The extrinsic plural marker in Korean

Five studies

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This paper presents a series of experiments designed to shed light on some aspects of the use and interpretation of so-called 'extrinsic *-tul*' by child and adult native speakers of Korean. Our findings indicate that this morpheme occurs far less frequently than the intrinsic plural marker in both speech and writing, and that it is most likely to appear on an adverb. An experiment designed to confirm its oft-claimed status as a distributive marker reveals that whereas adults systematically interpret it in this way, children under the age of 8 rarely do, even when appropriate contextual support is provided.

Keywords: extrinsic plural marker, distributivity

0. Introduction

It is usual to distinguish between two separate *-tul* suffixes in Korean. The more common instance of *-tul* occurs with a count noun to mark plurality, as illustrated in (1). Often called the intrinsic plural marker (IPM), it attaches directly to the noun stem, inside any case markers and postpositions (Martin 1992: 213 & 830, Corbett 2000, Kwon & Zribi-Hertz 2004).

(1) Sey-myeng-uy sensayngnim-**tul**-i haksayng-eykey chayk-ul   cwu-ess-ta.
    three-CL-GEN teacher-IPM-NOM student-DAT   book-ACC give-PST-DC
    'Three teachers gave a book to students.'

A second *-tul* suffix has quite different properties. Often dubbed the extrinsic plural marker (EPM), it is widely treated as a distributive marker that separately attributes a property or relationship to each referent of a plural subject (Song 1975, Kuh 1987, Lee 1991, Kang 1994, Kim 1994, Unterbeck 1996, Song 1997, Kim 2005, An 2007, Park 2008, Lardiere 2009). A particularly clear example of this, from Song

(1997: 209–10), involves the interpretive effect of an EPM on an indirect object in patterns such as the following.

(2) a. Haksayng-**tul**-i   ai-eykey ton-ul   cwu-ess-ta.
     student-IPM-NOM child-DAT money-ACC give-PST-DC
     'Students gave the children money.'

   b. Haksayng-**tul**-i   ai-eykey-**tul**   ton-ul   cwu-ess-ta.
     student-IPM-NOM child-DAT-EPM money-ACC give-PST-DECL
     'Students each gave the children money.'

The first of these sentences, with the IPM on the subject and no EPM, has two interpretations: (i) a group of students jointly gave money to one or more children (the collective reading), or (ii) each of a group of students individually gave money to one or more children. In contrast, the second sentence, with an IPM on the subject and an EPM suffixed to the dative-marked nominal, has only a bi-directional distributive interpretation in which (i) there is a group of students and a group of children, and (ii) each student gives money to a child, and each child receives money from a student. Thus (2b) cannot be interpreted to mean that each of a group of students gave money to the same child. In this regard, the EPM differs from English *each*, which is perfectly acceptable with mono-directional distributivity, as in *The students each gave money to that child*.

Table 1. The interpretation of extrinsic -*tul* in combination with the dative

	Distributive interpretation	Collective interpretation
Without –*tul*	Yes	Yes
With -*tul*	Yes	No

As illustrated by the examples in (3), extrinsic -*tul* can attach to a variety of non-subject hosts other than an indirect object — a direct object, an adverb, a nominalized verb, a prepositional phrase, and a complementizer (Kuh 1987, Song 1997, Suh 2008, Lardiere 2009).

(3) a. With a direct object:
     Sensayngnim-tul-i haksayng-eykey ppang-ul-**tul**   manhi cwu-ess-ta.
     teacher-IPM-NOM   student-DAT   bread-ACC-EPM a lot give-PST-DC
     'The teachers each gave a lot of bread to students/a student.

   b. With an adverb:
     Haksayng-tul-i   yelsimhi-**tul** enehak-ul   kongpwuha-n-ta.
     student-IPM-NOM intently-EPM linguistics-ACC study-PRES-DC
     'The students study linguistics intently.' (example from Kim 1994)

c. With a nominalized verb:
    Sonyen-tul-i   o-ki-**tul**-un   hay-ss-ta.
    boy-ipm-nom come-NMN-EPM-top do-pst-dc
    'Boys each came.'
d. With a locative PP:
    Sonyen-tul-i   pang-ey-**tul**   tuleka-ss-ta.
    boy-ipm-nom room-loc-epm enter-pst-dc
    'The boys each entered the room.'
e. With a complementizer:
    Sensayngnim-tul-i haksayng-eykey cilmwun-ul   ha-ko-**tul**   iss-ta.
    teacher-ipm-nom   student-dat   question-acc do-comp-epm be-dc
    'The teachers are each asking a question to students/a student.'

