

Adjective Ordering: A View from Korean

Min-Joo Kim

Texas Tech University

1. Introduction

Across languages, adnominal adjectives (ADJs) occur only in certain orders and exactly what is responsible for their ordering restrictions (AORs) has been under much debate (see, a.o., Sproat & Shih 1988, 1990; Cinque 1993; Alexiadou 2001; Bouchard 2002; Svenonius 2008; Cinque 2005, 2010). The present paper aims to contribute to this on-going debate by looking at Korean, a head-final/determiner-less/classifier language, whose AOR phenomenon has not been much studied in the literature. The primary question to be addressed is: how to capture the mapping between the morphological form, the position, and the meaning of adjectival noun (N) modifiers in Korean by assuming a single universal DP structure. In answer to this question, I offer an analysis that builds on Svenonius' (2008) (de)composition analysis of DP. I then turn to showing how this analysis captures the Korean facts and how it may extend to other languages beyond Korean.

2. Preliminary information on Korean and its N modifiers

Korean is an agglutinative language with SOV constituent order. Scrambling is common but the language exhibits strict head-finality. Korean lacks articles but has three demonstratives (DEMs): *i* 'this/these', *ku* 'the', and *ce* 'that/those'. All N dependents in Korean are pre-nominal although numeral classifiers may also occur post-nominally. Many Korean N modifiers are of Sino-Korean (SK) origin (i.e., borrowed from Classical Chinese) and thus are mono-morphemic or bi-morphemic. Finally, much of N modification in Korean is done by synthetic or analytic N compounding as illustrated in (1), but there are also four adjectival classes which occur beyond the N compound level as given in (2); some of their characteristic properties are summarized in Table 1.

(1) Two types of N-compounding in Korean:

- a. Synthetic N compounding with adjectival prefixes: e.g., *tay-cethayk* 'a large house'.
- b. Analytic N compounding with adjectival Ns: e.g., *hankwuk kwukmin* 'a Korean citizen'.

(2) Four non-N-compounding adjectival classes in Korean:

- a. Attributive determinatives (ATT-DETs): e.g., *say cip* 'a new house'.
- b. Expressions ending in the SK suffix *-cek* (CEK-APs): e.g., *kasi-cek pyel* 'a visible star'.
- c. Expressions ending in the native suffix *-un* (UN-APs): e.g., *kasi-cek-i-n pyel* 'a visible star'.
- d. Full-fledged RCs (FRCs): e.g., *kasi-cek-i-ess-te-n pyel* 'a star which used to be visible'.

Table 1. Characteristics of non-N-compounding adjectival classes (for details, see MJ to appear)

ATT-DET	CEK-AP	UN-AP	FRC
Closed class	Open class	Open class	N/A
Mono-morphemic	Bi-morphemic	Poly-morphemic	Poly-morphemic
Native/SK origin	Native/SK origin	Native/nativized	Native/nativized
Semi-nominal	Nominal-like	Verb-like	Full-clausal
Partly gradable	Non-gradable	Fully gradable	Fully gradable
Temporal, degree, adverbial semantics.	Abstract, conceptual, thematic semantics.	Can be about color, shape, and size.	Almost no semantic restriction.

What is most notable about the four adjectival classes listed in (2) is that they have different degrees of morpho-syntactic complexity, ATT-DETs being the least complex and FRCs being the most complex. Also notable is the fact that only UN-APs are fully gradable and only they have been traditionally considered ADJs. But the existence of ADJ in Korean has also been frequently questioned because of the verb-like morphological behavior of UN-APs (see M.-J. Kim 2002 and references there).

3. Testing well-established generalizations on N modifiers against Korean

In testing well-established typological generalizations on N modifiers against Korean, we will be focusing on the following questions: First, does an N modifier's morpho-syntactic complexity correlate with its interpretive possibilities and if so, does 'being complex' mean 'carrying indirect semantics' and 'being simplex' mean 'carrying direct semantics', as widely assumed in the literature (e.g., Sproat & Shih 1988, 1999; Cinque 2010)? Second, are there any ordering restrictions on N modifiers in Korean and if so, does the surface position of an N modifier correlate with its morpho-syntactic complexity, as has been attested in various languages (e.g., Whorf 1945; Bolinger 1967; Sproat & Shih 1988, 1999; Larson 1998; Bourchard 2002; Cinque 2005, 2010; Ramaglia 2010)?

3.1. Correlation between the morpho-syntactic complexity and semantics of an N modifier

If the morpho-syntactic complexity of an N modifier goes hand-in-hand with its semantic possibilities, then (3) should hold, given the findings compiled in the literature (e.g., Cinque 2010). For example, a morpho-syntactically simplex modifier should carry what Bolinger (1967) calls 'reference-modifying (Mod)' semantics whereas a morpho-syntactically complex modifier should carry what he calls 'referent-Mod' semantics.

