The syntactic and semantic introduction of internal arguments

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1 Introduction

An investigation of two types of roots (eventive and non-eventive) in the formation of complex predicates in Korean reveals that there must be **two distinct base positions** to generate an internal argument (IA) of an eventive predicate.

Empirical motivation:

- Different Roots (√) involved in complex predicate formation in Korean create two distinctly different types of structures, entirely dependent on whether the Root itself has Event Structure (ES) that semantically encodes an undergoer event participant (Ramchand 2008).
  - One type of predicate is best understood as a construction built above a √P structure, containing the Root and the IA as its **complement** (Harley 2014)
  - A second type is best understood as one where the IA is introduced as a specifier of a **verbal functional projection** (F_v)

Immediate theoretical consequences:

- Not all argument introduction is contingent on the presence of verbal structure, contra many contemporary structural approaches to argument licensing
  - Instead, there is in fact, one semantically constrained place where an internal argument (IA) can be introduced as a direct complement to a Root
  - If this is true, then it follows that verbal structure is not actually required for argument introduction, and that non-verbal elements (namely Roots), can, in fact, be argument introducers.
- If a Root, however, lacks the inherent semantics needed to introduce an IA, then verbal structure provides an alternative means to introduce a direct object into the derivation.

2 Background

Event structure is the necessary prerequisite for argument structure (AS). Without event structure (ES), it is not possible to license arguments (Grimshaw 1990).

- ES is a relatively uncontroversial property associated with verbal predicates, but is much more restricted for the nominal domain.
- Only process nominals (or Complex Event Nominals; CENs) have the capacity to license arguments, given diagnostics that target sensitivity to Lexical Aspect (Aktionsart; Vendler 1967), such as:
  - Event modification, agent-oriented modifiers, manner adjectives, temporal modifiers, implicit argument control (Grimshaw 1990; Borer 2003).
- For example, compare across Complex Event Nominals (CENs) (1a), Simple Event Nominals (SENs) (1b–1c), and Referential Nominals (RNs) (1d) in their ability to host the event modifier *frequent*.

(1) a. A waiter's frequent calculation of receipts is just part of the job.
b. * The frequent exam was starting to get exhausting.
c. The frequent exams were starting to get exhausting.
d. ? I really like getting to see the frequent cats that come by to visit.

2.1 Syntactic representations of process nominals

- Many process nominals/CENs in well-studied European languages have clear deconstruct-able morphology suggesting embedded verbal material.
- They are often referred to by names that imply verbal origin and a derivational history: nominalizations, 'derived' nominals, de-verbal nominals, etc.

Chomsky (1970) on derived nominals in English: nominals and sentences are parallel, but distinct. There is some relationship between the noun form *calculation* and the verb

form *calculate* in the lexicon, but the syntactic structures of the nominal and the verb phrase are generated independently.

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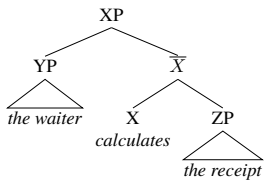

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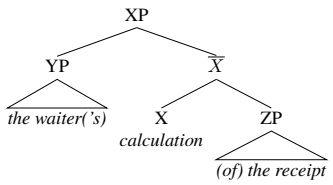

Under a Lexicalist approach, process nominals do not inherit any syntactic structure from the related verb, only the thematic grid (e.g. Aronoff 1976; Jackendoff 1975; Lieber 1980; Grimshaw 1990).

Contemporary generative approaches, however, have shifted toward structural accounts of predicates and argument licensing (Kratzer 1996; Harley 1995, 2009; Borer 2013), developing in tandem with frameworks looking to do away with a Lexical component entirely.

- Distributed Morphology (DM), for example, minimizes the extent of the lexicon down to just lists of form-meaning pairings (Halle & Marantz 1993).

In a structural approach to AS, everything is done compositionally. Therefore, the difference between process nominals and non-AS nominals must have a structural source.

