’o* ‘knife’ do not when singular. The nouns shown in table 2 denote food, objects, body parts, an instrument, and a resultative entity. In other NWS languages, nouns derived from verbs by reduplication may also refer to the object undergoing the action of the verb or the object created as a result of the action, as in Hoava (Davis 2003:45), or they may refer to the instrument used in the action, as in Banoni (Lincoln 1976).

Examples (21) and (22) show a deverbal noun as the head of an intransitive subject noun phrase (NP), and as the head of an object NP.

(21) **na=vu~vurau** e=to naomai⁵
 SPEC[CLI]=RD~run 3SG.SBJ=to come
 ‘the car came’ (1-T071)

(22) **i=atu=a tamu~tamu**
 3PL.SBJ=make=3SG.OBJ RD~eat
 ‘they made food’ (1-T049)

For nouns derived by reduplication from verbal roots, the pronominal collective marker *vei* occurs with nouns that refer to a collection of entities or to a collective action (23,24). *Vei* has the same form as the reciprocal/reflexive marker in the verb complex (VC)⁶ (see section 6) and is believed to be a reflex of the Proto-Oceanic (POC) prefix *pa[R]i-, which commonly derived reciprocals and collective action verbs from transitives (Lynch, Ross, and Crowley 2002:83; Ross 1988:284).

TABLE 2. DERIVED NOUNS: REDUPLICATION

	Verb		Noun	
Monosyllabic	vurau	‘run’	vu~vurau	‘car’
	de	‘carry/take’	de~de	‘bag’
	umunu	‘sit’	mu~munu	‘chair’
	averu	‘steal’	a~averu	‘thief’
	pita	‘step’	pi~pita	‘foot’
	burisi	‘give birth’	bu~burisi	‘womb’
	dovi	‘spit’	do~dovi	‘lung’
	moroko	‘lie’	mo~moroko	‘liar’
Disyllabic	tamu	‘eat’	tamu~tamu	‘food’
	to’o	‘cut’	to’o~to’o	‘knife’
	atu	‘make’	atu~atu	‘custom’

5. The function of *to* is unclear. Three possible functions could be an indicative mood marker, a topic or focus marker, or an emphatic marker, but this requires further investigation.

6. The term *verb complex* (VC) is a traditional descriptive device in Oceanic research that captures the fixed structural relationship between the verbal head (or sequence of verbs in a serial construction) and its accompanying modifiers. The VC does not include arguments, and Papapana object-indexing enclitics are considered to be agreement rather than pronominal objects; therefore, without the inclusion of the object NP, the VC does not equate to a verb phrase (VP).

- (23) na=**vei** ta~tavone
 SPEC[CLII]=COLL RD~help
 ‘helping’ (1-T093)
- (24) nu=**vei** ngo~ngono
 SPEC.CLII=COLL RD~listen
 ‘listening’ (1-T079)

A verb and its object noun may also be nominalized via reduplication:

- (25) nu=**vei** **ani-ani vanua**
 SPEC.CLII=COLL RD~eat people
 ‘cannibals’ (1-T034)
- (26) nu=**vei** **ago-agoto si’ini**
 SPEC.CLII=COLL RD~hold spear
 ‘army’ (2-E005)

4.1.2 Derived adjectives. Adjectives belong to a medium-sized open word class in Papapana. Adjective roots are generally underived but there are a few adjectives that are derived through disyllabic reduplication from nouns, such as *pi’ipi’ita* ‘dirty’ from *pi’ita* ‘rubbish’, and color terms are mostly derived through monosyllabic or disyllabic reduplication from nouns or other adjectives (see table 3). Some adjectives may be diachronically reduplicated but are not synchronically reduplicated; for example, synchronically there is not a word *bukoi* from which *bubukoi* ‘multicolored’ can be claimed to derive. Those adjectives that are synchronically reduplicated express the meaning ‘similar to X’, a meaning that Moravcsik (1978:323) identifies as close to the meaning of attenuation, one of the universal semantic properties of reduplication.

The contrasting derivations of *reveysi* ‘red’ (see table 3) and *revareveysi* ‘bloody’ (see [8] in section 3) from *revasi* ‘blood’ could also possibly represent the semantic property intensification, if *reveysi* ‘red’ is considered ‘blood-like’, and *revareveysi* ‘bloody’ is considered ‘really blood-like’.⁷ Intensification is an increase of degree and is, thus, iconic since reduplication involves an increase in the size of forms. The fact that reduplication has the functions of attenuation and intensification with regard to Papapana adjectives is not surprising, since in Oceanic languages, reduplication in adjectivals, including color

TABLE 3. COLOR TERMS

Root		Adjective	
revasi	‘blood’	re~revasi	‘red’
asire	‘turmeric’	asi~asire	‘yellow’
namana	‘ocean’	nama~namana	‘blue’
mero’o	‘mud’	mero~mero’o	‘brown’
ravai	‘dirt’	rava~ravai	‘black’
pere	‘uncooked’	pere~pere	‘green’
—		bubukoi	‘multicolored’
—		gerere	‘white’
—		ovaovani	‘orange’

7. It is also interesting to note that *reveysi* ‘red’ is the only synchronic derivation in table 3 that has a monosyllabic reduplicant, perhaps because the disyllabic reduplicant had already been established in the derivation *revareveysi* ‘bloody’.

terms, “commonly has one of two morphological functions: (1) intensive (‘really X’), or (2) attenuative (‘X-ish’)” (Blust 2001a:40).

4.2 REDUPLICATION AND DERIVATIONAL *-na*. The derivational suffix *-na* is identical in form to the 3SG direct possessor suffix *-na*. However, I analyze it as a derivational suffix because it has a broad derivational function, it can be used to derive nouns that may be directly or indirectly possessed, and I believe it most likely reflects the POC nominalizing suffix **-ŋa* (Ross 1988:70). In Papapana, monosyllabic reduplication and the derivational suffix *-na* may derive location nouns from verbs (4.2.1), while disyllabic reduplication and the derivational suffix *-na* may derive augmented dyadic nouns from kinship-term nouns (4.2.2). Monosyllabic reduplication and the derivational suffix *-na* also derive the absolute location noun *mumurina* ‘future’ from the familiar location noun *muri* ‘behind’, while disyllabic reduplication and the derivational suffix *-na* derive the numeral *manomanoana* ‘one thousand’ from the numeral *manoa* ‘ten’.

4.2.1 Derived location nouns. Monosyllabic reduplication of a verb and the derivational suffix *-na* derive the name of a location in which the activity referred to by the verb takes place. It is unclear how productive this morphology is, as there are only two attested examples, both elicited (27,28). Nevertheless, this morphology is typical of NWS languages: in Banoni (Lynch and Ross 2002:442) and Roviana (Corston-Oliver 2002:472), the nominalizing suffix *-ana* and reduplication also derive locative nouns from verbs, while in Kubokota (Chambers 2009:73), verbs with reduplicated roots and the nominalizing suffix *-na* often describe the location where the action occurs or the instrument with which the action is performed.

(27) na=si~siodo-na
 SPEC[CLI]=RD~work-DER
 ‘workplace’ (2-E006)

(28) na=ta~tamu-na
 SPEC[CLI]=RD~eat-DER
 ‘eating place/food garden’ (2-E006)

A verb and its object noun may also be nominalized via reduplication and the derivational suffix:

(29) de~de matau-na
 RD~get knowledge-DER
 ‘school’ (Fieldnotes)

4.2.2 Derived dyadic nouns. In the absence of reduplication, the derivational suffix *-na* derives a minimal dyadic noun from a noun expressing kinship. The minimal dyadic noun refers to two people who are on either side of the relationship in question (30)–(32). A minimal dyadic noun is always modified by the dual collective article *mena*.

(30) mena tama-na
 DU.COLL father-DER
 ‘father and son’ or ‘father and daughter’ (1-T031, 1-T050)

- (31) *mena vavine-na*
 DU.COLL sibling-DER
 ‘the two sisters’ (1-T065)
- (32) *mena panu-na vaunu*
 DU.COLL spouse-DER new
 ‘the two newlyweds’ (1-T019)

The derivational suffix *-na* and disyllabic reduplication of a kinship noun derive an augmented dyadic noun that refers to three or more people who are on either side of the relationship in question (33)–(35). Augmented dyadic nouns are always modified by the plural collective article *mamena*. Reduplication does not productively mark nominal pluralization; however, in the case of dyadic kinship nouns derived by *-na*, it could certainly be argued that reduplication marks augmentation. Increased quantity is cross-linguistically the “most outstanding single concept that reduplicative constructions recurrently express” (Moravcsik 1978:317) and, like intensification, is, of course, iconic.

- (33) *mamena sina~sina-na*
 PL.COLL RD~mother-DER
 ‘a mother and her two daughters’ (1-T007)
- (34) *mamena tubu~tubu-na*
 PL.COLL RD~grandparent-DER
 ‘a grandmother and grandchildren’ (1-T073)
- (35) *au=mamena tama~tama-na*
 1SG.PSSR=PL.COLL RD~father-DER
 ‘my family’ (2-E005)

5. INFLECTIONAL REDUPLICATION. Inflectional reduplication in Papapana occurs in the VC with either postverbal subject-indexing (PSI) enclitics to mark imperfective aspect (5.1), or with the preverbal negative marker *ae* or the preverbal negative irrealis mode marker *te* to negate imperatives (5.2). It is in the former function that the typologically unusual phenomenon of multiple reduplication occurs.

5.1 IMPERFECTIVE ASPECT. Papapana has a complex system of tense, aspect, and mode (TAM) marking in which verbal reduplication and various combinations of preverbal and postverbal markers are used to make TAM distinctions. Present tense is unmarked, but past and future tenses are marked. Realis mode is morphologically unmarked in Papapana, as was also the case in POC (Lynch, Ross, and Crowley 2002:84), and Papapana makes four irrealis mode distinctions: hypothetical/predictive conditional, counterfactual conditional, optative, and immediate irrealis. Papapana makes four aspectual distinctions: repetitive, completive, habitual, and continuous. The preverbal aspect marker *vare* ~ *vae* expresses repetitive aspect, while the completion of an event is expressed in Papapana by the postverbal completive aspect marker *osi*, which has grammaticalized from the ambitransitive verb *taosi* ‘finish’.⁸ Imperfective aspect makes “reference to the internal temporal structure of a situation, viewing a situation from within” Comrie (1976:24). Comrie (1976) distinguishes two subtypes of imperfective:

8. See below in this section for a definition of an ambitransitive verb in Papapana.

habitual and continuous. Habitual aspect “describe[s] a situation which is characteristic of an extended period of time” (Comrie 1976:27) and “makes extended states out of situations by repeating a situation over multiple occasions” (Timberlake 2007:289). Continuous aspect is defined as “imperfectivity that is not occasioned by habituality” (Comrie 1976:33), and can be further divided into progressive and nonprogressive. Progressive aspect is traditionally defined as describing a situation in progress, and is the “combination of continuousness with non-stativity” (Comrie 1976:12); that is, it describes “a process actually in progress at some contextual occasion” (Timberlake 2007:294). The nonprogressive can be seen, analogously, to describe a “state that holds at some contextual occasion” (Timberlake 2007:294). In Papapana, there is no formal distinction between ongoing states and processes in progress, so I will use the term *continuous* to refer to both.

Habitual and continuous aspect are expressed by the complex interaction of verbal reduplication and postverbal subject-indexing (PSI) enclitics. Most NWS languages display PSI, which reflects former possessor indexing (see Palmer 2011:723 for a detailed discussion of the diachronic functional shift from nominal to verbal marking). Papapana has PSI enclitics that index the person and number of all subjects (see table 4), and express imperfective aspect, as well as immediate irrealis or optative mode with the immediate irrealis marker *eri*, and negative irrealis mode with the adverb *avirua* ‘not yet’. In Papapana, PSI enclitics cooccur with the preverbal subject-indexing proclitics, which is typical of most NWS languages (Palmer 2011:691).