(3) ATT-DETs	←	→	FRCs
Direct Mod Reference-Mod (\approx intensional) Attributive Non-intersective N-dependent (subsective) Individual (I)-level Absolute Generic			Indirect Mod Referent-Mod (\approx extensional) Predicative Intersective N-independent (non-subsective) Stage (S)-level Relative (or comparative) Non-generic

But this prediction is not really borne out, because despite their morpho-syntactic complexity, UN-APs and FRCs turn out to have far more versatile semantics than what is expected of "indirect" N modifiers. More concretely, when a CEK-AP is augmented to become an UN-AP, the resulting AP can have both an attributive/I-level/reference-Mod reading and a non-attributive/S-level/referent-Mod reading, as can be seen from comparing (4) and (5) (Kang 2006).¹ In addition, some UN-APs may receive subsective, absolute, or generic interpretations, as shown in (6-8). (For expository convenience, here and below, I gloss *-cek* as CEK and *-un* and its morpho-phonemic variant *-n* as UN.)

- (4) CEK-AP + N:
- | | |
|--|-------------------------------|
| kasi-cek pyel | |
| visible-CEK star | |
| $\sqrt{\text{an inherently visible star}}$ | (enduring property; I-level) |
| *'a star <u>that is visible on a particular occasion</u> ' | (temporary property; S-level) |

¹ In transcribing the Korean data presented here, the Yale Romanization is adopted and the following abbreviations are used: Acc: accusative case; Caus: causative; CL: classifier; Conn: connective; Cop: copula; Dat: dative case; Decl: declarative sentential ending; Dem: demonstrative; Fut: future; Gen: genitive case; Imprf: imperfective aspect; Infm: informatl discourse style; Nom: nominative case; N.Pst: non-past tense; Pl: plural marker; Prf: perfective aspect; Pst: past tense; Rel: relative marker; Rtro: retrospective marker; Top: topic.

- (5) UN-AP derived from a CEK-AP modifying an N:
kasi-cek-i-n pyel
 visible-CEK-Cop-UN star
 √‘an inherently visible star.’ (enduring property; **I-level**)
 √‘a star visible on a particular occasion.’ (temporary property; **S-level**)
- (6) **ttwiena-n** uysa
 remarkable-UN doctor
 ‘a doctor who is remarkable as a doctor’ (**subjective**)
- (7) Seyla-ka [**kacang noph-un**] san-ul olla-ess-ta.
 S.-Nom [most high-UN] mountain-Acc climb-Prf-Decl
 ‘Sera climbed the highest mountain in the world (i.e., Mt. Everest).’ (**absolute**)
 ‘Sera climbed the highest mountain under discussion (e.g., Mt. Jiri in Korea).’ (**relative**)
- (8) Chelswu-nun [**hwa(-ka) na-n**] salam-ekey chincelha-yess-ta.
 C.-Top [anger(-Nom) come.out-UN] person-Dat be.kind-Prf-Decl
 ‘Chelswu was kind to any angry individual(s).’ (**generic**)
 ‘Chelswu was kind to some specific person who was angry at some time.’ (**non-generic**)

Similarly, some FRCs have reference-Mod as well as referent-Mod semantics, as shown in (9-10). (Here and below, ‘*e*’ signifies the gap that is co-indexed with the head N of an RC.)

- (9) [*e*_i **khi-ka maywu khu-]-n mamca_i
 [] height-Nom very big-]-Rel man
 ‘a very tall man (i.e., tall for a man)’ (reference-Mod)
 ‘the very tall man’ (referent-Mod)**
- (10) [*e*_i **kongpwu-lul cal ha-n-]-un haksayng_i
 [] study-Acc well do-Imprf-]-Rel student
 Reading 1: ‘a/any student who excels in studying’ (reference-Mod)
 (Context: I am looking for a student who has a good scholastic aptitude and any student with such a property will do.)
 Reading 2: ‘the student who excels in studying’ (referent-Mod)**

3.2. Relative ordering among the four adjectival classes in Korean

If there is a perfect correspondence between the degree of morphological complexity and the surface position of N modifiers, then we should expect (11) to hold of Korean. And what we find is that in Korean, non-N-compounding adjectival N modifiers rarely co-occur (since N compounding is extremely productive in Korean), but whenever they do, (11) is sort of observed, as shown in (12-16).

- (11) Prediction on the relative ordering of the four adjectival classes in Korean:
 FRC > UN-AP > CEK-AP > ATT-DET > Compound N

- (12) a. [**acwu khu-]-n, say kapang (UN-AP > ATT-DET)
 [very big]-UN new bag
 ‘a new bag, which is very big’
 b. *say, [acwu khu-]-n kapang (ATT-DET > UN-AP)**
- (13) a. **nollawu-n, kwahak-cek palkyen (UN-AP > CEK-AP)
 surprising-UN science-CEK discovery
 ‘a surprising discovery of science’**

