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On the complementary distribution of plurals and classifiers in East Asian classifier languages

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Abstract

It is widely recognized that plural morphemes and classifiers are in complementary distribution, being unable to co-occur. A recent approach provides a syntactic account (Borer 2005) for complementary distribution: a plural morpheme and a classifier realize the same functional head and thus they cannot co-occur. The goal of this article is to examine whether this syntactic approach to the alleged complementary distribution is applicable to certain classifier languages. We review analyses for each of three classifier languages, Chinese, Japanese, and Korean where a plural and a classifier co-occur. The reviewed analyses suggest that plural markers in these classifier languages do not realize the same head with classifiers (e.g., a plural instantiates Num/D in Chinese differently from a classifier), which accounts for its co-occurrence with a classifier. This paper also discusses other approaches to the complementary distribution of plural morphemes and classifiers, e.g., a typological view (Chierchia 1998) and a semantic view (Bale and Khanjian 2009), and concludes that they may not account for the data in the languages under discussion.

Keywords: plural marker, classifier, complementary distribution, Chinese, Japanese, Korean

1. Introduction

That classifiers and plural markers are in complementary distribution has been observed at least as far back as Greenberg (1972) and Sanches and Slobin (1973), and has been discussed in recent literature (e.g., Chierchia 1998, Borer 2005, J. Kim 2005, Bale and Khanjian 2009, Bošković and Hsieh 2009, Cowper and Hall 2012).

For example, Borer (2005) claims that classifiers and plural markers perform the same semantic function, that of individuation (in a non-measure construction, see Footnote 2 and Section 2 for more detail); and thus, they realize the same functional head in the nominal structure, i.e., they are in *syntactic* complementary distribution (to be detailed in Section 2). The proposed syntactic complementary distribution captures the well-observed fact that classifiers and plural markers cannot co-occur in some languages. The question that arises with respect to Borer's type of approach is how complementary distribution figures in classifier languages such as Chinese, Japanese, and Korean where both classifiers and plurals are known to be available. For these languages (as will be discussed in Section 3), independently from Borer's claim, plural markers have been proposed to occupy a different position than classifiers in the nominal structure. Classifiers realize a functional head CL projected above an NP. Plural markers occupy a different head than CL; for example, in Chinese (Li 1999), the Num(ber) head (in the sense of Ritter 1991, 1995) has been proposed as the site for the plural marker *–men*. With respect to the claim that classifiers and plural markers realize the same functional head as in Borer, this type of proposal for the classifier languages seems to indicate that the syntactic complementary distribution of classifiers and plural markers proposed in Borer may not be applicable to these classifier languages.

The goal of this article is to review relevant data provided and the main proposals made for each of the classifier languages under consideration, and to evaluate whether the well-known syntactic complementary distribution is applicable to these classifier languages. For reasons of space, the discussion to follow is restricted to the main proposals concerning

the position of plural markers in a nominal structure of each of classifier languages, assuming the syntax and semantics of classifiers to be relatively constant. In the studies to be reviewed, it appears that the syntax of classifiers in non-measure constructions is relatively less debatable than the syntax of plural markers: classifiers in those studies are viewed to occupy a CL head that takes a NP as a complement in the nominal structure and functioning as an individuator of the complement, similar to the functional head proposed for classifiers in Borer (2005) (see Section 2).

The paper is organized as follows. Section 2 discusses Borer's (2005) claim that classifiers and plural markers realize the same syntactic head, namely Div(ision), which captures the complementary distribution between classifiers and plurals noted in Borer's work and elsewhere. Section 3 examines data in Chinese, Japanese, and Korean, three languages that have both classifiers and plural markers which can co-occur in certain contexts. Recent analyses of these languages are discussed which show that in each case, the plurals realize syntactic positions different from a CL head, which is realized by classifiers, thus explaining the observed co-occurrence. Section 4 discusses other approaches to complementary distribution such as Chierchia's (1998) typological approach and Bale and Khanjian's (2009) semantic approach. Section 5 concludes.

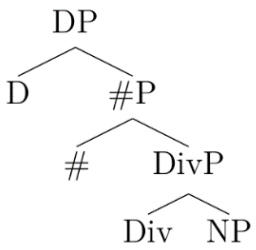
2. Plurals are in syntactic complementary distribution with classifiers

Borer (2005) assumes that if two or more items are in complementary distribution, where they cannot co-occur in the same environment, this indicates that they serve the same function.[1] Under this view, the fact that a plural marker and a classifier cannot appear together in the same nominal phrase indicates that they play the same role in the phrase (see

[1] Note that this sense of complementary distribution is not the same as the one used in phonology. For the purpose of the paper, we assume its use in the syntactic sense, as in Borer (2005).

Cowper and Hall 2012 for a similar view). Thus, they are proposed to compete for the same functional head in the nominal structure, which we refer to as syntactic complementary distribution in this paper. Note that this complementary distribution is proposed for non-measure contexts, and we limit our discussion in this paper to these contexts.[2] She considers the semantic function of CL to be that of dividing a mass denotation into countable units, as also pointed out in Chierchia (1998) (see Section 4 for a relevant discussion). She further claims that bare nouns have a mass denotation in *all* languages, and that PL also performs the function of division. Under this view, either CL or PL can determine whether the noun is mass or count. If CL or PL is present, the noun is count; otherwise, it is mass. She formalizes this view by projecting a functional head above NP, namely a Div(ided) head as in (1) that can be instantiated either by a CL or a PL:[3]

(1)



[2] In a measure context (e.g., *four bottles of milk*), Borer (2005) proposes that plural *–s* in English realizes the Div head just like in a non-measure context, and a measure word (e.g., *bottle*) appears as a part of a compound noun (e.g., [$_{NP}$ [*bottle*] [*milk*]]). However, no details are provided on how a Chinese-type CL figures in a non-measure context, and no proposal is made as to whether the type of CL is in complementary distribution with a plural marker in a measure context. We do not pursue this question for the purpose of the paper. The current literature suggests that in a measure context, a CL and a plural marker may not be in complementary distribution. For example, in classifier languages such as Azeri and Persian, a plural marker is absent in a measure context (Mathieu and Zareikar 2015); in the absence of a plural marker, a classifier is proposed to instantiate a Div(ided) head (see (1)) in such languages. In the East Asian languages discussed in this paper, a classifier in a measure construction has been proposed to be the head of a Measure Phrase (MP) which forms a constituent with a numeral (e.g., Rothstein 2011, Li 2011, Chae 1983, YH Kim 1983, Shin 2009), building on previous analyses such as Greenberg (1972) and Krifka (1995). Under these analyses, an MP modifies the noun that it measures. This type of analysis of MP is also advocated in Bale and Coon (2014) for languages such as Mi'gmaq (Algonquian) and Chol (Mayan).

[3] Borer (2005) also claims that certain other morphemes realize Div. This includes the English numeral *one*, and all numerals in certain other languages, such as Hungarian. See Mathieu (2012) for other possible morphemes that can realize Div.

In this model, NP begins with a mass denotation; Div, if present, divides this mass into countable units. The quantification head # counts this divided mass (or quantifies an undivided mass), and D provides (in)definiteness. Since either classifiers or plural markers occupy the Div head, they cannot both be present in a single projection, which accounts for their complementary distribution. Thus, under the approach of Borer in (1), complementary distribution between the two is predicted.

