CHAPTER 4

Four Types of Reduplication in the Cha'palaa Language of Ecuador ■in running headline, shortened title used. Please check

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The Cha'palaa language of northwestern Ecuador is characterized by the relatively high functional load it places on reduplication; it applies a variety of distinct types of reduplication across different word classes and construction types. This paper describes four major types of reduplication in Cha'palaa: full and partial repetition of ideophones (not a fully grammaticalized reduplication type), full reduplication of verbal elements adding iterative aspect to predicates, full reduplication of non-verbal elements to form verbal adjuncts, and partial reduplication as a derivational process for creating adjective-like attributive words. Because these types of reduplication apply to a range of different constructions with largely unrelated semantics, it appears most likely that Cha'palaa independently developed reduplication at several different times in its history. Cha'palaa illustrates how a language can come to increase the functional load placed on reduplication and how languages can organize and distinguish multiple interacting reduplication processes within their grammatical systems.

1 The Diversity of Cha'palaa Reduplication Types

The Cha'palaa language of northwestern Ecuador is characterized by the relatively high functional load it places on processes of reduplication, applying a variety of distinct types of reduplication across different word classes and construction types. This paper provides a first descriptive account of reduplication in Cha'palaa, a language which is largely undescribed except for a few limited sources (Lindskook 1964, Vittadello 1988, Tapuyo Pianchiche 2009). More sources exist for Cha'palaa's sister languages (Moore 1961, 1979; Obando Ordóñez 1992; Dickinson 2000, 2002; Curnow 1997, 2002; Vásquez de Ruíz 1988), but reduplication in the Barbacoan language family has not been addressed directly, and one of its members is reported to have no productive reduplication at all (Awa Pit, in Curnow 1997). Cha'palaa's historical contact language, Ecuadorian Quechua, features only one major type of full reduplication, used

for intensification of adjectival or adverbial modifiers (Cole 1982, Floyd 2011). In contrast, Cha'palaa features both full and partial reduplication constructions with a range of different functions. Drawing on examples from an audio/video text corpus of natural speech and elicitation exercises collected by the author in Cha'palaa-speaking communities, this paper identifies four major types of reduplication construction in Cha'palaa, in addition to a number of minor types or subtypes. These types differ in how discrete, coherent, unified and productive they are, but applying this typology as a descriptive tool provides a good way for taking stock of the full diversity of form and meaning found in Cha'palaa reduplication constructions. The four types are ideophone reduplication, reduplication within predicates, reduplication to form predicate adjuncts, and reduplication for attributive word derivation.

(i) Ideophones can be fully or partially reduplicated to express the iteration or extension of events and, unlike the reduplicated elements in all other reduplication construction types, they are not limited to a single reduplicant, nor is their syntactic position strongly restricted. Under most definitions of reduplication this would be considered repetition rather than reduplication proper:

(1)   *tulun tulun tulun ti-we*
      IDEO IDEO IDEO say-DECL
      '*Tulun tulun tulun* said (the thunder).'

(ii) Reduplication within predicates, in some ways comparable to morphological aspect inflection, marks iterative aspect on predicates through full reduplication of specific elements of the complex predicate system (the 'coverbs').

(2)   *mera mera de-ke-we*
      listen listen PL-do-DECL
      'They listened repeatedly.'

(iii) Reduplication in predicate adjuncts applies full reduplication to non-predicating elements (nominal forms and other 'non-verbal' elements) to form a variety of different adverbial adjunct constructions that modify predicates. One subtype gives path information for motion verbs, for example.

(3)   *tsala tsala ji-nu*
      beach beach go-INF
      'go along the beach'

(iv) Reduplication for attributive word derivation applies partial reduplication to words to form a class of adjective-like attributive words that describe qualities like color and texture. These words apply a phonological template [(σ.σ.)σ.σBASE-σRED] to bases of two or more syllables, reduplicating the final syllable.

(4)   *lushi~shi*
      silver (metal)~RED
      'green/blue'

These four types of reduplication can each be divided into various subtypes, and in some cases they overlap with each other to different degrees, but all four have morphosyntactic, semantic and phonological features and constraints that provide clear tests for distinguishing among them. The Pacific coast of Ecuador is not easily placed in any single larger linguistic area like Amazonia or the Andes (Aikhenvald 2007), but by any standard Cha'palaa stands out in the region for its many diverse types of productive reduplication. As noted above, in the adjacent Quechua-speaking area reduplication is less productive, as in the other Barbacoan languages. Cha'palaa's most closely-related sister language, Tsafiki, has some productive reduplication, but it is mainly limited to ideophones (Dickinson 2002, p.c. 2010). In both Cha'palaa and Tsafiki ideophones as a class overlap with the word classes of some of the roots used in nominal and verbal reduplication constructions, so it is possible that Cha'palaa's more grammaticalized systems have a diachronic connection to less grammatically-constrained types of reduplication like that seen with ideophones. Because Cha'palaa's distinct reduplication types currently apply to several different word classes and construction types, it appears the language developed grammaticalized reduplication at several different times in its history, gradually increasing the functional load it places on reduplication processes over time.

Cha'palaa features a number of morpho-phonemic processes that affect the processes of reduplication discussed in this chapter. Although several points about phonological processes are made in the text where appropriate, it may be useful to provide a small introductory sketch here. Cha'palaa has four vowels (*a, e, i, u*) and twenty consonant phonemes that are represented here with a practical, Spanish-based orthography. Most graphemes resemble their IPA counterparts, but these are some of the departures: Several digraphemes are used, including *ch* for [tʃ], *ll* for [ʎ], *sh* for [ʃ], *ts* for [ts], and *ty, dy* and *ñ* for palatalized *t, d* and *n*. Like in Spanish, *r* represents [ɾ], *y* represents [j], and *j* represents [X]. Before front vowels *w* has the allophone [v], and *t, p,* and *k* all have voiced allomorphs after nasals; *m* is an independent phoneme,

but *n* also has an allomorph *m* after bilabials. A phonemic glottal ' occurs only syllable-finally. All vowels can be long, and syllable shapes are generally CV or CVV, but can also be CVC and CVVC for a small set of syllable-final consonants (n, j, s, sh). Phonological reduction applies in many cases, including the deletion of intervocalic consonants and harmonization of vowels to form long vowels as well as the reduction of some final syllables (in many cases leaving a glottal stop). The agglutinating morphology of the language can form longer phonological words, with a strong tendency toward penultimate stress. In addition, there are a number of idiosyncratic irregularities in the system which cannot be fully addressed here.

2   Reduplication of Ideophones

In terms of grammatical productivity, ideophone reduplication is perhaps the least interesting type of reduplication in Cha'palaa and might not even be considered grammatical reduplication under a narrow definition, as it could be described simply as repetition. However, given the probable diachronic connections of ideophone reduplication to the other more grammaticalized types of reduplication in the language, it is worthwhile to consider them together with the other types. Cha'palaa ideophones in both simplex and reduplicated forms are relatively free from morphosyntactic restrictions; they are morphologically simple and can occur in a variety of syntactic positions, or as independent utterances, as is common for ideophones cross-linguistically (Kita 1997, Voeltz and Killian-Hatz 2001). Example (5), from the text of a story, shows the partially-reduplicated ideophone *dijtya* acting as an utterance independently of the adjacent phrase; *dijtya* refers to the sizzling sound and motion of a burning substance:

(5)   *dijtya~tya~tya~tya~tya*   *dijtya~tya~tya~tya*   *fasi*
       IDEO~RED~RED~RED~RED   IDEO~RED~RED~RED~RED   easy
       jupe-tyu-wa
       burn-NEG-PAST
       '*Dijtyatyatyatya dijtyatyatyatya*, it did not burn easily.'

