Syntactic and Post-Syntactic Verb-Raising in Korean*

Correlations between judgments of negation scope and verb-stranding ellipsis

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1 Introduction

Diagnostics for verb-raising in head-final languages such as Korean and Japanese are few and have proven largely inconclusive. By demonstrating that Korean has verb-stranding ellipsis, I provide new and clear-cut evidence for verb-raising in Korean.

Previous evidence from negation scope judgments that some Korean speakers acquire verb-raising in their grammar while others do not (Han et al. 2007) is reconsidered in the light of these verb-stranding ellipsis judgments; on the basis of a within-speaker correlation between availability of wide scope for negation and of verb-stranding ellipsis under verbal mismatch, I hypothesize that the split uncovered by Han et al. (2007) is actually one between speakers who have acquired syntactic verb-raising and those who have acquired post-syntactic verb-raising.

2 Outline

1. Brief overview of previously posited evidence for verb-raising and verb-stranding ellipsis in Korean and Japanese. Due to the presence of reasonable counter-proposals, none of this evidence can be considered conclusive.

2. Evidence for verb-stranding ellipsis in the form of recovery of manner adverbs and depictives. Since these facts cannot be accounted for under an argument ellipsis analysis, I contend that this is conclusive evidence that verb-stranding ellipsis is an available operation in Korean.

3. Discussion of the pattern wherein exactly those speakers who are sensitive to a verbal identity condition are also unable to get wide scope readings of short negation with respect to object quantifiers.

- Han et al. (2007) propose that only those speakers for whom short negation can take wide scope with respect to object quantifiers have acquired verb-raising.
- Within the theoretical framework of Harizanov and Gribanova (2019) and Gribanova (2019), both syntactic and post-syntactic head movement are assumed to exist; only the former has semantic effects, and only the latter is associated with a verbal identity condition on verb-stranding ellipsis.

I conclude that while all Korean speakers have verb-raising in their grammar, for some speakers verb-raising is syntactic, while for others it is post-syntactic.

4. Conclusion.

3 Background

3.1 Verb-raising in Korean

Koisumi (2000) proposes obligatory V-to-C movement in Japanese and Korean, providing evidence in the form of coordination and scrambling of what it is claimed must be IPs out of which the verb has raised (for other discussion of verb-raising in Korean, see Lee 2012; Park and Yoo 2013). In (1), under his analysis the verb 'eat' has undergone across the board movement out of each conjunct.

(1)   [Mayli-ka motun sakwa-lul] kuliko [Naynsi-ka motun panana-lul]
        [M-NOM all   apple-ACC] and   [N-NOM all   banana-ACC]
        mek-ess-ta.
        eat-PST-DECL.
        Mary ate all the apples, and Nancy all the bananas.

Han et al. (2007) present the following example to show that coordination in Korean cannot be used as a reliable test of syntactic constituency, as there are cases of coordination that are unexpected even under a verb-raising analysis:

(2)   Cwuni-nun [Swuni-eykey sakwa-lul] kuliko [Minswu-eykey
        J-TOP   [S-DAT   apple-ACC] and   [M-DAT
        panana-lul]   kacyeola-ko kancelhi pwuthakhay-ss-ta
        banana-ACC] bring-COMP sincerely request-PST-DECL
        Juni sincerely asked Suni to bring an apple and Minsu (to bring) a banana.

(Han et al. 2007: 8)

In (2), Han et al. (2007) show that even a verb-raising analysis cannot fully explain the constituency of the coordinated elements—the manner adverb that intervenes between the embedded and matrix verbs seems to disallow an analysis under which the embedded verb has raised all the way to matrix C.

While this example does not constitute an argument against verb-raising per se, it does undermine the core evidence for verb-raising presented in Koisumi (2000). Thus, previously provided evidence for verb-raising in Korean seems inconclusive.

3.2 Verb-stranding ellipsis in Korean

Otani and Whitman (1991) first proposed the existence of verb-stranding ellipsis in Korean, on the basis of sloppy readings for null objects. They argued that while null pro would only allow strict readings, verb-stranding VP-ellipsis would allow for sloppy readings as well. As shown in (3), both strict and sloppy readings are attested in Korean.

