Diminutives at word level and root level: *-er* in Colloquial Beijing Mandarin*

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Abstract. This article investigates the syntactic behaviours of the diminutive marker *-er* in Colloquial Beijing Mandarin. With *-er* linearly suffixed to different roots, *er*-diminutives vary in the compatibility with augmentative modifiers and the requirement of diminutive specification conveyed by additional roots. I propose a threefold analysis: (i) Semantically, *-er* has two possible functions, viz. restriction and selection. (ii) Syntactically, these two functions are realised at word level and root level, respectively. (iii) The reason why *-er* can occur at two different levels is that *-er* is an acategorial particle, lacking a formal feature, so it can merge with words and roots freely.

Keywords: Diminutive; Selection; Restriction; Acategorial

1 Introduction

Diminutivization is an operation that generally employs morphological devices to convey diminution (i.e., smallness or attenuation) with a specific grammatical encoding ([14], [4]; a.o.). In Mandarin Chinese, diminutivization can be conveyed by *-er*[1], a bound morpheme that follows a root[2] (e.g., *gang-er* 'tank-DIM'). Appearing as a suffix, *-er* contributes a piece of semantic information specifying that the denotation of the root is small. Therefore, *er*-diminutives in many cases are found incompatible with augmentative modifiers. For example, *gang-er* ('tank-DIM') cannot be further modified by adjectives that indicate largeness such as *da* ('big'); see (1).

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[1] *-er* is grammaticalized out of *ér* ('child') in Archaic Chinese ([19], [11]), which conforms to the cross-linguistic observation that diminutive markers are derived from or associated with the word that refers to offsprings ([14], [18]; a.o.). During grammaticalization, *-er* lost its lexical tone and phonological independency. Chinese is generally regarded as a language without much inflectional morphology [13], but there still are very limited morphological devices used productively, and *-er* is one of them ([16], [22]).

[2] In the description of what forms a diminutivized item, I use **root** to refer to the morphological form of the item prior to diminutivization.

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(1) a. {xiao / da} de gang
         small   big MOD tank
         'small / big tank'

    b. {xiao /*da} de gang-er
         small   big MOD tank-DIM
         'small tank' / Intended: 'big tank'

However, there are cases where *er*-diminutives are in fact compatible with an augmentative modifier. First, some *er*-diminutives, the root of which is a simplex root (2a) or a complex root (2b), can co-occur with an augmentative modifier. *-er* in such cases is obligatory in colloquial Beijing Mandarin.

(2) a. {xiao / da} de feng*(-er)
         small   big MOD crack-DIM
         'small / big crack'

    b. {xiao / da} de men-feng*(-er)
         small   big MOD door-crack-DIM
         'small / big door gap'

Second, some *er*-diminutives are compatible with augmentative modifiers only if the *er*-diminutive is formed with a complex root that displays diminutive specification. That is, the denotation of the root is lexically specified as a diminutive subset. For example, if *dao* ('knife') stands alone, it cannot form an *er*-diminutive (3a). However, if *dao* ('knife') forms a compound with *zhijia* ('nail') which provides diminutive specification indicating that this particular kind of knife is generally small in common sense, then the compound *zhijia-dao* ('clipper') can be suffixed by *-er*, and the *er*-diminutive *zhijia-dao-er* ('nail-knife-DIM') can co-occur with an augmentative modifier (3b). Similar to (2), *-er* in (3b) cannot be omitted, either.

(3) a. {xiao / da} de dao(*-er)
         small   big MOD knife-DIM
         Intended: 'small / big knife'

    b. {xiao / da} de zhijia-dao*(-er)
         small   big MOD nail-knife-DIM
         'small / big clipper'

The classification of *er*-diminutives is summarised by Table 1.

Table 1. Types of *-er* diminutives

Diagnoses \ Classes of roots	(i) (AUG modifier)-X-*er*	(ii) *(DIM spec.)-X-*er*
I. *gang* ('tank'), *he* ('river'), ...	–	–
II. *feng* ('crack'), *hua* ('flower'), ...	+	–
III. *dao* ('knife'), *feng* ('wind'), ...	+	+

As shown by Table 1, the three types of *er*-diminutives can be distinguished by two diagnoses: (i) whether the co-occurence of an *er*-diminutive and an augmentative modifier is possible; and (ii) whether the diminutive specification for the root is obligatory. The first diagnosis distinguishes Class I from Class II and III, while the second diagnosis demarcates between Class II and Class III.

