In Defence of DP: The Isomorphism between Nominals and Clauses

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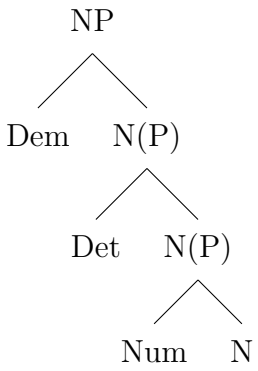
Abstract

Bruening (2009, 2020) and Bruening et al. (2018) argue that many syntactic asymmetries between nominals and clauses suggest that the DP Hypothesis should be abandoned. I claim that none of those purportedly missing nominal-verbal parallels hold up to careful scrutiny, focusing on three different empirical domains. First, I show that verbal and clausal material pattern identically in conventionalised expressions. Second, the same patterns of form determination are attested in both domains. Third, nominals and clauses also behave identically with respect to selectional relations, as soon as complementisers are analysed as the counterpart of prepositions, and tense as the counterpart of determiners (following Emonds 1985, Grimshaw 1991, Wiltschko 2014). Beside undermining the empirical case against the DP Hypothesis advanced in the aforementioned work, this paper provides novel insights into how the nominal-verbal isomorphism should be modelled.

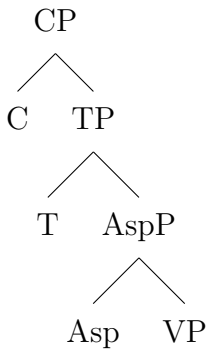
1 Introduction

In some recent papers, Bruening (2009, 2020a) and Bruening, Dinh, and Kim (2018) argued that several syntactic asymmetries between nominals and clauses significantly undermine the DP Hypothesis, first put forward by Szabolcsi (1983), Fukui and Speas (1986), and Abney (1987). In particular, they propose that the nominal functional spine is strictly *endo*centric: namely, the syntactic distribution of a nominal constituent derives entirely from the category and featural makeup of the lexical noun and remains unaffected by the introduction of functional elements, semantic considerations aside. The verbal/clausal functional sequence, on the other hand, is argued to be *exo*centric: its functional elements can project their own category and therefore dictate the syntactic distribution of the resulting phrase. Borrowing Grimshaw's (1991) terminology, I will refer to the nominal and verbal/clausal functional spines as Extended Projections (henceforth abbreviated as ExtPs). The labelling in (1a) and (1b) reflects the purported difference in headedness between nominals and clauses.

(1) a. Nominal ExtP (*endo*centric)



b. Verbal/clausal ExtP (*exo*centric)



This paper argues that none of Bruening's (2009, 2020a) and Bruening, Dinh, and Kim's (2018) arguments hold up to further empirical scrutiny. Consequently, there is no empirical evidence for abandoning the DP Hypothesis and the revised nominal structure sketched in (1a) is unwarranted. This work adds to a number of recent papers come out in defense of DPs, such as Carstens (2017), Larson (2020), Preminger (2020), and Salzmann (2020). Unlike these responses, however, I do not focus on providing additional evidence for the DP Hypothesis, but rather on the *empirical* untenability of those purportedly missing parallels between nominal and verbal Extended Projections that Bruening (2009, 2020a) and Bruening, Dinh, and Kim (2018) present. Second, my discussion brings out interesting and novel generalisations about the nominal-verbal isomorphism, particularly with regards to form determination and selection.

§2 begins with a discussion of Bruening, Dinh, and Kim's (2018) and Bruening's (2020a) argument from conventionalised expressions. A closer look at the data reveals that there is no difference in behaviour between nominal and verbal material in conventionalised expressions. §3 moves on to Bruening's (2009) arguments from form determination. Once again, the empirical landscape is not as Bruening describes it, and the purported asymmetries between DPs and CPs do not exist. Finally, §4 considers and rejects, on similar grounds, Bruening's (2009) argument from selection. §5 concludes.

2 Asymmetry I - Conventionalised Expressions

The first argument against the DP Hypothesis that I consider revolves around a purported asymmetry between clausal and nominal functional material when it occurs inside *conventionalised expressions*, namely, idioms and collocations.

The argument relies on Bruening's (2010) *selection theory* for idioms, according to which any two fixed elements in a conventionalised expression must be linked either by a strictly local selectional relationship defined under sisterhood, such as Pesetsky's (1995) *l-selection*, or by a continuous chain of such relationships. This is exemplified in (2a), a VP idiom, and (2b), an AP collocation. As the arrows indicate, there is theoretically no difference between selecting for a head X°, or for the label X(P) that it projects.

(2) a. [$_{\text{VP}}$ *jump* [$_{\text{PP}}$ *on* [$_{\text{DP}}$ *the* [$_{\text{NP}}$ *bandwagon*]]]]

b. [$_{\text{AP}}$ *well* [$_{\text{AP}}$ *aware* [$_{\text{CP}}$ *that* [$_{\text{TP}}$ **X**]]]]

The main empirical consequence of Bruening's (2010) theory is that conventionalised expressions must be hierarchically, but not necessarily linearly, continuous. This means that the sequence of fixed elements can be freely broken up by "open slots", such as the embedded subject X in (3), and by optional modifiers, such as the adverb *just* and the adjective *big* in (3), as long as these elements do not project. Elements that do project, on the other hand, cannot be free, because skipping, replacing, or adding them inside a conventionalised expression would unavoidably disrupt its hierarchical continuity.

(3) [$_{\text{VP}}$ *look* [$_{\text{CP}}$ *like* [$_{\text{TP}}$ **X** T° [$_{\text{AspP}}$ *have* [$_{\text{VP}}$ (***just***) *seen* [$_{\text{DP}}$ *a* [$_{\text{NP}}$ (***big***) *ghost*]]]]]]]

With this theory in place, Bruening, Dinh, and Kim (2018) and Bruening (2020a) claim that nominal functional material inside conventionalised expressions, unlike its clausal counterpart, can be freely altered, as if it was systematically "transparent" for the calculation of hierarchical contiguity, as demonstrated in (4) and (5)[1]. The conclusion Bruening, Dinh, and Kim (2018) and Bruening (2020a) draw is that nominal functional material never projects its own category, while clausal functional heads do.

(4) a. *cut X some slack*: Let's not cut him **too much** slack.

b. *have a bone to pick with X*: I have **no** bone to pick with you.

(Bruening, Dinh, and Kim 2018:23–24)

(5) a. *jump the gun*: before you all jump **another** gun

b. *bark up the wrong tree*: Have you ever barked up **a** wrong tree?

c. *bring home the bacon*: I still need to bring home **some** bacon occasionally.

