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In Defense of DP (or KP)*

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Barrie, Michael Jonathan Mathew, Audrey Li, Martina Wiltschko, and Jong Un Park. 2021. In Defense of DP (or KP). *Linguistic Research* 38(2): 207-238. Bruening et al. (2018) present a reanalysis of the DP Hypothesis, arguing that nominal phrases are NPs and that functional elements such as number and determiners appear in the specifier of NP. We take issue with a number of their claims, arguing that the DP Hypothesis (re-named here as the DP/KP Hypothesis) is in fact not in jeopardy. We review their discussion and present our counter arguments. First, we address their discussion of the development of the DP Hypothesis, and include several critical references they did not include in their overview. Their claim that the DP Hypothesis largely rests on an architectural parallel with the extended verbal projection ignores a large body of literature in which morphological, syntactic, and semantic evidence is adduced for an articulated nominal structure. They discuss several lines of evidence based on selection in support of their claim that nominal phrases are headed by N. We show that their claims fail for empirical and theoretical reasons. Specifically, once the assumption of another layer of structure above DP (namely KP) is acknowledged, their arguments against the functional architecture in nominal phrases no longer hold. We conclude that the DP/KP Hypothesis is still the best explanation for the cross-linguistic facts on nominal phrases. **(Sogang University · University of Southern California · ICREA/UPF · Hansung University)**

Keywords DP Hypothesis, KP, idioms, nominalization, Noun Incorporation, Pseudo Noun Incorporation, selection

1. Introduction

Bruening et al. (2018) and Bruening (2020) (henceforth BEA, except where the exact page(s) are cited) take issue with a number of aspects of the DP Hypothesis concluding that it should be abandoned. They propose in its place the following structure. For the sake of discussion, we refer to this model as the NP Hypothesis.

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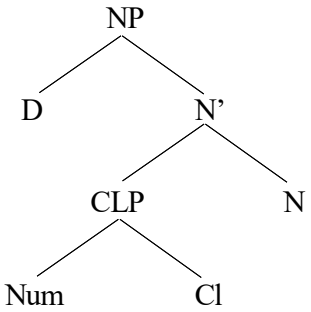

Instead, we maintain the structure in (2), which is the result of nearly forty years of research since the DP Hypothesis was first proposed (Szabolcsi 1983; Abney 1987; Ritter 1991; 1992; Travis and LaMontagne 1992; Li 1998; 1999; Svenonius 2004; Picallo 2008; Wiltschko 2009b; Cinque 2010; Cheng and Sybesma 2012; Kramer 2015). Crucially, our discussion focusses on the projection of KP and DP, and their role within a nominal phrase. For the sake of discussion, we refer to this model as the DP/KP Hypothesis.

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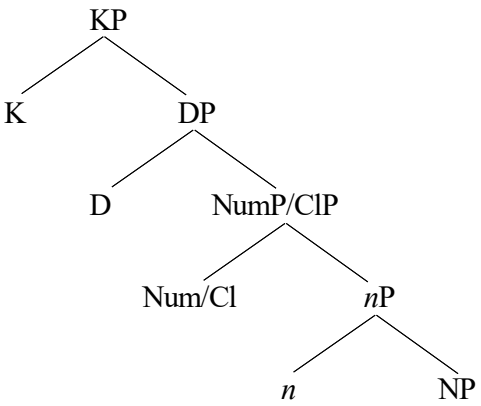


We start by presenting the arguments of BEA and then present our counterarguments. We show that the essence of the DP/KP Hypothesis remains unscathed, both on empirical and theoretical grounds. Our arguments take into account a number of advances in the structure of nominals since the advent of the original DP Hypothesis. What will be crucial for our argument is the postulation of KP, which implies that KP, rather than DP, is the highest functional projection in the nominal layer (Travis and LaMontagne 1992; Bittner and Hale 1996). We show that some of the problems with BEA's proposal stem from the failure to acknowledge the KP projection.

The paper is structured as follows. Each of the main sections takes a core argument from BEA and provides our counterarguments. Section 2 presents BEA's discussion on the historical underpinnings of the DP Hypothesis. Section 3 presents BEA's arguments based on selection along with our counter arguments. Section 4 presents BEA's arguments based on idioms, again with our counter arguments. Section 5 summarizes the discussion, where we conclude that the DP/KP Hypothesis performs better than the NP Hypothesis at accounting for the empirical facts.

2. The development of the DP Hypothesis

Bruening et al. (2018: 3) state that "the primary motivation for the DP Hypothesis has always been a structural parallel with the clause". While parallelism between the clausal and nominal domains has played a role in the DP Hypothesis, it is not the case that this is its only or even its primary motivation. Rather it was a theoretically motivated predictions, which in turn was supported empirically. That is, uniformity in clausal and nominal structure as well as X-Bar Theoretic considerations played an important role in the development of the DP Hypothesis in Abney (1987); however, such considerations did not play a primary role in Szabolcsi (1983), in Ritter's (1991, 1992) proposal for the Num(ber)P(hrase), nor in other discussions on the extended nominal projection (Li 1998, 1999; Cardinaletti and Starke 1999; Déchaine and Wiltschko 2002; Martí 2008). Likewise, numerous discussions on the location and role of gender in the nominal phrase made reference largely to the morphological instantiation of gender and its morphosyntactic properties (Ritter 1993; Picallo 2008; Kramer 2015).

We cannot reproduce the entire history of arguments in favour of the DP Hypothesis here. For good reviews see Punske (2014) and Bernstein (2008). Instead, we point out those arguments that rely on empirical facts rather than on parallelism with clausal structure. Szabolcsi's arguments rely on the extraction possibilities of possessors in Hungarian. The reader should note that her original (1983) analysis, although credited for establishing D as a category, predates an X-Bar Theoretic structure that assumes IP and CP (Stowell 1981). An updated version of her arguments appear in Szabolcsi (1994). We present just one of Szabolcsi's arguments here for the reader's benefit. Szabolcsi identified two kinds of possessive constructions in Hungarian, with strict ordering requirements. Note that nominative case is phonologically null.

(3) a. a Mari kalap-ja-i [Hungarian]
the Mari-NOM hat-POSS-PL
'Mari's hats' (Szabolcsi 1994: 180, (2b))
b. Mari-nak a kalap-ja-i [Hungarian]
Mary-DAT the hat-POSS-PL
'Mari's hats' (Szabolcsi 1994: 180, (3))

Observe that the nominative possessor appears to the right of the determiner and that the dative possessor appears to its left. Such ordering must simply be stipulated as a template under the NP Hypothesis. Under the DP Hypothesis, however, various specifier positions are available allowing for movement to derive the correct word order. Of course, such movement should be motivated, but at least a derivation is possible under the DP Hypothesis, but not under the NP Hypothesis.