The PSI enclitics displayed in bold typeface are identical to the Papapana direct possessor suffixes, with the exception of 1INCL, which has an initial /i/ in the direct possessor paradigm. In NWS languages, many of the PSI forms exhibit an initial vowel that reflects a possessor indexing host: PNWS *na- and *sa- expressed general possession and *ye- expressed consumable possession. The hosts have varying functions in synchronic PSI in NWS languages (see Palmer 2011:722–23). The variant forms in Papapana shown in table 4 exhibit an initial vowel, either /o/ or /e/, which reflects the general and consumable possession hosts (Palmer 2011:716); however, synchronically in Papapana there is no functional distinction between PSI enclitics without an initial vowel, PSI enclitics with /o/, and those with /e/. Instead, the absence of the initial vowel is a feature of casual speech, while an alternation between the vowels reflects phonological age-related variation.

Across the NWS group, PSI often occurs in constructions expressing nonpast tense, negative propositions, permission or prohibition, or imperfective aspect (Palmer 2011:703–13). It is also quite common in NWS languages for verbal reduplication to play a role in expressing imperfective aspect. In Torau, there are two imperfective aspect markers that function morphologically as hosts for PSI suffixes (Palmer 2007:500). The

TABLE 4. POSTVERBAL SUBJECT-INDEXING (PSI) ENCLITICS

	1EXCL	1INCL	2	3
SG	=u ~ =eu ~ =ou		=mu ~ =emu ~ =omu	=na ~ =ena
PL	=mani ~ =emani	=ra ~ =era	=miu ~ =emiu	=ina

aspectual reading of a clause with imperfective aspect marking depends on which imperfective marker is present, whether or not reduplication (which copies the initial mora of the base) is present, the aspectual semantics of the verb itself, and the presence of any other TAM markers (Palmer 2007:511–16). Habitual aspect in Torau is only expressed when there is verbal reduplication, and in Teop, too, habitual aspect may be expressed by reduplication, which might cooccur with PSI (Palmer 2011:707). Monosyllabic or disyllabic verbal reduplication can also express durative actions in Teop (Mosel and Thiesen 2007) and progressive or habitual aspect in Hoava (Davis 2003), though it is unclear what determines the type of reduplication in these languages. Monosyllabic verbal reduplication expresses a habitual or repetitive action or an ongoing state in Banoni (Lincoln 1976:449; Lynch and Ross 2002), while disyllabic verbal reduplication expresses iterative or continuous action in Kubokota (Chambers 2009).

In the world's languages, reduplication most commonly expresses augmentation, either of participants or of events. Augmentation of events can be realized as repetition of events, habits, reciprocal actions or continuation of actions (Kajitani 2005:98). In Papapana, monosyllabic or disyllabic verbal reduplication used in combination with PSI expresses imperfective aspect; however, Papapana employs the typologically unusual phenomenon of multiple reduplication to make a distinction between continuous and habitual aspect. The continuous aspect is expressed either by (i) PSI, (ii) PSI and monosyllabic reduplication, or (iii) PSI and disyllabic reduplication, depending on the group the verb belongs to (see table 5). For all verb groups, the habitual constructions are identical to the continuous constructions, but with the addition of a monosyllabic reduplicant (see table 5). Quite often in natural speech and sometimes in elicited speech, the continuous construction may express habitual aspect if the context is clear, for example, if there is an adverbial such as *mamena boniboni* 'every day'. It was only through detailed elicitation sessions that the habitual construction became completely transparent.

The verbs within each group are presented in the following sections (5.1.1–5.1.3). These groups are not phonologically determined, they do not reflect valency categories, and they cannot be distinguished based on the aspectual semantics of the verb. With regard to valency categories in Papapana, the following distinctions are made: intransitive, transitive, ditransitive, and ambitransitive. Intransitive verbs are morphologically unmarked and occur in their root form. Transitive verbs occur in their root form and are marked by object-indexing enclitics (which may be coreferential with an object NP). A ditransitive verb occurs in its root form and the primary object (O1) is marked by object-indexing enclitics (which may be coreferential with an O1 NP), while the secondary object (O2) occurs as a NP only and is not morphologically marked within the VC. An ambitransitive verb is one that may be intransitive and transitive, and in some cases also ditransitive.

TABLE 5. IMPERFECTIVE ASPECT: PSI AND REDUPLICATION PATTERNS*

Group	1	2	3
Continuous	Verb=PSI	RD1~Verb=PSI	RD2~Verb=PSI
Habitual	RD1~Verb=PSI	RD1~RD1~Verb=PSI	RD1~RD2~Verb=PSI

† *RD1* denotes monosyllabic copying, while *RD2* denotes disyllabic copying.

In terms of lexical aspect, verbs within each group are categorized according to Vendler's (1957) classification of verbal predicates: states, activities, accomplishments, and achievements. Vendler's (1957) classification intuits that "there are two properties which are crucial in categorizing eventualities or event types" (Rothstein 2004:11): (i) telicity and (ii) whether an event type can be analyzed as progressing or developing, and is, thus, *dynamic*, or not. Accomplishments and achievements "report situations that change in a way that is discontinuous and irreversible" (Timberlake 2007:285) and are *telic*, as they have an inherent end point, whereas states and activities report continuous situations (Timberlake 2007:284) and are, thus, *atelic*. Activities and accomplishments are dynamic, as they involve change and stages, whereas states and achievements "do not go on or progress," because they are, respectively, "inherently non-dynamic" and "near instantaneous" (Rothstein 2004:12).

In the examples in 5.1.1–5.1.3, the tense is present when there are no additional TAM markers. Some examples show that the addition of the preverbal past tense imperfective aspect marker *pei* and the general irrealis mode enclitic =*i* to the continuous construction expresses past continuous; the addition of the preverbal past tense markers *ara* and *pei* and the general irrealis mode enclitic =*i* also expresses past continuous; while the addition of only the general irrealis mode enclitic =*i* to a continuous construction expresses future continuous. These tense markers are not added to the habitual constructions, and, indeed, past habitual is expressed in another construction consisting of just *pei* and =*i*.

5.1.1 Group 1. As the nonexhaustive list in table 6 shows, the verbs in Group 1 belong to a wide range of semantic classes, display a range of syllable structures and word shapes, and may be intransitive (such as *aputu* 'sleep'), transitive (such as *agoto* 'hold'), or ambitransitive (such as *siodo* 'work'). Some of the verb roots appear to be reduplicated, such as *mamaravi* 'be cold', *gavegave* 'be tired', *roroto* 'see', and *gaganini* 'play', but synchronically these are monomorphemic: **maravi*, **gave*, **roto*, and **ganini* do not exist as roots.

When Group 1 verbs occur with PSI enclitics only, continuous aspect is expressed:

- (36) E=ae agai **mata=na**, e=**dua=na**.
 3SG.SBJ=NEG really good=3SG.IPFV 3SG.SBJ=bad=3SG.IPFV
 'It's not very good, it's bad.' (1-T095)
- (37) Aia e=**aputu** roro=**ena**.
 3SG 3SG.SBJ=sleep still=3SG.IPFV
 'He's still sleeping.' (1-T052)
- (38) Anau u=**magono=u** tena nao te=na kaukau.
 1SG 1SG.SBJ=dislike=1SG.IPFV OBL go OBL=SPEC[CL] garden
 'I don't want to go to the garden.' (1-T033)
- (39) Ami=atono te=na board mi=**tonu=emani**
 1EXCL.TR OBL=SPEC[CL] board 1EXCL.SBJ=stand=1EXCL.IPFV
 'We three constitute the board (lit. stand on the board).' (1-T081)
- (40) Ann e=pei **roros=i=a=na=i** nu=pepa,⁹
 Ann 3SG.SBJ=PST.IPFV see=3SG.OBJ=TR=3SG.IPFV=IRR SPEC.CLIF=paper
 tau Mark te=na kaukau e=pei **gaganini=ena=i**.
 and Mark OBL=SPEC[CL] garden 3SG.SBJ=PST.IPFV play=3SG.IPFV=IRR
 'Ann was looking at the paper, and Mark was playing in the garden.' (2-E016)

TABLE 6. IMPERFECTIVE ASPECT: GROUP 1 VERBS

Atelic	State	dua mata etawa gerere mamaravi u'usi roroto aputu mano gavegave mate magono varona tonu umunu ubete rave po ororo	'be bad' 'be good' 'be big' 'be white' 'be cold' 'be wet' 'see' 'sleep' 'be thirsty' 'be tired' 'like' 'dislike' 'know' 'stand' 'sit' 'lay' 'hang' 'stay' 'surround'	Nondynamic
	Activity	gaganini siodo a'ade'e vavarai agoto tavone sia'a	'play' 'work' 'narrate' 'wait' 'hold' 'help' 'look after'	Dynamic
Telic	Accomplishment	atuma'ata tatu ma sigi	'cook' 'mash' 'chew' 'wash'	

- (41) Amu BRA mu=me-na **siodo=mu** awa aruai?
 2PL BRA 2PL.SBJ=COM-PL.OBJ work=2PL.IPFV correct NEG
 'Are you working with the BRA [Bougainville Revolutionary Army] or not?' (1-T053)
- (42) A:mani bau rosario ora mi=**agoto**=ina=**mani**.
 1EXCL.SBJ PL rosary.bead only 1EXCL.SBJ=hold=3PL.OBJ=1EXCL.IPFV
 'We're only holding rosary beads. (1-T053)
- (43) Aia e=**ma=ena** na=teari.
 3SG 3SG.SBJ=chew=3SG.IPFV SPEC[CLI]=betelnut
 'He is chewing betelnut.' (1-E020)

When both PSI enclitics and monosyllabic verbal reduplication occur with a Group 1 verb, the aspect expressed is habitual:

9. In transitive predicates, transitive =i can occur immediately before the object-indexing enclitics, but only 2SG and 3SG (and sometimes 1SG) object-indexing enclitics. The use of =i is conditioned by the phonology of the verb root, and for three-syllable roots such as *roroto* 'see', where the vowels in the penultimate and final syllables are identical, the final vowel is replaced by =i. This behavior can be explained diachronically: NWS languages often reflect a Proto-NWS echo vowel added after word-final POC consonants (Ross 1988:218) and, therefore, the three-syllable Papapana verb roots actually reflect POC CVCVC roots; and when =i is present, the echo vowel is deleted. In addition, for three-syllable roots with identical penultimate and final vowels, not only is the final vowel replaced by =i but a final syllable beginning with /t/, such as *roroto* 'see', undergoes a sound change to /s/ when =i replaces the final vowel: this reflects the sound change of POC and Proto-NWS *t to s/_j in Papapana (Ross 1988:218).

- (44) Tamu~tamu te aia e=**du~dua**=ena.
 RD~eat OBL 3SG 3SG.SBJ=RD~bad=3SG.IPFV
 ‘Her food is bad (all the time).’ (2-E029-2)
- (45) Sue e=**a~aputu**=ena.
 Sue 3SG.SBJ=RD~sleep=3SG.IPFV
 ‘Sue sleeps.’ (2-E029-2)
- (46) Mamena boni~boni anau u=**ma~magono**=u tena ena.
 PL.COLL RD~day 1SG 1SG.SBJ=RD~dislike=1SG.IPFV OBL sing
 ‘Every day I am disinclined to sing.’ (2-E007-1)
- (47) Aetau si=ae **to~tonu**=era?
 why 1INCL.SBJ=NEG RD~stand=1INCL.IPFV
 ‘Why don’t we (ever) stand up?’ (1-T089)
- (48) Anau u=to na~nao~nao=u te=na kaukau
 1SG 1SG.SBJ=to RD~RD=go=1SG.IPFV OBL=SPEC[CLI] garden
u=si~siodo=u.
 1SG.SBJ=RD~work=1SG.IPFV
 ‘When I go to the garden, I work.’ (1-T008)
- (49) I=pei ae **ta~tavone**=ina=ina=i.
 3PL.SBJ=PST.IPFV NEG RD~help=3PL.OBJ=3PL.IPFV=IRR
 ‘Nobody would help them.’ (1-T088)
- (50) Aia e=**ma~ma**=ena na=teari.
 3SG 3SG.SBJ=RD~chew=3SG.IPFV SPEC[CLI]=betelnut
 ‘He chews betelnut.’ (1-E020)

5.1.2 Group 2. The nonexhaustive list in table 7 shows that the verbs in Group 2 belong only to three semantic classes, display a range of syllable structures and word shapes, and may be intransitive (such as *vurau* ‘run’), transitive (*atu* ‘make’), ditransitive (*ma’a* ‘give’), or ambitransitive (*iromo* ‘drink’).

