Number, Competition and Syntactic Complexity*

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1. Introduction

Ever since Jakobson's discussion of gender underspecification (Jakobson 1932/1984) and Grice's introduction of implicatures (Grice 1975), there has been much speculation about meaning and grammatical competition. This speculation has been particularly influential with respect morphemes that mark number. For example, Krifka (1989), Sauerland (2003) and Spector (2007) all argue that competition restricts the meaning of plural nouns in English. They hypothesize that such nouns are semantically underspecified for number (i.e., they can be used to refer to singular objects or plural groups). However, in practice, such nouns have a strict plural meaning due to competition with the singular form.

Building on this line of research, this paper explores competition between plural and singular marking in Western Armenian (although similar facts hold in Turkish[1]). Western Armenian has a slightly different semantics than English (see Donabédian, 1993; Bale and Khanjian, 2009; Bale et al., 2011b, 2011a). Unlike English, so-called singular nouns are underspecified for number (i.e., they can be used to quantify over singularities and pluralities). In contrast, plural nouns always have a strict-plural interpretation. Grammatical competition results in a restricted interpretation of singular nouns rather than plurals.

Of interest to the current debate, and theories of grammatical competition in general, an adequate treatment of these data requires a comparison of utterances in term of their syntactic complexity (as proposed by Katzir, 2007). In particular, the facts in Western Armenian follow naturally from the hypothesis that the only felicitous competitors are alternatives that are syntactically simpler or equally complex as the original utterance.

Section 2 presents some data from Western Armenian demonstrating when competition occurs and when it is blocked. Section 3 demonstrates that traditional approaches to competition (such as Grice's, 1975) cannot account for the data. Section 4 discusses a

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[1]For space considerations, discussion of the Turkish data has been limited to footnotes.

potential syntactic explanation that does not involve competition. As demonstrated, this account is also inconsistent with the data. Section 5 argues that Katzir's (2007) hypothesis that syntactic structure restricts competition is the only one that is consistent with the data.

2. Meaning and Number Marking

In many different syntactic environments, so-called singular nouns in Western Armenian have an inclusive semantic denotation, and thus resemble bare nouns that are assigned a general number interpretation in other languages (see Corbett, 2000). However, unlike these other languages, in certain limited grammatical contexts the bare nouns do sometimes have a strict singular meaning.

2.1 Singular Nouns and General Number

The behaviour of nouns in predicate position provides strong evidence that singular nouns have a broad denotation (c.f., Bale et al., 2011a). For example, as shown in (1), the bare noun *dəgha* (meaning 'boy') can be predicated of singular individuals (such as *John-ə*) and groups (such as *John-ə yev Brad-ə*).[2]

(1) a. John-ə dəgha e
John-def boy(sg) is
'John is a boy'

b. John-ə yev Brad-ə dəgha en
John-def and Brad-def boy(sg) are
'John and Brad are boys'

There are two possible explanations of these facts. Either singular nouns contain both groups and singular objects in their denotation or, alternatively, they contain only singular objects but NP-predication critically involves a distributive operator (i.e., an operator that distributes the NP-predicate over each member of the plural-subject). The latter explanation is unlikely given that Western Armenian (like most other languages) does not permit a distributive interpretation of NP predicates. For example, consider the sentences in (2).

(2) a. John-ə yev Brad-ə yergu yerkich-ner en
John-def and Brad-def two singer-PL are
'John and Brad are two singers'

[2]Similar facts hold of singular nouns in Turkish.

(1) a. John çocuk
John boy(sg)
'John is a boy'

b. John ve Brad çocuk
John and Brad boy(sg)
'John and Brad are boys'

b. ?? John-ə yev Brad-ə meg yerkich en/e
John-def and Brad-def one singer are/is
'John and Brad are one singer'

c. ?? John-ə yev Brad-ə yerkich mən e
John-def and Brad-def singer indef(sg) is
'John and Brad are a singer'

The sentence in (2a) is an example of an NP predicate coherently applying to a group-denoting NP-subject. Such an application does not require a distributive operator. In contrast, it is not possible to get a coherent interpretation of (2b) and (2c) (i.e., an interpretation which can be paraphrased as "John is a singer and Brad is a singer"), even though such an interpretation should be available if a distributive operator were present.[3] Since these types of sentences do not permit a distributive interpretation, the data in (1) strongly suggest that the denotations of bare singular nouns contain not only singular individuals but also groups. (See also Donabédian, 1993; Bale and Khanjian, 2009; Bale et al., 2011b.)