Her main evidence comes from Armenian, which has both plural markers and classifiers, but does not allow the co-occurrence of a plural and a classifier within a single noun phrase (similar data has been noted in Bale and Khanjian 2009, although they propose a different, semantic account for the data; see Section 4).[4] Relevant Armenian examples are shown in (2):

(2) a. Yergu had hovanoc uni-m.
two CL umbrella have-1SG
'I have two umbrellas.'

b. Yergu hovanoc-ner uni-m.
two umbrella-PL have-1SG
'I have two umbrellas.'

c. *Yergu had hovanoc-ner uni-m.
two CL umbrella-PL have-1SG
'I have two umbrellas.' (Borer 2005: 94)

[4] Borer (2005) also cites similar data from Chinese; see the discussion in Section 3.

The distribution of classifiers and plural markers shown in (2) supports the proposed structure of Div in Borer (2005). These examples show that a noun phrase can surface with just a classifier (2a), or just a plural (2b), but co-occurrence of a classifier and a plural marker is ungrammatical (2c). That is, Div may be realized by a plural marker (2a) or a classifier (2b). However, Div cannot be realized by both the classifier and the plural, as the ungrammaticality of (2c) shows.

3. Distribution of classifiers and plural markers in East Asian languages

What Borer (2005) establishes is that plural markers and classifiers are in syntactic complementary distribution, realizing the same head, namely Div, building on the facts that a plural marker and a classifier distributionally cannot appear together, and that they share the same function of individuation.

In this section, we survey relevant literature on the distribution of classifiers and plural markers in the three classifier languages, Chinese, Japanese, and Korean. The outcome of the survey shows that in these languages the plural marker and a classifier can co-occur (though only in a limited context in Chinese), and that the plural does not instantiate the same functional head that a classifier realizes. This conclusion suggests that plurals and classifiers are not in syntactic complementary distribution in these classifier languages.

3.1 Chinese *–men* and CL

As mentioned above, Chinese is often cited as an example of a language in which numeral classifiers and a plural marker are both available, but cannot co-occur in a single noun phrase (e.g., Cheng and Sybesma 1998, Borer 2005, Cowper and Hall 2012). As shown in (3), the plural marker *–men* cannot appear with a classifier *–ge* (Cheng and Sybesma 1998: 537):

(3) * san-ge haizi-men

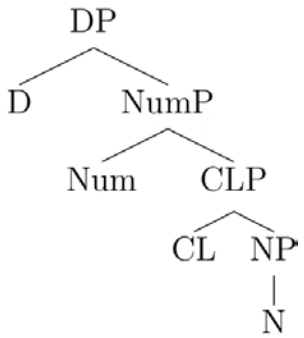
three-CL child-MEN

Intended meaning: ‘three children’

This type of data is also taken by Borer (2005) as evidence that the plural marker *–men* and numeral classifiers realize the same functional head, Div (see Section 2). However, unlike Borer (2005), Li (1999) proposes that the ungrammaticality of (3) is due to a certain structural constraint in the nominal structure of Chinese where *–men* and CL are proposed to occupy different positions. Before moving to Li’s (1999) analysis of *–men*, however, we must first outline some assumptions Li makes about Chinese noun phrase structure.

As is well known, Chinese lacks overt definite or indefinite articles, which has led some authors (e.g., Cheng and Sybesma 1999, Bošković 2008, Bošković and Hsieh 2012) to assume that it lacks the D head entirely; however, Li (1997, 1999) proposes that the D projection may be present in Chinese noun phrases. This is based on the available interpretations of bare nouns and nouns modified by numerals and classifiers: bare nouns may be definite or indefinite, while when a numeral and classifier are present, the interpretation is indefinite (cf. Cheng and Sybesma 1999). This leads Li to propose the schematic structure in (4) for Chinese noun phrases:

(4)



(Li 1999: 76)

Each of the phrases may be present or absent in the structure, as needed. Li proposes that in

definite DPs, D with a [+Def] feature is projected and it triggers head-movement from N to D. Assuming minimalism, in this case, N also has a corresponding feature to check the [+Def] feature on D.[5] When a numeral and classifier are present, the CL head blocks this movement of N due to the Head Movement Constraint (HMC; Travis 1987) and so a definite reading is impossible.[6] Furthermore, Li follows Postal (1966), Abney (1987), Longobardi (1994), and others in assuming that pronouns are heads that are base-generated in D, which receive a definite interpretation without the need for head movement from N.

As for the plural marker *–men*, Li (1999) proposes that it, like the English plural, is generated in Num. However, *–men* differs from the English plural in that it induces a definite reading, and in that it can provide a collective reading when attached to certain elements. The definite reading of N-*men* is noted by Iljic (1994) and Li (1999), among others, and is evidenced by the contrast between (5a) and (5b):

(5) a. wo qu zhao haizi-men
I go find child-MEN
'I will go find the children.'

[5] As for indefinite NPs without overt Number and CL, Li (1999) suggests that the DP projection is absent, as no [+Def] feature is needed, with the existential reading provided by operators outside the nominal projection, such as adjoined to VP (in the sense of Diesing 1992). Thus, under her view, an indefinite bare noun in Chinese is simply an NP with neither a DP nor a CLP.

[6] A reviewer suggests that a definite reading could result from a covert definite morpheme in D, rather than from movement of the head noun, as is suggested for certain kinds of English pronouns in Elbourne (2001, 2005). While this could account for definite readings of bare nouns and of N-*men*, a covert morpheme analysis does not provide a straightforward explanation of the construction exemplified in (8) and (12), in which a pronoun or proper name suffixed with *–men* may precede a numeral and classifier. As is discussed in more detail below, in Li's account, common nouns are blocked from this construction by the HMC. For instance, in Li's (1999) account, the CL head blocks movement from N to D in this context, ruling out a definite interpretation. In contrast, pronouns and proper names occupy D, which account for their definiteness. If a covert definite morpheme occupies D and nouns, pronouns and proper names all remain lower down then this difference does not receive a straightforward explanation. It is not clear where the pronouns and proper names could be located above CL in (8) and (12) if the D head were occupied by a covert morpheme, nor is it clear why common nouns could not appear in the same construction.

b. wo qu zho haizi

I go find child

'I will go find the/some child/children.' (Li 1999: 78)

A definite reading of N-*men* is further supported by the fact that it is ungrammatical in an existential sentence; as is well known (e.g., Postal 1966, Iljic 1994, Kurafuji 2004), definite noun phrases are disallowed in contexts where their existence is posited, rather than presupposed.[7] This is shown for N-*men* in Li (1999), citing Iljic (1994).

(6) a. *You ren-men cf. you ren

have person-MEN have person

'there is/are some person(s)'

b. *mei you ren-men cf. mei you ren

not have person-MEN not have person

'there is nobody' (Iljic 1994: 94)

This suggests that *–men* is specified that it must occur in a definite DP.[8] By Li's (1999) analysis, this means that it attaches either to common nouns that undergo movement to D, or to elements that are base-generated in D (pronouns and proper names; see below).