When Group 2 verbs occur with PSI enclitics and monosyllabic verbal reduplication, continuous aspect is expressed:

- (51) Nu=daramu e=**ro~romo**=ena.
 SPEC.CLI=water 3SG.SBJ=RD~drink=3SG.IPFV
 ‘He’s drinking water.’ (2-E008)
- (52) Aetau o=**mo~morok**=i=au=**omu**?
 why 2SG.SBJ=RD~lie=TR=1SG.OBJ=2SG.IPFV
 ‘Why are you lying to me?’ (1-T049)

TABLE 7. IMPERFECTIVE ASPECT: GROUP 2 VERBS

Atelic	Activity	vurau	‘run’	Dynamic
		nu	‘chase’	
		iromo	‘drink’	
		wa	‘say’	
		vatana	‘tell’	
moroko	‘lie’			
siri	‘read’			
Telic	Accomplishment	atu	‘make’	Nondynamic
		erepe	‘peel’	
	Achievement	ma’a	‘give’	

- (53) E=**si-siri**=a=**ena** nu=pepa.
 3SG.SBJ=RD~read=3SG.OBJ=3SG.IPFV SPEC.CLII=paper
 ‘He’s reading a paper.’ (2-E008)
- (54) Na=petata=ma u=**a~atu**=a=**u**.¹⁰
 SPEC[CLII]=basket=ma 1SG.SBJ=RD~make=3SG.OBJ=1SG.IPFV
 ‘I’m making the basket.’ (1-T061)
- (55) Anau enai na=nabu=ma aite e=pei **ma~ma**’a=au=**ena**=i.
 1SG DEM SPEC.CLII=heavy=ma Dad 3SG.SBJ=PST.IPFV RD~give=1SG.OBJ=3SG.IPFV=IRR
 ‘Dad was worrying me (lit. giving me worry).’ (1-T088)

When PSI enclitics and a double occurrence of monosyllabic verbal reduplication occur with a Group 2 verb, the aspect expressed is habitual:

- (56) Aia e=**ro~ro~romo**=**ena** nu=daramu.
 3SG 3SG.SBJ=RD~RD~drink=3SG.IPFV SPEC.CLII=water
 ‘He drinks water.’ (Fieldnotes)
- (57) E=**mo~mo~moroko**=au=**ena**.
 3SG.SBJ=RD~RD~lie=1SG.OBJ=3SG.IPFV
 ‘He (always) lies to me.’ (2-E029-2)
- (58) Mamena boni~boni e=**si-si-siri**=**ena**.
 PL.COLL RD~day 3SG.SBJ=RD~RD~read=3SG.IPFV
 ‘Every day she reads.’ (2-E029-2)

5.1.3 Group 3. As the nonexhaustive list in table 8 shows, Group 3 verbs belong to only three semantic classes, display a range of syllable structures and word shapes, and may be intransitive (such as *tamu* ‘eat’), transitive (such as *tu’u* ‘meet’), or ambitransitive (such as *gaunu* ‘write’).

TABLE 8. IMPERFECTIVE ASPECT: GROUP 3 VERBS

Atelic	Activity	oa	‘cry’	Dynamic
		nioto	‘(day)dream’	
tamu	‘eat’			
gaunu	‘write’			
nao	‘go’			
votu	‘return’			
naovo	‘fly’			
tua	‘paddle’			
vau	‘look after (animal)’			
vo’o	‘call out’			
ena	‘sing’			
Telic	Accomplishment	atunu	‘attack’	
		ngono	‘boil’	
		peri	‘find’	
		ari	‘dig’	
		tuvi	‘build’	
		vini	‘weave’	
		bio	‘sweep’	
		bui	‘clean’	
		tu’u	‘meet’	
	Achievement	sogo	‘push’	Nondynamic
		muni	‘hide’	

10. The clitic =*ma* attaches to all word classes and may be a discourse marker but this requires further investigation.

When Group 3 verbs occur with PSI enclitics and disyllabic verbal reduplication, continuous aspect is expressed:

- (59) I=pei **tamu~tamu=ina=i.**
 3PL.SBJ=PST.IPFV RD~eat=3PL.IPFV=IRR
 ‘They were eating.’ (1-T063)
- (60) E=pei ara **gau~gaunu=i=a=ena=i** mai nu=leta.
 3SG.SBJ=PST.IPFV PST RD~write=TR=3SG.OBJ=3SG.IPFV=IRR hither SPEC.CLII=letter
 ‘He was writing her letters (and I didn’t know).’ (1-T043)
- (61) Anau te ia’a u=**nao~nao=u.**
 1SG OBL Mum 1SG.SBJ=RD~go=1SG.IPFV
 ‘I’m going to Mum.’ (1-T031)
- (62) Nu=marei e=**nao~naovo=ena** nao te=na=au naono.
 SPEC.CLII=bird 3SG.SBJ=RD~fly=3SG.IPFV thither OBL=SPEC=CLII tree
 ‘The bird is flying to the tree.’ (2-E024)
- (63) Nu=otana e=pei **ngono~ngono=ena=i.**
 SPEC.CLII=pot 3SG.SBJ=PST.IPFV RD~boil=3SG.IPFV=IRR
 ‘The pot was boiling.’ (1-T101)
- (64) Iai u=**sogo~sogo=ina=u=ma.**
 DEM 1SG.SBJ=RD~push=3PL.OBJ=1SG.IPFV=ma
 ‘I’m pushing them in.’ (1-T062)

When PSI enclitics, monosyllabic reduplication, and disyllabic reduplication occur with a Group 3 verb, the aspect expressed is habitual:

- (65) John e=**ta~tamu~tamu** garigari=**ena** tena bau Mande.
 John 3SG.SBJ=RD~RD=eat always=3SG.IPFV OBL PL Monday
 ‘John always eats on Mondays.’ (2-E029-2)
- (66) Mamena boniboni John e=**ga~gau~gaunu=ena.**
 PL.COLL RD~day John 3SG.SBJ=RD~RD=write=3SG.IPFV
 ‘John writes every day.’ (2-E029-2)
- (67) Anau u=to **na~nao~nao=u** te=na kaukau ...
 1SG 1SG.SBJ=to RD~RD=go=1SG.IPFV OBL=SPEC[CLII] garden
 ‘When I go to the garden ...’ (1-T008)
- (68) Mamena boni~boni nu=marei e=**na~nao~naovo=ena** nao
 PL.COLL RD~day SPEC.CLII=bird 3SG.SBJ=RD~RD=fly=3SG.IPFV thither
 te=na ‘uru.
 OBL=SPEC[CLII] island.
 ‘Every day the bird flies to the island.’ (2-E029-2)
- (69) Ani na=au=dua o=ae **mu~muni~muni=au=omu** ...
 2SG SPEC=CLII=bad 2SG=NEG RD~RD=hide=1SG.OBJ=2SG.IPFV
 ‘You’re bad, you don’t hide me ...’ (1-T052)

5.2 PROHIBITIVE CONSTRUCTIONS. Prohibitives are negative imperatives and in Papapana these are formed with verbal reduplication and either the preverbal negative marker *ae* or the preverbal negative irrealis mode marker *te*. The verb may also be marked by the general irrealis mode enclitic. Before discussing prohibitive constructions

in more detail, I will briefly discuss imperative and negative clauses, in order to introduce the morphemes involved in prohibitives and to provide a point of comparison.

In Papapana, imperative clauses may carry no TAM marking whatsoever as in (70), or else they carry the general irrealis mode enclitic =*i*, as in (71). The general irrealis mode enclitic can also be used to refer to future events or habitual events with a present time frame.

- (70) Mu=nao, mu=no ituvu=au mai nu=daramu.
 2PL.SBJ=go 2PL.SBJ=go.SEQ fetch=1SG.OBJ hither SPEC.CLII=water
 ‘Go, go and fetch me some water.’ (1-T007)

- (71) Nu=risi nu=kaka‘i o=de=a=i.
 SPEC.CLII=rope SPEC.CLII=small 2SG.SBJ=take=3SG.OBJ=IRR
 ‘Take a small rope.’ (1-T035)

Although negated clauses are often treated as irrealis in languages that make a realis-irrealis contrast (Palmer 2001:173–76), this is not the case in Papapana; instead, mode and negation are independent, and the negative marker *ae* may occur in both realis clauses (to negate a verbal assertive predicate) and irrealis clauses (in prohibitives). The preverbal negative irrealis mode marker *te*, however, only occurs in irrealis clauses (in negative purpose adverbial clauses or prohibitives). Example (72) shows the preverbal negative marker *ae* negating a verbal assertive predicate:

- (72) Nathan e=ae ara tavotu egoego.
 Nathan 3SG.SBJ=NEG PST arrive well
 ‘Nathan didn’t turn out well.’ (1-T104)

The preverbal negative irrealis mode marker *te* occurs in conjunction with the general irrealis mode enclitic =*i* in a negative purpose adverbial clause to denote ‘lest’, as in (73). The main clause in this complex sentence denotes an event carried out in order for the event or state in the adverbial clause not to happen.

- (73) O=orete egoego, o=te pu=i.
 2SG.SBJ=walk well 2SG.SBJ=PROH fall=IRR
 ‘Walk carefully, lest you fall.’ (2-E017)

Prohibitives are formed with monosyllabic or disyllabic verbal reduplication and either the preverbal negative marker *ae* or the preverbal negative irrealis mode marker *te* (74)–(78). As with imperative clauses, the general irrealis mode enclitic =*i* may be absent as in (75,76), or present as in (77) and (78). Verbal reduplication in negative clauses is not unknown in NWS languages, as it also occurs in prohibitives in Banoni (Lynch and Ross 2002:450), and in Torau verbal reduplication is obligatory when negation is expressed by the suffix *-ka* on the preverbal modal/subject indexing particle (Palmer 2009b).

- (74) O=ae oto~‘oto te=na=au obutu.
 2SG.SBJ=NEG RD~board OBL=SPEC=CLII canoe
 ‘Don’t board the canoe.’ (2-E026)

- (75) O=te e~‘esivo.
 2SG.SBJ=PROH RD~sneeze
 ‘Don’t sneeze.’ (2-E026)

- (76) Mu=**te** **atu~atun**=i=a enai au=sinoni.
 2PL.SBJ=PROH RD~attack=TR=3SG.OBJ DEM 1SG.PSSR[CLI]=husband
 ‘Don’t attack my husband.’ (1-T101)
- (77) Mu=**ae** **va~vatan**=i=a=**i**.
 2PL.SBJ=NEG RD~tell=TR=3SG.OBJ=IRR
 ‘Don’t tell him.’ (1-T065)
- (78) Mu=**te** **nao~nao**=i.
 2PL.SBJ=PROH RD~go=IRR
 ‘Don’t go.’ (1-T053)

Papapana speakers report no semantic or pragmatic difference between *ae* and *te*; these markers are interchangeable as shown in (79) and (80):

- (79) a. O=**ae** to~tonu.
 2SG.SBJ=NEG RD~stand
 b. O=**te** to~tonu.
 2SG.SBJ=PROH RD~stand
 ‘Don’t stand up.’ (2-E028-2)
- (80) a. O=**ae** ago~agos=i=a pei to‘o~to‘o.
 2SG.SBJ=NEG RD~hold=TR=3SG.OBJ PART RD~cut
 b. O=**te** ago~agos=i=a pei to‘o~to‘o.
 2SG.SBJ=PROH RD~hold=TR=3SG.OBJ PART RD~cut
 ‘Don’t hold the knife.’ (2-E026)

As (74)–(80) show, verbal reduplication in prohibitives may be monosyllabic or disyllabic. For some verbs, the type of reduplication found in prohibitives matches that found in continuous aspect constructions; for example, *vataka* ‘tell’ displays monosyllabic reduplication in prohibitives (77) and in continuous aspect constructions (see 5.1.2). Similarly, *atumu* ‘attack’ (76) and *vo‘o* ‘call out’ (81) display disyllabic reduplication in prohibitives and in continuous aspect constructions (see 5.1.3). For other verbs, however, there is no correspondence between the categories described in 5.1 and the type of reduplication found in prohibitives; for instance, *tonu* ‘stand’ (79) and *agoto* ‘hold’ (80) are both Group 1 verbs and are not reduplicated in continuous aspect constructions, yet in prohibitives, *tonu* undergoes monosyllabic reduplication and *agoto* disyllabic reduplication. Valency also does not play a role, as *tonu* is intransitive, but so, too, is *vo‘o* ‘call out’ (81), and this displays disyllabic reduplication. Similarly, the type of reduplication is not phonologically determined: *esivo* ‘sneeze’ and *atumu* ‘attack’ have the same syllable structure, as do *tonu* ‘stand’ and *vo‘o* ‘call out’, but these verbs undergo different reduplication. It is, thus, unclear what motivates the type of reduplication in prohibitives.