(3) Chelswu-ka caki-uy phyenci-lul pelye-ss-ta.   Yengmi-to
     C-NOM   self-GEN letter-ACC throw.away-PST-DECL. Y-also
     pelye-ss-ta.
     throw.away-PST-DECL.
     Cheolsu$_i$ threw away self$_i$'s letters. Yeongmi$_j$ also threw away. (✓self$_j$'s letters, ✓Cheolsu's letters)

However, others have since accounted for such cases by positing argument ellipsis as an available operation in Korean, along with Japanese (Goldberg 2005; Saito 2007; Han et al. 2020– but see also Ahn and Cho 2011; Lee 2016; Funakoshi 2016). Unlike a null pro, argument ellipsis allows for sloppy readings just as verb-stranding VP-ellipsis would.

Once argument ellipsis is assumed to be an available operation, evidence for verb-stranding ellipsis must come from recovery of elements that could not be elided under argument ellipsis. In this paper, I assume that the size of the elided constituent in Korean verb-stranding ellipsis is at least as large as vP; this assumes that Korean verbs raise at least as far as T. It is then predicted that when verb-stranding ellipsis occurs, any vP-internal elements will be recovered.

4 Evidence for verb-stranding ellipsis

Arguments against the presence of verb-stranding ellipsis in Korean claim to show that elements such as manner adverbs and depictives do not recover. I demonstrate that such arguments rest on data that do not capture the general pattern. In many contexts, recovery of manner adverbs and depictives is available, and often favored. If both argument ellipsis and verb-stranding ellipsis are available operations in Korean, then there will be surface-level ambiguity that allows a listener to interpret a statement as having been derived from either argument ellipsis or verb-stranding ellipsis. I contend that in cases where manner adverbs and depic-

tives do not recover, it is because an argument ellipsis analysis has been chosen when forming a representation of the sentence's underlying structure.[1]

4.1 Previous counter-examples

Park (1997) presents the following examples in which manner adverbs do not recover:

(4) Cyon-i ppalli talli-ko   Mayli-to talli-n-ta
     J-NOM quickly run-COMP M-also   run-PRS-DECL
     John runs quickly and Mary also runs. (✗quickly)

                                                   (Park 1997: 631–632)

(5) Cyon-i kulen iyu-lo   ttena-ss-ko   Mayli-to ttena-ss-ta
     J-NOM such   reason-for leave-PST-COMP M-also   leave-PST-DECL
     John left for such a reason and Mary also left. (✗for such a reason)

                                                   (Park 1997: 631–632)

Note, however, that these examples need not be analyzed as containing ellipsis; 'Mary (also) runs' and 'Mary (also) left' are perfectly well-formed stand-alone sentences. Thus, the speaker is actually dealing with another ambiguity here: between an analysis wherein the sentence was derived without ellipsis or via verb-stranding ellipsis.[2] We will see that non-arguments do sometimes recover in cases of such ambiguity.[3]

4.2 In polar questions

When ellipsis occurs in polar-question contexts with obligatorily transitive verbs, manner adverbs and depictives do recover, as shown in (6)–(8):

(6) a. Minswu-ka cha-lul   kkaykkusha-key takk-ass-e-yo?
         M-NOM   car-ACC clean-RES   wipe-PST-DECL-POL?
         Did Minsu wipe the car clean?

     b. yey, takk-ass-e-yo.
         Yes, wipe-PST-DECL-POL
         Yes, wiped. (✓clean)

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[1] Under the account presented so far, it is not clear why recovery of non-arguments would not always be optional, as opposed to the pattern that is observed wherein recovery can be obligatory, optional, or unavailable. In other words, it is not clear why speakers sometimes consistently analyze a surface string as having been derived via one type of ellipsis and not the other. One possibility, which is informally referenced here, is that context can pragmatically favor one analysis over another. This issue warrants further investigation.

[2] While both verbs optionally take objects– e.g. 'run the trail', 'leave home'– there is no object in the antecedent, and thus argument ellipsis is not available as a possible analysis.

[3] This may actually be somewhat surprising, as one might think that an analysis that does not require any ellipsis would be uniformly preferred to one that does– but this does not appear to be the case.