At this point, three questions arise naturally. First, how do we capture the pattern of *er*-diminutives in Table 1? Second, what is the semantic contribution of -*er* in each of the three types of *er*-diminutives? Third, what is different among such three types of *er*-diminutives structurally?

This article aims to provide an analysis for -*er* in all environments aforementioned. (i) Semantically, -*er* has two possible functions, viz. restriction and s-selection[3]. (ii) Syntactically, these two functions are realised at word level and root level[4], respectively. (iii) The reason why -*er* can merge with syntactic objects at two different levels freely is that -*er* is an acategorial particle, lacking a formal feature while having only a semantic feature.

2 Previous analyses

In this section, I first review the description of -*er* in Chinese linguistics and then present a distilled picture of the previous analyses on the syntactic status of diminutive markers cross-linguistically. In brief, -*er* is mainly viewed as a nominal suffix [16], but there is a gap on a formal account. From a comparative perspective, diminutive markers are reported to have two types of syntactic status and two possible merging sites among several languages.

2.1 Descriptive analyses of -*er*

Since -*er* is most commonly found in nominals, -*er* is often viewed as a nominal suffix [16] or a nominalizer that can change the syntactic category of the constituent it merges with into a nominal one [22], such as (4).

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[3] Selection in the generative tradition features two specifications. C(ategorial)-selection is the process of determining the syntactic category of the constituent that a c-selecting element merges with, whereas s(emantic)-selection refers to the constraints on the semantic content of the input of the s-selecting element (cf. [1]). For the ease of exposition, I use **selection** to refer to s-selection in the remainder of this article.

[4] **Root** here refers to a level of category-less primitives [8] in the basic syntactic configuration following the Minimalist spirit. As mentioned in Footnote 1, root also refers to the pre-diminutivization form in the description of what constitutes a diminutivized item. Root is syntactically realised at root level, notated as '$\sqrt{}$'. For compounds such as *zhijia-dao* ('clipper') which can be decomposed into two morphemes, *zhijia* ('nail') and *dao* ('knife'), I refer to *zhijia-dao* ('clipper') as a compound root, which is still realised at root level by combining two roots (*zhijia* and *dao*). The exact mechanism for the Merger of two roots is beyond the scope of this article; see [7] and [12] for more detailed discussion.

(4) a. gai
       cover
       'to cover'

    b. gai-er
       cover-DIM
       'lid (for the top of containers)'

As a matter of fact, taking -*er* as a nominalizer is not well-grounded. To start with, there is no evidence that suggests any clear verbal properties of *gai* ('cover') in the compound *gai-er* ('lid') in (4b). Even if *gai* were predicative in *gai-er*, *gai* has a homonym with a lexical entry as a noun for 'lid' [3], and hence *gai* in *gai-er* does not require further nominalization from -*er*.

Moreover, -*er* does not always give a nominal as its output; -*er* is also found in numeral classifiers and verbs while maintaining an abstract diminutive meaning ([22], [9], [10]; a.o.). For example, the classifier *ba* ('CL') in (5a) provides a measuring unit for things that could be grasped by hands. With -*er*, *ba-er* refers to a small bouquet which is used as a unit to measure herbs. The verb *ci* ('scold') in (5b) denotes a scolding event. With -*er*, the scolding event is no longer serious.

(5) a. yi   ba-er   xiangcai
       one CL$_{HANDFUL}$-DIM coriander
       'a small handful of coriander'

    b. ci-er   ren
       scold-DIM people
       'slightly scold someone'

2.2 Formal analyses of diminutive markers

Discussions on how to situate diminutive markers in a syntactic configuration are built around two central issues – the syntactic nature and the site of merge. In a nutshell, diminutive markers have been analysed as a head or an adjunct, and it can be the sister of a categorized item or a root.

Let us first look at the syntactic nature. Cross-linguistically, diminutive markers have been treated as a head ([15] and [6]) or an adjunct ([21] and [17]), as schematized in (6)[5]. The major difference lies in whether the diminutive marker is the realisation of a syntactic object that projects and hence determines the syntactic category of the entire constituent.

(6) a. DIM as a head

            X
          / \
    DIM$_X$ YP

    b. DIM as an adjunct

            YP
          / \
    DIM$_X$ YP

Some diminutive markers exhibit head status, such as imposing certain formal features like gender and grammatical category to the root. For example, the Italian diminutive marker -*in* changes the final vowel of the root (7). Given that the final vowel of an Italian nominal is the exponent of the gender and number features, -*in* is treated as a head [6]. Similarly, the German diminutive marker -*erl* changes the gender from masculine into neuter [21], as shown by (8).