- (81) O=**te** vo‘o~vo‘o
 2SG.SBJ=PROH RD~call.out
 ‘Don’t shout.’ (2-E028)

6. VALENCY AND REDUPLICATION. Verbal derivation that alters valency includes the preverbal comitative applicative marker *me* (which attaches to suffixes reflecting the 3SG and 3PL object enclitics), the preverbal reciprocal/reflexive marker *vei*, causative

va-, detransitivizing *ta-*, object incorporation and transitivity discord, and the postverbal applicative marker *i*. In the VC, *me* occurs before *vei*, and these are the closest preverbal modifiers to the verb aside from the prefixes *va-* and *ta-*. Reduplication only plays a role in valency-changing when it occurs in combination with *vei* in reciprocal constructions (6.1); however, there are some data that show that the preverbal comitative applicative *me* can be reduplicated instead of the verb in imperfective constructions, and that *vei* can be reduplicated instead of the verb in prohibitive and reciprocal constructions (6.2).

6.1 RECIPROCAL CONSTRUCTIONS. In Papapana, reduplication plays a role in valency-changing, which is also typical for Oceanic languages, and is used in reciprocal constructions. Therefore, Papapana again uses reduplication to express augmentation. Papapana reciprocal constructions are formed with monosyllabic or disyllabic verbal reduplication and the valency-decreasing marker *vei*, which occurs immediately before the verb and can function with transitive, ditransitive, and ambitransitive verbs to express reciprocal and reflexive actions. Cross-linguistically, it is common for languages that have morphological reflexives to also have morphological reciprocals, and for such languages to “typically express reflexives and reciprocals with the same morphological operators” (Payne 1997:201). Indeed, reciprocals and reflexives are conceptually similar as they both indicate that the agent and patient are coreferential (Payne 1997:201). In Papapana, the reciprocal/reflexive marker *vei* is likely to be a reflex of POC *pa[R]i- and Proto-New Ireland *vai-, which commonly derived reciprocals and collective action verbs from transitives (Lynch, Ross, and Crowley 2002:83; Ross 1988:284). In combination with *vei*, reciprocal and reflexive constructions in Papapana may also optionally use the verb *manene* ‘return’ as the second verb in a nuclear verb serialization (86) or after a pronominal object. The emphatic nominal modifier *tobi* may also occur after a pronominal object (86) in both reciprocal and reflexive constructions, or after a pronominal subject in reflexive constructions. The use of *manene* and *tobi* mainly occurred in elicitation sessions, and since their use is not relevant to this paper, they will not be discussed further here.

In a prototypical reciprocal clause, two participants act equally upon each other; that is, both are equally agent and patient (Payne 1997:200-201). In Papapana, the subject of a verb derived by *vei* and reduplication indicates the participants that are involved in the reciprocal action and is, thus, always nonsingular. The verb, whether transitive (82)–(88) or ditransitive (89), does not occur with the object-indexing enclitics, and, therefore, in a reciprocal clause valency is reduced and the verb is morphologically intransitive,¹¹ with the clause rendered intransitive or transitive, respectively, since in (82)–(88) there is no object NP and in (89) there is only one object NP. Example (88) shows that reciprocal constructions can occur even when the subject referents are nonhuman.

- (82) Vasina bau tubu-mani i=vei si~sia'a.
 before PL grandparent-1EXCL.PSSR 3PL.SBJ=R/R RD~look.after
 ‘In the past, our ancestors looked after each other.’ (1-T078)

- (83) I=vei no~nongono.
 3PL.SBJ=R/R RD~listen
 ‘They listened to each other.’ (1-T078)

11. See 5.1 for definitions of transitive and ditransitive verbs in Papapana.

- (84) Buriatanana mi=**vei** a~**atutusi**.
 young.women 1EXCL.SBJ=R/R RD~chase
 ‘We young women followed each other around.’ (1-T082)
- (85) Natu~natu panapana i=**vei** ta~**tavone**=i.
 RD~clan all 3PL.SBJ=R/R RD~help=IRR
 ‘All clans help each other.’ (1-T093)
- (86) Aina i=**vei** ro~**roroto** manene aina tobi.
 3PL 3PL.SBJ=R/R RD~see return 3PL EMPH
 ‘They saw each other.’ (2-E007-1)
- (87) Mi=ara **vei** atu~**atunu** nani.
 1EXCL.SBJ=PST R/R RD~attack there
 ‘We fought each other there.’ (1-T088)
- (88) Nua=au boro i=**vei** tu‘u~**tu‘u**.
 two=CLII pig 3PL.SBJ=RR RD~meet
 ‘Two pigs met each other.’ (2-E014-2)
- (89) Bill auana John i=**vei** ma‘a~**ma‘a** bau basket kaukau.
 Bill 3DU John 3PL.SBJ=RR RD~give PL basket sweet.potato
 ‘Bill and John gave each other baskets of sweet potatoes.’ (2-E007-1)

As (82)–(89) show, verbal reduplication in reciprocal constructions may be monosyllabic or disyllabic. For some verbs, such as *atunu* ‘attack’ (87) and *tu‘u* ‘meet’ (88), the type of reduplication in reciprocal constructions matches that found in continuous aspect constructions (see 5.1.3). For other verbs, however, there is no correspondence between the categories described in 5.1 and the type of reduplication found in reciprocal constructions; for instance, *tavone* ‘help’ (85) and *roroto* ‘see’ (86) display no reduplication in continuous aspect constructions (see 5.1.1), but do show monosyllabic reduplication in reciprocal constructions, while *ma‘a* ‘give’ (89) displays monosyllabic reduplication in continuous aspect constructions (see 5.1.3) but disyllabic reduplication in reciprocal constructions. Valency also does not play a role, as *sia‘a* ‘look after’ (82) is transitive, but so, too, is *atunu* ‘attack’ (87), and these verbs display different reduplication patterns. Similarly, the type of reduplication is not phonologically determined: *avoro* ‘complain’ and *atunu* ‘attack’ have the same syllable structure, as do *suga* ‘trust’ and *ma‘a* ‘give’, but these verbs undergo different reduplication in reciprocal constructions. It is, thus, unclear what motivates the type of reduplication in reciprocals.

Furthermore, some reciprocal constructions uttered in elicitation sessions show the use of PSI enclitics and express imperfective aspectual meanings (90)–(93). It should be noted that the 3PL object-indexing enclitic and the 3PL PSI enclitic are homophonous, but the object-indexing enclitics are definitely not used in reciprocal constructions, as (90) shows, since the 1EXCL object enclitic is =*ami*. In the case of *tavone* ‘help’ (91), the reduplicant can be assumed to express reciprocity, as also shown in (85) above, because *tavone* belongs to Group 1 in imperfective aspect constructions and is not reduplicated to express continuous aspect (see 5.1.1). The verb *atunu* ‘attack’, however, belongs to Group 3 in imperfective aspect constructions and undergoes disyllabic reduplication to express continuous aspect (see 5.1.3). In (87) above and (93) below, which both express past tense, the reduplicant on the verb *atunu* expresses reciprocity; however, in (92), which expresses

continuous aspect, it is unclear whether the reduplicant marks continuous aspect or reciprocity and, furthermore, why **atu~atu~atunu* is not possible, since Papapana does permit multiple reduplication (see 8.2 for discussion).

- (90) Mi=pei **vei a~'atutusi ora=emani=i.**
 IEXCL.SBJ=PST.IPFV RR RD~chase only=1EXCL.IPFV=IRR
 'We were just chasing each other.' (2-E014-2)
- (91) Na=vanua i=vei **ta~tavone=ina te=na** kaukau.
 SPEC[CLI]=people 3PL.SBJ=RR RD~help=3PL.IPFV OBL=SPEC[CLI] garden
 'The men help each other in the garden.' (2-E014-2)
- (92) I=vei **atu~atunu=ina.**
 3PL.SBJ=RR RD~attack=3PL.IPFV
 'They are attacking each other.' (2-E007-1)
- (93) Ben auana John i=vei **atu~atunu.**
 Ben 3DU John 3PL.SBJ=RR RD~attack
 'Ben and John attacked each other.' (2-E007-1)

6.2 REDUPLICATED VALENCY-CHANGING MARKERS. There are some data that show that the preverbal comitative applicative *me* can be reduplicated instead of the verb in imperfective constructions, and that reciprocal/reflexive *vei* can be reduplicated instead of the verb in prohibitive and reciprocal constructions. Before presenting these data, it is first necessary to describe the comitative applicative construction.

There are two ways of expressing an argument with a comitative role in Papapana: one involves a postpositional oblique with *tomana*, and the other is an unusual construction consisting of the preverbal comitative applicative marker *me*. *Me* marks a participant with a comitative role as a core object argument, and this object is usually indexed by the postverbal object enclitics. *Me* carries the suffix *-a* when the new object is singular, and *-na* when it is plural, resulting in the forms *me-a* and *me-na*. The form *-a* is identical to the 3SG object enclitic, while *-na* resembles the 3PL object enclitic *=ina* (it is feasible that *me-ina* has phonologically reduced to *me-na*). However, person is no longer distinguished; therefore, *me-a* is used for all singular comitative objects and *me-na* for all plural comitative objects. In the data, *me* occurs with intransitive verbs or ambitransitive verbs, and functions as a valency-increasing device (94)–(97). More data are needed to determine whether *me* could be used with a solely transitive verb and, if so, what would happen to the existing object. In (94), the object argument is expressed overtly as a NP and indexed by an object enclitic; in (95), the object argument is only indexed by an object enclitic; in (96), the object argument is only expressed as an overt NP, meaning that morphologically the verb's valency has not been increased to transitive; while in (97), there is no object enclitic and no object NP.

- (94) I=no **me-na** po=ina=i **na=vanua.**
 3PL.SBJ=go.SEQ COM-PL.OBJ stay=3PL.OBJ=IRR SPEC[CLI]=people
 'They go and stay with the men.' (1-T076)
- (95) Na=vanua i=**me-a** tua=i=**o** nao Buka.
 SPEC[CLI]=people 3PL.SBJ=COM-SG.OBJ paddle=TR=2SG.OBJ thither Buka
 'The people paddled with you to Buka.' (2-E015B)

- (96) U=**me-a** tamu **e-sina-u**.
 1SG.SBJ=COM-SG.OBJ eat PERS-mother-1SG.PSSR
 ‘I ate with my mother.’ (2-E009)
- (97) Mi=pei **me-na** tua tae nao=i.
 1EXCL.SBJ=PST.IPFV COM-PL.OBJ paddle up thither=IRR
 ‘We used to paddle out with them.’ (1-T025)

It could be that *me* is a reflex of the POC comitative prepositional verb **ma-* (Pawley 1973:142–47) and the PNWS comitative preposition **ma* (Ross 1988:252): in Oceanic languages, some prepositional verbs in serial verb constructions (SVC) have been reanalyzed as adpositions when the serial construction has become unstable (Durie 1988:3). In Papapana, it could be argued that the comitative prepositional verb has instead been reanalyzed as a valency-increasing morpheme, although if *me* were originally a prepositional verb, we would expect it to follow the verb, as in other Oceanic languages. It is more likely that *me* was diachronically a verb denoting ‘be with’ and that its preverbal position reflects “conjoined participant serialisations” (Early 1993:68, 89) in which “the subject and the object of the first verb become the combined subject of the second”, as in (98) from Lewo, an Austronesian language of Epi Island in Vanuatu.