- For many accounts, the structural source of this difference is attributed to the presence or absence of a verbal syntactic layer (Borer 2003, 2013; Alexiadou 2010a,b).
- When it comes to process nominals cross-linguistically, researchers have had reason to point toward the presence of some verbal layer embedded within the construction (Hazout 1995; Alexiadou & Rathert 2010; Fu et al. 2001).
- However, a ready counter-evidence to this hypothesis has been identified in Korean (Yoon & Park 2008; C-W. Park 2013; J. Yoon 2022): "Verbal Nouns" (VNs).

3 Korean Verbal Nouns (VNs)

"Type 1" predicates: formed using a class of Sino-Korean Roots in Korean, often called VNs. These Roots appear in three distinct syntactic constructions:

- as part of a complex predicate with a light verb (4);
- heading a process nominal construction, where GEN case is optional on the IA (5);
- as the object of the verb "do" (*ha-*), with its IA either within the nominal headed by the Root (6a) with optional GEN case, or outside of it with ACC case (6b).

(4) 연구원이 동굴을 끊임없이 탐구했다
yenkwuwen-i tongkwul-ul kkunhi.m.eps-i ***thamkwu****-ha-yss-ta*
researcher-NOM cave-ACC constant-ADV explore-do-PST-DECL
'The researcher continuously explored the cave.'

(5) 연구원의 끊입없는 동굴 (의) 탐구는
[DP *yenkwuwen-uy kkunhi.m.eps-nun tongkwul(-uy)* ***thamkwu***]*-nun …*
[DP researcher-GEN constant-ADJ cave(-GEN explore]-TOP
'The researcher's constant exploration of the cave (…was tiring/etc.)'

(6) a. 연구원이 동굴 (의) 탐구를 했다
yenkwuwen-i [*tongkwul(-uy)* ***thamkwu***]*-ul ha-yss-ta*
researcher-NOM [cave(-GEN) explore]-ACC do-PST-DECL
'The researcher did cave exploration.'

b. 연구원이 동굴을 탐구를 했다
yenkwuwen-i [*tongkwul*]*-ul* [***thamkwu***]*-ul ha-yss-ta*
researcher-NOM [cave]-ACC [explore]-ACC do-PST-DECL
'The researcher did exploration of/explored the cave.'

VNs have received a lot of attention from researchers of Korean and Japanese syntax (Grimshaw & Mester 1988; H-R. Chae 1996, 1997; J-S. Jun 2003, 2006, among others).

- The term "verbal noun" is representative of the observation that these lexical items, like verbs, have event structure and take thematic arguments, but yet seem somehow fluid in their categorical label.
  - In some contexts VNs appear within a purely nominal construction, i.e. (5), while in other contexts instead create part of a verbal predicate (4).
- VNs violate *phrasal coherency* (Figure 1).
- Nonetheless, they have argument structure: they categorically pass all Grimshaw (1990) diagnostics for AS (see, e.g. 7,8), while other Korean nominals categorically fail (Yoon & Park 2008).
- Yoon & Park (2008) argue that Korean VNs do not demonstrate VP phrasal coherency because they lack a verbal category entirely.

Figure 1. Phrasal coherency (Yoon & Park 2008; Borer 2003)

Highest verbal property	Case licensing
↑	Argument licensing, event structure
Lowest verbal property	VP pro-forms, VP adverbs

(7) 직원의 잦은 공금 (의) 횡령
cikwen-uy ***cac-un*** *kongkum(-uy)* *hoynglyeng*
worker-GEN frequent-ADJ fund(-GEN) embezzle
'the worker's frequent embezzlement of funds'

(8) 연구원의 2 년 동안의 동굴 (의) 탐구
yenkwuwen-uy ***i.nyen tongan-uy*** *tongkwul(-uy)* *thamkwu*
researcher-GEN two.year duration-GEN cave(-GEN) explore
'the researcher's exploration of the cave for two years'

Though there has historically been much debate about the category of VNs (see Park 2013 and citations therein), the facts are straightforward:

- VNs are 'hybrid' in the precise way in which process nominals/CENs are characterized: having event structure and arguments, while lacking any verbal syntax at all (Yoon & Park 2008).
- The external syntax of VN process nominals is *ONLY* nominal; no sentential cases or adverbials are allowed (9–10).