The semantics of singular nouns contrasts sharply with that of plurals. Unlike their singular counterparts, plurals can only be predicated of groups, as shown in (3), where the plural NP *dəgha-ner* cannot be predicated of the singular subject *John-ə*. (The morpheme *-(n)er* is the plural marker in Western Armenian.)

(3) a. John-ə yev Brad-ə dəgha-ner en
John-def and Brad-def boy-PL are
'John and Brad are boys'

b. * John-ə dəgha-ner e
John-def boy-PL is

Such facts suggest that the denotations of plural nouns only contain groups consisting of two or more individuals. Further support for this conclusion comes from indefinite existential sentences like the ones in (4).

(4) a. dəgha vaze-ts
boy(sg) run-pst
'One or more boys ran'

b. dəgha-ner vaze-ts-in
boy-PL run-pst-3pl
'Two or more boys ran'

Although the singular noun can be used to existentially quantify over singular boys and groups, its plural counterpart can only be used to quantify over groups consisting of two or more.[4] Such a distinction surfaces even in downward entailing contexts, as in (5).

[3]The difference between (2b) and (2c) is that the NP predicate in the former contains the numeral modifier *meg*, meaning 'one,' while the latter contains the indefinite singular morpheme *mən*.

[4]Similar facts hold of plurals in Turkish, where the plural marker is -lar.

(5) a. ? amen mart vor bəzdig-ner uner vodk-i gajne-tsav
all person that child-PL had foot-DAT stand.up-past
'Everyone that had two or more children stood up'

b. amen mart vor bəzdig uner vodk-i gajne-tsav
all person that child(sg) had foot-DAT stand.up-past
'Everyone that had one or more children stood up'

Unlike English, plural nouns that appear in the restrictor of a universal quantifier, like the one in (5a), maintain their strict plural meaning. Thus, (5a), insofar as it is acceptable,[5] is true in situations where people with only one child remain seated. This contrasts with (5b) which would be false in such situations.

In summary, the plural-singular contrast in Western Armenian is one between general number and strict plurality, as represented by the denotations in (6).

(6) In a context where the boys are *a*, *b* and *c*.

a. $[\![dəgha]\!] = \{a, b, c, ab, ac, bc, abc\}$

b. $[\![dəgha\text{-}ner]\!] = \{ab, ac, bc, abc\}$

2.2 Potential Competition Effects

Despite the fact that in most environments so-called singular nouns in Western Armenian are consistent with the paraphrase "one or more," there are certain environments where such nouns have a strict-singular meaning. For example, consider the contrast in (7).[6]

(1) a. John ve Brad çocuk-lar
John and Brad boy-PL
'John and Brad are boys'

b. * John çocuk-lar
John boy-PL

c. kitap al-dı-m
book(sg) buy-pst-1S
'I bought one or more books' (from Bliss, 2004)

d. kitap-lar al-dı-m
book-PL buy-pst-1S
'I bought (two or more) books' (from Bliss, 2004)

[5]Western Armenian speakers prefer singular nouns in these types of contexts. However, when forced to interpret such sentences, they assign an interpretation like the one presented in (5a).

[6]A similar contrast holds for Turkish, although it occurs with the demonstrative article rather than the definite.

(1) a. kitap al-dı-m (Bliss, 2004)
book(sg) buy-pst-1S
'I bought one or more books'

b. bu kitap al-dı-m
this book(sg) buy-pst-1S
'I bought this (single) book'

(7) a. dəgha vaze-ts
boy(sg) run-pst
'One or more boys ran'

b. dəgha-n vaze-ts
boy(sg)-def run-pst
'The (single) boy ran'

Although the indefinite noun phrase has a meaning that is consistent with an underspecified denotation, its definite counterpart does not. The definite moprheme *-n*, which can also be used with plural nouns,[7] forces a strict singular interpretation. This contrast between definite and indefinite noun phrases extends to numeral modification. For example, consider the contrast between (8), repeated below, and (9).