Another argument in favour of an articulated structure for nominals is the existence of *wh*-movement inside nominals. This was noted for Greek (Horrocks and Stavrou 1987) and for English (Hendrick 1991). We review the English facts here. Bruening et al. (2018) note the English facts, too, and give the analysis in (4c).[1]

(4) a. a very big house
b. how big a house
c. $[_{NP}$ [how big]$_i$ a t_i house]

Hendrick argues that *wh*-movement inside the nominal mirrors *wh*-movement inside the clause and proposes an operator movement account. The structure in (4c) that BEA offer shows movement from one position in the NP to another position in the NP. Such movement is normally ruled out by anti-locality (Abels 2003), suggesting that an articulated structure is required.

BEA also gloss over numerous other developments of the DP/KP Hypothesis, notably the postulation of the Number Phrase (NumP) as an independently projecting phrase (Ritter 1991, 1992). Again, arguments in favour of NumP do not merely rely on symmetry with the clausal spine, but rather reflect the cross-linguistic morpho-syntactic properties of properties of number. In particular, Ritter (1993) argues that certain word

1 Bruening et al. (2018: 38) do not have a trace in their structure in (4c); however, they clearly state that the *wh*-phrase adjunct moves to the left edge of the nominal.

order properties of Hebrew can only be analyzed if a NumP is present between DP and NP. Recently, Preminger (2020) has re-examined Ritter's arguments for NumP in light of BEA and concludes that the NP structure is unable to account for the facts discussed by Ritter (see Preminger 2020 for details).

Finally, the light noun phrase, *n*P, has been proposed as the locus of nominalizers (Marantz 2001), noun class morphology (Carstens 2008), and gender (Kramer 2015). We note, however, that BEA are silent on whether *n*P is present in nominals and that the essence of their analysis likely remains even if it is reconfigured to include *n*P. We return to the issue of nominalizers below when we introduce Korean data showing that nominalizers can be selected by verbs.

We now turn to BEA's main argument against the DP hypothesis: namely properties of selection of nominal constituents.

3. Selection

3.1 V selects KP, not DP

BEA make several arguments against the DP hypothesis based on selection (including s-seletion, c-selection, and featural-selection). In this context, we argue that the assumption of KP is crucial to properly analyse the facts. As BEA argue, while it is common for particular verbs to select either a declarative or an interrogative CP, as in (5), there are no verbs that select either a definite or an indefinite DP. That is, there is no putative verb *stread* that selects an indefinite object but not a definite object.

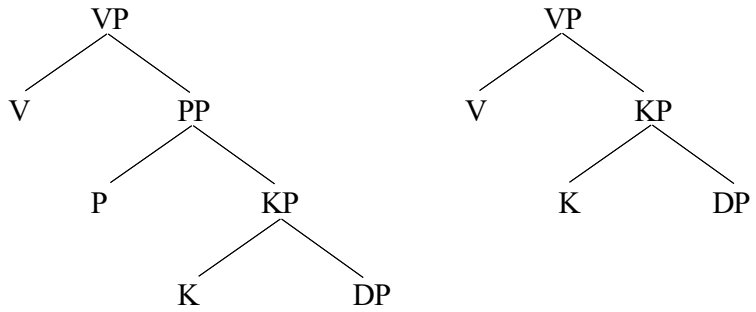
(5) a. Sue thinks that/*whether the world is flat.
b. Sue wonders whether/*that the world is flat.

Observe that the verb *think* selects a declarative CP and the verb *wonder* selects an interrogative CP. BEA do note that certain verbs select for certain prepositions (l-selection in the sense of Pesetsky 1996). For instance, *bet* selects a PP headed by *on* ('bet on the horses') and *think* selects a PP headed by *about* ('think about a problem'). BEA assume that a preposition takes an NP as a complement and projects a PP. Thus, they conclude that a verb can place selectional restrictions on only CP, PP, and NP as

only these projections are ever sisters to V. Crucially for BEA, DP is never projected and is never a sister to V, so a verb cannot place selectional restrictions on D.

We believe this argument is flawed in light of the proposal that the highest head in the extended nominal projection is KP not DP (LaMontagne and Travis 1987; Travis and LaMontagne 1992; Bittner and Hale 1996; Bayer, Bader, and Meng 2001; Wiltschko 2014).[2] We illustrate the relevant structures in (6) and (7).[3] We note that BEA did not directly address case/Case. We extrapolate from their analysis and place K in a specifier of NP and assume that D is in a lower specifier.

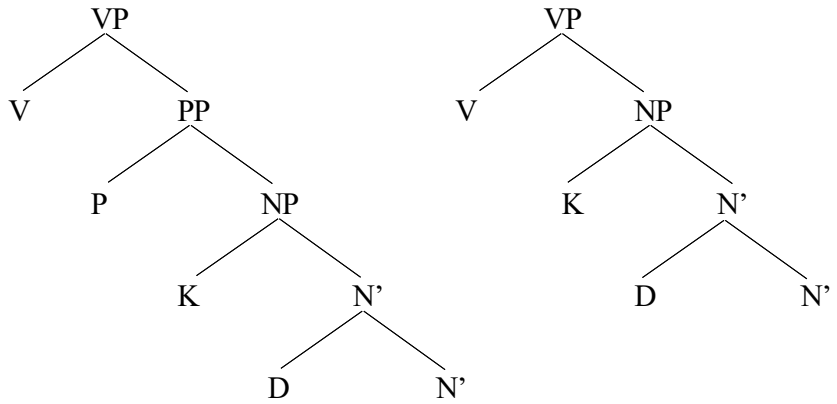
(6) DP/KP Hypothesis



2 A reviewer asks for justification for assuming KP rather than DP. In addition to the arguments made by the authors cited above, which we cannot replicate here, we also note the existence of languages with overt, non-affixal case particles distinct from the rest of the nominal. One such language is Niuean, where case particles can be seen in example (15).

3 A reviewer notes that parametric variation in nominal domain has been suggested, notably by Bošković in a series of papers (Bošković 2005, 2008, 2009). Bošković proposes that determinerless languages vary parametrically in whether DP is present or not. While a full scale investigation of Bošković's proposal would take us too far afield, we note here that under Wiltschko's (2014) proposal, which we elaborate below, functional heads vary parametrically in whether they project or adjoin. Under Wiltschko's proposal, if K, D, and Num all adjoin rather than project, the highest projection would be NP (or *n*P). We leave it to future research to work out whether Wiltschko's and Bošković's proposals are compatible and what the ramifications are. We do point out the following prediction, though. If D can be present, but not project, we predict the presence of NP languages that have determiners.