(9) 연구원의 끊임없는/* 이 동굴 탐구는 …
[DP *yenkwuwen-uy* *kkunhi.m.eps-**nun**/*-**i*** *tongkwul* *thamkwu*]-*nun*
[DP researcher-GEN constant-**ADJ**/*-**ADV** cave explore]-TOP
'The researcher's constant exploration of the cave (…was tiring/etc.)'

(10) a. 연구원의 동굴 (의) 탐구는 …
[DP *yenkwuwen-**uy*** *tongkwul(-**uy**)* *thamkwu*]-*nun*
[DP researcher-**GEN** cave(-**GEN**) explore]-TOP

b. * 연구원이 동굴을 탐구는 …
[DP *yenkwuwen-**i*** *tongkwul-**ul*** *thamkwu*]-*nun*
[DP researcher-**NOM** cave-**ACC** explore]-TOP
'The researcher's constant exploration of the cave (…was tiring/etc.)'

Theories of AS that contribute the ability to license arguments to the presence of verbal functional material are not entirely adequate to capture the full cross-linguistic picture.

- Next: a structural proposal for VNs and the location of their internal argument, compatible with the above conclusion
- Then: data from a second type of complex predicate that necessitates the proposal over a purely functional structure alternative.

4 Structural analysis

By the same logic through which verbal structure was ruled out for the VN process nominal constructions, we also rule out nominal structure for the *X-ha-* constructions.

- *X-ha-* forms are crucially *NOT* nominal, no matter what surface position the IA sits in (11–13). All nominal modification and nominal cases are disallowed.
- Whatever the property necessary for AS is, therefore, is also not nominal.

The only thing consistent across each of these structures is the Root (i.e., the VN) itself.

⇒ **It is the Root which creates the possible conditions for argument structure.**

(11) 연구원이 동굴을 끊임없이/* 는 탐구했다
yenkwuwen-i *tongkwul-ul* *kkunhi.m.eps-i/*-nun* *thamkwu-ha-yss-ta*
researcher-NOM cave-ACC constant-ADV/*-ADJ explore-do-PST-DECL
'The researcher tirelessly/continuously explored the cave.'

(12) 연구원이 끊임없이/* 는 동굴 (을) 탐구했다
yenkwuwen-i *kkunhi.m.eps-i/*-nun* *tongkwul(-ul)* *thamkwu-ha-yss-ta*
researcher-NOM constant-ADV/*-ADJ cave(-ACC) explore-do-PST-DECL
'The researcher tirelessly/continuously explored the cave.'

(13) 연구원이 두 번 (* 의) 동굴 (* 의) 탐구했다
yenkwuwen-i *twu pen(*-uy)* *tongkwul(*-uy)* *thamkwu-ha-yss-ta*
researcher-NOM two times(*-GEN) cave(*-GEN) explore-do-PST-DECL
'The researcher tirelessly/continuously explored the cave.'

Figure 2. Proposal: the √P (Harley 2014)
The internal argument (IA) is introduced prior to any category heads at all.

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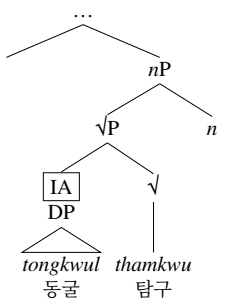

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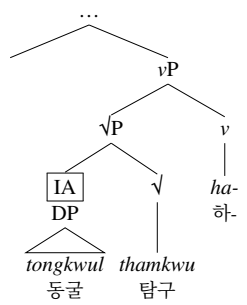


5 "Type 2" predicates

Type 2 predicates are built from non-eventive Roots, e.g. √*word*, √*work*, √*answer*, etc. (Korean: *mal*, *il*, *tap*). Many are intransitive, but there are some that take a direct object.

