

The Morphological Expression of Plurality and Pluractionality in Mandarin

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Abstract

This paper reports the fact that the morpheme that expresses the plurality of individuals and the one that expresses the plurality of events or actions are the same derivational reduplicant in Mandarin Chinese. It is seen in AABB nouns and AABB verbs. Thus, an instance of cross-categorial quantification is attested morphologically. With respect to word formation, the fact can be explained if the reduplicant is combined with a base first and then a functional element is merged with the combination, and the categorial features are projected from the functional element alone (categorization). Thus, not only roots, but also derivational affixes, can have no categorial features. As a consequence, the existence of acategorial plural markers indicates that number features can be integrated not only after categorization, realized as inflectional affixes or functional elements, but also before categorization, realized as derivational affixes. The same is true of gender and animacy features, cross-linguistically.

Keywords plural, pluractionality, derivational, category, selection, reduplication, Chinese

Highlights

- Plurality and pluractionality is expressed by the same reduplicant in Mandarin.
- The root of AABB nouns and verbs are acategorial.
- The reduplicant of AABB nouns and verbs are acategorial.
- Acategorial plural markers can be integrated into a structure before categorization.

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1. Introduction

In Mandarin Chinese, if a base A is reduplicated, a word in an AA pattern is formed. For example, *xing* ‘star’ has an AA counterpart *xing-xing* ‘star’. If a base is composed of two elements, A and B, it is possible to reduplicate A and B respectively, forming an AABB word. In the AABB noun *hua-hua-cao-cao* ‘flowers and grasses’ in (1a), for example, the two components *hua* ‘flower’ and *cao* ‘grass’ are both reduplicated.¹

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|-----|----|-----------------------------|------------------|----|-------------------------|---------------|
| (1) | a. | naxie | huahua-caocao | b. | naxie | riri-yeye |
| | | those | RED.flower-grass | | those | RED.day-night |
| | | ‘those flowers and grasses’ | | | ‘those days and nights’ | |

The empirical issue of this paper is the formal properties of AABB words in Mandarin Chinese. The AABB word in (1a) refers to several flowers and several grasses, and the one in

¹ Abbreviations in the glosses of Chinese examples: BA: causative marker; CL: classifier; DE: associative marker or sentence-final particle; EXP: experiential aspect; PRF: perfect aspect; PRG: progressive aspect; RED: reduplicant. In AABB examples, each root is glossed once, and RED of the total reduplication appears at the left-edge of the gloss line. For another type of total reduplication word, ABAB word (e.g., (13)), RED appears at the right-edge of the gloss line. This is just one way to distinguish the two types of reduplication. Any other ways of labelling the examples should be equally fine.

(1b) refers to several days and nights. In addition to plural individuals, AABB words may also denote plural actions or events, as seen in the underlined verbs in (2a) and (2b). Event or action plurality is called pluractionality in some literature (Newman 1990; also see Corbett 2000: 243).

- (2) a. A-Gui zai jia-li qiao-qiao-da-da.
 A-Gui at home-in RED.knock-beat
 ‘A-Gui beat something repeatedly at home.’
 b. A-Gui ba bieren de wenzhang pin-pin-cou-cou.
 A-Gui BA other DE article RED.merge-combine
 ‘A-Gui combined others’ articles here and there.’

AABB adjectives are also available in the language, as seen in (3a). However, instead of plurality, they express a meaning similar to that of a combination of the correlated AB compound and the degree word *hen* ‘very’, as in (3b).

- (3) a. A-Gui zongshi xiao-xiao-xin-xin.
 A-Gui always RED.small-heart
 ‘A-Gui is always very careful.’
 b. A-Gui zongshi hen xiao-xin.
 A-Gui always very small-heart
 ‘A-Gui is always very careful.’

Individual-denoting AABB words are discussed in Ōta (1958: sec. 11.3.2), Tang (1979: 114), Wu & Shao (2001), and Deng (2013); and action-denoting AABB words are discussed in Ōta (1958: sec. 16.2.3), Tang (1979: 120), Sun (2006), Huang et al. (2009: 26), and Deng (2013) (and Feng 2003 from a phonological perspective). Although other types of reduplicated words, including the state-denoting AABB adjectives such as the one in (3a), have been investigated a lot (e.g., Chao 1968), individual- and action-denoting AABB words are still understudied. In the previous studies, none of the authors has discussed two theoretical issues: the category issue of AABB words in word formation and the structural position of a special plural morpheme.

In this paper, I will make a generation that individual- and action-denoting AABB words denote a specific type of plurality, greater plurality. I will argue that this plurality is encoded by a derivational affix, the AABB reduplicant; and since the reduplicant in AABB nouns and verbs is the same form, it is integrated in the structure earlier than a categorization operation. The theoretical implications of this claim are that plurality can be represented in various structural positions and that derivational morphology can be acategorical.²

The paper first reports a unified way of encoding plurality in AABB nouns and verbs (Section 2), in contrast to adjectives (Section 3), and then proposes an account for the invisibility of category features in the forming of plural-denoting AABB words (Section 4), and finally, discusses the position where the attested number-marker, as a derivational morpheme, is integrated into a structure (Section 5).

2. The shared properties of AABB nouns and verbs

In this section, I show that individual-denoting AABB words and action-denoting AABB words share three properties: their basic plurality meaning, certain constraints on their

² The use of the term ‘derivational morphology’ in this paper is descriptive. The paper does not discuss whether the operations in word-formation are fundamentally different from those in building of other kinds of structures.

components, and the derivational morphology. I then propose my analysis of the shared properties.

2.1 The shared greater plural reading of AABB nouns and verbs

2.1.1 Individual-denoting AABB words

According to Ōta (1958: sec. 11.3.2), early use of individual-denoting AABB words in Chinese was seen in *Shi Jing* ‘Classic of Poetry’ (around BC 1000). Such words have a plural reading in the attested data. As seen in the modern Mandarin Chinese examples in (4), they may not occur in a singular context. The word *pingping-guanguan* ‘bottles and jars’ may not follow *yi* ‘one’ or *na* ‘that’, but may follow *naxie* ‘those’, as seen in (4a) and (4b), respectively.³

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|-----|----|----------|----|-------------------|----|-------|--------------------------|
| (4) | a. | *{yi/na} | ge | pingping-guanguan | b. | naxie | pingping-guanguan |
| | | one/that | CL | RED.bottle-jar | | those | RED.bottle-jar |
| | | | | | | | ‘those bottles and jars’ |

No dual reading is allowed for an AABB noun, and the denoted plural must be a greater plurality (“*duo liang*” ‘big quantity’ in Wu & Shao’s 2001: 13 term; also see Sun 2006: 69) (see Corbett 2000 for greater plurality; also called abundant plurality; see Harbour 2014 for a formal representation of greater plurality). The AABB noun *nannan-nünnü* ‘males and females’ is compatible with *yi qun* ‘one group’, or *ta-men* ‘they’, as in (5a), rather than *liang ge ren* ‘two persons’, as shown in (5b). In this sense, the plurality expressed by such nouns is different from the one expressed by the plural suffix *-men*. As seen in (5c), the *-men* plural pronoun is compatible with *liang ge ren*.

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|-----|----|---|-----------|---------|---------|-----------------|----------|
| (5) | a. | Men-wai | zhan-zhe | (yi | qun) | nannan-nünnü. | Ta-men |
| | | door-outside | stand-PRG | one | group | RED.male-female | 3-PL |
| | | dou | hen | jidong. | | | |
| | | all | very | excited | | | |
| | | ‘Outside stood (a group of) males and females. They are all excited.’ | | | | | |
| | b. | *Men-wai | zhan-zhe | (yi | qun) | nannan-nünnü. | Liang ge |
| | | door-outside | stand-PRG | one | group | RED.male-female | two CL |
| | | ren | dou | hen | jidong. | | |
| | | person | all | very | excited | | |
| | c. | ni-men | liang | ge | ren | | |
| | | 2-PL | two | CL | person | | |
| | | ‘you two’ | | | | | |

AABB words may also denote abstract individuals, as seen in (6).

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|-----|----|--|----------------------|----|--------------------------|---------------|
| (6) | a. | naxie | enen-yuanyuan | b. | naxie | dede-shishi |
| | | those | RED.gratitude-grudge | | those | RED.gain-lost |
| | | ‘those instances of gratitude and grudges’ | | | ‘those gains and misses’ | |

³ As seen in (i), the apparent plural demonstratives (i.e., *naxie* and *zhexie*) are also compatible with mass nouns, whereas *na* and *zhe* are not. Assuming that there is certain shared semantics between plural and mass-denoting expressions (Link 1983), we claim that *na* and *zhe* s-select singular expressions, rejecting both mass and plural expressions, whereas *naxie* and *zhexie* have the opposite s-selection.

(i)	a.	naxie	niunai	b.	*na	(ge)	niunai
		those	milk		that	CL	milk
		‘the milk’					

Abstract AABB nouns also have a greater plural reading, and thus they are not compatible with either *yi* ‘one’, as shown in (7a), or *liang* ‘two’, as shown in (7b).

- (7) a. **yi ge dede-shishi* b. **liang ge dede-shishi*
 one CL RED.gain-lost two CL RED.gain-lost

Reduplicated nouns in other reduplication patterns do not have an exclusive plural reading. For instance, the examples in (8) have an AA reduplication pattern, and they allow either a singular or plural reading.

- (8) a. *xing-xing* b. *bu-wa-wa*
 star-RED cloth-kid-RED
 ‘star(s)’ ‘doll(s) that {is/are} made of cloth’

2.1.2 Action-denoting AABB words

According to Ōta (1958: sec. 16.2.3), action-denoting AABB words in Chinese encode iterative actions (also Sun 2006). The use of such words can be traced back to the literature of the Han Dynasty (e.g., *Shi Ji* ‘Records of the Historian’, around BC 200). They express plurality. Although Ōta gives examples in old Chinese, I use modern Chinese examples to show their plural readings. In (9a), the action-denoting AABB word may not occur with *yi xia* ‘one time’; but it may occur with a durative expression such as *yi shangwu* ‘one morning’, as seen in (9b).⁴

- (9) a. *A-Gui zai jia-li qiaoqiao-dada-le yi xia.
 A-Gui at home-in RED.knock-beat-PRF one CL
 b. A-Gui zai jia-li qiaoqiao-dada-le yi shangwu.
 A-Gui at home-in RED.knock-beat-PRF one morning
 ‘A-Gui beat something repeatedly at home for a whole morning.’

