(Bare) plural DPs and L2 Acquisition: from generics to mass/count distinction and plurality

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Aim to propose bare plural DPs as a key property for L2 study on
genericity and mass/count distinction

Bare plural DPs for L2 genericity

Bare plural DPs for L2 mass/count distinction: crosslinguistic facts.

Singular-plural distinction in Mass (vs. Count) and implications for L2 studies
L2 properties in DPs: the list is endless
- L2 articles, genericity, mass-count distinction, number/gender agreement, clitics, binding...

Complexity of DPs: structural and pragmatic dependency
- E.g., Article use with definiteness/specificity - interfacing with discourse
- E.g., Binding - local/distance antecedence

Genericity and Mass/Count distinction
- Relatively free from such dependency, and yet a complexity of itself
Genericity

Main Issues in L2

- Sentence level vs NP level
- Bare plural NPs (English) vs. Definite Plural NPs (Spanish)
- Complex paradigm with different article use
- Isolating and testing generic phenomenon independently for L2 learnability

⇒ Bare Plurals (BPs)!
BPs: Subject vs Object Asymmetry

(1)  
   a. **Cats** like **dogs**  
   b. **Pandas** will soon become extinct.  
      
      [Carlson and Pelletier, 1995, p.65]

(2)  
   (Kind-selecting V)
   
   a. **Shockley** invented the **transistor**/ ??transistors.
   b. **The Summerians** invented the **pottery wheel**/ ??pottery wheels.
   c. **The French settlers in Mauritius** exterminated the **dodo**/ ??dodos.
      
      [Carlson and Pelletier, 1995, p.70-71]
Learnability Problem

- Not available in L2 input
- The contrast not taught
- L1 Korean - no such asymmetry - BPs are fine.
- Acquirable despite POS?
Tested two groups of Korean speaking learners of English

- EFL learners in Korea (KK) and ESL learners in the UK (KE)
- Timed AJT and translation task
(3) Kind referring generics in object position (n=8)

a. Shockley-ka transistor-lul balmyeonghaessta.
   Shockley-nom transistor-acc invented
   (Shockly, invent, transistor)

Possible Target Responses:
Shockley invented the transistor/??transistors.
Timed Acceptability Judgment Task

(4)  a. Tom has never seen a dodo. French settlers exterminated the
dodo.

   b. Tom has never seen a dodo. French settlers exterminated
??dodos.
Table: Usage rates of different NP forms in object position after kind requiring verbs
Table: Acceptability rates of bare plural NPs in object position after kind requiring verbs
Findings and follow up

- English controls tend not to prefer BPs after kind-selecting verbs
- This trend is followed by KE (but not KK)
- The individual analysis would show if the exposure period would be a predictor (via a linear regression analysis).
- If supported, BPs provide a crucial diagnostic tool for UG.
Mass-Count Distinction

- Nominal Mapping Parameter
  - [Chierchia, 1998; Nemoto, 2005; Snape, 2008]

- Boundedness
  - [Paradis, 2001]

- Individuation
  - [Papafragou, 2005; Inagaki, 2014]

- Vagueness
  - [Chierchia, 2010]

- Atomicity
  - [Kim, 2005; Choi et al., 2018]
Atomicity in L2: Choi et al. [2018]

- **Atomic**: When the smallest element can be identifiable by the nominal
  - furniture, table, jewellery  

- **Non-atomic**: When there is no smallest element as such
  - water, air, oil
Atomicity does not map onto the mass/count distinction in English (plural marking in yellow highlight)

Table: English nouns for each category

<table>
<thead>
<tr>
<th>Category</th>
<th>Nouns used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count concrete</td>
<td>computer, pencil, chair, boy</td>
</tr>
<tr>
<td>Count abstract</td>
<td>method, idea, message, topic</td>
</tr>
<tr>
<td>Mass atomic concrete</td>
<td>furniture, luggage, equipment, cash</td>
</tr>
<tr>
<td>Mass atomic abstract</td>
<td>evidence, advice, information, literature</td>
</tr>
<tr>
<td>Mass non-atomic concrete</td>
<td>water, gas, oil, air</td>
</tr>
<tr>
<td>Mass non-atomic abstract</td>
<td>happiness, courage, fun, beauty</td>
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[Choi et al., 2018, Modified from Appendix 1, p176]
Following Kim [2005], in Korean, plural marking is suggested to occur with atomic nouns (in yellow highlight)

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[Choi et al., 2018, Modified from Appendix 1, p176]
Count/Mass paradigm: English, Korean and Mandarin Chinese