(7) NP Hypothesis (extrapolated from BEA)



We now explore the predictions that each model makes in light of the facts on selection that BEA adduce. First, the observation that there are no verbs that select the definiteness of a nominal complement falls out from both (6) and (7). This is akin to the observation that there are no verbs that select a particular value for tense or aspect of a clausal complement. For instance, as BEA note, there is no putative verb *snead* that selects only past tense or *streal* that would select for progressive aspect. The reason is straightforward under BEA's logic, given the following two assumptions: (i) the structure of the clause involves a CP that dominates TP, and (ii) the verb selects CP. There is a local relation between V and CP that allows verbs to select a clause with a given illocutionary force. That is, V selects C. There is no local selectional relation between V and T, thus it is impossible for a verb to select a particular tense or aspect. Likewise, in the nominal domain, there is no local relationship between V and D in either (6) or (7), so it is likewise impossible for a verb to select a definite or indefinite nominal.

What we expect under the DP/KP Hypothesis is the potential for selection between V and K. Note, crucially, that the NP analysis predicts that selection between V and K should not be possible just as the selection between V and D is impossible. There are numerous examples across different languages where a verb selects a particular KP, suggesting the DP/KP Hypothesis is on the right track.

For example, it is well known that in many languages certain verbs select objects with a particular case. We put forth, then, that lexical Case, in the sense of Woolford (2006), illustrates local selection between V and K. Woolford (2006: 114) provides the following Icelandic and German examples.

(8) a. Bátnum hvolfdi. [Icelandic]
boat-DAT capsized
'The boat capsized.' (Levin and Simpson 1981: 185, (1b))
b. Bátinn rak á land.
boat-ACC drifted to shore
'The boat drifted to the shore.' (Jónsson 2003: 156, (66a))
c. Jóns nýtur ekki lengur við.
John-GEN enjoys not longer at
'John is no longer available.' (Jónsson 2003: 130, (1c))

(9) a. Sie hilft ihm. [German]
she.NOM helps him.DAT
'She helps him.'
b. Sie unterstuetzt ihn.
she.NOM supports him.ACC
'She supports him.'

Nikanne (2015) offers the following Finnish data showing that different verbs select the case of their nominal complements. Specifically, the verb meaning 'like' selects and elative object while the verb meaning 'trust' selects an illative object. Note that the secondary predicates do not play a role in our discussion.

(10) a. Ville pitää Marja-sta jopa humalaise-na. [Finnish]
Ville likes Maria-ELA even drunk-ESS
'Ville likes Maria, even when s/he is drunk.'
b. Marja luottaa Ville-en jopa alastoma-na.
Maria trusts Ville-ILL even naked-ESS
'Maria trusts Ville, even when s/he is naked.' (Nikanne 2015: 83, (19))

Furthermore, local selection between P and K is predicted under the DP/KP hypothesis, but not under the NP Hypothesis. The following German examples show that prepositions select the case of their nominal complements.

(11) a. Ich gehe mit ihm. [German]
I.NOM go with him.DAT

'I go with him.'
b. Ich gehe ohne ihn.
I.NOM go without him.ACC
'I go without him.'

Sjoberg (1963: 59) notes that postpostions in Uzbek select the case of their complements. He offers the following examples. The postposition *keyin* ('after') selects an ablative complement, and the postposition *kora* ('compared to') selects a dative complement.

(12) a. bun-dan-keyin b. seng-ga-kora [Uzbek]
this-ABL-after you-DAT-compared
'after this' 'compared to you' (Sjoberg 1963: 59)

Finally, in Old Babylonian certain prepositions select the case of their pronominal complements (Hasselbach 2013: 188). Note that 'like' is a preposition here meaning 'similar to', not the verb 'to like'.

(13) a. kīma šuāti [Old Babylonian]
like him.GEN
'like him'
b. ana šuātšim
for him.DAT
'for him' (Hasselbach 2013: 188)

The data reviewed here illustrate the well-known fact that there is a selectional relationship between V and K, and between P and K. These facts are captured naturally under the DP/KP Hypothesis, but not under the NP Hypothesis. We note, however, that both models predict the selectional relationship between V and P. BEA could assume a KP while maintaining that D is still not projected, that is KP selects NP with D in its specifier. Such a move, however, would undermine their argument that V selects N. Specifically, it is crucial for BEA that V and P select NP directly and that there is in fact no functional structure dominating NP.

3.2 Noun incorporation

BEA note the well-known observation that different verbs can select clausal complements of different sizes, a phenomenon known as restructuring (Rizzi 1978; Cinque 2001). Some verbs select a finite CP complement, others a control CP complement, others an ECM TP complement, and others a bare *v*P. While the exact analysis of non-finite complementation differs among scholars, neither we nor BEA deny the robust cross-linguistic generalization that there is a selectional relationship between verbs and the size of the clausal complement. BEA claim that no such analogue exists in the nominal domain. In a footnote, they dismiss noun incorporation as a counterexample under their assertion that noun incorporation by and large is an optional process, and any verb that can incorporate a bare noun can also take a full nominal as a complement. This claim is factually wrong, however, as we now show.

While it is true that many cases of noun incorporation in the canonical sense are optional (Mithun 1984; Baker 1996), this is far from a universal aspect of noun incorporation. As Barrie (2011: section 4.2.1) discusses for Oneida (a Northern Iroquoian language closely related to Mohawk), there are verbs which require noun incorporation, verbs for which noun incorporation is optional, and verbs that cannot appear with an incorporated noun (but which can appear with a full nominal object). Thus, while it is true that many verbs can take a full nominal or a bare nominal as a complement, there is a significant portion of the vocabulary in Oneida that consists of verbs that select bare nominals only and those that select full nominals only.[4] Consider the Oneida data below.