Thus, an action-denoting AABB word is similar to the pluractional verbal in other languages. In the Mayan language Kaqchikel, the suffix *-la* ‘denotes event plurality. “While example (6) [= (10a)] requires that there be at least one event of me looking for a book (though maybe more), example (7) [= (10b)], which bears the pluractional suffix, is false if there is only one of these events” (Henderson 2014: 6: 3-4).⁵

- (10) a. X-Ø -in-kano-j jun wuj.
 CP-A3SG-E1SG-search-SS one book
 ‘I looked for a book.’
 b. X-Ø -in-kan-*ala*’ jun wuj.
 CP-A3SG-E1SG-search-*la*’ one book
 ‘I looked for a book (in various locations or at various times).’
 False if there is only one looking-for event

⁴ Lieber (2006: 270) uses the feature CI, for “Composed of Individuals”, to denote events which by their very nature imply repeated actions of the same sort, e.g., *wiggle*, *totter*, or *pummel*. The meanings of such verbs are intrinsically iterative (see Jespersen 1924: 210). They may be treated as swarm verbs (Henderson 2012; 2015). However, the base of an action-denoting AABB word does not intrinsically denote iterative or repeated actions. But the denoted action is able to be iterated or repeated.

⁵ Special glossing conventions in the Kaqchikel examples: A: absolutive; CP: completive aspect; E: ergative; SS: status suffix.

Instead of suffixation, many languages, including the West African language Hausa (Součková 2011), the West Chadic language Bole (Ward 2012), and Mandarin Chinese, use reduplication to express pluractionality. Corbett (2000: 258) mentions that “Turning to the means for marking verbal number cross-linguistically, we find stem modification (frequently reduplication) used commonly”.

Precisely speaking, action-denoting AABB words denote greater plurality. In (11), the action-denoting AABB word *qiaoqiao-dada* ‘beat again and again’ is compatible with *haoji xia* ‘several times in a single occasion’, rather than *liang xia* ‘two times in a single occasion’.⁶

- (11) a. A-Gui qiaoqiao-dada. Haoji xia dou bu chenggong.
 A-Gui RED.knock-beat several CL all not successful
 ‘A-Gui beat something repeatedly. But he was not successful after several times in that occasion.’
 b. *A-Gui qiaoqiao-dada. Liang xia dou bu chenggong.
 A-Gui RED.knock-beat two CL all not successful

When talking about verb number, Corbett (2000: 250) states that “It seems likely that many of the instances glossed as ‘plural’ in the literature would be more accurately glossed as ‘several’.” Pluractionality in many languages expresses “large number of events” (Součková 2011: 3; also Cabredo Hofherr 2010). The reading of AABB verbs is compatible to this general pattern.

Reduplicated verbs of other reduplication patterns may express single action or event. Both V-(yi)-V or V-(le)-V verbs and ABAB verbs have been claimed to express a delimitative aspect in Li & Thomson (1981: 232-236; they did not discuss action-denoting AABB words), or a short-time aspect in Ōta (1958: sec. 16.2.2) (also see Smith 1994: 119), or tentative aspect in Chao (1968: 204-205). Reduplicated verbs with a monosyllabic root, which are in either V-(yi)-V or V-(le)-V form, may be used to express either a single action or plural actions, depending on the context. The *yi*-form is used in an irrealis context and the *le*-form is used in a realis context. The verb *kan*-(yi)-*kan* ‘look’ in (12a) means either a single or plural action. The same is true of the verb *kan*-*le*-*kan* ‘looked’ in (12b).

- (12) a. Ni qu wai-mian kan-(yi)-kan!
 2SG go out-side look-one-RED
 ‘Go out to have a look!’ or ‘Go out to look around!’
 b. A-Gui xiang wai-mian kan-le-kan.
 A-Gui toward out-side look-PRF-RED
 ‘A-Gui had a look at the out-side.’ Or ‘A-Gui had some looks at the outside.’

Moreover, ABAB verbs also allow both a singular and a plural reading, unlike AABB verbs. For instance, the roots *jian* ‘examine’ and *cha* ‘check’ may form an ABAB word *jian-cha-jiancha*, as seen in (13a) and (13b). When you ask someone to check her blood-pressure,

⁶ Because of the event-internal verbal CL *xia* ‘time’, the frequentatives in (11) do not mean multiple times in different occasions. See Zhang (to appear) for a study of event-internal and event-external verbal CLs. However, the plurality denoted by AABB words can be either event-internal or event-external. The one in (11a) is the former, whereas the one in (i) can be the latter: it is possible that the multiple article-combining actions are separated in time and location, and thus they do not form a single event (See Wood 2007 for a discussion of the event-internal and event-external pluractionality in Chchen and Yurok).

(i) A-Gui ba wangye-shang de wenzhang pinpin-coucou.
 A-Gui BA webpage-on DE article merge.RED-combine.RED
 ‘A-Gui combined articles from webpages here and there.’

by default, you do not ask her to do it repeatedly. Thus, (13a) is more likely to encode a single action. But when one checks a huge building, it is possible to do it on several occasions, and on each occasion, she checks one part of the building. Thus it is easier to get a plural action reading from (13b) (see footnote 1 for the position of RED in the gloss line).

- (13) a. Ni qu jian-cha-jiancha ni de xue-ya.
 2SG go examine-check-RED 2SG DE blood-pressure
 ‘You’d better check your blood-pressure.’
 b. You shijian de shihou, ni qu jian-cha-jiancha na
 have time DE when 2SG go examine-check-RED that
 zuo da-lou.
 CL big-building
 ‘When you have time, check that big building.’

We thus see that only AABB verbs, rather than verbs of any other reduplication patterns, have an exclusive plural reading.

It is necessary to point out that root ambiguity exists. The root *shang* ‘the high part; ascend’ means either an entity in a high location, or the action of ascending. Similarly, the root *xia* ‘the low part; descend’ means either an entity in a low location, or the action of descending. The word is individual-denoting in the former use, and action-denoting in the latter use. As expected, in the absence of a context, the word *shangshang-xiaxia* can be ambiguous. The one in (14a) is individual-denoting, and the one in (14b) action-denoting.

- (14) a. Shangshang-xiaxia dou shi wu-ni.
 RED.high-low all be dirty-mud
 ‘The high and low parts are all dirty mud.’
 b. Na zuo shan, ta shangshang-xiaxia-le henduo ci.
 that CL hill 3SG RED.ascend-descend-PRF many CL
 ‘That hill, he has ascended and descended many times.’

Greater plural markers do not express an exact cardinality and thus are incompatible with a numeral in the same phrase (see Zhang 2014 for nominal greater plurality, and Cabredo Hofherr 2010: 87-88 for the same constraint on pluractionality). The AABB noun in (15a) may not occur with the numeral *shi* ‘ten’ in the same nominal phrase; and similarly, the action-denoting AABB word in (15b) also rejects the numeral *shi* in the same predicate.

- (15) a. *shi ge huahua-caocao
 ten CL RED.flower-grass
 b. *A-Gui zai jia-li qiaoqiao-dada-le shi xia.
 A-Gui at home-in RED.knock-beat-PRF ten CL

To summarize the result of this subsection, both AABB nouns and verbs express a specific type of plurality: greater plurality.⁷

2.2 The shared constraints on the components of AABB nouns and verbs

2.2.1 The parallelism requirement on the relation between the roots

Semantically, the two roots of an AABB noun or verb must be parallel to each other (Wu & Shao 2001; Sun 2006). The two roots form a juxtaposition. Their meanings must be

⁷ Bar-el (2008: 41) reports that in Squamish (spoken in Canada), the same plural marker for nouns and verbs denotes just not less than two, and thus it is not a greater plural marker.

synonymous, or hyponymous, or antonymous to each other (Tang 1979: 114), as in (16a), (16b), and (16c), respectively.

- | | | | | | | |
|------|----|--|----|--|----|--|
| (16) | a. | jiajia-huhu
RED.home-family
'families' | b. | huahua-caocao
RED.flower-grass
'flowers and grasses' | c. | jinjin-chuchu
RED.enter-exit
'move in and out' |
|------|----|--|----|--|----|--|

No other relation such as complementation, modification, or predication relation is allowed between the two roots of such words. In (17a), the first component of the noun *li-shi* 'director', *li* 'to handle', takes the second one, *shi* 'matter', as its theme. In (17b), the first component of the noun *hua-ping* 'flower-bottle', *hua* 'flower', is a modifier of the second one, *ping* 'bottle'. In (17c), the first component of the noun *xue-beng* 'avalanche', *xue* 'snow', is the subject of the other component, *beng* 'collapse'. The two morphemes of each of these nouns are not semantically parallel. The nouns do not have correlated AABB words.

- | | | | | |
|------|----|--|----|---------------------------------------|
| (17) | a. | li-shi
handle-matter
'director' | => | *lili-shishi
RED.handle-matter |
| | b. | hua-ping
flower-bottle
'vase' | => | *huahua-pingping
RED.flower-bottle |
| | c. | xue-beng
snow-collapse
'avalanche' | => | *xuexue-bengbeng
RED.snow-collapse |

A similar constraint is seen in action-denoting AABB words. In the word *dong-yuan* 'mobilize' in (18a), the first component, *dong* 'move', takes the second component, *yuan* 'member', as its theme. In the word *ning-shi* 'gaze' in (18b), its first component *ning* 'freeze' is a modifier of the second one *shi* 'look'. In the word *gui-hun* 'fool around' in (18c), the first component *gui* 'ghost' is the subject of the second one *hun* 'muddle along'. In all of these cases, the two morphemes of each compound are not semantically parallel. None of the words has a correlated AABB form.