In this paper, we establish some basic properties of the EPM, including how fre-
quently it occurs, which categories it is most likely to appear with, and how reliably
it conveys a distributive interpretation. In exploring these matters, we make use
of a corpus study (Section 2), and two experiments designed to confirm the dis-
tributive function of EPM — a task assessing its acceptability in different positions
within a sentence (Section 3) and a truth value judgment task involving dative
NPs (Section 4). Two additional experimental studies, reported in Sections 5 and
6, investigate Korean children's awareness of the use of intrinsic and extrinsic -*tul*.
We offer some concluding remarks in Section 7.

1.   Study 1: Corpus analysis

Kiaer (2010) reports on a study of the use of intrinsic plural -*tul* in the Sejong
Corpus, which contains large samples of both speech (utterances totaling 800,000
words) and writing (58,000,000 words). Kiaer uncovered a total of 911 instances
of the IPM — 607 in speech and 294 in writing, as summarized in Table 2 below.

Table 2. Frequency of IPM -*tul* (Kiaer 2010).

	Speech	Writing
Animate nouns	0	250
Pseudo animate nouns	605	6
Abstract nouns	0	5
Inanimate nouns	2	33
Total	607/800,000	294/58,000,000

In order to establish the relative frequency of extrinsic plural -*tul*, we conducted a
search of the same corpus. As reported in Table 3, we uncovered just 193 instances
of the EPM — 93 in speech and 100 in writing.

Table 3. Frequency of EPM -*tul*.

	Speech	Writing
Adverb	68	80
Complementizer	14	20
Postposition	8	0
Nominalized verb	3	0
Case-marked noun	0	0
Total	93/800,000	100/58,000,000

It is clear from this data not only that the EPM occurs more commonly on adverbs than on any other category, but also that its rate of occurrence is higher in speech (where it appears approximately once every 8700 words) than in writing (approximately once every 580,000 words). An overt subject occurs in clauses containing an EPM in just 10 of 93 examples in speech and in 14 of 100 examples in writing.

The difference in the frequency of EPM in written and spoken Korean is not at issue here, and we make no attempt to explain it.[1] What does interest us, however, is the extent to which native speakers of Korean consistently accept and interpret such an infrequently occurring morpheme. The experiments described in the next four sections address this issue.

2.   Study 2: A comparative acceptability task

Our experimental work focuses on the distributivity effect associated with the EPM in ditransitive patterns such as (2) above. Our first goal is to determine the most natural placement of the EPM in such patterns. As noted in the previous section, the EPM can often occur in a variety of positions — on a case-marked noun, on an adverb, on a complementizer, and so on. In principle, then, it could appear in any one of the positions marked by the symbol †.

(4)   Sensayngnim-**tul**-i sey   haksayng-eykey-† chayk-ul-† kippukey-†
       teacher-IPM-NOM   three student-DAT   book-ACC happily
       ponay-ko-† iss-eyo
       send-COMP be-REGISTER
       'The teachers are happily sending three students a book.'

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1. An anonymous reviewer asks whether there are any age /gender differences that might affect the use of EPM. We observed no such effects. Nor did we identify any pragmatic or discourse factors that might condition the use of EPM, although the possibility cannot be ruled out. We proceed on the understanding that the single most important factor that conditions the use of EPM is distributivity.

In order to determine the relative naturalness of these various points of occurrence, we conducted an experiment to elicit judgments of acceptability for each of the positions marked in (4).

2.1 Participants

Twenty Korean adults (10 males and 10 females), all residents of Seoul or Gyeonggi-do, Korea and ranging in age from 20 to 26, took part in the study.

2.2 Method

Participants were asked to rate the acceptability of written EPM patterns on a five-point Likert scale, ranging from 1 to 5. The test items exemplified the use of EPM with a dative-marked NP, an accusative-marked NP, an adverb, and a complementizer in ditransitive patterns such as (4).

Each of the four positions in (4) was exemplified in three sentences, giving a total of 12 test items. In order to support a distributive reading, each item was preceded by an appropriate context such as the following, from a children's story relevant to our later experiments.