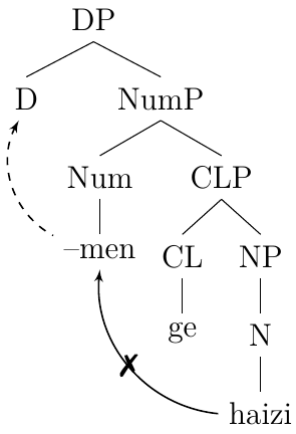
This in turn accounts for the ungrammaticality of examples such as (3), where a

[7] We assume that an existential clause can be used as a diagnostic for (in)definiteness along with the studies cited. In Li (1999), it is unclear whether the ungrammaticality shown in (6) is relevant to Diesing's (1992) proposal in which a definite operator appears outside the VP. In Li (1999), the examples in (6) are provided to show that N-*men* is interpreted as definite, but no account of semantics of the existential construction relevant to the ungrammaticality has been offered. As the purpose of this paper is to provide an overview of the literature, we do not question this issue further.

[8] Li (1999) does not provide an account of how this should formally proceed. Assuming Minimalism as in Li (1999), plural *–men* may have a categorial feature such as [*u*D] so that it can attach to materials on D, such as a pronoun. It is not clear to us how N picks up *–men* on the way to D. It might be the case that *–men* (in Li (1999), the plural feature) on Num moves to D first to check off its categorical feature, and N moves to D to check [+Def] on D via Num; we leave the issue for further research.

common noun is incompatible with a classifier: the HMC blocks movement from N to D, and so *–men* has no item in D to attach to, as shown in (7).[9]

(7)



As mentioned above, *–men* can also attach to elements that are base-generated in D. This includes pronouns, as schematically illustrated in (9) with the example in (8); D is occupied by the 3rd person singular pronoun *ta*, which is suffixed with plural *–men* (see (8)); plural *–men* on Num here moves to D.[10] In this case, it is predicted that pronouns suffixed with *–men* should be able to co-occur with classifiers, as classifiers merge below D. Furthermore, it is expected that the pronoun merging on D will precede the numeral and classifier in this construction. These predictions hold, as shown in (8).[11] The construction in (8) cannot be analyzed as two separate DPs under Li's framework (see relevant discussion at the end of this section), as shown in (9). In Li, indefinite phrases do not project DP (see Footnote 5), and a numeral classifier phrase is always indefinite. Thus, *san ge (haizi)* 'three children' in (8) cannot be a DP, but is instead a NP with CLP projected, as schematically illustrated in (9). When a pronoun appears with the plural *–men*, NumP and DP are projected in the hierarchy,

[9] See Cowper and Hall (2012) for a similar view. They conclude that a plural marker and a classifier in Chinese cannot co-occur in a single *nominal projection*, which is not the same issue that this paper discusses, that is, the co-occurrence of a plural and a classifier on a single *functional head*.

[10] In Li (1999), the plural feature on Num is proposed to 'raise' to D, and this feature is realized by *–men*. For ease of exposition, we present the structure with*–men* on Num moving to D.

[11] Li (1999) notes that in the construction exemplified in (8) and (12), since the pronoun or proper noun receiving pluralization originates in D, the N position is free to be optionally filled by an additional noun that further specifies the referent(s) of the DP, hence the optional *haizi* 'child' in (8) and *ren* 'person' in (12).

as illustrated in (9).

(8) Wo qing ta-men san-ge (haizi) chifan.
I invite them-PL three-CL (child) eat
'I invited them three (children) for a meal. (Li 1999: 79)

(9) [$_{DP}$ D [$_{NumP}$ Num [$_{CLP}$ Numeral [$_{CL'}$ CL [$_{NP}$ N]
ta-men <-*men*> *san* *ge* (*haizi*)

Li (1999) assumes (following Li 1997, and contra Longobardi 1994) that proper names are base-generated in D in their canonical use, but can be used as common nouns as well, in which case they are generated in N (see (11) below). In the latter case, the meaning is not directly referential to a specific individual, but instead it refers to individuals with a given name or certain characteristics, as can be seen in English examples such as *the Steves I know* and *He's a real Einstein*. Li notes that proper names may be suffixed with *–men*, and that the meaning is ambiguous between a true plural reading and a "collective" or associative plural reading (Iljic 1994, Cheng and Sybesma 1998). That is, *XiaoQiang-men* can be interpreted either as meaning multiple people named *XiaoQiang* (or with the characteristics of a given person with that name), or as *XiaoQiang* and others in his group, as shown in (10).

(10) XiaoQiang-men shemne shihou lai?
XiaoQiang-MEN what time come
(i) 'When are the XiaoQiangs coming?' or
(ii) 'When are XiaoQiang and the others coming?' (Li 1999: 78)

Li claims that the plural reading holds when the name is generated in N as in (11a) just like a

common noun, and the collective when the name is generated in D as in (11b) (only the movement of *–men* is shown).[12]

(11) a. [$_{DP}$ D *-men* [$_{NumP}$ Num *<-men>* [$_{NP}$ N]]] *XiaoQiang*

b. [$_{DP}$ D *XiaoQiang* [$_{NumP}$ Num *-men* [$_{NP}$ N]]]

When a numeral and a classifier appear with a proper noun, a plural reading is not possible but a collective reading is, as illustrated in (12). The HMC can provide an account for this fact. Consider each of the structures in (11) with the projections of CLP as illustrated below in (13). In the collective reading (13a), as the name merges in D, there is no need of head movement from N. The CL merges below D and Num and therefore the name in D is compatible with CLP. In the plural reading (13b), the proper name in N cannot move to D, as CL blocks this movement; consequently, a plural reading is unavailable with the proper name as a common noun.

(12) Wo qing XiaoQiang-men **san-ge** **(ren)** chifan.
I invite XiaoQiang-MEN **three-CL** **(person)** eat
(i) 'I invited XiaoQiang and two others (in the group) for a meal.'
(ii) *'I invited the three XiaoQiangs for a meal.' (Li 1999: 80)

(13) a. [$_{DP}$ D *XiaoQiang* [$_{NumP}$ Num *-men* [$_{CLP}$ Numeral *san* [$_{CL'}$ CL *ge* [N]]]]

[12] In this position, Li (1999) suggested that the name is interpreted as a definite individual and a collective reading arises when the name is suffixed with *–men*; however, no account is provided how the specific 'collective/associative' reading (e.g., *XiaoQiang* and two others in the group') can result in. We may need a semantic analysis of collectives to pursue this issue further, which is the beyond of the scope of this paper.

b. [$_{DP}$ D [$_{NumP}$ Num [$_{CLP}$ Numeral [$_{CL'}$ CL [N]]]
-men <*-men*> *san* *ge* *XiaoQiang*

Thus, Li's (1999) analysis of *–men* as a Num head that must attach to an element in D with a definite reading leads to a correct prediction of its distribution with common nouns, proper names, pronouns, and numerals and classifiers.