- | | | | | |
|------|----|--|----|--|
| (18) | a. | dong-yuan
move-member
'mobilize' | => | *dongdong-yuanyuan
RED.move-member |
| | b. | ning-shi
freeze-look
'gaze' | => | *ningning-shishi
RED.freeze-look |
| | c. | gui-hun
ghost-muddle.along
'fool around' | => | *guigui-hunhun
RED.ghost-muddle.along |

This constraint is not seen in other types of reduplication. In (19), we see that the same *dong-yuan* 'mobilize' appears in the ABAB word.

- (19) Duo dong-yuan-dongyuan ziji jia de qin-you.
 more move-member-RED self family DE relative-friend
 'Go and mobilize more of your own relatives and friends.'

2.2.2 The monosyllabic constraint on the roots

Each root of an AABB noun or verb must be monosyllabic. Individual-denoting disyllabic monomorphemic words include *hutong* ‘alley’, *putao* ‘grape’, *hudie* ‘butterfly’, and *shafa* ‘sofa’; and action-denoting disyllabic monomorphemic words include *fenfu* ‘instruct’, *paihuai* ‘wander’, *xiaoyao* ‘stroll in freedom’, and *beige* ‘boycott’. Such words may not have an AABB form, as seen in (20).

- (20) a. hutong => *huhutongtong
 ‘alley’ Intended: ‘many alleys’
 b. fenfu => *fenfenfufu
 ‘instruct’ Intended: ‘instruct repeatedly’

This constraint is not seen in other types of reduplication. In (21), we can see that the same disyllabic monomorphemic *fenfu* may have an ABAB form:

- (21) Zhe jian shi ni yao dui ta-men duo fenfu-fenfu.
 this CL matter 2SG should toward 3-PL more instruct-RED
 ‘As for this matter, you’d better to instruct them more.’

2.3 The shared derivational morphology of AABB nouns and verbs

It is generally recognized that derivational morphology creates words, whereas inflectional morphology specifies the syntagmatic properties of word forms, such as agreement and case, in a syntactic context. Considering languages such as Mandarin Chinese, which has no agreement in any sense, Packard (2000: 77) points out that universally, the two types of morphology are distinguished by properties such as productivity and degree of boundness. In this subsection, we show that the morphology of AABB nouns and verbs is derivational, rather than inflectional.

2.3.1 The existence of many AB forms that have no AABB counterparts

The formation of AABB nouns and verbs is not productive. Many acceptable compound nouns that have parallel roots do not have correlated AABB forms (cf. Wu & Shao 2001: 13). Two examples are seen in (22). Similarly, many acceptable compound verbs that have parallel roots also do not have correlated AABB forms. Two examples are given in (23) (also see Sun 2006: 69).

- (22) a. zhuo-yi => *zhuozhuo-yiyi
 table-chair RED.table-chair
 b. si-xiang => *sisi-xiangxiang
 thought-mind RED.thought-mind
 ‘thought’
(23) a. shou-hu => *shoushou-huhu
 guard-protect RED.guard-protect
 ‘protect’
 b. mai-mai => *maimai-maimai
 buy-sell RED.buy-sell
 ‘trade’

In Appendix A, we list forty some individual-denoting AABB words (see Wu & Shao 2001; Deng 2013; Tang 1979: 114), including concrete and abstract nouns. This is compared to many more individual-denoting root compound words in the language. Similarly, in

Appendix B, we list fifty some action-denoting AABB words (see Tang 1979: 115; Lü et al. 1980; Sun 2006; Deng 2013). This is compared to many more action-denoting root compound words in the language. Corbett (2000: 57) points out that “we typically find that relatively few verbs show verbal number distinctions.” Thus, the small number of action-denoting plural words in Chinese is normal. This strong “gappy” property is typically seen in derivational morphology, rather than the inflectional one.

2.3.2 The existence of many AABB forms that have no AB counterparts

Some individual-denoting AABB words do not have correlated free AB forms. For instance, in (24a), compared with the AABB form, *pen-guan* ‘basin-jar’ is not a word. The same is true of the AB form in (24b).

- | | | | | |
|------|----|--|----|--------------------------|
| (24) | a. | penpen-guanguan
RED.basin-jar
‘basins and jars’ | <= | *pen-guan
basin-jar |
| | b. | tiaotiao-kuangkuang
RED.bar-frame
‘bars and frames’ or ‘rules and regulations’ | <= | *tiao-kuang
bar-frame |

Similarly, some action-denoting AABB words do not have correlated free AB forms (Chao 1968: 207). We give two examples in (25). The word *duanduan-xuxu* in (25a) does not have a correlated word **duan-xu*. Similarly, the word *zouzou-tingting* in (25b) does not have a correlated word **zou-ting*.

- | | | | | |
|------|----|---|----|---------------------------|
| (25) | a. | duanduan-xuxu,
RED.stop-continue
‘be on and off repeatedly’ | <= | *duan-xu
stop-continue |
| | b. | zouzou-tingting
RED.walk-stop
‘keep walking and stopping.’ | <= | *zou-ting
walk-stop |

In such a case, the AABB words have bound bases. Bound bases or roots are typically found in derivational morphology, rather than the inflectional one.

2.3.3 The existence of semantic alternants

It is well-recognized that a bare noun in Mandarin, in either a simple or compound form, is underspecified with number, and thus is able to express a plural or greater plural meaning. Not only the AABB word *huahua-caocao* ‘flowers and grasses’, but also its correlated AB form *hua-cao*, may have a greater plural reading. In (26), in the presence of the adverb *dao chu* ‘everywhere’, a greater plurality is expressed, although the nominal *hua-cao* ‘flower-grass’ is not in an AABB form.

- | | | | | |
|------|---|------------|-----|--------------|
| (26) | Shan-shang | dao chu | shi | hua-cao. |
| | mountain-on | everywhere | be | flower-grass |
| | ‘There are flowers and grasses everywhere on the mountain.’ | | | |

Moreover, quantifiers such as *henduo* ‘many’ or *bu-shao* ‘not-few’ also express greater plurality, as seen in (27). The two examples have the same readings as the AABB form *huahua-caocao*. They all mean ‘many flowers and grasses’.

- (27) a. henduo hua-cao b. bu-shao hua-cao
 many flower-grass not-few flower-grass

Similarly, greater plural actions or events can be expressed by adverbials such as *yi-ci-ci* ‘again and again’, *fanfu* ‘repeatedly’, and *henduo ci* ‘many times’, and thus the AABB verbs allow such semantic alternants. The two examples in (28) are synonymous.

- (28) a. A-Gui zai nali jinjin-chuchu.
 A-Gui at there RED.enter-exit
 ‘A-Gui entered and exited there repeatedly.’
 b. A-Gui zai nali fanfu jin-chu.
 A-Gui at there repeatedly enter-exit
 ‘A-Gui entered and exited there repeatedly.’

Thus, AABB nouns and verbs are not the unique strategy to express greater plurality. Allowing semantic alternants is typically found in derivational morphology, rather than inflectional morphology (e.g., Acquaviva 2008: 2). In English, the word *many*, for instance, may not be an alternate of an inflectional plural marker, e.g., *many flower*(s)*.

Note that the adverbs in (26) and (28b) and the quantifiers in (27) may occur with an AABB word, as seen in (29) (also (14b)). In this case, they are compatible with the AABB word, but do not contribute extra plural reading to the sentence. For instance, (29b) and the two examples in (28) mean the same (I thank a reviewer for pushing me to clarify this).

- (29) a. Shan-shang you henduo huahua-caocao.
 mountain-on have many flower-grass
 ‘There are many flowers and grasses on the mountain.’
 b. A-Gui zai nali fanfu jinjin-chuchu.
 A-Gui at there repeatedly RED.enter-exit
 ‘A-Gui entered and exited there repeatedly.’

2.3.4 Argument structure differences between AB and AABB verbs

Derivational affixes may bring about a change in argument structure (Williams 1981; Spencer 1991: 192f.). For instance, (30d) shows that *retell*, unlike *tell*, may not have a sentential direct object (Bauer 1983: 179). Also, the verb *grow* does not have to be followed by an object, as seen in (31a), but *outgrow* requires an object, as seen in (31b); and the same nominal may occur as the object of *outgrow*, but not as the object of *grow*, as seen in the contrast between (31c) and (31d) (Bauer 1983: 180). Since derivational morphology builds new words, it is not surprising that the c-selection of the output can be different from that of the base.

- (30) a. I told her the story.
 b. I retold her the story.
 c. I told her that Lucy was coming.
 d. *I retold her that Lucy was coming.
 (31) a. He grew.
 b. *He outgrew.
 c. *He grew his electric train set.
 d. He outgrew his electric train set.

Argument structure differences between AABB verbs and their correlated AB verbs are seen in the fact that in the absence of an object to the right, an AB verb may be

unacceptable, but its correlated AABB form is fine. For instance, the root compound *qiao-da* ‘knock-beat’ needs to be followed by an object, such as *yi kou guo* ‘one CL pot’ in (32a). The object can be elided, if an antecedent occurs in the linguistic context. In (32b), the ellipsis of the object *yi kou guo* in the second sentence is recoverable from the same nominal in the first clause (the underlined part). However, the AABB verb *qiaoqiao-dada* is not constrained in this way. As seen in (32c), it may occur without an object in the linguistic context.

- (32) a. A-Gui zai jia-li qiao-da *(yi kou guo).
 A-Gui at home-in knock-beat one CL pot
 ‘A-Gui beat a pot at home.’
- b. A-Bao zai yuanzi-li qiao-dayi kou guo, A-Gui zai
 A-Bao at yard-in knock-beat one CL pot A-Gui at
 jia-li qiao-da yi kou guo.
 home-in knock-beat one CL pot
 ‘A-Bao beat a pot in the yard, and A-Gui did so at home.’
- c. A-Gui zai jia-li qiaoqiao-dada.
 A-Gui at home-in RED.knock-beat
 ‘A-Gui beat something repeatedly at home.’