(8) a. yergu dəgha vaze-ts
two boy(sg) run-pst
'Two boys ran'

b. yergu dəgha-ner vaze-ts-in
two boy-PL run-pst-3pl
'Two boys ran'

(9) a. * yergu dəgha-n vaze-ts
two boy(sg)-def run-pst
'The two boys ran'

b. yergu dəgha-ner-ə vaze-ts-in
two boy-PL-def run-pst-3pl
'The two boys ran'

Numerals greater than one can modify either singular or plural nouns within indefinite noun phrases but are restricted to only modifying plural nouns when they appear with definite markers (hence the unacceptable sentence in 9a). In summary, definite marking forces a strict singular interpretation for bare nouns in Western Armenian.

3. Gricean Competition

It is possible, although as we shall see unlikely, that strict-singular interpretations are a result of traditional Gricean reasoning, either based on informativeness (as in Krifka, 1989 and Spector, 2007) or Maximize Presupposition (as in Sauerland, 2003). As noted in the introduction, such reasoning is often hypothesized to explain the strict-plural interpretation in English. According to this type of explanation, singular and plural nouns are members of the same scale (e.g., ⟨*dəgha, dəgha-ner*⟩), or at least the number marking morphemes themselves are. In hearing a statement, potential alternatives are calculated by substituting

[7] Such a morpheme has two phonological realization: *-n* when appearing after a vowel and *-ə* when appearing after a consonant.

scalar mates for one another. Thus, for example, an alternative to the sentence in (10a) would be the sentence in (11a) – substitution of *dəgha-ner-ə* for *dəgha-n*. (Note that the definite marker appears as [ə] after consonants and as [n] after vowels.)

(10) a. dəgha-n vaze-ts
boy(sg)-def run-pst
b. $\textsc{Ran}(\sigma(\{x : \textsc{boy}(x) \,\&\, |x| \geq 1\}))$

(11) a. dəgha-ner-ə vaze-ts-in
boy-PL-def run-pst-3pl
b. $\textsc{Ran}(\sigma(\{x : \textsc{boy}(x) \,\&\, |x| \geq 2\}))$

There are two relevant relationships between the sentences in (10a) and (11a). First, given their literal meanings, as specified in (10b) and (11b), the sentence in (11a) is more informative than the one in (10a) – i.e., in any context where (11b) is true, (10b) is true but not vice versa. (Note that σ, the interpretation of the definite morpheme, is a function that takes a set and yields the supremum of that set. Such functions are undefined for sets that do not have a unique, maximal member.) Second, the sentence in (11a) presupposes the existence of at least two boys. In contrast, the sentence in (10a) only presupposes the existence of one boy. Thus, (11a) has a stronger presupposition than (10a).

These two properties both lead to a strict singular meaning for (10a). For example, according to scalar reasoning based on informativeness (see Grice, 1975), in uttering the less informative sentence with singular marking, the speaker implies that (s)he believes that the more informative alternative with plural marking is false. Similarly, according to scalar reasoning based on Maximize Presupposition (see Sauerland, 2003; Heim, 1991), in uttering the sentence with a weaker presupposition, the speaker implies that the presuppositions of the stronger alternative could not be met. Either way, the speaker communicates that there is no group consisting of two or more boys.

Unfortunately, the straightforward Gricean explanation of the strict-singular interpretation cannot explain all of the facts in Western Armenian. Such an explanation predicts strict interpretations in environments where they do not surface. For example, consider the sentences in (12a) and (13a).

(12) a. dəgha vaze-ts
boy(sg) run-pst
b. $\exists x.\textsc{Ran}(x) \,\&\, \textsc{boy}(x) \,\&\, |x| \geq 1$

(13) a. dəgha-ner vaze-ts-in
boy-PL run-pst-3pl
b. $\exists x.\textsc{Ran}(x) \,\&\, \textsc{boy}(x) \,\&\, |x| \geq 2$

According to the Gricean account, (13a) is an alternative to (12a). Furthermore, given the literal meanings of the sentences specified in (12b) and (13b), the alternative in (13a) is more informative than the sentence in (12a) – i.e., in any context where (13a) is true, (12a) is true but not vice versa. Hence, the Gricean account predicts that the sentence in (12a) should have a strict singular interpretation. (In uttering (12a), the speaker should

communicate that (s)he believes (13a) to be false.) Yet empirically it has a broad, inclusive interpretation.

Traditional Gricean reasoning yields the wrong empirical predictions. Although it can account for the facts with respect to definite noun phrases, it cannot explain why singular, indefinite noun phrases have a broad, inclusive interpretation.