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[5] I use DIM as a neutral term for the syntactic representation of the diminutive marker.

(7) a. pane   b. pan-ino   [Italian]
      bread   bread.DIM
      'bread'   'sandwich'

(8) a. der   Baum   b. das   Bäum-erl [German]
      DET.MASC tree   DET.NEUT tree-DIM
      'tree'   'little tree'

The data above shows how a diminutive marker can be the head of a projection. However, diminutive markers in some languages behave more like adjuncts. First, the diminutive marker is optional; the word serving as the input of the diminutive marker can stand alone without the diminutive marker. This is the case for Halkomelem [21] and Yichun Gan Chinese [17]. Second, the diminutive marker does not decide the categorial feature of the constituent to which it attaches. After diminutivization, a noun remains a noun (9) while a verb remains a verb (10). Third, the diminutive marker can attach to roots of various syntactic categories, which shows that the diminutive marker does not select roots of a particular category, as supported by (9) and (10).

(9) a. s-páth   b. s-pi-páth   [Halkomelem]
      NOM-bear   NOM-DIM-bear
      'bear'   'little bear'

(10) a. lhí:m   b. lhi-lhi:m   [Halkomelem]
       NOM-bear   DIM-picking
       'picking'   'picking a little bit'

Regarding the syntactic position, there are two potential merging sites for diminutive markers that have been assumed from a cross-linguistic perspective; see [21], [6], and subsequent work. In short, the diminutive marker can merge with a categorized item at word level (11a), or with a root at root level (11b).

(11) a. DIM at word level   b. DIM at root level

          XP/YP   YP

   DIM$_X$ YP   Y   XP/$\sqrt{root}$

         Y $\sqrt{root}$ DIM$_X$ $\sqrt{root}$

The assumption of two merging sites brings advantages in accounting for the structure and meaning of diminutives. Syntactically, it explains why in Halkomelem the diminutive morphology is linearized in between the nominalizer and the root. For example, in *s-qí-qewàth* ('little rabbit'), namely, the diminutivization of *s-qewáth* ('rabbit'), *qí-* 'DIM' appears in the middle of *s-* 'NOM' and *qewáth* 'rabbit'. Given that *s-* 'NOM' is realised at the category-assigning head *n*, *qí-* directly merging with the root prior to categorization gives the desirable linear order of *s-qí-qewàth* ('NOM-DIM-rabbit').
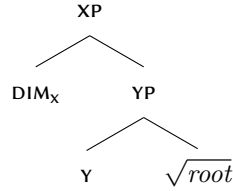
Integrating previous proposals of the syntactic nature and the potential merging sites of diminutive markers, [21] provides a pattern of parametric variation in the morphosyntax of diminutive markers with four logical possibilities, all of which are attested in languages including German, Halkomelem, and Russian, as illustrated by Table 2.

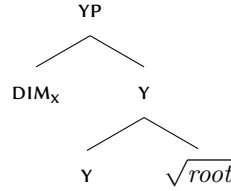**Table 2.** Morphosyntactic variation in diminutive markers

	Head	Adjunct
DIM + n	German *-chen, -erl*	Russian *-ok, -išč*
DIM + $\sqrt{root}$	Russian *-ug, -an*	Halkomelem reduplication

The syntactic representation of each possibility is sketched by (12)–(13).

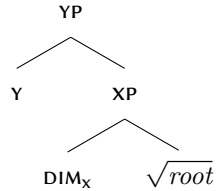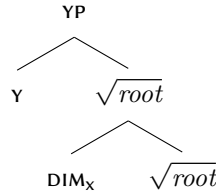(12)   a.   DIM: a head at word-level   b.   DIM: an adjunct at word-level

(13)   a.   DIM: a head at root-level   b.   DIM: an adjunct at root-level

Semantically, such an assumption captures the compositional and idiosyncratic varieties of diminutives, as emphasised by [15] and [6]. Basically, both of the two merging sites (Size and Lex if we adopt the terminology in [6]), as illustrated by (14), can be realised in Italian as diminutive markers.