Argument structure differences between AABB verbs and their correlated AB verbs are also seen in another aspect: while an AB verb may be followed by an object, its correlated AABB verb may not. One example is given in Huang et al. (2009: 26). The transitive verb *feng-bu* ‘sew-mend’ may be followed by *na jian chenshan* ‘that CL shirt’ in (33a), but the correlated AABB verb *fengfeng-bubu* may not, as seen in (33b). The intended meaning can be expressed by (33c), where the nominal occurs to the left of the AABB verb, following *ba*, which is treated as a causative marker in Sybesma (1999), among others.⁸

- (33) a. A-Gui jingchang feng-bu na jian chenshan.
 A-Gui often sew-mend that CL shirt
 ‘A-Gui often mends that shirt.’
- b. *A-Gui jingchang fengfeng-bubu na jian chenshan.
 A-Gui often RED.sew-mend that CL shirt
- c. A-Gui ba na jian chenshan fengfeng-bubu, chuan-le
 A-Gui BA that CL shirt RED.sew-mend wear-PRF
 henduonian.
 many year
 ‘A-Gui kept mending that shirt and wore it for many years.’

The same transitivity contrast is seen in all action-denoting AABB verbs and their possible AB counterparts: AABB verbs are intransitive, whereas AB verbs can be intransitive. Therefore, AABB verbs simply do not c-select a complement, although the entity affected by the denoted action (if any) can be expressed in other ways in the context.

⁸ Only definite and specific nominals may follow the causative marker *ba* (Lü 1948: sec. 2; Chao 1968: 343). In (ia), the object of *feng-bu* ‘sew-mend’ is the non-specific nominal *ji jian chenshan* ‘a few shirts’. In the AABB verb construction in (ib), this nominal may not occur with *ba*.

- (i) a. A-Gui xiang feng-bu ji jian chenshan.
 A-Gui want sew-mend a.few CL shirt
 ‘A-Gui wants to mend a few shirts.’
- b. *A-Gui xiang ba ji jian chenshan fengfeng-bubu.
 A-Gui want BA a.few CL shirt RED.sew-mend

Recall that in contrast to action-denoting AABB words, action-denoting ABAB words express a delimitative aspect. Aspect is inflectional in the language. As seen in (34a), such verbs allow an object to their right, parallel to the correlated AB verb in (34b).

- (34) a. Ni qu jian-cha-jiancha ni de xue-ya.
 2SG go examine-check-RED 2SG DE blood-pressure
 ‘You’d better check your blood-pressure.’
 b. Ni qu jian-cha ni de xue-ya!
 2SG go examine-check 2SG DE blood-pressure
 ‘Check your blood-pressure!’

The facts in (32) and (33) indicate that AABB verbs and their correlated AB verbs can have different selectional properties. As seen in the literatures cited at the beginning of this subsection, this kind of difference in structural properties between a base and a non-base form shows that the morphology of building AABB words is derivational.

2.4 Identifying the same morpheme for greater plurality and pluractionality

The fact that nominal reduplication expresses nominal plurality is seen in many languages (e.g., Regier 1998; Hurch 2005); and the fact that verbal reduplication expresses verbal pluractionality is also seen in many languages (Corbett 2000; Hurch 2005; Součková 2011). What we have reported here is the fact that the same reduplication pattern (i.e., AABB) is used for the greater plurality of both nouns and verbs (2.1). The fact that the same mechanism for plurality is found in both individual-denoting and action-denoting words is not unexpected, given that processes such as quantification are applied to both events and individuals (Bach et al. 1995; Landman 1997; Lasersohn 1995; Ojeda 1998).

In addition to the unified plural meaning of AABB nouns and verbs, their shared constraints on the components (2.2) show that a certain unified strategy is attested in the formation of such words. The shared properties of derivational morphology of the two kinds of words (2.3) further indicate that the strategy is that of a specific instance of derivational word-formation, i.e., the AABB pattern of reduplication.

How do we analyze this pattern of word-formation? In Bloomfield (1933: 218), reduplication is analyzed as affixation. The affixation theory of reduplication is extensively argued for in Marantz (1982). Adopting this theory, I analyze reduplication as the affixation of a skeletal morpheme to a base. Specifically, in an AABB word, the base is a compound of root A and root B, and the AABB skeleton, as an affix, is integrated with this base.

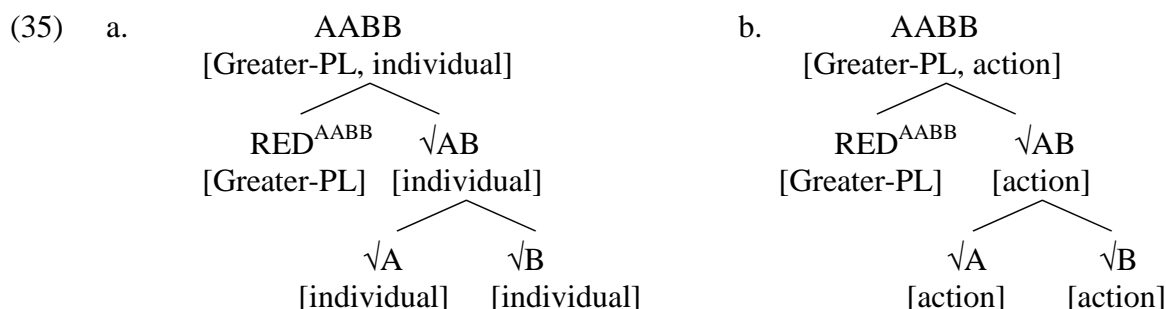
In this analysis, the AABB skeleton is a reduplicant (RED), and so is the ABAB skeleton. The former may be affixed to an individual-denoting base, expressing greater plurality, whereas the latter, which is claimed to express a delimitative aspect of verbs (2.1.2), may not (e.g., **huacao-huacao*, where the roots are *hua* ‘flower’ and *cao* ‘grass’). The former may also be affixed to an action-denoting base, and so is the latter; but in this case, the former expresses greater plurality exclusively, whereas the latter does not (see (13)). Moreover, the former s-selects a base that holds a parallel relation between the roots, whereas the latter does not have this restriction (2.2.1). Furthermore, the former phonologically selects (see Landau 2007 for the notion of phonological selection or p-selection) a base that contains mono-syllabic roots, whereas the latter does not have this restriction (2.2.2).⁹

We now turn to the issue how to represent the meaning greater plurality. Harbour (2014) formalizes a feature specification for greater plural. Since the contrasts in Chinese are simply between the plural in general (e.g., *-men* in personal pronouns), the greater plural, and

⁹ See Liu (2012: 46f) for other uses of ABAB expressions.

number underspecification (e.g., for bare nouns), the informal label [Greater-PL] is descriptively enough for representing the number feature of the RED in an AABB noun or verb.¹⁰

We use the semantic features [individual] and [action] to label the roots of AABB nouns and verbs. As shown in (35a), if the two roots are [individual], so is their combination. The greater plural-denoting RED is applied to the combination, deriving an AABB word.¹¹ Similarly, as shown in (35b), if the two roots are [action], so is their combination. The same RED is applied to the combination, deriving an AABB word.



3. A comparison to AABB adjectives

Adjectives can also be reduplicated in the language. A disyllabic gradable adjective may have an AABB form. For instance, in (36a), both *gao* ‘tall’ (note that *gao* ‘tall’ is pronounced with a glide coda, /kaw/, and thus it is monosyllabic) and *da* ‘big’ are monosyllabic, and thus *gao-da* is disyllabic. This form is also gradable. In (36b), the disyllabic and gradable form is in an AABB form.

- (36) a. *gao-da*
tall-big
‘tall and big’
- b. *gaogao-dada*
RED.tall-big
‘tall and big’

However, AABB adjectives exhibit different properties from AABB nouns and verbs, to be elaborated in this section.

3.1 The absence of an exclusive plural reading

AABB adjectives do not have exclusive plural readings. In (37), the AABB form is compatible with the singular frequentative expression *yi ci* ‘one time’. Although this example allows for one event containing multiple bowings, it also allows for a single bowing. This contrasts with AABB verbs, which never allow for a single action or state.

¹⁰ The meaning of greater plurality is also seen in the s-selection of some verbs. Bar-el (2008: 51) states that “In English, the semantics of the verb can affect the cardinality requirement; for example, we might want to say that the cardinality of the subjects or objects for the verbs *scatter*, *gather*, *collect*... would be no less than three.” We find that the verbs *shouji* ‘collect’ and *juji* ‘gather’ in Mandarin Chinese have the same semantics.

¹¹ In the AABB word *sansan-liangliang* ‘many small groups’, as in (i), the base contains the numerals *san* ‘three’ and *liang* ‘two’. But first, the two numerals do not strictly mean three and two, respectively. They both denote vague small numbers. Second, they may not be replaced with any other numerals, and thus no other numerals may have this use. Third, their order is fixed: *san* must precede *liang*. Although the AABB reduplicant may still be treated as a plural marker, the base is unique. Thus, we do not consider the word represent a general pattern.

(i) Keren *sansan-liangliang* de *lai-le*.
guest RED.two-three DE come-PRF
‘The guest came in several small groups.’

- (37) A-Gui dui laoshi zhi gonggong-jingjing-guo yi ci.
A-Gui to teacher only RED.humble-respect-EXP one CL
'A-Gui was respectful of the teacher only once.'

3.2 The absence of a parallelism constraint

The parallelism constraint on the bases of AABB nouns and verbs, discussed in 2.2.1, is not seen in AABB adjectives. For instance, in (36) and (37) above, the two roots are semantically parallel, but this is not the case in the two examples in (38). Instead, *xiao* ‘small’ modifies *xin* ‘heart’ in (38a), and *ke* ‘guest’ modifies *qi* ‘mental state’ in (38b).