4. Purely Syntactic Solution

Another possible explanation of the contrast between definite and indefinite noun phrases denies the possibility of competition between singular and plural nouns and instead suggests that singular indefinites have a different syntactic structure than the other phrases. For ease of discussion, let's label this account the *purely syntactic solution*. This section describes one such solution proposed by Bliss (2004) for Turkish, although here it is adapted to Western Armenian.[8]

The purely syntactic solution hypothesizes that root nouns in Western Armenian are underspecified for number. However, determiner phrases do not consist only of a determiner head and the root noun. There is an additional syntactic level, labelled as a number phrase or *numP* for short. The syntactic head of this phrase (num) is either realized as the plural morpheme *-ner* or as a phonologically null singular morpheme. The plural morpheme restricts its complement to sets that only contain pluralities. The singular morpheme restricts the noun to sets that only contain singular atoms.

This syntactic structure and its corresponding semantic interpretation predict a contrast between singular and plural definite noun phrases. For example, the syntactic distinction between *dəgha-n* and *dəgha-ner-ə* would be represented as it is in (14).

(14) a. $[_{DP}\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -∅$]]\ [_{D}$ -n$]]$
b. $[_{DP}\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -ner$]]\ [_{D}$ -ə$]]$

The root noun denotes a set containing all the singleton boys in the domain and all groups consisting of these boys. The null singular morpheme restricts this noun to the set of singulars (i.e., $[\![\emptyset]\!] = \lambda P.\{x : \text{ATOM}(x)\ \&\ P(x)\}$). In contrast, the plural morpheme restricts this noun to the set of plural groups (i.e., $[\![ner]\!] = \lambda P.\{x : \neg\text{ATOM}(x)\ \&\ P(x)\}$). The definite determiner applies to either set. The result is that definite noun phrases with the singular nouns pick out a unique singular individual whereas definite noun phrases with the plurals pick out a unique maximal group.

With respect to existential quantification, Bliss (2004) hypothesizes that sentences with singular nouns as opposed to plurals have different syntactic structures. The plural noun, due to the presence of a plural morpheme, appears within a full determiner phrase with a phonologically null existential quantifier serving as the head (see 15).

(15) $[_{S}\ [_{DP}\ [_{D}\ \exists]\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -ner$]]]\ [_{VP}$ vaze-ts-in $]\ ]$

In contrast, the so-called singular, indefinite noun does not appear with a full DP, as shown in (16).

[8] A somewhat more complex but similar story appears in Borer (2005).

(16) $[_S\ [_{NP}$ dəgha$]\ [_{VP}$ vaze-ts$]\ ]$

As suggested by Bliss (2004), the lack of a covert determiner in structures like (16) means that existential quantification cannot be introduced by the subject. Rather, it is proposed that existential quantification is introduced by the VP. This is not a novel hypothesis. Carlson (1977) suggested that verbs are ambiguous in languages like English. They either have a semantic meaning which combines with DP arguments or they have a meaning which combines with predicates/kinds, as represented by bare NP arguments. In the latter case, the verb itself introduces existential quantification (see also Chierchia, 1998). For example, abstracting away from the theory of kinds, the meaning of the VP *vaze-ts* could be either $\lambda x.\textsc{ran}(x)$ or $\lambda P.\ \exists x.\textsc{ran}(x)\ \&\ P(x)$. The first meaning combines with DP arguments, the second combines with predicates.[9] It is this second meaning that serves as the interpretation of the VP in (16).

A critical consequence of the structure in (16) is that it does not contain a phonologically null head as part of a number phrase. Thus, the predicate $[\![dəgha]\!]$ is true of both groups and individuals. As a result, the sentence in (16) will have truth conditions equivalent to the formula in (17).

(17) $\exists x.\textsc{ran}(x)\ \&\ x \in \{z : |z| \geq 1\ \&\ \textsc{boy}(z)\}$

These truth conditions specify that the sentence is true if and only if one or more boys ran. Such truth conditions accurately reflect the attested empirical meaning of the sentence.

Although not discussed in Bliss (2004), facts concerning negation add further support for the reduced syntactic structure in (16). As noted in Chierchia (1998), negation either modifies verbal predicates (e.g., $[\![not]\!] = \lambda P.\lambda x.\neg P(x)$) or negates a proposition formed from the verbal predicate and an internal subject. Either option predicts that negation should always take scope over existential quantifiers contained within the interpretation of the verb. In contrast, if existential quantification is introduced by the DP, quantifier raising and/or reconstruction predicts the possibility of a scope ambiguity. Depending on where the base position of the DP is situated, the DP could either raise above negation or reconstruct below it.