(14) $[_{\text{SizeP}} [\text{Size} [_{nP} [\text{n} [_{\text{LexP}} [\text{Lex} [\sqrt{root}]]]]]]]$

Specifically, the higher merging site for DIM, termed Size in [6], is located in the nominal extended projection. This is in line with the general assumptions on the diminutive markers by [20], [5] and [4]. The lower merging site for DIM as the sister of the root termed Lex is a novel proposal by [15] and [6]. It is generally accepted that the domain above the categorizer is accessible to syntactic operations and hence yields compositionality, whereas the domain below the categorizer is opaque to syntactic operations and contains idiosyncrasy. Therefore, the merger

of DIM above the categorizer shows compositionality, while the merger of the diminutive marker below the categorizer is devoid of formal features and hence gives non-compositionality.

To wrap up, the previous research lays out a foundation for a formal analysis of *-er*. In descriptive grammar of Chinese, *-er* is traditionally viewed as a nominalizer, which is arguably not on firm footing. In the cross-linguistic comparison of diminutive markers, the head/adjunct status and the syntactic position at word/root level provide a set of coordinates to examine the behaviours of the Mandarin *-er*. I propose that *-er* is an adjunct that can merge with either a categorized item or a root (Section 3.2) due to its acategorial nature (Section 3.3). I further present a novel analysis on the semantic functions of *-er* in different syntactic positions (Section 3.1).

3   Semantic function and syntactic representation of *-er*

3.1   Restriction vs. selection

We have seen that *er*-diminutives feature three types, as shown by (1)–(3) and summarised in Table 1 (Section 1). I propose that such a pattern can be attributed to the two semantic functions of *-er*, namely, restriction and selection.

Restriction is to add diminutive properties to the denotation of the root by conjunction. Roots of **Class I** refer to entities that are neutral to size, such as *gang* ('tank') in (1). By 'neutral to size', I mean that they are not specified in any size-related properties, and hence can survive either diminutivization or augmentation. Akin to adjectives, *-er* restricts the denotation of the root to be small. That is, *-er* takes the set of entities denoted by the root as its input, and gives a set of the small ones. If an item has already been restricted by something with a diminutive property, then it cannot be further restricted by other modifiers with an augmentative property due to semantic contradiction (*big small apples). Consequently, *er*-diminutives of this type yield incompatibility with augmentative modifiers.

Selection is to pick out the roots with the denotation that already satisfies the presupposition of diminutivization by being construed as small in a prototypical sense. What differentiates selection from restriction is that the output of selection is essentially the same as its input, and hence allows further restriction. Roots of **Class II** denote entities that are generally considered as being small, namely, below the average size, like *feng* ('crack') in (2). Since the denotation of the root already meets the presupposition of diminutivization, *-er* directly s-selects the root and maintains the denotation of the root in its output. Therefore, *er*-diminutives of this type are still compatible with restriction. Other roots forming *er*-diminutives which are compatible with augmentative modifiers belong to **Class III**, such as *dao* ('knife') in *zhijia-dao-er* ('clipper'), as shown by (3). Roots of class III is also s-selected by *-er*, but such roots denote entities that are size-neutral in a prototypical sense. This is the reason why roots of Class III (*dao* 'knife') call for diminutive specification (*zhijia* 'nail') to satisfy

the presupposition of diminutivization. Finally, the compound root *zhijia-dao* ('nail-knife') has diminutive properties and hence can be s-selected by -*er*.

3.2 Word level vs. root level

Following [6], I assume that -*er* can operate at two levels: word level and root level. Furthermore, I advance that the function of -*er* is conditioned by its merging site, which is formalised in the two operations of diminutivization in (15).

(15) i. **Word-level Operation**
*Merging with a word, -er enforces diminutivization as **restriction***;
  ii. **Root-level Operation**
*Merging with a root, -er implements diminutivization via **selection***.

Specifically, if -*er* operates at word level, and it takes a root that denotes size-neutral entities, -*er* restricts the denotation of the root to a subset that displays smallness. For example, *gang-er* in (1') below denotes small tanks. If -*er* operates at root level, it selects roots that denote entities which are construed as small in general. In this case, there are two possibilities. If the denotation of a morpheme is generally small, like *feng* 'crack' in (2'), the morpheme itself can satisfy the presupposition of diminutivization. If the denotation of a morpheme is lexically size-neutral, such as *dao* 'knife' in (3'), it has to be restricted by other items showing diminutive specification inside the scope of -*er* to a subset the elements of which have the property of being small.

