Two Types of Denominal Predicates in Korean and Theories of Morphology-Syntax Interface*

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1. Introduction

The principal debate in investigations of the interaction of morphology and syntax has revolved around the Lexicalist Hypothesis (LH, hereafter) that posits a radical separation between morphology and syntax. The central tenets of the LH are succinctly summarized as follows (Williams 2007):

(1)a. The word system provides input objects to the phrasal system (**asymmetry**).
b. The objects of the word system are atomic in the phrasal system (**atomicity**).
c. The word system and the phrasal system can have different internal syntax (**internal constitution**).
d. The word system is subject to a condition of "immediate resolution" which is irrelevant in the phrasal system (**locality**).

Bresnan and Mchombo (1995) present a number of Lexical Integrity Tests, introduced below, which show that word-internal domains are impenetrable to syntax as dictated by the above tenets.

Extraction:
(2) a. American history, which they have been teaching __ for years
b. *American history, which they have been [__-teachers] for years

Gapping:
(3) a. John likes Bill, and Mary __ Paul
b. *John out-ran Bill, and Mary __-swam Paul
Conjoinability:
(4) a. Mary out-ran and out-swam John
b. *Mary out-[ran and swam] John

Phrasal Recursivity:
(5) a. *[quite happi]-ness
b. *[happy and glad]-ness

Inbound Anaphoric Islands:
(6) *Reagan$_i$ addressed a meeting of him$_i$-ites

The fact that extraction cannot target a word-internal constituent (cf. 2b) can be attributed to atomicity (cf. 1b) and/or the different internal constitutions of the word and phrasal systems (cf. 1c). The difference between the word and phrasal systems with respect to Gapping (cf. 3) can be attributed to the same factors. The fact that conjunction of sub-word constituents is banned as in (4) can be viewed as a reflection of asymmetry (cf. 1a), if we assume that

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productive conjunction is phrasal. The lack of phrasal recursivity within a word as in (5) reflects asymmetry—words are inputs to the phrasal system and not vice versa. The impossibility of anaphoric reference out of words as shown in (6) can be viewed as a reflection of locality. An anaphoric element within a word must resolve its reference within the word.

The focus of this paper is on two classes of denominal predicative suffixes in Korean, with the goal of evaluating the adequacy of various approaches to morphosyntax interface. Denominal predicates formed with one type of denominal suffixes show lexical integrity in that the juncture between the denominal affix and the nominal base is opaque to syntactic processes. However, there is another type of denominal predicate where the juncture is transparent, contradicting the predictions of the LH. The two classes of predicates do not differ in the morphological status of the denominal suffixes they contain. What is further interesting about the second class of predicates is that transparency holds only in certain cases. Certain base-affix combinations with the second type of denominal suffix are opaque to syntactic processes, just like the first class. The behavior of denominal suffixes in Korean poses an interesting challenge to current theories of morphosyntax. It is argued that a different architecture of morphology-syntax interface than those currently in vogue is required.

2. Two types of denominal predicative suffixes in Korean

Korean possesses a handful of category-changing suffixes in the derivational system. There are affixes that change nouns to predicates (verbs/adjectives) or vice versa—denominal predicative suffixes or deverbal/deadjectival nominalizing suffixes. I shall set aside the latter in this paper, as they have received much attention and focus on the former. Representative denominal suffixes and predicates that they derive are shown below:

(7) Denominal (predicative) suffixes in Korean:[1]

-*ci*-: 'get characterized by'	*kunul*('shade')-*cita* 'get shaded'
	mith ('bottom')-*cita* 'suffer loss'
-*kyep*-: 'be full'	*nwunmwul*('tears')-*kyepta* 'be touching'
	him('strength')-*kyepta* 'be strenous'
-*lop*-: 'be characterized by'	*hay*('harm')-*lopta* 'be harmful'
	hyangki('fragrance')-*lopta* 'be fragrant'
-*mac*-: 'give impression of'	*iksal*('humor')-*macta* 'be humorous'
	nungcheng('guile')-*macta* 'be deceitful'
-*sulep*-: 'be suggestive of'	*salang*('love')-*sulepta* 'be lovely'
	iksal ('humor')-*sulepta* 'be humorous'
-*tap*-: 'be worthy of'	*ceng*('affection')-*tapta* 'be affectionate'
	namca('man')-*tapta* 'be manly'
-*kath*-: 'be/act like'	*papo*('fool')-*kathta* 'be/act foolish'
	kwunin('soldier')-*kathta* 'be/act like a soldier'

The affirmative copula –*i*- also belongs to this group since it attaches to nominals and yields predicates.

[1] There are other denominal suffixes besides those given here. C-E Song (1992) lists the following:

-*ep*- (as in *kancil-ep-ta*, 'be ticklish')
-*kwuch*- (as in *simswul-kwuch-ta*, 'be grumpy')
-*cek*- (as in *mes-cek-ta* 'be embarrasing')

They behave like opaque suffixes with regard to Lexical Integrity. The nominal bases to which these suffixes attach are restricted and can be either bound roots (*kancil*) or words (*simswul*).

There are two types of denominal predicative suffixes, as mentioned earlier. In one type, the internal structure of denominal predicates is opaque to phrasal syntactic processes, while in the other, it is not, in that the juncture between the nominal base and the denominal suffix is visible to syntactic processes, contradicting the predictions of LH.

The suffixes involved in deriving the first group of predicates (**opaque suffixes** hereafter) are *-ci-*, *-kyep-*, *-mac-*, *-sulep-*, and *–lop-*. The internal make-up of denominal predicates formed with these suffixes is opaque to syntactic processes such as **Phrasal Recursivity** and **Conjoinability**. The relevant data are given below:[2]

(8) a. *[kunul-ina kilum]-**ci**-n kos
shade-or oil-characterized-rel place
'A shady or fertile location'

b. kunul-**ci**-n kos-ina kilum-**ci**-n kos
shade-characterized-rel place-or oil-characterized-rel place

c. *cenyek-ey-nun [etwuwu-**n** kunul]-**ci**-nun kos
dusk-loc-top dark-rel shade-characterized.by-rel place
'A place that gets shady in the evening'

d. cenyek-ey-nun etwup-**key** [kunul-**ci**-nun] kos
dusk-loc-top dark-adv shade-characterized.by-rel place

The nominal base[3] of the predicative affix *–ci-* cannot be coordinated with another nominal. Only entire predicates can be coordinated, as seen in the contrast between (8a) and (8b). Nor can the base be modified by adnominal modifiers, yielding Phrasal Recursivity within the word, as seen in (8c). Only adverbial modification of the whole predicate is possible (cf. 8d).