The prediction of Bliss's theory is that singular nouns should not be able to induce scope ambiguities whereas the opposite prediction holds for plural nouns. As shown in (18) and (19), this prediction is borne out.

(18) a. dəgha chi vaze-ts
boy(sg) not run-pst
'no boys ran'

b. $\neg\exists x.\textsc{Ran}(x)\ \&\ \textsc{boy}(x)\ \&\ |x| \geq 1$

[9] According to Carlson (1977), the meanings are connected to each other through a lexical rule (a.k.a., a meaning postulate). Chierchia (1998) hypothesizes a similar mechanism, but derives the ambiguity through semantic coercion rules. He calls this type of coercion Derived Kind Predication or DKP for short. Note that both Carlson, 1977 and Chierchia, 1998 assume that verbs take kinds as arguments. However, they also hypothesize that kinds can be coerced into sets for certain operations (and vice versa). For simplicity, I will represent DKP as an operation on sets, although nothing hinges on this decision.

(19) a. dəgha-ner chi vaze-ts-in
boy-PL not run-pst-3pl
'some boys didn't run/no boys ran'

b. MEANING 1: $\neg\exists x.\textsc{ran}(x)$ & $\textsc{boy}(x)$ & $|x| \geq 2$
MEANING 2: $\exists x.\textsc{boy}(x)$ & $|x| \geq 2$ & $\neg(\textsc{ran}(x))$

The sentence in (18) contains the Western Armenian morpheme for verbal negation, *chi*, and a singular noun. The sentence only has one meaning, namely that no boys ran. As a result (18) is not true when some boys ran but others did not. In contrast, the sentence in (19), which contains a plural noun, is ambiguous. It can mean that no boys ran but it can also mean that there is a group of boys that did not run (although others could have). The presence of a full DP in (19) accounts for this ambiguity whereas the absence of a DP in (18) accounts for the lack of ambiguity.

Despite the evidence in support of the purely syntactic solution, there are some weaknesses. First, its account of the facts relies on a stipulated meaning for the phonologically null num-head: i.e., a singular meaning. There is no corollary evidence to support this stipulation. Second, it is critical to the explanation that the plural indefinite does not compete with the singular indefinite, otherwise the sentence in (16) would have a strict singular meaning. Once again, this lack of competition is stipulated without corollary evidence. In addition, if the analysis of English is correct, this stipulation would have to be language specific. (Recall that competition is required to derive the strict plural meaning in English.) Third, the purely syntactic solution has difficulty accounting for the sentences in (20a) and (21a).

(20) a. yergu dəgha chi vaze-ts
two boy(sg) not run-pst
'two boys didn't run'

b. MEANING 1: $\neg\exists x.\textsc{ran}(x)$ & $\textsc{boy}(x)$ & $|x| = 2$
MEANING 2: $\exists x.\textsc{boy}(x)$ & $|x| = 2$ & $\neg(\textsc{ran}(x))$

(21) a. yergu dəgha-ner chi vaze-ts-in
two boy-PL not run-pst-3pl
'two boys didn't run'

b. MEANING 1: $\neg\exists x.\textsc{ran}(x)$ & $\textsc{boy}(x)$ & $|x| = 2$
MEANING 2: $\exists x.\textsc{boy}(x)$ & $|x| = 2$ & $\neg(\textsc{ran}(x))$

As shown in (21a), the numeral *yergu* can be used to modify plural nouns. Such modification suggests that *yergu* restricts nouns containing groups. In order to do so in (20a), *yergu* would need to combine with a root noun that is not contained within a DP (by hypothesis, within a DP, the denotation of the singular noun would not have any groups as members). Thus, the syntactic structures of the two subjects in (20a) and (21a) would ideally have the representations in (22).

(22) a. $[_{\textsc{np}}$ yergu $[_{\textsc{np}}$ dəgha]]

b. $[_{\textsc{dp}}$ $[_{\textsc{d}}$ $\exists]$ $[_{\textsc{nump}}$ yergu $[_{\textsc{nump}}$ $[_{\textsc{np}}$ dəgha] $[_{\textsc{num}}$ -ner]]]]

Such structures suggest that the verb phrase would need to introduce existential quantification for (20a) but not for (21a). There are two reasons that these cannot be the correct representations. First, the modified singular NP is not consistent with a kind-denoting denotation. As discussed in Carlson (1977) and Chierchia (1998), non-kind-denoting NPs are not able to combine with verb phrases that introduce existential quantification. Second, if (22) were the correct syntactic structure, then (20a) should not have an interpretation where the existential quantifier scopes above negation. However, as noted in (20b), this sentence can be true in situations where two boys ran and another two boys did not. In fact, the range of interpretations for (20a) are completely equivalent to the range for (21a).