- (38) a. xiaoxiao-xinxin
 RED.small-heart
 ‘careful.’
 b. keke-qiqi
 RED.guest-mental state
 ‘courteous’

3.3 The absence of derivational morphology properties

AABB adjectives generally have their acceptable correlated AB forms, as seen in the correlation between (36a) and (36b) above; and in the other direction, if a disyllabic gradable adjective does not have an AABB form, as in (39a), it must be able to be preceded by a degree word, as seen in (39b). Between the [*hen* AB] and an AABB state-denoting construction, a nominal base tends to show up in one of them only, as seen in (40) and (41) (cf. Tang 1979: 125) (see next subsection for the complementary distribution between an *hen*-adjective string and a reduplicated form of the same adjective).

- | | | | | |
|------|----|--|----|--|
| (39) | a. | *jiaojiao-aoao
RED.pride-conceited | b. | hen jiao-ao
very pride-conceited
'very conceited' |
| (40) | a. | *jiji-cheche
RED.moto-cycle | b. | hen ji-che
very moto-cycle
'very uncultivated' |
| (41) | a. | popo-mama
RED.mother.in.law-mother
'garrulous' | b. | *hen po-ma
very mother.in.law-mother |

Thus, there is neither a gap nor a bound base for the general mechanism that covers the occurrence of a degree word and the forming of an AABB adjective.

Moreover, no argument-increasing or decreasing is seen between an AB adjective and its correlated AABB adjective. In the language, adjectives may never have an object to their right (Zhu 1982: 55; Huang et al. 2009: 21-23). No adjective, in either a base form, as in (42a), or an AABB form, as in (42b), may be followed by an argument.

- (42) a. hen piaoliang (*na jian fangzi)
 very beautiful that CL room
 b. piaopiao-liangliang (*na jian fangzi)
 RED.beautiful-pretty that CL room

In the language, all monosyllabic gradable adjectives may have AA forms (*gao* 'tall' => *gao-gao* 'tall'). This structure-building is thus productive. We claim that the reduplicant in an AABB adjective and the reduplicant in an AA adjective are allomorphs of the same morpheme. The former is for disyllabic gradable bases and the latter is for monosyllabic

gradable bases. This morpheme does not select transitive statives consistently. Neither the AABB transitive stative in (43a), nor the AA transitive stative in (43b), is acceptable.

- (43) a. xi-huan => *xixi-huanhuan b. ai => *ai-ai
 like-like RED.like-like love love-RED
 ‘like’ ‘love’

The properties introduced in these three subsections have indicated that the reduplicant of state-denoting AABB words differs from that of other AABB words discussed in Section 2.

3.4 Complementary distribution with a functional element

A degree word such as *hen* ‘very’ may not occur with a reduplicated adjective (Chao 1968: 209; Tang 1979: 122; Lü et al. 1980), as shown in (44).

- (44) A-Gui gezi {gao-gao de/hen gao/*hen gao-gao de}.
 A-Gui height tall-RED DE/very tall/ very tall-RED DE
 ‘A-Gui’s height is tall.’

Both *hen* and reduplicated adjectives belong to degree-related expressions (see Grano 2012: 526). Zhang (2015) claims that *hen* and the reduplicant in such adjectives are in a complementary distribution relation. One of her many arguments is that both *hen* and the reduplicant of a reduplicated adjective show the same s-selection restriction, i.e., neither may occur with a non-gradable adjective. Neither (45a), where *hen* occurs with the non-gradable *bi-zhi* ‘pen-straight’, nor (45b), where *bi-zhi* is reduplicated in the AABB pattern, is acceptable. Similarly, the non-gradable *gun-re* ‘boiling hot’ may neither occur with *hen*, nor be reduplicated in the AABB pattern, as seen in (46).

- (45) a. *hen bi-zhi. b. *bibi-zhizhi
 very pen-straight RED.pen-straight
 (46) a. *hen gun-re b. *gungun-rere
 very boil-hot RED.boil-hot

Another argument for the complementary distribution relation between *hen* and the reduplicant in reduplicated adjectives is that a nominal-only position rejects *hen* and an AABB adjectival reduplicant equally. For instance, the position to the immediate right of the causative marker *ba* is for a nominal exclusively. As seen in (47a), neither *hen* nor *laolao-shishi* ‘honest’ may occur in the post-*ba* position. Another nominal-only position is the position following a preposition that introduces a topic, such as *zhiyu* ‘as for’.¹² As seen in (47b), neither *hen* nor *keke-qiqi* ‘courteous’ may occur in the post-*zhiyu* position.

- (47) a. Youxie-ren yixiang ba {laoshi/*hen laoshi/*laolao-shishi}
 some-people always BA honest/very honest/honest-RED

¹² The post-*zhiyu* position is for either a nominal or an interrogative clause (cf. Lü et al. 1980). (i) is an example in which *zhiyu* ‘as for’ is followed by an interrogative clause. Since there is no question word in (47b), the string following *zhiyu* must be a nominal.

(i) Zhyu shei hui lai, wo hai bu zhidao.
 as.for who will come 1SG yet not know
 ‘As for the question who will come, I don’t know yet.’

- dang-zuo yuchun.
regard-as foolish
'Some people always view honesty as foolish.'
b. Zhiyu {keqi/*hen keqi/*keke-qiqi}, A-Gui genben
as.for courteous/very courteous/RED.courteous A-Gui absolutely
tan-bu-shang.
speak-not-up
'As for courteousness, A-Gui is absolutely out of the question.'

Zhang (2015) claims that *hen* and the reduplicant of a reduplicated adjective (in either an AA or AABB form) are both realizations of the same functional head, Degree (Deg). Specifically, while *hen* surfaces at the position of Deg directly, the reduplicant (RED) is integrated into the word form morphologically.¹³

- (48) a. [DegP [Deg' *hen* [AP X]]] b. [DegP [Deg' RED^{AABB/AA} [AP X]]]
- |—————|
- morphological integration*

We have seen that gradable adjectives may have an AABB form, whereas non-gradable ones may not. A relevant fact is that both types of adjectives may have ABAB forms. A gradable disyllabic stative may have an ABAB form, encoding a tentative aspect reading (Tang 1979: 126), similar to the ABAB verbs discussed in 2.1.2. For instance, *shu-fu* 'relaxing-comfortable' may have the ABAB form *shu-fu-shufu*, as in (49b), compared with the AABB form *shushu-fufu* in (49a).

- (49) a. Wode shenghuo guo-de shushu-fufu de.
my life experience-DE RED.relax-comfortable DE
'My life is very comfortable.'
- b. Ni jiu tang zai chuang-shang shu-fu-shufu ba.
2sg just lie at bed-on comfortable-RED IMP
'You'd better lie in the bed to enjoy yourself!'

A non-gradable disyllabic stative may also have an ABAB form (Tang 1979: 122). Thus, although (45b) is unacceptable, (50a) is fine. Similarly, although (46b) is bad, (50b) is fine. Since this paper is about AABB words, we do not discuss ABAB words any more.

- (50) a. bi-zhi-bizhi
 pen-straight-RED
 ‘as straight as a pen’
 b. gun-re-gunre
 boil-hot-RED
 ‘boiling hot’

Certain abstract AABB words may be used either as a noun or verb, denoting greater plurality, or as an adjective, denoting a similar meaning to a degree word expression. The AABB form *xinxin-kuku* is a noun in (51a), a verb in (51b), and an adjective in (51c), which has the same meaning as the *hen*-string in (51d). Other AABB forms, such as *kankan-keke* ‘many bumps’, may also have multiple uses. See Nicolas (2010) for a discussion of the relation between plurality and gradability in abstract expressions.

¹³ Součková & Buba (2008) and Součková (2011: 34) report that in Hausa, under certain conditions, a pluractional marker also functions as a degree marker for statives.

- (51) a. A-Gui ba naxie xinxin-kuku dou wang-le.
 A-Gui ba those RED.pungent-bitter all forget-PRF
 ‘A-Gui forgot all of those hard experiences.’
- b. A-Gui xinxin-kuku-le henduo nian.
 A-Gui RED.pungent-bitter-PRF many year
 ‘A-Gui has experienced hardship a lot for many years.’
- c. Naxie rizi, A-Gui xinxin-kuku.
 those day A-Gui RED.pungent-bitter
 ‘In those days, A-Gui worked very hard.’
- d. Naxie rizi, A-Gui hen xinku.
 those day A-Gui very pungent-bitter
 ‘In those days, A-Gui worked very hard.’

It is well-recognized that the same formative may be used in various ways. Words of the same reduplication pattern may have various uses (e.g., Regier 1998). Plural markers also have many uses, including honorific and exaggerative uses (Corbett 2000: Ch. 7). Other formatives, such as classifiers, also have different uses in different contexts (Bisang 1999). The fact that AABB words have different uses is expected, from this perspective.

In this section, I have shown that while the reduplicant in AABB nouns and verbs is a marker of greater plurality, the reduplicant in AABB adjectives is not. I leave for future research whether there is any connection between the adjective and non-adjective use of AABB words.

4. The source of the categorial features of AABB nouns and verbs

We have established the following empirical generalization that the same reduplicant is combined with either an individual-denoting base or an action-denoting base, deriving a noun or a verb. This raises the question how the category status of an AABB word is determined. In what follows I address this question by arguing that the category is decided by a functional head.

In Chinese, as in other languages, there are different syntactic contexts for nouns and verbs. Nouns, but not verbs, may follow a demonstrative immediately; and verbs, but not nouns, may have an aspect suffix. In (52a), the AABB word follows the demonstrative directly, indicating that the word is a noun; and in (52b), the AABB word is followed by the progressive aspect marker *-zhe*, indicating that the word is a verb.

- (52) a. A-Gui mai-le naxie huahua-caocao
 A-Gui buy-PRF those RED.flower-grass
 ‘A-Gui bought those flowers and grasses’
- b. A-Gui zai jia-li qiaoqiao-dada-zhe.
 A-Gui at home-in RED.knock-beat-PRG
 ‘A-Gui is knocking something repeatedly at home.’