By contrast, the nominal bases of denominal predicates derived by *–i-*, *-tap-* and *–kath-* (**transparent suffixes**, hereafter) are transparent to syntactic processes such as adnominal modification and coordination, as shown below.[4]

(9)a. Ku-nun [hwulyungha-n hakca]-**tap**-key yenkwu-lul swici anh-nunta
He-top outstanding-rel scholar-be.like-comp research-acc stop neg-pres
'He continues to do research, as befits his reputation as an outstanding scholar.'

b. Ku-uy hayngtong-un [yongkamha-n kwunin-kwa cincengha-n aykwukca]-**taw**-ass-ta[5]
He-gen action-top courageous-rel soldier-and genuine-rel patriot-be.like-pst-decl
'His actions befit his reputation as a courageous soldier and true patriot.'

With regard to **Gapping**, the two classes of affixes again part ways. It is possible for the transparent, *–tap-* class suffixes to be gapped word-internally, stranding the nominal base, whereas the opaque, *–ci-* class cannot be gapped.

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[2] I shall use *–ci-* as a representative of the opaque suffix class, unless otherwise noted.

[3] I shall use the term 'nominal base' to refer to the host of the suffixes and revisit the question of the exact morphological status of the base subsequently.

[4] I shall use *–tap-* as a representative of the transparent suffix class. The allomorph of *–tap-* before vowels is *–taw-*.

[5] Wooseung Lee (p.c.) pointed out that the following rendition of (9b) with *–ica* (or *–imye*) instead of *-kwa* sounds more natural:

(i) Ku-uy hayngtong-un [yongkamhan kwunin-**ica** cincenghan aykwukca]-taw-ass-ta
He-gen action-top brave soldier-conj genuine patriot-be.like-pst-decl

This reflects that fact that the nominal conjunctor *–kwa* is not optimal when it conjoins predicative (non-referential) nominals. Predicate nominals are optimally conjoined with *–ica, -imye*, etc. (Yoon 2001).

(ii) ??Reagan-un paywu-**wa** cengchika-i-ess-ta
R-top actor-conj politician-cop-pst-decl
vs.
Reagan-nun paywu-**ica** cengchika-i-ess-ta
R-top actor-conj politician-cop-pst-decl
'(President) Reagan was an actor and a politician.'

(10)a. Cheli-nun kwunin-__ kuliko Tongswu-nun haksayng-**tap**ta
C-top soldier and T-top student-be.like
'Cheli is every bit a soldier and Tongswu, (every bit) a student.'
b. *Ku kos-un kilum-__ kuliko i kos-un kunul-**ci**ta
that place-top oil- and this place-top shade-characterizedl
'That place is fertile while this place is shady.'

The test of **Inbound Anaphoric Islands** also treats the two classes of suffixes differently.[6] The nominal base of the transparent class can be a pronoun while that of the opaque class is marginal if it is a pronoun.

(11)a. Kukes-un **ku**-tap-ci anh-un hayngtong-i-ess-ta
That-top he-be.like-comp neg-rel action-be-pst-decl
'That (action) was not typical of him.'
b.*?Kukes-un **ne**-sulep-ci mos-ha-n hayngtong-i-ta[7]
That-top you-be.like-comp not-have-rel action-be-decl
'That's not an action becoming your reputation.'

The two classes also differ with respect to **Outbound Anaphoric Islands**. Anaphoric reference to the nominal base is possible for the transparent class while it is marginal for that of the opaque class.[8]

(12)a. *?Cheli-uy **RMH$_i$**-sulew-un taytap-i **ku$_i$**-lul nolakey hayssta
C-gen R-be.like-rel answer-nom he-acc surprise made
'Cheli's Rho-Moo-Hyun-like answer surprised him(=RMH).'
b. **Cheli$_i$**-tapci moshan cemswu-ka **ku$_i$**-lul hwa-ka nakey hayssta
C-be.like neg score-nom he-acc anger-nom come made
'The score that was sub-par for Cheli made him(=Cheli) angry.

When it comes to **Extraction**, the two classes of affixes behave alike. The nominal bases of both classes of suffixes fail the extraction test, as seen below. As (13c) shows, when the predicate is not a bound form, extraction is fine, suggesting that the reason for the unacceptability of (13a,b) lies in the bound nature of the predicate that is stranded when the nominal base is extracted.

(13)a. *[Cheli-ka __-**taw**-a poi-nun] [yongkamha-n kwunin]
C-nom be.like-comp seem-rel brave-rel soldier
'The brave soldier that Cheli seems to be'
a'. Cheli-ka yongkamha-n kwunin-**taw**-a poin-ta
C-nom brave-rel soldier-be.like-comp seem-decl
'Cheli seems to be a brave soldier.'
b. *[Cheli-ka acwu __-**sulew**-un] Rho-Moo-Hyun
C-nom very be.like-rel RMH
'RMH, who Cheli is very much like'

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[6] Here I am using *–sulep-* as representative of the opaque class, since *–ci-* and other opaque suffixes cannot attach to nominal bases denoting humans.

[7] However, a Google search (10/26/2009) did turn up a few hits where *–sulepta* takes pronoun bases. It yielded about 290 hits for ***na**-sulepta*. There were 8 hits for ***ku***(3rd person)-*sulepta* and 6 for ***wuli***(1st person plural)-*sulepta.* By comparison, there were about 784,000 hits for ***na**-tapta*, 429,000 for ***ne**-tapta*, and 840,000 for ***ku**-tapta*.

[8] In a Google search (10/26/2009), forms such as ***Rho-Moo-Hyun**-sulepta* (over 7000 hits) and ***Lee-Myung-Bak**-sulepta* (over 1800 hits) with proper names as base (the two individuals are the previous and current presidents of South Korea) were attested.