To explain these facts, the purely syntactic solution would need to stipulate that the numeral modifier *yergu* is being used ambiguously in Western Armenian. Either there would need to be two lexical entries for *yergu*, one that modifies singular nouns and another that modifies plurals, or there would need to be two separate syntactic positions for *yergu* – the position which modifies a numP where the head is the plural morpheme and the head-position of the numP. Furthermore, this type of ambiguity would be required for all numerals greater than one. Once again, there is no corollary evidence that supports this kind of ambiguity.

5. Syntax and Competition

The main weakness of the purely syntactic solution is that it attempts to ignore competition, or at least nullify its effects. Ironically, this account can be strengthened if competition is reintroduced into the picture via Katzir (2007). Katzir (2007) hypothesizes that potential competing utterances are felicitous only if they meet one of the following two conditions: (a) the elements in the competitor are contextually salient or (b) the competitor is formed from the original utterance via lexical substitution and/or node reduction (the deletion of syntactic structure via operations like tree-pruning). For the present purposes, it is the condition specified in (b) that is most relevant. This condition eliminates potential competitors that contain more syntactic structure than the original utterance.

To demonstrate how Katzir (2007)'s proposal can strengthen the syntactic account, let's reconsider some of the syntactic structures from Bliss (2004) but without a list of stipulations. For example, let's drop the assumption that the phonologically null numP-head induces a singular interpretation. Instead, let's assume that such a head makes no contribution to the meaning of the noun-phrase. In other words, singular nouns always have an inclusive, broad denotation in all syntactic environments. Furthermore, let's drop the assumption that singular and plural are not in competition and assume that they are. Finally, let's assume a simple account of numeral modification: one where there is only one type of numeral modifier, a modifier that applies to denotations with groups and restricts those denotations to groups of a certain cardinality (i.e., $[\![yergu]\!] = \lambda P.\{x : |x| = 2 \,\&\, P(x)\}$). With the removal of the stipulations in the purely syntactic solution, in combination with Katzir (2007)'s theory of competition, the facts in Western Armenian fall out naturally. Let's reconsider some of the more problematic data points.

Recall that the purely syntactic solution needed to hypothesize that singular nouns do not compete with plurals. This hypothesis is needed in order to explain the lack of a

strict singular interpretation for sentences like (4a), repeated below.

(4a) dəgha vaze-ts
boy(sg) run-pst
'One or more boys ran'

However, with Katzir (2007)'s proposal, the lack of a strict-singular meaning stems from the syntactic structure of the the singular indefinite as opposed to the plural indefinite. As discussed in section 4, the interaction between negation and the singular noun phrases like the one in (4a) suggests that such sentences do not contain determiner phrases (existential quantification is introduced by the verb). Thus, (4a) has the structure in (16), repeated below.

(16) $[_S\ [_{NP}$ dəgha$]\ [_{VP}$ vaze-ts$]\ ]$

In contrast, scope-ambiguity facts suggest that sentences with plural nouns, as in (4b), contain full determiner phrases with an existential quantifier: hence, the syntactic structure in (15), repeated below.

(4b) dəgha-ner vaze-ts-in
boy-PL run-pst-3pl
'Two or more boys ran.'

(15) $[_S\ [_{DP}\ [_D\ \exists]\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -ner$]]]\ [_{VP}$ vaze-ts-in $]\ ]$

To derive a strict-singular meaning for (4a) requires that (4b) be a viable alternative. However, (4b) clearly contains more syntactic structure than (4a). Thus, by Katzir's hypothesis, (4b) is not a viable alternative. Syntactic complexity rules out competition.

In contrast, the presence of definite marking requires a full DP structure for both singular and plural nouns, as shown in (23a) and (23b).