In order to answer the question which part of grammar distinguishes AABB verbs from AABB nouns, we first check whether it is the bases (4.1) or the reduplicants (4.2) that determine the category of such words, and then propose our analysis (4.3).

4.1 The category issue of the bases of AABB nouns and verbs

We have discussed two patterns of greater plurality-denoting AABB words, an individual-denoting one, illustrated in (53a), and an action-denoting one, illustrated in (53b) (2.4).

- (53) a.
$$\begin{array}{c} \text{AABB} \\ \text{[Greater-PL, individual]} \\ \swarrow \quad \searrow \\ \text{RED}^{\text{AABB}} \quad \sqrt{\text{AB}} \\ \text{[Greater-PL]} \quad \text{[individual]} \end{array}$$
- b.
$$\begin{array}{c} \text{AABB} \\ \text{[Greater-PL, action]} \\ \swarrow \quad \searrow \\ \text{RED}^{\text{AABB}} \quad \sqrt{\text{AB}} \\ \text{[Greater-PL]} \quad \text{[action]} \end{array}$$

Words formed by (53a) are used as nouns only. We have seen the noun use in (52a) above. The examples in (54) show that a verb use of this type of words is not acceptable.

- (54) a. *A-Gui huahua-caocao-le yi shangwu.
 A-Gui RED.flower-grass-PRF one morning
 Intended: ‘A-Gui has worked with flowers and grasses for a whole morning.’
- b. *A-Gui dede-shishi-le hen jiu.
 A-Gui RED.gain-miss-PRF very long
 Intended: ‘A-Gui has experienced the gains and misses for a long time.’

As for the pattern in (53b), we find that almost all action-denoting AABB words may have a nominal use, in addition to a verb use. The verb use has been seen in (52b). In (55a), the AABB word *shanshan-jianjian* ‘delete and reduce many times’ follows the causative marker *ba*. In (55b), *qiaoqiao-dada* ‘knock and beat again and again’ follows *zhiyu* ‘as for’ (see footnote 12). In (55c), *lailai-huihui* ‘come and go again and again’ follows the classifier *ge*. They all occur in nominal-only positions.

- (55) a. A-Gui ba naxie shanshan-jianjian dou ji-xialai-le.
 A-Gui BA those RED.delete-reduce all memorize-down-PRF
 ‘A-Gui has memorized all those instances of cutting and deletion.’
- b. Zhiyu lou-shang de qiaoqiao-dada, wo yijing
 as.for stair-up DE RED.knock-beat 1SG already
 shou-gou-le.
 suffer-enough-PRF
 ‘As for the repeated knocking and beating upstairs, I’ve had it.’
- c. Na ji ge lailai-huihui hen fei-shijian.
 that several CL RED.come-return very cost-time
 ‘Those returning trips were very time-consuming.’

Thus, in (53a), the semantic features of the base are associated with the nominal category of the whole words; but in (53b), the same base leads to either a noun or a verb, and thus no categorial features are projected from the base.

The idea that roots have no categorial features is implied in Chomsky (1970: 190). He takes the position that *decide* and *decision* constitute a single lexical entry, underspecified with syntactic categories. The theory of acategorial roots is proposed in the Distributed Morphology (Halle and Marantz 1993; Harley 1995, 2005; Harley and Noyer 1999; Marantz 1997), the Exo-Skeletal modal (Borer 2005), and the Asymmetric Morphology (DiSciullo 2005). Lieber (2004, 2006) also argues that roots have no categorial features. She provides a systematic s-selection theory for the association between roots and various derivational affixes in English. The same claim is also argued for by De Belder (2011) with Dutch data. But other researchers, such as Lehmann (2010; 2013), argue that there are cross-linguistic variations regarding whether roots have categorial distinctions (also see Vogel & Comrie 2000). The research in this paper shows that in Mandarin, the bases of action-denoting AABB words are unable to decide the category of the whole words.

4.2 The category issue of the reduplicants of AABB nouns and verbs

We have argued that in AABB nouns and verbs, the reduplicant is the same (Section 2). Thus, not only the base, but also the reduplicant, provides no categorial feature for AABB words.

Similar situations with other affixes are also seen in other languages and other types of words in Mandarin Chinese. In English, the prefixes *counter-*, *over-*, and *co-*, as shown in (56), may occur in words of various categories (Plag 2004; Lieber 2004: 126; 2006: 257). Chinese has similar examples, as shown in (57) (Lü et al. 1980; cf. Packard 2000: 71). Such prefixes do not project categorial features.

		V-output	N-output	A-output
(56)	a. counter-	countersign	counterculture	counter-productive
	b. over-	overcharge	overdose	overgenerous
	c. co-	co-operate	co-author	co-harmonious
(57)	fan-	fan-bo	fan-guang	fan-chang
		counter-refute	counter-light	counter-normal
		‘refute’	‘reflection’	‘abnormal’

The same suffix may also occur in different categories. The Mandarin words in (58a) can be used as verbs (Chao 1968: 226; Lü et al. 1980; Packard 2000: 92-93) and those in (58b) are used as nouns. They all have the causative or inchoative suffix *-hua*.

(58)	a.	jin-hua, enter-HUA ‘evolve’	lao-hua, old-HUA ‘become old’	lü-hua, green-HUA ‘cause to be green’	mei-hua beauty-HUA ‘beautify’
	b.	wen-hua, literature-HUA ‘culture’		si ge four CL ‘four modernizations’	xiandai-hua modern-HUA

One might claim that *-hua* can be a bound root, rather than a suffix. In the language, it is not easy to distinguish affixes from bound roots (Packard 2000: 71; Myers 2007: Sec. 3). Bound forms such as *-yu* and *-ran*, however, look less like roots, since they do not have substantial meanings in Modern Chinese (*yu* meant ‘at, to’ and *ran* meant ‘correct’ historically). As shown in (59) and (60), *-yu* may form prepositions (Yip 2000: 80), verbs, and adverbs; and *-ran* may form adjectives, adverbs, and conjunctions (Yip 2000: 79, 81).

(59)	zhi-yu	deng-yu	shu-yu	guo-yu	zhong-yu
	to-YU	equal-YU	belong-YU	exceed-YU	end-YU
	‘as for’ (P)	‘equal to’ (V)	‘belong’ (V)	‘too’ (Adv)	‘finally’ (Adv)
(60)	mang-ran	jing-ran	hu-ran	sui-ran	
	confused-RAN	unexpected-RAN	sudden-RAN	though-RAN	
	‘confused’ (A)	‘unexpectedly’ (Adv)	‘suddenly’ (Adv)	‘though’ (Conj)	

If the same prefix occurs in words of different categories, as seen in (56) and (57), one may claim that the prefix is not the head of the word, and thus it does not project category features to the word (Plag 2004: 200). The non-head status of prefixes follows the Right-head Head Rule, which states that the head of a morphologically complex word is the right-hand member of that word (Williams 1981: 248; see Booij 2012: 56-57 for a further discussion of this rule). However, if the same right-hand form occurs in words of different categories, as

We focus on AABB words in this paper. We notice two facts. On the one hand, the reduplicant in AABB words is similar to the prefixes and suffixes discussed above in one aspect: there is no one-to-one correlation between the bound form and the category of the whole word. On the other hand, the reduplicant of AABB words is different from these prefixes and suffixes in an important way. We have just discussed the pattern in (53b), in which the combination of the same derivational affix and the same base lead to either a noun or a verb (e.g., the verb in (52b) and the noun in (55b)). The examples covered by this pattern are different from the examples in (56) through (60) in that not only the affix is the same, but also the base is the same. Between the reduplicant and the base of an AABB word, if only one of them can be the head, and only the head is able to project categorial features, it seems that both are underspecified with a head status.

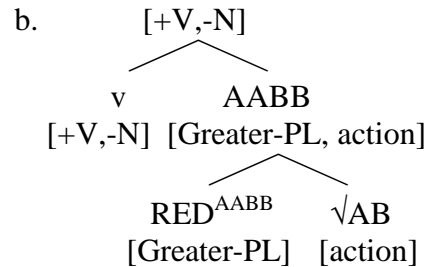
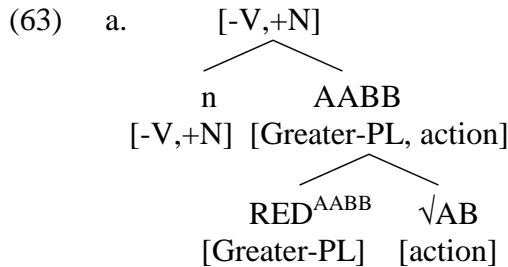
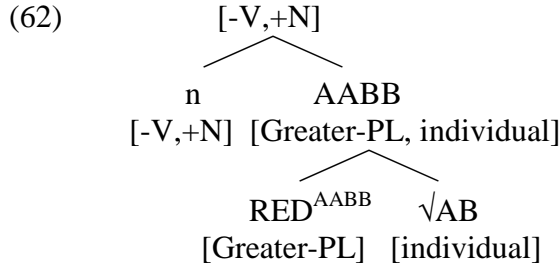
(61) a. to proposition b. to picture

We have shown that action-denoting AABB words can be either verbs or nouns, depending on the syntactic context. If the availability of conversion indicates that roots do not have intrinsic categories, the systematic availability of action-denoting AABB words may indicate that the derivational affix also has no intrinsic categorial features.

4.3 Projecting categorial features from functional heads

20

[individual] element is merged with *n*, the categorial features of the output are identical to those of *n*, i.e., [-V, +N], as shown by (62). In other words, the output is a noun. On the other hand, if an [action] element is merged with *n*, the categorial features of the output are also identical to those of *n*, as shown by (63a), which is similar to (62); and if it is merged with *v*, the categorial features of the output are identical to those of *v*, i.e., [+V, -N], as shown by (63b). In this last case, the output is a verb.



