On the Semantic Role of the Accentual Phrase in Korean NP Coordination

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1. Introduction

Under some prosodic conditions, an ambiguous sentence having a coordinated-NP subject in Korean can be disambiguated. If an NP is grouped by an Accentual Phrase (Jun 1993, 1998), the NP takes a collective rather than distributive reading, as in (1a); otherwise, when the NP is separated by two Accentual Phrases (AP, henceforth), the preferred interpretation is distributive rather than collective, as in (1b).

(1) John-kwa   Kim-i   sangja-lul   tul-ess-ta
     /t∫ongwa   kimi   saŋdʒalɨl   tɨljət′a/
     J-and   K-Nom   box-Acc   carry.Past.Decl
     I: 'John and Kim carried a box together.'   (collective reading)
     II: 'John carried a box and Kim carried a box.' (distributive reading)

   a. {t∫ongwa gimi} {saŋdʒalɨl} {tɨljət′a}   → I > II
   b. {t∫ongwa} {kimi} {saŋdʒalɨl} {tɨljət′a}   → II > I

This paper investigates the semantic effect of Korean prosody, in particular the AP, on this phenomenon.

My account of the AP involves an analysis of its unique semantic role in the interpretation of NP coordination. In NP coordination, like *John and Kim*, two kinds of accentual phrasing are possible: the NP coordination can be separated into two APs, as in *{John-and}_{AP}{Kim}_{AP}*, or it can be grouped together by one AP, as in *{John-and Kim}_{AP}*. When the NP coordination is combined with an ambiguous predicate such as *carry a box*, the interpretation of a sentence can be disambiguated through different accentual phrasings: the separation into two APs such as *{John-and}_{AP}{Kim}_{AP}* suggests a distributive reading, while one AP such as *{John-and Kim}_{AP}* suggests a collective reading. This implies that the formation of accentual phrasing in NP coordination participates in the disambiguation.

The main questions that I am pursuing in this paper include the following: How can the disambiguation solved by manipulating AP in NP coordination be accounted for? How can we model the relation between phrasing/dephrasing and meaning? I further argue that the AP carries a semantic meaning, operating as a group formation function (Landman 1989a, 2000): as a group-formation function, the AP lifts the singular individuals to the level of a group, necessitating a collective interpretation. Investigating the semantic properties of the AP in Korean, I show how the interpretation of the construction can be derived compositionally.

This paper is organized as follows. I use Section 2 to lay out my data, and Section 3 to briefly explain the domains of the AP, providing two available patterns of APs in NP coordination. Section 4 reviews earlier literature on plurality such as Landman (1989a, 2000). In Section 5, I present my own analysis for semantics of the AP in NP coordination. Section 6 discusses the defeasibility of the

semantic effect of the AP. Iconicity of the AP is described in Section 7. Implications of this work for AP semantics and the conclusion appear in Section 8.

2. Data
2.1. APs in NP Coordination and Ambiguity

To describe terms more clearly, I introduce the following terminology for accentual phrasing. *Dephrasing* designates the type of accentual phrasing that combines the NPs together. *Phrasing* designates the type of accentual phrasing that separates the NPs apart.

(2)   Terminology

      a. **Dephrasing**: phrasing that groups phrases together, e.g., {tʃongwa gimi}$_{AP}$

      b. **Phrasing**: phrasing that separates phrases apart, e.g., {tʃongwa}$_{AP}${kimi}$_{AP}$

In Korean, for distributive predicate, *jam-i tulessta* 'fell asleep' in (3) and for collective predicates, *moyessta* 'gathered' in (4), APs do not change the resulting reading, even if phrasing and dephrasing occur. For these predicates, the original distributive reading and collective reading remain.

(3)   John-kwa   Kim-i   jam-i   tul-ess-ta

      /tʃongwa   kimi   tʃami   tɨlɵtʼa/
      J-and   K-Nom   sleep-Nom   fall.Past.Decl

      II: 'John fell asleep and Kim fell asleep.'   (distributive reading)

      a. {tʃongwa gimi} {tʃami}{tɨljɵtʼa}[12]   → reading II

      b. {tʃongwa} {kimi} {tʃami} {tɨjɵtʼa}   → reading II

(4)   John-kwa   Kim-i   moy-ess-ta

      /tʃongwa   kimi   mojɵtʼa/
      J-and   K-Nom   gather.Past.Decl

      I: 'John and Kim gathered.'   (collective reading)

      a. {tʃongwa gimi} {mojɵtʼa}   → reading I

      b. {tʃongwa} {kimi} {mojɵtʼa}   → reading I

However, when ambiguous predicates combine with an NP coordination with accentual phrasing, we can get an interesting result in the interpretation of the sentence. As shown in (5), accentual phrasings seem to resolve the collective/distributive ambiguity. If NPs are dephrased together, the sentence prefers a collective reading in (5a). When NPs are phrased separately, the sentence prefers a distributive reading as in (5b).

