

Reduplication in Tondano and Tonsawang

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This paper is intended as a contribution to the typology of reduplication processes in Austronesian languages. It describes syllable structure, phonotactics, and reduplication in two indigenous Minahasan languages of North Sulawesi; *Tondano* and *Tonsawang*. Both languages exhibit reduplicative prefixes with a range of functions. While this morphology is broadly categorised as monosyllabic and bisyllabic, within these categories considerable alternations exist, conditioned by root structure and by the presence of non-reduplicative morphology. While reduplication processes are comparable in the two languages, variation is also observed. Furthermore, although the reduplication patterns generally mirror common Austronesian typological traits, both languages lack one of the frequently-attested functions of monosyllabic reduplication and display expanded productivity in another.

1. Introduction¹

Reduplication is one of the most pervasive morphophonological processes found in Austronesian (AN) languages (Blust 2013:406). While mentions of this process in grammatical descriptions of AN languages are not uncommon, it is less common to find literature devoted solely to this phenomenon. Exceptions are the earlier studies of Blake (1917), Gonda (1950), and Naylor (1986), and more recently those of Kiyomi (1995), Chang (1998), Adelaar (2000), Lee (2009), and Mattes (2014).

The information presented in this paper is primarily descriptive and will demonstrate that the Tondano (ISO 639-3:TDN) and Tonsawang (ISO 639-3:TNW) languages contain multiple productive reduplication processes which involve partial and non-exact copying of material from root words. This copied material is realised as a prefix which takes a fixed position to the left of, and adjacent to, the host.

In terms of what precisely constitutes reduplication, the definition used in this paper adheres to that of Crystal (2008:408), Kroeger (2005:309), Mattes (2014:32–33), Rubino (2004), and Gil (2005) to describe a situation in which additional morphological

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material is attached to a root resulting in a derived morphologically-complex word. The form of the copied material (labeled here as the ‘reduplicant’) is dependent to a large degree upon the form of the root, with the reduplicant most frequently being a partial copy. Two phenomena which are not included in this study are those characterised as ‘syntactic repetition’² and ‘lexical’ or ‘non-productive’ reduplication.³

For the most part, the forms and functions of reduplication in TDN and TNW adhere to the patterns which are widespread in AN languages. The predominant CV- structure of monosyllabic reduplication together with its role of deriving instrumental nouns points to a reflex of the *Ca- prefix reconstructed for Proto-Austronesian (PAN) (Blust 1998:47). A secondary role of encoding potential, desired, or future events also corresponds to a proposed function of CV- reduplication in PAN (Blust 1998:35, 2013:396). Nonetheless, an examination of the TDN and TNW data indicates that the languages diverge from expected patterns in multiple ways. Firstly, CV- reduplicants are not utilised to derive complex numerals, a common role in AN languages (Himmelman 2005:122) that is also assignable to PAN *Ca- (Blust 1998:30). Furthermore, both display an expanded range of nominalisation functions which involves combining reduplicants with verbal (voice marking) suffixes. With respect to bisyllabic reduplication, both languages demonstrate the frequently-attested AN bisyllabic prefix with an obligatory open final syllable (Himmelman 2005:123). The function of this reduplicant, that of encoding situations which are ongoing and have no identifiable endpoint (imperfective aspect), is arguably more iconic than that observed for monosyllabic reduplication and is one which is again not uncommon in AN languages.

The remainder of this paper provides background and typological information before outlining the form and function of reduplication processes in TDN and TNW. The subsequent sections are arranged as follows: Section 2 details the geography and linguistic classification of the TDN and TNW speech communities. It also briefly touches on linguistic vitality before outlining the data corpora used for this study. In Section 3 phonology, syllable structure, and phonotactics are summarised. The different categories of TDN reduplication are then outlined in Section 4, while those for TNW are detailed in Section 5. Section 6 concludes the paper by summarising the reduplication processes, highlighting the differences between the two languages and how they diverge from attested AN typology, and identifying any remaining issues for future research.

2. Background information

The primary locations of the TDN and TNW speech communities are summarised in §2.1 together with the genetic lineage and linguistic vitality of the languages. §2.2 provides information on the data corpora used for this study.

² As a broad definition, syntactic repetition operates across words and within the domains of syntax and discourse, for example as observed in the English clause *A very very very tall man*. Reduplication, in contrast, occurs word internally and therefore operates at a morphological level. See Gil (2005) and Stolz (2007) for further discussion on the differences between reduplication and syntactic repetition.

³ This term describes words which appear to contain repetitions of syllables but for which there is no corresponding simplex form. In the two Minahasan languages the words *po'po* ‘coconut’ (TDN) and *lolo* ‘pull.out’ (TNW) are examples of this phenomenon.

2.1 Geography and genetic lineage

There are a total of ten languages spoken in North Sulawesi: the language of wider communication, the creole Manado Malay (ISO 639-3:XMM), in addition to nine indigenous languages from three micro-groups: Minahasan (five), Sangiric (three), and Gorontalo-Mongondow (one). TDN and TNW are classified as belonging to the Minahasan micro-group, one of eleven in Sulawesi. All Sulawesi micro-groups are lower-order groups of the Western Malayo-Polynesian (WMP) linkage of Austronesian⁴. The existence of a Minahasan micro-group and the placement of the five languages within it is the result of the lexico-statistical studies of Sneddon (1975, 1978). Sneddon's hypothesis has TNW as a direct descendant of the proto-language. The other four languages are classified into the 'North Minahasan' (*Tontemboan* – ISO 639-3:TNT) and 'Northeast Minahasan' (*Tondano*, *Tombulu* – ISO 639-3:TOM, and *Tonsea* – ISO 639-3:TSE) branches.⁵

The TDN and TNW speech communities are historically situated on the Minahasan peninsula in the northernmost tip of the island of Sulawesi, Indonesia.⁶ The location of the province of North Sulawesi (expanded in the top left corner) within the Indonesian archipelago is displayed in Figure 1.

TDN speaking communities are found in settlements within the *kabupaten Minahasa* 'Minahasa district' clustered around Lake Tondano and in and around the town of the same name. Smaller speech communities are also found in villages in an area that stretches eastwards from the lake towards the east coast.

The smaller and traditionally more isolated TNW community is located to the southwest of the TDN speech area. At this time TNW community members are the largest proportion of inhabitants of the *kabupaten Minahasa Tenggara* 'Southeast Minahasa district', which also includes speakers of the highly-endangered (non-Minahasan) *Ponosakan* and *Ratahan* languages. The greatest concentration of people who self-identify as Tonsawang is seemingly found in the larger town of Tombatu. Speech community members also reside in smaller villages located to the east, south, southwest, west, and northwest of Tombatu. Figure 2 illustrates the approximate divisions of various ethnic and linguistic groups of North Sulawesi.

⁴ It should be noted that defining WMP as a primary branch of Malayo-Polynesian is problematic due to a lack of clearly identifiable shared traits (Adelaar 2005:14; Blust 2013:31). In contrast, the placement of the Minahasan, Sangiric, and Gorontalo-Mongondow micro-groups within the Philippine and Greater Central Philippine groups of WMP is well established, as detailed in Blust (1991, 2013:82, 740), Zorc (1986), and Ross (1995).

⁵ The cognate percentages on which this grouping is based are highest for TDN, TOM, and TSE in the Northeast branch, at between sixty-nine and seventy-three percent. These three languages share percentages of between fifty-eight and sixty-one percent with TNT and between forty-one and forty-four percent with TSW.

⁶ Additional background information on both the TDN and TNW speech communities is found in Brickell (2015, 2018).



Figure 1. North Sulawesi, Indonesia (Google Maps 2019a)



Figure 2. Approximate ethnic and linguistic divisions of North Sulawesi (Google Maps 2019b)

The TDN and TNW speech communities are both undergoing continued and long-term shift to Manado Malay (Mead 2013; Brickell 2015, 2018) which has a long history as a *lingua franca* in the region. Language shift is well entrenched and is affecting all Minahasan languages, a situation which is also transpiring in numerous other languages throughout Sulawesi (Mead 2013). Any remaining fluent TDN and TNW speakers are almost invariably elderly and are more likely to be found outside the largest towns of Tondano and Tombatu. In addition to this dwindling pool of speakers, a break in inter-generational transmission is clearly evident, thereby reducing the opportunity for language maintenance. Unfortunately, the outlook for the future linguistic vitality of both languages is bleak.