Therefore, the marginality of (12a) cannot be due to the fact that *–sulepta* cannot attach to a proper noun base. It is the anaphoric reference to the base that seems responsible for the marginality, most likely because the proper noun is not interpreted referentially before *-sulepta*. The non-referential interpretation of proper noun bases may help us understand why it is much more difficult for *–sulepta* to attach to pronoun bases than proper name bases. Names admit a non-referential interpretation more easily than pronouns.

b'. Cheli-ka acwu Rho-Moo-Hyun-**sulep**-ta
C-nom very RMH-be.like-decl
'Cheli is very RMH-like.'

c. Cheli-ka [PRO __ **toy**-ko siphess-ten] [yongkamhan kwunin]
C-nom become-comp wanted-rel brave soldier
'The brave soldier that Cheli wanted to become'

c'. Cheli-ka [PRO yongkamhan kwunin-i **toy**]-ko siphess-ta
C-nom brave soldier-nom become-comp wanted-decl
'Cheli wanted to become a brave soldier.'

A possible analysis of the contrasting behavior of the two classes of suffixes seen thus far is to take the transparent vs. opaque distinction to coincide with the distinction between clitics and affixes. Since clitics are syntactically independent from their hosts, the juncture between the host and the transparent suffix (clitic, by hypothesis) is predicted to be transparent to syntactic processes.[9]

However, several considerations militate against this analysis. First, the fact that extraction treats the two classes in the same way is surprising if transparent suffixes are clitics. A simple way to understand the extraction paradigm shown above is to appeal to the bound status of the stranded suffixes, which cannot attach to their hosts after the hosts have been moved. Now, if the transparent suffixes (*-tap-* in 13a) are clitics, they should be able to encliticize to any adjacent word to the left (*Cheli-ka* in 13a), even when the nominal base has been moved away. This is patently not the case, suggesting that the transparent suffixes are also affixes and are selective about the morphological category and size of their hosts.

Another argument against treating transparent suffixes as clitics comes from morphotactics. Nominal inflectional suffixes/particles such as structural case, topic and focus particles (the 'Delimiters' discussed in Yu-Cho and Sells 1995; Yoon 1995) are marginal if they intervene between the nominal base and the suffix, regardless of whether the suffix is from the transparent class (cf. 14b) or the opaque class (cf. 14a). As we can see below, when the nominal suffixes/particles and denominal suffixes co-occur, the former must follow the latter (and the predicates that the suffixes derive must be nominalized with a nominalizer, *–ki*, so that the nominal suffixes/particles can attach to them.). If the transparent suffixes were clitics, we do not expect them to be subject to the same morphotactic restrictions as the opaque class.[10,11]

(14)a. *?kunul-**un**-**ci**-ta vs. kunul-**ci**-ki-**nun** ha-ta
shade-top-CI-decl shade-CI-nml-top do-decl
'Does get shady.'

b. *?nungcheng-**to**-**mac**-ta vs. nungcheng-**mac**-ki-**to** ha-ta
guile-even-MAC-decl guile-MAC-nml-even do-decl
'Is even deceitful.'

[9] M-R Oh (1991) analyzes the copula, a transparent suffix, as a clitic.

[10] Yet another consideration against the clitic status of transparent suffixes is allomorphy. As shown in a number of examples, the transparent suffix *–tap-* has an idiosyncratic allomorph *–taw-*. On the criteria that Zwicky and Pullum (1983) propose, idiosyncratic allomorphy signifies affix status.

[11] With regard to the compatibility with prefixal negation, the two suffixes differ as follows.

(i) ??kunul-**an**-ci-ta *?nungcheng-**an**-mac-ta *namca-**an**-sulep-ta
shade-neg-CI-decl guile-neg-MAC-decl man-neg-SULEP-decl

(ii) haksayng-**an**-kath-ta ??haksayng-**an**-tap-ta
student-neg-KATH-decl student-neg-TAP-decl

While prefixal negation is in general impossible with opaque suffixes, it is possible with some transparent ones, such as *–kath-*.

However, since the preverbal negation is a verbal prefix, it is not clear that these facts have a bearing on the morphological status of the nominal base. It rather has to do with whether the predicative suffixes can be negated with the prefixal negative. C-S Kim (1996:171ff) argues that *an-* is compatible only with those suffixes that developed historically from free forms. Of the suffixes shown above, only *–kath-* evolved from a free form and that is why it admits the preverbal prefixal negation *an-*.

c. *?hakca-**nun**-**tap**-ta vs. hakca-**tap**-ki-**nun** ha-ta
scholar-top-TAP-decl scholar-TAP-nml-top do-decl
'Is in fact like a scholar, (but…)'

d. ?haksayng-**un**-**kath**-ta[12] vs. haksayng-**kath**-ki-**nun** ha-ta
student-even-KATH-decl student-KATH-nml-even do-decl
'seems a student, (but…).'

What is of further interest about the two classes of suffixes is that, as noted in C-S Kim (1984, 1996) and C-K Shi (1994), with certain bases, the juncture between the nominal and a transparent suffix becomes opaque to syntax. For example, when the nominal *ceng* ('affection') combines with the suffix *–tap-*, the juncture between the two cannot be parsed by syntactic processes, as seen by the failure of adnominal modification in (15a).[13]

(15)a. *Kutul-un [ttattusha-n ceng]-**taw$_1$**-un sa.i-(i)-ta
They-top warm-rel affection-be.like-rel relation-(be)-decl
'They have a really close relationship.'

b. Kutul-un acwu [ceng-**taw$_1$**]-un sa.i-(i)-ta
They-top very affection-be.like-rel relation-(be)-decl
'They have a really close relationship.'

The descriptive generalization so far is that there are two types of denominal affixes in Korean, the opaque suffixes and transparent suffixes. Predicates derived with opaque suffixes show lexical integrity, while those containing transparent suffixes do not. However, with certain bases, transparent suffixes behave like opaque suffixes. And the difference between the two classes cannot be equated with that between clitics and affixes. All indications point to both being affixes.

3. Two types of suffixes and theories of morphosyntax interface

3.1. Lexicalist approaches

This state of affairs presents a challenge for proponents of LH. We have just seen that the most obvious analysis to pursue within lexicalist assumptions, which is to view transparent suffixes as clitics, is not viable. We must look to other alternatives.