Unlike all other reduplication types, ideophones can have more than one reduplicant, and multiple reduplicants iconically extend the duration, distribution or iteration of events by increments, as in (5) where the reduplication conveys the image of an array of small objects hopping and sizzling in a fire. Also in contrast to all other forms of reduplication in Cha'palaa, ideophone reduplication

can variably be full or partial, with full reduplication generally associated with repeated events and partial reduplication associated with temporal or spatial extension of single events. Example (6) shows a partially-reduplicated ideophone from the text of a story, and (7) shows an elicitation example that was also judged acceptable with full reduplication of the same ideophone:

(6) *tsaa shilla~lla~lla-a   man-paij-mi=ren*
     SEM IDEO~RED~RED-FOC again-descend-DECL=EMPH
     'Like (a monkey) she went (sliding) down *shillallalla* (quickly, down the tree).'

(7) *chi-sha   shilla shilla shilla ji-we*
     tree-LOC1 IDEO IDEO IDEO go-DECL
     'In the tree (she) goes (sliding) *shilla shilla shilla* (in multiple movements).'

While ideophones are often associated with predicates, ideophone reduplication differs from the productive reduplication of predicate elements because ideophones are not strongly restricted in terms of the class of verbs they occur with. Ideophones tend to associate with the 'do' and 'say' classes of verbs, but they are fluid and can occur with verbs of multiple classes, unlike the 'coverb' elements in predicate reduplication constructions described in the next section, which are each restricted to a specific class of finite verb. Example (8), from natural speech, shows the ideophone *puum*, used for talking about loud, brief sounds, reduplicated adjacent to the verb *bai* 'to fall,' which is from the *i* 'become' class (motion verbs and changes-of-state); examples (9) and (10), from elicitation notes, show how the same ideophone can be used with the *ke* activity class and the *ti* speech verb class.

(8) *puum puum bai-we*
     IDEO   IDEO fall-DECL
     'It falls *puum puum*.'

(9) *puum puum ke-we*
     IDEO   IDEO do-DECL
     'It does *puum puum*.'

(10) *puum puum ti-we*
     IDEO   IDEO say-DECL
     'It says *puum puum*.'

All other types of reduplication in Cha'palaa make an abstract semantic distinction with a binary opposition between simplex and reduplicated forms, but ideophone reduplication is simply incremental repetition. However, it is appropriate to include ideophones in this discussion because their reduplication formally resembles the two formats for grammatical reduplication in the language: full reduplication of words and partial reduplication of final syllables. Because roots in Cha'palaa tend to be underspecified for word class membership and many word classes overlap with the ideophone class, it could be that ideophones served as a model for the development of more productive reduplication. It is impossible to determine the exact diachronic relationships among the different synchronically-distinct reduplication types in Cha'palaa, but during the discussion of the morphosyntactic criteria for identifying these types it is worth remembering that they contrast in meaning and productivity with less-grammaticalized types of reduplication in the language, while sometimes resembling them in form.

3 Reduplication within Cha'palaa Complex Predicate Constructions

Reduplication within Cha'palaa complex predicate constructions marks iterative aspect on otherwise unaltered predicates, a process in some ways similar to how in many languages a verb might inflect for an aspectual value with an affix. The morphosyntax of this type of 'predicate reduplication' follows a rigid pattern of interaction with the other elements in the predicate: reduplicated elements always occur immediately to the left of the finite verb and agree in class with that verb. Unlike with the ideophones described above, only one reduplicated form can occur in a single predicate, but other elements of the predicate may occur to its left. All of these elements, the finite verb, the reduplicated element, and any additional morphemes, contribute to the compositional semantics of the predicate.

3.1 *Complex Predicates and Verb Classifiers*
In order to understand reduplication within Cha'palaa's complicated predicate system, a short sketch of the system is appropriate. Predicates in Cha'palaa discourse are frequently complex, meaning that they feature two or more roots. Put generally, these constructions feature a semantically-broad 'generic' verb to the right carrying finite morphology and one or more 'coverb' elements to the left that add information to the predicate.[1] Generic verbs are a closed word

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1 These terms have been used in the literature on Australian languages, some of which have

class distinguished by their ability to act as finite predicates, while most coverbs are from a large open class of roots that are underspecified for lexical class— they can often occur in both predicates and noun phrases, and sometimes as ideophones as well. In Cha'palaa, then, 'coverb' is best thought of as a position within complex predicate constructions rather than a word class in its own right. This term has sometimes been used in the literature to refer to a lexical class, but in this paper it refers to the structural position of non-finite elements of complex predicates, regardless of their lexical class.

In addition, a subset of the generic verbs also act as verb classifiers that group all of the verbal elements of the language into one of a set of five verb classes (marked with a set of six classifier verbs). The verb classifiers have special properties such as the ability to anaphorically reference predicates that fall into their class. When verb classifiers occur, they take the position of finite verb, and additional parts of the predicate like generic verbs must occur in non-finite coverb position to the left.[2]

FIGURE 1   *Verb classifiers in Cha'palaa*
■rename to table?

ke/ki	'to do'	most active verbs (the most common class)
i	'to become'	changes-of-state, motion verbs
ju	'to be'	abstract existential
ti	'to say'	speech verbs
na	'to be in a position'	positionals (alternates with inchoative *di*)
di	'to come into a position'	positionals (alternates with stative *na*)

The Cha'palaa predicate system is complicated, but for the purposes of discussing reduplication within the system there are primarily two important points to consider: (i) the reduplicated element is a non-finite 'coverb' to the left of the finite verb and (ii) the roots that occur in complex predicates fall into semantically-based verb classes, and when they are reduplicated they

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similar complex predicate systems (see e.g. Schultze-Berndt 2000). My use of the terms is partially informed by Dickinson's (2002) application of them to the related language Tsafiki.

2   For the sake of consistency in the glosses, I have labeled all occurrences of a root with its meaning as in simple predicates ('do,' 'become,' 'say,' etc.), and have not distinguished their usage as verb classifiers, generic verbs and coverbs. These distinctions are recoverable from the root's position in the predicate construction.

occur with their verb classifier which takes the finite morphology (finite morphology is not applied to the reduplicated forms). Predicate reduplication in Cha'palaa can then be defined as a construction with the following basic structure: [COVERB COVERB VERB-FINITE.MORPH]. When used instead of the simplex construction, the predicate reduplication construction marks the addition of iterative aspect, meaning the event is durative and consists of two or more repeated sub-events.

3.2   *Reduplication for Iterative Aspect within the Complex Predicate*
Examples (11) and (12) show two comparable predicates that differ only in that (12) is reduplicated to refer to a plurality of events (not a plurality of actors; Landman 1995, McKay 2006).

(11)   *willi   ke-we*.
       wave do-DECL
       '(He/she) waved (something).'

(12)   *willi willi ke-we*.
       hit   hit do-DECL
       '(He/she) waved (something) repeatedly.'

The constructions in (11) and (12) help to illustrate how coverb elements like *willi* that cannot be finite on their own depend on generic verbs like *ke* ('do,' here also a verb classifier) to carry the predicate's finite morphology. The system is flexible, however, and generic verbs that can otherwise be finite can also sometimes occur in coverb position, in which case the appropriate verb classifier occurs as the finite verb. Here the generic verb *ka* is shown in both finite verb position (13) and coverb position with the classifier *ke* (14); singular and plural predicate options are also illustrated:

(13)   *alla (de-)ka-we*
       fish (PL-)grab-DECL
       'He/she (or they) caught fish.'

(14)   *alla ka   (de-)ke-we*
       fish grab (PL-)do-DECL
       'He/she (or they) caught fish.'

The two constructions in (13) and (14) do not have a sharp contrast in meaning with or without the addition of a verb classifier. However, in reduplication con-

structions only the second pattern can be followed, as shown in (15). Since the reduplicated item cannot occur as a finite verb, the verb classifier necessarily fills this role:

(15) *alla ka   ka   (de-)ke-we*
      fish grab grab (PL-)do-DECL
      'He/she (or they) caught fish repeatedly.'

(16) **alla ka   ka-we*
      fish   grab grab-DECL
      'He/she caught fish repeatedly.'