- b. *kwahak-cek, nollawu-n palkyen (CEK-AP > UN-AP)
- (14) a. [e_i kongpwu-lul cal ha-n-]-un [maywu chakha-]-n haksayng_i
 [study-Acc well do-Imprf-]-Rel [very good.hearted-]-UN student
 ‘a very good-hearted student who excels in school’ (FRC > UN-AP)
 b. *[maywu chakha-n], [e_i kongpwu-lul cal ha-n-]-un haksayng_i (UN-AP > FRC)
- (15) a. [e_i hakkyo-lul palcen-sikhi-]-l, say cengchayk_i
 [school-Acc develop-Caus-]-Rel new policy
 ‘a new policy that will develop our school’ (FRC > ATT-DET)
 b. *say, [e_i hakkyo-lul palcen-sikhi-]-l cengchayk_i (ATT-DET > FRC)
- (16) a. [e_i hakkyo-lul palcen-sikhi-]-l, hapli-cek cengchayk_i
 [school-Acc develop-Caus-]-Rel rational-CEK policy
 ‘a rational policy that will develop our school’ (FRC > CEK-AP)
 b. *halpi-cek, [e_i hakkyo-lul palcen-sikhi-]-l cengchayk_i (CEK-AP > FRC)

3.3. Testing the AOR on simplex N modifiers

In various languages, the following AOR has been seen to hold but importantly, it only applies to simplex N modifiers or ‘true’ ADJs in the sense of Cinque (2010).

- (17) **AOR on simplex N modifiers:** Quality > Size > Shape > Color > Provenance/Source
 (e.g., *a very big, round, red, Chinese vase*; **a very red, big, round Chinese vase*)

Given this, simplex N modifiers in Korean should occur observing the above AOR but complex ones may occur in any order. We cannot test this AOR against CEK-APs and ATT-DETs, however, because their semantics has nothing to do with quality, size, shape, and/or color, as stated in Table 1. Another interesting finding is that both UN-APs and FRCs are subject to some sort of ordering restrictions, as shown in (18-19) and (20-21), respectively. Also notable is the fact that UN-APs observe the AOR in (17) to some extent, but they instantiate ‘parallel modification’, which requires a pause between the ADJs but should be exempt from (any) AOR (Sproat & Shih 1988, 2000). Their behavior also constitutes a counterexample to Larson and Takahashi’s (2007) (L&T) generalization on FRCs: based on data like (20), L&T claim that when two RCs co-occur and one of them has a S-level predicate and the other has an I-level predicate inside, the RC with an S-level predicate (RC_S) precedes the RC with an I-level predicate (RC_I), but (21) does not follow such a pattern.

- (18) a. **khu-n*(.) ppalkah-n** kapang (size > color; parallel modification)
 big-UN red-UN bag
 ‘a big, red bag’
 b. ??ppalkah-n, khu-n kapang (color > size)
- (19) a. **khu-n*(.) neymona-n** kapang (size > shape; parallel modification)
 big-UN square-UN bag
 ‘a big, square bag’
 b. ?neymona-n, khu-n kapang (shape > size)
- (20) a. [**nay-ka** e_i **ecey** **manna-Ø]-n,
 [I-Nom — yesterday meet-Prf]-Rel
 [e_i **phyengso** **tampay-lul** **manhi** **phiwu-n]-un** salam_i-un Chelswu-i-ta.
 [usually cigarette-Acc a.lot. smoke-Imprf-]-Rel person-Top C.-Cop-Decl
 ‘The person that I met yesterday who smokes a lot is Chelswu.’ (RC_S > RC_I)
 b. * [e_i **phyengso** **tampay-lul** **manhi** **phiwu-n]-un,
 [nay-ka e_i **ecey** **manna-Ø]-n salam_i-un Chelswu-i-Ø-ta. (RC_I > RC_S)******

- (21) a. **[Mina-ka** e_i **phyengso aychangha-n-]-un,** **[Pithulcu-ka** e_i **pwulu-ess-]-n**
 [M.-Nom ___ usually enjoy.singing-Imprf-]-Rel [the.Beatles ___ sing-Prf-]-Rel
 nolay_i-nun leylitpi-i-Ø-ta.
 song-Top let.it.be-Cop-N.Pst-Decl ($RC_1 > RC_5$)
 Intended: ‘The song that Mina likes to sing which the Beatles sang is “Let It Be”.’
 b. ??[Pithulcu-ka e_i pwulu-ess-]-n, [Minan-ka e_i phyengso aychangha-n-]-un
 nolay_i-nun leylitpi-i-Ø-ta. ($RC_S > RC_1$)

3.4. Summary

In Korean, contrary to our expectations, complex N modifiers can carry so-called direct Mod semantics, even complex N modifiers are subject to some sort of AOR, and AORs obtain even for parallel Mod cases. Importantly, however, all else being equal, simplex modifiers tend to occur closer to the head N and complex ones tend to occur farther away from it. That is, phonology matters in adjective ordering in Korean. Additional evidence for the phonology-driven aspect of AOR in Korean comes from the fact that when different types of N modifiers co-occur modifying the same N, what determines their surface ordering is their relative structural heaviness or the number of morphemes comprising them, and for that reason, Korean frequently violates the cross-linguistically well-attested AOR on size, shape, source, and color terms given in (17), as illustrated by (22).

- (22) a. **cwung-kwuk-cey** **so-hyeng** latio (**source > size**)
 center-country-from small-shape radio
 ‘a small-sized radio manufactured in China.’
 b. *so-hyeng cwung-kwuk-cey latio (**size > source**)

4. Deriving the Korean facts

I suggest that the Korean facts can be best handled if we minimally revise Svenonius’ (2008) universal DP structure. So I begin this section with a brief introduction to his analysis.