While an analysis along the lines of Borer (2005) could account for much of the data discussed in this section individually, it cannot straightforwardly account for the full distribution of *–men*. If *–men* were a Div head specified that it must move to the # and D heads, serving to divide the mass while providing a plural and definite interpretation, then the data in (3)-(6) could be accounted for: the morpheme would encode definiteness, and it would block the presence of a numeral and classifier in # and Div. (Borer's analysis of English *one* involves the same kind of head movement, though *one* is a free morpheme that is specified as singular and indefinite.) Examples (8) and (12) could be argued to involve two DPs in apposition, one with the pronoun or name and another with the numeral, classifier and optional noun. In this proposal, as suggested by a reviewer, (8) may correspond with an English sentence such as *I invited them, the three children, for a meal*, and (12) with *I invited XiaoQiang and others, the three of them, for a meal*. However, there is no evidence that the Chinese sentences in (8) and (12) require the comma intonation that is necessary for this kind of appositive construction in English (Postal 1966, Elbourne 2001); furthermore, it does not explain why the interpretive contrast shown in (12) would hold, as nothing would block the plural interpretation in this analysis. In light of the lack of evidence from the prosody and interpretation of these examples, we conclude that the examples in question involve only a single DP, which is impossible if *–men* realizes Div.

We take the data and arguments given by Li (1999) to convincingly support her analysis, in which *–men* appears in a different head position than a classifier. In particular, this type of analysis can capture the fact that plural marker *–men* can co-occur with a

classifier when *–men* is suffixed to a pronoun and proper noun. Thus, the Chinese data are compatible with Borer's framework if plural *–men* appears on a different head than a classifier, but not an analysis where plurals and classifiers must realize the same functional head.

3.2 Japanese *–tachi* and CL

Japanese is another example of a classifier language that has plural marking. In this language, the plural marker *–tachi* allows either a plural reading or an associative reading similar to Chinese *–men*. However, the two readings are more freely available in Japanese than in Chinese. The relevant distribution of *–tachi* differs from *–men*; this is taken as evidence to suggest that the different interpretations of *–tachi* occupy different positions, Num and D respectively (Ueda and Haraguchi 2008, Ochi 2008), unlike Chinese *–men*, which initially occupies Num on either reading. Recall that *–men* allows only a plural reading with common nouns, and either a plural reading or an associative reading with proper nouns. In Japanese, however, both proper nouns and common nouns allow either a plural or an associative reading (Nakanishi and Tomioka 2004, Nakanishi and Ritter 2009). In the case of a proper noun, *Hanako-tachi* can mean either 'Hanako and others' (associative) or 'a group of people all named Hanako' (plural). As for common nouns, the most common reading is one of plurality; however, this is not necessarily the case (Nakanishi and Tomioka 2004). For example, *kodomo-tachi* 'child-TACHI' could denote a group that does not uniformly consist of children, but may include others who are associated with the children. This is shown most clearly with examples such as (14) (Nakanishi and Tomioka 2004: 128):

(14)	Kooen-de	utat-tei-ta	onnanoko-tachi-no	nakani-wa
	park-at	sing-PROG-PAST	girl-TACHI-GEN	among-TOP

otokonoko-mo ni,san-nin mazatteita.

boy-also a.few-CL were.included

'Among (the) girls who were singing in the park, a few boys were included.'

In order for (14) to be interpretable, it must be the case that *onnanoko-tachi* 'girl-TACHI' allows the possibility of individuals who are not girls in its denotation; thus, *–tachi* must allow an associative reading with plurals as well.

Thus, *–tachi* has two available readings, like Chinese *–men*, although the latter occupies Num on both readings. The two differ in that it is possible to have more than one *–tachi* morpheme suffixed to a noun, either proper or common, as in (15), while with Chinese *–men* this is impossible as shown in (16) (Ueda and Haraguchi 2008: 237):

(15) a. gakusei-tachi-tachi

student-TACHI-TACHI

'the students and their associates'

b. Taroo-tachi-tachi

Taroo-TACHI-TACHI

'Taroo and his associates and their associates'

(16) a. * xuesheng-men-men

student-MEN-MEN

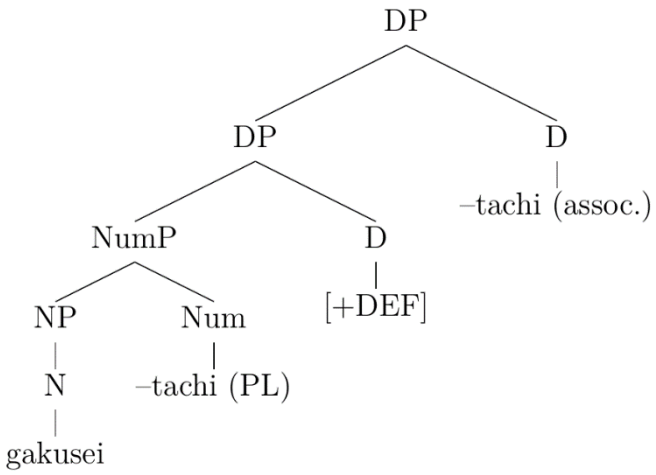
b. * XiaoQiang-men-men

XiaoQiang-MEN-MEN

In (15), the two examples have slightly different readings: in (15a) the first *–tachi* has a plural

reading and the second has an associative reading, while in (15b) both have associative readings. Ueda and Haraguchi note that these are the only possible interpretations of a double-*tachi* construction; it is impossible for them both to have plural readings, or to get an associative reading from the first and a plural reading from the second. Assuming that multiple NumPs cannot occur, Ueda and Haraguchi propose that the plural *–tachi* is a Num head, which takes an NP complement, thus allowing no recursion. On the other hand, assuming that a DP can be recursive,[13] they propose that *–tachi* as an associative morpheme is a D head that takes a DP complement, thus allowing either recursion of a second associative morpheme or the presence of a lower plural morpheme. Under this view, *–tachi* occupies different head positions depending on the reading, as schematized in (17).

(17)



[13] Ueda and Haraguchi (2008) do not provide evidence or argumentation for their assumptions that NumP cannot be recursive, but DP can. However, we feel that this assumption is justified. The Num head holds number features (see Ritter 1991, 1995; Ionin and Matushansky 2006, among many others), and a given item generally may not receive more than one value (or the same value more than once) for a given feature. On the other hand, while a D head holds definiteness features, the associative *–tachi* encodes additional semantic content, namely the presence of a group associated with a proper name, which is definite (Longobardi 1994). If *–tachi* takes a DP specified as [+DEF] as its complement as in (17), the two D heads each contribute a separate dimension of meaning to the DP as a whole; that is, they are not redundant or contradictory, as would be the case in recursion of NumP.

A reviewer notes that recursion of numbers has been shown in Hurford (1975, 1987) and Ionin and Matushansky (2006), among others. However, while their arguments for recursion in complex numerals are convincing, in their cross-linguistic analysis Ionin and Matushansky assume that numerals do not realize the Num head itself but rather its specifier (see Ionin and Matushansky 2006: 327, Footnote 13, and references therein), and so this does not provide evidence for recursion of NumP.