There are other options within lexicalist approaches that may be able to deal with predicates containing transpar-

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[12] However, for the copula, a transparent suffix, Yoon (2003) argues that nominal particles can come before it in certain cases.

The particles *–(n)un* and *–to* are **Z-Delimiters**, which are the most peripheral of the nominal particles (Sells 1995, Yoon 1995). The morphotactic generalization when **X-Delimiters**, which occur closer to the nominal base than the Z-Delimiters, intervene between the denominal suffixes and nominal bases is similar:

(i) *nungcheng-**man**-**mac**-ta vs. nungcheng-**mac**-ki-**man** ha-ta
Guile-only-MAC-del guile-MAC-nml-only do-decl
'Is only deceitful.'
*?haksayng-**man**-**tap**-ta vs. haksayng-**tap**-ki-**man** ha-ta
Student-only-TAP-decl student-TAP-nml-only do-decl
'Is only like a student.'
??haksayng-**man**-**kath**-ta vs. haksayng-**kath**-ki-**man** ha-ta
Student-only-KATH-decl student-KATH-nml-only do-decl
'Only seems like a student.'

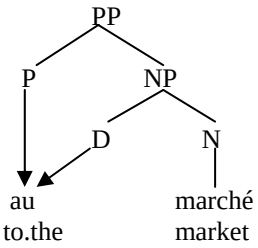
There is a subtle difference between *–tap-* and *–kath-*. While Delimiters cannot intervene between these transparent suffixes and their bases as easily as with the copula, *-kath-* seems to tolerate intervening Delimiters a little better than *–tap-*. Doubtless this has to do with the perceived degree of boundness of *–kath-* and *–tap-*, mentioned in the previous note.

[13] In order to distinguish the two, we will refer to the opaque *–tap-* as *–tap1-* and the transparent counterpart as *–tap2-*, as necessary. There are only a few predicates that contain *–tap1-*, as noted by previous researchers.

ent suffixes. The Mixed Category (Malouf 2000, Chung et. al. 2001) or the Dual Lexical Category (Lapointe 1993, 1999) approach comes to mind, as well as the Lexical Sharing approach (Westcoat 2002; Kim and Sells 2005; Kim and Sells 2008). We shall examine the last approach as it is the most recent and the most flexible.[14]

Lexical Sharing (LS) is invoked in the analysis of portmanteau words such as French *au*, which is analyzed as follows (pointed arrows indicate LS):

(16)



As we can see, a lexical item involved in LS instantiates more than one (string-adjacent) terminal node in the syntactic tree as specified by its lexical property. The analysis is similar to syntactic analyses of word-formation, and admits violations of several classical tenets of Lexical Integrity. Therefore, in order for LS to be considered lexicalist, there must be something akin to classical Lexical Integrity that distinguishes it from syntactic analyses.

Westcoat (2002) proposes that while LS may violate some classic Lexical Integrity tests, it abides by what he dubs Homomorphic Lexical Integrity. By it, an LS lexical item is prevented from being broken up by another lexical item, and must occur at the edge of a phrase. Westcoat (2002) takes these to be reflexes of the integrity of the LS lexical item.[15]

Based on Kim, Sells, and Westcoat (2008), we could posit the following analysis for predicates with transparent suffixes displaying Phrasal Recursivity:

[14] For problems with Mixed Category and Dual Lexical Category approaches to transparent suffixes, see Park (2002) and Yoon (2008).

[15] The effect of Homomorphic Lexical Integrity on LS lexical items is shown by the following contrast:

(i)	au	reste	vs.	*au	tout	reste	vs.	à	tout	le	reste
	to.the	rest		to.the	all	rest		to	all	the	rest

The LS lexical item *au* cannot be used when P and D are separated by another constituent, as in the second example. This is because lexical insertion (instantiation) would have to span two non-adjacent nodes. Westcoat (2002) takes this to be a reflex of the integrity of lexical items.

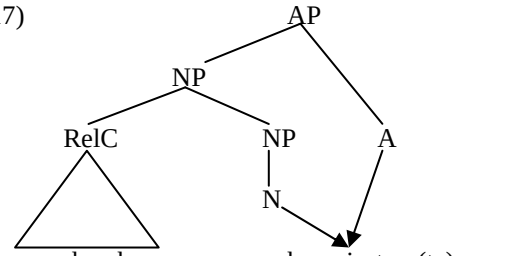
The edge distribution of LS lexical items is exemplified below:

(ii) The Queen of England-'s hat
vs.
*The Queen-'s of England hat
cf.
[[The Queen of England] POSS] hat

If we take *–'s* to be a LS lexical item instantiating some X and POSS, a phrase-medial realization will violate Homomorphic Lexical Integrity as POSS and X are not adjacent.

The effect of Homomorphic Lexical Integrity is similar to that of the mapping principles of Sadock (1991) and Ackema and Neeleman (2004).

(17)



The LS analysis also allows predicates with transparent suffixes to occur once at the right edge of a coordinate NP headed by the nominal base, with the suffix taking scope over the conjoined NP.

(18) Ku-uy hayngtong-un [yongkamha-n kwunin-kwa cincengha-n aykwukca]-**taw**-ass-ta (=9b)
He-gen action-top courageous-rel soldier-and genuine-rel patriot-be.like-pst-decl
'His actions befit his reputation as a courageous soldier and true patriot.'

We saw earlier (cf. 11 and 12) that predicates formed with transparent suffixes allow violations of both Inbound and Outbound Anaphoric Islands. However, the status of Anaphoric Islands—a stalwart of classic Lexical Integrity—in LS is unclear. Westcoat (2002) does not discuss it, but gathering from the fact that he considers contractions like *he'll* and *Sue'll* to instantiate LS, it seems that Anaphoric Island violations are admitted under Homomorphic Lexical Integrity.

It is interesting that among the Lexical Integrity tests of Bresnan and Mchombo (1995), LS analyses admit violations of three (Phrasal Recursivity, Coordination, Anaphoric Islands), because of the weakened version of Lexical Integrity that is built into it. What then about the remaining tests?

We saw earlier (cf. 13, repeated below) that (the phrase projected from) the nominal base of transparent suffixes cannot undergo Extraction. Homomorphic Lexical Integrity appears to predict this result, because of other constituents that intervene between the two parts of the LS lexical item.