2.2 The data corpora

The data used for this examination combine naturalistic recordings, elicitation, field notes, and material from two dictionaries (Dotulong 2010 and Kalangi 2012). The naturalistic and elicited examples are taken from digital audio and video recordings which were collected, annotated, and analysed between 2011–2018 in collaboration with native speakers. Both corpora are open-access archived online.⁷ These data document various types of communicative events – monologues, dialogues, songs, and narratives of specially-created elicitation videos. They cover a range of topics, for example: family, village, or regional history, folk tales, creation myths, proverbs, marriage and death rituals, traditional food preparation, and agricultural practices.

Throughout the remainder of this paper examples taken from the digital corpora are referenced with a metadata code and timestamp. All root words which are cited in this study occur in both naturalistic and non-naturalistic data. A small proportion of examples of derived lexical items are taken from field notes or from entries in one of the two dictionaries.

3. Typological information

This section summarises TDN and TNW phonology, syllable structure, and phonotactics. There is a high degree of similarity between the languages and the greatest divergence is found with regard to phonotactic patterns. This description is based principally on an auditory analysis of data. Spectrographic analysis was reserved for when auditory analysis was insufficient for identifying features. The phoneme inventories presented here concur to a large degree with those identified by Sneddon (1975, 1978), with two exceptions. Firstly, the absence of a velar fricative /ɣ/ in TDN, which instead contains a highly unstable velar approximant /w/ (Brickell 2015:26). And secondly, the absence of a voiceless dental affricate in TNW.

⁷ The ELAN-annotated TDN monologue recordings are found in Brickell (2016a). The annotation of TDN dialogue recordings is ongoing. The ELAN-annotated data contained in the TNW corpus are available in Brickell (2016b). The analysis of the TNW data is continuing and the description of TNW morphosyntax presented here comes with the caveat that it is somewhat preliminary in nature.

3.1 Phoneme inventories

The TDN phoneme inventory contains a total of twenty consonants.⁸ Seven of these are plosives: the glottal /ʔ/ and the voiceless/voiced pairs /p/ and /b/, /t/ and /d/, and /k/ and /g/. Further to these are the liquids /r/ and /l/, the fricative /s/, the glides /w/, /j/, and /ɥ/, and the nasals /m/, /n/, and /ŋ/. There are also four phonemes restricted to loan words: the fricatives /f/ and /h/ and the affricates /dʒ/ and /tʃ/. The TDN vowel inventory comprises six vowels: the high and low-mid front /i/ and /ɛ/, the high and high-mid back /u/ and /o/, the low front /a/, and the mid central schwa /ə/.

The TNW inventory has nineteen consonant phonemes of which three, the fricative /f/ and the affricates /dʒ/ and /tʃ/, occur only in loan words. Fifteen of the consonants mirror those in TDN - the seven plosives, the three nasals, the fricative /s/, the glides /w/ and /j/, and the liquids /r/ and /l/. TNW lacks the velar approximant /ɥ/ but has an additional fricative /h/. The vowel phonemes are identical to those of TDN.

3.2 Phonotactics and syllable structure

Syllables in both languages consist of an obligatory vowel nucleus, an optional onset, and an optional coda, i.e. (C)V(C). The most common structure is arguably CV. Vowel-only syllables are less frequent and are limited to word-initial and word-medial positions. In addition to the (C)V(C) structure, a more complex structure of CCV(C), or more precisely NCV(N), is possible in word-initial syllables. These complex onsets are the result of a homorganic nasal assimilation process.⁹ The most complex possible structure, NCVN, arises only if the nasal coda is followed by a syllable with an onset at the same place of articulation, e.g. *ngkèn.tur* ‘mountain’ (TDN) or *nsam.bèy* ‘rope’ (TNW).

Both languages demonstrate similar patterns as regards syllable sequences. Roots are minimally monosyllabic and frequently bi- or trisyllabic. In TDN, roots containing up to five syllables and complex words of up to ten syllables have been observed. Table 1 provides a list of lexical items which exemplify TDN syllable structure and sequences.

⁸ In this paper the following orthographic conventions are used: /g/ is written as <g>, /ʔ/ as <'>, /j/ as <y>, /dʒ/ as <j>, /tʃ/ as <c>, /ɥ/ as <gh>, /ə/ as <e>, and /ɛ/ as <è>. Additionally, <ɾ> is used to represent both the alveolar trill /r/ and the allophonic variant (a retroflexed lateral flap) of /l/.

⁹ In this process obstruents follow nasals at each of the three places of articulation – bilabial, alveolar, and velar. Thus, /p/ and /b/ follow /m/, /t/ and /d/ follow /n/, and /s/ follows /ŋ/. In TDN the homorganic nasal functions as both a non-obligatory phrase marker and a personal pronominal (Brickell 2015). The function of the nasal in TNW is still to be described.

Table 1. Tondano syllable sequences

Word	Syllable structure	Gloss
sa	CV	‘if’
a.su	V.CV	‘dog’
e.ros	V.CVC	‘descend’
ka.sa	CV.CV	‘very’
se.pun	CV.CVC	‘nose’
wa.lo.long	CV.CV.CVC	‘wave’
su.men.dot	CV.CVC.CVC	‘moon’
lu.mi.mu.’ut	CV.CV.CV.CVC	Proper noun
pe.se.si.wo.an	CV.CV.CV.CV.CV	‘will be made’
ma.sa.ra.tu.san	CV.CV.CV.CV.CVC	‘chant to each other’
mi.na.ting.ka.ting.ka.sow	CV.CV.CVC.CV.CVC.CV.CVC	‘had been running’

Any TDN consonant may function as a syllable onset and any consonant with the exception of /b/, /d/, /g/, and /ɥ/ may function as a coda. However, the function of /b/ and /d/ as onsets is restricted if the syllable is word initial.¹⁰ Further to this, in initial and penultimate syllables consonants which function as coda are limited to nasals or glottal plosives within word-medial consonant clusters. With respect to word-level distribution, all consonants except /ʔ/ occur word initially, all consonants occur word medially, and all, except /b/, /d/, /g/, and /ɥ/, occur word finally. With the exception of /ə/, which does not occur word finally, all vowel phonemes occur word initially, word medially, and word finally.

Consonant clusters in TDN are limited to sequences of two. These occur in one word-initial and two word-medial environments, as demonstrated in Table 2.

In word-initial position nasal plus obstruent clusters occur. These clusters are intra-syllabic but cross morpheme boundaries. These clusters are also present word medially. However, unlike the word-initial clusters they are intra-morphemic, inter-syllabic, and do not result from assimilation. The second word-medial cluster is intra-morphemic and involves a glottal plosive preceding either a voiceless plosive, the fricative /s/, or one of the liquids /r/ and /l/. In terms of vowel sequences, all vowels occur in sequence except /ə/. Vowel sequences, especially word medially, are dispreferred and are often broken up by non-phonemic glides. Sequences of identical vowels are realised as a single long vowel.

¹⁰ /b/ and /d/ occur as part of the /mb/ and /nd/ word-initial consonant clusters. In this environment they represent allophonic variants of /w/ and /r/. In some instances the preceding nasal is not realised, thereby leaving /b/ and /d/ as word initial. The loss of initial nasals is potentially due to a preference for non-complex onsets – see Sneddon (1975:203–204) or Brickell (2015) for further information.