(Adapted from Ueda and Haraguchi 2008: 239)

Given this structural analysis of *–tachi,* let us consider the co-occurrence of plural *–tachi* and classifiers. The plural marker *–tachi* can co-occur with classifier phrases (CLP) with common nouns, regardless of whether the CLP precedes or follows the head noun (Ochi 2012: 52), unlike in Chinese (see Section 3.1). In other words, the plural marker is allowed in both the prenominal order (18a) where CLP precedes the head noun, in which case they are accompanied by *–no*, marking the phrase as a genitive modifier, and the postnominal order (18b) where CLP follows the head noun.[14]

(18) a. Boku-wa san-nin-no gakusei-tachi-o maneita.
I-TOP three-CL-GEN student-TACHI-ACC invited
'I invited (the) three students for a meal.'

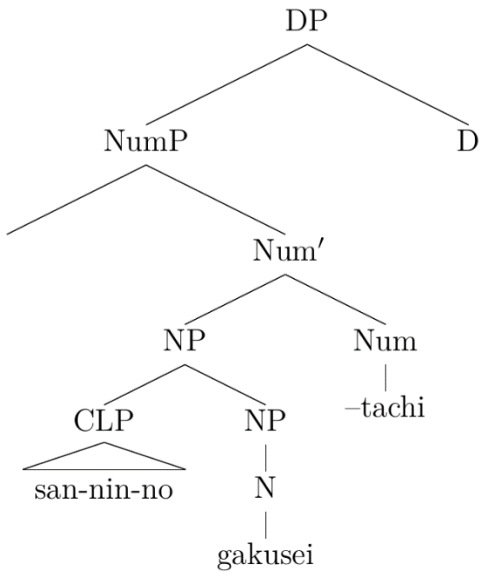
b. Boku-wa gakusei-tachi san-nin-o maneita.
I-TOP student-TACHI three-CL-ACC invited
'I invited (the) three students for a meal.'

In the prenominal order (18a), CLP has been proposed to be a modifier adjoined to NP (as argued for on the basis of N' ellipsis in Saito, Lin, and Murasugi 2006), which is widely assumed in the Japanese literature (e.g., Ueda and Haraguchi 2008, Huang and Ochi 2011, 2012, Ochi 2012). The adjunct analysis of a CLP is illustrated in (19). Under this view, *–tachi*

[14] In addition to the orders shown in (18), there is an additional construction in which the numeral and classifier are "floating" outside the noun phrase (Ochi 2012); the floating order will not be discussed in this paper.

is the head of a higher NumP, and it is still adjacent to the head noun, which capture the word order shown in (18a). That is, *–tachi* and a classifier occupy different head positions, and thus, the co-occurrence of classifiers and *–tachi* is fully expected.

(19)



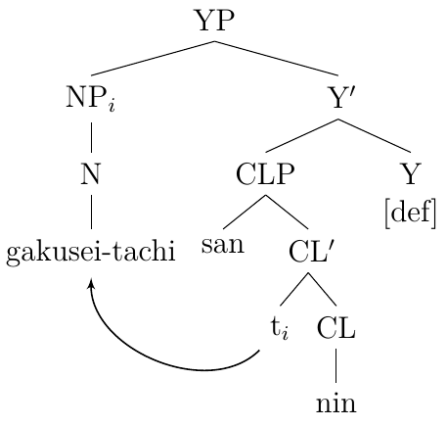
(adapted from Ueda and Haraguchi 2008: 235)

As for the postnominal order as in (18b), a modifier analysis of CLP along the lines of (19) must be rejected, since modifiers invariably precede the head noun in Japanese nominal phrases; Japanese is a strongly head-final language, with heads following both complements and modifiers. Therefore, in the postnominal order CL is widely claimed to be a head that takes NP as its complement (e.g., Murasugi 1991, Kawashima 1998, Watanabe 2006), and the numeral as its specifier (e.g., Watanabe 2006, Huang and Ochi 2011, Ochi 2012), as illustrated in (20). In (20), *–tachi* resides within NP and moves to the specifier of a functional head above the CLP as originally proposed in Watanabe (2006), and further elaborated in Huang and Ochi (2011), Ochi (2012).[15] According to Huang and Ochi (2011), a

[15] Ochi (2012) does not provide an analysis of the category of *–tachi* itself in this structure, or the exact point at which it attaches inside NP. We do not pursue this issue as it is outside the scope of this paper. What is important

functional head such as YP that encodes definiteness (or specificity; see Footnote 16) is projected above an NP marked with *–tachi*, as shown in (20).

(20)



(Ochi 2012: 58)

The NP-*tachi* moves to the specifier of YP for accessibility to a higher head such as *v* for the purpose of case: without moving into an edge of the phrase, it cannot be probed by *v*. As a result of this movement, NP-*tachi* is interpreted as definite. Like Chinese *–men*, *–tachi* is viewed as inducing definiteness (Kurafuji 2004, Ochi 2012), as the contrast in the interpretation between (21a) and (21b) suggests. The sentence in (21b) is not felicitous if the speaker has no particular group of children in mind.[16]

(21) a. Boku-wa kodomo-o sagashiteiru.
I-TOP child-ACC look.for
'I am looking for some/the child(ren).'

with respect to the current discussion is that *–tachi* does not occur in the same functional head as CL.

[16] Nakanishi and Tomioka (2004) suggest that *–tachi* is not inherently definite (as with Ochi 2012), giving evidence where NP-*tachi* appears in environments where definite nouns are impossible. However, they note that indefinite NP-*tachi* has certain properties that set it apart from indefinites in general, namely that it cannot appear with a generic, kind, or predicative reading, and that it cannot take narrow scope with respect to intensional verbs. These are properties of specific indefinites. While specificity and definiteness are distinct phenomena (Fodor and Sag 1982; Abusch 1994; Kratzer 1998; Matthewson 1999), these properties are shared with definite nouns, and so specificity and definiteness have been argued to be in the domain of D (e.g., Lyons 1999; Cowper and Hall 2003, 2009). Thus, we follow Ochi (2012) in assuming that there must be some relationship between *–tachi* and a higher head that encodes definiteness and related features.

b. Boku-wa kodomo-tachi-o sagashiteiru.
I-TOP child-TACHI-ACC look.for
'I am looking for some specific group of children.' (Ochi 2012: 13)

The existing analyses on Japanese nominal structure suggest that a classifier and the plural marker *–tachi*, regardless of the pre- or postnominal order of the CLP, are not in syntactic complementary distribution: they do not occupy the same syntactic position, and the observed co-occurrence follows from this.

Before moving to next section on Korean, we discuss an issue of whether the distributions of CLPs with respect to N can be accounted for under Borer's (2005) model, a possibility raised by a reviewer. Two possible analyses are suggested. First, it could be that the CLPs are in fact relative clauses modifying the DP, and so they would be expected to co-occur with *–tachi*. However, this analysis is unlikely, as neither CLP in (18) has the structure of a relative clause in Japanese: relative clauses do not involve the genitive marker *–no*, thus ruling out a relative clause in (18a); and relative clauses precede the noun they modify, ruling it out for (18b).

The reviewer's other suggestion is that there are two *–tachi* morphemes, one attaching high and one low, and that only the high *–tachi* can co-occur with CLP. As we mention above, Ueda and Haraguchi (2008) suggest that there are in fact two *–tachi* morphemes: one attaching in Num with a plural reading, and one in D with an associative reading. However, the interpretations of both plural morphemes in (18) is plural, not associative, suggesting that both receive the lower *–tachi* morpheme.