(5)   John-kwa   Kim-i   sangja-lul   tul-ess-ta

      /tʃongwa   kimi   saŋdʒalɨl   tɨljɵtʼa/
      J-and   K-Nom   box-Acc   carry.Past.Decl

      I: 'John and Kim carried a box together.'   (collective reading)
      II: 'John carried a box and Kim carried a box.'   (distributive reading)

      a. {tʃongwa gimi} {saŋdʒalɨl} {tɨljɵtʼa}   → I > II

      b. {tʃongwa} {kimi} {saŋdʒalɨl} {tɨljɵtʼa}   → II > I

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[1] Throughout this paper, Korean examples are expressed in phonetic description. Annotations to show prosodic boundaries are twofold: First, / / shows a morphophonemic representation. Second, braces, { }, represent phrase boundaries for the AP.

[2] Note that the Romanization Convention for IPA in Korean follows Jun (2000).

The resolution of ambiguity is also applicable to NP coordination when it is composed of three NPs—*John, Kim,* and *Jack*. When the NPs are dephrased, a collective reading is preferred as in (6a). And when the NPs are phrased, a distributive reading is preferred as in (6b).

(6)   John-kwa   Kim-kwa   Jack-i   sangja-lul   tɨl-ess-ta

       /tʃongwa   kimgwa   dʒegi   saŋdʒalɨl   tɨljet'a/
       J-and   K-and   Jack-Nom   box-Acc   carry.Past.Decl
       I: 'John and Kim and Jack carried a box together.'
       II: 'John carried a box and Kim carried a box and Jack carried a box.'

       a. {tʃongwa gimgwa dʒegi} {saŋdʒaɨl} {tɨljet'a}   → I > II
       b. {tʃongwa} {kimgwa} {tʃegi} {saŋdʒaɨl} {tɨljet'a} → II > I

Unlike the coordination composed of two NPs, a coordination composed of three NPs in (6) can add an additional pattern of prosodic phrasing, yielding a *sub-collective reading*. This additional pattern can be observed when grouping some NPs together, leaving one or more NPs alone. A sub-collective reading is constructed when all of the NPs of the subject are not read collectively, but rather some of the APs (i.e. sub-dephrased AP) yield a collective interpretation. For example, as shown in (7), the dephrased NPs, *John and Kim* in (7a) and *Kim and Jack* in (7b), yield a sub-collective reading.

(7)   III 'John and Kim carried a box together and Jack carried a box.'
       IV: 'John carried a box and Kim and Jack carried a box together.'

       a. {tʃongwa gimgwa} {tʃegi} {saŋdʒalɨl} {tɨljet'a}   → III > IV
       b. {tʃongwa} {kimgwa dʒegi} {saŋdʒalɨl} {tɨljet'a}   → IV > III

So far, we have observed how accentual phrasing affects the interpretation of Korean NP coordination. We can identify a pattern such that prosodic dephrasing indicates a collective reading, while prosodic phrasing indicates a distributive reading. If we view this phenomenon as a specific relationship between accentual phrasing and its effect on the determination of sentential interpretation, we can assume that it implies that the AP carries semantic meaning. In the following section, I introduce additional data, where NP coordination is combined with the distributive operator *kakkak* 'each'. This overt lexical item also shows a specific role of accentual phrasing for sentential meaning.

2.2. Distributive Operator kakkak

The lexical item *kakkak* in Korean is considered a distributive operator (Choe 1987, Oh 2008 and many others). When *kakkak* is combined with a coordinated NP with ambiguous predicates, the collective reading is ruled out, and only the distributive reading remains. Additionally, this applies to NP coordination containing accentual phrasings. When the distributive operator *kakkak* is attached to a coordinated NP, whether the NP is phrased or dephrased, only the distributive interpretation (reading II) should obtain, as in (8).