The verb classifiers must agree with the class of the accompanying coverb and using an incorrect classifier results in an ungrammatical construction. The ungrammatical example in (17) uses the classifier *i*, which classifies changes-of-state and motion verbs, instead of the appropriate classifier *ke*, which classifies most dynamic activity verbs.

(17) **alla ka   ka   i-we*
      fish   grab grab become-DECL
      '(He/she) grabbed the fish repeatedly.'

Motion verbs do fall into the *i* class, on the other hand, and when motion verbs are reduplicated the finite verb in reduplication constructions must agree with their class, as in example (18) from natural speech:

(18) *fiba-la   en-ku   ne   ne*
      white-COL DM.PRX-LOC2 go.around go.around
      de-i-shu-juntsa-la
      PL-become-R.CL-DM.DST-COL
      'The whites that come around here repeatedly'

Verb classifier agreement in reduplication constructions can be clearly observed in (19), in which the speaker uses two different predicate reduplication constructions, the first a motion verb with the corresponding *i* classifier (*ji ji* in the first line), and the second a positional verb, now choosing the appropriate *di* positional classifier (*tsu tsu* in the third line).

(19) *i-bain in   ruku-ba kuwan   ji ji i-yu   kule-n-chi.*
1-also 1POSS man-COM downriver go go become-EGO canoe-N-INS
'I also with my husband went, on repeated occasions, downriver in a
canoe,'

pallu juu ji-tu lala mita'=tala peechulla-la-nu   ya
two   be go-SR 1COL middle=RECP black.person-COL-ACC house
pa'-tu
borrow-SR
'going between the two of us, in the middle, staying with the blacks,'

tsu tsu de-di-yu.
lie lie PL-POS.INCH-EGO
'we lay down (and slept) repeatedly.'

All potential finite verbs (generic verbs and their subset, verb classifiers) can
also occur as coverbs and can then be productively reduplicated, like the
generic verb *fi* 'to eat,' in (20):

(20) *uyala   supu-la-nu=bain   kai-lla-nu=bain   ka-'   fi fi*
foreigner female-COL-ACC=also child-COL-ACC=also grab-SR eat eat
ke-la
do-COL
'The foreigners, they captured and ate the women and the children re-
peatedly.'

In (20) the generic verb *fi* is classified by the verb *ke* 'do,' which takes the
role of a verb classifier here. In other cases the same roots that can act as
classifier verbs in some constructions can also occur as reduplicated coverbs
in other constructions. When this happens, the root occurs three times: twice
through reduplication and once with finite morphology. Example (21) shows
this phenomenon. The Spanish borrowing *gueraa* 'war,' has been verbalized in
Cha'palaa with the generic verb *ke*, which takes the finite morphology. When
that complex verb is reduplicated for iterative aspect, however, the generic
verb can no longer take finite morphology, so a third root *ke* occurs as a verb
classifier, acting as the main verb.

(21) *uyala-la-nu   de-tu'-ñu-ba   matyu gueraa ke ke de-ke-ñu*
foreigner-COL-ACC COMPL-kill-DR-COM so   war   do do PL-do-DR
'They finished killing the foreigners, as they had repeatedly been making
war on them.'

Because of this multi-functionality of roots, it is important to distinguish lexical categories (like generic verbs, verb classifiers, and other kinds of roots) from positions in the complex predicate constructions (like finite verb, coverb, etc.) in order to understand how both are relevant to reduplication.

3.3   *Reduplicated Forms and Phonological Identity*

Predicate reduplication in Cha'palaa applies full reduplication to phonological words of different sizes; all predicate reduplication is of full words, and monomorphemic multisyllabic roots cannot be partially reduplicated. This applies both to elements that can be finite verbs such as *pipe* 'to bathe,' in (22) and (23), and to those that cannot, such as *willi*, in (24):

(22)   *kai-lla   pure' pi-sha   pu-na-mu,*
       child-COL many water-LOC1 be.in-POS.STAT-AG.N
       pipe   pipe   ke-n-de-tsu-we
       bathe bathe do-N-PL-lie-DECL
       'The many children that are in the water are swimming repeatedly.'

(23)   **pipe~pe   ke-n-de-tsu-we*[3]
       bathe~RED do-N-PL-lie-DECL
       'They are swimming repeatedly.'

(24)   **willi~lli   ki-we*
       wave~RED do-DECL
       '(She/he) waves repeatedly.'

Many elements like *willi* 'wave,' that occur only in coverb position but not as finite verbs bear some semantic resemblanceto ideophones in that they are non-inflecting elements that encode events with some degree of iconic sound symbolism. As parts of predicates, however, they cannot undergo partial reduplication like ideophones. The same is true for *wajchu* 'blink,' shown in (25) and (26).

(25)   *kapuka wajchu wajchu ke-mu*
       eye   blink   blink do-AG.N
       '(He) blinks (his) eyes repeatedly.'

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3   The verb *tsu*, 'lie' has grammaticalized as a progressive aspect marker. While I gloss all occurrences as 'lie', when it occurs as the final element of a complex predicate it is usually in an auxiliary role.

(26) *kapuka wajchu~chu ke-mu*
     eye   blink~RED   do-AG.N
     '(He) blinks (his) eyes repeatedly.'

Additional coverbs can be added to predicate reduplication constructions to the left, like *wish* ('softly,' 'whispering'—also probably an ideophone) in (27). Predicate reduplication is often articulated as a single phonological word, depending on the speed of speech and the particular phonemes that occur at root boundaries. Predicates can begin to resemble complex agglutinative constructions, and the reduplicated material can occur tightly embedded in this morphosyntactic environment.

(27) *ma-lui-ñu'=mitya   wish-kii~kii-ti-n-tsu-ma-a.*
     again-climb-DR=RES soft-scream~scream-say-N-lie-AG.N-FOC
     'As (the jaguar) just climbed up (the tree) they repeatedly screamed softly.'

Predicate reduplication also applies to morphologically complex words, in contrast with ideophone reduplication, which applies to morphologically simple forms. Example (28) shows two cases of predicate reduplication, the first morphologically simple (*fi*) and the second morphologically complex (*ma-ja*).

(28) *chachi fi   fi   ke-mu-aa   de-ti-ña   achuwa tejku-sha,*
     person eat eat do-AG.MNLZ-FOC PL-say-DECL hair   tooth-LOC1
     'It eats people (repeatedly) they say; hair in its teeth,'

     achuwa puu   ma-ja   ma-ja   i-mi   chachi
     hair   be.in/on again-come again-come become-DECL person
     fi-tu
     eat-SR
     'there is hair because it came (repeatedly) after having eaten people.'

Predicate reduplication interacts with morpheme boundaries in interesting ways. Multimorphemic words can fully reduplicate, as in (29), from natural speech, or they can be partially reduplicated, as in (30), from elicitation notes. But this 'partial' reduplication only applies at morpheme boundaries, since roots are not partially reduplicated.

(29) *dyabulu-a kayu puder ta-tu   ki-n-tyu-ka,*
     diablo-FOC more power have-SR do-N-NEG-DUB
     'If the devil isn't more powerful and does it,'

> *lala-nu   ura   nuka=bain   ma   chi'-ka   chi'-ka   ki-mi.*
> 1COL-ACC good where=also again pull-grab pull-grab do-DECL
> 'he also pulls us again repeatedly in whichever direction.'

(30) *chi'-ka   ka   ki-mi*
     pull-grab grab do-DECL
     'He pulls and pulls repeatedly.'

While there may be a slight semantic difference between reduplication of complex words, as in (31), and single roots, as in (32), there also may be a preference for economy at play that leads speakers to opt for single roots over complex forms in specific instances. However, for morphologically simple forms such a preference would be blocked by a restriction on partially reduplicating simple roots, as shown in (33).

(31) *ma-fale   ma-fale   ki-we*
     again-exit again-exit do-DECL
     'Again he emerges (from the water) repeatedly.'