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<th>English</th>
<th>Korean</th>
<th>Mandarin Chinese</th>
</tr>
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<tbody>
<tr>
<td>Classifiers</td>
<td>No (but has measure nouns)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Plural marking</td>
<td>Yes (-s)</td>
<td>Yes (-tul)</td>
<td>Yes (-men)</td>
</tr>
<tr>
<td>Obligatory/optional plural marking</td>
<td>Obligatory</td>
<td>Optional except with definites</td>
<td>Optional with [+human] nouns, impossible with [–human] nouns</td>
</tr>
<tr>
<td>Diagnostic for count/mass syntax</td>
<td>plural marking, numerals, indefinite article, <em>many</em> vs. <em>much</em></td>
<td>plural marking</td>
<td>count vs. mass classifiers</td>
</tr>
<tr>
<td>The mapping between atomicity and count/mass syntax</td>
<td>Atomic nouns can be count or mass; Non-atomic nouns are mass</td>
<td>Atomic nouns are count; Non-atomic nouns are mass</td>
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[Choi et al., 2018, Table 1, p156]
Similar patterns between L1 Korean and L1 Chinese groups

Figure: English Grammar Task (GT) results, Exp. 1: % of -s suppliance.

The ANOVA results are reported in Table 3. There was a significant effect of countability; post-hoc Bonferroni comparisons indicated that all three levels differed significantly from one another, with the most -s suppliance with count NPs, and the least -s suppliance with mass non-atomic NPs. There was also a significant effect of concreteness, with significantly more -s suppliance for concrete than for abstract NPs. There was also an interaction between countability and concreteness: the interaction plot shows that there was slightly more suppliance of -s with concrete than abstract nouns in count and mass-atomic categories, while the opposite was true for the mass non-atomic categories. There was no main effect of group, and no interaction between group and any other variable: i.e. the L1-Korean and L1-Mandarin groups exhibited the same patterns of performance.

Discussion
The results provide strong evidence for Hypothesis 2 rather than Hypothesis 1: the nearly identical behavior of the Korean and Mandarin Chinese groups indicates that atomicity affects both groups of learners equally, despite the fact that atomicity is encoded in the plural marking system of Korean but not the plural marking system of Mandarin. Before discussing these results further, we consider whether the description of Korean and Mandarin based on the theoretical literature is correct: it is important for us to be certain that atomicity is in fact encoded in the plural marking system of Korean but not that of Mandarin. We turn to this next.

[Choi et al., 2018, Modified from Fig.1, p163]
Finding 1: Atomicity as a semantic universal

- Chinese and Korean are very different in their plural marking over mass/count nouns
- The two groups patterned together.
- L2 learners rely on universal semantics - *Atomicity*
- (Allegedly) together with L1 transfer.
Why the rates remaining around 50%?

Figure: Korean Grammar Task (GT) results, Exp 2, % of -tul suppliance

Korean Grammar Task: materials and results

The Korean GT was an exact translation of the English GT, with 24 test items and 24 fillers arranged in the same order as in the English GT (see Section III.1.b). The test categories were the same as in the English GT. Importantly, these categories were defined in terms of English rather than Korean: we expect that nouns that are classified as 'mass atomic' in English are in fact treated as count nouns in Korean (the Korean nouns used in the GT are given in Appendix 1).

An important difference with the English GT is that in the Korean GT, the bare form of the noun is always grammatical, in all target categories; the Korean GT is thus testing native Korean speakers' preferences with regard to the use of a bare singular noun vs. the use of -tul. The phrases te manhun 'more' and manhun 'a lot of' in front of the target noun emphasized the plural interpretation, and were intended to elicit use of -tul when -tul is grammatical. We predict that -tul would be used more in the categories classified as count and as mass atomic than in the mass non-atomic category. In fact, we predict no difference at all between the count and mass atomic categories, since both should correspond to count nouns in Korean.

As in the English GT, the dependent measure in the Korean GT was the percentage of suppliance of the plural marker (-tul). The results are reported in Figure 2; as it shows, Korean native speakers used the plural marker -tul most frequently for in the count concrete category, and hardly ever used -tul in the mass non-atomic categories. The count and mass atomic categories patterned very similarly, as expected, given that nouns in both categories are atomic and hence expected to be compatible with -tul in Korean.

Figure 2. Korean Grammar Task (GT) results, Experiment 2: Percentage of -tul suppliance.

[Choi et al., 2018, Modified from Fig.1, p163]
Why L2 performance remains less than 50% in some of the mass categories?