Table 2. Tondano consonant clusters

Cluster	Word	Syllable structure	Gloss
Word initial:			
mp	mpè.rèt	CCV.CVC	‘bat’
mb	mbu.sa	CCV.CV	‘pineapple’
nt	nta.sik	CCV.CVC	‘sea’
nd	nda.no	CCV.CV	‘water’
ngk	ngkèn.tur	CCVC.CVC	‘mountain’
ns	nse.’ut	CCV.CVC	‘banana’
Word medial:			
mp	em.pung	CV.CVC	‘God’
mb	ram.ba’	CVC.CVC	‘stamp feet’
nt	en.tè’	VC.CVC	‘strong’
nd	kèn.dong	CVC.CVC	‘spin rope’
ngk	long.kot	CVC.CVC	‘climb up’
ns	lan.su.na	CVC.CV.CV	‘onion’
Word medial:			
’p	po’.po’	CVC.CVC	‘coconut’
’k	kè’.ket	CVC.CVC	‘gnaw’
’t	to’.tok	CVC.CVC	‘hack’
’s	so’.sop	CVC.CVC	‘fish scale’
’r	ro’.rok	CVC.CVC	‘all at once’
’l	li’.lip	CVC.CVC	‘swim’

In TNW, roots containing up to five syllables and derived words of up to eight syllables are attested. TNW syllable structure and sequences are illustrated in Table 3.

Table 3. Tonsawang syllable sequences

Word	Syllable structure	Gloss
bo	CV	‘and’
a.li	V.CV	‘bring’
e.tung	V.CVC	‘ascend’
dè.lè	CV.CV	‘palm leaf rib’
sa.bel	CV.CVC	‘machete’
so.pu.lut	CV.CV.CVC	‘vegetable pancake’
so.lom.bud	CV.CVC.CVC	‘flower’
ka.wi.la.rang	CV.CV.CV.CVC	Proper noun
su.me.ngi.tem	CV.CV.CV.CVC	‘will grill s.t.’
pi.na.tan.doy	CV.CV.CVC.CVC	‘had supported s.t.’
i.ma.tè.rè.wa’	V.CV.CV.CV.CVC	‘had sermonised’
pi.na.ti.wu.ti.wu.’en	CV.CV.CV.CV.CV.CV.CVC	‘was being plucked’

All TNW consonant phonemes may function as syllable onset or coda. Nonetheless, in certain environments the presence of /w/, /r/, and /h/ as onsets is conditioned by the features of preceding segments.¹¹ An additional restriction is that /p/ and /k/ are prohibited as codas in word-final syllables. As with TDN, in initial and penultimate syllables nasals and glottal plosives only function as coda when they are part of word-medial consonant clusters (see Table 4). At word level, all consonants except /ʔ/ occur word initially, all consonants occur word medially, and in word-final position the only consonants which do not occur are /p/ and /k/. As regards vowel distribution, with the exception of /ə/, which does not occur word finally, all vowel phonemes occur in all positions within the word.

Table 4 demonstrates sequences of consonants in TNW. These are restricted to two consonants and occur word initially and word medially. In one word-initial and one word-medial environment these clusters comprise a nasal followed by an obstruent. However, in both these environments only voiced plosives and the fricative /s/ may follow the nasal. The second category of word-medial cluster contains a glottal plosive followed by either another voiceless plosive, a nasal, or the voiceless fricative /s/. Vowel sequences and distribution patterns match those found in TDN.

¹¹ This is due to the change process which sees the plosives /p/ or /b/ → /w/, /d/ → /r/, and /k/ or /g/ → /h/ when following a vowel, either within words or across word boundaries. Further explanation of this process is found in Sneddon (1978:56).

Table 4. Tonsawang consonant clusters

Cluster	Word	Syllable structure	Gloss
Word initial:			
mb	mba.'èl	CCV.CVC	'sago flour'
nd	ndo.'ong	CCV.CVC	'residential area'
ngg	ngga.hit	CCV.CVC	'raft'
ns	nsa.li.ma.ta'	CCV.CV.CV.CVC	'lemongrass'
Word medial:			
mb	sam.bèy	CVC.CVC	'rope'
nd	kin.dèt	CVC.CVC	'solidify'
ngg	gong.gor	CVC.CVC	'make sound'
ns	ton.sa.wang	CVC.CV.CVC	Proper noun
Word medial:			
'p	ta'.pi.ya	CVC.CV.CV	'wicked'
'k	ko'.ko	CVC.CV	'chicken'
't	po'.ta	CVC.CV	'friend'
'm	mè'.mè	CVC.CV	'shatter'
'n	do'.na	CVC.CV	'be able'
'ng	ngè'.ngè	CVC.CV	'small pipe'
's	su'.su	CVC.CV	'pry out'

4. Tondano reduplication processes

The structure of TDN monosyllabic (§4.1) and bisyllabic (§4.2) reduplicants is summarised as CV-, VC-, and (C)V(C)CV-. The exact structure of these prefixes, and any alternations to the basic patterns, is conditioned by root structure or by the presence of other affixes. With respect to hosts, with one exception monosyllabic reduplicants attach directly to roots, while bisyllabic reduplicants only attach to words which consist of a root together with other bound elements.

In terms of function, monosyllabic reduplication expresses multiple categories of nominalisation and one mood category (irrealis). Bisyllabic reduplication has the single function of encoding imperfective aspect.

4.1 Monosyllabic reduplication

The TDN monosyllabic reduplicant comprises a consonant which matches the initial consonant of the root in addition to a schwa vowel, yielding a Ce- structure,¹² for example *wolè* ‘row’ → *we-wolè* ‘oar’ or *kunting* ‘clip’ → *ke-kunting* ‘clippers’. On vowel-initial roots monosyllabic reduplication produces VC- reduplicants which consist of a copy of the initial vowel together with a glottal plosive,¹³ for example *urè* ‘expel’ → *u’urè* ‘repellent’ or *iwu* ‘slice’ → *i’iwu* ‘cleaver’.

As a nominaliser, Ce- reduplication changes both lexical category and syntactic function. It allows a root which ordinarily functions as the head of a verbal predicate to instead have a nominal function, for example as the head of an NP which is a clausal argument or a complement of a preposition. There are three sub-categories of nominalisation: *instrumental*, *objective*, and *locative*, as per the definitions in Comrie & Thompson (2007:334). Two of these require the Ce- prefix to occur in combination with another affix.

With instrumental nominalisation, a root word which normally hosts verbal morphology and expresses an action, event, or state of affairs, instead functions as a complex noun referring to an inanimate entity that assists in bringing about the situation described by the root. Examples of instrumental nouns and reduplicant syllable structure on roots of up to three syllables are listed in Table 5.

Table 5. Tondano instrumental nominalisation

Root	Gloss	Prefix	Instrumental noun	Gloss
wo.lè	‘row’	CV-	we.wo.lè	‘oar’
wou	‘smell’	CV-	we.wou	‘perfume’
tu.dè’	‘stab’	CV-	te.tu.dè’	‘skewer’
kun.ting	‘clip’	CV-	ke.kun.ting	‘clippers’
ti’.tik	‘filter’	CV-	te.ti’.tik	‘sieve’
to.’o.men	‘grind’	CV-	te.to.’o.men	‘grinder’
u.rè	‘expel’	VC-	u.’u.rè	‘repellent’
i.wu	‘slice’	VC-	i.’i.wu	‘cleaver’
è.rèt	‘tie.waist’	VC-	è.’è.rèt	‘belt’
e.rur	‘collect’	VC-	e.’e.rur	‘net’

The changes to lexical category and syntactic function resulting from Ce- reduplication encoding instrumental nominalisation are demonstrated by examples (1)–(2), both of which contain the root *turu* ‘teach’.

¹² The derivation of Ce- ← *Ca- is explained as a result of the historical merger of *a and *e in languages of the southern Philippines, Borneo (Blust 1998:44, 2013:653) and, it seems, North Sulawesi.

¹³ A major conditioning factor for this alternation would appear to be that it assists in maintaining preferred phonotactic patterns by keeping a CV syllable structure.