(Bruening 2020:15)

The first, most crucial issue with Bruening, Dinh, and Kim's (2018) and Bruening's (2020a) claim is that, at least in English, it is not empirically correct. There is no difference in the behaviour of nominal and verbal functional material inside conventionalised expressions. Just like determiners can be freely altered, so can complementisers (6b,d–j)[2],

[1] I use boldface to highlight the components of the idiom/collocation that have been altered

[2] As shown unambiguously by the bracket notation, I am adopting a traditional "operator movement"-style approach to relative clauses, rather than a head-raising analysis. Under the latter approach, my

tense (6a,c,e–h,j), modals (6d,e,h), and aspect (6c,i). I exemplify below with a sample of conventionalised expressions all drawn from Bruening, Dinh, and Kim (2018) and Bruening (2020a), where bracketing highlights how the original idioms are altered. Examples include both cases where hierarchical contiguity between the fixed elements of an idiom is broken by the presence of additional projecting structure, as in (6b), and cases where it is broken by replacing a projecting head with entirely different structure, as demonstrated with tense in (6a) and with the modal *can* in (6d).

(6) a. *the last thing X want*:
the last thing X [$_{\text{TP}}$ **T°$_{\text{[pst]}}$** [$_{\text{VP}}$ want**ed**]]

b. *can't stand X*:
can't [$_{\text{VP}}$ **seem** [$_{\text{CP}}$ **to** stand X]]

c. *the least X can do*:
the least X [$_{\text{TP}}$ **T°$_{\text{[pst]}}$** [$_{\text{ModP}}$ c**ould** [$_{\text{AspP}}$ **have** [$_{\text{VP}}$ do**ne**]]]];
the least X [$_{\text{TP}}$ **T°$_{\text{[pst]}}$** [$_{\text{ModP}}$ c**ould** [$_{\text{AspP}}$ **be** [$_{\text{VP}}$ do**ing**]]]]

d. *can't afford X*:
not [$_{\text{VP}}$ **be** [$_{\text{AP}}$ **able** [$_{\text{CP}}$ **to** afford X]]]

e. *X NEG have a leg to stand on*:
X NEG have a leg [$_{\text{CP}}$ **that** [$_{\text{TP}}$ **X T°$_{\text{[pst]}}$** [$_{\text{ModP}}$ **could possibly** stand on]]]

f. *a bitter pill to swallow*:
a bitter pill [$_{\text{CP}}$ **that sadly** [$_{\text{TP}}$ **we all T°$_{\text{[pst]}}$** [$_{\text{VP}}$ **needed** to swallow]]]

g. *strike while the iron is hot*:
strike while [$_{\text{TP}}$ **you T°$_{\text{[prs]}}$** [$_{\text{VP}}$ **still know** [$_{\text{CP}}$ **that** the iron is hot]]]

h. *have a bone to pick with X*:
have a bone [$_{\text{CP}}$ **that** [$_{\text{TP}}$ **X T°$_{\text{[pst]}}$** [$_{\text{ModP}}$ **would** [$_{\text{VP}}$ **like** to pick with Y]]]]

i. *count X's chickens before they hatch*:
count X's chickens before they [$_{\text{AspP}}$ **have** [$_{\text{VP}}$ **even begun** [$_{\text{CP}}$ **to** hatch]]];
. . . before they [$_{\text{AspP}}$ **have** [$_{\text{VP}}$ **even had** [$_{\text{DP}}$ **time** [$_{\text{CP}}$ **to** hatch]]]

j. *worth a fortune*:
worth [$_{\text{DP}}$ **something** [$_{\text{CP}}$ **that** [$_{\text{TP}}$ **surely T°$_{\text{[pst]}}$** [$_{\text{VP}}$ **amounted** [$_{\text{PP}}$ **to** a **small** fortune]]]]]

Just as nominal functional projections appeared "transparent" for the calculation of contiguity in (4) and (5), so do verbal functional projections in (6). It is of course possible to dismiss the data in (6) as mere creative "word play" over preexisting conventionalised expressions, expressions which are themselves entirely fixed. But to the extent that one can appeal to word play to circumvent the evidence in (6), one can just as well use it to dismiss the original evidence in (4) and (5), as Larson (2020) in fact suggests. I will not speculate on whether Larson (2020) is correct, or whether, as I have suggested, conventionalised expressions are truly alterable beyond the predictions of Bruening's (2010) selection theory. What matters for the current purposes is that we find no empirical motivation for setting nominal and clausal functional material apart: the purported asymmetry does

point holds, but in slightly different terms. Consider example (f): under a raising analysis *pill* and *(to) swallow* are structurally adjacent underlyingly, but at that same level of representation the relative clause construction distrupts structural adjacency between *pill* and *bitter*. It follows that there is no single level of representation where hierarchical contiguity coherently holds. Even if one found structural disruption with relative clauses unconvincing, the data in (i) should offer a sufficiently comprehensive battery of alternative cases of disruption demonstrating the same point: consider for example the propositional attitude report clause in (g).

not exist.

A second issue I wish to raise with Bruening, Dinh, and Kim's (2018) and Bruening's (2020a) approach is that it makes the wrong empirical predictions even for nominals themselves. Hierarchical contiguity can be disrupted not only by functional heads, as we saw in (4) and (5), but also by lexical nouns, as demonstrated in (7) with partitive constructions, in (8) with possessives, and in (9) with locative nouns ("axial parts", cf. Svenonius 2006, Matushansky and Zwarts 2019). The original cases in (4) and (5) followed naturally from Bruening's (2010) selection theory, together with the endocentric model of nominal ExtPs in (1a): nominal functional material never projects and thus can never break up the contiguous chain of local selectional relationships. This model, however, does not predict the cases in (7) to (9), because the same approach assumes that nouns themselves crucially *do* project, and are therefore expected to disrupt selectional relationships between fixed members of conventionalised expressions.