(7) a. Minswu-ka tangkun-ul ppalli   thongccaylo
         M-NOM   carrot-ACC quickly whole
         samkhy-ess-e-yo?
         devour-PST-DECL-POL?
         Did Minsu quickly swallow the carrot whole?

     b. yey, samkhy-ess-e-yo.
         Yes, devour-PST-DECL-POL
         Yes, swallowed. (✓quickly, ✓whole)

(8) a. Swuni-ka panci-lul kum-ulo   ppalli   yeyppu-key
         S-NOM   ring-ACC gold-INSTR quickly pretty-RES
         mantul-ess-e-yo?
         make-PST-DECL-POL?
         Did Suni quickly make a ring out of gold pretty?

     b. yey, mantul-ess-e-yo.
         Yes, make-PST-DECL-POL
         Yes, made. (✓quickly, ✓out of gold, ✓pretty)

Thus, polar-question contexts seem to favor verb-stranding ellipsis analyses, even when the verb is not obligatorily transitive, as in (9).

(9) a. Swuni-ka pataska-eyse maynpallo kel-ess-e-yo?
         S-NOM   beach-LOC   barefoot   walk-PST-DECL-POL?
         Did Suni walk barefoot on the beach?

     b. yey, kel-ess-e-yo.
         Yes, walk-PST-DECL-POL
         Yes, walked. (✓barefoot)

4.3   Cases of competing analyses: optional or no recovery

In the case of coordinated sentences, neither an argument ellipsis nor a verb-stranding ellipsis analysis appears to be particularly favored over the other; recovery of manner adverbs and depictives is typically optional.

(10)   Minswu-nun tangkun-ul ppalli   thongccaylo samkhy-ess-ko
         M-TOP   carrot-ACC quickly whole   devour-PST-COMP
         Swuni-to samkhy-ess-e-yo.
         S-also   devour-PST-DECL-POL
         Minsu quickly devoured the carrot whole, and Suni also devoured. (optional: quickly, whole)

There are contexts in which manner adverbs and depictives do not recover, which could be explained by an argument ellipsis analysis being heavily favored by the listener over a verb-stranding ellipsis analysis. Negating the repeated verbal complex, as in (11)–(12), often has such effects.

(11) Minswu-nun tangkun-ul ppalli   thongccaylo samkhy-ess-nuntey
      M-TOP   carrot-ACC quickly whole   devour-PST-but
      Swuni-nun samkhi-ci-anh-ass-ta
      S-TOP   devour-NEG-PST-DECL
      Minsu quickly swallowed the carrot whole, but Suni did not swallow.
      (✗quickly, ✗whole)

(12) a. Swuni-ka pataska-eyse maynpallo kel-ess-e-yo?
          S-NOM   beach-LOC   barefoot   walk-PST-DECL-POL?
          Did Suni walk barefoot on the beach?

      b. anio, an   kel-ess-e-yo/ket-ci-anh-ass-e-yo
          No,   NEG walk-PST-DECL-POL/walk-NEG-PST-DECL-POL
          No, not walked. (✗barefoot)

Han et al. (2020) tests examples of this type experimentally, and finds that recovery of manner adverbs is almost never available.[4]

The same pattern is apparent in deontic modal questions, as is apparent in (13). However, when there is negation in the antecedent, negation in the repeated verbal complex does not interfere with recovery of manner adverbs or depictives. This holds for both deontic modal questions and conjunctive contexts (see (14)–(15)).[5]

(13) a. yeki pataska-eyse maynpallo chenchenhi kel-e-to
          Here beach-LOC   barefoot   slowly   walk-DECL-also
          tway-yo?
          okay-POL
          Is it okay to slowly walk barefoot on the beach here?

      b. yey, kel-e-to   tway-yo
          Yes, walk-DECL-also okay-POL
          Yes, it's okay to walk (✓barefoot)

      c. anio, kelumyen   an tway-yo
          No,   walk-COND NEG okay-POL
          No, it's not okay to walk (✗barefoot)

(14) a. yeki pataska-eyse maynpallo chenchenhi kel-umyen   an
          Here beach-LOC   barefoot   slowly   walk-COND NEG
          toy-na-yo?
          okay-Q-POL
          Is it not okay to slowly walk barefoot on the beach here?

      b. yey, kel-umyen   an tway-yo
          Yes, walk-COND NEG okay-POL

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[4] Participants gave judgments of semantic compatibility that implied recovery of adverbs only 7% of the time. While this degree of unavailability is not predicted by my account, it does not negate the importance of accounting for the observed recovery of non-arguments in other contexts.