> These three ducks like to read books. However, they want to have new books because they read their books over and over again. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — knew their situation. They decided to get one very interesting book and send it to the three ducks. However, they changed their mind because it would be a better idea if each of the teachers sent a book to each of the ducks. So here (in the final picture) Monkey teacher is happily sending a book to Yellow duck, Sheep teacher is happily sending one to Brown duck, and Dinosaur teacher is happily sending one to Green duck.

The other two test items and contexts can be found in Appendix 1.

The experiment was administered by the first author (a native speaker of Korean) in a quiet place to each participant individually. The experimental sessions lasted about 20 minutes.

2.3 Results and discussion

As can be seen in Table 4, the dative pattern received the highest rating. The adverbial and complementizer patterns were both located on the lower end of the scale of acceptability, while the accusative pattern occupied an intermediate position.

Table 4. Average rating of the naturalness of sentences with EPM

Categories hosting EPM	Naturalness of sentences (out of 5)
Dative	3.7
Accusative	2.7
Adverb	1.7
Complementizer	1.3

These acceptability ratings suggest that the most natural position for an EPM in ditransitive sentences denoting a transfer event is on the dative NP.

At first glance, this might appear to be a surprising finding, given that the results of our corpus study revealed that EPM occurs far more often on adverbs than on dative-marked NPs. Bear in mind, however, that we are focusing here on ditransitive sentences that denote a transfer event. Such sentences are themselves relatively infrequent, and it seems reasonable to suppose that there are overall far more opportunities for *-tul* to occur on adverbs than on dative arguments in ditransitive sentences. Thus, whereas the corpus results provide a broad overview of the EPM's distribution across different sentence types, the results of our acceptability task identify its preferred placement in ditransitive sentences.

Although our results clearly document the acceptability of EPM on a dative argument of a ditransitive verb, they do not allow us to conclude that it consistently brings about a distributive interpretation. To show that, it is necessary to compare the interpretation of sentences that contain an EPM with the interpretation of sentences that do not. We turn to this matter next.

3.   Study 3: A truth-value judgment task

As noted in the introduction, a key claim about the EPM is that it imposes a distributive interpretation, thereby eliminating the ambiguity that would otherwise occur in many sentences with a plural subject. This is illustrated in the contrast between the two sentences below: whereas (5a), with the EPM, should license only the distributive interpretation, (5b) should be ambiguous between a collective reading and a distributive reading.

(5) a. Plural subject; EPM on the indirect object:
Sey-myeng-uy sensayngnim-tul-i haksayng-eykey-**tul** kong-ul
three-CL-GEN teacher-IPM-NOM student-DAT-EPM   ball-ACC
cwu-ess-ta.
give-PST-DC
'Three teachers each gave the student(s) a ball.'
[distributive interpretation only]

b. Plural subject; no EPM:
    Sey-myeng-uy sensayngnim-tul-i haksayng-eykey kong-ul cwu-ess-ta.
    three-CL-GEN teacher-IPM-NOM student-DAT   ball-ACC give-PST-DC
    'Three teachers gave the student(s) a ball.'
    [collective and distributive interpretations both allowed]

Truth-Value Judgment Tasks (Crain & McKee 1985, Crain & Thorton 1998) offer a highly effective way to probe for the presence of ambiguity. For that reason, we designed an experiment that made use of this methodology to investigate the interpretation of sentences with and without an EPM.

3.1 Participants

The participants for this study were 20 adult native speakers of Korean (11 males and 9 females), none of whom had taken part in the experiment described in the preceding section. They ranged in age from 19 to 25 and were all residents of Seoul. All participants responded to all items, and no participants were excluded for failure to respond to filler items, or any other reason.

3.2 Method

Participants were presented with short children's stories at the end of which a puppet appeared on the screen and made a one-sentence statement about what he thought had happened in the story.[2] Participants were instructed to judge whether the puppet's statement was true or false by putting a yellow sticker on a score sheet for the correct answer, or a red one for the wrong answer. They were then asked to justify their choice. The task was administered on an individual basis by the first author; each session lasted about 20–30 minutes.