- (98) LEWO
 Ne-mio-la me-pano.
 1SG.SBJ-with-3PL.OBJ 1EXCL.SBJ-REAL.go
 ‘We went together.’ (lit. ‘I with them we went.’) (Early 1993:89)

Me is no longer a verb in a SVC because (i) it does not occur as an independent verb, (ii) it may only be marked by reflexes of the 3SG and 3PL object-indexing enclitics, and (iii) it may cooccur with postverbal object-indexing enclitics. It could well be that the object-indexing enclitics that occur on the verb in *me* constructions are a later development that occurred after *me* had been reanalyzed, and that the lack of object-indexing enclitics on the verb in (96) and (97) actually reflects the earlier construction. Certainly, synchronically, speakers report that there is no semantic or pragmatic difference between constructions with or without object-indexing enclitics.

Me is relevant to this paper because it is possible for *me* to be optionally reduplicated instead of the verb in imperfective aspect constructions with PSI enclitics, as (99) and (100) and the contrasting pairs of sentences in (101) and (102) demonstrate:

- (99) Nu=obutu mi=**me~me-a** **nao** tae=mani.
 SPEC.CLII=canoe 1EXCL.SBJ=RD~COM-SG.OBJ go up=1EXCL.IPFV
 ‘We go out [to sea] with the canoe.’ (1-T099)
- (100) Buriatanana bau sina-ina i=ae
 young.women PL mother=3PL.PSSR 3PL.SBJ=NEG
me~me-na **orete=ina=ina**.
 RD~COM-PL.OBJ walk=3PL.OBJ=3PL.IPFV
 ‘Young women don’t walk around with their mothers.’ (1-T040)
- (101) a. U=**me-a** **nao~nao** e-sina-u te=na stoa.
 1SG.SBJ=COM-SG.OBJ RD-go PERS-mother-1SG.PSSR OBL=SPEC[CLI] store

- b. U=**me~me-a** **nao** e-sina-u te=na stoa.
 1SG.SBJ=RD~COM-SG.OBJ go PERS-mother-1SG.PSSR OBL=SPEC[CLI] store
 ‘(Every day) I go with my mother to the store.’ (2-E029-1)
- (102) a. Tom e=**me-a** **tua~tua=na** soida‘o.
 Tom 3SG.SBJ=COM-SG.OBJ RD~paddle=3SG.IPFV old.man
 b. Tom e=**me~me-a** **tua=na** soida‘o.
 Tom 3SG.SBJ=RD~COM-SG.OBJ paddle=3SG.IPFV old.man
 ‘Tom is paddling with the old man.’ (2-E029-1)

The fact that *me* can be reduplicated instead of the verb could be argued to reflect its history as a verb; however, there are also data, albeit limited, that show that reciprocal/reflexive *vei* can be optionally reduplicated instead of the verb. In the first clause in (103), the transitive verb *goni* ‘gather’ has been derived as a reflexive verb by *vei* and, thus, the subject indicates the coreferentiality of the A and O argument and the verb does not occur with the object-indexing enclitics, nor is it reduplicated. In the second clause, the reflexive verb occurs in a prohibitive clause, which is usually formed with monosyllabic or disyllabic verbal reduplication and a preverbal negative marker *ae* or *te* (see 5.2). Here, though, it is the reflexive *vei* that is reduplicated, not the verb.

- (103) Mu=to eri vei goni=emi¹²
 2PL.SBJ=to IMM.IRR R/R gather=2PL.IPFV
 mu=**ae** no **ve~vei goni** nani tagena i-abata.
 2PL.SBJ=NEG go.SEQ RD~R/R gather there near LOC-bachelor.house
 ‘If you all want to gather together, don’t go and gather together there near the bachelor house.’ (1-T028)

Similarly, in (104), the transitive verb *sia’a* ‘look after’ has been derived as a reciprocal verb by *vei*, but instead of the verb being reduplicated as is usual in reciprocal constructions (see 6.1), *vei* is reduplicated.

- (104) Si=**ve~vei** **sia’a=era** te=na kain pasin.¹³
 1INCL.SBJ=RD~R/R look.after=1INCL.IPFV OBL=SPEC[CLI] kind custom
 ‘We look after each other in this kind of way.’ (1-T001)

Most importantly, the fact that *me* and *vei* can be reduplicated instead of the verb suggests that the reduplicant is a clitic and not an affix (see 8.1).

7. NONPRODUCTIVE AND AMBIGUOUS REDUPLICATION. In Papanua, there are some cases of nonproductive or ambiguous reduplication. First, there are a few instances where reduplication seems to mark augmentation on nouns to convey ‘all’ or ‘every’ (105) (see also [85] in 6.1), or to mark intensity (106), but these are not productive processes.

- (105) a. mamena **natu~natu**
 PL.COLL RD~clan
 ‘all the clans’ (1-T072)

12. As mentioned in 5.1, PSI enclitics can express optative mode with the immediate irrealis marker *eri*.

13. Note that *kain* and *pasin* are borrowed from Tok Pisin.

- b. mamena **boni-boni**
 PL.COLL RD-day
 ‘every day’ (1-T026)
- (106) a. **Va~vasina**, Teperoi mi=pei po~po=mani=i.
 RD~before Teperoi 1EXCL.SBJ=PST.IPFV RD~stay=1EXCL.IPFV=IRR
 ‘Long, long ago, we lived in Teperoi.’ (1-T030)
- b. E-tubu-na e=sare **ma~mamangi**.
 PERS-grandparent-3SG.PSSR 3SG.SBJ=happy RD~INTS
 ‘His grandmother was very, very happy.’ (1-T029)

Second, as mentioned in 4.1, some adverbs appear to be reduplicated, but are not actually synchronically reduplicated, as no corresponding root exists. This is the case for the postverbal adverbs *garigari* ‘always’ and *egoego* ‘well’, as **gari* and **ego* do not exist as roots. However, these two adverbs do occur in alternate forms, *gagari* and *e’ego*, which seem to display monosyllabic, rather than disyllabic, reduplication. In the two examples of *gagari* and in many examples of *e’ego*, the verb is transitive and followed by the 3SG object enclitic, as in the second line of (107) and in (108), so perhaps this is the motivation for the alternate form. However, *garigari* and *egoego* are also used with transitive verbs, such as in (109), and (110) shows *e’ego* used with an intransitive verb. Furthermore, the examples in (111) were both produced in the same narrative by the same speaker and have almost identical verb complexes, yet there is alternation between *egoego* and *e’ego*. It is, therefore, likely that *gagari* and *e’ego* are features of casual speech or reflect a point in history when the reduplication of the roots **gari* and **ego* was productive.

- (107) Rob e=to awa ae nao~nao garigari=ena=i Wakunai,
 Rob 3SG.SBJ=to COND NEG RD-go always=3SG.IPFV=IRR Wakunai
 e=roroto **gagari**=a=ena=i ena=arao.
 3SG.SBJ=see always=3SG.OBJ=3SG.IPFV=IRR 3SG.PSSR[CLI]=brother
 ‘If Rob did not go to Wakunai every week, he would see his brother more.’ (2-E027)
- (108) I=pei sia’a **e’ego**=a=ina=i.
 3PL.SBJ=PST.IPFV look.after well=3SG.OBJ=3PL.IPFV=IRR
 ‘They looked after him well.’ (1-T034)
- (109) E=pei ae atu **egoego**=ina=i.
 3SG.SBJ=PST.IPFV NEG make well=3PL.OBJ=IRR
 ‘He didn’t used to do (things) well.’ (1-T052)
- (110) U=ae tarami **e’ego**=au.
 1SG.SBJ=NEG feel well=1SG.IPFV
 ‘I’m not feeling well.’ (1-T029)
- (111) a. O=pei ae sia’a **e’ego**=a=mu=i.
 2SG.SBJ=PST.IPFV NEG look.after well=3SG.OBJ=2SG.IPFV=IRR
 ‘You didn’t treat him well.’ (1-T031)
- b. Ia’a mama e=pei ae sia’a **egoego**=au=ena=i.
 Mum DEM 3SG.SBJ=PST.IPFV NEG look.after well=1SG.OBJ=3SG.IPFV=IRR
 ‘Mum didn’t treat me well.’ (1-T031)

Third, the geographic directionals *tae* ‘ascend/away from shore’ and *dini* ‘descend/toward shore’ occur immediately after the verb and before postverbal adverbs. Most often, these geographic directionals are not reduplicated, but there are some data that show them occurring in a reduplicated form with both intransitive (112) and transitive verbs (113):

(112) a. E=vurau **tae~tae** nao.
3SG.SBJ=run RD~up thither
‘He ran up.’ (1-T067)

b. E=tua **dini~dini** nao.
3SG.SBJ=paddle RD~down thither
‘He paddled down.’ (1-T035)

(113) a. E=noe **tae~tae**=a te=na tuvae.
3SG.SBJ=put RD~up=3SG.OBJ OBL=SPEC[CLI] grate
‘She put it up on the grate.’ (1-T029)

b. E=atutusi **dini~dini**=a nao.
3SG.SBJ=chase RD~down=3SG.OBJ thither
‘He chased him down.’ (1-T035)

It could be hypothesized that the geographical directional is reduplicated instead of the verb in (112) and (113), in the same way that the comitative applicative *me* and the reciprocal/reflexive *vei* can be reduplicated instead of the verb in imperfective constructions and prohibitive or reciprocal constructions, respectively (6.2). However, the utterances in (107)–(113) are not imperfective, prohibitive, or reciprocal constructions, as there are no PSI enclitics or negative or reciprocal markers present. Example (114) does contain a PSI enclitic and expresses imperfective aspect; however, *tonu* belongs to Group 1 (see 5.1.1) and is, therefore, not reduplicated to express continuous aspect anyway, so it cannot be the case that the geographical directional is reduplicated instead of the verb.

(114) Nu=dede‘usia e=pei tonu **tae~tae**=na=i.
SPEC.CLII=eagle 3SG.SBJ=PST.IPFV stand RD~up=3SG.IPFV=IRR
‘An eagle was standing above.’ (1-T101)

As with the postverbal adverbs *garigari* ‘always’ and *egoego* ‘well’, there is no clear grammatical, semantic, or pragmatic motivation for the variant forms of *tae* and *dini*, but perhaps they reflect a point in history when reduplication was productive. This is particularly probable for *tae* and *dini* because, as in many Oceanic languages, they have likely grammaticalized from geographical direction verbs in geographical directional SVCs (Ross 2004b:311). Although the geographic directionals are not independent verbs in synchronic Papapana, the unreduplicated and reduplicated forms may well reflect their history as verbs. Unlike the reduplication of the comitative applicative *me* (6.2), also derived from a serial verb, the reduplication of *tae* and *dini* is not productive.

8. PAPAPANA REDUPLICATION: A COMPARATIVE PERSPECTIVE.

Papapana has unusual reduplication constructions because it allows the preverbal comitative applicative marker *me* and the preverbal reciprocal marker *vei* to be reduplicated instead of the verb, and it allows multiple reduplication in imperfective aspect constructions, but not in constructions expressing both imperfective and reciprocal meanings.

This raises intriguing questions, not only about the analysis of reduplication in Papapana, but also about the analysis of reduplication more generally. This section offers a typological comparison of related and unrelated languages, and, in light of this, questions the status of Papapana reduplicants as prefixes or proclitics (8.1), and the nature of multiple reduplication as a unitary or serial process (8.2).