[5] Negation seems to play an important role in determining if recovery of non-arguments is possible. Whether this role can be subsumed under a broader pragmatic account, or whether it holds a different status, is still unclear.

Yes, it's not okay to walk (✓barefoot)

    c.   anio, kel-e-to   tway-yo
          No, walk-DECL-also okay-POL
          No, it's okay to walk (✓barefoot)

(15)   Minswu-nun tangkun-ul ppalli   thongccaylo samkhi-ci-anh-ass-ko
        M-TOP   carrot-ACC quickly whole   devour-NEG-PST-COMP
        Swuni-to samkhi-ci-anh-ass-ta
        S-also   devour-NEG-PST-DECL
        Minsu did not quickly swallow the carrot whole, and Suni also did not
        swallow (optional: quickly, whole)

While the cause of these specific variations remains mysterious, the broader picture wherein recovery of non-arguments varies with context follows from the assumption that both argument ellipsis and verb-stranding ellipsis are available operations in Korean.[6] Argument ellipsis alone cannot account for any examples in which manner adverbs and depictives recover, and so this is significant evidence for the availability of verb-stranding ellipsis in Korean.

5   Verb-raising: a split between grammars

The presence of verb-stranding ellipsis in Korean implies the presence of verb-raising as an available operation in the language. However, it appears that there is inter-speaker variation with respect to judgments expected to correlate with the availability of verb-raising.

I argue that there are no Korean speakers who do not have verb-raising in their grammar; rather, the observed split is the result of a division in whether verb-raising is acquired as syntactic or post-syntactic.

5.1   Han et al. (2007): V-raising and I-lowering

In Han et al. (2007), they argue on the basis of interactions between negation and quantifier scope that some Korean speakers acquire a verb-raising grammar and others a grammar without verb-raising. They assume that for speakers who do not have verb-raising in their grammar, the verbal complex is formed by lowering of the inflectional affixes onto the verb—they refer to such speakers as having an 'I-lowering' grammar.

Of ten native Korean speakers who were consulted so far, seven demonstrated judgments of (16) (adapted from Han et al. (2007): (64)b) that align with Han, et al.'s definition of a 'I-lowering' grammar.[7]

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[6] The most convenient explanation for the variation is pragmatic factors. It is possible, however, that there are syntactic configurations in which either of argument ellipsis and verb-stranding ellipsis are blocked.

[7] Curiously, two speakers suggested unprompted the long negation form of (16) as the grammatical alternative in the given context; this directly contradicts Han et al. (2016)'s follow-up findings that speakers are consistent in their scope judgments for both short and long negation forms.

(16)   khwukhi monsuthe-ka   motun khwukhi-lul an   mek-ess-ta
        Cookie Monster-NOM every cookie-ACC NEG eat-PST-DECL
        Cookie Monster didn't eat every cookie.

If (16) is judged to be an accurate statement given the context: 'There were 5 cookies in the kitchen. Cookie Monster ate 3 of the cookies,' Han et al. (2007) argue that verb-raising must have occurred in order for the verb-attached negation to scope over the object quantifier 'every'. On the other hand, speakers who say that (16) is not truthful in the given context are said to have acquired an 'I-lowering' grammar rather than a 'V-raising' grammar, due to their inability to get a reading wherein negation scopes over the object quantifier.

Since all ten speakers consulted, including the seven who did not accept the wide-scope reading of negation in (16), accepted as grammatical sentences and interpretations formed by verb-stranding ellipsis, it follows that all of these speakers have verb-raising in their grammar. Unless one stipulates a way to derive verb-stranding ellipsis without verb-raising, the split between speakers who accept wide-scope readings of short negation in sentences like (16) and those who do not must arise on the basis of some other difference between the speakers' grammars.

5.2   Syntactic and post-syntactic verb-raising

Gribanova (2019) argues that only a subset of languages that display verb-stranding ellipsis phenomena have syntactic verb-raising. For those languages wherein verb-stranding ellipsis is subject to a verbal identity condition—that is, where verb-stranding ellipsis cannot occur under verbal mismatch—Gribanova (2019) argues that verb-raising occurs post-syntactically. The main points are as follows:

- If a language has syntactic verb-raising, then when verb-stranding ellipsis occurs, the verb has moved out of the ellipsis site in the syntax—thus, there are no restrictions mediating the relationship between the verb in the antecedent and the verb in the ellipsis construction, they can be both morphologically and semantically distinct.