(8)   John-kwa   Kim-i   **kakkak**   sangja-lul   tul-ess-ta

       /tʃongwa   kimi   kakk'ak   saŋdʒalɨl   tuljet'a/
       J-and   K-Nom   each   box-Acc   carry.Past.Decl
       ~~I: 'John and Kim carried a box together.'~~
       II: 'John carried a box and Kim carried a box.'

       a. {tʃongwa gimi} {kakk'ak} {saŋdʒalɨl} {tɨljet'a}   → II
       b. {tʃongwa} {kimi} {kakk'ak} {saŋdʒalɨl} {tɨljet'a} → II

The result in (8) is not surprising. The distributive operator, *kakkak*, implies that there are multiple entities among which the predicate should be distributed. It is generally theorized that the meaning of a lexical item (or morphosyntax) is stronger than pragmatic or intonational meaning. When these two meanings contradict each other, pragmatic/intonational meaning is overridden by the morphosyntactic

meaning. In this sense, we may conclude that an overt lexical item, *kakkak*, overrides the effect of accentual phrasing on collective interpretation.

Surprisingly, however, this is not applicable to (9). For (9c) and (9d), the sub-dephrased phrases still hold their sub-collective readings.

(9)   John-kwa Kim-kwa Jack-i   **kakkak**   sangja-lul   tul-ess-ta
       /tʃongwa kimgwa   dʒekgi   kakkʼak   saŋdʒalɨl   tɨljɵtʼa/
       J-and   K-and   J-Nom   each   box-Acc   carry.Past.Decl
       ~~I: 'John and Kim and Jack carried a box.'~~
       II: 'John carried a box and Kim carried a box and Jack carried a box.
       III: 'John and Kim carried a box together and Jack carried a box.
       IV: 'John carried a box and Kim and Jack carried a box together.'

    a. {tʃongwa gimgwa dʒekgi} {kakkʼak} {saŋdʒalɨl} {tɨljɵtʼa} → II > III, IV, V

    b. {tʃongwa}{kimgaw}{tʃekgi}{kakkʼak}{saŋdʒalɨl}{tɨljɵtʼa} → II > III, IV, V

    c. {tʃongwa gimgaw} {tʃekgi} {kakkʼak} {saŋdʒalɨl} {tɨljɵtʼa} → III > II, IV, V

    d. {tʃongwa}{gimgwa dʒekgi}{kakkʼak}{saŋdʒalɨl}{tɨljɵtʼa} → IV > II, III, V

Here, the sentential interpretation in terms of the APs and *kakkak* can be differentiated threefold: first, when NP coordination is dephrased into one AP in (9a), the effect of the AP, which is supposed to generate a collective reading, is overridden by *kakkak*, and consequently a distributive reading obtains, ruling out a collective reading. This is expected since we have already seen above that the intonational meaning is normally overridden by an overt lexical item. Second, in the case of wholly phrased coordination in (9b), an atomic distribution obtains. This is also expected since the functions of AP and *kakkak* do not contradict each other. Third, in the case of partly dephrased coordination, in (9c) and (9d), a sub-collective interpretation is yielded. Partially dephrased NPs can hold their collective readings even under the effect of *kakkak*, which is impossible in the case of wholly dephrased NPs.

3. Two types of accentual phrasing in NP coordination
3.1. The domain of AP
3.1.1. AP tonal pattern

The AP in Korean is a tonally demarcated unit which can contain more than one lexical item. (Jun 1998). Basically, the AP in Korean is defined by tones, rather than by syntactic elements. The underlying tone pattern of a Seoul AP is Low-High-Low-High (LHLH), or High-High-Low-High (HHLH). When the AP is longer than four syllables, all these underlying tones are realized on the surface. Accordingly, surface tones should be either LHLH or HHLH. On the other hand, when the AP consists of fewer than four syllables, two or three surface tonal patterns can be observed: the medial H and/or the following L tone are suppressed. Consequently, surface tones should be either LLH or LH.