- (1) *sitoro* *maturumi* *lalan wia nikita*
 si=toro ma-turu'=mi lalan wia nikita
 3SG.NOM=can AV.DYN-teach=DIR.DIST road PREP 1PL.INCL
 'He can teach the way to us' (TDN_30_OJ_15102012_00:04:18)
- (2) *wo sèa toro lumingala,* *nteturu'* *nètua*
 wo sèa toro l<um>inga=la N=Ce-turu' nè=tua
 and 3PL can <AV>listen=DIR.PROX INAN=NMLZ-teach AN.PL.GEN=old
 'And they can listen to the teachings of the elders' (TDN_30_OJ_15102012_00:04:18)

The second category of nominalisation, objective nominalisation, involves the Ce-reduplicant co-occurring with the PATIENT voice suffix *-en*.¹⁴ The complex word which is formed when a root hosts these two affixes¹⁵ refers to an inanimate or abstract object which is connected to the situation expressed by the root. Table 6 provides examples of objective nominalisation on roots of up to three syllables.

Table 6. Tondano objective nominalisation

Root	Gloss	Prefix/Suffix	Objective noun	Gloss
kaan	'eat'	CV- / -en	ke.kaa.nen	'food'
sa.ni	'advise'	CV- / -en	se.sa.ni.en	'advice'
sa.wel	'replace'	CV- / -en	se.sa.we.len	'replacement'
ta.nem	'cultivate'	CV- / -en	te.ta.ne.men	'crop'
kan.tar	'sing'	CV- / -en	ke.kan.ta.ren	'song'
pa.'a.yang	'work'	CV- / -en	pe.pa.'a.ya.ngen	'job'
a.sar	'narrate'	VC- / -en	a.'a.sa.ren	'folk tale'

Examples (3)–(4) illustrate the use of the root *pa'ayang* 'work' in both a verbal and an objective nominalised function.

- (3) *kèiminapa'ayang* *numa*
 kèy=m<in>a-pa'ayang N=uma
 1PL.EXCL.NOM=AV.DYN<PST>-work INAN=field
 'We worked the fields' (Mapalus_00:06:09)

¹⁴ As a language with multiple structural features of the so-called 'Philippine-type', TDN and TNW exhibit four morphologically-encoded voice alternations: ACTOR <um>, PATIENT *-en*, LOCATIVE *-an*, and CONVEYANCE *i-*. For additional information see Sneddon (1975, 1978) and Brickell (2015).

¹⁵ This combination of affixes is not analysed as a circumfix due to the fact that both affixes also occur in isolation. Additionally, the meaning of the complex form is entirely predictable from the meaning of each separate morpheme.

Within the derived verb the reduplicant always occurs rightward adjacent to *ma-* or *pa-* and leftward adjacent to the root.

The form of both the reduplicant and the verbal prefix preceding it may vary depending upon the root-initial segment. When hosted by consonant-initial roots, the vowel segment of *ma-* and *pa-* mirrors that of the reduplicant, yielding the forms *me-* and *pe-*. When a root is vowel initial the reduplicant is instead realised as a glottal plosive. In effect, this produces a C- prefix which contains no material copied from the root. This deviation in structure is arguably best explained as a tactic to maintain preferred phonotactic patterns. The C- prefix avoids vowel sequences or vowel-only syllables in word-medial positions, both of which would result from a VC- prefix. To exemplify, a VC- reduplicative prefix on the derived verb *ma.i.wu* (AV.DYN-slice) results in **ma.i'.i.wu* (CV.VC.V.CV). In contrast, the presence of the glottal C- prefix produces the more acceptable structure of *ma.'i.wu* (CV.CV.CV). Table 8 contains examples of monosyllabic reduplication on derived verbs which contain consonant-initial (rows 1–5) and vowel-initial (rows 6–9) roots.¹⁷

Table 8. Tondano irrealis marking

Root	Gloss	Prefixes	Derived verb
loo'	'look'	ma- / Ce-	me.le.loo'
si.wo	'do'	ma- / Ce-	me.se.si.wo
se.wok	'mix'	ma- / Ce-	me.se.se.wok
kan.tar	'sing'	ma- / Ce-	me.ke.kan.tar
sa.ra.tus	'chant'	ma- / Ce-	me.se.sa.ra.tus
è.do	'take'	ma- / C-	ma.'è.do
e.rur	'collect'	ma- / C-	ma.'e.rur
i.wu	'slice'	ma- / C-	ma.'i.wu
un.tep	'enter.church'	ma- / C-	ma.'un.tep

The mood distinction between derived verbs containing monosyllabic reduplication and those which do not is demonstrated by examples (7)–(8). In the former, the event occurs at the time of utterance, while in the latter the event has not yet begun, but is expected to occur shortly thereafter.

- (7) *pasiwon* *entangga*
 pa-siwo-en N=tangga
 DYN-do-PV INAN=ladder
 '(He) makes the ladder'

(Gulamera_00:00:09)

expresses events which are dynamic and involve a fully volitional actor participant. Languages in the western geographical sphere of the AN family commonly encode DYNAMIC versus so-called POTENTIVE and STATIVE events in this manner (Himmelmann 2005:165–166).

¹⁷ While these examples are all marked for ACTOR voice, the same structural patterns hold for derived verbs which are marked with any one of the three UNDERGOER voices.

(8) <i>tèakan</i>	<i>pesesiwonou</i>	<i>napi'</i>	
tarèkan	pa-Ce-siwo-en=mow	N=api'	
now	DYN-IRR-do-PV=CMP	INAN=fire	
‘Now (I) will make the fire’			(TDN_33_KK_16052013_00:00:03)

4.2 Bisyllabic reduplication

The precise structure of TDN bisyllabic reduplicants is dependent upon the structure of the first two syllables of the root. Deviations to the basic (C)V(C)CV- structure occur if the root is monosyllabic or if one of two non-reduplicative affixes are present. Any final consonant segment of the second syllable of the root is never copied.

With respect to roots which are minimally bisyllabic, there are four possible reduplicant structures: V.CV-, VC.CV-, CV.CV-, and CVC.CV-.¹⁸ On vowel-initial roots with open initial syllables, i.e. a minimally V.CV or V.CVC structure, the reduplicant form is V.CV-. Vowel-initial roots with closed initial syllables, i.e. a minimally VC.CV or VC.CVC structure, instead host a VC.CV- reduplicant. Consonant-initial roots produce reduplicants with either a CV.CV- or CVC.CV- structure. A CV.CV or CV.CVC root produces a CV.CV- prefix, while a CVC.CV or CVC.CVC root yields CVC.CV-. Roots with a vowel-only second syllable, i.e. CV(C).V, which undergo reduplication are not observed in the data set.

In addition to the patterns observed for minimally bisyllabic roots, on monosyllabic (CVC) roots a monosyllabic CV- reduplicant is attested. Examples of all alternations in bisyllabic reduplicant structure are outlined in Table 9.

The forms in the rightmost column of Table 9 are slightly misleading due to the fact that bisyllabic reduplication overwhelmingly occurs in combination with other verbal morphology, in particular non-reduplicative prefixes and infixes. The interaction between these two sets of affixes results in a number of alternations to reduplicant structure.

There are three monosyllabic infixes in TDN: <um> (AV), <in> (PST), and <im> (AV.PST), all of which take a position directly following the root-initial consonant.¹⁹ In previous literature (Sneddon 1975:214, 1978:99) these infixes are ostensibly attested as occurring within reduplicated material,²⁰ again directly following the initial segment. If correct, this combination would yield the following complex verbs from the roots in Table 9: *k<um>oo-koo'*, *s<um>iwo-siwo*, *t<um>oko-tokol*, *l<um>ansa-lansa*, and *t<um>ingka-tingkas*. However, while this type of reduplicant structure is attested in other AN languages (Blust 2013:420), including TNW (see §5.2), it has not been observed in any other TDN data.

¹⁸ On bisyllabic roots with an open final syllable, i.e. CV.CV, CVC.CV, V.CV, and VC.CV, bisyllabic reduplication is therefore indistinguishable from full root reduplication, as observed in rows 2, 4, 6, and 8 of Table 9.

¹⁹ If roots are vowel initial these infixes are realised as the prefixes *m-*, *ni-*, and *min-*.