(14) Obligatory NI

a. waʔshakonyá:saʔ [Oneida, Daisy Elijah, speaker]
waʔ-shako-hnyaʔs-a-ʔ
FACT-3SG.M.AG:3SG.F.PAT-neck-grab-PUNC
'He put his arms around her neck.'

b. *yenyalá:ke waʔshákoʔ

4 The exact identity of the full and bare nominal complements is a matter of discussion. The bare complements are typically taken to be NP, but see Barrie (2015) for arguments that the incorporated noun is an *n*P. Also, Case appears not to have any syntactic manifestation in Oneida (or Iroquoian in general), begging the question whether full nominals are KPs or DPs. For simplicity, we stick to the phrase 'full KP' to refer to a nominal expression capable of expressing the full range of morphosyntactic material in the language.

ye-nyal-ake waʔ-shako-a-ʔ
3SG.F-neck-LOC FACT-3SG.M.AG:3SG.F.PAT-grab-PUNC
'He put his arms around her neck.' (Barrie 2011: 101)

These two examples illustrate that *a* ('grab') obligatorily incorporates a bare noun, but cannot take a full KP as a complement. See Barrie (2011) for several more examples and detailed discussion. Likewise Woodbury (1975: 44) discusses Onondaga examples in which a transitive verb can take a full KP object, but cannot incorporate. Other languages in which some verbs show obligatory noun incorporation include Inuktitut (Johns 2007) and Nuu-chah-nuulth (Wojdak 2008). These facts clearly show that the range of facts shown by clausal restructuring is mirrored by nominal restructuring. In other words, some verbs select a full KP while other verbs select a bare noun (either N, NP or *n*P, depending on the analysis).

Pseudo noun incorporation (PNI) is also described as an optional process in Niuean (Massam 2001) and many other languages since Massam's original discussion. Although the range of variation is not as rich as described for Iroquoian above, Massam (2009) does, however, describe a set of verbs that require PNI. Consider first an instance of optional PNI. Massam (2001) gives the following minimal pair, citing Seiter (1980). Observe in the PNI example in (15b) the case marker is absent. Massam argues that the PNI object projects up to NumP, but not higher.[5]

(15)a. Takafaga tūmau nī e ia **e** **tau** **ika**. [Niuean]
Hunt always EMPH ERG he **ABS.C** **PL** **fish**
'He is always fishing.'
b. Takafaga **ika** tūmau nī a ia.
hunt **fish** always Emph ABS.P he
'He is always fishing.' (Massam 2001: 157, (5))

The following example shows PNI in an existential construction. Massam (2009) crucially

5 A reviewer notes that we assume that plural marking is introduced in NumP. We do note that Massam in much of her work (cited in this paper) argues that number in Niuean is indeed introduced by NumP. There is, of course, a large body of work on number, especially in East Asian languages, which argues that number is a modifier rather than a head, though we note that this analysis is still amenable to Wiltschko's approach. The reader is urged to consult Kim and Melchin (2018a, b) for a discussion of this approach and a review of previous approaches to number in East Asian languages.

notes that PNI is obligatory for certain predicates such as *muhu* ('to be plentiful'). She cites the following example from Sperlich (1997).

(16) Kua hifi fakamunamuna haana ulu he [Niuean]
PERF shave bald 3SG.GEN head because
muhu **kutu**.
be-plentiful **lice**
'Her hair was cut bald because it is full of lice.' (Massam 2009: 167, (1b))

Regardless of the optionality of the PNI, its existence shows that the range of what a verb can select varies cross-linguistically. In all languages, it is assumed that verbs can select full KPs. In Northern Iroquoian (Mohawk, Oneida, and Onondaga, discussed above) certain verbs can also select an NP or *n*P. In Niuean, however, a verb can select a NumP (under Massam's analysis, not recapitulated here). Barrie and Mathieu (2016) and Wiltschko (2009a) present additional data from a wide range of languages in which NI selects nominal complements of different sizes. This range of variation is difficult to capture under the NP Hypothesis, but falls out naturally under the DP/KP Hypothesis. Crucially, there is a consistency in the size of nominal complements from one language to the next. Oneida incorporates an *n*P, and Niuean incorporates a NumP. There is no clear reason for this consistency under the NP Hypothesis as there is no way to specify which functional elements may appear in the specifiers of the NP. Under the DP/KP Hypothesis, however, simple selection accounts for this consistency. In Oneida, some verbs select KP only, some *n*P only, and others KP or *n*P. In Niuean, some verbs select KP only, some NumP only, and some KP or NumP.

3.3 Korean nominalization

There is also evidence from Korean that verbs can select functional material inside the nominal phrase. Certain verbs take nominal complements, including nominalized clauses. We consider three nominalizers: *-ki*, *-(u)m*, and *-kes*, which we assume instantiate the category *n*.[6] Consider the following data.

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6 A reviewer points out that contrary to what we assume, *-um* and *–(u)n kes* in (18) may not be nominalizers but complementizers as they can combine with various verbal endings for tense or modality. Notice, in fact, that while there has been a consensus on the status of *-um* and *-ki* as nominalizers, researchers working

(17) Yense-nun [pro hothel-eyse ca-ki/l-kes/*um]-(l)ul [Korean]
Yense-TOP [hotel-at sleep-KI/FUT-KES/UM]-ACC
wenha-n-ta
want-PRS-DECL
'Yense wants to stay at a hotel.'

(18) a. *Yencin-un [totwuk-i cip-ey chimipha-(ss)-ki]-lul [Korean]
Yencin-TOP [thief-NOM home-at break.in-(PST)-KI]-ACC
alachali-ess-ta
notice-PST-DECL
Intended. 'Yencin noticed that the thief broke into her home.'

b. Yencin-un [totwuk-i cip-ey chimipha-n-kes]-ul
Yencin-TOP [thief-NOM home-at break.in-PST-KES]-ACC
alachali-ess-ta
notice-PST-DECL
'Yencin noticed that the thief broke into her home.'

c. Yencin-un [totwuk-i cip-ey chimipha-ss-um]-ul
Yencin-TOP [thief-NOM home-at break.in-PST-UM]-ACC
alachali-ess-ta
notice-PST-DECL
'Yencin noticed that the thief broke into her home.'