3.1.2. Lenis stop voicing rule

More substantial evidence to reveal the domain of the AP is displayed by the Korean Lenis Stop voicing rule. Jun (1993) shows that the lenis stop is usually voiceless in the AP-initial position, but there is a strong tendency for the lenis stop to become voiced in AP-medial position. For example, a lenis stop [k] cannot become voiced [g], and [p] cannot become [b] if [k] and [p] occur in different phonological phrase (e.g. *{kəmin **g**ojaɲie **b**almok}* vs. *{kəmin} {**k**ojaɲie} {**p**almok}* 'an ankle of black cat'). /k/ and /p/ are realized as voiced lenis stops [g] and [b], respectively, in the AP-medial position, while they are realized as voiceless lenis stops [k] and [p] in the AP-initial position.

3.2. Phrasing and dephrasing in NP coordination

It has been normally assumed that coordinated NPs are phrased separately, each with its own AP. Jun (2000) shows, for example, that the default accentual phrasing form for NP coordination is one

where each NP is assigned an AP. Following Jun, I assume that the default phrasing pattern of NP coordination is a one-to-one mapping between NPs and APs, postulating the AP mapping rule in (10).

(10)   Default AP mapping rule**:** an NP in coordination is mapped to an AP

Although the default is that an AP is mapped to each NP, AP formation is not that strict. Jun (1993, 1998, 2000, 2005a), Schafer and Jun (2002) and many others argue that the formation of the AP in Korean is flexible, affected by semantic/pragmatic factors, such as semantic closeness. Thus, I assume that like other accentual phrasings, the accentual phrasing in NP coordination is also able to be altered, subject to the semantic requirements of the AP itself.

In this paper, NP coordination 'John and Kim-Nom' is considered as possibly phrased in two ways: into phrased APs as a default mapping or into dephrased APs. First, the phrased NP coordination has LH as its surface tonal pattern, as in (11a). Second, the dephrased NP coordination has LHLH as its surface tonal pattern, as in (11b). As we observed in section 3.1.2, the dephrased AP exhibits a prosodic effect regarding voicing of a lenis stop, demonstrating that the second AP of the coordination is dephrased with voiced sound [g].

(11)   a. 'John-and'   'Kim-Nom'   b. 'John-and'   'Kim-Nom'

     {tʃongwa}   {**k**imi}   {tʃongwa   **g**imi}
      | | | ＼ | | | |
     L(HL) Ha   L(HL)   Ha   L H   L Ha
     Underlying tones: (LHLHa) (LHLHa)   Underlying tones: (LHLHa)
     Surface tones: (LHa) (LHa)   Surface tones: (LHLHa)

4. Group theory: Landman (1989a, 2000)
4.1. Group Operation

Landman (1989a, 2000) argues that not only nominal predicates, but also verbal predicates should be interpreted as sets of atoms. In his theory, the operation of pluralization in the nominal domain is also available in the verbal domain, reducing distributivity to semantic plurality. In this respect, collective predications are considered to be singular predications while distributive predications are plural predications.

In the sense that distributivity can be seen as plurality, the D-operator should be defined by the *-operator[3] (Landman 2000):

(12) $^{D}P = *\{a \in \text{ATOM}: a \in P\}$

In contrast to distributivity in terms of the *-operator, Landman represents collectivity with an implicit group-operator $\uparrow$[4]. $\uparrow$ turns a sum of individuals (j⊕b) into a group atom $\uparrow$(j⊕b). Thus, the ambiguous sentence in (13) having both a distributive interpretation and a collective interpretation can be disambiguated with the representation of the *-operator for the distributive reading (14a) and of the $\uparrow$-operator for the collective reading (14b), respectively.

(13)   John and Bill carried the piano upstairs.

(14)   a. j ⊕ b ∈ *CARRY   : distributive reading
       b. $\uparrow$(j ⊕ b) ∈ CARRY   : collective reading

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[3] The *-operation corresponds to pluralization of atomic individuals (Link 1983): e.g., *boys* → *BOY
[4] The system of group formation can be represented as follows (Landman 2000: p. 101):
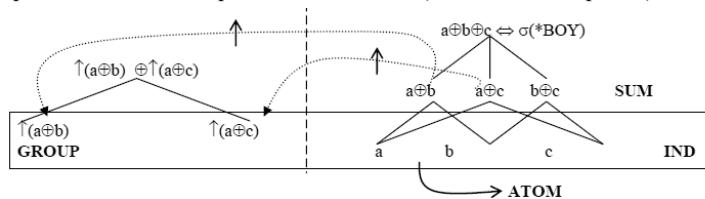
To summarize, there are two modes of predication: singular predication (i.e., collective predication) and plural predication (i.e., distributive predication). Singular predication applies basic predication to an atomic individual whereas plural predication applies a plural predicate distributively to a plural sum of atomic individuals.