4.1. Svenonius’ (2008) proposal for the (de)composition of DP

Svenonius claims that in all languages, what we call a DP is comprised of multiple functional heads, namely, ART, UNIT, PL (plural), SORT, n , and $\sqrt{\quad}$ (root) in the sense of Marantz (2001), and each head introduces a different type of N-dependents. According to him, ART introduces DEM; UNIT introduces NumP; PL introduces plural-marking; SORT introduces a gradable AP; n introduces a non-gradable AP (which denotes nationality, source, and material); and $\sqrt{\quad}$ introduces an ADJ that forms an idiom with the head N. He also makes two important claims that are relevant for our purposes, namely (i) that all types of N modifiers can occur anywhere inside DP as long as it is compatible with computational semantics and (ii) that different languages may have different surface word orders for DPs because of language-particular roll-up movements which occur for cluster-formation purposes.

To see how his analysis actually works, consider (23), which shows that in English, SortP moves to PIP⁺, an expansion of PIP, whereby forming a morpheme cluster with the PL marker *-s*.

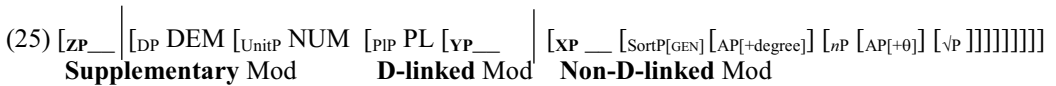
- (23) [DP *those* [UNITP *three* [PIP⁺ ← [PIP *-s* (SortP [AP *very lovely*] [_{NP} [AP *pearl*] [_{VP} *vase*]])]]]]

4.2. My rendition of Svenonius’ (2008) analysis

I assume all the functional heads that Svenonius posits inside DP and their functional characteristics outlined above. In particular, I explicitly posit that \sqrt{P} hosts any N compounds; [Spec, nP] is reserved for APs bearing thematic relations to the head N; and [Spec, SortP] can be occupied by any gradable N modifier, but given Kaynean (Kayne 1994) assumptions on phrase structure, there is just one [Spec, SortP] and this is true of every type of functional projection. But I also propose to revise Svenonius’ analysis as follows. First of all, I claim that there are three types of N modification,

(i) non-D (discourse)-linked, (ii) D-linked, and (iii) supplementary, as illustrated in (24). Secondly, I posit that each type of N modification is done in a different space inside DP, as sketched in (25): DP contains three functional projections, which I respectively call XP, YP, and ZP, in addition to what Svenonius assumes. XP is right above SortP and hosts the generic operator in the sense of Chierchia (1995) (GEN). It also introduces a clausal, non-D-linked N modifier. (Configurally, XP is similar to Zamparell’s (2000) Kind Phrase (KiP), but unlike KiP, it does not introduce a focused kind concept). YP is above XP but below PIP and introduces a D-linked N modifier. ZP is above DP and introduces a supplementary modifier. Finally, I hypothesize that not all nominals may contain all the functional categories assumed here. For example, predicative nominals are non-referential (e.g., Williams 1983; Partee 2000), so they may project only up to what I call XP; we will see the consequences of making this assumption momentarily.

- (24) a. John is a **tall** man; John is a student **who studies physics**. (**Non-D-linked** modifiers)
- b. John is the man **who likes “Let It Be”**. (**D-linked** modifier)
- c. John, **who likes “Let It Be”**, doesn’t really like the Beatles. (**Supplementary** modifier)



There are several reasons to amend Svenonius’ (2008) analysis in the way I do here. First, his analysis is agnostic about the exact position of FRCs, so as is, it cannot capture the ordering restrictions on Korean FRCs illustrated in (20-21). Second, when a Korean DP contains an UN-AP and a FRC, both modifiers can be construed as reference-modifying, as shown in (26), and while his analysis can accommodate such UN-APs by having them merge at [Spec, SortP], it cannot readily handle the co-occurring FRCs since there is no space for them inside the DP structure sketched in (23).

- (26) [*e_i* kongpwu-lul cal ha-n-]-un, [maywu chakha-]-n haksayng_i
 [_ study-Acc well do-Imprf-]-Rel [very good.hearted-]-UN student
 √‘*a* very good-hearted student who excels in school’

Finally, Korean RCs can freely occur above a DEM without being accompanied by a pause, and such RCs are always referent-modifying, as shown in (27-28), so we need to create a position somewhere above the DP level for such RCs to occur in.