These data raise two important issues for the current study, and for BEA. First, we see that different verbs select different nominalizers in Korean. *Wenhata* ('to want') selects either *–ki* or *-kes*, while *alachata* ('to notice') selects either *-kes* or *-um*. Under the view

on Korean morphosyntax have different views on *–(u)n kes*: K.-Y. Lee (2009) and Lee and Kim (2021) take *-um* and *–ki* as nominalizers, while N.-K. Kim (1984), Gamerschlag (2007), and J. U. Park (2011) *-ki* and *-(u)n kes* as nominalizers; however, Sohn (1999) and K.-Y. Lee (2009) take *–kes* as a noun ('thing') immediately preceded by the adnominalizer *-(u)n*. Despite the diverging views on the status of the three markers, however, one observation commonly made in the literature is that nominalizers in Korean can carry mood or modality while tense can be embedded depending on the type of nominalizers (see K.-Y. Lee 2009 for the relevant discussion). This observation suggests that the possibility of co-occurrence of *-um* or *-kes* with a tense suffix or even a modal suffix does not necessarily undermine the current approach to these two markers. As such, we will continue to assume that all the three markers *–ki*, *-um*, and *-kes* serve as nominalizers. A related question also raised by the reviewer is whether we would need to adjust the current discussion in a different way if *-um* or *–(u)n kes* were not a nominalizer but a complementizer. If *-um* and *–(u)n kes* are truly complementizers, which does not seem to be entirely true as discussed above, then they have no bearing on the current discussion.

espoused by BEA selection is purely local and is evaluated under sisterhood. This view is crucial for BEA's arguments to go through, as they argue that verbs enter into a selectional relationship with the lexical noun only. These facts, however, raise a quandary for the argument on KP we made above. We argued that the reason that verbs do not select DP is that KP is the highest functional projection in the nominal domain. We proceeded to give several examples in which verbs select a particular KP, tacitly accepting the view that selection is under sisterhood only. The Korean facts mentioned here suggest that selection can bypass the K head, as the verb seems to be selecting the nominalizer directly. The solution, we believe, lies in a proposal by Saito (2016). Saito proposes that in languages with suffixal case (such as Japanese and Korean) K is too weak to provide a label. For the nominalized constructions in (17) and (18), then, K merges with *n*P, but does not project. The label of the product of Merge (K, *n*P) is *n*, which makes the nominalizer visible to the verb for selection.[7]

Recall from above that we argued that since KP is the highest projection in the extended nominal projection, K is visible to the verb for selection. The argument above for Korean suggests that we should not find instances of lexical case in Korean. We note, however, that some two-place unaccusative predicates, which Kim (1990) dubs 'dyadic unaccusatives,' determine the forms of the arguments they select. Examples include the following: psych verbs like *mwusep-* ('be scary'), the existential possessive verb *iss-* ('exist'), and some other non-agentive stative verbs such as *manh-* ('be abundant') and *khu-* ('be big'), etc.

(19) DAT-NOM by psych verbs [Korean]

a. Na(y)-eykey/ka umak-i coh-ta.
I-DAT/NOM music-NOM be.likable-DEC
'I am fond of music.'

b. Na(y)-eykey/ka Yumi-ka mwusep-ta.
I-DAT/NOM Y.-NOM be.scary-DEC
'I am afraid of Yumi.' adapted from (Y.-J. Kim 1990: 64)

(20) a. DAT-NOM by the existential possessive verb [Korean]
John-eykey/i ssangtwungi-ka iss-ta.

7 See K. Choi (2006) for similar ideas. Though not appealing to the notion of labelling, he argues that Korean Case markers are functional heads that are directly adjoined to an NP, without being projected. We thank an anonymous reviewer for draining our attention to this work.

J.-DAT/NOM twin-NOM exist-DEC
'John has twins.'

b. DAT-NOM by non-agentive stative verbs
appa-eykey/ka kenmwul-i manh-ta.
daddy-DAT/NOM building-NOM be.abundant-DEC
'Dad has a lot of buildings.'

Observe that the dative marker *-eykey* on the first argument alternates with the nominative Case marker *–i/-ka* in all of these examples. We argued above that K does not project in Korean, based on Saito's analysis of suffixal case in Japanese. It has been argued, however, that the dative marker in Korean is a postposition rather than a case marker (Urushibara 1991; Cho and Sells 1995; J.-B. Kim and Sells 2010; Park and Lee 2019). Assuming that P projects, the Korean facts presented so far fall into place. In Korean, the verb can select a PP of a particular type or a nominalizer of a particular type, but, under the assumption that K does not project, the verb cannot select a KP of a particular type. Indeed, there are no known instances of nominative or accusative case being assigned as idiosyncratic lexical case as in German and other languages as discussed above.[8]

In sum, then, a verb in Korean can place a selctional restriction on the highest projection in the extended nominal projection as assumed throughout. Korean differs from

8 Pointing out that the so-called multiple/double nominative case frame is also possible for (20), one reviewer asks if we have any account for such an alternating pattern. The fact that the DAT-NOM pattern can alternate with the NOM-NOM pattern, as in (20), does not seem to affect our claim that a particular verb selects for the case form of its argument. An important question to ask regarding the case alternation appears to be how the postposition *-eykey* can alternate with nominative case. It has often been argued that what alternates with *-eykey* in contexts like (20) is not a real nominative case marker but a marker that signals the so-called 'Major Subject' (J. Yoon 2015, a.o.). Note also that even an unselected adjunct can serve as the Major Subject, as in (i), and this suggests that the change of the dative marker in (20) into the nominative one is made possible due to the nature of the Major Subject construction itself, which has no direct relation with the property of the predicate. We invite the readers to J. Yoon (2015) and references therein for more information about the case alternations in the Major Subject construction.

(i) a. yelum-ey maykcwu-ka coh-ta.
summer-LOC beer-NOM be.good-DEC
'During the summer, beer is good.'
b. yelum-i maykcwu-ka coh-ta.
summer-NOM beer-NOM be.good-DEC
'It is during the summer that beer is good.'

the previous cases, however, in that K does not project to KP, and thus cannot be selected. The verb, then, can select the kind of nominalizer it wants. We ended this section with a discussion of dyadic unaccusatives, in which both arguments are selected by the verb. We showed that such verbs optionally select a dative phrase as one of its arguments. We noted that dative case, however, is introduced by a postposition, which projects to PP. Korean, as noted, has no instances of lexical case.

3.4 Head selection

BEA argue that differences in head-selection in the clausal domain and in the nominal domain provide further evidence for the NP Hypothesis. In the clausal domain Comp selects Infl, and auxiliaries determine the form of lower auxiliaries. For example, *that* selects finite Infl and *for* selects non-finite Infl, and the perfect auxiliary selects the *-en* form of the next lower verb or auxiliary. This is illustrated in the following examples.

(21) a. I would like for John to come.
b. I expect that John will come.
(22) a. I have eaten.
b. I have been eating.

BEA note, following van Riemsdijk (1998), that similar facts do not hold for the nominal domain. In fact, they note that the properties of the noun determine the form of the higher elements. Plural nouns invoke the use of plural determiners and demonstratives, for instance (*this dog*, *these dogs*), although we note that while it is traditionally assumed that the form of the noun determines the form of the demonstrative, it is logically possible that the form of the demonstrative determines the form of the noun.

We do find instances where higher functional heads (under the framework of the DP/KP Hypothesis) determine the form of lower elements, however. Consider the following German data.