(7) a. *bark up the wrong tree*:
All my life I've been barking up ***a*** [$_{\text{NP}}$ ***long series*** [$_{\text{PP}}$ ***of*** *wrong trees*
b. *rock the boat*:
This will rock ***a*** [$_{\text{NP}}$ ***good number*** [$_{\text{PP}}$ ***of*** *boats*
c. *have a bone to pick with X*:
have a [$_{\text{NP}}$ ***couple*** [$_{\text{PP}}$ ***of*** *bones to pick with X*
d. *cut X some slack*:
cut X ***a*** [$_{\text{NP}}$ ***little bit*** [$_{\text{PP}}$ ***of*** *slack*
cut X ***a*** [$_{\text{NP}}$ ***great deal*** [$_{\text{PP}}$ ***of*** *slack*

(8) a. *swim against the current*:
She has always liked to swim against the [$_{\text{NP}}$ ***push*** [$_{\text{PP}}$ ***of*** *the current*
b. *fly the coop*:
I was so happy to fly the [$_{\text{NP}}$ ***oppression*** [$_{\text{PP}}$ ***of that*** *coop*
c. *fly the nest*:
They finally decided to fly the [$_{\text{NP}}$ ***comfort*** [$_{\text{PP}}$ ***of*** *the nest*

(9) a. *The shit hit the fan*:
The shit has really hit the [$_{\text{NP}}$ ***dead centre*** [$_{\text{PP}}$ ***of*** *the fan*[3]
b. *jump on the bandwagon*:
He jumped on the [$_{\text{NP}}$ ***very front*** [$_{\text{PP}}$ ***of this homemade sourdough bread*** *bandwagon*

The apparent "transparency" of nominal functional heads inside idioms was accounted for by Bruening, Dinh, and Kim (2018) by suggesting that they never project, but this theoretical move is crucially unavailable for the cases in (7) to (9)[4]. As before, there two ways to make sense of this problematic data. First, one could follow Larson (2020)

[3]Thanks to David Adger (p.c.) for this example.

[4]An alternative possibility for Bruening is to suggest that, even if nouns project, those in (7)-(9) are modifiers (adjuncts or specifiers) in the rightmost noun's ExtP. This may be a promising approach for cases like *a couple of*, especially considering their notorious semantic verbal agreement patterns in British English, but it seems unreasonable for the cases in (8) and (9). Further, it would struggle to explain the presence of the genitive preposition *of* in all these cases, together with the constituency facts demonstrated below.

(i) *this new bandwagon* [[[***whose***] *very front*] *everyone seems to be jumping on lately*]

and set it aside as mere word play over a preexisting fixed idiom. If this route is taken, the data in (4) and (5), which Bruening, Dinh, and Kim's (2018) argument relies on, should equally be set aside. Alternatively, one could question the empirical adequacy of Bruening's (2010) selection theory, as I do. In either case, this argument against the DP Hypothesis cannot stand.

Before proceeding, I must note that Bruening's theory of idioms has changed radically since the publication of Bruening (2020a). Perhaps due to observations not unlike those presented in the foregoing discussion, Bruening (2020b) turns Bruening's *selection theory* entirely on its head: in the latter publication, syntactic constraints on possible conventionalised expressions are understood merely as dictating what kinds of syntactic constituents can be stored as idioms in the first place. When these stored constituents are instantiated in concrete syntactic contexts, they can be freely altered. Simplifying somewhat, while Bruening's (2020a) theory of selection constrains the *output* of syntactic derivations, Bruening's (2020b) theory is concerned instead with the constraints imposed on their *input* from lexical storage. From this alternative angle, Bruening could rescue the original argument against the DP Hypothesis if he could show that D°s, unlike other functional heads, can never be stored as an integral part of an idiom. Crucially neither Bruening (2020a) not Bruening, Dinh, and Kim (2018) attempt to do this. In fact, the theoretical concessions made in Bruening (2020b) threaten to undermine even the observations we started this section with: in this new light, can anything prevent us from analysing the cases in (4) and (5) as idioms stored with a definite D° (e.g. *jump* ***the*** *gun*, *bark up* ***the*** *wrong tree*), and then altered in actual use to the point that the underlying definite D° is lost? More generally, is there evidence that determiners behave differently from other functional heads, such as T° and auxiliaries, in the relevant respects? The data briefly reviewed in the preceding paragraphs suggests quite strongly that the answer is negative.

In this section, I have briefly considered Bruening, Dinh, and Kim's (2018) and Bruening's (2020a) argument from conventionalised expressions against the DP Hypothesis. First, I have argued that, at least in English, the crucial claim upon which it rests is empirically untenable: nominal and verbal functional material behave identically in conventionalised expressions. Second, I have shown that, even setting aside the first objection for argument's sake, the endocentric model of nominals proposed in Bruening, Dinh, and Kim (2018) and Bruening (2020a) makes the wrong empirical predictions. I conclude that a careful study of conventionalised expressions offers no reason to abandon the DP Hypothesis.

3 Asymmetry II - Form Determination

The second argument that Bruening (2009) and Bruening, Dinh, and Kim (2018) propose against the DP Hypothesis concerns patterns of morphological form determination, agreement, and concord. In this regard, Bruening (2009) puts forward at least two distinct claims. First, that each verbal functional head determines the morphological form of the head of its complement, while "in nominals, the form of everything else is determined by the head noun" (2009:30). The relevant patterns are exemplified in (10) for clausal form determination, and in (11) for nominal form determination.

(10) *I might have been being handed some cocaine.*
might ⇢ bare form;

have ⇢ *-en* form;
be_{PROG} ⇢ *-ing* form;
be_{PASS} → *-en* form. (adapted from Bruening 2009:30)

(11) tod-a-s es-a-s jiraf-a-s blanc-a-s
all-F-PL that-F-PL giraffe-F-PL white-F-PL
'all those white giraffes' (Spanish, Bruening 2009:30)

Second, Bruening (2009) and Bruening, Dinh, and Kim (2018) advance the closely related claim that nouns come with gender and number features defined in the lexicon, and can impose idiosyncratic restrictions on the kind of functional material that combine with by requiring it to "match" their lexically determined features. In (12), for example, the *pluralia tantum* noun *scissor-* and the mass noun *rice* are lexically specified in a way that predetermines which version of the head Num° will combine with them in the syntax. A similar point can be made for gender in (13). Verbs, on the other hand, are claimed to be always in principle compatible with any functional heads. In other words, the model advocated in Bruening (2009) consists of a radically lexicalist (or *projectionist*, in Rappaport Hovav and Levin's (1998) terminology) approach to nominals, combined with a strictly constructionist approach to clauses.

(12) *scissor*(s), rice(*s)*
→ *scissor-* must combine with $\text{Num}_{[+PL]}$
→ *rice* must combine with $\text{Num}_{[-PL]}$

(13) mes-a(-s), *mes-o(-s)
table-F(-PL) table-M(-PL)
'table(s)' (Spanish)
→ *mes-* must combine with $n_{[+FEM]}$[5]

I will tackle both of Bruening's (2009) claims in turn. §3.1 shows that in many cases nominal functional heads do determine the morphology of the material in their complement, analogously to (10). The position defended in Bruening (2009) is only tenable if one does not look beyond the morphologically impoverished English nominals, or the familiar cases of gender-number concord in Romance languages. §3.2 shows that, just as there are nouns that impose restrictions on the functional structure dominating them, the same phenomenon is attested with verbs in the clausal domain. Once again, the purported asymmetries between the two ExtPs do not hold up to further empirical scrutiny.