Building on the results of Study 2 above, we employed ditransitive sentences with the EPM on the dative NP. Our experimental design crossed the presence or absence of the EPM with two contextual conditions, one distributive and the other non-distributive. Each condition was exemplified six times by sets of pictures that depicted a series of events involving six characters (three agents and three recipients). Each participant was presented with 26 stories in total: two-warm-ups, 12 critical items, and 12 fillers. A Latin-square design was used so that participants encountered each test sentence in only one of the two conditions. The 24 test items were then arranged in two pseudo-randomized orders to create two lists, which were evenly distributed among the participants.

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2. We used children's stories with a view to establishing a baseline against which to measure the performance of child language learners on the interpretation of EPM patterns; see Section 5.

These three turtles play soccer with their friends every Saturday. However, they have difficulty practicing because they don't have a soccer ball. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — found out that they didn't have a soccer ball, and they decided to buy one very good soccer ball, and to give it to the three turtles. However, they changed their mind because it would be a better idea for each of the teachers to buy a ball so that each of the turtles could have one. So Monkey teacher gave a soccer ball to Yellow turtle, Sheep teacher gave one to Brown turtle, and Dinosaur teacher gave one to Green turtle.

Figure 1. A sample story and picture for the distributive context (translated from Korean).

These three turtles play soccer with their friends every Saturday. However, they have difficulty in practicing because they don't have a soccer ball. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — knew their situation and each of them decided to buy a soccer ball and give one to each of the turtles. However, they changed their mind because it would be a better idea to buy one very good ball and give it to the turtles. So the three teachers gave one soccer ball to the three turtles together.

Figure 2. A sample story and picture for the non-distributive context (translation from Korean).

In the distributive condition, the three agents acted separately. For example, in the scenario exemplified below, each teacher gives a (different) soccer ball to each of three turtles.

In contrast, the non-distributive (collective) condition depicts a situation in which the three agents act jointly, as illustrated in the next example.

Each condition concluded with a sentence of one of the following two types (produced by the puppet).

(6) a. Pattern with EPM on the indirect object:
         Sensayngnim-tul-i sey   kepwuki-eykey-<u>tul</u> kong-ul cwu-ess-eyo.
         teacher-IPM-NOM three turtle-DAT-EPM   ball-ACC give-PST-REGISTER
         'The teachers gave the three turtles a ball.'
     b. Pattern with no EPM:
         Sensayngnim-tul-i sey   kepuki-eykey kong-ul cwu-ess-eyo.
         teacher-IPM-NOM three turtle-DAT   ball-ACC give-PST-REGISTER
         'The teachers gave the three turtles a ball.'

If participants know that the EPM has a distributive function, they should judge (6a) to be true in the distributive context (Figure 1) and false in the non-distributive context (Figure 2). In contrast, there should be no such constraint on the interpretation of (6b) — in the absence of the EPM, it should allow both interpretations.

Table 5. A summary of predicted responses.

	+Distributive	−Distributive
With EPM	True	False
No EPM	True/False	True/False

3.3 Results and discussion

As predicted, there was a sharp asymmetry in the participants' responses to sentences containing the EPM in the two conditions. As summarized in Figure 3, sentences with the EPM were accepted as true at a rate greater than 90% in distributive contexts, compared to just 20% in non-distributive contexts. (All the remaining responses in both conditions involved denying the sentence's truth.) In contrast, sentences without the EPM were accepted as true about 90% of the time in both contexts, also as predicted.

The results from a paired t-test revealed a significant difference ($t(19)=2.25$; $p < 0.0001$) in the mean rate at which the EPM pattern was accepted as true in the distributive and non-distributive contexts. In contrast, sentences without the EPM were accepted as true at a virtually identical rate in both the distributive context (89%) and the non-distributive context (90%). Although not indicative of perfect performance, these results establish overwhelming tendencies in the predicted direction — precisely what one looks for in experiments of this sort, where even the slightest inattention to the details of the test sentence and/or the elaborate preceding context can easily lead to missteps.
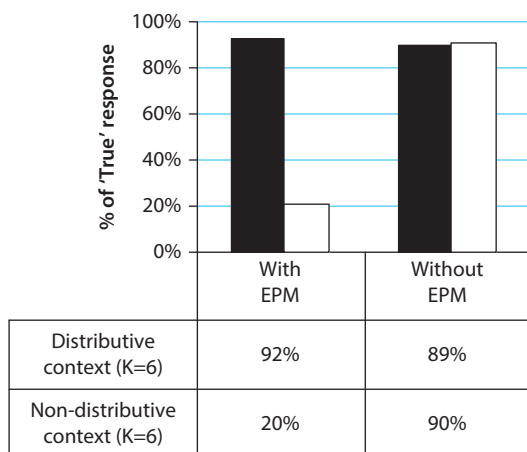
	With EPM	Without EPM
Distributive context (K=6)	92%	89%
Non-distributive context (K=6)	20%	90%

Figure 3. Results from the judgment task

In sum, it seems clear that despite its low rate of occurrence in Korean writing and speech, the extrinsic plural marker reliably imposes a distributive interpretation in patterns where it occurs on the indirect object.