Just like VNs, they also combine with a light verb to form complex predicates (16), but unlike them, they **cannot** head a process nominal construction (17).

(16) 주니가 문장을 크게 말했다.
Cwuni-ka mwuncang-ul khu-key ***mal****-ha-yss-ta*
Juni-NOM sentence-ACC big-ADV word-do-PST-DECL
'Juni said (the) sentence loudly.'

(17) * 주니의 잦은 문장 (의) 말
[DP *Cwuni-uy cac-un mwuncang(-uy)* ***mal***]
[DP Juni-GEN frequent-ADJ sentence(-GEN) word]
Intended: 'Juni's frequent saying of sentence(s)'

If they appear as the direct object of the verb 'do', it is **not** possible for the associated IA to be licensed with GEN case (18a), nor is it possible to have ACC case on both the IA and the nominal headed by the Root (18b).[1]

(18) a. * 주니가 문장 (의) 말을 했다
Cwuni-ka [*mwuncang(-uy)* ***mal***]*-ul ha-yss-ta*
Juni-NOM [sentence(-GEN) word]-ACC do-PST-DECL
Intended: 'Juni said the sentence.'

b. * 주니가 문장을 말을 했다
Cwuni-ka [*mwuncang*]*-ul* [***mal***]*-ul ha-yss-ta*
Juni-NOM [sentence]-ACC [word]-ACC do-PST-DECL
Intended: 'Juni said the sentence'

Given these observations, it is NOT possible to give these predicates an identical treatment as the VNs.

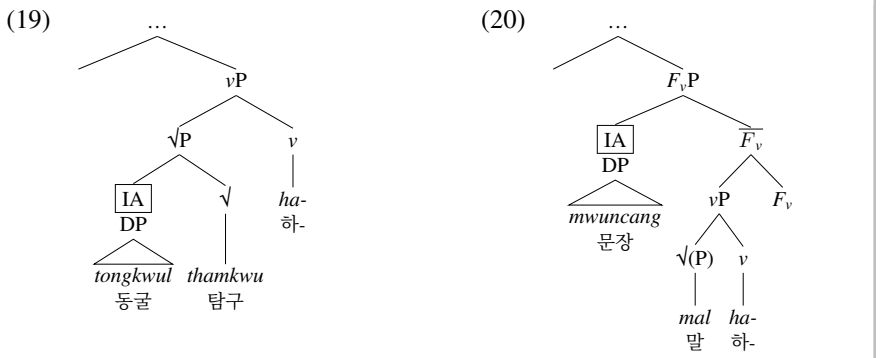
- these data demonstrate that the IA of a type 2 predicate is only supported by something specific to the verbal domain, i.e. a verbal functional projection.

[1] A number of native Korean-speaking colleagues have noted to me that there is a possibility for (18b) to be acceptable under a contrastive focus reading of the second accusative case marker on *mal*. The use of Korean particles as contrastive focus markers is a phenomenon that has been identified but not yet well understood formally; what is crucial for the point being made here in this work is that (18a) is unavailable, meaning that, even if there is a reading under which (18b) is acceptable, it cannot encompass the same case marking phenomenon observed for VNs (6).

We can understand the difference between Type 1 and Type 2 Roots as driven by the availability of the √P structure. The √P is available for only eventive Roots that semantically encode an undergoer event participant:

- Type 1 Roots can introduce IAs as their direct complements (Figure 3), so long as that IA is entailed by the ES.
- For predicates built out of Type 2 Roots, which lack ES and therefore cannot ever semantically entail an event participant, the IA is introduced higher (Figure 3), by verbal structure, which is why a non-derived process nominal is unavailable.

Figure 3. √P for eventive Roots, F_vP for non-eventive Roots



6 Against an alternative

Having two distinct structures to differentiate the argument structure of an eventive Root from a non-eventive one is conceptually beneficial.