3.1 Directionality of Form Determination

Let us begin by considering the highest functional layer in the nominal ExtP. According to the Emonds-Grimshaw model, this consists of a PP. Cases where a preposition, or a postposition, determines the morphological shape of the noun in its complement position abound crosslinguistically, and are found for instance in Polish (Sadowska 2012) and other Slavic languages, Latin (Acedo-Matellán 2016), Greek (Holton et al. 2012), Finnish (Karlsson 2002), Hungarian (Dékány 2011), and Turkish (Göksel and Kerslake 2005). To exemplify, (14) shows that the choice of preposition in Polish determines the case morphology that appears on the head noun. Similarly, (15) shows that German prepositions

[5]Following Lowenstamm (2008), Acquaviva (2008), Kramer (2009, 2015), I take the view that gender values are syntactically encoded as features on a category-defining n head.

control the case on the determiner that heads their complement, as well as on the noun, when this can express the relevant case morphology (15c).

(14) a. do dom-u
to house-GEN
'to the house'
b. ku dom-owi
towards house-DAT
'towards the house'
c. przy dom-u
by house-LOC
'by the house'
d. przez dom
through house.ACC
'through the house'
e. przed dom-em
in.front house-INS
'in front of the house' (Polish)

(15) a. für de-n Baum
for the-ACC tree
'for the tree'
b. aus de-m Baum
out the-DAT tree
'out of the tree'
c. wegen de-s Baum-es
because the-GEN tree-GEN
'because of the tree' (German)

A possible workaround would be to claim that prepositions do not govern or assign case at all: rather, nouns are born with the appropriate case features that prepositions are then required to match with, essentially reversing the causal and explanatory chain in the relationship between prepositions and nouns. This, however, cannot be correct. First, neither the Polish prepositions in (14) nor the German ones in (15) bear any case morphology themselves, making a concord-style account in terms of feature "matching" with the noun highly unlikely. Second, unlike in the case of gender and number features (see (12) and (13) above), I am aware of no coherent class of nouns that impose lexical restrictions on the case features that they can bear. Third, consider the paradigm in (16), from Polish. The preposition *pod* 'under' governs the instrumental case (16a), while *z(e)* 'from' governs the genitive case (16b). Crucially, when the two prepositions combine in (16c), the higher one, *z(e)* (written as *s-* because of assimilatory devoicing triggered by the following consonant), seems to "overwrite" the case governed by the lower preposition, and the noun surfaces with genitive morphology. The paradigm in (16) can be readily made sense of in a model where prepositions assign the relevant case features, and some kind of "overriding" mechanism is available so that the genitive assigned by the higher *z(e)* wins over the instrumental assigned by the lower *pod* (cf. Pesetsky 2013). On the other hand, (16) would remain mysterious under a model where case determination is inverted, and each noun is born with a case value against which the appropriate preposition needs to match.

(16) a. pod dom-em
under house-INS
'under the house'
b. z dom-u
from house-GEN
'from the house'
c. s-pod dom-u
from-under house-GEN
'from under the house' (Polish)

Finally, if one wishes to push this analytical strategy, the pattern in (10) is not immune from it, either: one could claim that only a verb taken from the lexicon with a $[+PART]$ feature, realised as *-en*, can match and combine with the perfect auxiliary *be*. Similarly, only an auxiliary bearing the feature $[+GER]$, realised as *-ing*, as part of its lexical specification is able to match and combine with the progressive auxiliary *be*, and so on. In summary, there is ample evidence that P°, the highest functional head of the nominal ExtP, can determine the morphological form of the material in its complement.

Moving onto the second highest functional head, D°, we find once again a similar pattern. Consider the German paradigm in (17), where the choice of determiner controls the morphology that appears on all the adjectives in the complement of D°. Simplifying matters somewhat, indefinite determiners control "strong" or "mixed inflection" on the adjectives, while definite determiners control "weak inflection" (cf. Roehrs 2006 and Leu 2007 for recent approaches). As Salzmann (2020) also points out, (17) is another piece of evidence that form determination in nominals does not need to proceed from the noun up, but can also proceed from the top down.

(17) a. ein groß-er grün-er Baum
a big-STR green-STR tree
'a big green tree'
b. der groß-e grün-e Baum
the big-WK green-WK tree
'the big green tree' (German)

As pointed out by a reviewer, a very similar pattern can be found in Classical Arabic (CA), where so-called "nunation" and definiteness concord display both types of form determination discussed so far. The contrast between (18a) and (18b) shows that the definiteness value of D° is reflected in the inflectional endings of both the noun itself and any attributive adjectives modifying it, similarly to German (17). Further, the contrast between (18b) and (18c) shows that the same inflectional endings are also determined by the absence or presence, and the nature, of the PP layer, once again casting doubt on the empirical tenability of Bruening's alleged asymmetries between verbal and clausal spines.

(18) a. šaay-un ṣiiniiy-un ʔaxdar-u jayyid-un
tea-NOM chinese-NOM green-NOM excellent-NOM
'an excellent green Chinese tea [*sic.*]'
b. l-kurat-u l-kabiirat-u l-jamiilat-u
DEF-ball-DEF.NOM DEF-big-DEF.NOM DEF-beautiful-DEF.NOM
'the beautiful big ball' (CA, Fassi-Fehri 1998:24)
c. bi-l-kurat-i l-kabiirat-i l-jamiilat-i
with-DEF-ball-DEF.GEN DEF-big-DEF.GEN DEF-beautiful-DEF.GEN

'with the beautiful big ball' (CA, adapted from Fassi-Fehri 1999:107)

Let us finally consider NumP, the third functional layer in the nominal ExtP. Evidence that the Num° head can determine the morphological shape of the material in its complement can be found in a variety of languages, including Finnish (Brattico 2010), Russian (Pesetsky 2013), Polish (Lyskawa 2020), and Levantine Arabic (Ouwayda 2017). A representative example from Finnish is provided in (19).

(19) a. ne kaksi pilaantunut-ta leipä-ä
those.NOM.PL two rotten-PAR.SG bread-PAR.SG
b. ne pilaantune-et kaksi leipä-ä
those.NOM.PL rotten-NOM.PL two bread-PAR.SG
'those two rotten breads' (Finnish, from Brattico 2010:60–61)

As (19) shows, Finnish numerals[6] require everything in their complement to appear with partitive case morphology, while all the material that is merged above the numeral bears whatever structural case morphology is assigned in the relevant syntactic context. In the examples above, this is nominative as the default citation case[7]. Depending on the position that the adjective *pilantunut* 'rotten' is merged in, and its relative height with respect to the numeral, it will bear either partitive case (19a) or nominative case (19b). As (20) shows, this is strong evidence that Finnish nominals are *exo*centric: the noun itself is assigned partitive case by the functional head Num°, while its ExtP as a whole is assigned an entirely different case in the larger syntactic context. The features of the noun and those of the larger nominal are not identical.