Now a new question arises: in light of the infrequency of extrinsic *-tul* and the subtlety of its semantic effects, is its function understood by children at an age when the basics of language are generally thought to be fully acquired? We turn to this question in the next two sections.

4.   Study 4: Children's interpretation of IPM patterns

Because the distributive interpretation of EPM sentences requires a plural subject (each of whose referents acts independently), it is vital that children be familiar with the use of *-tul* on subjects as an INTRINSIC plural marker (IPM) before they are tested on their interpretation of the extrinsic plural. Children typically acquire the fundamentals of inflectional morphology by around age 3 (Brown 1973, Nakano et al. 2009), but the status of *-tul* as an IPM requires special attention because it is optional in many patterns, raising the possibility that its acquisition might be delayed. For this reason, we designed a test to confirm the sensitivity of school-age children to the use of *-tul* as a basic plural marker on subject NPs, before proceeding to our study of their awareness of the external plural marker.

4.1 Participants

Twenty Korean children (aged 5;3–6;9, mean age = 6;4) participated in the experiment. The 20 participants from study 3 served as adult controls. All participants responded to all items, and no participants were excluded for failure to respond to filler items, or any other reason.

4.2 Method

In order to assess children's understanding of the IPM, we made use of a picture verification task (Roberts et al. 1994) in which participants had to decide whether sentences such as those in (7) offer an accurate description of one or the other picture in Figure 4.

(7) a. Subject NP without the IPM:
          Yekiey oli-ka   nol-ko   iss-eyo.
          here   duck-NOM play-COMP be-REGISTER
          'Here, the duck(s) is/are playing.'
     b. Subject NP with the IPM:
          Yekiey oli-**tul**-i   nol-ko   iss-eyo.
          here   duck-PL-NOM play-COMP be-REGISTER
          'Here, the ducks are playing.'

a. A single object   b. Multiple objects

Figure 4. Sample pictures used in a picture verification task.

There were a total of eight test items — four like (7a) in which there was no plural marker and four like (7b) in which the IPM was attached to the noun root. In principle, the first pattern allows an interpretation in which the subject is either singular or plural, whereas the second pattern allows only the plural interpretation. Participants were instructed to look at the picture on the screen (which depicted either a single object or multiple objects) and to indicate whether the experimenter's statement was true or false by placing a yellow sticker on the answer sheet for 'true' and a red one for 'false.' The full set of test items can be found in Appendix B.

4.3 Results and discussion

Consistent with our expectation, the adult participants judged sentences such as (7a), with no plural suffix, to be true on both the singular interpretation and the plural interpretation 100% of the time. In contrast, they never accepted (7b), with a plural-marked subject, when shown a picture of just one object. The children did almost as well. They accepted both interpretations for the bare noun 100% of the time, and they interpreted the noun with the IPM as plural 96% of the time and as singular just 4% of the time. The results for the children are summarized in Figure 5.
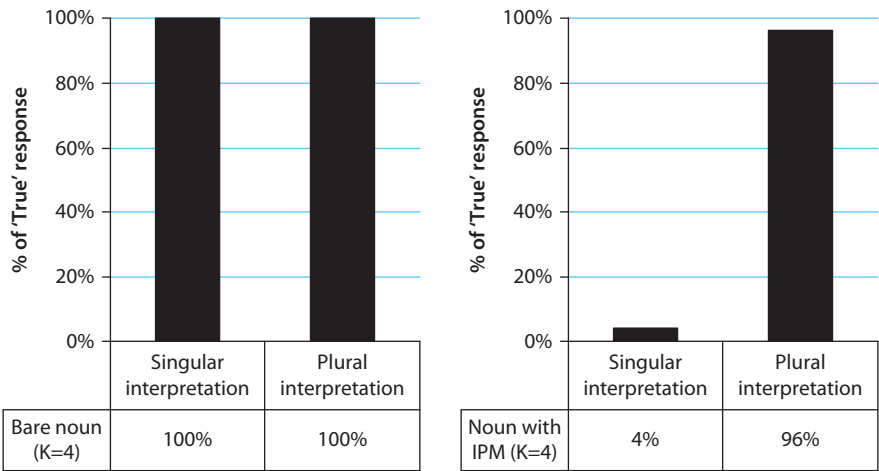
Figure 5. Children's responses for bare and IPM-marked nouns