(23) a. der Berg des Berg-(e)s [German]
the.M.NOM mountain the.M.GEN mountain-SG.GEN
'the mountain' 'of the mountain'

b. die Berg-e den Berg-en
the.PL.NOM mountain-PL the.PL.GEN mountain-PL.GEN
'the mountains' 'of the mountains'

The declension on the noun depends on number and Case, both of which are encoded higher in the nominal hierarchy under the DP/KP Hypothesis. Granted that such instances are rare, their existence undermines the notion that nominal projections are fundamentally different from verbal projections.

Chinese languages also provide an example of a higher head in the nominal domain determining a lower head. Consider the following data.[9]

(24) a. na (ge) dongxi [Mandarin Chinese]
DEM CL thing
'that thing'
b. hit *(e) mihkiann [Taiwanese]
DEM CL thing
'that thing'

In Mandarin Chinese, a demonstrative can optionally appear with a lower classifier; however, in Taiwanese the classifier is obligatory. The DP hypothesis captures this by assuming that the D head places a selectional constraint on the Cl head in Taiwanese, but not in Mandarin Chinese. Again, this is the kind of selectional restriction that BEA claim does not exist.

Note, too, that upward determination is also found in the clausal domain. For example, in Romance languages, verbs are divided into three inflectional classes. We illustrate this with examples from Portuguese, where verbs are divided into *-ar*, *-er*, and *-ir* classes. The verb class determines the form of the aspectual morphology on the verb (the vowel that determines the verb class is referred to as the thematic vowel (TH)).

(25) a. fal-ar fal-a-va fal-a-vas [Portuguese]
speak-INF speak-TH-IMPF.1SG speak-TH-IMPF.2SG

9 Note that the optionality of the classifier in (24a) is not simply a case of PF deletion. When the classifier is present, the object must be something compatible with the classifier *ge*. When the classifier is absent, the object could be anything, regardless of whether it uses *ge* or another classifier.

	'to speak'	'I was speaking.'	'You were speaking.'
b.	part-ir	part-í-a	part-í-as
	leave-INF	leave-TH-IMPF.1SG	leave-TH-IMPF.2SG
	'to leave'	'I was leaving.'	'You were leaving.'

Observe that the imperfective form in *-ar* verbs contains a /v/, which is absent in the *–ir* verbs. Given the Mirror Principle (Baker 1985) and our general understanding of clausal structure (Raposo 1987; Pollock 1989) we can assume that the agreement and aspectual morphology is higher than the verb class morphology. Observe that the thematic vowel determines the form of the imperfective aspect morphology.

BEA discount auxiliary selection (*be* versus *have*) with passives and unaccusatives as an instance of upward determination since, in many instances, the same verb can appear with either auxiliary. For instance, in French *descendre* ('to go/come down') as an intransitive is unaccusative, and selects *be* as an auxiliary. However, the same verb can also be used as a transitive verb (meaning 'to bring something down'), in which case it selects *have* as an auxiliary. Assuming an extended verbal projection, as BEA do, it is still the case that a lower head (Voice/*v*) determines the form of a higher head (Asp). This is shown in (26a), where the type of voice head (v_{unacc} or v_{trans}) determines the form of the auxiliary (here represented as occupying T for the sake of exposition). Furthermore, BEA attempt to contrast auxiliary selection with the nominal domain, claiming that in the nominal domain, it is the noun itself that determines the form of the higher elements, but in the clausal domain it is not the verb, but rather a higher head. We take issue with this claim as it is typically not the noun itself, but the gender and number of the nominal phrase that determines the forms of the higher determiners, demonstratives, and adjectives. A Spanish example is given in (26b). There is a masculine form of the determiner (*el*) and a feminine form (*la*). The nouns *amigo* and *amiga* contain a morpheme indicating the gender of the noun, which we analyze as an *n* head. Thus, it is not the noun itself that determines the form of the determiner, but rather a higher functional head (*n* in this case). Just as some verbs may be either transitive or intransitive, some nouns may be masculine or feminine. BEA have, in fact, shown how verbs and nouns act alike in this regard. Specifically, *v* determines the form of the auxiliary in T, and *n* determines the form of the determiner in D.

(26) a. [$_{CP}$ [$_{TP}$ be/have [$_{vP}$ v_{unacc}/v_{trans} [$_{VP}$ descendre]]]]
b. [$_{KP}$ [$_{DP}$ el/la [$_{nP}$ -o_{masc}/-a_{fem} [$_{NP}$ amig-]]]]
c. el amig-o
the.M friend-M
'the male friend'
d. la amig-a
the.F friend-F
'the female friend'

3.5 Semantic effects of merge

BEA briefly mention the semantic contribution of D within compositional semantics. They note that the mode of composition between D and the NP with which D merges is independent of the label of the projection after they merge. Recent investigations into the way in which a syntactic object merges into the derivation, however, have revealed that merge is not semantically inert (Wiltschko 2008, 2014). Rather, the way two syntactic objects merge determines particular syntactic and semantic properties. Wiltschko gives extensive evidence that projecting number (giving rise to a NumP) in English and non-projecting number (which adjoins to the nominal, not projecting NumP) in Halkomelem have vastly different properties, all of which fall into place if we assume an extended nominal projection (or nominal spine in Wiltschko's terms).

To give just one example consider the following Blackfoot data. The first two examples illustrate singular and plural number. The facts are similar to English. The presence of the plural morpheme gives rise to an obligatory plural interpretation (two or more), while its absence gives rise to an obligatory singular interpretation (only one). The third example, however, gives rise to a general number interpretation (one or more).

(27) a. Nit-a'pihkahtoo-'p-wa amo aipasstaam. [Blackfoot]
1-sell.TI-TH-3SG DEM.SG apple
'I'm selling one apple.' (only one)
b. Nit-a'pihkahtoo-'p-yi amo-istsi aipasstaam-istsi.
1-sell.TI-TH-3PL DEM.PL apple-PL
'I'm selling apples.' (two or more)
c. Nit-iponota'si-wa aipasstaam.
1-sell.AI-3SG apple
'I'm selling one or more apples.' (K. Kim et al. 2017: 1, (1))

The first two examples contain full KPs with a Num head specified either as singular (zero morphology) or plural (with an overt plural marker as shown).[10] The third example illustrates a reduced nominal phrase, which obligatorily lacks a demonstrative. One is tempted to analyze such a phrase as a bare *n*P that lacks a NumP and therefore contains no specification for number, hence the general number interpretation. The following data, however, make such a straightforward analysis impossible.