- If verb-raising is post-syntactic, then the verb is still inside the ellipsis site in the output of the syntax; and as a result, an identity condition is computed on the verb just as on the other elements inside the ellipsis site.

As demonstrated in Gribanova (2019), languages with verb-stranding ellipsis differ in sensitivity to a verbal identity condition, supporting the theory put forth in Harizanov and Gribanova (2019) that views head movement as having both syntactic and post-syntactic instantiations.

I counter the assertion that Korean verb-stranding ellipsis uniformly obeys a verbal identity condition, presenting data that demonstrate that verb-stranding ellipsis analyses are available under verbal mismatch for a subset of speakers. Critically, these speakers are exactly those who can get wide-scope readings of negation in sentences like (16), suggesting that the split between syntactic and post-syntactic head movement can be observed within a single language.

5.2.1 Adherence to a verbal identity condition

Lee (2017) presents the following example as evidence that Korean verb-stranding ellipsis obeys a verbal identity condition:

(17) Cyon-un caki-uy phyenci-lul pely-ess-ta.   *Mayli-to
    J-TOP self-GEN letter-ACC throw.away-PST-DECL. M-also
    ponay-ss-ta.
    send-PST-DECL
    John$_i$ threw away his$_i$ letter. Mary also sent.

This example is actually ill-formed in more than one way. Its grammatical equivalent is (18), in which 'also' is replaced by a contrastive topic marker.

(18) Cyon-un caki-uy phyenci-lul pely-ess-nuntey Mayli-nun
    J-TOP self-GEN letter-ACC throw.away-PST-but M-TOP
    ponay-ss-ta
    send-PST-DECL
    John$_i$ threw away self$_i$'s letters, but Mary$_j$ sent (self$_j$'s letters).

While (18) does show the sloppy reading that was argued in Otani and Whitman (1991) to be the hallmark of verb-stranding ellipsis in East-Asian languages, sloppy readings are no longer considered a good diagnostic for verb-stranding ellipsis in these languages (Goldberg (2005)). Thus (18) is not necessarily a case of verb-stranding ellipsis. In either case, (17) is not an example of verb-stranding ellipsis ruled out by a verbal identity condition, as it is ungrammatical for independent reasons.

  All of my consultants found examples of morphological verbal mismatch like (19) and (20) to be at least marginally acceptable.[8]

(19) a. pwumo-nim-kkey senmwu-lul cosimsulepkey/kuphakey
      parents-HON-DAT present-ACC carefully/hurriedly
      tuly-ess-e?
      give.HON-PST-DECL?
      Did you carefully/hurriedly give the present to your parents?

    b. (i) ung, tulyesse
        Yes, give.HON-PST-DECL
        Yes, gave (✓carefully, optional: hurriedly)

      (ii) ung, cwesse
        Yes, give-PST-DECL
        Yes, gave (✓carefully, optional: hurriedly)

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[8] The fact that all consultants accepted cases of verb-stranding ellipsis with morphological verbal mismatch as in (19) and (20) is actually unexpected. One would predict, given the theoretical framework laid out at the beginning of this section, that the two consultants who rejected wide-scope readings of negation in (16) would reject verb-stranding ellipsis readings of all examples with verbal mismatch. Julie Anne Legate suggests one possibility is that instead of morphological alternation, we are seeing allomorphy of the root EAT conditioned by honorific context.

(20) a. ne-ney halmeni-ka   panana-lul thongccaylo
    you-GEN grandmother-NOM banana-ACC whole
    tusy-ess-e?
    eat.HON-PST-DECL?
    Did your grandmother eat the banana whole?

    b. (i) e, tusy-ess-e
         Yes, eat.HON-PST-DECL
         Yes, ate (honorific form) (✓whole)

       (ii) e, mek-ess-e
           Yes, eat-PST-DECL
           Yes, ate (casual form) (✓whole)

There was a clear split between speakers, however, when judging the availability of verb-stranding ellipsis readings for cases of semantic contrast between verbs, as in (21).