8.1 PREFIX OR PROCLITIC? One of the interesting features of reduplication in Papapana is that the preverbal valency-changing markers *me* and *vei* can be reduplicated instead of the verb, which could suggest that reduplicants are clitics and not affixes. This is also the case in the NWS language Torau: the inflectional reduplicant is not a prefix but a proclitic (Palmer 2007:510–11). Reduplication applies to the first syntactic word following the preverbal TAM/SBJ particle: this could be the verb stem itself, as in (115a) and (116a), or one of the preverbal adverbial particles, as in (115b) and (116b). If a preverbal adverbial particle is present, reduplication of the verb stem itself is ungrammatical, as in (115c) and (116c). Since inflectional reduplication is associated with a particular syntactic position in the verb complex, rather than a morphological position relating to the verb stem, Palmer argues that it is, therefore, a clitic, and proposes the symbol ‘≈’ be used to indicate this, ‘corresponding to the conventional use of ‘~’ to represent affixed reduplicant concatenation, in parallel with the conventional use of ‘=’ to represent non-reduplicant clitic concatenation corresponding to ‘-’ for affixes’ (Palmer 2007:511).

(115) TORAU

- a. Pa=ka o≈ose.
2.SBJ.IRR=NEG RD≈paddle
‘Don’t paddle.’
- b. Pa=ka maa≈mala ose.
2.SBJ.IRR=NEG RD≈a.little paddle
‘Don’t paddle for a little while.’
- c. *Pa=ka mala o≈ose.
2.SBJ.IRR=NEG a.little RD≈paddle

(Palmer 2007:511)

(116) TORAU

- a. Ta o≈ose=e-la=to.
PRF.3SG.SBJ RD≈paddle=IPFV-3SG.SBJ=PRS
‘He is paddling’
- b. Ta boo≈boo ose=e-la=to.
PRF.3SG.SBJ RD≈previously paddle=IPFV-3SG.SBJ=PRS
‘He has already been paddling’
- c. *Ta boo o≈ose=e-la=to.
PRF.3SG.SBJ previously RD≈paddle=IPFV-3SG.SBJ=PRS

(Palmer 2007:511)

There is also some evidence that suggests that the imperfective reduplicant may be a clitic rather than an affix in Mono-Alu (Bill Palmer, pers. comm.). Mono-Alu has a monosyllabic imperfective reduplicant (117) and a disyllabic pluractionality reduplicant (118) (though it is monosyllabic in some environments yet to be determined), which occur in separate positions, as shown by their respective positions in relation to the adverb

*mea*¹⁴ in (117) and (118). In (117), the imperfective reduplicant applies to the adverb *mea*, whereas in the absence of an adverb, the verb is obligatorily reduplicated (119).

- (117) MONO-ALU
 E-na **me~mea**-sisile sa-na ga talaiva a~abaisa.
 3SG.SBJ-IRR IPFV~as.collective-wash IPFV-3SG.SBJ ga women PL-young.woman
 ‘The women and girls would all bathe.’ (Bill Palmer, pers.comm.)
- (118) MONO-ALU
 Bo’o e-na **mea-fela~fela** ...
 pig 3SG.SBJ-IRR as.collective-PLURACT~butcher.pigs
 ‘[If] people cut up pigs ...’ (Bill Palmer, pers.comm.)
- (119) MONO-ALU
 Kafisi **su~suele** sa-na.
 Kafisi IPFV~sleep IPFV-3SG.SBJ
 ‘Kafisi was asleep.’ (Bill Palmer, pers.comm.)

It could be argued that inflectional reduplicants in Papapana are also clitics and not affixes because their domain extends beyond the verb and they have functional scope over the verb, regardless of whether they are attached to the verb or to the preceding comitative applicative marker *me* and reciprocal marker *vei*. The two problems with this analysis are that, first, unlike in Torau and Mono-Alu, reduplication in Papapana *optionally* applies to *me* or *vei*, and it is still grammatical for the verb to be reduplicated when these valency-changing morphemes are present. Second, reduplication does not apply to the verb stem in Papapana, as there is no evidence that the causative prefix *va-* can be reduplicated. Instead, in causative constructions, the verb root is always reduplicated, as in (120).

- (120) E=pei **va-pa~para=i=a=na=i**.
 3SG.SBJ=PST.IPFV CAUS=RD~jump=TR=3SG.OBJ=3SG.IPFV=IRR
 ‘She was making it jump.’ (1-T074)

This contrasts with other NWS languages, such as Mono-Alu and Kubokota, where it *is* possible for the causative prefix to be reduplicated. In Kubokota, word-level reduplicated verbs express iterative or continuative action, and if prefixes such as the reciprocal *vari-* (which, like *vei* in Papapana, is a reflex of the POC reciprocal/collective prefix *pa[R]i-) or the causative *va-* are present, these are reduplicated instead of the root (Chambers 2009:139–40), as in (121) and (122), respectively.

- (121) KUBOKOTA
 Qari kopa nyumu **vari-vari**-kamu dia ketakoi.
 3PL.REAL PROG sit RD~RECP-arrive 3PL.POSS there
 ‘They sat down together there.’ (Chambers 2009:140)
- (122) KUBOKOTA
 Gami **va-va-gore=ria** na kesi kavingi pa vaka, ...
 1PL.EXCL.REAL RD~CAUS-go.down=3PL.OBJ DET box carving INAN.PREP ship
 ‘So we went and took down the boxes of carvings to the ship, ...’
 (Chambers 2009:140)

14. *Mea* is likely to be cognate with the Papapana comitative *me*, since Mono-Alu *mea* also occurs preverbally, can also be reduplicated instead of the verb, and has a similar meaning of ‘togetherness’.

The fact that the causative prefix cannot be reduplicated in Papapana is problematic for the analysis of reduplicants as clitics. Inflectional reduplication is not associated with a morphological position relating to the verb stem, which suggests reduplicants are not affixes but clitics; yet if they are clitics, where is their syntactic position in the VC? As the simplified version of the Papapana preverbal VC in table 9 shows, inflectional reduplication applies to the first syntactic word following the preverbal adverb, but excludes prefixes.

TABLE 9. PAPAPANA PREVERBAL MODIFIERS

SUBJ	to	TAM/NEG	SEQUENTIAL DIRECTIONAL	ADVERB	me-a me-na	vei	va- ta-	VERB(S)
------	----	---------	---------------------------	--------	---------------	-----	------------	---------

It could be the case that, as in Chamorro (Chung 2003:579–80), reduplication targets the CV of the primary-stressed syllable in the base. As explained in section 2, prefixes do not usually alter stress assignment in Papapana (unless morphological concatenation results in the formation of a long vowel or diphthong word-initially); thus, reduplication cannot target the prefix *va-*, because it is not stressed. By contrast, reduplication *can* target *me* and *vei* because *vei* satisfies word minimality and is stressed, and *me* always attaches to either *-a* or *-na* to form a foot and is, thus, also stressable. Alternatively, reduplicants are not clitics, and the reduplication of *me* instead of the verb irregularly reflects its history as a verb and, by analogy, *vei* is also sometimes reduplicated. Further data on Torau and Mono-Alu and on the reduplication of *vei* in Papapana may reveal which hypothesis is most likely. Certainly, though, the fact that Papapana, Torau, and Mono-Alu may all reduplicate a preverbal element instead of the verb is a typologically unusual feature, not yet found elsewhere in NWS languages, and it raises interesting theoretical questions about the analysis of reduplicants as affixes or clitics more generally.

8.2 UNITARY OR SERIAL PROCESS? Another intriguing characteristic of reduplication in Papapana is that multiple reduplication can occur in imperfective constructions but not in constructions that express both imperfective and reciprocal meanings, thus calling into question the nature of Papapana multiple reduplication as a unitary or serial process (a unitary process being one where there is one cycle of reduplication, in contrast with serial reduplication where there are two cycles of reduplication). This section explores this issue by examining multiple reduplication in NWS and Oceanic languages (8.2.1), non-Oceanic Austronesian languages (8.2.2), and non-Austronesian languages (8.2.3), and in doing so also calls into question the nature of and conditions for multiple reduplication cross-linguistically.

8.2.1 Northwest Solomonic and Oceanic languages. Multiple reduplication is typologically uncommon among the world’s languages, including Oceanic languages. Elsewhere in Northwest Solomonic languages, multiple reduplication is not attested, with the exception of one example found to date from Mono-Alu and one from Ririo. Example (123) from Mono-Alu shows that the imperfective and pluractionality reduplicative morphemes described above in 8.1 can cooccur. Example (124) from Ririo shows multiple occurrence of the same reduplicant, which seems to render a persistent interpretation rather than a strictly imperfective one.

(123) MONO-ALU

Ka~ka~kanega sa-ra.
 IPFV~PLURACT~be.big IPFV~INCL.PL.SBJ

‘We get old.’

(Bill Palmer, pers.comm.)

(124) RIRIO

Ko jeke~jeke~jekel.¹⁵
 real.1SG.SBJ IPFV~IPFV~run

‘I ran and ran and ran.’

(Bill Palmer, pers.comm.)

The only other Western Oceanic language in which multiple reduplication has been so far observed is Siar (Patpatar-Tolai, South New Ireland), but this is only confined to one plural form: Frowein (2011:32, 51) notes that “*atatat* ‘stones’ looks like a case of triplication,” derived from the singular noun *fat* ‘stone’ (with the initial /f/ dropped when reduplication is applied).

In the Central-Eastern Oceanic language Vaeakau-Taumako (Samoic-Outlier, Nuclear Polynesian), reduplication may copy one syllable of a root (partial reduplication) as in *noho* ‘sit, stay’ > *nonoho*, or two consecutive syllables of a root (full reduplication) as in *noho* ‘sit, stay’ > *nohonoho* (Næss and Hovdhaugen 2011:85). A fully reduplicated form may be “further subjected to partial reduplication” with obligatory lengthening of the partially reduplicated syllable, as in *noho* > *nohonoho* > *nōnohonoho* (Næss and Hovdhaugen 2011:85). In addition, partial reduplication may be repeated once or twice as in *noho* ‘sit, stay’ > *nōnoho* > *nōnōnoho* and *noho* > *nonoho* > *nononoho* > *nonononoho*, as can full reduplication, as in *kau* ‘swim, bathe’ > *kaukaukau* (Næss and Hovdhaugen 2011:85). The combination of partial and full reduplication, and the multiple occurrence of partial or full reduplication, indicate a strong degree of emphasis, or a plurality of actions, or something that is happening quickly (Næss and Hovdhaugen 2011:85).

Multiple reduplication is more thoroughly understood in the Central-Eastern Oceanic language Mokilese (Pohnpeic-Trukic, Micronesian). In Mokilese, rightward -CVCV# reduplication derives descriptive or facultative statives from nouns/verbs, as in *pik* ‘sand’ > *pikapik* ‘sandy’, and *kadip* ‘to betray’ > *kadipdip* ‘treacherous’¹⁶ (Harrison 1974:424). This type of reduplication is frequent but not productive. Rightward reduplication may also derive an intransitive form of a telic bitransitive¹⁷ verb: *lim* ‘to fold (TR)’ > *limlim* ‘peel (INTR)’ (Harrison 1974:428). Leftward #CVC- reduplication is productive and expresses progressive aspect (ongoing action): *rik sakai* ‘to gather stones’ > *rikrik sakai* ‘to be gathering stones’. However, this inflectional reduplication “often acquires an unambiguously continuative interpretation if it has applied to a previously progressive form” (Harrison 1974:424): *rikrikrik sakai* ‘to continue to gather stones’. Harrison (1974) terms this second application of CVC- reduplication *triplication*. Three classes of verbs formally distinguish progressive and continuative aspects: those with incorporated

15. Underlying the Ririo reduplicant is *jek~*, as Ririo has frequent but optional vowel epenthesis to support consonants that would otherwise be codas.

16. Note that Mokilese has two phonological rules, Final Vowel Deletion and Final Consonant Deletion, that account for the base and reduplicated forms of these roots (see Harrison 1974).

17. Harrison (1974:408) uses the term *bitransitive* to refer to verbs that “have a transitive form used to describe a particular occurrence of the activity in question performed by an expressed agent and directed towards a specific goal, and an intransitive form.”

objects such as *rik sakai* ‘to gather stones’, semelfactive verbs such as *roar* ‘to give a shudder’, and verbs of changeable state such as *soang* ‘tight’ (Harrison 1974:426). For most verbs, however, progressive and continuative aspect are neutralized: *doau* ‘to climb’ > *doaudoau* ‘to be/continue climbing’ (Harrison 1974:427).