²⁰ Only two examples are provided for this, one containing <um> and the other with <im>.

Table 9. Tondano bisyllabic reduplication on roots

Root	Gloss	Prefix	Derived verb
koo'	'drink'	CV-	koo.koo'
si.wo	'do'	CV.CV-	si.wo.si.wo
to.kol	'fight'	CV.CV-	to.ko.to.kol
lan.sa	'dance'	CVC.CV-	lan.sa.lan.sa
ting.kas	'run'	CVC.CV-	ting.ka.ting.kas
è.do	'take'	V.CV-	è.do.è.do
a.sar	'narrate'	V.CV-	a.sa.a.sar
on.do	'buckle'	VC.CV-	on.do.on.do
am.pung	'forgive'	VC.CV-	am.pu.am.pung

There are two prefixes which may affect reduplicant structure, *meN-* and *peN-*.²¹ Both prefixes contain a final segment which is a homorganic nasal and, in the event that the root-initial consonant is a voiceless obstruent (i.e. /p/, /t/, /k/, or /s/),²² a substitution process is triggered and a nasal at the same place of articulation replaces the obstruent. When a derived verb includes both nasal substitution and reduplication in this way, the presumed scenario is that nasal substitution occurs on the root *before* the reduplication process (Himmelman 2005:124). Regardless of the exact ordering during this morphological interaction, the result is that a nasal replaces the existing consonant on both the reduplicant *and* the root.²³ Reduplicants are therefore realised as NV-, NV.CV-, or NVC.CV-. A change in structure also occurs on vowel-initial roots where *meN-* and *peN-* are realised as *meng-* and *peng-*, producing reduplicants which are NV.CV- or NVC.CV. Table 10 provides examples of reduplicant structure on derived verbs which contain consonant-initial or vowel-initial roots in combination with *meN-*.²⁴

With regard to function, there are two sub-categories of imperfective aspect encoded by bisyllabic reduplication: *habitual* and *iterative*. While both refer to situations which lack an identifiable end point at the time of utterance, the two differ in that only the first expresses an event or situation which is judged to be a feature of an extended period of

²¹ These are variants of *ma-* and *pa-*. While cognate forms (reflexes of PAN **mang-* and **pang-*) in other AN languages often have an identifiable function (Blust 2013:378), the distinction between *ma-* and *pa-* and *meN-* and *peN-* in TDN is not evident.

²² If the initial segment is a voiced consonant, a nasal, a lateral, or a glide, nasal substitution is not triggered. *peN-* and *meN-* are instead realised as *pe-* and *me-* and reduplicant structure does not change.

²³ The assumption that nasal substitution precedes (C)V(C)CV- reduplication creates the issue of whether in this environment reduplication should be seen as operating at root level or word level. This issue is beyond the scope of this paper. Further discussion on this type of morphophonological mismatch in a Philippine language, *Bikol*, is found in Mattes (2014:47), where it is discussed in an Optimality Theory framework. This 'overapplication' of nasal substitution is judged as being conditioned by a strong preference for maintaining identical initial syllable structure on both the reduplicant and the root.

²⁴ Due to these substitutions and interactions between reduplicative and non-reduplicative morphology, in this environment the *meN-* prefix is arguably more accurately represented as *me-*.

time. The second, in contrast, expresses the repetition of an event within a single occurrence. To demonstrate, in (9) the action of singing refers to a song which is sung once during a recording session, while in (10) the singing is a habitual event which took place on a regular basis over multiple years.

Table 10. Combination of bisyllabic reduplication and *meN-* prefix

Root	Gloss	Prefixes	Derived verb
koo'	'drink'	me- / NV-	me.ngoo-ngoo'
pè.lèng	'choose'	me- / NV.CV-	me.mè.lè.mè.lèng
te.les	'buy'	me- / NV.CV-	me.ne.le.ne.les.
si.wo	'do'	me- / NV.CV-	me.ni.wo.ni.wo
kan.tar	'sing'	me- / NVC.CV-	me.ngan.ta.ngan.tar
è.do	'take'	me- / NV.CV-	me.ngè.do.ngè.do
i.wu	'slice'	me- / NV.CV-	me.ngi.wu.ngi.wu
a.sar	'narrate'	me- / NV.CV-	me.nga.sa.nga.sar
on.do	'buckle'	me- / NVC.CV-	me.ngon.do.ngon.do
am.pung	'forgive'	me- / NVC.CV-	me.ngam.pu.ngam.pung

- (9) *kokumantarèla* *esa*
 ko=k<um>antar=la *esa*
 2SG.NOM=<AV>sing=DIR.PROX one
 'You sing one (prayer song)' (TDN_28_OL_KK_25092012_00:06:44)

- (10) *koumengantangantar*
 kow=meN-kantar-kantar
 2PL.NOM=AV.DYN-HAB-sing
 'You are singing (daily, in the fields)' (TDN_11_AW_HL_27082011_00:10:26)

The clauses in (11)–(12) demonstrate how iterative aspect is expressed via reduplication. In the first clause, the event being referred to takes place once at a single point in time and has an identifiable end point. In the second, the action of bringing down bamboo tubes from a tree is ongoing and occurs repeatedly over a relatively short time frame - during the course of collecting palm sugar sap one morning.

- (11) *kumaalitèla* *koko'* *rua*
 ku=ma-ali=itè=la ko'ko' *rua*
 1SG.NOM=AV.DYN-bring=LIM=DIR.PROX chicken two
 '(I) bring only two chickens' (TDN_14_DK_NK_03092011_00:02:36)

- (12) *maaliali* *mpotung*
 ma-ali-ali N=potung
 AV.DYN-ITER-bring INAN=bamboo.tube
 '(They) are bringing the bamboo tubes' (Kiniar02_00:02:04)

5. Tonsawang reduplication processes

TNW reduplication processes share a number of similarities with those observed in TDN. In terms of form, reduplicative prefixes display the same basic CV- and (C)V(C)CV-structures. Further to this, the exact form and any exceptions to the basic patterns are again conditioned by the syllable structure of the root or the presence of certain non-reduplicative affixes. As regards functions, these also correspond to those in TDN, as the primary roles are to encode nominalisation and aspectual distinctions.

However, there are also a number of deviations from the patterns observed in Section 4. With respect to form, TNW monosyllabic reduplicants exhibit a different vowel segment. These reduplicants are also less productive and are not attested on vowel-initial roots. In addition, due to a wide-ranging change process, in certain environments the initial segment of the reduplicant does not match that of the root. In bisyllabic reduplication, while the forms of reduplicants and their variants are almost identical to those in TDN, TNW allows infixes to co-occur within complex (bimorphemic and trisyllabic) prefixes. There are also differences in function, as monosyllabic reduplication encodes fewer categories of nominalisation and does not encode a mood distinction.

5.1 Monosyllabic reduplication

The TNW monosyllabic reduplicant comprises a consonant which is a copy of the first segment of the root together with /o/, for example *siud* ‘comb.hair’ → *so-siud* ‘hair brush’ or *lutam* ‘shoot’ → *lo-lutam* ‘gun’. Roots which host the Co-²⁵ prefix ordinarily host verbal morphology and function as the head of a verbal predicate. However, when hosting Co- they instead have a purely nominal function. There are two sub-categories of complex nouns produced by Co- reduplication: instrumental, and locative.

Instrumental nouns express the inanimate entity which is used to bring about the action or event expressed by the root, as shown by the examples in Table 11. In rows (1)–(5) the derived words conform to the expected pattern in which the reduplicated consonant and the root-initial consonant are identical. In rows (6)–(10), however, these two consonants differ due to the alternation between /p/, /b/, /d/, /k/, and /g/, and /w/, /r/, and /h/ (see f.n. 11).

²⁵ The derivation of the Co- prefix, which also occurs in the non-Minahasan Ponosakan and Mongondow languages (Blust 2013:415-16), from *Ca-, appears to be the result of two AN merger processes in which *a → *e and later *e → o (Blust 1998:44, 2013:657). The latter change is especially common in the geographic area which includes North Sulawesi (Blust 2013:657).