(32) *ma-fale   fale   ki-we*
     again-emerge emerge do-DECL
     'Again he emerges (from the water) repeatedly.'

(33) **(ma-)fale~le   ki-we*
     (again-)emerge~RED do-DECL
     'Again he emerges (from the water) repeatedly.'

In addition, Cha'palaa features many kinds of phonological processes of syllable reduction, so disyllabic roots often have monosyllabic allomorphs that occur in certain contexts.[4] For example, the root *fale* can reduce to *faa* by deleting the intervocalic consonant and harmonizing the vowels to produce a long vowel. Some approaches to reduplication emphasize morphological and semantic identity over phonological identity (Inkelas and Zoll 2005) but in Cha'palaa predicate reduplication both are required. So while both allomorphs *fale* and *faa* can reduplicate, crucially both reduplicants must be the same allomorph.

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4 Moore (1962) first described these phonological processes in his comparison of Cha'palaa's
    sound system with that of the related language Tsafiki.

(34) a. *fale   fale   ki-we*
         emerge emerge do-DECL
         'He emerges repeatedly.'

      b. *faa   faa   ki-we*
         emerge emerge do-DECL
         'He emerges repeatedly.'

(35) a. **fale   faa   ki-we*
         emerge emerge do-DECL
         'He emerges repeatedly.'

      b. **faa   fale   ki-we*
         emerge emerge do-DECL
         'He emerges repeatedly.'

In summary, in predicate reduplication iterative aspect can be marked by reduplication of all or part of the coverbal element, but at least one root must be fully reduplicated, and its reduplication must satisfy requirements of both morphological and phonological identity between the two forms. If one of these conditions and not the other is satisfied, the construction will be rejected by speakers.

3.4   *Predicate Reduplication in Discourse Context*

Predicate reduplication interacts with other aspects of discourse structure, such as anaphoric relationships. In the final line of example (36) the semblative *tsan* is reduplicated in coverb position as a *ke* class active predicate. The semblative is able to form part of the complex predicate in this way because it refers back to the *ke* class predicate in the previous clause, to 'throw a party.' The literal meaning of the verbalized semblative in isolation, something like 'to do like that,' is filled in by the context—'to throw a party.'

(36) *ufeeda ke-'   tsan-ke-'   panda fi-'   chachi*
       offering do-SR SEM-do-SR food   eat-SR people
       wa'-di-'
       get.together-POS.INCH-SR
       'Making offerings, eating food, getting people together,'

naa fandangu ke-na-a=bain   tsan-ke-'
how party   do-INF-FOC=also SEM-do-SR
'how to throw a party ("fandango"), doing like that,'

tsan tsan-ke-mu-de-e-wa-ña,   in   abuelu=milla
SEM SEM-do-AG.N-PL-become-PAST-already 1POSS grandfather=DEC.REF
'they were ones who did like that repeatedly, my deceased grandfather.'

Predicate reduplication is frequent in discourse, and in any given minute of transcript it is easy to find several examples. Sometimes complex multi-clause constructions string together many successive iterative events, as in (37):

(37) *ma   mitya mitya ke-n-tsu-mu-aa   de-ti,*
     again lean   lean   do-N-lie-AG.N-FOC PL-say
     'It was again leaning (on the tree) repeatedly, they say,'

     ishka ishka ke-'   mati waashi waashi ke-'
     sniff sniff do-SR so   scratch scratch do-SR
     'sniffing repeatedly, scratching repeatedly,'

     mati nepele willi willi ke-' laa   laa   di-ma-a
     so   tail   wave wave do-SR take.out take.out POS.INCH-AG.N-FOC
     'wagging its tail repeatedly, it made it come out repeatedly,'

     de-ti, juntsa   aa=kela
     PL-say DM.DST AUG=jaguar
     'they say, that big jaguar.'

Compared to other reduplication types in Cha'palaa, predicate reduplication is the most productive and pervasive. It is highly integrated into the grammar of the complex predicate system and occurs there under the specific morphosyntactic constraints outlined above. The following section will distinguish predicate reduplication from another type, reduplication to form adverbial adjunct phrases.

4   Reduplication to Form Adjunct Phrases

While 'predicate reduplication' occurs at the core of the verb phrase and follows a rigid pattern that unifies it as a coherent type, what I will call 'adjunct

reduplication' is more of a conglomeration of overlapping subtypes, all of which are distinguished from predicate reduplication because, while they are part of the verb phrase, they are external to the core predicate and have less rigid morphosyntax. Adjunct reduplication constructions commonly relate to the predicate as modifiers at the level of the verb phrase but do not include predicating elements themselves. This general description covers several related reduplication types, and some of the subtypes of adjunct reduplication can also modify noun phrases, but all of them are sharply distinguished from predicate reduplication in several ways, especially due to their more flexible syntax. Cha'palaa has a general preference for verb-final word order, so pre-verbal position is common for adjuncts—with or without intervening material—but post-verbal position is also a possibility.

4.1 *The Syntactic Flexibility of Adjunct Reduplication*

These first examples represent a subclass of adjunct reduplication that reduplicates words describing different kinds of terrain that, when reduplicated, describe routes of motion verbs. They show the possibility for pre-verbal position in (38), from natural speech, as well as post-verbal position in (39), constructed in an elicitation session.

(38) *kai-lla   feka   ji-mu-la   tsala   tsala   ji-n-de-tsu-we*
     child-COL   upriver go-AG.N-COL   beach   beach   go-N-PL-lie-DECL
     'The children that go upriver are going along the beach.'

(39) *kai-lla   feka   ji-mu-la   ji-n-de-tsu-we   tsala   tsala*
     child-LOC   upriver go-AG.N-COL   go-N-PL-lie-DECL   beach   beach
     'The children that go upriver are going along the beach.'

Also in contrast with predicate reduplication, modifier phrases formed through adjunct reduplication can be stacked as multiple modifiers:

(40) *supu-la   pi   pi   tsala   tsala   pure-i-n-de-tsu-we*
     woman-COL   water   water beach   beach   many-become-N-PL-lie-DECL
     fe='mitya
     upriver=RES
     'The women become many (going) upstream through the water and along the beach.'

A related construction has similar properties but includes a limitative clitic ('only') with scope across the reduplicated words [adjunct phrase: RED RED=

LIM] to form adjunct phrases with a similar meaning. The limitative construction can be considered a subtype of adjunct reduplication referring mainly to paths of motion verbs.

(41) *kule-nu   mika   wi'-tu   tu   tu=tene.*
      canoe-LOC many/enough enter-SR earth earth=LIM
      'In the canoe many enter, (going) along the ground.'

In discourse, adjuncts formed by reduplication can also modify elided predicates that are available anaphorically, unlike predicate reduplication, which always occurs with an overt finite verb. For instance, the following example could be an answer to the question: "Where/how did they walk?"

(42) *pi   pi=ren*
      water water=EMPH
      'Along the water (precisely)'

Adjunct reduplication forms only a loose class, both in terms of form and semantics, and the path constructions above group together as a subtype. Taken as a general 'type' of reduplication, adjunct reduplication subdivides further into several construction types, like those represented by *mashti mashti* or 'machete machete,' an instrumental construction for tasks requiring repeated machete strikes, and by *pallu pallu* 'two two' for actions done 'two by two,' which reduplicates a numeral. All of these subtypes can be thought of in terms of a general construction type 'adjunct phrase' comprised of different, more specific subtypes that are all in some sense iterative or distributional (either in time or in space, as with the path constructions).

   Unlike predicate reduplication, adjunct reduplication can occur with intervening material between it and the finite verb root, such as the semblative in (43) and the discourse particle *ne* 'just' in (44):

(43) *tsa='mityaa challa juntsa   paate jayu jayu tsa-ti-n-tu=ren*
      SEM=RES   now   DM.DST part little little SEM-say-N-SR=EMPH
      'For that reason now, talking little by little about that'

(44) *baka'   baka'   ne chu-na-mu   de-ju*
      spread.out spread.out just sit/live-POS.STAT-AG.N PL-be
      'They were ones who just lived separately (each individually).'