The application of triplication in Mokilese proves useful for ambiguously reduplicated CVC bases: a CVC-CVC reduplication could be “derived either through leftward reduplication of an underlying CVCV, followed by Final Vowel Deletion, or through rightward reduplication, followed by Final Vowel Deletion and Vowel Reduction” (Harrison 1974:433). Mokilese does not tolerate this ambiguity, and instead solves it by employing triplication, which is unambiguously inflectional; thus, for *moair* ‘to sleep’, reduplication derives a stative *limoahmoair* ‘always sleeping’, while triplication expresses progressive/continuative aspect, *moahmoahmoair* ‘to be/continue sleeping’ (Harrison 1974:434).

Papapana is similar to Mokilese because verbal reduplication (with PSI) expresses ongoing processes and states, while multiple reduplication is reserved for a different subtype of imperfective. This is also the case in Ririo. In Papapana, if the context is clear, continuous and habitual aspects can be neutralized, and both expressed by simple reduplication, whereas in Mokilese, progressive and continuative aspect can be neutralized and expressed by triplication. Multiple reduplication in Papapana can, then, be employed to unambiguously express habitual aspect, while in Mokilese, triplication is used to solve ambiguity between derivational and inflectional reduplication. When a reduplicant applies to an already reduplicated form in Mokilese and Papapana, one could argue that the process is serial; however, for the Mokilese verbs where progressive and continuative aspect are neutralized, multiple reduplication appears to be a unitary process. In contrast, in Mono-Alu, the two reduplicants have unrelated meanings and they can occur independently, which suggests that Mono-Alu multiple reduplication is a serial process.

Examining multiple reduplication in Northwest Solomonic and Oceanic languages, therefore, offers some insights into the processes involved, but does not shed any light on why imperfective and reciprocal reduplicants cannot cooccur in Papapana. However, the *absence* of multiple reduplication in Torau may provide a clue. In Torau, phonological constraints prevent multiple reduplications of a base: inflectional reduplication is blocked when the stem carries derivational or idiosyncratic reduplication (Palmer 2009b). The verb *atumu* ‘attack’ in Papapana displays disyllabic reduplication in continuous aspect and reciprocal constructions, and, therefore, it is unclear whether the reduplicant in (92) marks continuous aspect or reciprocity. It could be the case that it is the derivational, reciprocal reduplicant, and the inflectional, continuous reduplicant has been blocked. Certainly, more data are needed to confirm this hypothesis.

8.2.2 Non-Oceanic Austronesian languages. Multiple reduplication is attested in one Austronesian language outside Oceanic, the Formosan language Thao, a moribund language spoken in central Taiwan. Thao has various patterns of reduplication described in detail in Chang (1998:279–85) and Blust (2001b:325–27): (i) full reduplication marks repetitive/continuative aspect in the verb, and intensity in adjectives, and in limited cases it may produce a change of lexical category; (ii) Ca- reduplication (the prefix is formed by copying the first consonant of the base, followed by the invariant vowel /a/) forms a class of instrumental nouns, which is a widespread and productive process in Austrone-

sian languages (Blust 1998), but in Thao it may also overlap semantically with full reduplication; (iii) rightward reduplication is in “complementary distribution [with full reduplication], because each is restricted to a different segmental template” (Blust 2001b:326); (iv) CV-reduplication is marginally present and has various functions. There are also several patterns of multiple reduplication. Blust (2001b:333–34) mentions one case of quadruplication where there are three reduplicants, but of most relevance here is the distinction between triplication and serial reduplication.

There are sixteen attested instances of triplication in Thao, each displaying one of four patterns (Blust 2001b:328–32): (i) full reduplication with an additional iteration (125); (ii) Ca-reduplication with an additional iteration (126); (iii) rightward reduplication with an additional iteration (127); (iv) a combination of (ii) and (iii) (128). In the following examples (125)–(128), as per Blust (2001b:328–32), the unaffixed base is given first (a), followed by an unreduplicated affixed form, usually in the Actor Focus (AF) (b), and then, for examples (126)–(128), the triplicated form of the base (c). Only for the first pattern (125) does Blust provide examples contrasting the triplicated (d) and reduplicated (c) forms, in order to highlight the semantic nuances expressed through different degrees of iteration.

(125) THAO

- | | | |
|----|------------------------|---|
| a. | shkash | ‘fear’ |
| b. | sh-ug-kash | ‘to fear, be afraid’ |
| c. | makit-shka-shkash | ‘gradually grow fearful’ |
| d. | makit-shka-shka-shkash | ‘gradually be overcome with fear, be slowly overwhelmed with a sense of foreboding or apprehension’ |

(126) THAO

- | | | |
|----|-----------------|---------------------------------------|
| a. | karkar | ‘chew’ |
| b. | k-m-arkar | ‘to chew (ACTOR FOCUS)’ |
| c. | k-m-a-ka-karkar | ‘chew repeatedly, chew over and over’ |

(127) THAO

- | | | |
|----|--------------------|--|
| a. | tap’an | ‘patch, repair by patching’ |
| b. | t-m-ap’an | ‘to patch (ACTOR FOCUS)’ |
| c. | t-in-ap’a-p’a-p’an | ‘was patched repeatedly, was covered with patches’ |

(128) THAO

- | | | |
|----|---|--|
| a. | pash’uzu | ‘phlegm’ |
| b. | mash’uzu | ‘to cough, cough up phlegm (ACTOR FOCUS)’ |
| c. | mash- ² a- ³ uzu’-uzu | ‘cough repeatedly, cough up phlegm repeatedly’ |

Thao triplication functions only with verbs and is necessarily iconic, increasing “the degree or intensity of the same semantic dimension invoked by reduplication” (Blust 2001b:324). It is, thus, an elaboration of reduplication, which in most cases for verbs “serves the purpose of adding a semantic nuance of intensity or continuation of an activity” (Blust 2001b:334).

Another process, serial reduplication, functions only with numeral bases. A simple, unaffixed numeral base, such as *tusha* ‘two’, is restricted to serial counting or nonhuman referents. Ca-reduplication produces [+human] numerals, such as *ta-tusha* ‘two (of humans)’. A second application of reduplication produces a distributive numeral from one that carries no distributive implication: *ta-ta-tusha* ‘two (of humans), repetitive’, as in

‘two at a time (of people)’. Blust (2001b:333) argues that “these two processes clearly derive from separate morphological operations, because *ta-tusha*, and so on, exist independently of the distributive forms,” and he proposes the term *serial reduplication* to describe the two cycles of reduplication. Serial reduplication contrasts with triplication, which is “a unitary process, not a sequence of two unrelated derivational steps” (Blust 2001b:333). However, although *ta-tusha* ‘two (of humans)’ exists independently of the distributive, it does not appear that the distributive reduplicant can appear independently of the [+human] reduplicant, in the same way that the imperfective and pluractionality reduplicants in Mono-Alu can occur independently (see [117] and [118] above), as well as in conjunction with each other (123). It seems, then, that the distinction between *triplication* and *serial reduplication* in Thao is more a matter of semantics; in triplication, the additional reduplicant emphasizes the existing reduplicant, while in serial reduplication, the additional reduplicant adds an unrelated meaning to the already reduplicated form. Multiple reduplication in Papapana is similar to Thao serial reduplication, because the habitual reduplicant in Papapana can only be applied to the continuous construction, which for Group 2 and 3 verbs involves an already reduplicated verb, but it differs because the two reduplicants have a related meaning, as both are subtypes of imperfective aspect. In any case, the description of Thao does not help explain the lack of simultaneously occurring imperfective and reciprocal reduplicants in Papapana.

8.2.3 Non-Austronesian languages. Outside Austronesian, multiple reduplication is found in the Salish and Wakashan language families, spoken in Canada and the United States. Generally, the term *double reduplication* is employed for Salish and Wakashan languages (Broselow 1983; van Eijk 1990; Stonham 2003; Urbanczyk 1999), though for Salish languages Broselow (1983) also uses *combined reduplications* and van Eijk (1990) reserves the term *multiple reduplication* for instances of three or more reduplicants.

In Salish languages, VC reduplication “generally expresses that the protagonist of the reduplicated form is not in control of the situation described by the reduplicated form ... [and] in many languages VC reduplication has a continuative-telic aspectual function that meshes with the ‘out-of-control’ function” (van Eijk 1990:228). Several Salish languages, such as Shuswap (Interior) and Lillooet (Interior), employ double VC reduplication, while Columbian (Interior, Southern) employs multiple reduplication. In these languages, “double and multiple reduplication are to be interpreted as formal and semantic intensifications of VC reduplication” (van Eijk 1990:230), which is akin to *triplication* in Thao. In Lushootseed (a cover term for the Puget Sound dialects of Salish), there are two productive reduplication rules (Broselow 1983:319–24). The first, distributive reduplication (also used for plurals and repeated or frequent actions), copies the first CVC of a nominal or verbal stem (129b). The second, diminutive reduplication, also involves prefixation to either nouns or verbs (129c), and has four lexically governed allomorphs: (i) a copy of the first CV of the stem, (ii) a copy of the first stem consonant, followed by [i], (iii) and (iv) either of these prefixes plus a glottal stop. These two reduplicative processes can be combined in either order, rendering different meanings; compare (129d) and (129e). This suggests that multiple reduplication is a serial process, because it is a sequence of two unrelated steps, and reduplicants can occur independently. When the distributive precedes the diminutive, the distributive affix is not its usual shape but is

identical to the diminutive reduplicant, suggesting that the stem in (129e) is derived from the stem in (129c) (Urbanczyk 1999:499). Broselow (1983) argues that this is an effect of subjacency; reduplication copies only material contained in a subjacent cycle.

(129) LUSHOOTSEED

- | | | |
|----|------------|--|
| a | bədá? | ‘child’ |
| b. | bədbədá? | ‘children’ (distributive) |
| c. | bibədá? | ‘small child’ (diminutive) |
| d. | bibədbədá? | ‘dolls, litter [of animals]’ (diminutive-distributive) |
| e. | bibibədá? | ‘small children’ (distributive-diminutive) |

(Broselow 1983:324–25)

In other Salish languages, such as Comox, the order of reduplicative morphemes in doubly reduplicated forms is always diminutive before distributive (Broselow 1983:329), while in the Interior Salishan dialects of Thompson and Shuswap, the distributive prefix consists of CVC not only on a bare stem but also on a diminutivized (CV prefix) noun, and the order is always distributive before diminutive (Broselow 1983:329–34). Papapana is, thus, more similar to these other Salish languages than it is to Lushootseed because the order of the two reduplicants in a habitual construction cannot be reversed.

In Southern Wakashan (SW) languages, there exist “constraints on multiple copies appearing at one level of the grammar, [but] these constraints do not prevent the manifestation of multiple copies arising from separate stem-level and word-level reduplicative requirements” (Stonham 2003:237). Thus, several reduplication-triggering morphemes can appear on a form at the stem-level, but only a single copy surfaces. However, after bracket erasure, a second copy may appear as the result of subsequent, word-level reduplicative processes (Stonham 2003:237). For example, in Tsishaath, a central variety of SW, bases with double reduplications arise only in contexts where there is a mixture of derivational or aspectual reduplication combined with inflectional reduplication, such as the plural or distributive (Stonham 2003:244). Similarly in Kyuquot, a variety of SW, only the CV# distributive and the CVC# iterative reduplicative morphemes can be present at once in a surface stem (Rose 1981), while in Ditidaht, double reduplication only occurs when it involves a mixture of stem-level reduplication with inflectional reduplication (Stonham 1994). Makah, the southernmost variety of the Wakashan family, also allows double reduplication (Davidson 2002), but requires that “one copy arises from a reduplication-triggering suffix at the stem level and that the other arises from a plural morpheme at the word level” (Stonham 2003:248).