(28) a. Nit-oyii aipasstaam. [Blackfoot]
1-eat.AI apple
'I ate (one or more) apples.' (general number)
b. Nit-oyii aipasstaam-istsi.
1-eat.AI apple-PL
'I ate (two or more) apples.' (plural) (K. Kim et al. 2017: 5, (8))

The first example illustrates general number as shown above. The second example, however, contains a plural marker, giving rise to an obligatory plural interpretation. K. Kim et al. argue, based on Wiltscko's (2008, 2014) analysis, that the Num head in Blackfoot can either merge as a head and project, giving rise to the singular-plural distinction as in English, or that Num can merge as an adjunct, giving rise to the general-plural distinction as in (28). We invite the reader to consult K. Kim et al. (2017) for the technical details of their proposal. To the best of our knowledge there is no other generative analysis that captures the variation shown above. Crucially, BEA's proposal, which denies the difference between heads that project and heads that modify by adjunction fails to capture this variation.

We turn next to BEA's discussion of idioms.

10 A reviewer asks what evidence there is for a KP projection in Blackfoot given that Blackfoot lacks case morphology. Wiltschko (2014) argues that the KP layer is responsible for linking the nominal to the clause. In more familiar languages such as Korean and English, this is accomplished by case (visible only on pronouns in Modern English). Bliss (2013) picks up on this idea and argues that the proximate/obviative distinction in Blackfoot is responsible for the linking function of Wiltschko, and, hence, that Blackfoot has a KP. We leave the reader to consult Bliss for more details.

4. Idioms

BEA adduce evidence from idioms in support of the NP Hypothesis. Recall that under the NP Hypothesis verbs select either CP, PP or NP, but not DP (restructured CPs notwithstanding). They present an impressive range of data from three unrelated languages showing that the meaning of the idiom overwhelmingly arises from the combination of a lexical verb and a lexical noun and that functional material inside the nominal does not contribute to idiomatic meaning.

BEA propose that idiomatic meaning can arise only from local selection. Thus, idioms of the form V-PP and V-N are expected under their analysis, while V-DP idioms are not. To strengthen their claim, they give examples in which elements such as determiners and number are allowed to vary within idioms. Accordingly, they also show that prepositions and nouns cannot vary. Here are some examples that Bruening et al. (2018: 17, (49)-(51)) provide.

(29) a. bark up the wrong tree – "You're barking up another wrong tree."
b. beat around the bush – "Let's beat around this bush no more."
c. rock the boat – "This'll rock some boats."
d. have a bone to pick with – "I have no bone to pick with you."
e. talk turkey – "Let's talk some serious turkey."

We do note a few exceptions, however. First, there are instances of prepositions that can vary in idioms. Consider the following examples.

(30) a. go with the flow go against the flow
b. swim with the current swim against the current

Also, BEA argue that in the classifier languages Korean and Vietnamese the choice of classifier does not affect the meaning of idioms. Huang (2005), however, offers the following Mandarin data, showing that the choice of classifier is important in interpreting the idiom. The idiom in question is *chui niu* (lit. 'blow cow' idiomatic 'to bluff/bullshit'). Typically, a classifier is not required for this idiom. (Whether it is null or completely absent is peripheral to the discussion.) Idiom chunks can be freely fronted in Mandarin. Thus, even though *niu* ('cow') has been fronted in (31a) the idiomatic reading is still

available. The interesting case is (31b). If a particular event of bluffing is being discussed, then a demonstrative and a classifier are necessary. Note that the classifier for animals *tou* cannot be used here, rather the generic classifier *ge*, which is also used for events, must be used to keep the idiomatic reading. Thus, the choice of classifier contributes to the interpretation of the idiom, contra BEA.

(31) a. niu, ta daoshi bu chui de [Mandarin]
cow, 3 nevertheless NEG blow DE
'He does not bluff/bullshit.'

b. zhe ge/*tou niu wo jeude ni shi chui de tai guohuo le
this CL/CL cow 1 feel 2 be blow DE too over LE
'(I feel) you have bluffed way too much this time.'

Furthermore, there appear to be cases of idioms belonging to their 'Class 2' (consisting of V and N as well as D, Cl or Num in between them), where changing the numeral ends up eliminating the idiomatic meaning. This is unexpected under BEA's claim. For instance, if we replace *yang* ('two') with *han* ('one') in their Korean example (64b), repeated here as (32a), its idiomatic meaning cannot be maintained. Similarly, the replacement of *han* ('one') with *twu* ('two') blocks the idiomatic meaning, as in (32b).

(32) a. Emma-ka atul-hantey yang son-ul ta tul-ess-ta.
mother-NOM son-DAT two hand-ACC all hold.up-PST-DECL
'The mother gave up her son.' (hold up hand = give away/up)
(Bruening et al. 2018: 29, (64b))

b. Ecey cim ssa-nula han/*twu swum-to mos
yesterday luggage pack-due.to one/two wink-even NEG
cha-ss-e.
sleep-PST-DECL
'I didn't get a wink of sleep yesterday due to packing.' (sleep a wink = stay up all night)

If only the noun and not the determiner are involved in idiomatic meaning, then it becomes difficult to understand idiom chunks replaced by pronouns. Consider the following example (Nunberg, Sag and Wasow 1994).

(33) John spilled the beans, but Mary didn't spill them.

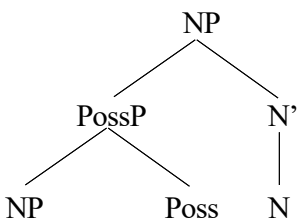
In this example, we get the reading that Mary didn't spill the beans – namely, she did not reveal the secret. Crucially, the pronoun replaces the determiner and the noun together. If the determiner is not part of the idiom it is unclear how the idiomatic expression obtains in (33).

Bruening et al. (2018) do not provide a precise formulation for idiom formation; however, they tentatively propose the following schema.

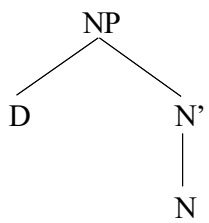
> "Basically, for two elements X and Y to form (part of) an idiom, X and Y have to enter into a very tight local relationship, namely, some sort of selection-like dependency that is limited to sisterhood (or possibly a condition like the following: Y has to merge with a projection of X, or vice versa). Longer idioms are formed by a series of local relationships." (Bruening et al. 2018: 14)

Thus, for BEA an idiom consists of a set of heads such that for any head X in the idiom there must be at least one other head in the idiom, Y, such that X merges with Y or a projection of Y, or Y merges with X or a projection of X. If we consider a complex idiom such as *get X's goat* under BEA's approach, we must assume that V selects an NP and that the possessor is a PossP in the specifier of the NP. Thus, V selects a projection of N and a projection of N selects a projection of Poss, giving rise to the V-Poss-N idiom. Allowing this kind of transitive idiom formation, however, leads BEA to predict the very situation they are trying to block. Specifically, if V selects N and N selects Poss, which is in the specifier of NP, then it is also possible for V to select N and then for N to select D, which is also in the specifier of NP under BEA's proposal. Thus, their mechanism predicts that V-D-N idioms should exist, counter to their claim. Here are the relevant structures under BEA's analysis.