It should be noted that both of the reviewer's suggestions share with our own proposal that *–tachi* and CL can co-occur due to their occupying different parts of the nominal syntactic structure. In other words, as we mention elsewhere, we are not arguing that

Borer's analysis of noun phrase structure is incorrect per se; it may be that the structures in (19) and (20) can be brought more in line with Borer's model. What we are claiming is that plurals do not necessarily occupy a Div or CL head in the East Asian languages under discussion, and when they do not, they can co-occur with CL.

3.3 Korean *–tul* and CL

As in Japanese and Chinese, Korean has a plural marker, *–tul* (e.g., Lee 1992, Kang 1994, Im 2000, Baek 2002, Kwak 2003, Jun 2004, Kim 2005).[17] However, unlike its Japanese and Chinese counterparts, *–tul* cannot have an associative reading when it appears with a common noun or a proper noun (Kim and Madigan 2010, An 2017). As this paper focuses on the distribution of plural *–tul* with respect to classifiers, we do not discuss this issue further. We refer readers to the cited references, both of which compare Korean to Japanese or Chinese with respect to associativity.[18] Regarding classifiers, like Japanese *–tachi*, plural *–tul* can co-occur with classifiers (J. Kim 2005, Cowper and Hall 2012, Kim and Melchin to appear, An 2017); this is shown in (22).[19]

(22) a. salam-tul ney myeng
human-PL four CL
'four people'

[17] Note that in Korean, *–tul* can appear on non-nominal elements, including demonstratives and adverbial elements (Sohn 1999; Y. Kim 1994). This type of *–tul* has shown to have different semantics and syntax from plural *–tul* on nominals. For example, unlike a plural *–tul*, non-nominal *–tul* does not have a plural meaning. We limit our discussion to plural *–tul* appearing on nouns, and do not discuss the relationship between this and the other occurrences of *–tul*.

[18] Unlike Chinese or Japanese, Korean is reported to have separate associative morphemes: *–ney* in Kim and Madigan (2010), and *–tung* in An (2017). These suffixes in Korean indicate an associative meaning only.

[19] There is speaker variation in terms of how readily speakers accept the co-occurrence of plural and classifier in examples such as (22). This appears to be a generational difference involving historical change, with younger speakers accepting co-occurrence as in the examples like (22) more readily; see Kim and Melchin (to appear) for some discussion.

b. ai-tul sey myeng

child-PL three CL

'three children' (Kim and Melchin to appear)

The co-occurrence shown in (22) suggests that in Korean the plural marker and classifiers, like those in Japanese, are not in complementary distribution, which is argued in Kim and Melchin (to appear). Moreover, it has been argued that *–tul* cannot be an instantiation of a Div-like head (Cowper and Hall 2012, Kim and Melchin to appear). In Cowper and Hall (2012), following Park (2008), *–tul* realizes a Q head.[20] In Kim and Melchin (to appear), *–tul* is a modifier to the *n*P projection. The two studies are consistent in that *–tul* does not realize a head like Div, and both make the prediction that for this reason, *–tul* can co-occur with a classifier. However, due to some objections noted in Footnote 20, we opt to discuss Kim and Melchin (to appear), which is illustrated as in (23). Assuming that the classifier is a head above *n*P in the extended projection as in (23), the proposed analysis of *–tul* as modifier of *n*P explains why *–tul* and classifiers can co-occur in Korean.[21]

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[20] Cowper and Hall (2012) suggest that the head *–tul* is not a plural marker but a quantifier, drawing on Park's (2008) proposal that *–tul* realizes a Q head. However, *–tul* as Q is only a part of Park's proposal: she proposes that *–tul* is base-generated as Div, moves to Num giving rise to a plural interpretation n, and finally moves to Q, showing the interpretation of a distributive quantifier similar to English *all*. Park's analysis of *–tul* as a distributive quantifier appears to make an incorrect prediction. As a distributive marker, *–tul* is expected not to appear as a predicate, like English *all* (e.g., *#They are all children* is only possible on a reading where *all* is interpreted as quantifying the subject *they*, not the predicate *children*). However, this is not the case, as shown in (i):

(i) Ku-tul-un haksayng-tul-i-ta

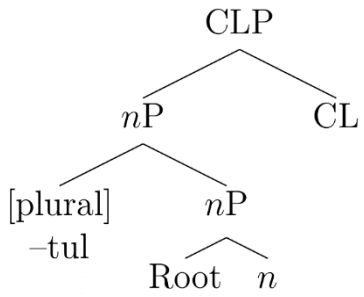
he-PL-TOP student-PL-be-DECL

'They are children.' (Kim and Melchin to appear)

Moreover, as pointed out by Kim and Melchin (to appear), Park (2008) proposes that *–tul*, as a Div head, cannot co-occur with a classifier, contrary to the fact (see (22)). In ungrammatical examples provided in Park (2008), nouns that appear with classifiers are all inanimate, and Park (2008) does not include examples involving human nouns as in (22) in making her claim. Thus, evidence in Park (2008) is not complete and misses the core distribution of *–tul*. Regarding the data involving *–tul* with inanimate nouns, the data shows speaker variation, which is concluded to reflect idiosyncratic properties of *–tul* (Kim and Melchin to appear).

[21] In Korean, a classifier phrase, which minimally consists of a numeral and a classifier, projects CLP, and allows either a pre- or postnominal order (W. Chae 1983, Y-H Kim 1983, Shin 2008), as in Japanese (see (18)). A classifier phrase in pre-nominal order in Korean has been proposed to be an adjunct (e.g., W. Chae 1983, Y-H

(23)



(Adapted from Kim and Melchin to appear)

The most important aspect of (23) relevant to the current discussion is that *–tul* is not a head plural, unlike a classifier, but is instead a modifying plural, and it modifies a *n*P. Here we review the evidence for (23) which we consider most crucial, from Kim and Melchin (to appear).

By all criteria in Wiltschko (2008), *–tul* behaves like a modifying plural, rather than as a head plural.[22] First, *–tul* is optional as in (22) above, in which the nouns can receive a plural interpretation regardless of whether *–tul* is present or not.[23] Unlike a head plural such as English *–s*, *–tul* on a noun also does not trigger obligatory number agreement. As shown in (24), *–tul* can appear with either a singular or plural determiner:

Kim 1983, Shin 2008), similar to Japanese (see (19)). As for the post-nominal order, although details differ, a classifier phrase has been proposed as a predicate of NP (e.g., Park 2008, Shin 2008). These analyses are all compatible with the modifier analysis of *–tul* in Kim and Melchin (to appear): as a modifier, *–tul* can appear in either order. Thus, we do not further address the different order of classifier phrases in the discussion.

[22] Due to reasons of space, we refer readers to either Wiltschko (2008) or Kim and Melchin (to appear) for these criteria. In brief, Kim and Melchin (to appear) show that *–tul* shows similar properties to the Halkomelem root-modifying plural discussed in Wiltschko (2008), except that it does not appear inside of compounds or derivational morphemes, suggesting it modifies *n*P rather than the root. Kim and Melchin (to appear) also show that *–tul* does not satisfy all criteria of a head plural, which suggests that *–tul* may not instantiate a head such as Div contrary to Park (2008). This is also contrary to the proposal of C.-H. Kim (2005), in which *–tul* is a Num head as in English, with the two languages differing mainly in that the DP projection is obligatory in English but optional in Korean.