(19) *[Cheli-ka __-**taw**-a poi-nun] [yongkamha-n kwunin]
C-nom be.like-comp seem-rel brave-rel soldier
'The brave soldier that Cheli seems to be' (=13a)

With regard to Gapping, we saw (cf. 10) that while opaque suffixes cannot, transparent suffixes can be gapped, stranding the nominal base. While Westcoat (2002) does not address the issue of word-internal Gapping in LS, it seems that if LS lexical items are like regular lexical items, and if parts of lexical items cannot be gapped, the theory ought to predict that LS lexical items should not allow word-internal Gapping. But this is not what we find.

(20) Cheli-nun kwunin-__ kuliko Tongswu-nun haksayng-**tap**-ta
C-top soldier and T-top student-be.like-decl
'Cheli is every bit a soldier and Tongswu, (every bit) a student.' (=10a)

In sum, if the above assessment is on the right track, even the most heavilymodified lexicalist analysis that compromises several key tenets of classical lexicalism does not seem appropriate as an account of all the properties of transparent suffixes.

There are problems of a more conceptual nature with the LS analysis of transparent suffixes. Westcoat (2002) hypothesizes that LS lexical items represent a transitional stage between simple phonological cliticization and affixation and therefore, that these lexical items constitute a small portion of a language's lexicon. However, almost every suffix in languages like Korean behaves like an LS lexical item (Yoon 2008), making it hard to view affixes displaying LS properties as transitional forms. In addition, there are changes involving an opaque suffix (*-sulepta*) becoming more like a transparent suffix, which is opposite the direction of change hypothesized by Westcoat (2002).

We turn next to non-lexicalist approaches that view the word and phrase systems as one and the same. We shall see that their plight is no better than lexicalist proposals.

3.2. Syntactic approaches to word-formation

Theories that deny the autonomy of morphology and syntax and attempt to derive both word-internal and phrasal structures using one and the same set of principles have been around for some time now (Lieber 1992, Halle and Marantz 1993; Marantz 1997; Embick and Noyer 2007, etc.).

The behavior of two classes of denominal suffixes in Korean presents major problems for proponents of unified morphosyntax, as much as it challenges advocates of lexicalism. The challenge in a nutshell is this: if syntax builds all words, why is the internal structure of certain words transparent to syntactic processes while that of others isn't?[16]

One option that proponents of unified morphosyntax such as Distributed Morphology can resort to is to capitalize on different ways in which complex heads can be created in syntax (Head Movement/Raising (Baker 1988) vs. Lowering/Merger-under-adjacency (Marantz 1988))—which respectably model head-attached affixes and edge-attached clitics. The idea would be to derive predicates with opaque suffixes by Head Movement and those with transparent suffixes by Lowering/Merger.

While this is a plausible path to pursue, simply adopting two different mechanisms of complex head formation does not predict why the two modes of forming complex heads should correlate the way they do with respect to Lexical Integrity tests, since in both cases words are built in the syntax.[17]

Another option within Distributed Morphology may be to assume that the same word-building mechanism (Head Movement) is at play in both types of predicates, but to distinguish the two suffixes in terms of the type of the base that is selected. That is, the opaque suffixes might select uncategorized RootP, incorporating its head, while the transparent suffixes might select n/NP. Arad (2003), Volpe (2007), and Marantz (2008) offer analyses to this effect for root-based versus word-based word-formations in different languages. In a related proposal, Yeo (2008) proposes that the predicate-forming suffixes in Korean are 'little v's', but instead of assuming that some select RootP's and others fully categorized n/NP's, he suggests that they always select RootP's.

Yeo's proposal is flawed on morphological grounds. If indeed the predicative suffixes attach only to roots, the base of these suffixes should only be underived roots.[18] This is not the case. As detailed in previous research (C-E

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[16] Anaphoric islands are discussed in Lieber (1992), who suggests that they may be pragmatic, following Ward, Sproat, and McKoon (1991). As to other tests of Lexical Integrity, Lieber (1992) takes the phenomenon of phrasal compounding to be evidence that the thesis of asymmetry (responsible for Phrasal Recursivity and Conjoinability) is not valid. Regarding Extraction, she offers an account based on Chomsky's (1986) theory of ECP.

While the validity of Lieber's overall approach to Lexical Integrity effects in current theory may be in doubt, what is surprising is that in Distributed Morphology, there is no attempt to deal with Lexical Integrity tests, a point that has not escaped the attention of Lieber and Scalise (2005).

[17] This is so since (i) dependents of a head (=ZP, WP) are stranded under Head Movement just as they are under Lowering, and (ii) the phrase (=XP) projected from the head remains intact in either case, as shown schematically below:

(i) $[[_{XP}$ ZP WP t_X] **X+Y**] Head Movement/Raising
(ii) $[[_{XP}$ ZP WP **X+Y**] t_Y] Lowering/Merger-under-adjacency

Thus, it is unclear why raising of the head should have an effect on the integrity of the phrase it heads, as must be the case since the nominal base in predicates putatively derived by Head Movement (those containing opaque suffixes) does not allow coordination with another nominal. Similarly, Head Movement must result in change in the morphosyntactic marking of the dependents (to account for the fact that the nominal base of opaque suffixes does not admit adnominal modifiers), though it is not clear why.

For the latter, Baker (1988) hypothesized that once Head Movement takes place, the erstwhile dependents of the Head come to be treated as dependents of the complex head (by the Government Transparency Corollary). Besides being a stipulation, this proposal fails to explain other properties of complex heads derived by Head Movement (such as the invisibility of the constituent projected from the incorporating head, Anaphoric Islandhood, Gapping, etc.)

Locating Head Movement before and Lowering after Vocabulary Insertion (Arregi and Nevins 2007) does not seem sufficient to account for the full range of differences between the two classes of suffixes either, though some differences (such as Gapping) might be explained in this manner if we order Gapping after Head Movement but before Vocabulary Insertion.

[18] Or, if the base is derived, the affix within the base should be a root-level affix deriving a root from a root. While there are suffixes which attach to roots to yield roots in Korean (such as *–ah-* in *nol-ah-ta* (be yellow)), the suffixes in (21b) (*-m*, *-am*, *-seng*) do not seem to be root-to-root suffixes. The result of attaching them yields a form with the distribution of nouns, which indicates that they take roots/stems to (categorized) words.