(34) a.



b.



Another problem for the strict locality hypothesis on idiom formation arises when idioms are nominalized (see also Stone 2015). Recall that BEA assume that PP projects and that P takes NP as a complement, giving rise to the numerous idioms with prepositions that they report. In the idiom *pull the wool over X's eyes* the verb putatively selects the noun *wool* as a complement with the determiner in the specifier of NP. Consider the following nominalized form, in which the idiomatic reading still holds.

(35) John's pulling of the wool over the customer's eyes was unacceptable.

Under BEA's assumptions, the preposition of projects a PP, which blocks the local relationship between the verb and the noun.

We saw above that BEA's mechanism of idiom formation over-generates as it allows V-D-N idioms, which they claim do not exist. We show here that it also under-generates. Onondaga (along with Northern Iroquoian languages in general) has a complex array of so-called pre-pronominal prefixes. These prefixes appear at the left edge of the verbal complex before the agreement marker (the pronominal prefix). They interact with mood morphology, suggesting that they are high in the left periphery of the clause. One such pre-pronominal prefix, called the coincident in the Iroquoianist literature, is used to anchor the tense of an embedded event to that of the matrix event.[11] Here is a typical example (Woodbury 2018: 199). Observe that the coincident prefix (COIN) introduces the embedded clause and marks it as temporally dependent on the main clause.

(36) Tchihe? gwa? wa?thahgwa? ne? oné̱ya? [Onondaga]

tci-h-e-?	kwa?	wa?thahgwa?	ne?	oné̱ya?
COIN-3SG.M.AG-walk-PURP	just	he.picks.it.up	DET	stone

'He picks up a stone as he walks.' (Woodbury 2018: 199)

Under BEA's proposal the coincident prefix should not be able to form idioms with the embedded verb; however, such idioms are found in Onondaga. Consider the following examples (Woodbury 2018: 201f). In the first example the verb *eR* means 'want' or 'think'. When it combines with the coincident prefix it has the idiomatic meaning of

11 Curiously, many of the pre-pronominal prefixes indicate direction or other low adverbial semantics creating a puzzle for mapping the morphology to syntax. Crucially, the coincident morpheme is not semantically low, as we discuss next.

'intend' or 'do on purpose'. In the second example the verb *oʔtę* ('be a kind') and the incorporated noun *ųnh* ('life') form an idiom meaning 'have a certain lifestyle or attitude'. When this form combines with the coincident prefix it takes on the additional idiomatic meaning of 'think alike'.

(37) a. tshaʔgé:hdaʔ [Onondaga]
tsh-aʔ-k-eR-ht-aʔ
COIN-FACT-1SG.AG-think/want-CAUS-PUNC
'I intended to do it.' / 'I did it on purpose.'
b. tshaʔdehnųnhoʔdę́h
tshaʔ-te-hn-ųnh-oʔtę-h´
COIN-DUC-3DU.M-life-be.a.kind-STAT
'They two think alike.' (Woodbury 2018: 201f)

Given that the coincident prefix introduces embedded clauses, it must be high in the extended clausal projection. Nevertheless, it can participate in idiom formation with the embedded verb as the examples above show.

Finally, Stone (2016) notes a variety of examples in which the components of a verb-object idiom are never in a local relationship at any stage of the derivation.

(38) a. John certainly isn't making what I would regard as headway.
(Stone 2016: 40)
b. A can of worms is often easier to open than one expects.
(Stone 2016: 58)

To summarize, we have shown that BEA's model both over-generates and under-generates the range of possible idioms. We have also shown a small number of empirical problems with their generalization that functional material in the extended nominal projection does not participate in idiom formation. We do acknowledge that their robust generalization – that idioms are frequently the result of V+N formations – requires an account; however, we have shown that their mechanism fails to account for this generalization. We also put forth that this generalization says nothing about the debate between the NP Hypothesis and the DP/KP Hypothesis.

5. Conclusion

BEA have argued against the DP Hypothesis (re-configured here as the DP/KP Hypothesis). They propose that nominal phrases are headed by NP and that determiners and number phrases appear in the specifier of NP. We have argued here that BEA's arguments do not hold and that the DP/KP Hypothesis is still the best account for the cross-linguistic range of data.

Our first line of discussion centered on a body of literature on nominal structure that BEA do not cite. Crucially, they ignore literature on KP and NumP. We have argued that failing to take KP and NumP into account undermines their arguments. The main arguments are recapitulated below.

Secondly, BEA discuss facts from selection. They note that there is no selectional relation between V and DP; however, as we have argued, since KP is the highest nominal projection selectional relations between V and DP are not expected. On the contrary, we noted several selectional relationships between V and KP, and between P and KP. BEA also note that the extended verbal domain typically exhibits downward selection while nominals exhibit upward selection. We gave counter-examples to this generalization, weakening their argument.

Furthermore, BEA note that restructuring is a common phenomenon in the verbal domain, but not in the nominal domain. They briefly dismiss noun incorporation as an example of restructuring in a footnote. We gave extensive empirical data to support the notion that restructuring indeed exists in the nominal domain. Crucially, we provided evidence from both noun incorporation and pseudo noun incorporation to suggest that different verbs select nominals of different sizes.[12]

Finally, we reviewed evidence from idioms. BEA offer an important generalization on idioms, namely, that the meaning of the idiom typically arises from the verb and the noun alone and that functional material such as determiners and number typically does not affect the meaning of the idiom. We have shown that their proposal fails to account for this generalization. We note, though, that the DP/KP Hypothesis also fails to shed any light on this generalization, either. We suggest that some other component of the grammar may be responsible for this effect or that there may be functional pressure for idioms to rely on lexical roots rather than on grammatical morphemes. We end, then, by

12 We note that Klockmann (2017) discusses nominal restructuring in English "kind of N" constructions. We leave this discussion for the reader to pursue, however as we have nothing further to add to her conclusions.

re-iterating that the DP/KP Hypothesis survives unscathed by the proposal of BEA.

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