(1') Class I (2') Class II (3') Class III
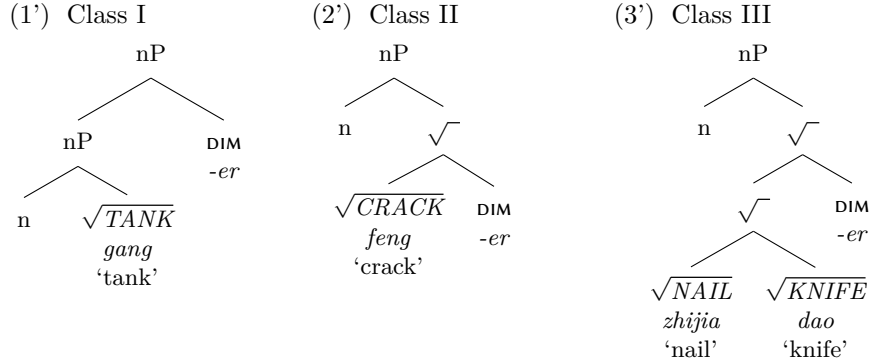
Given the analysis above, I predict that if -*er* merges in the derivation at word level, it restricts the denotation of the root, and the *er*-diminutive cannot co-occur with any augmentative modifier. If -*er* appears at root level, it selects only a root which denotes things that are generally small, and the *er*-diminutive can therefore be compatible with augmentative modifiers.
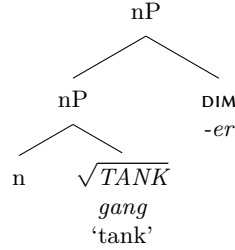
The necessity of diminutive specification is conditioned by the lexical meaning of the root (i.e., size-neutral vs. small), as illustrated by Table 3. If the denotation of the root is lexically size-neutral (**Class I** and **Class III**), it can either be restricted by -*er* at word level (1') or selected by -*er* at root level after receiving diminutive specification from other morphemes in the compound root (3').

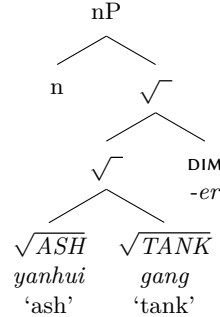**Table 3.** Semantic functions of *-er* and the nature of roots in prototype

Roots / *-er*	(i) Size-neutral	(ii) Small in prototype
Restriction at word level	Class I (*gang* 'tank'...)	/
Selection at root level	Class III (*dao* 'knife'...)	Class II (*feng* 'crack'...)

We have already seen that roots of Class I can be restricted by *-er* at word level (1'), rendering the *er*-diminutive incompatible with augmentative modifiers (16a). Roots of Class I can also be selected by *-er* at root level if there is diminutive specification, as shown by *yanhui-gang-er* ('ashtray') (1"). My analysis predicts the compatibility of such *er*-diminutives with augmentative modifiers (16b).