- If we forced all of the Roots, even the eventive ones, to have their arguments introduced exclusively by functional structure, we would lose this distinction.
- We'd also be forced to posit a nominal functional projection that can introduce an IA as well (e.g., Figure 4).
- This would over-generate for the Type 2 predicates: if a nominal functional projection is available to introduce an IA, there is no reason why process nominal constructions shouldn't be possible for Type 2 Roots – we would ultimately need to make an additional appeal to their semantic properties anyways, in order to successfully constrain the syntax.

Empirically ruling out Hypothesis 2: I next provide additional data from DCM (differential case marking) in Korean to pinpoint the originating base position of the IA.

Figure 4. An alternative: functional structure only, even for VNs
There is both a verbal functional head which introduces an IA, *and* a nominal one.

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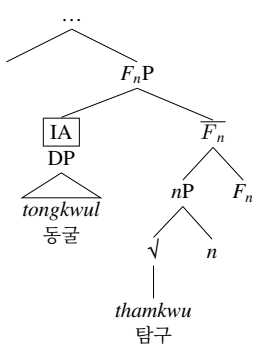

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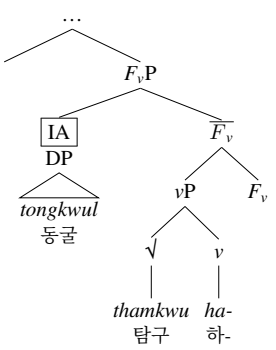


6.1 Differential Object Marking (DOM)

The √P proposal (Figure 3) predicts a difference in height: IAs hypothesized to originate in the √P are generated structurally *lower* than IAs introduced by a verbal functional projection.

In both the process nominal and complex predicate constructions utilizing VNs, we see DOM (Bossong 1985, 1991; Aissen 2003) on the direct object, sensitive to its position in the structure.

- DOM has been cross-linguistically observed to track animacy, definiteness, and/or other dimensions of prominence (Aissen 2003).
- DOM exists in Korean (E-S. Ko 2000; H-J. Lee 2005, 2006a,b; T-H. Kim 2008; S-N. Kwon & Zribi-Hertz 2008; E-S. Chung 2020).
- While Korean does not have DCM fully grammaticalized as a categorical distinction between objects, the language does reflect a clear preference for which environments seem to make case drop acceptable, following the anticipated cross-linguistic patterns.

There are two possible positions for the internal argument: either directly adjacent to the predicate (23a), or higher, above adverbal modification (23b).

(23) a. 직원이 자주 공금 (을) 횡령했다
cikwen-i *cacwu* ***kongkum(-ul)*** *hoynglyeng-ha-yss-ta*
worker-NOM frequently fund(-ACC) embezzle-do-PST-DECL
'The worker frequently embezzled (the) funds.'

b. 직원이 공금 *(을) 자주 횡령했다
cikwen-i ***kongkum*(-ul)*** *cacwu* *hoynglyeng-ha-yss-ta*
worker-NOM fund*(-ACC) frequently embezzle-do-PST-DECL
'The worker frequently embezzled the funds.'

The presence of ACC case is mediated by this positional variation: in the low position, ACC is variably able to be dropped; in the higher position, ACC is ***obligatory***[2].

- The exact same phenomenon is observed in the process nominals:
  - In (24a), the internal argument directly precedes the VN, and in this position GEN is possible, but dis-preferred.
  - In (24b), in contrast, the internal argument is licensed higher, above adjectival modification, and in this position GEN case is required.

(24) a. 직원의 잦은 공금 (의) 횡령
cikwen-uy *cac-un* ***kongkum(-uy)*** *hoynglyeng*
worker-GEN frequent-ADJ fund(-GEN) embezzle
'the worker's frequent embezzlement of funds'

b. 직원의 공금 *(의) 잦은 횡령
cikwen-uy ***kongkum*(-uy)*** *cac-un* *hoynglyeng*
worker-GEN fund*(-GEN) frequent-ADJ embezzle
'the worker's frequent embezzlement of the funds'

The object shift phenomenon shows us that there are two distinct positions for the internal argument to surface, one of them being directly adjacent to the predicate.