(21) paykhwacem-eyse   Minswu-nun kapang-ul emcheng manhi
    department.store-LOC M-TOP   bag-ACC very   a.lot
    phal-ko   Swuni-nun sa-yo
    sell-COMP S-TOP   buy-POL
    At the department store, Minsu sells quite a lot of bags, and Suni buys (% quite a lot)

5.2.2 Correlation with negation scope judgments

The speakers who reject a verb-stranding ellipsis analysis of (21) are precisely those speakers who displayed Han et al. (2007)'s 'I-lowering' (as opposed to 'V-raising') grammar judgments. If (16), repeated here as (22), was judged to be an accurate statement in the given context ('There were 5 cookies in the kitchen. Cookie Monster ate 3 of the cookies'), then recovery of the adverb in (21), repeated here as (23), was judged to be salient; if, on the other hand, (16) was judged to be untruthful, recovery of the adverb was not reported for (23).

(22) khwukhi monsuthe-ka motun khwukhi-lul an mek-ess-ta
    Cookie Monster-NOM every cookie-ACC NEG eat-PST-DECL
    Cookie Monster didn't eat every cookie.

(23) paykhwacem-eyse   Minswu-nun kapang-ul emcheng manhi
    department.store-LOC M-TOP   bag-ACC very   a.lot
    phal-ko   Swuni-nun sa-yo
    sell-COMP S-TOP   buy-POL
    At the department store, Minsu sells quite a lot of bags, and Suni buys (% quite a lot)

This pattern leads to the conclusion that while there is no split among Korean speakers in whether or not their grammar contains verb-raising, there is a split in

whether verb-raising is syntactic or post-syntactic in their grammars. The speakers who Han et al. (2007) judged to have 'I-lowering' grammars do in fact have verb-raising in their grammars, but it is post-syntactic:

- Post-syntactic head movement has no semantic effects, which explains the inability of short negation to scope over object quantifiers for these speakers, since the verb and verb-attached negation only raise post-syntax.

- For these speakers, verb-stranding ellipsis is constrained by a verbal identity condition, as expected if the verb only raises out of the ellipsis site post-syntactically. Therefore, they cannot assign a verb-stranding analysis to (23), and thus do not get an interpretation wherein the adverb recovers.

Han et al. (2007)'s 'V-raising' speakers, on the other hand, have syntactic verb-raising in their grammars:

- Since syntactic head movement can have semantic effects, verb-attached negation can take wide scope relative to object quantifiers for these speakers.

- This analysis also predicts the insensitivity to a verbal identity condition that these speakers display with respect to verb-stranding ellipsis. These speakers are predicted to have verb-stranding ellipsis as a possible analysis for (23), and thus are correctly predicted to find recovery of the adverb in (23) possible.

6   Conclusion

I have demonstrated that verb-stranding ellipsis is an active operation in Korean on the basis of recovered non-arguments, for which argument ellipsis is not a feasible analysis. In addition, I have shown that the discrepancies between speakers with respect to their sensitivity to a verbal identity condition is correlated with their judgments of negation scope relative to object quantifiers.

On the basis of theoretical work in Gribanova (2019) and Harizanov and Gribanova (2019), I contested Han et al. (2007)'s conclusion that some Korean speakers acquire 'V-raising' and others 'I-lowering'; I argued that the split their data reveals is better captured by an analysis wherein speakers have either syntactic or post-syntactic verb-raising. Under my analysis, all the data presented here and in Han et al. (2007) can be accounted for: verb-stranding ellipsis is a uniformly available operation, since all speakers have verb-raising in their grammar.

- For speakers with syntactic verb-raising, there are semantic effects of verb-raising such as wide scope for short negation (which is assumed to raise along with the verb) and there is no adherence to a verbal identity condition.

- For speakers with post-syntactic verb-raising, there are no semantic effects and they adhere to a verbal identity condition, since in the syntax the verb is still part of the constituent to be elided.

One final note on the theoretical implications of this analysis is in order: while inspired by the theory of head movement laid out in Harizanov and Gribanova (2019), my results are not fully compatible with this theory. I have implicitly assumed that both syntactic and post-syntactic head movement can result in the formation of complex morphological constituents, in direct contradiction of the framework in Harizanov and Gribanova (2019), where only post-syntactic head movement can have such effects. Harizanov and Gribanova (2019) explicitly try to rule out syntactic verb-raising in Korean, as it would pose a counter-example to their proposed dichotomy. Further investigation may reconcile these results with this broader theoretical framework—or we may find that some of these assumptions must be revised.

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