Song 1992; C-S Kim 1996), while the opaque suffixes can attach to roots (cf. 21a)[19], they also attach to words (cf. 21c), including morphologically derived nominals (cf. 21b).[20]

(21)a. [mitumcik]$_R$-sulepta ‘be trustworthy’
[yeppucang]$_R$-sulepta ‘be attractive’
[ppenppen]$_R$-sulepta ‘be brazen’
b. [[sal]-am]$_N$-sulepta ‘be respectable/decent’
[[ci]-m]$_N$-sulepta ‘be burdensome’
[[kwiyem]-seng]$_N$-sulepta ‘be cute’
c. [salang]$_N$-sulepta ‘be lovely’
[kekceng]$_N$-sulepta ‘be a cause for concern’
[MB]$_N$-sulepta ‘be like President MB Lee’

And while Yeo (2008) takes all predicative suffixes to attach to roots, it is well-known (C-S Kim 1996) that the transparent suffixes cannot attach to roots (except for the opaque counterpart of such affixes, as in *alum$_R$-tap$_1$-ta* ‘be beautiful’), but only to words.

(22)a. *[mitumcik]$_R$-tapta ‘*be trustworthy’
*[yeppucang]$_R$-tapta ‘*be attractive’
*[kapcak]$_R$-tapta ‘*be sudden’
b. [haksayng]$_N$-tapta ‘be student-like’
[ne]$_N$-tapta ‘be like your usual self’
[MB]$_N$-tapta ‘be like President MB Lee’

In sum, while it is true that bound roots cannot serve as bases of transparent suffixes, both roots and words occur as the bases of opaque suffixes. Therefore, the distinction between the two classes of suffixes cannot be equated with the type of base that the predicative suffix selects.[21]

A bigger problem for this alternative is the same one that haunts the previous syntactic approach. Even if the difference between the two classes of predicates can be reduced to the nature of what is selected by the predicative suffix, why should the difference between selecting roots versus words as base lead to palpable and systematic differences in the transparency of the juncture of the base and the suffix with regard to the Lexical Integrity tests? It is unclear at best.[22]

[19] Forms such as *mitumcik, yeppucang* cannot stand alone (**taytanhan yeppucang* ‘great beauty’), but only as part of words (*yeppucang-hata*, ‘be pretty’), and that is why they are analyzed as roots in traditional grammar. It is not clear that the notion of root in DM is equivalent to the traditional concept of a bound root, however.

[20] As is typical of derivation, *-sulepta* does not attach to all bases, including many derived nominal bases (**kawi-cil-sulepta* ‘evoking the manner of cutting with scissors’). However, what is important is that it can attach to some such bases.

[21] This conclusion is sound only if we assume that being a root is coextensive with being bound (cf. footnote 18). If not, the bases of opaque suffixes that are free (such as *salang* ‘love’ in *salang-sulepta* ‘be lovely’) might still be considered roots, allowing us to maintain that the base of opaque suffixes is always a root while that of transparent suffixes is always a word. This interpretation may have some advantages, as we shall see subsequently.

[22] If we hypothesize that syntactic processes that can parse word-internal structure are unable to recognize uncategorized roots (perhaps because syntactic processes are defined minimally in terms of categories), then we can imagine why the juncture between a root and suffix in predicates containing opaque suffixes will be invisible in the syntax.

However, for this line of reasoning to succeed as an explanation of why Lexical Integrity holds for opaque suffixes, the converse must hold as well. That is, word-formation based on words should always disrespect Lexical Integrity. While it is true that the juncture between a transparent suffix and its base (which has syntactic categorization, by hypothesis) is visible to syntax in Korean, we know this is not the case in most other instances of word-formation based on words. For example, inflectional affixes attach to bases that are categorized, but the juncture between the affix and the base is opaque to syntactic rules in most languages.

4. The Proposal

4.1. Ad-Phrasal versus Lexical Affixes

Let us take stock. We concluded that the distinction between opaque and transparent suffixes is not to be equated with the affix-clitic distinction. Both are clearly suffixes. They behave similarly with respect to morphotactics, except for the fact that bound roots are not admissible as bases of transparent suffixes. Strongly syntactic analyses of word-formation do not seem capable of explicating the difference between the two classes of suffixes with respect to Lexical Integrity tests in a principled manner. The most flexible lexicalist analysis, the Lexical Sharing analysis, views the difference between predicates containing the two classes of suffixes as that between a normal lexical item and a hybrid LS lexical item. In addition to encountering difficulties with Gapping, the analysis suffers from a host of conceptual problems, as noted earlier.

We believe that the problems encountered by these analyses stem from the fact that both view word-formation as taking place in a single domain—in the case of syntactic approaches, the relevant domain is Syntax (or the Computational System (CS), to use more fashionable terminology), while in the case of lexicalist approaches, the domain is the Lexicon. As a result, while syntactic approaches predict the transparency of word-internal structure and must cope with the opacity of predicates containing the opaque suffixes, lexicalist approaches must find creative ways to deal with the transparency of the internal structure of predicates containing the transparent suffixes.

While these are the best known architectures on the interaction of morphology and syntax currently in vogue, they are not the only ones. In view of the difficulties that they face, it behooves us to look to other theories of morphology-syntax interface. One line of thinking that holds out promise for the facts of Korean is the Parallel Morphology architecture (Shibatani and Kageyama 1988; Borer 1988; Yoon 1989, 1996a,b) and similar architectures such as the Autolexical Syntax approach (Sadock 1991) and the theory explicated in Ackema and Neeleman (2004).

Though there are differences in detail, a key insight that is shared by the approaches introduced above is that morphology is not to be locked up in a single domain, whether it be the Lexicon or the CS. Instead, the morphology-syntax divide is orthogonal to the Lexicon-CS divide. Morphology is a theory of well-formedness of words (*qua* Morphological Objects, in the terminology of Di Sciullo and Williams 1987) wherever they are formed, just as phrasal syntactic rules (including interpretive rules and transformational rules) constitute theories of well-formedness of phrases.