- Regardless of whatever case mechanism is assumed, the IA must surface in either the lower base position or a higher one (as diagnosed by its position with respect to modifiers), presumably in order to interact with higher syntactic mechanisms.

The proposal outlined above also correctly predicts that Type 2 predicates, formed from non-eventive Roots, should NOT be able to have an IA surface in the lower position[3].

- This is borne out: when the IA linearly precedes an adverbial modifier, ACC case is obligatory (25a), same as the Type 1 Roots.
- In the lower position, dropping ACC *also* leads to ungrammaticality (25b).

[2] On case drop in Korean: the optionality of case on the lower position is always possible, but seems sensitive to context in a way that is not entirely clear. The comparable obligatory-ness of ACC in constructions like (23b) is a very crisp and consistent judgment across speakers: it is much harder to drop the case on an IA in this position. A highly animate or definite IA can help make case drop more amenable in this high position, e.g. adding the demonstrative *ku*, or using a proper name

[3] Since a process nominal for a non-eventive Root is unavailable, we cannot test DCM in the nominal domain for type 2 predicates, we can only test the verbal construction.

(25) a. 주니가 문장 *(을) 크게 말했다
Cwuni-ka mwuncang(-ul) khu-key mal-ha-yss-ta*
Juni-NOM sentence*(-ACC) big-ADV word-do-PST-DECL
'Juni said (the) sentence loudly.'

b. 주니가 크게 문장 *(을) 말했다
Cwuni-ka khu-key mwuncang(-ul) mal-ha-yss-ta*
Juni-NOM big-ADV sentence*(-ACC) word-do-PST-DECL
'Juni said (the/a) sentence loudly.'

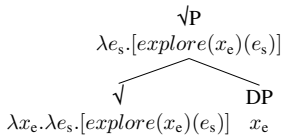
These DCM facts gain us the following empirical insights:

- the structures built from eventive Roots (type 1, the VNs) have more space: there are two positions for the IA to surface, either a low position linearly adjacent to the predicate, or a higher one that is somewhere in the VP (diagnosed by ACC marking)
- this lower position is crucially unavailable for the non-eventive Roots (type 2).

The √P structure for VNs and the functional verbal projection for non-eventive Roots straightforwardly derives the unavailability of the lower IA position for the latter.

An example formal composition of the predicate and its IA is presented in (26) for eventive Roots, and (27) for non-eventive Roots. At minimum, the present account requires the assertion of at least two types of Roots: those that introduce an event participant, of the semantic type $\langle e, \langle s, t\rangle\rangle$, and those that do not take complements, of the semantic type $\langle e, t\rangle$ (R-nominals).

(26)



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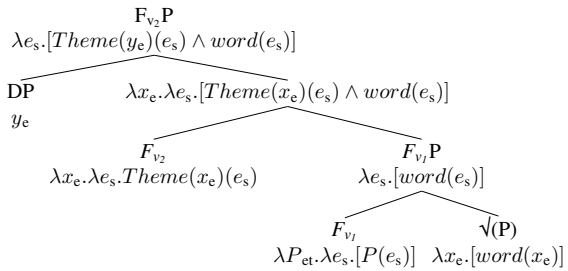

7 Conclusion

7.1 Theoretical upshots

The nature of Roots

Roots live a syntactic life: 'Root' is a syntactic category that projects a phrase.

- Introducing an IA is not a property of "verbs", but rather a property of Roots (Harley 2014); Roots that are eventive (i.e. have Aktionsart) introduce their arguments directly.
- Given that a Root's ability to take a complement is semantically constrained under this account, it must be the case that Roots are semantically individuated (contra Harley 2014), and that this semantic information is accessible to the syntax.
- This characterization of Roots departs from the strictly Distributed Morphology (DM) notion of Roots, both in the syntactic capabilities awarded to Roots, as well as in the amount of semantic information encoded in their lexical entries.