4.2. The Grammar

Landman represents the plurality of predicates by using a neo-davidsonian theory of events. In a neo-davidsonian theory of events, the type of event is represented by e, and e is composed of a lattice structure, just as with entities denoted by nouns (Bach 1986). In the neo-davidsonian theory of events, the thematic role of an agent functions as a subject of the verbal predicate. Accordingly, in the conceptualization of singular and plural predication, singular predication is predication where an atomic individual (i.e., individual or group) fills a thematic role of an atomic event, and plural predication is predication where a plural individual fills a plural role of a plural event. Landman assumes that the basic interpretation of the verb is unmarked for semantic plurality. The interpretation of *sang* is as follows:

(15)　　$[[sang]] \rightarrow \lambda x.\exists e \in {}^*SANG: {}^*Ag(e) = x$

sang can be interpreted as singular predication (i.e., collective reading) and plural predication (i.e., distributive reading). Thus, the grammar of (16a) would derive the interpretation as in (16b) and (16c). (16b) is a distributive interpretation of (16a). The reading is: there is a sum of singing events with the sum of John and Kim as the plural agent. (16c) is a collective interpretation of (16a). The reading is: there is one singing event with the group of John and Kim as an agent.

(16)　　a. John and Kim sang.
　　　　b. APPLY $[\lambda x.\exists e \in {}^*SANG: {}^*Ag(e) = x, (j \oplus k)]$
　　　　　 $= [\lambda x.\exists e \in {}^*SANG: {}^*Ag(e) = x] (j \oplus k)$
　　　　　 $= \exists e \in {}^*SANG: {}^*Ag(e) = (j \oplus k)$
　　　　　 $= \exists e \in SANG: Ag(e) = j \wedge \exists e \in SANG: Ag(e) = k^5$
　　　　c. APPLY $[\lambda x.\exists e \in {}^*SANG: {}^*Ag(e) = x, \uparrow(j \oplus k)]$
　　　　　 $= [\lambda x.\exists e \in {}^*SANG: {}^*Ag(e) = x] (\uparrow(j \oplus k))$
　　　　　 $= \exists e \in {}^*SANG: {}^*Ag(e) = \uparrow(j \oplus k)$
　　　　　 $= \exists e \in SANG: Ag(e) = \uparrow(j \oplus k)^6$

5. Analysis
5.1. The AP semantics: The AP as a group function

The AP in Korean NP coordination functions as a semantic operator in disambiguation, having the effect of yielding collective interpretations. In this sense, the AP in NP coordination serves as a implicit group-operator $\uparrow$. If one NP is dephrased by an AP, the NP denotes a group by itself. If two NPs are dephrased by two APs, then those NPs denote groups (one per NP). Correspondingly, we can conclude that the number of APs corresponds to the number of groups, the AP itself denoting a group.

Besides, I posit the syntactic feature as a [Gr]oup-feature in the phonological level, and assign group function in semantic level, shown as following:
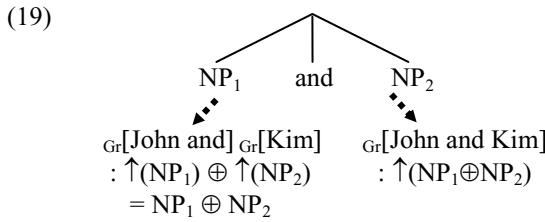
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[5] The atomic parts of the sum $j \oplus k$ are j and k. Thus, some of the atomic parts of e will have j as an agent, and the rest k. This means that $\exists e \in {}^*SANG: {}^*Ag(e) = (j \oplus k)$ is equivalent to $\exists e \in SING: Ag(e) = J \wedge \exists e \in SING: Ag(e) = K$ (Landman 1995: p. 441)

[6] Since j and $\uparrow(j \oplus k)$ are atoms, they have only themselves as parts. Hence, an atom is the plural agent of a sum of singing events iff it is the agent of all the atomic part events. This means that $\exists e \in {}^*SANG: {}^*Ag(e) = \uparrow(j \oplus k)$ is equivalent to $\exists e \in SANG: Ag(e) = \uparrow(j \oplus k)$ (Landman 1995: p. 441)

(17)   [Gr]-feature: a syntactic feature encoding phrasing/dephrasing of the NP coordination[7]
(18)   Syntax-Semantics mapping rule: [Gr]-feature assigns a group formation function to the AP.