However, unlike theories that locate morphology exclusively in the CS or the Lexicon, under this type of approach, if a complex form is created in the Lexicon, it will be opaque to principles that hold in the CS proper because lexical units are by hypothesis atoms in the CS. By contrast, if it is created in the CS, it is transparent. In this, it is similar to lexicalist approaches since there is computation in both the Lexicon and CS. What is different is that morphology is not relegated to the Lexicon and neither is the phrasal system bound to the CS. The distinction between the two types of rule systems is orthogonal to the Lexicon-CS divide. Thus, Lexical Integrity is not equated with Morphological Integrity, as assumed by proponents of the LH. [23]

Crucially, objects created in the CS proper through the phrase system can be input to morphology. This is so

[23] Of course, phrases can also combine with words or affixes in the Lexicon. Such combinations are opaque to rules of CS. I take the celebrated case of **phrasal compounds** and **phrasal derivates** in languages like English to be derived in the Lexicon, contra Lieber (1992). The reason is that though such compounds and derivates contain a phrase, the internal structure of the phrase is opaque to rules of CS such as extraction or anaphoric reference, as shown in (ii).

(i) a. (The administration's) [[sit on the sidelines] foreign policy]
b. A [[who's the boss] wink]
c. [[bragging about himself] calligraphy] (Ackema and Neeleman 2004)
d. I will see you [[a week from Monday]-ish]
e. She [[I-am-from-New-York]-ed] her way into the men's room (Carnie 2000)
f. [[Lieber-and-Scalise]-ish] (position) (Lieber and Scalise 2005)

(ii) a. *Where did you object strongly to continuing the [sit on __] foreign policy?
b. *She [I-am-from-New-York$_i$]-ed her way into the men's room at the airport before boarding a flight for it$_i$.
c. *When did I say I will see you [a week from __]-ish?

since there is no 'asymmetry' property that holds between morphology and phrasal syntax, but only that between the Lexicon and the CS. In particular, a bound element such as an affix can combine in the CS with a phrase. I shall call such affixes **Ad-phrasal Affixes**, following earlier work. When an affix combines with a word or a smaller unit (such as Root), it is a **Lexical Affix**.[24]

Ackema and Neeleman (2004) develop a specific theory that predicts when an affix can be Ad-Phrasal. In their approach, an Ad-Phrasal Affix is possible only when (i) it is a suffix and (ii) attaches to an XP that is head-final. This is so since otherwise the affix would violate the mapping principles given below:[25]

(23) Input Correspondence (Ackema and Neeleman 2004: 149)
If X is an AFFIX which corresponds to an affix /x/,
X takes a head Y or a projection of Y as its input, and
Y corresponds to /y/,
Then /x/ takes /y/ as input.

(24) Linear Correspondence (Ackema and Neeleman 2004:149)
If X is structurally external to Y,
X is phonologically realized as /x/, and
Y is phonologically realized as /y/,
Then /x/ is linearly external to /y/.

In the above definition, AFFIX and affix are the morphosyntactic and phonological features of affixes respectively. By Input Correspondence, if an affix selects a phrase, the phonological exponent of the affix must attach to the phonological exponent of the Head. By Linear Correspondence, the phonological exponent of the affix cannot be internal to that of the phrase it selects.

These constraints conspire to ensure that Ad-Phrasal Affixes that are suffixes that attach to Head-final phrases are acceptable, while Ad-Phrasal Affixes that select Head-initial phrases will violate the mapping principles, i.e., either the Input Correspondence or Linear Correspondence. This is shown below.[26]

(25)a. $[_{YP}\ [_{XP}$ WP X] AFF(Y)]
/wp/ /x/ /af/ → /wp/-/x/-/af/

b. $[_{YP}\ [_{XP}$ X WP] AFF(Y)]
/x/ /wp/ /af/ → /x/-/af/-/wp/ (violation of Linear Correspondence)
→/x/-/wp/-/af/ (violation of Input Correspondence)

The analysis of a Lexical Affix in this system is straightforward. Lexical Affixation arises when an affix combines with a word or a sub-word unit (such as root). Using negative integers for sub-word constituents (Selkirk 1982), Lexical Affixation to Word and Root can be analyzed as follows. As you can see, affixation to word or smaller constituents does not present problems with the mapping constraints.

[24] It should be clear that this distinction cannot be stated in strongly syntactic approaches to morphosyntax where every affix is in fact an Ad-Phrasal Affix.

[25] Input Correspondence is equivalent to Sadock's (1991) Constructional Integrity Constraint, while Linear Correspondence is equivalent to his Linearity Constraint.

[26] Ackema and Neeleman (2004) do not rule out Ad-Phrasal Affixes in head-initial languages altogether. They are possible if the phonological exponent of an affix is phonologically null. They use this consequence to explain why phrasal nominalizers in head-initial languages (English, Italian, Spanish) must be null, whereas those in head-final languages (Korean, Turkish, Quechua, etc.) can be overt, thus providing a theoretical rationale for the analyses of phrasal nominalizations proposed in Yoon (1996a,b) and Yoon and Bonet-Farran (1991).

If Ackema and Neeleman (2004) are correct, suffixes which seem to have phrasal scope in head-initial languages—such as verbal inflections in English and French—cannot instantiate true Ad-Phrasal Affixation, as Ackema and Neeleman (2007) argue.

(26)a. $[_Y [X^0]$ AFF(Y)]
/x/ /af/ → /x/-/af/

b. $[_Y [X^{-1}]$ AFF(Y)]
/x/ /af/ → /x/-/af/

As for the syntactic properties of the constituent that results from affixation, if we assume that affixes do not have specifications for BAR-levels (Selkirk 1982; Yoon 1996b) and adopt something like Backup Percolation (Lieber 1992), the BAR-level of the constituent will be identical to the BAR-level of the host. That is, when affixes attach to phrases, the result will be phrasal, and when they attach to words, the result will be a word and so on.

4.2. Properties of denominal suffixes explained

The system introduced above has the right ingredients to explain the behavior of two types of predicative suffixes in Korean. All we need is to make the assumption that transparent suffixes combine with their hosts in CS as Ad-Phrasal Suffixes, while opaque suffixes combine in the Lexicon with their hosts. The juncture between a transparent suffix and its host will be visible to principles of CS because the combination takes place in CS, whereas the combination of opaque suffixes and their hosts takes place in the Lexicon and therefore, the juncture between the host and the suffix will be invisible to rules of CS proper.