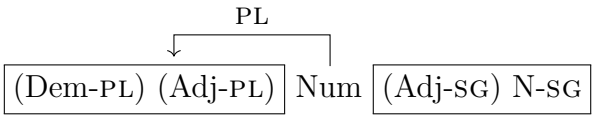
(20) NOM PAR
(Dem-NOM) (Adj-NOM) Num (Adj-PAR) N-PAR

A similar point in favour of exocentricity can be made for number features. (19) demonstrates that everything in the complement of the numeral must appear with unmarked singular morphology, while all the material that is merged higher must bear plural morphology instead. Under the reasonable assumption that the head Num° does not assign singular number to its complement, but rather introduces the feature $[+PL]$ in the derivation, as shown in (21), we cannot use this as evidence that functional heads determine the form of their complement. However, the data still provides one further valuable argument that nominals are exocentric: the number features on the noun head are not identical to the number features on the nominal as a whole. The noun itself is singular (the partitive plural of the noun *leipä*—attested in many other contexts—would be *leipiä*), but the larger nominal is plural, and controls plural subject-verb agreement in the clause, as (22) demonstrates. Note, further, that this is not a lexical quirk of the noun *leipä*, but rather a productive structural phenomenon that occurs independently of the specific choice of lexical noun. Based on these considerations, the subject in (22) cannot be the maximal

[6]For the purposes of the current discussion, I take the presence of cardinal numerals to require the projection of NumP, but I abstract away from the issue of whether they occupy the head Num° itself (thereby fundamentally functioning in the Finnish nominal spine just like auxiliary verbs in the English verbal spine), or whether they merge in a specifier position. Note that "NumP" here refers to the equivalent of Borer's (2005a) *ClP*/*DivP*, as evidenced by the tight and complex interaction between plural marking and cardinal numerals in Finnish: see Brattico (2010) for further details.

[7]See Brattico (2010) for some complications when the whole nominal is assigned nonstructural case, as well as Pesetsky's (2013) discussion of similar patterns in Russian.

projection of the noun *leipä* ‘bread’, and endocentric approach in Bruening (2009) must be incorrect.

(21) 

(22) Nuo kaksi leipä-ä ol-i-vat pöydä-llä.
those.NOM.PL two bread-PAR.SG be-PST-3PL table-ADE
‘Those two breads were on the table.’

In conclusion, I have provided crosslinguistic evidence to show that claim that “in nominals, the form of everything else is determined by the head noun” (Bruening 2009:30) is empirically untenable. This does not mean that patterns of form determination and feature spreading should be expected to be entirely identical in both nominals and clauses. For instance, prototypical modifiers of nouns (i.e. adjectives) often take part in processes of concord and feature spreading, while prototypical modifiers of verbs (i.e. adverbs and PPs) very rarely do (cf. Polinsky 2016, Silvestri 2017). A complete account of the similarities and dissimiralities between nominal and clausal ExtPs must be able to capture this generalisation. Nevertheless, there is no evidence that in any way justifies rejecting the DP Hypothesis in favour of a lexicalist, endocentric alternative.

3.2 Freedom of Form

Finally, I want to take issue with the claim that “there are no cases of verbs that cannot combine with certain functional elements” (Bruening 2009:30, see also Bruening, Dinh, and Kim 2018). In contrast, the claim goes, many nouns come with a lexically fixed gender or number valued, as was shown in (12) and (13) above. My objection, once again, is that the argument does not stand up to careful empirical scrutiny.

First, just as there are nouns in Spanish that must appear with a specific gender value, so there are verbs that require a specific inflectional class, as shown in (23). If one models conjugation classes as “flavours” of the category-defining head v°, just like gender was taken to be encoded on the categoriser n°, there is simply no asymmetry between nominals and clauses.

(23) com-e-r, *com-a-r, *com-i-r
eat-II-INF eat-I-INF eat-III-INF
‘to eat’ (Spanish)
→ *com-* must combine with the “second conjugation” v_{II}

If one prefers to consider the clausal counterpart of gender to be Voice°, instead, the same point can still be made. The verb *die* in English can never combine with a Voice° head that bears the feature $[+TR]$, introduces an external argument, and licenses an object (24a). Conversely, the verb *sing* can never combine with a version of Voice° that bears $[-TR]$ and results in an unaccusative construction (24b). It appears that there are plenty of verbs that impose restrictions on what functional material can project above them, *pace* Bruening (2009).

(24) a. **I died my pancake plant.*
→ *die* must combine with $\text{Voice}_{[-TR]}$

b. **The anthem sang in the background.*
→ *sing* must combine with Voice$_{[+TR]}$

Finally, consider the Polish nouns and verbs listed in (25). Just as there are *pluralia tantum* nouns that require a $[+PL]$ feature on Num° (25a), so there are *perfectiva tantum* verbs that require a $[+PFV]$ feature on Asp° and cannot occur in the absence of a perfectivising morpheme[8] (25b). Similarly, there are *imperfectiva tantum* that require instead a $[-PFV]$ feature (25c) (see Piñón 2001, Młynarczyk 2004, Borer 2005b, Sadowska 2012 for discussions of aspect in Polish).

(25) a. ***Pluralia tantum***:
nożyczk-i, drzw-i, urodzin-y, ...
scissor-PL door-PL birthday-PL
'scissors, door, birthday, ...'

b. ***Perfectiva tantum***:
o-niemie-ć, o-słupie-ć, ru-ną-ć, ock-ną-ć
PFV-strike.dumb-INF PFV-petrify-INF tumble-SML-INF wake.up-SML-INF
się, ...
self
'to tumble, to strike dumb, to petrify, to wake up, ...'

c. ***Imperfectiva tantum***:
mie-ć, kłaś-ć, polega-ć, ...
have.IMPFV-INF put.IMPFV-INF trust.IMPFV-INF
'to have, to put, to depend on, ...'

In conclusion, nouns with fixed gender or number are no different than verbs with fixed conjugation class, valency, or aspect. Verbs are just as capable of imposing idiosyncratic restrictions on the functional material that can combine with them as nouns are, and there is no more empirical motivation for adopting a lexicalist approach to nominals than there is for verbs.

4 Asymmetry III - Selection

The final argument against the DP Hypothesis that I tackle relies on the claim that nominal functional material, unlike clausal functional material, is entirely invisible to selectional relationships. As I detail in the next two sections, there are many independent reasons to reject the cogency of Bruening's (2009) argument. In §4.1, I discuss cases of selection on the syntagmatic dimension, where a head appears to select for the category of its complement, thereby determining its size or height. In §4.2, I discuss cases of selection on the paradigmatic dimension, where a head selects for a specific feature or "flavour" of its categorially complement, while keeping category constant.