**Figure:** English Grammar Task (GT) results, Exp. 1: % of -s suppliance.

![Graph showing percentage of -s suppliance for different categories and groups](image-url)

- **Chinese L2:** 98.48, 94.70, 43.94, 30.30, 1.52, 6.82
- **Korean L2:** 96.97, 87.88, 40.15, 36.36, 6.06, 8.33
- **English NS:** 100, 100, 0, 0, 0, 0

**NP Type (Error bars show +/- standard deviation)**

[Choi et al., 2018, Modified from Fig.1, p163]
Why such variation within mass nouns?
If Atomicity is a determining universal factor, why the performance in atomic mass nouns not tallying with atomic count nouns?
Mass always standing out as most challenging in L2 findings

Plural Mass: Type Shift in English

(5) a. I like only three wines: chardonnay, pinot, and chianti
b. I like only three dogs: Irish setters, golden retrievers, and collies

[Chierchia, 2010, ex.10, p.106]

‘not fully general’
‘heavily context dependent’
‘graded judgement’

[Chierchia, 2010, p.106]
*(tul) in Korean: Plurality, Specificity, Distributivity*

(6) ai(-tul)-i hakkyo-ey ka-ss-ta.
child(-pl)-nom school-to go-past-decl

With *-tul*: ‘(The/some specific) children went to school.’
Without *-tul*: ‘A/the child or (some, non-specific) children went to school.’

[Hwang and Lardiere, 2013, ex.1b, p.59]
(7) a. twu haksayng-i pheyiphe-lul ceychwulhay-ss-ta.
two student-Nom paper-Acc submit-Past-Decl

‘Two students submitted one (e.g. co-authored) paper.’
‘Two students each submitted a paper.’

b. twu haksayng-tul-i pheyiphe-lul ceychwulhay-ss-ta.
two student-Pl-Nom paper-Acc submit-Past-Decl

%‘Two students submitted one (e.g. co-authored) paper.’
‘Two students each submitted a paper.’

[Choi et al., 2018, Modified ex.7, p.152]
(8) haksayng-tul-i yelsimhi(-tul) enehak-ul kongpuha-n-ta.
student-pl-nom intently(-epl) linguistics-acc study-pres-decl

‘The students study linguistics intently.’
= ‘Every student studies linguistics intently.’

[Hwang and Lardiere, 2013, ex.1a, p.59]
-tul on mass nouns

(9) 

a. wain (wine, a wine) \( \rightarrow \) wain-tul (wines)  
b. khephi (coffee, a coffee) \( \rightarrow \) khephi-tul (coffees)  
c. mwul (water, a water) \( \rightarrow \) mwul-tul (waters)  
d. hayngpok (happiness) \( \rightarrow \) hayngpok-tul (*happinesses)  

e. ilsang-uy \( \rightarrow \) cakun hayngpok-tul  
daily-life-Gen trivial happiness-Pl  

‘trivial instances of happiness of daily life’  
(Korea JoongAng Daily, 2010)  

[Choi et al., 2018, Modified from ex.9, p.153]
Plural Mass in Korean

- Plurality of a unit;
- Plurality of an instance
- Not always kind referring (type shift)
Tsoulas [2008]

- In Greek, plural mass nouns trigger an inference of abundance.

(10) a. Ta hionia pano sto aftokinito mu
    the snows up to car my
    ‘the snows on top of my car’

b. Ta nera brosta apo to spiti mu
    The waters in-front-of house my
    ‘the waters in front of my house’
English: Not possible in general
- Limited to certain contexts only

(11) a. The waters of the Pacific
b. The sands of the Sahara
c. The snows of the Kilimanjaro

Greek and English do very similar things, but;
- Greek has generalised the use of the plural to signify abundance in the case of mass nouns
Pluralised mass are mass

Crucially, pluralised mass nouns are still mass

(12) *Dio ner-a trehun apo to tavani.
    two water-PL drip.3pl from det ceiling
    ‘Two waters are dripping from the ceiling’
    [from Tsoulas 2008, p. 135]

Other languages with pluralised mass nouns: Kuikuro (Franchetto 2013), Innu-aimun (Gillon 2015), Ojibwe (Rhodes 1990, Mathieu 2012), Blackfoot (Wiltschko 2012)
The inferences of plural

(13) Trehun **ner-a apo to tavani.**
drip.3pl water-pl from det ceiling
‘Water is dripping from the ceiling’

\[ \sim A \text{ lot of water is dripping} \]

(14) I **tighri taise ghurunia.**
DET tiger fed pig.PL
‘The tiger fed pigs.’

\[ \sim The \text{ tiger fed more than one pig} \]

- Kane et al. [2015] — the abundance inference is a context-dependent counterpart of the multiplicity inference
(15) I tighri taise ghurunia.
DET tiger fed pig.PL
‘The tiger fed pigs.’
$\leadsto$ The tiger fed more than one pig
(16) I tighri dhen taise ghurunia.  
DET tiger NEG fed pig-PL 
‘The tiger didn’t feed pigs.’

\[\neg The \ tiger \ didn’t \ feed \ more \ than \ one \ pig\]  
\[\sim The \ tiger \ didn’t \ feed \ any \ pig\]
Abundance inference: upward entailing contexts

(17)  Tis zebras tis epesan zahare-s.
   DET zebra CL dropped sugar-PL
   ‘The zebra dropped sugar.’