(1') Class I

```
            nP
          /    \
        nP      DIM
       /  \     -er
      n    √TANK
           gang
           'tank'
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(1") Class I

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            nP
          /    \
         n      √
              /   \
             √     DIM
           /  \    -er
       √ASH    √TANK
       yanhui   gang
       'ash'    'tank'
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(16) a. *da   de   gang-er
       big   MOD   tank-DIM
       Intended: 'big small tank'

    b. da   de   yanhui-gang-er
       big   MOD   ash-tank-DIM
       'big ashtray'

If the denotation of the root is small in the prototypical sense (**Class II**), only selection at root level is applicable; see (2') above. To explain such asymmetry between word-level and root-level operations, I further propose that these two operations are subject to the Principle of Economy (17), given which the operation is by default applied in the lowest position possible.[6]

(17) **Principle of Economy**
    Apply the operation as early as possible in the derivation; do not use the same operation in higher positions unless necessary.

According to the Principle of Economy, the root-level operation should be applied by default unless the word-level operation is motivated. Since the roots of Class II have diminutive properties in their denotation, they satisfy the presupposition of diminutivization at root level and trigger root-level operation, which blocks the word-level operation. Roots of Class III and Class I are both

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[6] This is empirically supported by the following observations. On the one hand, the root-level operation is applicable to more roots (Class II and III) than the word-level operation is (Class I) in quantity and variety. On the other hand, constituents involving *-er* at root level appeared generally earlier in history and have developed into stable collocations, while the ones involving *-er* at word level show more flexibility.

size-neutral, but they differ in motivating the word-level operation or not. For Class III, the contrast in size is neither common nor significant, and thus the word-level operation lacks motivation. By contrast, for Class I, whether the size is big or small matters in daily life. Namely, the distinction in size is commonly highlighted. Hence, the word-level operation is motivated, and the roots of Class I are the only ones that can have *er*-diminutivization as restriction at word level.

3.3   -*er* as an acategorial particle

To explain the reason why -*er* has two merging sites, one above the categorizer and the other below the categorizer, I put forth that -*er* is an acategorial particle in the sense that -*er* lacks a formal feature but has a semantic feature [2]. To wit, a semantic feature [+DIM] of -*er* in syntactic derivation enables -*er* to encode smallness, while the lack of a formal feature results in no syntactic category or c-selective power of -*er*. From this perspective, -*er* is noticeably similar to roots – they are both devoid of formal features and are introduced into the derivation via adjunction. The sole difference between -*er* and roots is that -*er* bears a semantic feature which gives rise to the abstract diminutive meaning and the semi-functional behaviours of -*er*, whereas roots lack such a feature and hence can only be fully interpreted after merging with a categorizer.

This analysis departs in a critical way from the syntactic representation of diminutives previously established for Italian, German, Russian and other languages, where DIM is taken as a functional head, or equivalently, a feature over a functional head ([21], [6]; a.o.). While the diminutive markers in the aforementioned languages can alter certain formal properties like gender, as introduced in Section 2.2, -*er* in Mandarin does not show any influence over the functional properties of its input. On the one hand, -*er* does not determine any features of its mother node, as argued in Section 2.1. On the other hand, -*er* can appear in constituents across categories, such as verbs (18) or classifiers (19). Another piece of evidence is the variety of syntactic objects that -*er* can merge with. Aside from root level and word level, -*er* is also found at phrase level (20), which reflects its acategorial status.

(18) a. wan-er   youxi
         play-DIM   game
         'play games casually'

    b. dian-er   le
         bounce-DIM   PERF
         'left cheerfully'

(19) a. yi   xiang-er   li
         one   CL$_{BOX}$-DIM   pear
         'a (small to medium sized) box of pears'

    b. san   kuai-er   dangao
         three   CL$_{SLICE}$-DIM   cake
         'three (small to medium sized) slices of cake'

(20) a. [$_{VP}$ shou   la   shou]-er
         hand   hold   hand-DIM
         'hold hands delightedly'

    b. [$_{VP}$ ying   peng   ying]-er
         hard   fight   hard-DIM
         'put on a fight contemptuously'

4   Implication

A cross-linguistic observation is that diminutives are closely tied to affection [14]. My analysis can be further extended to the affectionate use of -*er* in Mandarin.

Analogous to *er*-diminutives, I refer to the constituent formed with the affectionate *-er* and a root as *er*-affectionates. Since roots are generally neutral to affection, the affectionate *-er* functions as restriction in a peripheral position at word level, contributing an affectionate flavour. It follows that the affectionate *-er* should be optional, which is indeed borne out in Mandarin; see (21)–(22).

(21) a. xiannv   b. xiannv-er
          fairy   fairy-AFF
          'a fairy'   'a lovely fairy'
(22) a. xiaozi   b. xiaozi-er
          lad   lad-AFF
          'a lad'   'a lovely lad'

Another piece of evidence supporting my analysis comes from the fact that *er*-affectionates are generally incompatible with modifiers that convey hatred or disgust, as illustrated by (23).

(23) a. *kewu   de   xiannv-er   b. *taoyan   de   xiaozi-er
          hateful MOD   fairy-AFF   disgusting   MOD   lad-AFF
          Intended: 'a hateful fairy'   Intended: 'a disgusting lad'

5 Conclusion

In this article, I have argued that there are two types of diminutive *-er* in Colloquial Beijing Mandarin. The diminutive *-er* is an acategorial particle that lacks any formal feature, and therefore it can merge freely at different levels without being selective to a particular syntactic category. Essentially, *-er* has two main merging sites, one at word level and the other at root level. At word level, *-er* merges with a categorized item and enforces restriction. At root level, *-er* merges with a root and implements selection.

The syntactic representation and semantic contribution of *-er* show that *-er* is sensitive to the lexical meaning of roots. If the denotation of the root is neutral to size, then *-er* can operate at root level as well as word level. If the denotation of the root is specified as being small in prototypes, then *-er* can operate at root level only. Such root-sensitivity displayed by a diminutive marker may be worth of future research from a cross-linguistic perspective and could potentially point to a reconsideration of the semantics of roots.

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