4.1 Category Selection - Syntagmatic Dimension

In Bruening's (2009) discussion of purported asymmetries between nominals and clauses, it is claimed that selection of category is only attested for clausal functional material,

[8]Note that semelfactive verbs are a subclass of perfective verbs in Polish.

while nominal functional material can never be selected for in a similar manner. For example, the claim goes, there are verbs that select for CPs (26a), verbs that select for TPs (26b), and verbs that select for VPs (26c), but that there are no verbs that select for NumPs (27a), nor any verbs that select for NPs (27b). In the examples that follow, I use the notation '⇢' to indicate selectional relationships.

(26) a. *Sue thinks* [$_{\text{CP}}$ *that Sam swam with dolphins*]. V ⇢ C
b. *Sam$_i$ appears* [$_{\text{TP}}$ *t$_i$ to be swimming with dolphins*]. V ⇢ T
c. *Sue saw* [$_{\text{VP}}$ *Sam swim with dolphins*]. V ⇢ V

(27) a. **unattested**: V ⇢ Num
e.g. *John glorped (*the/those) (three) books.*
b. **unattested**: V ⇢ N
e.g. *John glorped (*the/every/a/some/three) book(*-s).*
(adapted from Baltin 1989:35–36)

The argumentation in Bruening (2009) is heavily reliant on what I henceforth refer to as the Szabolcsi-Stowell model of the parallelism between nominals and clauses (Szabolcsi 1983, 1987, 1994, Stowell 1989, 1991, Horrocks and Stavrou 1987), as roughly represented in (28).

(28) $\boxed{\text{D} \approx \text{C}} > \text{Num} \approx \text{T} > \text{N} \approx \text{V}$

According to this model, determiners and complementisers can reasonably be expected to behave syntactically in a parallel fashion, an expectation which Bruening claims is not met. However, (28) is not the only approach to the symmetrical organisation of the nominal and clausal ExtPs. As an alternative, consider instead what I shall refer to as the Emonds-Grimshaw model (van Riemsdijk 1978, Emonds 1985, Grimshaw 1991, Wiltschko 2014), represented in (29).

(29) $\text{P} \approx \text{C} > \boxed{\text{D} \approx \text{T}} > \text{Num} \approx \text{Asp} > \text{N} \approx \text{V}$[9]

From this alternative perspective, there is no expectation that complementisers and determiners should show parallel behaviour. Determiners are modelled instead as the nominal counterpart of tense, as both categories perform the function of deictically *anchoring* the relevant ExtP to the utterance context, while prepositions and complementisers are dedicated to *linking* the ExtP to the larger syntactic context (cf. Wiltschko 2014). As I will try to show in this and the next section, as soon as the underlying model of ExtPs is shifted from (28) to (29), many of the purported asymmetries between nominal and clausal ExtPs described in Bruening (2009) turn out to have existed only in the eye of the beholder.

I should immediately clarify that it is not the aim of this paper to convince the reader that the model in (29) is superior to (28). Rather, my intention is merely to run a thought experiment that undermines the cogency of Bruening's (2009) argumentation: should we abandon the Szabolcsi-Stowell model in favour of the Emonds-Grimshaw approach, the selectional behaviours of nominal and clausal ExtPs turns out to be very similar after all. At best, the lesson we may draw from Bruening (2009) is that one particular way of conceptualising the nominal-clausal isomorphism, namely (28), results in a series of

[9]For the current purposes, I adopt an extremely streamlined functional inventory. More fine-grained categorial distinctions, such as that between V and Voice, will only be made when relevant.

unexpected mismatches, a conclusion that in no way warrants a leap to the claim that nominals should be endocentric and clauses exocentric. Before going in detail through Bruening's (2009) arguments, a brief review of the evidence for the Emonds-Grimshaw model in (29) is in order, demonstrating that it is an empirically reasonable and theoretically viable alternative to the Szabolcsi-Stowell approach.

4.1.1 Prepositions and Complementisers in the Emonds-Grimshaw Model

The Emonds-Grimshaw model in (29) revolves arouns the claim that prepositions should be thought of as the nominal parallel of complementisers in the verbal/clausal domain. The most immediate, albeit perhaps superficial, piece of evidence comes from the systematic homophony between many prepositions and complementisers in English, as exemplified in (30).

(30) a. Jason killed a calf {**for**$_{\text{P}}$ his graduation/**for**$_{\text{C}}$ the goddess to bless his academic career}.
b. **Before/after/since/until**$_{\text{P/C}}$ {the end of the war/the war ended}, Vincent's grandfather lived a happy and oblivious life.
c. Jason was shrewder **than**$_{\text{P/C}}$ {an elf/anyone could imagine}.
d. Vincent peeled the nectarines **like**$_{\text{P/C}}$ {a professional chef/his grandmother had taught him to do}.

Second, both prepositions and complementisers are typically taken to assign case within their c-command domain and to not be in need of case themselves, as (31) demonstrates.

(31) a. It was surprisingly insensitive [$_{\text{CP}}$ *(**for**) John to have left like that].
b. That was simply another one-night stand [$_{\text{PP}}$ **for** John].

Third, both PPs and CPs are most typically used as adjuncts to the clause.

(32) a. I bought a swing { [$_{\text{PP}}$ **for** Bob]/[$_{\text{CP}}$ **for** Bill to rest on] }.
b. [$_{\text{CP}}$ **If** you feel uncomfortable], you should leave [$_{\text{PP}}$ **without** a second thought].
c. I woke up { [$_{\text{PP}}$ **at** the sound of the clock striking midnight]/[$_{\text{CP}}$ **when** the clock struck midnight]/[$_{\text{CP}}$ **while** the bells of the clocktower were ringing] }.

Fourth, both PPs and CPs can also occur as clausal arguments, in what appears to be the complement position of the verb.

(33) a. John ran [$_{\text{PP}}$ **into** the crowded pub] with a rusty spoon in his hand.
b. John said [$_{\text{PP}}$ (**that**) he was looking for an untarnished silver spoon].

Moreover, both prepositions and complementisers may in some cases be phonologically unrealised when they head a verbal complement. This is notoriously the case for the finite complementiser *that*, as (33b) shows, as well as for the directional preposition *to* in some nonstandard varieties of English. The latter phenomenon is exemplified in (34) with data from Northwest England and Liverpool, respectively (Hall 2019:3, citing Myler 2013 and Biggs 2015).