The fact that the same plural marker occurs in both nouns and verbs can also be found in other languages. Bar-el (2008) reports that in Squamish, the CVC reduplicant marks plural on both verbs and nouns. Specifically, “CVC reduplication usually involves a copy of the first and second consonants of the base, and the insertion of a schwa” (Bar-el 2008: 32). In (64b), the CVC reduplicant marks the plurality of the noun *mixalh* ‘bear’; and in (65b), the CVC reduplicant marks the plurality of the verb *kwelesh* ‘shoot’.

- (64) a. Hiyi ta mixalh.
 big DET bear
 ‘The bear is big.’
- b. Hiyi ta mex-mixalh.
 big DET PL.RED-bear
 ‘The bears are big.’
- (65) a. Chen kwelesh-t ta sxwi7shn.
 1S.SG shoot-TR DET deer
 ‘I shot a deer.’
- b. Chen kwel-kwelesh-t ta sxwi7shn.
 1S.SG PL.RED-shoot-TR DET deer
 ‘I shot a deer several times.’

The reduplicant denotes plurality in only nouns and verbs in Squamish. When a similar reduplicant occurs in adjectives, it does not express plurality. This is similar to the reduplicant of AABB words in Mandarin Chinese. But many details of this language are not clear to me. Importantly, we have not seen examples of nouns and verbs that have the same root in that language. Therefore, the reduplicant in the AABB words in Mandarin Chinese gives a clear case of acategorial affixation in word-formation. Nevertheless, while the thrust of our argument is that the reduplicant of AABB words does not have intrinsic categorial features, we do not make claims on other derivational affixes.

5. The structural position of derivational plural markers

After discussing the category issue of AABB words, we now address the syntax of the greater plural marker, the reduplicant in such words.

5.1 A comparison to other formal features

We have shown the availability of a non-inflectional plural marker in Chinese (2.3). Considering the representations of other formal features, we think this is expected in grammar.

Consider gender features first. It is well-recognized that the grammatical gender in German plays a role in the choice of inflectional suffixes for case and number, but the lexical gender in English expressed by a derivational suffix *-ess* (e.g., *actress*, *lioness*) does not play a role in agreement. Consider another feature, animacy. In languages such as English, German, and Chinese, animacy is not grammaticalized at all. It is encoded as part of lexical semantics, and thus there is no formal way to distinguish animate from inanimate expressions. In Blackfoot (spoken in the Northern America), according to Wiltschko & Ritter (2014), however, “any given noun is categorized as either animate or inanimate” (p. 19), one can find “grammatically animate nouns for ontologically inanimate things”, such as *kippiaapi* ‘pipe’, *po’táa’tsis* ‘stove’, and *si’káán* ‘blanket’ (p. 22). Also, like other inflectional features, animacy triggers agreement in the language. For instance, the plural markers in the animate construction in (66b) are different from the plural markers in the inanimate construction in (67b) (p. 23-24).

- | | | | | |
|------|----|--------------------------|------------------|-----------------------------|
| (66) | a. | Om-wa | saahkomaapi-wa | iik-sspita-wa. |
| | | DEM-PROX | boy-PROX | INTNS-be.tall.AI-PROX |
| | | ‘That boy is tall.’ | | |
| | b. | Om-iksi | saahkomaapi-iksi | iik-sspita-wa. |
| | | DEM-PL | boy-PL | INTNS-be.tall.AI-PL-3PL-PRN |
| | | ‘Those boys are tall.’ | | |
| (67) | a. | Om-yi | naapioyis-yi | iik-sspia-wa. |
| | | DEM-INAN | house-INAN | INTNS-be.tall.AI-PROX |
| | | ‘That house is tall.’ | | |
| | b. | Om-istsi | naapioyis-istsi | iik-sspia-yi-aawa. |
| | | DEM-PL | house-PL | INTNS-be.tall.AI-PL-3PL-PRN |
| | | ‘Those houses are tall.’ | | |

Thus, not all formal features are integrated in language systems in the same way. If a formal feature is not grammaticalized, it can be just part of lexical meanings, and thus is not represented in any consistent form. If it is grammaticalized, it still can be realized either as a functional morpheme or a derivational morpheme in word-formation. Thus, the fact that a number feature is encoded as a derivational affix in AABB nouns and verbs in Mandarin Chinese is not a surprise. For individual-denoting words, plurality is inflectional in languages such as English, but not in many other languages. Also, the fact that pluractionality is derivational in Mandarin Chinese, patterning with many other languages (Laserson 1995: 238), does not exclude the possibility that pluractionality is represented in inflectional morphology in other languages (see Jespersen 1924: 210; Corbett 2000: 256, 259, 262-263; Iordăchioaia & Soare 2011), and the possibility that pluractionality is not grammaticalized in languages such as English.

5.2 The structure position of the plural reduplicant of AABB words

Different kinds of plural-markers are integrated into their hosting structures in different ways (Wiltschko 2008: 688; Butler 2012). If number is an inflectional category, it is represented by

a functional projection, such as NumberP (Abney 1987; Bernstein 1991; Ritter 1991, 1995; Harbour 2014: 191), which is higher than the categorization projection, nP. We have identified the reduplicant in individual- and action-denoting AABB words in Mandarin Chinese as a derivational plural marker, and argued that its position is lower than nP or vP. We now compare this non-canonical plural marking with other kinds of non-canonical plural marking reported in the literature.

One kind of non-canonical plural marking is seen in the so-called lexical plurals (Acquaviva 2008). “Lexical Plurals are plural forms (*oats*, *remains*) in which plurality constitutes an inherent lexical specification” (Lauwers 2015). They occur in “languages where number is definitely inflectional as a morphological category, but has clear derivational properties on some words.” (Acquaviva 2008: 5) Lexical plurals are different from the reduplicant of AABB nouns and verbs in Mandarin Chinese in two main aspects. First, they have the same form as the canonical inflectional plural marker in the relevant language. For instance, *-s* in *oats* has the same form as the canonical *-s* in English. However, in Mandarin Chinese, the reduplicants of AABB words occur as derivational morphemes only. Second, they are used in nominals only, whereas the reduplicants of AABB words are acategorical.

Another kind of non-canonical plural marking is the non-inflectional plural marking in Halkomelem Salish (spoken in Canada; Wiltschko 2008). This plural marking does not trigger obligatory agreement and it is optional. Wiltschko (2008) analyzes the plural markers as adjuncts of roots. The adjunct or modifier status of this kind of plural markers means that their absence does not change the acceptability of the word. This is not the case for the reduplicant of AABB nouns and verbs. There are many cases in which AABB nouns and verbs have no correlated AB forms (2.3.2). Thus, the kind of plural markers identified in this paper is different from the modifier one in Halkomelem Salish.

A further kind of non-canonical plural marking is seen in Yucatec Maya (Butler 2012). In addition to optionality in its use, the plural marking is restricted to DPs that have a specific reading. The properties of this plural-marking are similar to those of the grammatical plural suffix *-men* in Mandarin Chinese, which is also optional and may not occur in indefinite nominals (and not in non-human nominals, either) (Chao 1968: 244; Li & Thompson 1981: 40; Li 1999; Packard 2000: 85, 174; Butler 2012: 51 fn. 5). Butler (2012) thus claims that the plural marker is adjoined to DP. Again, this kind of plural marking is different from the one in AABB words. For instance, an AABB noun may occur in a non-specific DP, as in (68), as well as a definite or specific DP, as in (1).

- (68) Wo xiang zhao yixie bianbian-jiaojiao lai xiuli zhexie wanjū.
 1SG want search some RED.side-corner come repair these toy
 ‘I want to look for some sides and corners to repair these toys.’

In Mandarin Chinese, the plural marker *-men* is inflectional for personal pronouns; but the plural reduplicant in AABB nouns and verbs is derivational. The variation correlates with the timing of the integration of the plural morpheme in a structure: the inflectional morpheme is integrated after, but the derivational morpheme is integrated before, the categorization operation (see Wiltschko 2014: 95 for a similar statement).

If the theta-domain (or called event-structure domain or inner aspect domain, as in Travis 2010) is the First Phase (Ramchand 2008), the acategorical domain of word-formation should be called Phase Zero, which is computed before the First Phase. The sister of *n* in (62) and (63a) and the sister of *v* in (63b) belong to this Phase Zero. Individual and action-denoting AABB words are built in this phase. In this phase, instead of categorial features, semantic features, as addressed in Cinque (1990: 1) and extensively discussed in Lieber (2004,

2006), and probably phonological features (see 2.2.2; 2.4), take part in the selection (s-selection and p-selection, respectively).

In this section, we have argued that the reduplicant in AABB nouns and verbs, as a plural marker, is integrated in the word-formation domain.

6. Conclusions

This paper has addressed a few understudied issues: the relation between plurality and pluractionality morphology, derivational plural markers, and the issue whether derivational affixes must have syntactic categorial features. We have shown that in Mandarin Chinese, AABB nouns and verbs are different from words of other reduplication patterns, including the ABAB pattern (section 2), and AABB adjectives (Section 3). They denote greater plurality exclusively, their two roots must be monosyllabic and semantically parallel to each other, and they exhibit derivational morphology properties.

Based on the investigation of AABB words in Mandarin Chinese, we have achieved the following main conclusions. First, the fact that individual-denoting and event-denoting expressions employ the same plural marker indicates that cross-categorial quantification can be unified morphologically. Second, the fact that the same reduplicant occurs in both nouns and verbs indicates that the reduplicant has no syntactic categorial features. Third, like animate markers, which are inflectional in languages such as Blackfoot but not in languages such as English, number markers may also have different status: they are inflectional in nominals in languages such as English, but derivational, as seen in the use of the reduplicant in AABB nouns and verbs in Mandarin Chinese.