- (27) [*e_i* Mina-lul towacwu-Ø]-n ku haksayng
 [_ M.-Acc help-Prf]-Rel Dem student
 ‘the student who helped Mina’ (referent-Mod RC > DEM > N)

- (28) [Chelswu-ka *e_i* sa o-Ø]-n ku [yepu-]-n moca_i
 [C.-Nom _ buy bring-Prf]-Rel Dem [pretty-]-UN hat
 ‘the pretty hat, which Chelswu bought and brought’ (referent-Mod RC > DEM > N)

The analysis put forward here has several positive consequences, some of which are immediately visible. First of all, the proposed non-D-linked vs. D-linked Mod divide encompasses various distinctions suggested for the semantics of N modifiers in the literature, such as Bolinger’s (1967) reference- vs. referent-Mod distinction, Larson’s (1998) NP-inner vs. NP-outer spatial distinction, and S&S’s and Cinque’s (2010) direct vs. indirect Mod distinction. At the same time, however, it does not make a direct connection between the morpho-syntactic complexity of an N modifier and its semantics and thus improves on both S&S’s and Cinque’s (2010) analyses. Next, positing the three additional functional projections inside DP captures the relative position of UN-APs and FRCs as well as their semantics and in this regard, this analysis fares better than Larson’s (1998) and Svenonius’s (2008) analyses. The present analysis also yields correct surface orders for various types of Korean DPs which contain both lexical and functional N dependents and it is readily extendable to other languages, as we shall see shortly.

4.3. How the present analysis captures the Korean facts

The present analysis captures the relative order between UN-APs and ATT-DETs as follows. As stated in Table 1, all UN-APs are gradable, whereas only some ATT-DETs are (and only partly so). Given this, we expect that both a gradable UN-AP and a gradable AT-DET may occur at [Spec, SortP] but they cannot occupy the position simultaneously because there is just one [Spec, SortP] per DP, so when an UN-AP and an ATT-DET co-occur, being inherently gradable, the UN-AP occurs at [Spec, SortP] and consequently, the ATT-DET occurs inside \sqrt{P} as a non-gradable modifier, forming an N compound with the head N. These predictions are borne out, as shown in (29).

- (29) a. [**acwu** caymi-iss-n-]-un / [**acwu** say] chayk (UN-AP/ATT-DET > N)
 [very fun-exist-Imprf-]-UN/[very new] book
 ‘a very interesting book/a very new book’
- b. [**acwu** caymi-iss-n-]-un [(***acwu**) say] chayk (UN-AP > ATT-DET > N)
 [very fun-exist-Imprf-]-UN [(very) new] book
 Intended: ‘a very interesting, a very new book’

- (30) a. Partial tree for (29a): [_{SortP}[GEN] [_{AP}+degree] **acwu caymi-iss-nu-n/acwu say**] [_{nP} [_{\sqrt{P}} *chayk*]]
 b. Partial tree for (29b): [_{SortP}[GEN] [_{AP}+degree] **acwu caymi-iss-nu-n**] [_{nP} [_{\sqrt{P}} *say chayk*]]

As for the relative ordering between UN-APs and CEK-APs: in cases like (31), the UN-AP merges at [Spec, SortP] or at [Spec, YP] and the CEK-AP merges at [Spec, *nP*], as depicted in (32), and this is because while UN-APs are gradable, CEK-APs are not, as stated in Table 1, and while the UN-AP in (31) is either reference-Mod or referent-Mod, the CEK-AP bears a thematic relation to the head N, as indicated by the English translations.

- (31) [(**maywu**) nollawu-n] [(***maywu**) kwahak-cek] palkyen (UN-AP > CEK-AP)
 [(very) surprising-UN] [(very) science-CEK] discovery
 $\sqrt{}$ ‘a/the (very) surprising discovery that has to do with science’ (CEK-AP: thematic)
 $*$ ‘a/the (very) surprising scientific discovery’ (CEK-AP: attributive)

- (32) Partial tree for (31) on the reference-Mod construal for the UN-AP:
 [_{SortP}[GEN] [_{AP}+degree] **maywu nollawu-n**] [_{nP} [_{AP}+ θ] **kwahak-cek**] [_{\sqrt{P}} *palkyen*]]

The present analysis can also capture the interpretive differences between cases like (33a) and (33b), which contain the UN-AP *ttwienan-* ‘remarkable’. In (33a), the UN-AP only receives a subjective/non-D-linked reading because the hosting nominal is a predicative nominal (PredN), which only projects up to what I call XP, so the AP will always be under the scope of GEN. In (33b), the string-identical UN-AP can receive a non-subjective/D-linked reading because it occurs inside a full-fledged DP, so can occur at [Spec, YP], thereby out-scoping GEN.

- (33) a. Kim-un [_{PredN} **ttwiena-n** **uysa**]-i-ess-ta.
 Kim-Top [remarkable-N doctor]-Cop-Pst-Decl
 $\sqrt{}$ ‘Kim was remarkable as a doctor.’ (subjective)
 $*$ ‘Kim was a doctor and remarkable as something other than a doctor.’ (non-subjective)
- b. I-pen cangki sihap-eyse etten uysa-ka **cham twwiena-te-la**.
 This-time chess tournament-Loc some doctor-Nom really remarkable-Rtr-Decl.Infm
 ‘At the most recent chess tournament, some doctor was really remarkable (at chess).’
 Kuntey, [_{DP} **ku** **ttwiena-n** **uysa**]-nun Mina-uy chinkwu-i-lako
 And [Dem remarkable-UN doctor]-Top M.-Gen friend-Cop-Quot
 ha-te-la.
 do-Rtr-Decl.Infm
 ‘And I was told that that remarkable doctor is Mina’s friend.’ (non-subjective)

Essentially the same reasoning explains why and when UN-APs may receive absolute vs. relative or generic vs. non-generic interpretations. To illustrate, compare the sentences in (34), which contain superlative UN-APs. When a superlative UN-AP occurs inside a PredN as in (34a), it can only receive an absolute/non-D-linked reading because it can only merge at [Spec, SortP]. When the hosting nominal is a DP as in (34b), the AP meaning can receive either an absolute/non-D-linked or a relative/D-linked construal, because it can merge either at [Spec, SortP] or at [Spec, YP].