As seen in the different constructions above, there is a general iconic principle of temporal or spatial extension and iteration to adjunct reduplication ('two by two,' 'little by little' or in the case of motion verbs: 'along the beach-and-more-beach'). In (35) *maali* 'alone,' is reduplicated to mean 'each alone' or 'one at a time.' Unlike predicate reduplication, but like ideophone reduplication, adjunct reduplication is not restricted to specific verb classes, so *maali maali* can occur with the *i* class in (46) but also with the *di* class in (47).

(46) *rega-de-i-ñu*　　　　　*maali maali ji-de-i-ñu.*
　　 spill-PL-become-INF.EV alone alone go-PL-become-INF.EV
　　 'They seem to have spilled out, going one by one, it seems.'

(47) *maali maali chu-di-lla*
　　 alone alone live-POS.INCH-COL
　　 'They lived one by one.'

Lexical categories in Cha'palaa are a complex topic, but, put generally, adjunct reduplication applies to nominals and modifiers, with loose syntactic relationships to predicates, in contrast to predicate reduplication's tight incorporation of primarily verbal elements.

4.2　*Predicate Reduplication Compared to Adjunct Reduplication*

Adjunct reduplication constructions are necessarily associated with a verb (if only elliptically), but they are less morphosyntactically bound to finite verbs than predicate reduplication constructions. Like in predicate reduplication, and in contrast with ideophone reduplication, adjunct reduplication can occur with complex, multi-morphemic words.

(48) *tu-la-n-paki*　　　*tu-la-n-paki=tene*　　　*ji-n-de-tsu.*
　　 earth-go.up-N-CL:flat earth-go.up-N-CL:flat=LIM go-N-PL-lie
　　 'They are going along the flat earth formations.'

When they occur together, reduplicated elements of predicate reduplication and adjunct reduplication constructions can be distinguished by their ordering. Elements that are part of the predicate occur to the immediate left of the finite verb, while adjuncts can occur further leftward or elsewhere. The opposite order is ungrammatical because the adjunct cannot intervene between elements of the predicate.

(49) *tsala tsala ji ji i-we*
    beach beach go go become-DECL
    'He went repeatedly along the beach.'

(50) **ji ji tsala tsala i-we*
    go   go   beach beach become-DECL
    'He went repeatedly along the beach.'

Adjunct reduplication can modify predicates without immediate leftward adjacency to them; they can be right-dislocated as in (51) or occur with intervening material as in (52).

(51) (*feka*) *ji ji i-we   tsala tsala*
    upriver go go become-DECL beach beach
    'They went repeatedly (upriver) along the beach.'

(52) *tsala tsala feka ji ji   i-we*
    beach beach upriver go go become-DECL
    'They went repeatedly upriver along the beach.'

Example (53) from a natural speech recording is a good illustration of the differences between adjunct and predicate reduplication. The first line includes an example of predicate reduplication; the second includes an example of adjunct reduplication, both occurring with predicates using the same generic verb *ti* ('to say'), yet only the adjunct reduplication can occur with intervening material (the semblative *tsan*) between the pair of reduplicants and the finite verb.

(53) *tsa='mitya-a uñi-lla-nu=bain   ajaa ajaa ti-ee-ña   i-ya*
    SEM=RES-FOC chief-COL-ACC=also angry angry say-FOC-DECL 1-FOC
    'For that reason I also scold the officials repeatedly,'

    tsa'=mitya-a challa juntsa paate jayu jayu tsan-ti-n-tu=ren.
    SEM=RES-FOC now   DM.DST part little little SEM-say-N-SR-EMPH
    'for that reason, now speaking little by little about that.'

Unlike predicate reduplication, adjuncts formed by reduplication have no corresponding simplex forms, since the simplex forms cannot modify predicates in the same way that their reduplicated forms can. Instead, unreduplicated forms show the properties of other word classes such as nouns. In predicates, on the other hand, the simplex forms have the same meaning as the reduplicated form

except for the addition of iterative aspect. Examples (54) and (55) illustrate how the simplex form of an adjuct reduplication construction for 'go along the beach' is ungrammatical—it could mean 'go to the beach' with the appropriate locative added, as in (56). The simplex form would be nominal, compared to the adjunct created in the reduplicated form, which is basically adverbial.

(54) *tsala   tsala*(=*tene*) *ji-we*
     beach beach(=LIM) go-DECL
     '(He/she) goes along the beach.'

(55) **tsala* (=*tene*) *ji-we*
     beach   go-DECL
     '(He/she) goes along the beach.'

(56) *tsala-sha*   *ji-we*
     beach-LOC1 go-DECL
     '(He/she) went to the beach.'

In summary, predicate and adjunct reduplication in Cha'palaa differ in that in predicate reduplication the reduplicated form contrasts with a simplex form for a semantic distinction. However, in adjunct reduplication the reduplicated forms are not opposed to simplex constructions but rather create a new phrase type with the syntactic properties of a predicate modifier. In general predicate reduplication holds up much better as a single unified type due to its regular and rigid morphosyntax, while adjunct reduplication deserves further study in order to more clearly delineate its numerous subtypes and their individual characteristics.

5 Reduplication as a Phonological Template for Attributive Word Derivation

The final type of reduplication to be discussed here differs from all the other types described so far (except for some cases of ideophone reduplication) in that it involves partial reduplication rather than full reduplication of roots. 'Attributive reduplication' is a process used to form words from a special class of semantically attributive words. In the sense that attributive reduplication creates words of a specific class out of words from different classes, it is a 'derivational' process. The derived words are in some respects similar to adjectives, as they are used for modifying noun phrases or in attributive predicates. For

the purpose of this discussion I will call them 'R-attributive' words in order to contrast the word class derived through reduplication with the other kinds of attributive words in Cha'palaa. The reduplication process applies to roots and to complex words of two or more syllables, reduplicating the final syllable rightward:

TEMPLATE: attributive word class = $[(\sigma.\sigma.)\sigma.\sigma\text{BASE}{\sim}\sigma\text{RED}]$

The words to which this template is applied can be morphologically complex, but in many cases the derived forms are unproductive and lexicalized, including elements that are un-analyzable and that have no known corresponding simplex forms. However, enough specific R-attributive words are transparently and productively derived to show that attributive reduplication is still a productive process in Cha'palaa.

5.1   *Transparency and Opacity in R-Attributive Word Derivation*

The following examples show cases in which it is possible to identify simplex root morphemes for the corresponding reduplicated forms and to establish a semantic connection between the two.

(57)   *lushi*   >   *lushi~shi*
       silver   silver~RED
       'money' (lit. 'silver metal')   'blue/green'

(58)   *pala*   >   *pala~la*
       branch.in.two   branch.in.two~RED
       'division in two branches'   'split apart'
       (trees, shoulders)

(59)   *pujpu*   >   *pujpu~pu*
       soft.airtight.container   soft.airtight.container~RED
       'bubble/bladder'   'inflated' or 'puffed up'

(60)   *dape*   >   *dape~pe*
       piece   piece~RED
       'piece of something'   'cut into pieces'

In examples (57) to (60) all of the reduplicated forms have identifiable simplex forms, such as *dape* in (60), which in another context can be a nominal root ('a piece') or part of a predicate (of the 'do' class, meaning 'to cut into pieces').

Sometimes the simplex forms are themselves morphologically complex and transparent, or partially transparent, and it is possible to suggest likely etymologies. The word *pala* is associated with things that divide in two, so it may be possible to identify *pa* as the root 'two,' while it is unclear if *la* corresponds to one of the different *la* morphemes that exist in the language (including a verb 'to go up/out' and a collective suffix). Similarly, the word *pujpu* can be analyzed as an ideophone *puj* that generally refers to pressurized air and a verb *pu* 'to exist inside' (or possibly a reduced form of the nominal classifier for spherical objects, *puka*). It is used for a number of compound terms like *shii=pujpu* '(human) bladder' and *chii=pujpu* 'bubble (in water/river).'