The difference between *–tap1-* and *–tap2-* introduced earlier is that the former is a Lexical Affix while the latter is an Ad-Phrasal Affix. That the same affix can be both Lexical and Ad-Phrasal is not surprising, and is also found in the realm of deverbal nominalizations (Yoon 1996a,b; Park 2002), where the affixes *–um* and *–ki* are taken to combine lexically or in the syntax, with predictable differences in transparency, productivity, and violability of Lexical Integrity tests.

The difference between Gapping of the transparent suffix stranding the nominal base (cf. 10) and Extraction of the nominal base stranding the transparent suffix (cf. 13) can also be explained. Gapping of a transparent suffix is possible because the suffix is visible to syntax/CS, being an Ad-Phrasal Affix. The result of Gapping is well-formed, since nominals are free forms and can stand alone. In the case of Extraction, things are different. While nothing in our system prevents the extraction of the nominal base with transparent suffixes, what goes wrong is that the suffix becomes stranded and cannot attach to a suitable host. This is why the result of extracting the nominal base is bad, not because the transparent suffix is invisible to syntax/CS. If transparent suffixes were simple (phonological) clitics, we cannot appeal to this line of reasoning, as discussed earlier.

Recall that Roots cannot serve as bases of transparent suffixes, but are possible as bases of predicates formed with opaque suffixes. Can we explain this under the architecture we are adopting? The following line of reasoning suggests itself. Ad-Phrasal Suffixes combine in the syntax/CS with their host phrases. Phrases in turn are projected from heads which determine their distributions. And in order to do so, the head of a phrase must have a syntactic category. Roots, by hypothesis, are not categorized, and could not head phrases in the syntax/CS. Thus, an Ad-Phrasal Affix cannot attach to a Root, while a Lexical Affix can.[27]

Let us now turn to the morphotactic restrictions that seem to be shared by transparent and opaque suffixes. The generalization to be captured is that the nominal base cannot carry nominal particles such as X and Z-Delimiters regardless of the type of suffix involved (cf. 14, as well as footnote 11). The way to explain the restrictions would be to scrutinize the identity of the XP that the transparent/Ad-Phrasal suffixes attach to. Since the suffixes are denominal suffixes, we know that the base must be a nominal projection. It must then be that while the suffix can select a lexical nominal projection—say, n/NP—it cannot select a larger functional nominal projection, such as that associated with the Delimiters. Yoon (2005) proposes that Delimiters are heads of their own projections. If the Delimiters are heads of functional nominal projections but the suffixes select n/NP, then they will not be able to intervene be-

[27] For this line of reasoning to work throughout the morphosyntax of Korean, being bound must not be equated with being a Root. This is so since there are good reasons to treat verbal inflections such as Tense, Aspect, and Mood suffixes, as Ad-Phrasal Suffixes in Korean (Yoon 1994, J-M Yoon 1996, etc.). If so, according to the reasoning laid out above, the v/VP that Tense attaches to must be headed by V, rather than a Root. But an inflected verb minus its inflection is a bound form in Korean, and if being bound entails Root status, we have an inconsistency in the account of Ad-Phrasal Affixes in the nominal and verbal systems.

The possibility discussed in footnote 20 that the nominal bases of opaque suffixes may always be Roots, regardless of whether they are bound or free, also suggests dissociating the bound-free distinction from the root-word distinction.

tween the nominal base and the suffixes.[28]

4.3. Comparison with nominalizations

The transparent-opaque suffix distinction is also found with deverbal nominalizing suffixes, which Yoon (1989, 1996a,b), Park (2002), and Ackema and Neeleman (2004) analyze in terms of Ad-Phrasal vs. Lexical Affixation. The former type of affixation yields syntactic nominalizations, while the latter yields lexical nominalizations. The juncture between the host and the nominalizing suffix is transparent in the case of the former but not the latter.

In the case of the nominalizing suffixes, while the opaque-lexical suffixes cannot attach to predicates that carry inflection such as Tense and Aspect, the transparent-syntactic suffixes can, as we see below. The nominalizer *–am* (in *sal-am* 'person') occurs only as a lexical nominalizer and is incompatible with an inflected verb. It is also noteworthy that lexical nominalizations are idiosyncratically interpreted. However, *-(u)m*, which is a double-duty nominalizer, produces both lexical and syntactic nominalizations. When it is clearly syntactic/Ad-Phrasal, inflected verbs are possible as bases.

(27)a.	sal-**am**	vs.	*sal-ass-**am**
	live-nml		live-pst-nml
	'person'		'??'
b.	ci-**m**	vs.	ci-ess-**um**
	carry-nml		carry-pst-nml
	'luggage'		'having carried'

This can be accounted for if (transparent) syntactic nominalizing suffixes can target a (verbal) functional category (TP or AspP), unlike transparent predicative suffixes which seem incapable of targeting (nominal) functional projections.

5. Conclusion

In this paper, I have discussed the behavior of two classes of denominal predicative suffixes in Korean. The internal structure of predicates is transparent to syntactic principles with one class of suffixes but not the other. After evaluating the feasibility of strongly lexicalist and strongly syntactic approaches to word-formation, it was argued that the generalizations can best be captured if a distinction is made between lexical and syntactic morphology, where affixes are allowed to combine in the syntax/CS proper with phrases constructed by the CS, or with roots/words in the Lexicon. The results suggest that there is something right about the Lexicalist Hypothesis and the Lexical Integrity Principle. There is a distinction between the Lexicon and the CS proper, with units built in the Lexicon acting as atomic in the latter. However, the opacity of lexical units can not be equated with morphological integrity.

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[28] The account of nominal particle intervention before the copula in Yoon (2003, 2005) can explain why the copula is different in terms of morphotactics compared to other transparent suffixes (a point mentioned but not explained in footnote 11). Yoon (2003, 2005) suggests that the copula takes a Small Clause as its complement and when copula inversion takes place, nominal Delimiters can intervene between the copula and the nominal base that it attaches to.

In the case of other transparent suffixes (*-tapta*, *-kathta*), we have no reason to believe that they select a Small Clause or that they allow inversion. If it is inversion that is responsible for the possibility of Delimiter coming before the copula, then these suffixes, lacking inversion, will behave differently and resist being separated by the Delimiters.

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