Table 11. Tonsawang instrumental nominalisation

Root	Structure	Prefix	Instrumental noun	Gloss
si.ud	‘comb.hair’	CV-	so.si.ud	‘hairbrush’
li.lig	‘shine’	CV-	lo.li.lig	‘polishing tool’
lu.tam	‘shoot’	CV-	lo.lu.tam	‘gun’
su.’su	‘pry.out’	CV-	so.su.’su	‘prying knife’
ti.lad	‘split’	CV-	to.ti.lad	‘wood splitter’
be.ru	‘row.boat’	CV-	bo.we.ru	‘oar’
di.lis	‘slice’	CV-	do.ri.lis	‘cleaver’
pa.hang	‘sculpt’	CV-	po.wa.hang	‘chisel’
go.rit	‘cut.wood’	CV-	go.ho.rit	‘saw’
bon.das	‘mash’	CV-	bo.won.das	‘pestle’

To date there are no documented examples of Co- reduplication on vowel-initial roots in any category of data. Rather, during elicitation sessions instrumental nouns derived from vowel-initial roots comprise the root, the CONVEYANCE voice prefix *i-*, and the DYNAMIC verbal prefix *pah-*.²⁶

The deverbalised nature of roots which host Co- reduplication is illustrated by the clauses in (13)–(14) which both contain the root *su’su* ‘pry.out’. (15) then provides an example of the vowel-initial root *abag* ‘notch’ marked with *i-* and *pah-* and functioning as an instrumental noun.

- (13) *toguru panu’sunu’suna*
 togulu paN-su’su-su’su-en=na
 coconut DYN-ITER-pry.out-PV=3SG.GEN
 ‘He is prying out the coconut (i.e. copra)’ (TNW_30_JP_16022016_00:16:31)
- (14) *wa’i sia tumulidim sosu’su*
 wa’i sisia t<um>ulid=em Co-su’su
 now 3SG <AV>make=CMP NMLZ-pry.out
 ‘Now he makes a prying knife’ (TNW_30_JP_16022016_00:13:41)
- (15) *siahu mapè’angem iwahabag*
 siahu mah-pè’ang=em i-pah-abag
 1SG AV.DYN-bring=CMP CV-DYN-notch
 ‘I brought along an axe’ (ELICITED)

²⁶ The use of ostensibly verbal forms in this way is unsurprising due to the well-documented issues in delineating nouns and verbs in AN languages. Further to this, CONVEYANCE voice in Philippine-type languages is also commonly labeled as INSTRUMENT voice. Examples of TNW instrumental nouns derived in this manner are: *i-wah-èlèy* ‘repellent’ ← *èlèy* ‘expel’, *i-wah-usèng* ‘lid’ ← *usèng* ‘close’, *i-wah-atang* ‘crowbar’ ← *atang* ‘lift, pry’, *i-wah-abag* ‘axe’ ← *abag* ‘notch’, and *i-wah-akut* ‘strap’ ← *akut* ‘bind’.

The second category of nominalisation encoded with Co- reduplication is locative nominalisation. In order to derive locative nouns the Co- reduplicant must occur in combination with the LV suffix *-an*. Examples of Co- locative nominalisation derived from vowel-initial roots are again not attested. Instead, on vowel-initial roots *-an* must co-occur with the prefix *pah-*.²⁷ Table 12 provides examples of locative nouns derived from consonant-initial roots.

Table 12. Tonsawang locative nominalisation

Root	Gloss	Prefix	Locative noun	Gloss
da.no	'wash'	CV-	do.ra.no.an	'bathroom'
lo.boh	'crush'	CV-	lo.lo.bo.han	'mortar'
le.ku'	'drink'	CV-	lo.le.hu.'an	'drinking house'
kè.rè.sot	'squeeze.out (extort)'	CV-	ko.hè.rè.so.tan	'tax office'
ke.li	'gather.in.public'	CV-	ko.he.li.an	'public square'
da.how	'store.s.t.'	CV-	do.ra.ho.wan	'store house'
pa.ru'	'glide.through.water'	CV-	po.wa.ru.'an	'boat launch ramp'

The nominal function of roots hosting Co- and *-an*, in contrast to those hosting verbal affixes, is demonstrated by the clauses in (16)–(17) with the root *leku* 'drink'. Example (18) demonstrates a locative noun formed from the vowel-initial root *o'o* 'sleep'.

- (16) *nanti ga'gamio marehu' aho*
nanti ga'ga=mio mah-leku' wa'aho
 later good=very AV.DYN-drink DEM
 'Later on (they) drink lots of that (palm sugar brandy)'
 (TNW_03_SM_JP_26062016)
- (17) *na'am maindo maripuripung a lorehu'an*
na'am maindo mah-lipung-lipung a Co-leku'-an
 PROH daily AV.DYN-HAB-gather PREP NMLZ-drink-LV
 'Don't (you) be gathering every day at the drinking house' (Kalangi 2012:155)
- (18) *sisia itumikèang a paho'oan*
sisia i-t<um>ikèang a pah-o'o-an
 3SG PST-<AV>lie.on.back PREP NMLZ-sleep-LV
 'She lay down on the bed' (ELICITED)

5.2 Bisyllabic reduplication

Bisyllabic reduplication in TNW produces reduplicants demonstrating a basic (C)V(C)CV-structure. The exact form of the prefix is affected by the same factors observed for TDN

²⁷ It is not currently known if this prefix is DYNAMIC *pah-* in a separate function, or if this is a separate homophonous morpheme. This prefix is tentatively glossed as a nominaliser (NMLZ) in (18). Examples of locative nouns derived from *pah-* and *-an* are as follows: *pah-aseng-an* 'resting place' ← *aseng* 'breathe', *pah-o'o-an* 'bed' ← *o'o* 'sleep', *pah-ega'-an* 'betel nut shop' ← *ega* 'eat.betel.nut', and *pah-utew-an* 'school grounds' ← *utew* 'attend.school'.

with reduplicant structure conditioned by the first two syllables of the root. Any deviations to the basic structure are again predictable from the presence of certain non-reduplicative affixes. Despite these similarities, TNW reduplicants deviate structurally in one aspect in that they allow interaction with infixes thereby producing morphologically-complex reduplicants.

Bisyllabic reduplication is theoretically possible on any root which has a verbal function, including those which are monosyllabic. Monosyllabic roots with a CVC structure produce a CV- prefix. Minimally bisyllabic roots yield reduplicants which have one of four structures: V.CV- or VC.CV- on vowel-initial roots and CV.CV- or CVC.CV- on consonant-initial roots. Table 13 displays these patterns on a range of mono- and bisyllabic roots.

Table 13. Tonsawang bisyllabic reduplication on roots

Root	Gloss	Prefix	Derived verb
kan	‘eat’	CV-	ka.kan
sa.kè	‘ride’	CV.CV-	sa.kè.sa.kè
to.ko’	‘chop’	CV.CV-	to.ko.to.ko’
lom.bo	‘leap’	CVC.CV-	lom.bo.lom.bo
lon.dol	‘directly’	CVC.CV	lon.do.lon.dol
a.li	‘bring’	V.CV-	a.li.a.li
e.tung	‘ascend’	V.CV-	e.tu.e.tung
ung.si	‘evacuate’	VC.CV-	ung.si.ung.si
un.dew	‘hide’	VC.CV-	un.de.un.dew

Further to the patterns displayed in Table 13, the presence of one of two infixes yields forms which are additionally complex. The infixes <um> (AV) and <in> (PST) take a default position directly following the first consonant of the root.²⁸ When either of these infixes occur in combination with a reduplicant, they maintain this position within what is now a complex, bimorphemic prefix. Due to the extra syllable, monosyllabic roots now produce bisyllabic reduplicants and minimally bisyllabic roots produce trisyllabic reduplicants, in effect CV- → CV.CV-, CV.CV- → CV.CV.CV-, and CVC.CV- → CV.CVC.CV-. The roots in Table 13 therefore produce the following derived verbs: *k<um>a-kan*, *s<um>akè-sakè*, *t<um>oko-toko’*, *l<um>ombo-lombo*, and *l<um>ondo-londol*. Table 14 illustrates these alternations.