The idea that Roots drive AS, though incompatible with a strictly Exoskelatal approach (e.g. Borer 2013), need not be a full return to a Lexicalist framework.

- While the non-derived characterization of Korean process nominals calls back to the parallelism between nominal and verbal domains od Chomsky (1970), we need not throw out all of the gains that have been made in decomposing the VP.
- In a decompositional view, we still allow for structure to play a large and meaningful role in the licensing of AS: the challenge becomes defining exactly what it is that the Root is able to constrain, and what is dictated by the functional structure.
- This work leaves many open questions on this front, but at minimum, I've argued that a Root does, at least, have the capacity to license its own internal argument.

The nature of categorization

The contribution of the categorizing head, if we do choose to represent categorization structurally, is less obvious.

- Though not expanded upon here, there are some reasons to scrutinize whether *ha-* is an instantiation of the functional head that introduces an IA in the verbal domain, even for non-eventive Roots.

Morphological form

While not the main focus of this handout, it is worth noting that almost all of the Roots that fall under the 'type 1' characterization as eventive Roots are Sino-Korean Loan-

words, while almost all of the Roots that fall under the 'type 2' characterization as non-eventive Roots are native Korean items.

- Why should this be so? One possible explanation might make use of constraints on morphemes, such as, for example, boundedness.
  - native Roots in a language often have requirements for their morphological forms that are satisfied through various affixation patterns, and as a consequence the linguistic units we investigate for the presence of AS also have categorizing morphology that marks them as a particular syntactic category.
- Loanwords in Korean, however, lack overt complex morphology and resist combination with native categorizing morphemes, and so they provide us with the magnifying glass that we need in order to understand the nature of AS when the confound of categorizing morphology is absent.

7.2 Final summary

This work argues for two types of IAs, exemplified and differentiated empirically through a look into different types of complex predicates in Korean and the Roots at their core:

- low internal arguments that are introduced as direct complements to Roots, and higher internal arguments that are introduced by verbal functional structure

Given these findings, I've argued that Roots have different possible semantic classes, and must themselves be syntactic heads that project phrases and can take complements.

Acknowledgments

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Appendix

Inalienable possession, like VNs, have double case marking behavior:

(28) 니코가 한영 (의) 손을 잡았다
*Nikho-ka [Hanyeng(-uy) **son**]-ul cap-ass-ta*
Niko-NOM [Hanyoung(-GEN) hand]-ACC grab-PST-DECL
'Niko grabbed Hanyoung's hand.'

(29) 니코가 한영을 손을 잡았다
*Nikho-ka [Hanyeng]-ul [**son**]-ul cap-ass-ta*
Niko-NOM [Hanyoung]-ACC [hand]-ACC grab-PST-DECL
'Niko grabbed Hanyoung's hand.'

Another environment where VNs are found: *cwung* constructions:

(30) 뒤지는 중
twuyci-nun cwung
search-ADJ middle
'during the search'

(31) 끊임없는/끊입없이 탐구 중
kkunhimeps-nun/kkunhimeps-i thamkwu cwung
constant-ADJ/constant-ADV explore middle
'during the un-ending exploration'

Most predicates created with *ha-* and a non-eventive Root are intransitive.

(32) a. *il-ha-* ; thing-do ; 'to work'
b. *nolay-ha-* ; song-do ; 'to sing'
c. *kecit.mal-ha-* ; false.word-do ; 'to lie'
d. *swukcey-ha-* ; homework-do ; 'to do homework'

Wider distribution of *ha-*: also involveed in the creation of predicates out of adjectives (which create transitives), and mnemonic predicates from onomatopoeia (which create intransitives).

(33) a. *coh-* ; 'to be good'
b. *coha-ha* ; 'to like'

(34) a. *panccak(panccak)* ; sound/notion of sparkling, glistening
b. *panccak(panccak)-ha-, panccak-keli-* ; 'to sparkle/to glisten'