   \( \sim \)  The zebra dropped a lot of sugar

Abundance Inference
Abundance inference: downward entailing contexts

(18) Tis zebras dhen tis epesan zahare-s.
DET zebra NEG CL dropped sugar-PL
‘The zebra didn’t drop sugar.’

\[ \neg \Rightarrow \text{The zebra didn’t drop a lot of sugar} \quad \text{Abundance Inference} \]
\[ \sim \Rightarrow \text{The zebra didn’t drop any sugar} \]
Both multiplicity and abundance inferences:

- tend to arise in upward entailing contexts
- tend to disappear in downward entailing contexts

→ not part of the lexical meaning of plural (cf. Chierchia [1998]; Alexiadou [2011])
Tieu et al. [2014, 2016]
- experimental study on multiplicity inferences in English
- supports an implicature approach

Renans et al. [2018]
- experimental study on both multiplicity and abundance inferences in Greek
- supports an implicature approach
- provide evidence for a unified analysis of plural morphology across the mass and count divide
Plural positive condition

(19)  I tighri taise ghurunia!
DET tiger fed pig-PL
'The tiger fed pigs.'

(20)  a.  *The tiger fed more than one pig*  Multiplicity Inf.
b.  *The tiger fed one or more pigs*
Plural positive condition

(21) Tis zebras tis epesan zahare-s.
    DET zebra CL dropped sugar-PL
    ‘The zebra dropped sugar.’

(22) a. Zebra dropped a lot of sugar
    b. Zebra dropped a little or a lot of sugar
- Children tend to compute fewer implicatures less than adults
- In general, this is consistent with L1 literature
- But where is children’s interpretation coming from?
Plurality: What does the plural marking do?

- Two or more? (exclusive reading)
- One or more than one? (inclusive reading)

(23) If you have children, raise your hand!
   a. ‘If you have two or more children.... ’
   b. ‘if you have one or more than a child...’
Two readings are possible

The experiment results show that children allows (b) and less of (a), while adults exclusively (a)

Plurals thus are not just about plurality as we know.

Singular and plural Mass are more available than we know.
L2 study of Mass/count distinction in English by Korean speaking learners

The finding is that the difficulty is not on mass/count distinction, but on the understanding of plurality
Most languages including English: both inclusive and exclusive

Known exceptions: Korean, Turkish and West Armenian: exclusive reading
Plurality itself need more investigation, let alone in L2 studies

L2 mass/count distinction is implicated on plurality
Singular/plural mass distinction is not common
A systematic study is yet to be done (cf. Renans et al. [2018])
But is it as rare as we think?
Japanese singular/plural mass: Watanabe [2017]

- Plural marking is not completely optional

(24)  

a. Ringo-no ichibu-ga kusatteiru. ambiguous.
   apple-gen part-nom is.rotten
   ‘Part of the apple(s) is/are rotten.’
   (Ambiguous, Partitive)

b. Ichibu-no ringo-ga kusatteiru. unambiguous
   part-link apple-nom is.rotten
   ‘Some of the apples are rotten.’
   (Unambiguous, Reverse Partitive)

[Watanabe, 2017, modified from ex.1, p.2]
Singular/plural mass in Japanese

(25) Osensui-no ichibu-ga moredashita.
contaminated.water-gen part-nom leaked.out
‘Part of the contaminated water leaked out.’
(Partitive)

(26) Ichibu-no osensui-ga moredashita.
part-link contaminatedw.ater-nom leaked.out
‘Part of the partitions of contaminated water leaked out.’
(Reverse partitive)

[Watanabe, 2017, modified from ex.25, p.14]
Singular/Plural Mass as a new insight for L2 of Mass/Count distinction

- The extent of singular/plural mass nouns is still to be known
- However, more findings on this category have significant implications for SLA
- L2 studies should be extended to other languages than just L2 English
- L2 studies such as L2 Greek by Japanese L1 and English L1 would be a start.