- (34) a. Jirisan-un [_{PredN} kacang noh-un san]-i-Ø-ta
 J.-Top [most high-N mountain]-Cop-N.Pst-Decl
 √⁴‘Mt. Jiri is the highest mountain in the world.’ (absolute)
 *‘Mt. Jiri is the highest mountain among the ones under discussion.’ (relative)
- b. Seyla-ka [_{DP} kacang noph-un san]-ul olla-ess-ta.
 S.-Nom [most high-UN mountain]-Acc climb-Prf-Decl
 √⁴‘Sara climbed the highest mountain in the world (i.e., Mt. Everest).’ (absolute)
 √⁴‘Sara climbed the mountain that is the highest among the ones under discussion (e.g., Mt. Jiri in Korea).’ (relative)

The present analysis yields positive results for cases involving FRCs and other types of N modifiers as well. First of all, when an FRC and an UN-AP co-occur, both receiving reference-Mod interpretations as in (26), the FRC merges at [Spec, XP], thereby taking on the semantics of a non-D-linked modifier, and being inherently gradable, the UN-AP merges at [Spec, SortP], as shown in (35). When an FRC and an UN-AP co-occur and the FRC receives a referent-Mod interpretation although the UN-AP receives a reference-Mod interpretation as in (28), the FRC occurs at [Spec, ZP], instantiating a supplementary modifier, and the UN-AP occurs at [Spec, SortP], as depicted (36).

(35) [_{XP} [_{RC} kongpwu-lul cal hanu-n] [_{SortP}[_{GEN}] [_{AP}[+degree] maywu chakha-n] [_{nP} [_{√P} haksayng]]]]

(36) [_{ZP} [_{RC} Chelswu-ka sa o-n] [_{DP} ku [_{YP} [_{XP} [_{SortP}[_{GEN}] [_{AP}[+degree] yeppu-n] [_{nP} [_{√P} moca]]]]]]]]

Under our analysis, when two FRCs co-occur inside the same DP, the inner one can occur either at [Spec, XP] or [Spec, YP] and the outer one can occur either at [Spec, YP] or [Spec, ZP], depending on where the inner one occurs, and this explains why there is an ordering restriction on FRCs as illustrated by (20-21). If a DP contains multiple N modifiers, e.g., an FRC, an UN-AP, a source AP, and a compound N, as in (37), the FRC may merge at [Spec, ZP] or at [Spec, YP] and the UN-AP merges at [Spec, YP] or at [Spec, XP], depending on whether the UN-AP receives a D-linked or a non-D-linked construal. If the FRC receives a supplementary reading and the UN-AP receives a non-D-linked reading, then (37) will have the structure sketched in (38).

(37) (*ku) [Mina-ka e_i kacieo-Ø]-n, (√ku) [(maywu) ppalkha-n],
 (Dem) [M.-Nom — bring-Prf]-Rel (Dem) [(very) red-UN]
 [cwung-kwuk-cey], [so-hyeng] latio
 [center-country-made] [small-shape] radio
 ‘the small-sized, (very) red radio that was made in China that Jinho brought (for me)’

(38) [_{ZP} [_{RC} Mina-ka kacieo-n] [_{SortP}[_{GEN}] [_{AP}[+degree] ppalkha-n] [_{nP} [_N[+θ] cwungkwuk-cey] [_{√P} [_N so-hyeng] [_√ latio]]]]]]

Finally, our analysis yields correct surface orders for Korean DPs which contain various types of N dependents. For example, for cases like (39) in which a NUM, a CL, a PL marker and an AP co-occur in the same nominal projection, the UN-AP merges at [Spec, SortP], thereby receiving a non-D-linked construal, and the YP moves to PIP⁺ to form a cluster with the PL marker *-tul*. On the view promoted here, then, one of the crucial differences between Korean and English boils down to which functional projection moves to PIP⁺ for cluster-formation purposes.