Accordingly, I formulate the syntactic-semantic-prosodic interface of AP as follows:

(19)

$$NP_1 \quad and \quad NP_2$$

$_{Gr}$[John and] $_{Gr}$[Kim] $_{Gr}$[John and Kim]
: $\uparrow(NP_1) \oplus \uparrow(NP_2)$: $\uparrow(NP_1 \oplus NP_2)$
= $NP_1 \oplus NP_2$

5.2. Derivations
5.2.1. The AP and Collective/distributive disambiguity

First, let us examine the case of distributive reading where NP, *John and Kim* is phrased. Each of the phrased NPs gets assigned a group function separately in (20a). Thus, with the meaning of the noun predicate in (20a) and verbal predicate in (20b), the compositional derivation for distributive reading (20c) can be analyzed as follows:

(20)   a. $_{Gr}$[John and] $_{Gr}$[Kim] : $\uparrow(j) \oplus \uparrow(k) = j \oplus k$
         b. carried a box: $\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}$
         c. APPLY $[\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}, (j \oplus k)]$
            = $[\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}] (j \oplus k)$
            = $\exists e \in \text{*carried a box}: \text{*Ag}(e) = (j \oplus k)$
            = $\exists e \in \text{carried a box}: \text{Ag}(e) = j \wedge \exists e \in \text{carried a box}: \text{Ag}(e) = k$

The next is the data where NP coordination is dephrased by one AP. In this case, the AP assigns one group meaning and therefore we can get a collective interpretation as in (21c).

(21)   a. $_{Gr}$[John and Kim] : $\uparrow(j \oplus k)$
         b. carried a box: $\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}$
         c. APPLY $[\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}, \uparrow(j \oplus k)]$
            = $[\lambda x.\{\exists e \in \text{*carried a box}: \text{*Ag}(e) = x\}] (\uparrow(j \oplus k))$
            = $\exists e \in \text{*carried a box}: \text{*Ag}(e) = \uparrow(j \oplus k)$
            = $\exists e \in \text{carried a box}: \text{Ag}(e) = \uparrow(j \oplus k)$

5.2.2. The AP and kakkak

Before moving to discussion, let us examine the semantics of *kakkak* first. Oh (2008) theorizes the semantic properties of *kakkak* as the following: *kakkak* should function as a D-operator at LF, marking the distribution over an argument it combines with. The denotation for *kakkak* is suggested in (22). As a distributive operator, *kakkak* needs a combining argument to be distributed with universal quantificational force. As shown in the formula, the argument should be an atomic plural.

(22) $[[D_{kakkak}]]: \lambda P \lambda x: |x|^{8} > 1.[\forall y[y \in x \rightarrow P(y)]]$ (Oh 2008)

Based on the semantic meaning of *kakkak*, I analyze my data containing phrased NPs co-occurring each NP is assigned a group function, and accordingly the NP coordination is composed of two individual atoms. This meets the semantic requirement of *kakkak* that it must combine with a plural

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[7] The relationship between intonation (i.e. PF) and meaning (i.e. LF) is mediated by syntax (i.e. syntactic features, e.g. [F]-feature) (Jackedoff 1972).
[8] Note that *x* ranges over complex individuals, cardinality set iff they are atoms. Cardinality of x: $|x| \equiv |\{y: y \leq x\}|$

argument, as shown in derivation ❸. Therefore, the meaning can be spelled out validly as in ❹, which represents the meaning such that for members of John and Kim, each of them is the agent of an event of carrying a box.
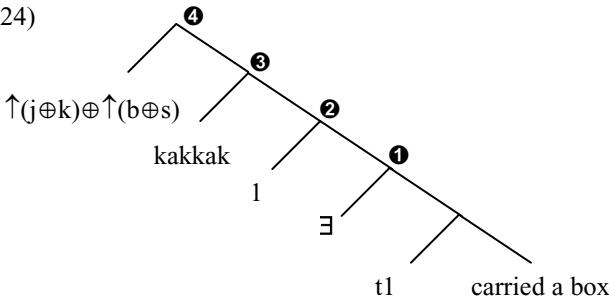
(23)
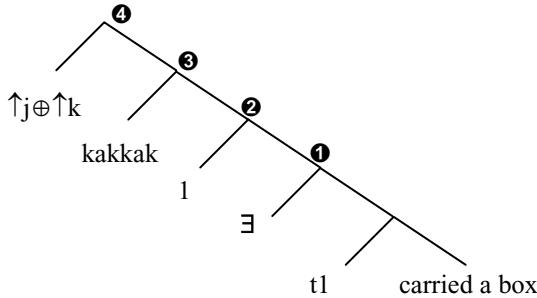
❶: ∃e ∈ *carried a box: *Ag(e)