We were thus able to proceed with confidence that the children fully understood the role of IPM and would correctly interpret the subject NP as plural in the test items that were designed to test the interpretation of the EPM on an indirect object.

5.   Study 5: Children's interpretation of EPM patterns

5.1 Participants

The same 20 children who participated in study 4 took part in our final study.

5.2 Method

We made use of the same truth-value judgment task that was employed in study 3 to test adults' interpretation of EPM patterns.

5.3 Results and discussion

In contrast to adults, who were highly consistent in assigning a distributive inter-
pretation to sentences that contain an EPM (see Section 3), our child participants
seemed to be entirely unaware of its semantic function. As can be seen in Figure 6,
they routinely allowed both the distributive and non-distributive interpretation of
sentences with and without the EPM, consistently failing to reject the EPM pattern
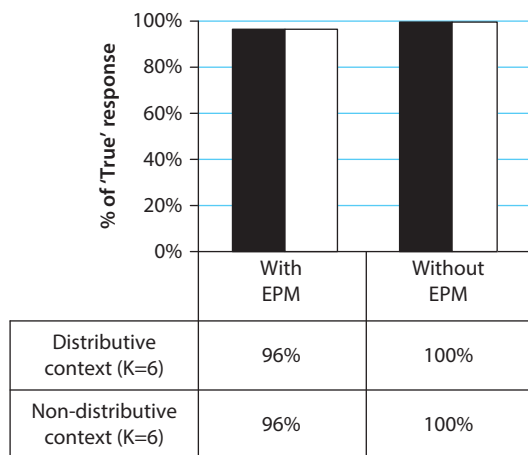as false in non-distributive contexts.

	With EPM	Without EPM
Distributive context (K=6)	96%	100%
Non-distributive context (K=6)	96%	100%

Figure 6. Percentage of 'True' responses

Put simply, the EPM had no effect at all on children's interpretation of sentences
containing it.[3]

It is not entirely clear why children were so insensitive to the presence of the
EPM. Their poor performance cannot be attributed to the acoustic profile (audi-
bility) of -*tul*, as they were highly attentive to the presence of the homophonous
intrinsic plural marker in experiment 4. Rather, it seems necessary to consider
the possibility that the EPM has simply not been acquired by 6 years olds, per-
haps because of its infrequency in caregiver speech. Independent support for this
conclusion comes from an examination of the sample of mother-child interaction
currently available at CHILDES database (12 bi-weekly one-hour sessions, begin-
ning when the child was two years olds). The sample contains ten instances of the
IPM, but not a single example of the EPM.

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3. This result cannot be attributed to a general bias to respond in the affirmative to all test items
regardless of their content, as the children responded appropriately to the 12 false filler items
98% of the time.

6.   Concluding remarks

The Korean morpheme *-tul* has two separate functions. On the one hand, when it attaches directly to an uninflected noun (as an intrinsic plural marker), it has an interpretation roughly equivalent to that of the English plural suffix *-s*. On the other hand, when it occurs in other positions as an extrinsic plural marker, it offers a way to encode distributivity. This second function of *-tul* is comparatively rare: as the results from our corpus study reveal, the IPM is approximately seven times more frequent than the EPM in speech and about three times more frequent in writing.

Drawing on the results of the experiments reported in Sections 2 and 3, we were able to establish that adult native speakers of Korean systematically assign a distributive interpretation to the EPM when it occurs on a dative phrase in situations where the referent of the indirect object is the focal point of a sentence's distributive interpretation. In contrast, children show no such propensity: although they have no trouble interpreting the intrinsic plural marker, they are insensitive to the presence of the EPM.