In addition to these analyzable examples, there are also many cases of words that meet the formal requirements for membership in the R-attributive class—they are semantically attributive and feature final-syllable reduplication—but which do not have corresponding simplex forms or break down into recognizable morphemes. At present etymologies for the reduplicated forms in examples (58) to (61) are unknown, and speakers do not generally accept the simplex forms as possible words (sometimes recognizing them but calling them "incomplete").

(58) (*te'*)*wallullu*
      'curly' (**wallu*)

(59) *tiriri*
      'wadded-up' (**tiri*)

(60) *pidyadya*
      'shiny' (**pidya*)

(61) *dulala*
      'narrow' (**dula*)

There are also cases in which multiple attributive words appear to be based on some of the same morphemes and to have some similarity of meaning, but some of the individual morphemes remain opaque. For example, (62) and (63) are phonologically similar and both refer to distinct kind of softness; *nakululu* means 'soft' as in wet and slimy or squishy, while *nakususu* means 'soft' as in dry and cottony or spongy. Because of their overlapping semantic and phonological features, these terms appear to be related diachronically, but the individual morphemes they include are difficult to identify since they are synchronically frozen forms.

(62) *nakulu~lu*
      ??~RED[5]
      'soft' (wet)

(63) *nakusu~su*
      ??~RED
      'soft' (dry)

A likely scenario is that for some words syllable-final reduplication has become less productive over time for many words, leaving frozen forms with no simplex counterparts. The cases in which productive reduplication is still observable provide a model for how the less productive words were derived. However, whether or not their history is transparent or opaque, all of the R-attributive words pattern together coherently as a semantic class as well as a morphosyntactic class.

5.2   *R-Attributive Words as a Semantic Class and Color as a Subclass*

The words in the Cha'palaa attributive class derived through final-syllable reduplication are similar to adjectives in that they refer to properties that are attributed to nouns, either by modifying them or through attributive predicates. However, they do not include words for many of the most canonical subclasses of adjectives cross-linguistically. Of the four 'core' semantic types proposed by Dixon (2004), members of this class in Cha'palaa refer only to 'color,' and in some cases 'dimension' (big/small), but not to 'age' (young/old) or 'value' (good/bad). Many attributes not covered by words of the R-attributive class can be described by dedicated forms from other classes, either nouns, prenominal modifiers, predicate elements, or clitics like the augmentative and the dimunitive.[6] Additionally, of the more 'peripheral' semantic types associated with adjectives in Dixon (Ibid.), Cha'palaa R-attributive words do not include 'human propensity' or 'speed,' but do include some words referring to a 'physical property,' with many other words for physical properties falling into other classes.

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5 According to some speakers *nakululu* is related to a word for 'placenta': *nakulu*. This may be the historical simplex form for *nakululu*, and the root *na*, for 'child', may be common between both words for 'soft.' Speakers do not recognize a simplex form for *nakususu* (*nakusu).

6 In addition to the general diminutive *kaa=* and augmentative *aa=* there are at least two R-attributive words that refer to extreme small size, *atyutyu* and *añuñu*, and a word for 'tall' that incorporates the augementative: *aabarere*. There are only a few words of this class that refer to dimension, much fewer than those referring to color and texture.

The common semantic element to all words in the R-attributive class is an orientation to perceptual qualities, particularly of qualities perceived visually or through tactile means, since words for sound, taste and smell fall into other word classes. R-attributive words with syllable-final reduplication primarily include words for color or light quality (red, shiny, dark), texture and consistency (wrinkly, curly, sharp, soft), and form or shape (cut into pieces, wadded up, narrow, divided in two branches). The perceptual experiences highlighted by R-attributive words recall to some extent the vivid 'depictive' quality of ideophones (Dingemanse 2011). In addition, their form resembles the partial reduplication of ideophones in Cha'palaa, which also applies to final syllables but is not limited to a single reduplicant. Another difference between R-attributive words and ideophones is that the former can be morphologically complex, while the latter are generally thought to be morphologically simple. On the other hand, expansion of the definition of the term 'ideophone' to include multi-morphemic roots in constructions like these, with their expressive sound-symbolic meanings oriented around perceptual experience, might also be warranted.

Of the perceptual qualities referred to by attributive words, color has far more terms than any of the others, with several dozen terms and counting. Examining the semantic domain of color is a good way to explore both the general coherency and the specific inconsistencies within the R-attributive class. Of the many color terms, a few of them are more widely and consistently recognized than many of the less frequently-heard terms.[7] While some speakers were not aware of the entire inventory, all twelve speakers in a color naming survey consistently applied the terms for black, white and red to the same color chips. Interestingly, these three specific terms form a subclass that is morphologically distinguished from all the other color terms by a suffix, *-ba*, which is likely to be an old, partially-productive classifier, perhaps one specifically for colors. Like many Cha'palaa roots that are underspecified for word class, the roots for 'black,' 'white' and 'red' cannot occur as independent words, but must be combined with other elements like classifiers. Derivational reduplication

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7 Based on the preliminary results of elicitation tasks focused on color terms, speakers showed a high degree of consistency with words for black, white and red, with less consistency for terms for yellow and green/blue, and with extremely high inter-speaker variability for all of the other terms (referring to specific shades of lighter or darker yellow, for example). This hierarchy of consistency resembles the implicational hierarchy for the existence of specific color terms proposed in Berlin and Kay (1969): black/white>red>yellow/blue/green>others. A more extensive study of the Cha'palaa color term system is planned.

then applies to the complex word (consisting of the root and the classifier) to create words that belong to the R-attributive class.

(64) *pa-ba*   > *pa-ba~ba*
    black-CL:color?   black-CL:color?~RED
    'black' (pre-nominal modifier)   'black' (R-attributive word)

(65) *fi-ba*   > *fi-ba~ba*
    white-CL:color?   white-CL:color?~RED
    'white' (pre-nominal modifier)   'white' (R-attributive word)

(65) *llu-ba*   > *llu-ba~ba*
    red/ripe-CL:color?   red/ripe-CL:color?~RED
    'red/ripe' (pre-nominal modifier)   'red/ripe' (R-attributive word)

The primary morphosyntactic difference between the reduplicated and simplex forms of these color terms is that the simplex forms modify pre-nominally, like many of the other property-concept words in the language (*ura* 'good'; *llupu* 'male'; *yuj* 'crazy,' etc.), while the attributive words derived through reduplication modify post-nominally.[8]

(66) *pa-ba*   *ruku*
    black-CL:color? man
    'black man'

(67) *ruku pa-ba~ba*
    man   black-CL:color? ~RED
    'black man'

The colors black, white and red can be expressed with both of these adjective-like form classes in Cha'palaa, pre-verbal by simplex forms and post-verbal reduplication by forms with final-syllable reduplication. Terms for colors other than black, white and red do not modify pre-nominally, flagging these three colors as distinct. Further complicating matters, there is another term for 'red' in the R-attributive class whose component morphemes are opaque.

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8   There is a morphosyntactic difference between the types of noun phrases formed by pre- and post-nominal modification, but for the few color words that can occur in both positions it is unclear if there is also a semantic difference, as consultants say that the meanings are the same. ■one full stop removed

(68) *un-kala~la*
       red-??~RED
       'red' (**unkala*)

The quality of redness that the root *llu* conveys is associated specifically with
the ripeness of fruit, while *unkalala* appears to be more general. Speakers over-
whelmingly opt for *unkalala* when talking about colors more abstractly but will
also accept *llubaba* as a near-synonym. The majority of other color terms pat-
tern more like *unkalala*, with opaque or partially opaque morphology and no
simplex form. After white, black and red, the next two most consistently iden-
tified colors are blue/green and yellow; blue/green (*lushishi*) has a probable
etymology, as discussed in (54), but yellow is more difficult to analyze.