- (39) $[_{DP} [_{UnitP} \text{sey-myeng-uy} [_{PIP+} \leftarrow [_{PIP} \text{-tul} \langle \text{YP} [_{XP} [_{SortP} [_{AP} \text{khikhun}] [_{nP} [_{\sqrt{P}} \text{haksayng}]]]]]]]]]]]]]]$
 $[_{DP} [_{UnitP} \text{three-CL-GEN} [_{PIP+} [_{PIP} \text{PL} [_{YP} [_{XP} [_{SortP} [_{AP} \text{tall}]]] [_{nP} [_{\sqrt{P}} \text{student}]]]]]]]]]]]]]]$
 ‘(any) three tall students’ (NUM+CL > AP > N+PL)

Notably, if a DEM is added to (39) as in (40), then the UN-AP merges at [Spec, YP], thereby receiving a D-linked construal and again, the YP moves to PIP⁺ for cluster formation purposes. If an FRC is added to (40), then a ZP layer has to be created and the FRC must occur at its specifier position, above DEM, because [Spec, YP] is already occupied by the AP *khikhun* ‘tall’, as shown in (41).

- (40) $[_{DP} \text{ku} [_{UnitP} \text{sey-myeng-uy} [_{PIP+} [_{YPi} [_{AP} \text{khikhun}] \text{haksayng}] [_{PIP} \text{-tul}] \text{t}_i]]]]]$
 $[_{DP} \text{Dem} [_{UnitP} \text{three-CL-Gen} [_{PIP+} [_{YPi} [_{AP} \text{tall}] \text{student}] [_{PIP} \text{-PL}] \text{___}]]]]]]]]$
 ‘those three tall students’ (DEM > NUM+CL > AP > N+PL)

- (41) $[_{ZP} [_{RC} \text{e}_i \text{Mina-lul towacwu-}\emptyset\text{-n} [_{DP} \text{ku} [_{\text{sey-myeng-uy}}] [\text{khikhun haksayng}]\text{-tul}]]]]$
 $[_{DP} [\text{___ M.-Acc help-Prf}]\text{-Rel} [_{DP} \text{Dem} [\text{three-CL-GEN}] [\text{tall student}]\text{-PL}]]]]$
 ‘those three tall students who helped Mina’ (RC > DEM > NUM+CL > AP > N+PL)

4.4. Extending to other languages

The present analysis predicts that in any language, subsecutive ADJs will have different interpretive possibilities depending on whether they occur as part of a PredN or as part of a DP. This prediction is borne out. To see this, consider the English sentences in (42): while (42a) can only mean ‘John is remarkable as a doctor’, (42b) can be ambiguous between describing an individual who is/was remarkable as a doctor and someone who is/was remarkable as a chess player.

- (42) a. *John is* $[_{\text{PredN}} \text{a remarkable doctor}]$.
 b. *At the recent chess game, there was* $[_{DP} \text{a remarkable doctor}]$.

The present analysis also delivers correct surface orders for various English DPs which contain both prenominal and postnominal N modifiers. For example, when an English DP contains both a prenominal AP and a postnominal RC as in (43a), the AP merges at [Spec, SortP] and the RC at [Spec, YP]. After this, the SortP moves to PIP⁺ for cluster-formation purposes, and this creates a postnominal RC. When a DP contains two post-nominal RCs, one D-linked and the other non-D-linked as in (43b), the D-linked RC merges at [Spec, YP] and the non-D-linked one merges at [Spec, XP] and then the SortP moves to PIP⁺ to combine with the PL. When a DP has a supplementary RC as in (43c), the SortP moves to PIP⁺ and the DP moves to ZP⁺ for some language-specific, linear ordering, purposes.

- (43) a. $[_{DP} \text{Those three} [_{\text{SortP}} \text{very lovely}] \text{Chinese vases} [\text{that John gave me}]]$.
 b. $[_{DP} \text{These are the two rivers} [\text{that are currently navigable}] [\text{that will take you to Cairo}]]$.
 c. $[_{ZP+} [_{DP} \text{These two rivers}], [_{ZP} [\text{which are navigable right now}]]]$, *will take you to Cairo.*

The analysis advocated here can readily accommodate Mandarin Chinese facts also: according to Jhucin Jhang (p.c.), Mandarin RCs do not occur in random orders, contrary to the prevailing assumptions. Moreover, their relative ordering has little to do with whether their predicates are equally I-level or S-level, unlike what Del Gobbo (2007) claims. And as far as I can tell, the RC that occurs in the outer space is always more D-linked than the other RC, as correctly predicted by our analysis.

Finally, Romanian has both pre-nominal and post-nominal ADJs and both pre-nominal and post-nominal N modifiers can freely receive reference-Mod and/or referent-Mod interpretations, as Pahom (2013) shows, posing a challenge to Cinque’s (2010) analysis. In light of the present analysis, we can reinterpret such facts as follows. In Romania, there are multiple positions in which APs can occur and post-nominal APs are created via some sort of movement, which arguably happens independently of the semantics of N modifiers, whatever the trigger might be.

5. Summary and conclusion

In this paper, I have shown that the relative surface ordering of Korean N modifiers is determined largely by phonological considerations and the morpho-syntactic complexity of an N modifier does not necessarily make it carry either ‘direct’ or ‘indirect’ Mod semantics, contra the widely-held assumption. These findings lead us to conclude that N modifiers can merge anywhere inside DP, regardless of their complexity, as long as the outcome observes relevant phonologically-driven AORs and is interpretable, but because of the way semantic computation works, the position of an N modifier determines its interpretive possibilities, making it receive the semantics of what I call “D-linked”, “non-D-linked”, or “supplementary” modifier, depending on where it occurs inside the DP.