²⁸ On vowel-initial roots these morphemes are realised as the prefixes *m-* and *i-* (Sneddon 1978:89–91).

Table 14. Combination of bisyllabic reduplication and <um> infix

Root	Structure	Derived verb	Structure	Bimorphemic prefix
kan	CVC	ku.ma.kan	CV.CV.CVC	CV.CV-
sa.kè	CV.CV	su.ma.kè.sa.kè	CV.CV.CV.CV.CV	CV.CV.CV-
to.ko'	CV.CVC	tu.mo.ko.to.ko'	CV.CV.CV.CV.CVC	CV.CV.CV-
lom.bo	CVC.CV	lu.mom.bo.lom.bo	CV.CVC.CV.CVC.CV	CV.CVC.CV-
lon.dol	CVC.CVC	lu.mon.do.lon.dol	CV.CVC.CV.CVC.CVC	CV.CVC.CV-

The prefixes *maN-* and *paN-* also interact with reduplicants and affect their structure. If the initial segment of a root is a voiceless obstruent or a vowel, the alternations match those observed in TDN: in the first instance a nasal at the same place of articulation replaces the consonant, while in the second the velar nasal /ng/ is added. On consonant-initial roots this produces NV-, NV.CV-, and NVC.CV- prefixes. Reduplicants on vowel-initial roots are NV.CV- or NVC.CV-. Table 15 demonstrates alternations in reduplicant and root structure which occur due to the combination of reduplication and the *maN-* prefix.

Table 15. Combination of bisyllabic reduplication and *maN-* prefix

Root	Gloss	Prefixes	Derived verb
kan	'eat'	ma- / NV-	ma.nga.ngan
pa.rut	'grate'	ma- / NV.CV-	ma.ma.ru.ma.rut
ta.kèng	'remove'	ma- / NV.CV-	ma.na.kè.na.kèng.
sa.kè	'ride'	ma- / NV.CV-	ma.na.kè.na.kè
kan.tar	'sing'	ma- / NVC.CV-	ma.ngan.ta.ngan.tar
a.li	'bring'	ma- / NV.CV-	ma.nga.li.nga.li
e.tung	'ascend'	ma- / NV.CV-	ma.nge.tu.nge.tung
ung.si	'evacuate'	ma- / NVC.CV-	ma.ngung.si.ngung.si
un.dew	'hide'	ma- / NVC.CV-	ma.ngun.de.ngun.dew

With respect to function, a perfective and imperfective distinction is observed between derived verbs which include bisyllabic reduplication and those which do not. Those which host a reduplicant express a situation which is repeated or ongoing to some degree. The situation denoted by the verb may occur multiple times in a single, shorter time period (iterative) or, it may happen repeatedly during a longer time frame, such that it is considered a habitual occurrence of that period.

In (19)–(20) both derived verbs contain the root *kapèt* 'climb'. In (19) the act of climbing occurred once and had an identifiable endpoint; the clause is therefore unmarked for aspect and has a perfective reading. In (20), the act of climbing occurs repeatedly in the space of approximately thirty minutes as people collect palm sugar sap. The reduplicative prefix encodes this iterative reading.

- (19) *bana esa tuama ihumapèd itoguru*
 bana esa tuama i-k<um>apèt i=togulu
 EXIST one man PST-<AV>climb GEN=coconut
 ‘There’s one man (who) climbed the coconut (tree)’
 (TNW_30_JP_16022017_00:00:18)
- (20) *pahasa iratahura wa’i hahi mahapèhapèt a*
 pahasa silatahula wa’i kahi ma-kapèt-kapèt a
 all 3PL now also AV.DYN-ITER-climb PREP
kèdan
 kètan
 palm.sugar.tree
 ‘Now they are all also climbing up the palm sugar tree’
 (TNW_07_JP_26062016_00:00:05)

The expression of habitual aspect via bisyllabic reduplication is observed in examples (21)–(22). In (21) the action of holding a bamboo tube only occurs once as it is lowered from the top of a tree. This perfective reading contrasts with that in (22) which describes the situation of holding (defending) administrative territory over an extended time period.

- (21) *totumu’ a daram tumaka’*
 totumu’ a dalam t<um>aka’
 people PREP inside <AV>hold.on
 ‘The people inside (the foliage) (they) hold (the bamboo tube)’
 (TNW_07_03072016_00:03:07)
- (22) *karna sisia tumakataka’ ikekuasan bia’i*
 karena sisia t<um>aka’-taka’ i=kekuasan bia’i
 because 3SG <AV>HAB-hold.on GEN=power here
 ‘Because he is holding onto power here’ (TNW_02_JP_26062016_00:01:41)

6. Summary and concluding remarks

As in many AN languages, monosyllabic and bisyllabic reduplication are productive processes in TDN and TNW. The form of monosyllabic CV- prefixes, as well as their nominalising function deriving instrumental nouns, correlates with widespread patterns for reflexes of PAN *Ca-. This category of nominalisation is productive in the two Minahasan languages, a fact which provides a counter example to the notion that, with increasing distance from Taiwan, instrumental nominalisation encoded in this manner becomes less prevalent (Blust 1998:48). An additional feature of CV- reduplication, albeit one which is only attested in TDN, is to express future, contemplated, or desired events, another function associated with some AN languages²⁹ which has been proposed for PAN CV- reduplication (Blust 1998:35, 2013:396).

Nonetheless, TDN and TNW reduplication diverges from common AN typology in various ways. Neither exhibits CV- prefixes which derive complex numerals for serial counting, a third function suggested for *Ca- (Blust 1998) which is often observed in AN

²⁹ For example, Tagalog (Himmelmann 2005:364) and Rukai (Li 1973:267).

languages (Himmelmann 2005:122). The absence of this feature in TDN and TNW contrasts with the presence of the same or similar forms in other languages of Sulawesi, for example the Sangiric language (Stellar & Aebersold 1959) to the north and the Muna language of southern Sulawesi (van den Berg 1989). Furthermore, the notion that at least some cardinal numerals hosted a *Ca- prefix has been proposed for Proto-Minahasan (Sneddon 1978:60-61) and Proto-Sangiric (Sneddon 1984:126), thereby presenting the possibility of this function previously existing in Minahasan languages.

A further typological difference is observed in the use of CV- prefixes to encode an expanded range of nominalising functions. In addition to deriving instrumental nouns, the Ce- and Co- reduplicants combine with the voice marking affixes *-an* and *-en* to derive locative nouns and, in the case of TDN, objective nouns. While not exceptional (see Adelaar 2000), the combination of these morphemes to express nominalisation is less frequent in AN languages.

With regard to bisyllabic reduplication, the form and function of reduplicants is closely aligned in both languages and again reflects common AN characteristics. The (C)V(C)CV- prefix encodes two sub-categories of imperfective aspect, habitual and iterative. The exact structure of a reduplicant is conditioned by the structure of the first two syllables of the root. Structural alternations to both the reduplicant and the root are possible due to the combination of reduplication with non-reduplicative prefixes containing homorganic nasal segments. In addition, a combination of reduplicants and infixes creates bimorphemic prefixes which contain up to three syllables and include material which is not present in the root.

At a micro-group level, despite the multiple similarities, variation also exists between the two related languages. The difference in the vowel segments of TDN Ce- and TNW Co- is the result of well-attested AN phonemic mergers. The differences in function are perhaps less straightforward; the use of monosyllabic CV- reduplication to encode irrealis mood in only one of the languages, TDN, raises the question of whether this function was present in the ancestor language. A potential hypothesis is that Proto-Minahasan possessed a CV- morpheme with this function which was subsequently lost in TNW but retained in TDN. However, the minimal literature dedicated to Proto-Minahasan morphology (Sneddon 1978) makes no mention of this function for CV- reduplication. Another potential, yet equally unsubstantiated, analysis is that this is an independent innovation in TDN.