❷: λz.∃e ∈ *carried a box: *Ag(e) = z

❸: λPλx: |x| >1.[∀y[y ∈ x → P(y)]] (λz.∃e ∈ *carried a box: *Ag(e) = z)
    = λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]]

❹: APPLY [λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]], (j⊕k)]

    = [(λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]]](j⊕k)

    = ∀y[y ∈ (j⊕k) → ∃e ∈ *carried a box: *Ag(e) = y]
    = ∃e ∈ carried a box: Ag(e) = j ∧ ∃e ∈ carried a box: Ag(e) = k

It can be applied to the sub-phrased coordination as well.

(24)

❶: ∃e ∈ *carried a box: *Ag(e)

❷: λz.∃e ∈ *carried a box: *Ag(e) = z

❸: λPλx: |x| >1.[∀y[y ∈ x → P(y)]] (λz.∃e ∈ *carried a box: *Ag(e) = z)
    = λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]]

❹: APPLY [λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]], (↑(j⊕k) ⊕ ↑(b⊕s))]

    = [(λx: |x| >1.[∀y[y ∈ x → ∃e ∈ *carried a box: *Ag(e) = y]]](↑(j⊕k) ⊕ ↑(b⊕s))

    = ∀y[y ∈ (↑(j⊕k) ⊕ ↑(b⊕s)) → ∃e ∈ *carried a box: *Ag(e) = y]
    = ∃e ∈ carried a box: Ag(e) = ↑(j⊕k) ∧ ∃e ∈ carried a box: Ag(e) = ↑(b⊕s)

6. Defeasibility of the semantic effect of the AP

Thus far, we have discussed that dephrasing implies group meaning and phrasing implies distributivity. However, the semantic effect of AP is defeasible, in the sense that the effect of AP can be cancelled by lexical materials (See (3), (4) and (8)). First, in the case of collective/distributive

predicates, when combined with a collective predicate, regardless of the form of AP phrasing, a distributive reading is ruled out. Likewise, when combined with a distributive predicate, a collective reading is ruled out, in spite of the form of AP phrasing. Second, *kakkak* overrides the dephrasing effect, which is supposed to give rise to a group reading. Combined with *kakkak*, a collective reading is prohibited, irrespective of the form of AP phrasing. Thus, the claim that dephrasing indicates group and phrasing indicates distributivity is false.

7. Iconicity of the AP

Finally, let us consider the iconicity of the AP. I propose that the AP is a clue as to the speaker's intended interpretation but does not have actual truth-conditional meaning. The interpretation of *and* in (25) can be an example of this. (25a) is the sentence uttered by the speaker and (25b) is the generalized conversational implicature which would be conveyed by an utterance of the sentence (Carston 1988).

(25)   a. She gave him her key and he opened the door.
         b. She gave him her key and then he opened the door.

The meaning of the AP can be interpreted in the same way. Once all its semantic meaning is generated, the AP specifies the condition on how to associate phonology with meaning. In the interpretation of NP coordination, the AP triggers the preferential interpretation. I call this iconicity of the AP in semantic interpretation. Accordingly, phrasing implicates a distributive interpretation and dephrasing implicates a collective interpretation.

8. Conclusion

In this paper, I explored the role of the AP in Korean in terms of the semantic interpretation. The picture suggested in this investigation helps clarify not only how Korean APs in NP coordination operate semantically, but also how this AP-semantic relation can interact with morphosyntax. My claim on the semantic role of the AP is that the AP functions as a group formation function ↑ to yield collective readings when combined with ambiguous verbal predicates. Regarding the properties of the semantics of the AP, I suggested the following: First, the AP does not determine meaning but signifies the most preferred meaning among the possible interpretations. Second, in the sense that the AP triggers the most preferred interpretation, the AP iconically matches semantic interpretation.

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