(34) a. John came the pub with me. (Northwest England)
b. I haven't nipped the shops yet. (Northwest England)

c. Swim the end and back. (Liverpool)
d. He's flying Germany tomorrow. (Liverpool)

On the other hand, neither PPs nor CPs seem to be able to function as clausal subject, despite initial appearances. Consider for example the sentential subject in (35a), and the Locative Inversion structure in (36a). Evidence that the sentential subject is really a left-dislocated CP linked to a covert proform or a null expletive subject comes from the fact that it cannot undergo subject-auxiliary inversion in questions (35b), that it can cooccur with an overt expletive (35c-d), and that it can only trigger default singular agreement even in cases of coordination (35e) (cf. Koster 1978, Alrenga 2005, Ott 2017). Similarly, the PPs in Locative Inversion constructions do not undergo subject-auxiliary inversion (35b), can cooccur with expletive *there* (35c-d), and camnot control verbal agreement, which is instead controlled by the postverbal DP (35e-f) (cf. Lawler 1977, Postal 1977, 2004, Bruening 2010).

(35) a. [$_{CP}$ That John had left like that] seemed impossible to me.
b. Did *(the fact) [$_{CP}$ that John had left like that] seem impossible to you?
c. It seemed impossible [$_{CP}$ that John had left like that].
d. [$_{CP}$ Dat hij kommt], dat is duidelijk.
that he comes that is clear
'That he will come is clear.' (Dutch, from Ott 2017:127)
e. [$_{CP}$ That John left early] and [$_{CP}$ that he didn't leave any notes] doesn't/*don't surprise me.

(36) a. [$_{PP}$ Into the clearing] came two golden roebucks.
b. *Did [$_{PP}$ into the clearing] come two golden roebucks?
c. [$_{PP}$ Into the clearing] there came two golden roebucks.
d. There came [$_{PP}$ into the clearing] two golden roebucks with bright white antlers. (outside verbal)
e. There came two golden roebucks [$_{PP}$ into the centre of the clearing]. (inside verbal)
f. [$_{PP}$ Into the clearing] were/*was coming two golden roebucks.
g. [$_{PP}$ Out of the cave] and [$_{PP}$ into the clearing] was/*were coming long billows of white smoke.

More problematic might be the cases of PP subjects in equative or identificational sentences, which are dubbed by Safir (1981) as "honorary NPs". As (37a-b) seem to show (Levine 1989:1015), these PPs are able to control verbal agreement, unlike in the cases of Locative Inversion in (36). Crucially, however, we cannot exclude the possibility that agreement in (37a-b) is controlled by the postcopular DP, and the relevant constructions are indeed limited to equative sentences with a postcopular (or postverbal, in the case of equative verbs *become*, *constitute*, and *make*) DP, as shown by the ungrammaticality of (37c-d). Furthermore, however these structures are analysed (see e.g. Nishihara 2003), apparent CP subjects in identificational sentences pattern in the same way with respect to verbal agreement: contrast (35e) with (37e).

(37) a. [$_{PP}$ Under the bed] is a good place to hide/*are not the best places to hide your toys.
b. [$_{PP}$ Under the bed] and [$_{PP}$ in the fireplace] are not the best places to leave your toys.

c. *[PP Under the bed] pleases the cat. (Stowell 1981:268)
d. *[PP Under the bed] and [PP inside the fireplace] are too damp to hide.
e. [CP That John left early] and [CP that he didn't leave any notes] were obvious signs of his dissatisfaction.

Further, neither CPs nor PPs seem to be able to easily occur as predicates, as shown in (38) under the assumption that English copular sentences may involve more structure than a mere small clause (see Stassen 1997, Baker 2003, and Matushansky 2018 for much relevant discussion). Note that the patterns in (38) cannot be simply reduced to the categorial selectional properties of the verb: for example, it turns out that *seem* can take PP complements as long as these have predicative semantics, which is only possible for a few listed PPs with idiomatic meaning (39a). Similar PPs with ordinary, fully compositional meaning cannot be complements of *seem* (39b).

(38) a. Their latest fight seems *(to have been) [PP at four o'clock of this morning].
b. Their latest fight seems *(to have been) [CP when the clock struck midnight last night].
c. Their latest fight seems *(to be/have been) [PP because of Mr. Oort's constant indecision].
d. Their latest fight seems *(to be/have been) [CP because Mr. Oort could not make up his mind].

(39) a. John seems [PP out of sorts/at ease/over the moon/under the weather].
b. John seems *(to be) [PP in the garden/from Thessaloniki/with one of his affluent lovers].

We should also draw attention to the fact that PPs and CPs can be easily coordinated, provided that they have a similar semantic function, for example as temporal clausal adjuncts (40a-b), causal adjuncts (40c), concessive adjuncts (40d), manner adjuncts (40e), and conditional restrictors (40f).

(40) a. I will call you [PP at midnight] or [CP when you message me].
b. I am planning to call you both [PP during my lunch break] and [CP while I cook dinner].
c. I ran away [PP for all of those reasons] and [CP because I was also extremely hungry].
d. [CP Although it was already midnight] and [PP despite the biting cold], Josh left the house in his pyjamas.
e. The conference proceeded [PP with no hiccups along the way] and [CP as if the previous night had been forgotten].
f. [PP With your parents' permission] and [CP if the weather is nice], we could go skiing tomorrow morning.

Further, Ps are known to be able to take PP complements, as demonstrated in the following examples, both in the form of stacked prepositions (41) and in the form of stacked "case" suffixes (42) (see also Radkevich 2010, Svenonius 2010, Pantcheva 2011).

(41) a. The cat sprang up at me [[PP **from** [PP **under** the table]].
b. Mr. Oort saved the best-tasting carrot [PP **for** [PP **after** dinner]].
c. These treetops have been foraged for plutonium enriched acorns [PP **since** [PP **before** the nuclear accident]].

(42) Nouse-mme juna**-s-ta** asema**-l-la**.
rise-1PL train-IN-ABL station-AT-LOC
'We get out of the train at the station.'

Similar phenomena are well documented in the domain of complementisers. This is not only the case for apparently identical recursively iterated complementisers, as exemplified in (43) with a Northwest Italian variety of Piedmont, but also for the various heads that have been argued to make up Rizzi's (1997) split CP, as exemplified in (44) with Gungbe ɖɔ̀ (Force), *yà* (Topic), *wɛ́* (Focus), and *ní* (Fin).