(69) *lajkili~li*
       ??~RED
       'yellow' (**lajkili*)

Beyond terms for white, black, red, yellow and green/blue, there is a large set of
other color terms, many of which appear to share roots with the core colors, and
often refer to lighter and darker shades of them. However, unlike the core terms,
speakers often disagree as to whether any specific word refers to a lighter color,
a darker color, a more intense color, a more faded color, or a blend of colors.

(70) *lush-kata~ta*
       blue/green-??~RED
       'dark/intense blue'

(71) *laj-mele~le*
       yellow-??~RED
       'light/greenish yellow'

(72) *yamura~ra*
       ??~RED
       'grey'

The first syllable of R-attributive words can act as an independent morpheme,
as shown in (70) and (71), with which other material combines. The other mate-
rial in the words (*kata* and *mele*) is opaque but has some degree of productiv-
ity, since both of the opposite constructions *lajkatata* and *lushmelele* are also
attested (although with very little agreement among speakers about which col-

ors they refer to). There are also cases of color terms like (72), which do not have any recognizable component morphemes but sometimes share elements with other terms, like the term *pamurara*, which refers to a purplish color.

This sample of the internal structure of the subclass of color terms gives a good idea of the heterogeneity of the attributive word class. In this domain the terms vary in their level of productivity, segmentability, and consistency of meaning, and beyond color terms the situation is similar for the other semantic domains included in the class.

5.3   *Deriving Complex Attributive Words through Reduplication*

There is another productive process that applies to R-attributive words that may give some clues to where their unidentifiable morphemes originate. It is possible to apply the first syllable (for most purposes a 'root') of color terms and other attributive words to nouns, which are then incorporated into the attributive word through final-syllable reduplication. This kind of noun incorporation is mainly limited to nouns that also act as nominal classifiers for shape-based categories, the most common of which refer to spherical objects (*puka* 'fruit'), oblong objects (*papa* 'pod') and elongated objects (*lura* 'stalk'). When combined with roots for qualities like color, it is possible to create complex attributive words[9] that encode two qualities simultaneously, such as a color and a shape. Example (73) shows an example of this process, and (74) illustrates that the same combination is ungrammatical in simplex form.

(73)   *un-puka~ka*
        red-CL:sphere/fruit~RED
        'red spherical object'

(74)   **un-puka*
        red-CL:sphere/fruit
        'red spherical object'

This process is quite productive, and any color can combine with any shape; some examples are shown in (75) and (76). Non-color terms can also be used, as shown in (77), which is related to the word *ejkeke* or 'dried out'; *ejkeke* is often used with the more idiomatic meaning of 'thin' when applied to people. Like

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9   These forms are in some ways similar to the cross-modal compound perception terms discussed in Brown (2011) in that they productively encode multiple qualities and senses within a single complex term.

roots for colors, roots for other qualities can be combined with classifiers to derive descriptive words productively.

(75) *fi-lura~ra*
 white-CL:elongated~RED
 'white-elongated'

(76) *lush-papa~(p)a*[10]
 blue/green-CL:oblong~RED
 'blue/green-oblong'

(77) *ej-puka~ka*
 dry-CL:sphere/fruit~RED
 'dry-spherical'

The three most common classifiers are essentially nouns that have extended their usage to classification, and a number of other nouns that show classifier-type features can also undergo this productive process. Two of these include *chuwa*, for objects with long, vine-like shapes, and *paki*, for flat objects (typically coins, cookies, or flat rock formations).

(78) *un-chuwa~wa*
 red-CL:string/vine~RED
 'red-string/vine'

(79) *ej-paki~ki*
 dry-CL:flat~RED
 'dry-flat'

While such constructions with classifiers can be productively generated to make terms that combine shape with a second attribute like color, there are limits to incorporating nouns into these constructions. When attempting to generate new terms in elicitation, some forms were judged acceptable while others were not. Consultants found it acceptable to create a term for 'dry-leafy' (80), 'dry/skinny-man' and 'dry/skinny-woman.' However, consultants would not accept a similar construction with 'dog.'

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10 After final syllables reduplicate other phonological processes can apply, such as the inter-vocalic consonant deletion seen here, which creates a final long vowel: *lushpapaa*.

(80) *ej-jaki~ki*
      dry-leaf~RED
      'dry-leafy'

(81) *ej-ruku~ku*
      dry-man~RED
      'skinny-adult male'

(82) *ej-shinpu~pu*[11]
      dry-woman~RED
      'skinny-adult female'

(83) **ej-kucha~cha*
      dry-dog~RED
      'dry-canine' or 'skinny-canine'

Complex, multi-attribute constructions are certainly productive, but their productivity is limited, with some constructions being highly conventionalized, others being novel but acceptable, and others being unacceptable. If their component morphemes are identifiable, the meaning is generally predictable from the parts, but it is more complicated to predict exactly which morphemes can be incorporated. The general rule is that the more grammaticalized its classifier function, the more likely a noun is able to be incorporated in an R-attributive word. The classifiers, in turn, should agree with the class (usually shape) of whatever noun the R-attributive word modifies.

5.4   *The Morphosyntactic Distribution of Attributive Words*
While attributive word reduplication can be clearly distinguished semantically and morphologically from the other types of reduplication in Cha'palaa, it is also worthwhile to briefly outline the syntactic features of this word class and to note some of the ways it interacts with other reduplication types. The two main syntactic positions in which attributive words occur are as predicate elements, as in (84) and (85), and as post-nominal modifiers, as in (86). R-attributive words can either predicate on their own in stative constructions or occur as *i* ('become') class predicates, cast as changes-of-state.

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11   The orthography shows a phonemic representation; however, sometimes regular phonological processes, such as voicing and assimilation, apply. In example (82) the nasal assimilates to a bilabial before the bilabial stop, and the bilabial stop is voiced after the nasal (*shimbupu*). The reduplicated syllable retains the unvoiced stop.

(84) *lushishi-we*
     blue-DECL
     '(It) is blue.'

(85) *lushishi i-we.*
     blue   become-DECL
     '(It) became blue.'

(86) *kule   lushishi kee-yu*
     canoe   blue   see-EGO
     'I see (a/the) blue canoe.'

While some members of the R-attributive class are productively derived and others are lexicalized and opaque, all members of the class share the same general syntactic possibilities and restrictions, and all can occur in the three construction types shown above. In addition, as a coverb, descriptive words are subject to further processes of reduplication like those described in section 3 on predicate reduplication. For example, in (87) the color term *unkalala* ('red') occurs as a simplex predicate, in (88) it occurs as a reduplicated predicate with iterative aspect, and in (89) it combines with adjunct reduplication to illustrate all three major reduplication types in the same construction.

(87) *unkalala i-we*
     red   become-DECL
     '(It) became red.'

(88) *unkalala unkalala i-we*
     red   red   become-DECL
     'It became red repeatedly.'

(89) *kuwain kuwain unkalala unkalala i-we.*
     slow   slow   red   red   become-DECL
     'It slowly and repeatedly became red.'

I have not directly addressed the prosody of attributive words and cannot do so at length here, but it should be noted that in discourse, words of this class tend to feature final-syllable stress and vowel lengthening. In Cha'palaa penultimate stress is the general norm, although other patterns exist for some specific phonological environments. For R-attributive words both penultimate and final stress with vowel lengthening are possible, and the preferred form is

the final-stress variant. Their exceptional prosody is another suggestive detail regarding the historical relationship of attributive words to ideophones, which tend to show uncommon phonotactics. Word-final stress of descriptive words is often accompanied by a lengthening of the vowel to create a heavy syllable. Examples (90), (91) and (92) from natural discourse illustrate some common contexts for descriptive words, many as post-nominal modifiers.

(90) *wara tapipií   pu-min*
     pants short.hanging be.in-HAB
     '(They) usually wear short pants.'