[23] We agree with a reviewer that optionality alone cannot suggest that a plural marker in question is a modifier. As pointed out by the reviewer, a plural marker in Western Armenian, which appears to be treated as a head plural in Borer (2005), is also optional (Borer 2005, Bale, Gagnon and Khanjian 2011). However, what Kim and Melchin (to appear) as with Wiltschko (2008) propose is that other properties of plural *–tul* in Korean (such as the lack of agreement) in conjunction with its optionality suggest that the plural is a modifier.

(24) ku(-tul) salam-tul

that-PL person-PL

'those people' (Kang 1994)

If *–tul* were a head like English plural *–s*, it would require a determiner inflected for plural as in English **that/those apples*. Agree (Chomsky 2001) is proposed to account for the obligatory co-occurrence of plural marker *–s* on a determiner and a noun (Wiltschko 2008); for example, D instantiated by a determiner bears unvalued number feature such as [*u*#], which is valued by [plural] feature on the noun resulting in [~~*u*~~#: plural]. If the number feature on D is not valued, the derivation crashes, which captures the obligatory co-occurrence. In Korean (24), on the other hand, the co-occurrence of plural *–tul* is not obligatory, which should result from something other than Agree (Wiltschko 2008, Kim and Melchin to appear). Upon this conclusion, the feature [plural] instantiated by a plural marker in some languages is a modifying feature. As a modifying feature, the feature [plural] can appear when it is needed, but its absence does not result in ungrammaticality as no checking or valuation is required.[24]

As a modifier, *–tul* modifies a certain phrase in nominal domain, namely *n*P, rather than instantiating a head. As *n*P is the locus of idiosyncratic properties (Marantz 2001), a plural in *n*P is expected to show idiosyncrasies (Lowenstamm 2008; Acquaviva 2008; Kramer 2009, 2015; see also a similar intuition in Corbett 2000). This is shown to be the case for Korean *–tul*, as illustrated in (25) and (26). The plural *–tul* can attach to almost any human

[24] Given this proposal, we may conclude that *–tul* is not a formal agreement marker, unlike plural *–s* in English. A formal agreement can show a mismatch between form and meaning. For example, pluralia tantum such as *pants* in English are morphologically plural, but semantically singular. Despite its semantics, it triggers plural agreement on the verb (e.g., *The pants are/*is dirty*.). The fact that Korean lacks pluralia tantum (e.g., *pants*) (Kim and Melchin to appear) may suggest that *–tul* is not a formal agreement marker, but is instead a modifier, as has been concluded for the modifying plural in Halkomelem (Wiltschko 2008). In Korean, verb agreement appears to be optional, although its status is still under debate. For example, Korean does not have English-type agreement on verbs, but it has an honorific morpheme, *–si*, often considered to be an agreement marker on the verb (e.g., Ura 1999). Like plural *–tul*, honorific *–si* is optional, given the fact that its absence does not result in ungrammaticality but is instead considered socially unacceptable.

noun as in (25a), and also to many inanimate nouns as in (25b), but not very often to animals as in (26).[25] This idiosyncratic property of *–tul* suggests that *–tul* must be a *n*P modifier.

(25)	a.	salam-tul	sey-meng	b.	chayk-tul	sey-kwuen
		person-PL	three-CL		book-PL	three-CL

(26)	??kilin-tul	sey-mari	
	giraffe-PL	three-CL	

Kim and Melchin (to appear) rule out DP as a possible option where *–tul* can adjoin, and thus *–tul* cannot be a DP modifier. Unlike Chinese *–men*, for example, *–tul* does not induce a definite interpretation. For example, *ai-tul* 'child-PL' can mean 'the children' or 'children' depending on a context.[26]

Under the *n*P modifier analysis of *–tul*, *–tul* is not a head; thus, it cannot instantiate Div. Thus, the co-occurrence of plural *–tul* with classifiers well captured under the modifier view of *–tul*. Moreover, just like Chinese *–men* and Japanese *–tachi*, the analysis suggests that the Korean plural marker *–tul* is not in syntactic complementary distribution with a classifier.

[25] Korean *–tul* differs from its counterparts in Chinese and Japanese in this restriction. As for Chinese *–men* and Japanese *–tachi*, they can appear with a human noun only (e.g., Chao 1968, Li and Thompson 1981, Li 1999, Kurafuji 2004). Thus, plurals in Chinese and Japanese show more regular distribution than the Korean one, which calls for a different analysis from the one in Kim and Melchin (to appear). Despite the fact that these human restrictions are well noted in the literature, formal analyses of this kind of restriction seem to be scarce. We find one proposal in Cowper and Hall (2012) in which the observed human restriction is one of the features that the plural *–men* realizes: *–men* is associated with D head, and is the spell-out of the feature [animate], in addition to [plural].

[26] See Kim and Melchin (to appear) for more evidence.

4. Other approaches to complementary distribution

There are other approaches that have accounted for the alleged complementary distribution of plurals and CL in frameworks separate from that of Borer (2005). One prominent line of research is a typological approach that originated with Chierchia (1998). Chierchia proposes a typology of nominal denotations such that in one group of languages, bare nouns denote predicates which must be saturated by a D head in order to function as arguments in a sentence; in the other, bare nouns denote arguments on their own.[27] In Chierchia's account, the first group of languages is characterized by the presence of articles and plural marking, a contrast between count and mass nouns, and the lack of CL, while the second group of languages lack articles (in fact, they lack the DP projection entirely) and plurals, and all nouns are mass nouns that require CL for quantification. This follows from the semantics proposed by Chierchia (1998) for mass nouns and plurals, in which mass nouns and plurals have essentially the same kind of denotation (i.e., they both denote sets including both atomic entities and pluralities), contrary to the proposal in Borer (2005). In Chierchia's account, mass nouns may not receive plural marking as the plural would not add anything to the denotation. In this proposal, since all nouns in classifier languages are mass nouns, plural marking is impossible in these languages. It thus follows that in the typology proposed in Chierchia, plural marking is in complementary distribution with CL. However, Chierchia's typology seems to make the incorrect prediction that the East Asian languages, classifier languages, would lack a plural marker, contrary to the facts as shown in Section 3.

Working within Chierchia's framework, Bošković and Hsieh (2012) assume that in a classifier language such as Chinese a DP projection is lacking. However, they note that the

[27] The typology as it is presented in Chierchia (1998) has three types of languages; in the third, bare nouns can denote either arguments or predicates. This group has a DP projection, but the projection is absent in certain cases (bare mass nouns and plurals); this group includes English. However, these languages pattern with the ones in which nouns are always predicates with respect to CL and plurals (i.e., they have a plural marker and do not need classifiers for counting) and so we abstract away from the contrast between the two here.