There is also an obvious need for further investigation of the EPM. Why is it so rare? What are the precise conditions under which it is used? Does it carry some special pragmatic force or implicature? Is it associated with particular registers or social groups? How, if at all, has its use changed over time? And, perhaps most intriguingly of all, how does it come to be learned by children, despite its infrequent occurrence in the language to which they are exposed? We look forward to exploring at least the last of these questions in the near future.

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Appendix A. Test items for the grammaticality judgment task

Context 1:

These three ducks like to pick oranges. However, no oranges remained in the tree. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — learned that the ducks couldn't pick any oranges, so they decided to get one very good orange, and give it to the three ducks. However, they changed their mind because it would be a better idea if each of the teachers gave an orange to each of the ducks. So Monkey teacher is eagerly delivering an orange to Yellow

duck, Sheep teacher is eagerly delivering one to Brown duck, and Dinosaur teacher is eagerly delivering one to Green duck.

Test sentence 1: (In each test item, the EPM occurred in one of the positions marked by †.)

> Sensayngnim-**tul**-i sey   haksayng-eykey-† orange-lul-† yelsimhi-†
> teacher-IPM-NOM   three student-DAT   orange-ACC eagerly
> patalha-ko-† iss-e-yo.
> deliver-COMP be-PRO-REGISTER
> 'Teachers are eagerly delivering an orange to three students.'

Context 2:

These three ducks like to play soccer. However, they have difficulty in practicing because they don't have a good soccer ball. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — knew their situation. They decided to get one very good soccer ball and give it to the three ducks. However, they changed their mind because it would be a better idea if each of the teachers gave a soccer ball to each of the ducks. So Monkey teacher is well giving a soccer ball to Yellow duck, Sheep teacher is well giving one to Brown duck, and Dinosaur teacher is well giving one to Green duck.

Test sentence 2:

> Sensayngnim-**tul**-i sey   haksayng-eykey-† kong-ul-† cal-† cwu-ko-†
> teacher-IPM-NOM   three student-DAT   ball-ACC   well give-COMP
> iss-e-yo.
> be-PRO-REGISTER
> 'Teachers are giving a ball to three students well.'

Context 3:

These three ducks like to read books. However, they want to read new books because they read their books repeatedly. Their teachers — Monkey teacher, Sheep teacher, and Dinosaur teacher — knew their situation. They decided to get one very interesting book and send it to the three ducks. However, they changed their mind because it would be a better idea if each of the teachers sent a book to each of the ducks. So Monkey teacher is happily sending a book to Yellow duck, Sheep teacher is happily sending one to Brown duck, and Dinosaur teacher is happily sending to Green duck.

Test sentence 3:

> Sensayngnim-**tul**-i sey   haksayng-eykey-† chak-ul-† kippukey-†
> teacher-IPM-NOM   three student-DAT   book-ACC happily
> ponae-ko-† iss-e-yo
> send-COMP be-PRO-se
> 'Teachers are happily sending a book to three students.'

Appendix B. Test items for IPM task

(i) a. Yekie oli-ka   nol-ko   iss-eyo.
      here duck-NOM play-COMP be-REGISTER
      'Here, the duck(s) is/are playing.'

    b. Yekie oli-**tul**-i   nol-ko   iss-eyo.
      Here duck-PL-NOM play-COMP be-REGISTER
      'Here, the ducks are playing.'

(ii) a. Yekie mal-i   talli-ko   iss-eyo.
      here horse-NOM run-COMP be-REGISTER
      'Here, the horse(s) is/are running.'

    b. Yekie mal-**tul**-i   talli-ko   iss-eyo.
      here horse-PL-NOM run-COMP be-REGISTER
      'Here, the horses are running.'

(iii) a. Yekie yang-i   wumciki-ko   iss-eyo.
      here sheep-NOM move-COMP   be-REGISTER
      'Here, the sheep is/are moving.'

    b. Yekie yang-**tul**-i   wumciki-ko   iss-eyo.
      here sheep-PL-NOM move-COMP   be-REGISTER
      'Here, the sheep are moving.'

(iv) a. Yekie wenswungi-ka nolayha-ko iss-eyo.
      here monkey-NOM sing-COMP be-REGISTER
      'Here, the monkey is/are singing.'

    b. Yekie wenswungi-**tul**-i nolayha-ko iss-eyo.
      here monkey-PL-NOM sing-COMP be-REGISTER
      'Here, the monkeys are singing.'

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