The evidence from Wakashan languages could help explain why multiple reduplication cannot occur in constructions that express both imperfective and reciprocal meanings in Papapana: continuous aspect reduplication could be operating at the same level as reciprocal reduplication and there could be constraints blocking multiple copies occurring at the same level. However, continuous and habitual reduplication are both aspectual and, thus, presumably operate at the same level, yet multiple reduplication *is* permitted. This might suggest that multiple reduplication in imperfective aspect constructions is a unitary process after all, akin to Thao triplication, particularly as the meanings are related (whereas in Thao serial reduplication, in Mono-Alu, and in some Salish and Wakashan languages the meanings of the reduplicants are unrelated). However, there is perhaps

more evidence to suggest that Papapana multiple reduplication is serial. Admittedly, just as the Thao distributive reduplicant does not seem to appear independently of the [+human] reduplicant, Papapana habitual reduplicants cannot occur independently of the continuous construction. But it is still arguably a sequence of two steps: the habitual reduplicant applies to an already reduplicated form in the case of Group 2 and 3 verbs, and more importantly, the habitual reduplicant can occur without other reduplication when it applies to Group 1 verbs. It is also perhaps more likely that, as proposed in 8.2.1, Papapana inflectional reduplication is blocked by derivational reduplication (as in Torau), in which case Papapana contrasts with Wakashan languages because it allows multiple copies at the same level, but does not allow multiple copies to occur at both the stem-level and word-level. Certainly, more data on a range of verbs in constructions expressing both reciprocity and continuous aspect are needed to confirm this hypothesis.

9. CONCLUSION. The forms and functions of reduplication in Papapana are fairly typical of Oceanic languages; however, inflectional reduplication displays some features that are highly unusual, including the typologically rare phenomenon of multiple reduplication in imperfective constructions and the optional reduplication of preverbal valency-changing markers instead of the verb in imperfective, prohibitive, and reciprocal constructions.

Reduplication in Papapana is used to express a range of semantic properties. Principally, reduplication expresses augmentation of events (continuous, habitual, and reciprocal), and, in certain cases, of participants. In some derivations, reduplication may express attenuation, while there are limited cases of reduplication expressing intensification. Papapana also uses reduplication in prohibitive constructions, which is more unusual in the world's languages and certainly less iconic. Overall, Papapana follows the universal tendency in reduplicative constructions for augmentation (increased quantity) and intensification (increased degree) to be preferred over diminution (decreased quantity) and attenuation (decreased degree) (Uspensky 1972:70). Furthermore, Kajitani (2005) found that augmentation is cross-linguistically preferred over intensification, and attenuation is preferred over diminution, which is also the case in Papapana. Papapana reduplicants are either monosyllabic or disyllabic, but the choice between the two is generally unpredictable. In derivations (with the exception of augmented dyadic nouns), there is no grammatical, semantic, or phonological motivation for which type of reduplication is employed, though monosyllabic reduplication is more common. In continuous aspect, prohibitive, and reciprocal constructions, the choice between monosyllabic and disyllabic reduplication also seems to be lexically governed rather than determined by the phonology, valency category, or aspectual semantics of the verb. The only inflectional reduplicant that is consistently monosyllabic is the one that marks habitual aspect.

Papapana is unusual because it allows the preverbal comitative applicative *me* to be reduplicated instead of the verb in imperfective constructions, which calls into question the analysis of the reduplicant as an affix or clitic. This intriguing behavior could be argued to reflect the history of *me* as a verb. However, the reciprocal *vei* can be reduplicated instead of the verb in prohibitive and reciprocal constructions. This suggests that the reduplicant is a clitic and not an affix, as is also the case in the NWS language Torau (Palmer 2007). Unlike Torau, though, reduplication in Papapana optionally applies to *me*

or *vei* and does not apply to the verb stem, as verbal prefixes cannot be reduplicated, thus calling into question the position of the reduplicant in the VC. The explanation for this behavior may lie in stress assignment or it may be an idiosyncratic feature of *me* and *vei*.

The most typologically unusual aspect of Papapana reduplication is its use of multiple reduplication of some verbs to make a distinction between continuous and habitual aspect. Multiple reduplication is extremely rare in Oceanic languages, but Papapana does show some similarity to Mokilese, which also uses multiple reduplication to make a distinction between imperfective subtypes (Harrison 1974). For the non-Oceanic Austronesian language Thao, Blust (2001b) makes the distinction between *triplication* and *serial reduplication*. It seems most likely that multiple reduplication in Papapana is serial, because although the two reduplicants express similar meanings (like Thao triplication), it is not a unitary process but a sequence of two steps: the habitual reduplicant applies to the continuous construction, which for Group 2 and 3 verbs involves an already reduplicated verb. Although the habitual reduplicant cannot occur independently of the continuous construction (cf. the fact that the imperfective and pluractionality reduplicants in Mono-Alu can occur independently, as well as together), it can occur without other reduplication when it applies to Group 1 verbs.

Another intriguing feature of Papapana reduplication is the fact that it allows multiple reduplication in imperfective aspect constructions, but not in constructions expressing both imperfective aspect and reciprocity. It could be argued that continuous aspect reduplication is operating at the same level as reciprocal reduplication and that there are constraints blocking multiple copies occurring at the same level, as in Wakashan languages. However, this is at odds with the cooccurrence of continuous and habitual reduplicants, which are both aspectual and, thus, presumably operate at the same level. This might suggest that Papapana multiple reduplication is a unitary process, but as already argued, there is more evidence to suggest it is serial. Instead, it appears most probable that Papapana inflectional reduplication is blocked by derivational reduplication, as in Torau.

Further data on reduplication in Papapana and related languages may help to confirm these hypotheses concerning the status of reduplicants as affixes or clitics, and the nature of and conditions for multiple reduplication in Papapana. It is clear, though, that Papapana is highly unusual cross-linguistically in allowing a preverbal element to be reduplicated instead of the verb, and in allowing multiple reduplication. The description presented here not only raises intriguing theoretical questions about the analysis of Papapana reduplication, but of reduplication cross-linguistically.

REFERENCES

- Blevins, Juliette. 1995. The syllable in phonological theory. In *The handbook of phonological theory*, ed. by John A. Goldsmith, 206–44. Oxford: Blackwell.
- Blust, Robert. 1998. Ca- reduplication and Proto-Austronesian grammar. *Oceanic Linguistics* 37:29–64.
- . 2001a. Reduplicated colour terms in Oceanic languages. In *The boy from Bundaberg: Studies in Melanesian linguistics in honour of Tom Dutton*, ed. by Andrew Pawley, Malcolm Ross, and Darrell Tryon, 23–49. Canberra: Pacific Linguistics.

- . 2001b. Thao triplication. *Oceanic Linguistics* 40:324–35.
- Broselow, Ellen I. 1983. Salish double reduplications: Subjacency in morphology. *Natural Language and Linguistic Theory* 1(3):317–46.
- Chambers, Mary. 2009. Which way is up? Motion verbs and paths of motion in Kubokota, an Austronesian language of the Solomon Islands. PhD thesis, School of Oriental and African Studies, University of London.
- Chang, M. Laura. 1998. Thao reduplication. *Oceanic Linguistics* 37:277–97.
- Chung, Sandra. 2003. The syntax and prosody of weak pronouns in Chamorro. *Linguistic Inquiry* 34:547–99.
- Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.
- Comrie, Bernard, Martin Haspelmath, and Balthasar Bickel. 2008. *The Leipzig glossing rules: Conventions for interlinear morpheme-by-morpheme glosses*. Leipzig: Max Planck Institute for Evolutionary Anthropology/University of Leipzig.
- Corston-Oliver, Simon. 2002. Roviana. In *The Oceanic languages*, ed. by John Lynch, Malcolm Ross, and Terry Crowley, 467–97. Richmond: Curzon Press.
- Davidson, Matthew. 2002. Studies in Southern Walmshān (Nootlīm) grammar. PhD diss., State University of New York at Buffalo.
- Davis, Karen. 2003. *A grammar of the Hoava language, Western Solomons*. Canberra: Pacific Linguistics.
- Durie, Mark. 1988. Verb serialization and “verbal-prepositions” in Oceanic languages. *Oceanic Linguistics* 27:1–23.
- Early, Robert. 1993. Nuclear layer serialization in Lewo. *Oceanic Linguistics* 32:65–93.
- Frowein, Fridel Martin. 2011. A grammar of Siar: An Oceanic language of New Ireland Province, Papua New Guinea. PhD thesis, La Trobe University.
- Harrison, Sheldon P. 1974. Reduplication in Micronesian languages. *Oceanic Linguistics* 12:407–54.
- Kahn, Daniel. 1976. Syllable-based generalizations in English phonology. PhD diss., MIT. (Distributed by Indiana University Linguistics Club.)
- Kajitani, Motomi. 2005. Semantic properties of reduplication among the world’s languages. *LSO Working Papers in Linguistics*, 5: *Proceedings of WIGL 2005*, 93–106.
- Lincoln, Peter C. 1976. Describing Banoni, an Austronesian language of southeast Bougainville. PhD diss., University of Hawai‘i.
- Lynch, John, and Malcolm Ross. 2002. Banoni. In *The Oceanic languages*, ed. by John Lynch, Malcolm Ross, and Terry Crowley, 440–55. Richmond: Curzon Press.
- Lynch, John, Malcolm Ross, and Terry Crowley. 2002. *The Oceanic languages*. Richmond: Curzon Press.
- Moravcsik, Edith. 1978. Reduplicative constructions. In *Universals of human language*, vol. 3: *Word structure*, ed. by Charles A. Ferguson and Edith A. Moravcsik, 297–334. Stanford, CA: Stanford University Press.
- Mosel, Ulrike, and Yvonne Thiesen. 2007. The Teop sketch grammar. [Retrieved May 17, 2011, from http://www.linguistik.uni-kiel.de/Teop_Sketch_Grammar_May07.pdf.]
- Næss, Åshild, and Even Hovdhaugen. 2011. *A grammar of Vaeakau-Taumako*. Berlin/Boston: De Gruyter Mouton.
- Palmer, Bill. 2007. Imperfective aspect and the interplay of aspect, tense, and modality in Torau. *Oceanic Linguistics* 46:499–519.
- . 2009a. *Kokota grammar*. Honolulu: University of Hawai‘i Press.
- . 2009b. Non-morphological reduplication in Torau. Paper presented at the Conference on the Morphology of the World’s Languages, University of Leipzig.
- . 2011. Subject-indexing and possessive morphology in Northwest Solomonic. *Linguistics* 49(4):685–747.
- Palmer, Frank R. 2001. *Mood and modality*. 2nd ed. Cambridge: Cambridge University Press.

- Pawley, Andrew. 1973. Some problems in Proto-Oceanic grammar. *Oceanic Linguistics* 12:103–88.
- Payne, Thomas E. 1997. *Describing morphosyntax: A guide for field linguists*. Cambridge: Cambridge University Press.
- Rose, Suzanne M. 1981. *Kyuquot grammar*. PhD diss., University of Victoria.
- Ross, Malcolm. 1988. *Proto Oceanic and the Austronesian languages of Western Melanesia*. Canberra: Pacific Linguistics.
- Rothstein, Susan. 2004. *Structuring events: A study in the semantics of aspect*, vol. 5. Oxford: Blackwell Publishing Ltd.
- Rubino, Carl. 2005. Reduplication: Form, function and distribution. In *Studies on reduplication*, ed. by Bernhard Hurch, 11–29. Berlin/New York: Mouton de Gruyter.
- Stonham, John. 1994. *Combinatorial morphology*. Amsterdam: John Benjamins.
- . 2003. Southern Wakashan double reduplication. *University of British Columbia Working Papers in Linguistics* 11, 237–51.
- Timberlake, Alan. 2007. Aspect, tense, mood. In *Language typology and syntactic description*, vol. 3: *Grammatical categories and the lexicon*, 2nd ed., ed. by Tim Shopen, 280–333. Cambridge: Cambridge University Press.
- Urbanczyk, Suzanne. 1999. Double reduplications in parallel. In *The prosody-morphology interface*, ed. by René Kager, Harry van der Hulst, and Wim Zonneveld, 390–428. Cambridge: Cambridge University Press.
- Uspensky, B. A. 1972. Subsystems in language, their interrelations and their correlated universals. *Linguistics: An International Review* 88:53–71.
- van Eijk, Jan P. 1990. VC Reduplication in Salish. *Anthropological Linguistics* 32(3/4):228–62.
- Vendler, Zeno. 1957. Verbs and times. *Philosophical Review* 66:143–60.