Chinese plural marker *–men* provides counterevidence to Chierchia's prediction, and claim instead (like Borer 2005) that *–men* and a classifier cannot co-occur in a single nominal projection, and propose an account like Borer's in which *–men* and classifiers compete for a single syntactic head, CL. However, their proposal runs into similar problems to that of Borer (2005), as discussed in Section 3.1; in particular, they do not provide a satisfactory explanation for why pronouns and proper names can co-occur with both *–men* and plurals, while common nouns cannot. Furthermore, in Japanese and Korean, where plurals and CL can co-occur more readily, their analysis faces similar problems to those discussed for Borer (2005) in sections 3.2 and 3.3. Thus, we find that neither the typology proposed in Chierchia (1998), nor the more recent implementation of Chierchia's approach in Bošković and Hsieh (2012), can account for the distribution of plurals and CL.

Contrary to the traditional observation in Greenberg (1972) and Sanches and Slobin (1973), Doetjes (2012) notes that classifiers and plural markers can co-occur in Yucatec and Hausa. However, she argues that this does not provide counterevidence to the claim of complementarity as stated in Greenberg (1972) and Sanches and Slobin (1973); their generalization specifically makes reference to *obligatory* plural marking, and the plural marking in these languages is optional. That is, a plural referent is possible in the absence of plural marking in these languages; nouns without plural marking are interpreted as number-neutral, rather than singular. This appears to be the case for the languages discussed in this paper as well, and Section 3.3 presented arguments from Kim and Melchin (to appear) that this property of the Korean plural *–tul* results from its syntactic status as a modifier rather than a head plural (in the sense of Wiltschko 2008). We are not aware of analogous analyses for Chinese or Japanese, but descriptively these languages appear to pattern like those discussed by Doetjes (see Sections 3.1 and 3.2). In sum, the data and arguments presented by Doetjes do not constitute an argument against the claim of complementary distribution as it is

formulated by Greenberg (1972) and Sanches and Slobin (1973); however, more recent versions of the claim (e.g., Chierchia 1998, Borer 2005) do not make reference to the obligatoriness of plural marking. Thus, we conclude that Doetje's data does provide a counterargument to their claims of complementary distribution.

In a similar vein, Bale and Khanjian (2009) account for the complementary distribution of CL and plural markers in Armenian in terms of incompatibility of their semantics, rather than competition for a single syntactic position. Specifically, they claim that Armenian plural-marked nouns exclude atomic entities in their denotation – that is, they necessarily denote groups greater than one.[28] This is in contrast with plurals in English and related languages, whose denotation is a complete semi-lattice (that is, a set including both atomic entities and their sums; see Link 1983). Further, while they do not discuss the semantics of Armenian classifiers in detail, they claim that classifiers must take complements with complete semi-lattice denotations, and so they cannot co-occur with plural nouns in the language. Instead, they can only occur with bare nouns, which have a number-neutral interpretation (i.e., a complete semi-lattice) and are therefore compatible with classifiers. As an alternative to Borer's syntactic approach, thus, Bale and Khanjian (2009) propose that the co-occurrence of plural marker and a classifier is ruled out by semantic incompatibility between them. As the semantic approach of Bale and Khanjian (2009) has the same purpose as Borer (2005) in accounting for the complementary distribution, it would not be applicable to the East Asian languages discussed in this paper where plurals and classifiers can co-

[28] The main evidence presented by Bale and Khanjian (2009) for this claim comes from a difference between Armenian and English plural nouns in downward entailing contexts. When asked the question *Do you have children?* in English, a speaker would answer *yes* even if they have only a single child, despite the plural *children* in the question. This is cited as evidence that the denotations of English plural nouns include atomic entities. On the other hand, if asked the equivalent sentence in Armenian with the plural *bezdig-ner* 'child-PL', speakers with only a single child would answer *no*, which Bale and Khanjian take to suggest that atomic entities are not included in the denotation of Armenian plurals.

occur.[29]

5. Conclusion

This paper reviewed Borer's (2005) syntactic approach to the complementary distribution of classifiers and plural markers, which has long been noted in literature (e.g., Greenberg 1972 and Sanches and Slobin 1973). We examined whether the syntactic approach is applicable to the East Asian languages – Chinese, Japanese, and Korean – which are known to have both classifiers and plural markers. We outlined some proposals and evidence that suggest that plural markers and classifiers in these classifier languages may not be in complementary distribution. In particular, the previous analyses on the discussed classifier languages clearly suggest that plural markers in these languages do not realize the same head that a classifier realizes. In the classifier language type discussed in this paper, thus, there seems to be no *syntactic* complementary distribution between plural markers and classifiers, contra Borer (2005). We also reviewed other approaches to complementary distribution such as the typological approach in Chiearchi (1998), the semantic approach as in Bale and Khanjian (2009) and so on, and briefly discussed how these approaches may not be applicable to the distribution of plural markers and classifiers in the East Asian languages under investigation. The data examined in this paper does not constitute evidence against Borer (2005), nor perhaps those other approaches that account for the complementary distribution. Rather, it suggests that there are languages that can make use of plurals in a different way than classifiers, e.g., with the plural as a modifier rather than a head, or realizing definiteness. Moreover, the discussion in this paper suggests that syntactic complementary distribution of plural markers and classifiers is not always guaranteed across languages.

[29]As shown in Section 3, similar to Armenian, a noun in the East Asian languages is number neutral, and a plural marked noun denotes plural only. However, unlike Armenian, a classifier can appear with a plural marked noun as well as with a bare noun. We leave whether semantic approach can account for this difference for future research.

We are not claiming that a plural marker cannot instantiate a Div-like head in general. However, we are suggesting that the syntax of plural markers in classifier languages needs more careful consideration of the relevant facts before any conclusion can be made. Moreover, this paper shows that the syntax of plural markers across certain classifier languages may not be non-homogeneous, e.g., instantiating D or Num as in Chinese and Japanese or a *n*P modifier in Korean.[30] Thus, elucidating the syntax of a plural marker in a given classifier language will involve examination of its interaction with other projections in a nominal structure such as quantification, definiteness, or the lexical meaning of nouns, which would have far-reaching consequences for the composition of nominal structures.

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[30] This consequence raises the question of the semantic contribution of plurals and classifiers, as pointed out by a reviewer. The available literature seems to suggest that there is no large semantic difference between a plural and a classifier. For example, for Chinese, Cowper and Hall (2012) proposed that a classifier and plural realize different syntactic heads such as CL and Def respectively, and they are both semantic instantiations of individuation, quantifying a nominal. As for Korean, on the other hand, a plural is proposed to be a modifier, as reviewed in this paper. Recent studies on the semantics of number (Rullmann and You 2006, Kim et al. 2017) suggest that a modifying plural has the same semantic denotation as a plural that instantiates a head such as an English type plural *–s*. In these studies, it is shown that both types of plurals when they appear with a nominal indicate a set that include atomic sums of the nominal, excluding a set of atoms, assuming Link's (1983) approach to the semantics of number. Thus, a modifying plural has the same semantic denotation as a head plural. If so, a Korean-type plural may be concluded to bear the same semantic role (e.g., individuation or quantification) as a classifier, which is assumed to have the same function as a head plural, as, e.g., in Borer (2005). A tentative conclusion would be that their different syntactic status does not necessarily suggest that plurals and classifiers have different semantics, but we leave this issue for further research.

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