(91) *tsaa pababaá achuwa te'wallulluú*
     SEM black   hair   curly
     '(They're) like black, with curly hair.'

(92) *mish-puka   chiyayaá juntsa-a*
     head-CL:sphere/fruit tangled   DM.DST-FOC
     '(It has a) tangled head, that one.'

Example (93) shows an R-attributive word as a predicate (*piichilili* 'striped'); it has no overt argument but refers back to a discourse antecedent (*jali* 'clothing').

(93) *jali=bain   yala-'   jali   traje,*
     clothing=also 3COL-POSS clothing clothing
     'Clothing also, their clothing (or) *traje*'

     wee   kolor-ya pu-mu-de-e-we,   piichililií-wa
     other color-FOC be.in-AG.N-PL-become-DECL striped-PAST
     (they) wear a different color, (they were) striped.'■ non-matching quotation mark

While it is impossible to fully describe the properties of R-attributive words in Cha'palaa here, these details are enough to establish that they cohere as a word class in many ways and that they contrast in both form and meaning with the other types of reduplication in the language.

6   Conclusions

This paper organized Cha'palaa reduplication constructions into four major types, describing each of them and some additional minor types and subtypes to the extent possible in the space available. While the facts of the language are complex and many more details could be addressed in further work,[12] the general four reduplication types as outlined here can accommodate and account for the great majority of specific instances of reduplication found in the data set. Beyond simply holding up well descriptively, however, this typology of reduplication constructions also allows us to appreciate their great diversity in Cha'palaa and the extent to which reduplication can be integrated with grammatical processes. Since each of the reduplication types in the language has a unique set of morphosyntactic characteristics, makes a distinct semantic contrast, and applies to different word classes and construction types, it is likely that each type developed independently, meaning that at various times in its history Cha'palaa has increased the functional load its grammar places on reduplication.

Of the four types, ideophone reduplication is the least grammaticalized, and as noted in section 2, it might be better described as repetition rather than productive reduplication. However, comparing ideophone constructions to the other reduplication types helps to highlight some possible historical connections between repetition and reduplication, as patterns of ideophone repetition provide one possible model for the basic formal property of reduplication, the doubling of all or part of a word form. The two formats for ideophone reduplication, full reduplication and partial reduplication of final syllables, formally resemble the more grammaticalized types of reduplication in the language: predicate and adjunct reduplication show full forms and attributive word derivation shows final-syllable reduplication. With ideophones full reduplication is associated with temporality and iteration while partial reduplication is associated with spatial extension and distribution. Somewhat similarly, the grammaticalized types of reduplication associate full reduplication with iterated events while partial reduplication is associated with physical qualities of objects. Since there is some degree of overlap between ideophones and the other reduplicating word classes in the language, it is possible that grammaticalized reduplication originated in analogy to the less-morphosyntactically constrained ideophone reduplication, which became "tamed" by increasing

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12   Important topics that remain to be addressed include reduplication in negative constructions and in interrogative and imperative sentence types, for example.

morphosyntactic restrictions and was extended productively to other word classes. Ultimately it may be impossible to do more than just speculate about plausible ways that Cha'palaa could have developed so much grammatical reduplication while its closest relatives and neighbors did not, but the Cha'-palaa data suggests that the ideophone analogy may be at least one route to grammaticalization of reduplication, raising the question of whether similar accounts could apply to other languages as well.

From a synchronic perspective it is possible to rank the current reduplication types in Cha'palaa by their degree of morphosyntactic restriction. Reduplicated ideophones can occur almost anywhere in a sentence, can act as single utterances themselves, and can repeat two or more times. Adjunct reduplication must occur in association with a predicate, but its position is highly flexible with respect to the predicate, which may even be elliptical. Predicate reduplication is part of the core predicate and must occur immediately to the left of a finite verb, without possibilities of ellipsis. Figure 2 compares the relative degree of morphosyntactic restriction of the three types of full reduplication in the language.[13]

FIGURE 2   *Morphosyntactic limits of reduplication*
■rename as table?

	<**Less restricted** < <	> > **More restricted**>	
Reduplication type	Ideophone reduplication	Adjunct reduplication	Predicate reduplication
Morphosyntactic restrictions	i. free morpho-syntax ii. unrestricted number of reduplicants iii. full and partial reduplication	i. loose morpho-syntax restriction at phrase level ii. only one reduplicant iii. only full reduplication	i. restricted to coverb position within the core predicate ii. only one reduplicant iii. only full reduplication

13   For partial reduplication, ideophone constructions would be similarly ranked as the least restricted, as they can repeat two or more time, while attributive words are derived by a single reduplicant.

This continuum of relative restrictedness also resonates with the idea of a possible grammaticalization path in which unrestricted ideophone-like reduplication became more and more incorporated into the grammar and more subject to morphosyntactic restrictions. All the types of reduplication share a common iconic semantic element of iterative or distributional meaning, but there are differences with respect to how abstractly grammatical this iconicity has become over time. Cha'palaa shows how a language can recruit these iconic properties and extend them to different grammatical functions in different ways.

If at a language-internal level Cha'palaa illustrates how a single language can feature diverse structural types of reduplication applied to a broad range of grammatical functions, the level of cross-linguistic comparison can provide another way for thinking about the relative weight of reduplication in the grammars of different languages. Cha'palaa can be considered a language that places a relatively large functional load on reduplication compared to languages that rely on other kinds of morphosyntactic processes for comparable grammatical processes. Thinking in these terms yields another kind of relative ranking at the language-external level among languages that rely on grammaticalized reduplication to different degrees. The following figure ranks English, three of the Barbacoan languages,[14] and Cha'palaa's two main contact languages, Spanish and Ecuadorian Quechua.

FIGURE 3   *Relative importance of reduplication*
■rename as table?

Load on reduplication:	<Less	<<	>>	More>
Language:	English Spanish Awa Pit	Quechua (Ecuadorian) Tsafiki		Cha'palaa

At the far left of the continuum are languages like English and Spanish, which have little or no productive reduplication to speak of, as well as Cha'palaa's relative Awa Pit, which is reported to have no productive reduplication. In the

14   This ranking of the Barbacoan languages is based on the available sources cited in section 1. It is possible, however, that more information could emerge to alter this ranking. For instance, while Curnow (1997) found no productive reduplication for Awa Pit in his data, a future study examining different data might reveal some form of reduplication processes like those reported for its sister languages.

middle are languages like Ecuadorian Quechua, Cha'palaa's closest neighboring indigenous language, which limits reduplication mainly to intensification of adjectival and adverbial modifiers, and Tsafiki, Cha'palaa's closest relative, which features some patterns similar to those of Cha'palaa but in a less grammaticalized state. At the far right are languages like Cha'palaa, which have a wide range of reduplication types and subtypes used for a variety of grammatical functions. Both looking at language-internal continua of morphosyntactic restriction among reduplication types and at language-external continua of grammars with varying functional loads placed on reduplication show promising ways for exploring the diversity of reduplication processes in the languages of South America and beyond.

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Abbreviations

1	first person
2	second person
3	third person
ACC	accusative
AG.N	agentive nominalizer
AUG	augmentative
CL	classifier
COL	collective
COM	comitative
DEC.REF	deceased referent
DM.PRX	proximal demonstrative
DM.DST	distal demonstrative
DR	different reference
DECL	declarative (non-egophoric)
DUB	dubitative
EGO	egophoric perspective
EMPH	emphatic, precision
FOC	focus
HAB	habitual
IDEO	ideophone
INF	infinitive
INF.EV	inferential/knowledge uptake evidential
LIM	limitative, 'only'
LOC1	directional locative
LOC2	general locative
NEG	negation
N	nominalizer
PAST	optional past tense
PL	plural
POS.INCH	inchoative positional
POS.STAT	stative positional
POSS	possessive
Q	question
RED	reduplication
RES	resultative
R.CL	relativizer
SEM	semblative
SR	same reference