References

- Alexiadou, Artemis. 2001. ‘Adjective syntax and noun raising: word order asymmetries in the DP as the result of adjective distribution’, *Studia Linguistica*, 55: 217-248.
- Bolinger, Dwight. 1967. ‘Adjectives in English: attribution and predication’, *Lingua*, 18: 1-34.
- Bouchard, Denis. 2002. *Adjectives, Number and Interfaces: Why Languages Vary*. Amsterdam: North-Holland.
- Chierchia, Gennaro. 1995. ‘Individual-level predicates as inherent generics’, in G. Carlson and J. Pelletier (eds.), *The Generic Book*. Chicago: Chicago University Press. 176-223.
- Cinque, Guglielmo. 1993. ‘On the evidence for partial N-movement in the Romance DP’, in *University of Venice Working Papers in Linguistics* 3.2, 21-40.
- Cinque, Guglielmo. 2005. ‘Deriving Greenberg’s universal 20 and its exceptions’, *Linguistic Inquiry*, 36: 315-332.
- Cinque, Guglielmo. 2010. *The Syntax of Adjectives. A Comparative Study*. Cambridge, MA: MIT Press.
- Del Gobbo, Francesca. 2007. ‘Chinese relative clauses: restrictive, descriptive or appositive?’, in L. Brugè, G. Giusti, N. Munaro, W. Schweikert, and G. Turano (eds.), *Contributions to the XXX Incontro di Grammatica Generativa*. Venezia: Cafoscarina, 287-305.
- Dryer, Matthew. 1992. ‘The Greenbergian word order correlations’, *Language*, 68: 865-895.
- Greenberg, Joseph H. 1963. ‘Some universals of grammar with particular reference to the order of meaningful elements’, in J. H. Greenberg (ed.), *Universals of Language. Report of a Conference Held at Dobbs Ferry, NY, April 13-15, 1961*. Cambridge, MA: MIT Press. 73-113.
- Hwkins, John A. 1983. *Word Order Universals*. New York: Academic Press.
- Kang, Soon Haeng. 2006. ‘The two forms of the Adjective in Korean’, in *University of Venice Working Papers in Linguistics* 16, 137-163.
- Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. MIT, MA: MIT Press.
- Kim, Min-Joo. 2002. Does Korean have adjectives? In T. Ionin et al. eds., *MIT Working Papers in Linguistics* 43, 71-89.
- Kim, Min-Joo. To appear. ‘On the Position of Adnominal Adjectival Expressions in Korean’, in C.-T. J. Huang & F.-h. Liu (eds.), *Peaches and Plums*. Taipei, Taiwan: Academia Sinica.
- Larson, Richard K. 1998. ‘Events and modification in nominals’, in D. Strolovitch and A. Lawson (eds.), *Proceedings from Semantics and Linguistic Theory (SALT) VIII*. Ithaca: Cornell University Press. 145-168.
- Larson, Richard K. 2000. ‘Temporal modification in nominals’, paper presented at The International Roundtable on the Syntax of Tense. University of Paris VII, France.
- Marantz, Alec. 2001. ‘Words’, ms. MIT.
- Pahom, Olga. 2013. The relationship between syntactic position and adjective meaning in Romanian. Paper presented at the 2013 LSA Annual Meeting.
- Ramaglia, Francesca. 2010. *Adjectives at the Syntax-Semantics Interface. Studies in Generative Grammar*. Mouton de Gruyter, Berlin.
- Sproat, Richard and Chilin Shih. 1988. ‘Prenominal adjectival ordering in English and Mandarin’, in *Proceedings of NELS 18*. Amherst, MA: GLSA. 465-489.
- Sproat, Richard and Chilin Shih. 1990. ‘The cross-linguistic distribution of adjectival ordering restrictions’, in C. Georgopoulos and R. Ishihara (eds.), *Interdisciplinary Approaches to Language: Essays in Honor of S.-Y. Kuroda*. Dordrecht: Kluwer. 565-593.
- Svenonius, Peter. 2008. ‘The position of adjectives and other phrasal modifiers in the decomposition of DP’, in C. Kennedy and L. McNally (eds.), *Adjectives and Adverbs: Syntax, Semantics, and Discourse*. New York: Oxford University Press. 16-42.
- Whorf, Benjamin L. 1945. ‘Grammatical categories’, *Language*, 21: 1-11.
- Zamparelli, Roberto. 2000. *Layers in the Determiner Phrase*. New York: Garland Publishing.

Proceedings of the 31st West Coast Conference on Formal Linguistics

edited by Robert E. Santana-LaBarge

Cascadilla Proceedings Project Somerville, MA 2014

Copyright information

Proceedings of the 31st West Coast Conference on Formal Linguistics
© 2014 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 978-1-57473-462-1 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Kim, Min-Joo. 2014. Adjective Ordering: A View from Korean. In *Proceedings of the 31st West Coast Conference on Formal Linguistics*, ed. Robert E. Santana-LaBarge, 285-294. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #3031.