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Appendix A

Individual-denoting AABB words
(concrete and abstract)

- | | |
|--|--|
| (1) banban-diandian (斑斑點點)
RED.spot-point
'spots and points' | (3) bianbian-jiaojiao (邊邊角角)
RED.side-corner
'sides and corners' |
| (2) beibei-huanhuan (悲悲歡歡)
RED.sadness-happyness
'instances of sadness and
happyness' | (4) cengceng-diedie (層層疊疊)
RED.level-layer
'levels and layers' |
| | (5) chongchong-niaoniao (蟲蟲鳥鳥)
RED.bug-bird
'bugs and birds' |
| | (6) diandian-didi (得得失失)
RED.gain-lost |

- (7) 'gains and misses'
diandian-didi (點點滴滴)
RED.dot-drop
'dots and drops'
- (8) enen-yuanyuan (恩恩怨怨)
RED.gratitude-grudge
'instances of gratitude and grudges'
- (9) fenfen-miaomiao (分分秒秒)
RED.minute-second
'minutes and seconds'
- (10) fengfeng-yuyu (風風雨雨)
RED.wind-rain
'winds and rains' 'a lot of adversity and tough experience'
- (11) gougou-kankan (溝溝坎坎)
RED.ditch-ridge
'ditches and ridges' 'various obstacles'
- (12) jiajia-huhu (家 households)
RED.family-family
'many families'
- (13) huahua-caocao (花花草草)
RED.flower-grass
'flowers and grasses'
- (14) kankan-keke (坎坎坷坷)
RED.bump-bump
'bumps' 'frustrations'
- (15) kengkeng-wawa (坑坑洼洼)
RED.hole-pit
'holes and pits'
- (16) laolao-shaoshao (老老少少)
RED.old-young
'old people and young people'
- (17) lili-waiwai (裡裡外外)
RED.inside-outside
'insides and outsides'
- (18) lingling-suisui (零零碎碎)
RED.odd-small.piece
'many small pieces'
- (19) maomao-gougou (貓貓狗狗)
RED.cat-dog
'cats and dogs'
- (20) nannan-nünnü (男男女女)
RED.man-woman
'men and women'
- (21) niannian-yueyue (年年月月)
RED.year-month
'years and months'
- (22) penpen-guanguan (盆盆罐罐)
RED.basin-jar
'basins and jars'
- (23) pingping-guanguan (瓶瓶罐罐)
RED.bottle-jar
'bottles and jars'
- (24) qianqian-houhou (前前後後)
RED.front-back
'fronts and backs'
- (25) riri-yeye (日日夜夜)
RED.day-night
'days and nights'
- (26) shanshan-lingling (山山嶺嶺)
RED.mountain-mountain
'many mountains'
- (27) shanshan-shuishui (山山水水)
RED.mountain-water
'mountains and rivers'
- (28) shangshang-xiaxia (上上下下)
RED.up-down
'ups and downs'
- (29) shishi-keke (時時刻刻)
RED.hour-quarter
'hours and quarters'
- (30) shishi-daidai (世世代代)
RED.century-generation
'centuries and generations'
- (31) shishi-feifei (是是非非)
RED.right-wrong
'rights and wrongs'
- (32) tiaotiao-kuangkuang (條條框框)
RED.bar-frame
'bars and frames'
- (33) xinxin-kuku (辛辛苦苦)
RED.pungent-bitter
'many hard experiences'
- (34) xingxing-diandian (星星點點)
RED.star-dot
'stars and dots'
- (35) zhaozhao-mumu (朝朝暮暮)
RED.morning-evening
'mornings and evenings'
- (36) zhaozhao-xixi (朝朝夕夕)
RED.morning-evening
'mornings and evenings'

- (37) zhizhi-chacha (枝枝杈杈)
RED.twig-branch
'twigs and branches'
- (38) zhizhi-yeye (枝枝葉葉)
RED.twig-leaf
'twigs and leaves'
- (39) zizi-juju (字字句句)
RED.character-sentence
'characters and sentences'
- (40) zizi-sunsun (子子孫孫)
RED.son-grandson
'sons and grandsons'
- (41) zuozuo-youyou (左左右右)
RED.left-right
'lefts and rights'
- (42) zuzu-beibei (祖祖輩輩)
RED.ancestor-generation
'many generations'
- Appendix B
Action-denoting AABB words
- (43) bengbeng-tiaotiao (蹦蹦跳跳)
RED.leap-jump
'leap and jump repeatedly'
- (44) bibi-huahua (比比劃劃)
RED.gesture-draw
'gesture a lot'
- (45) baobao-bianbian (褒褒貶貶)
RED.praise-depreciate
'praise and depreciate a lot'
- (46) chaochao-naonao (吵吵鬧鬧)
RED.quarrel-fight
'quarrel and fight a lot'
- (47) chaochao-rangrang (吵吵嚷嚷)
RED.make.noise-yell
'shout and yell a lot'
- (48) chaochao-xiexie (抄抄寫寫)
RED.copy-write
'copy and write a lot'
- (49) chichi-hehe (吃吃喝喝)
RED.eat-drink
'eat and drink a lot'
- (50) chuichui-dada (吹吹打打)
RED.blow-beat
'blow (e.g., a flute) and beat (a drum etc.) a lot'
- (51) dada-naonao (打打鬧鬧)
RED.hit-fight
'hit and fight a lot'
- (52) dada-shasha (打打殺殺)
RED.fight-kill
'fight and kill a lot'
- (53) diandian-quanquan (點點圈圈)
RED.dot-circle
'draw dots and circles'
- (54) diedie-zhuangzhuang (跌跌撞撞)
RED.fall-bump
'dodder and stagger along'
- (55) duanduan-xuxu (斷斷續續)
RED.stop-continue
'stop and continue'
- (56) duoduo-cangcang (躲躲藏藏)
RED.hide-hide
'dodge a lot'
- (57) duoduo-shanshan (躲躲閃閃)
RED.hide-avoid
'dodge a lot'
- (58) duoduo-suosuo (哆哆嗦嗦)
RED.shiver-shiver
'shiver'
- (59) fanfan-gungun (翻翻滾滾)
RED.turn-roll
'turn and roll'
- (60) fenfen-hehe (分分合合)
RED.separate-join
'separate and join repeatedly'
- (61) fengfeng-bubu (縫縫補補)
RED.sew-repair
'sew and repair repeatedly'
- (62) fengfeng-xixi (縫縫洗洗)
RED.sew-wash
'sew and wash repeatedly'
- (63) gougou-dada (勾勾搭搭)
RED.bend around-hang over
'bend over one's arm around someone's waist and hang one's arm over someone's shoulder a lot'
- (64) hengheng-yaya (哼哼呀呀)
RED.hum-groan
'hum and groan a lot'
- (65) jinjin-chuchu (進進出出)
RED.enter-exit
'enter and exit repeatedly'
- (66) jinjin-tuitui (進進退退)
RED.approach-retreat

- ‘move forward and backward repeatedly’
(67) kuku-titi (哭哭啼啼)
RED.weep-cry
‘cry a lot’
(68) lala-cheche (拉拉扯扯)
RED.pull-jerk
‘pull and jerk repeatedly’
(69) lailai-huihui (來來回回)
RED.come-return
‘come and go repeatedly’
(70) lailai-ququ (來來去去)
RED.come-go
‘come and go repeatedly’
(71) lailai-wangwang (來來往往)
RED.come-go
‘come and go repeatedly’
(72) loulou-baobao (樓樓抱抱)
RED.hug-cuddle
‘hug and cuddle a lot’
(73) momo-cengceng (磨磨蹭蹭)
RED.idle (away time)-drag along
‘dillydally a lot’
(74) paopao-tiaotiao (跑跑跳跳)
RED.run-jump
‘run and jump repeatedly’
(75) pipi-gaigai (批批改改)
RED.mark-change
‘mark and change here and there’
(76) pinpin-coucou (拼拼湊湊)
RED.merge-combine
‘merge and combine here and there’
(77) qiqi-fufu (起起伏伏)
RED.rise-fall
‘rise and fall repeatedly’
(78) qiaoqiao-dada (敲敲打打)
RED.knock-beat
‘knock and beat repeatedly’
(79) shanshan-jianjian (刪刪減減)
RED.delete-reduce
‘delete and reduce’
(80) shanshan-shuoshuo (閃閃爍爍)
RED.flash-sparkle
‘sparkle’
(81) shangshang-xiaxia (上上下下)
RED.ascend-descend
‘go up and down repeatedly’
(82) shushu-yingying (輸輸贏贏)
RED.lose-win
‘lose and win repeatedly’
(83) shuoshuo-xiaoxiao (說說笑笑)
RED.say-laugh
‘talk and laugh a lot’
(84) tiantian-bubu (添添補補)
RED.add-replenish
‘add and replenish again and again’
(85) tiaotiao-jianjian (挑挑揀揀)
RED.choose-pick
‘choose again and again’
(86) toutou-momo (偷偷摸摸)
RED.steal-fumble for
‘steal and fumble for’
(87) tuitui-sangsang (推推搡搡)
RED.push-shove
‘push and shove a lot’
(88) xixi-haha (嘻嘻哈哈)
RED.giggle-titter
‘giggle and titter a lot’
(89) xixi-shuanshuan (洗洗涮涮)
RED.wash-rinse
‘wash and rinse a lot’
(90) xiexie-suansuan (寫寫算算)
RED.write-count
‘write and count a lot’
(91) xixiu-bubu (修修補補)
RED.repair-mend
‘repair and mend’
(92) yaoyao-baibai (搖搖擺擺)
RED.shake-swing
‘shake and swing a lot’
(93) yaoyao-huanghuang (搖搖晃晃)
RED.shake-rock
‘shake and rock a lot’
(94) zhanzhan-jingjing (戰戰兢兢)
RED.shiver-tremble
‘shiver and tremble a lot’
(95) zhezhe-yanyan (遮遮掩掩)
RED.cover-hide
‘cover and hide a lot’
(96) zhizhi-diandian (指指點點)
RED.point-point
‘point a lot’
(97) zouzou-tingting (走走停停)
RED.walk-stop
‘walk and stop repeatedly’