(23) a. $[_S\ [_{DP}\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -∅$]]\ [_D$ -n$]\ ]\ [_{VP}$ vaze-ts $]\ ]$
b. $[_S\ [_{DP}\ [_{numP}\ [_{NP}$ dəgha$]\ [_{num}$ -ner$]]\ [_D$ -ə$]\ ]\ [_{VP}$ vaze-ts-in $]\ ]$

The structure in (23b) can be derived from (23a) by replacing the null-head with the plural marker.[10] Since the two structures are equal in syntactic complexity, (23b) is a viable alternative to (23a). Hence the strict-singular meaning can be derived via regular Gricean reasoning as discussed in section 3.

This account of competition can even explain why there is a lack of competition effects for the sentences in (20a) and (21a), repeated below.

(20a) yergu dəgha chi vaze-ts
two boy(sg) not run-pst
'two boys didn't run'

(21a) yergu dəgha-ner chi vaze-ts-in
two boy-PL not run-pst-3pl
'two boys didn't run'

[10]Recall that *[-n]* is a phonologically triggered allomorph of *[-ə]*.

As discussed in section 4, the modified singular noun and the modified plural noun are both embedded within a full DP. The syntactic structures of both sentences are given in (24).

(24) a. [$_S$ [$_{DP}$ [$_D$ ∃] [$_{numP}$ yergu [$_{numP}$ [$_{NP}$ dəgha] [$_{num}$ -∅]]]] [$_{VP}$ vaze-ts]]
b. [$_S$ [$_{DP}$ [$_D$ ∃] [$_{numP}$ yergu [$_{numP}$ [$_{NP}$ dəgha] [$_{num}$ -ner]]]] [$_{VP}$ vaze-ts-in]]

The structure in (24b) can be derived from (24a) by substituting the plural marker for the phonologically null num-head. Thus (24b) is a viable alternative to (24a). However, since (24b) has the exact same meaning as (24a) (compare the truth conditions in 25b to those in 26b, where the last formula represents the contribution of the numeral modifier), such competition does not change the underlying meaning of the original utterance.

(25) a. yergu dəgha vaze-ts
two boy(sg) run-pst
b. $\exists x.\textsc{ran}(x)$ & $\textsc{boy}(x)$ & $|x| \geq 1$ & $|x| = 2$

(26) a. yergu dəgha-ner vaze-ts-in
two boy-PL run-pst-3pl
b. $\exists x.\textsc{ran}(x)$ & $\textsc{boy}(x)$ & $|x| \geq 2$ & $|x| = 2$

In summary, the data which was problematic for the purely syntactic solution, and hence led to a series of stipulations, fits perfectly with the hypothesis that competition is mediated by syntactic complexity.

6. Conclusion

The contrast between indefinite and definite NPs in Western Armenian support a theory of competition that is sensitive to syntactic complexity (Katzir 2007). According to this theory, indefinite singular nouns are not in competition with plural indefinites due to the fact that plurals are embedded within a determiner phrase while singulars are not. However, singular and plural definite nouns are both embedded within determiner phrases and hence they both should be in competition with one another. As a result, singular definites have a strict singular meaning even though their underlying semantic interpretation is underspecified for number.

There are several advantages to this theory. Not only does it account for the facts in Western Armenian, but it is also consistent with the hypothesis that competition among number marking is universal: a hypothesis that would have to be abandoned under the purely syntactic solution. Furthermore, it opens up a new avenue of research with respect to number marking and competition. As shown in section 5, sentences that contain nouns embedded within determiner phrases should not be viable alternatives if the original utterance contains nouns that are not embedded.[11] Such a hypothesis should have consequences in other languages that allow for verb phrases to combine directly with NP predicates.

One problematic data-point remains unexplained by the current analysis, namely the effect of the definite marker in (9), repeated below.

[11] Unless such sentences were made contextually salient by being explicitly mentioned in the discourse.

(9) a. * yergu dəgha-n vaze-ts
two boy(sg)-def run-pst
'The two boys ran'

b. yergu dəgha-ner-ə vaze-ts-in
two boy-PL-def run-pst-3pl
'The two boys ran'

The unacceptable sentence in (9a) does not fall out as a direct prediction of Katzir's theory. The syntactic structures of the two sentences above are equal in term of syntactic complexity (thus they are both viable alternatives of each other), however neither sentence is more informative than the other.

Although this data is problematic, there is some hope for a solution. It might be possible to explain the unacceptability of (9a) if it could be established that (9b) introduces a stronger presupposition. In fact, such an explanation might even be likely given the restricted nature of plural nouns in comparison to singulars. Due to space considerations, the details of such an explanation will be left for future research (see Bale and Khanjian, In preparation).

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