There are also observable differences with respect to bisyllabic reduplication. While the earlier studies of Sneddon (1975:214; 1978:99) describe a combination of reduplicant and infix as present in all Minahasan languages, in the current data set only TNW exhibits these complex prefixes. One plausible explanation is that the TDN system has simplified in the current generation of speakers, a not unreasonable proposition considering the ongoing language shift in the region. Another is that there is simply a gap in the most recent data.

The description of TDN and TNW reduplication presented here identifies multiple as-yet-unexplained discrepancies. These include two typologically-unusual categories of alternation which are caused by the complex interaction of multiple morphological elements. The exact cause of these alternations in TDN and TNW reduplication, and those which differ from common AN typological traits, will remain unanswered until, at a

minimum, further research is conducted on the other three languages of the Minahasan micro-group.

Abbreviations

1	first person	2	second person
3	third person	AN	animate
AV	actor voice	CMP	completive
CV	conveyance voice	DEM	demonstrative
DIR	directional	DIST	Distal
DYN	dynamic	EXIST	existential marker
EXCL	exclusive	GEN	genitive
HAB	habitual	INAN	inanimate
INCL	inclusive	INCOMP	incompletive
ITER	iterative aspect	IRR	irrealis mood
LIM	limitative	LV	locative voice
NEG	Negator	NMLZ	nominaliser
NOM	nominative	PL	Plural
PREP	preposition	PROH	prohibitive
PST	past tense	PV	patient voice
REFLX	reflexive		

References

- Adelaar, Alexander. 2000. Siraya reduplication. *Oceanic linguistics* 39 (1). 33–52.
- Adelaar, Alexander. 2005. The Austronesian languages of Asia and Madagascar: a historical perspective. In Adelaar, Alexander & Nikolaus Himmelmann (eds.), *The Austronesian languages of Asia and Madagascar*. London: Routledge. 1–42.
- Blake, Frank. 1917. Reduplication in Tagalog. *American journal of philology* 38 (152). 425–431.
- Blust, Robert. 1991. The greater central Philippine hypothesis. *Oceanic Linguistics* 30 (2). 73–129.
- Blust, Robert. 1998. Ca- reduplication and Proto-Austronesian grammar. *Oceanic Linguistics* 37 (1). 29–64.
- Blust, Robert. 2013. *The Austronesian languages*. Ebook. Revised edition. Canberra: Asia Pacific Linguistics. <https://tinyurl.com/y6pe9v39> (accessed 2018-12-12).
- Brickell, Timothy C. 2015. *A grammatical description of the Tondano (Toundano) language*. PhD dissertation. Melbourne: La Trobe University.
- Brickell, Timothy C. 2016a. Tondano. In Geoffrey Haig & Stefan Schnell (eds.), *Multi-CAST (Multilingual Corpus of Annotated Spoken Texts)*. Cologne: Language Archive Cologne. <https://lac2.uni-koeln.de/en/multicast-tondano/> (accessed 2018-12-02).
- Brickell, Timothy C. 2016b. *Tonsawang: a collaborative multimedia project documenting an endangered language of North Sulawesi*. London: SOAS,

- Endangered Languages Archive. <https://elar.soas.ac.uk/Collection/MPI1035088> (accessed 2018-12-02).
- Brickell, Timothy C. 2018. Linguistic fieldwork: perception, preparation, and practice. In Peter K Austin & Lauren Gawne (eds.), *Language Documentation and Description* 15. 179–207. London: EL Publishing.
- Chang, Laura. 1998. Thao reduplication. *Oceanic linguistics* 37 (2). 277–297.
- Crystal, David. 2008. *A dictionary of linguistics and phonetics (sixth edition)*. Oxford: Blackwell Publishing.
- Comrie, Bernard & Sandra A Thompson. 2007. *Lexical nominalisation*. In Timothy Shopen (ed.), *Language typology and syntactic description (second edition) volume III: Grammatical categories and the lexicon*. Cambridge: Cambridge University Press. 334–381.
- Dotulong, Boeng. 2010. *Kamus Malayu Manado-Indonesia-Toundano*. Jakarta: Percetakan Gramedia.
- Gil, David. 2005. From repetition to reduplication in Riau Indonesian. In Bernard Hurch (ed.), *Studies in reduplication*. Berlin: De Gruyter Mouton. 31–64.
- Gonda, Jan. 1950. The functions of word duplication in Indonesian languages. *Lingua* 2. 170–197.
- Google. 2019a. Indonesia, scale undetermined, <https://tinyurl.com/y62nv9k6> (accessed 2019-01-09)
- Google. 2019b. Sulawesi Utara, scale undetermined, <https://tinyurl.com/y4f77frm> (accessed 2019-01-09)
- Himmelman, Nikolaus. 2005. The Austronesian languages of Asia and Madagascar: Typological characteristics. In Adelaar, Alexander & Nikolaus Himmelmann (eds.), *The Austronesian languages of Asia and Madagascar*. London: Routledge. 110–114.
- Kalangi, Patrice. 2012. *Kamus Tonsawang/Toundanow Indonesia*. Tompaso: Yayasan Institut Seni Budaya Sulawesi Utara.
- Kiyomi, Setsuko. 1995. A new approach to reduplication: a semantic study of noun and verb reduplication in the Malayo-Polynesian languages. *Linguistics* 33. 1145–1167.
- Kroeger, Paul. 2005. *Analyzing grammar. An introduction*. Cambridge: Cambridge University Press.
- Lee, Amy Pei-jung. 2009. Kavalan reduplication. *Oceanic linguistics* 48 (1). 130–147.
- Li, Paul Jen-kuei. 1973. *Rukai structure*. Institute of History and Philology Special publications No. 64. Nankang: Academia Sinica.
- Mattes, Veronica. 2014. *Types of reduplication: A case study of Bikol*. Berlin: De Gruyter Mouton.
- Mead, David. 2013. *An initial assessment of the vitality of the indigenous languages of Sulawesi, Indonesia*. North Carolina: Sulawesi Language Alliance. Manuscript in preparation.

- Naylor, Paz Buenaventura. 1986. On the semantics of reduplication. In Paul Geraghty, Lois Carrington & Stephen Wurm (eds.), *FOCAL I: Papers from the Fourth International Conference of Austronesian Linguistics*, Canberra: Pacific Linguistics. 175–185.
- Ross, Malcolm. 1995. Some current issues in Austronesian linguistics. In Darryl Tyron (ed.), *Comparative Austronesian dictionary: An introduction to Austronesian studies*. Berlin: De Gruyter Mouton. 45–120.
- Rubino, Carl. 2004. Reduplication: form, function, and distribution. In Bernard Hurch (ed.), *Studies in reduplication*. Berlin: De Gruyter Mouton. 11–29.
- Sneddon, James N. 1975. *Tondano phonology and grammar*. Canberra: Pacific Linguistics.
- Sneddon, James N. 1978. *Proto-Minahasan: phonology, morphology, and wordlist*. Canberra: Pacific Linguistics.
- Sneddon, James N. 1984. *Proto-Sangiric and the Sangiric languages*. Canberra: Pacific Linguistics.
- Steller, K. G. & W. E. Aebersold. 1959. *Sangirees-Nederlands woordenboek*. The Hague: Nijhoff.
- Stolz, Thomas. 2007. Das ist doch keine Reduplikation! [That is not reduplication!]. In Andreas Ammaman & Aine Urdze (eds.), *Wiederholung, Parallelismus, Reduplikation. Strategien der multiplen Strukturanwendung*. Bochum: Brockmeyer. 47–80.
- Van den Berg, René. 1989. *A grammar of the Muna language*. PhD dissertation. Leiden: University of Leiden.
- Zorc, David. 1986. The genetic relationships of Philippine languages. In Paul Geraghty, Lois Carrington & Stephen Wurm (eds.), *Tracking the travellers (FOCAL II: Papers from the Fourth International Conference of Austronesian Linguistics)*. Canberra: Pacific Linguistics. 147–173.