(43) l ɛ miʁi **ke** nui **k** a l lavu.
it is better that we that we it wash
'It's better that we wash it.' (Castellazzo Bormida, Manzini & Savoia 2011:28)

(44) Ùn ɖɔ̀ ɖɔ̀ Àsíbá **yà** làn **wɛ́** é **ní** xɔ̀ ná mì.
1SG say that Asiba TOP meat FOC 3SG NI buy for 1SG.
'I said that, as for Asiba, she should buy me some MEAT.'
(Gungbe, Aboh 2006:24)

For an equivalent of the Finnish suffix-stacking in the complementiser domain, consider Korean. (45) provides examples of embedded CPs in the plain register, and (46) exemplifies with matrix CPs in the formal register[10]. There are at least three different complementiser layers that can be distinguished based on the data provided. First, there is a clause-linking complementiser *-ko*, used for sentence embeddings. Second, there are many clause-typing complementisers that express illocutionary force, such as declarative *-ta*, interrogative *-nya* and *-kka*, imperative *-la* and *-o*, and exhortative *-ca*. Finally, we can also identify a third layer of "clause-grounding" complementisers that encode features of the speech act participants, such as honorification (in the form of allocutive agreement) and epistemic status (in the form of evidential markers), and can therefore be said to "ground" the clause within the discourse context (cf. Speas & Tenny 2003, Giorgi 2010, Haegeman & Hill 2011, Wiltschko & Heim 2016). These include the addressee honorific *-(su)p*, reportative evidential *-ti*, and requestive mood *-si* (see Miyagawa 2017, 2020 for addressee honorification in Japanese as a form of allocutive agreement, and Chung 2012 for an extensive discussion of the complex system of evidentiality in Korean).

(45) a. Mina-ka [Swuna-ka ku mwuncey-lul phwul-ess**-ta**]**-ko**
Mina-NOM Swuna-NOM that problem-ACC solve-PST-DECL-COMP
cwucangha-ess-ta.
claim-PST-DECL
'Mina claimed that Swuna solved the problem.'
b. Mina-ka Swuna-eykey [*pro* ku mwuncey-lul phwul-ess**-nya**]**-ko**
Mina-NOM Swuna-DAT that problem-ACC solve-PST-Q-COMP
mwul-ess-ta.
ask-PST-DECL
'Mina asked Swuna whether she solved the problem.'
c. Mina-ka Swuna-eykey [*pro* ku mwuncey-lul phwul**-la**]**-ko**
Mina-NOM Swuna-DAT that problem-ACC solve-IMP-COMP

[10]The glossing and terminology is based on Pak (2008) and Ceong (2019). See discussion and references cited therein for more details.

malha-ess-ta.
say-PST-DECL
'Mina told Swuna to solve the problem.'

d. Mina-ka Swuna-eykey [*pro* ku mwuncey-lul phwul-**ca**]-**ko**
Mina-NOM Swuna-DAT that problem-ACC solve-EXH-COMP
ceyanha-ess-ta.
suggest-PST-DECL
'Mina suggested to Swuna to solve the problem together.'
(plain register Korean, Kim 2010:1–2)

(46) a. Cemsim-ul mek-ess-**sup-ni-ta**.
lunch-ACC eat-PST-AH-IND-DECL
'I ate lunch.' (declarative)

b. Inho-ka cemsim-ul mek-ess-**sup-ti-ta**.
Inho-NOM lunch-ACC eat-PST-AH-RPRT-DECL
'(I heard that) Inho ate lunch.' (reportative)

c. Cemsim-ul tu-si-ess-**sup-ni-kka**?
lunch-ACC eat.HON-SH-PST-AH-IND-Q
'Did you eat lunch?' (interrogative)

d. Cemsim-ul tu-si-**p-si-o**!
lunch-ACC eat.HON-SH-AH-REQ-IMP
'Eat lunch!' (imperative)

e. Cemsim-ul tu-si-**p-si-ta**!
lunch-ACC eat.HON-SH-AH-REQ-DECL
'Let's eat lunch!' (exhortative)
(formal register Korean, adapted from Pak 2008:122–129)

As additional evidence for the PP-CP parallelism, just as some prepositions can take CP complements (47) (examples (b-c) are from Dubinsky & Williams 1995:132), so do some complementisers appear to take PP complements (48).

(47) a. Beatrice behaved [$_{PP}$ **as** an adult]/[$_{PP}$ **as** [$_{CP}$ **if** she were an adult]].

b. We talked for hours [$_{PP}$ **about** [$_{CP}$ **whether** Frank ought to leave]].

c. I won't bore you [$_{PP}$ **with** [$_{CP}$ **why** everything is such a mess]].

d. Ho bevuto il tè [$_{PP}$ **senza** un cucchiaino]/[$_{PP}$ **senza** [$_{CP}$ **che** nessuno lo notasse]].
have.1SG drunk the tea without a teaspoon without that nobody it noticed
'I drank the tea without a teaspoon/without anybody noticing.' (Italian)

(48) a. [$_{CP}$ **While** [$_{PP}$ **under** the bed]], I could hear the cat purring inside the duvet.

b. [$_{CP}$ **If/when** [$_{PP}$ **under** the bed]], you should should always check for mould stains and demonic sigils.

c. [$_{CP}$ **Even though** [$_{PP}$ **under** the bed]], Alice could still see everything that was going on.

d. [$_{CP}$ **Appena** [$_{PP}$ **dentro** casa]], il Signor Oort si sentì meglio.
as.soon.as inside home the mister Oort SE felt better
'As soon as he was at home, Mr. Oort felt better.' (Italian)

It should immediately be noted that there might be more sophisticated ways to analyse

the sentences above than the bracketing provided suggests, and it is not my aim to evaluate that. However, it should at least be clear from the data that a parallel treatment of prepositions and complementisers seems forthcoming.

Finally, I want to suggested a further, more tentative parallel between PPs and CPs. In the clausal domain, there seems to be in English a tight featural relationship between the head C and the head T, such that TPs that are not immediately dominated by a finite CP are featurally impoverished and incapable of independently encoding tense distinctions or agreement marking. This has lead Chomsky (2013), in the wake of Richards' (2007) work on feature-inheritance, to go as far as making the radical suggestion that T is never merged in the derivation with its own tense and *phi*-features, but merely inherits these from the phase head C that c-commands it. In the nominal domain, the need for DPs that are not immediately dominated by a PP layer to be assigned structural case could be taken as the equivalent of non-finite T's defectivity, *mutatis mutandis*.

The foregoing discussion should have established that the Emonds-Grimshaw model of the nominal-clausal isomorphism, repeated below in (49), is an empirically solid and theoretically promising alternative to the Szabolcsi-Stowell model that Bruening (2009) implicitly relies on. We are therefore in the position to ask the following question: if one were to adopt teh Emonds-Grimshaw approach to DPs, does Bruening's (2009) argument from selection still go through? Or conversely, is the argument from selection in Bruening (2009) persuasive *independently* of the Szabolcsi-Stowell approach to nominals? As will become abundantly clear in the next two sections, the answer that I will suggest is negative.

(49) $\mathrm{P} \approx \mathrm{C} > \boxed{\mathrm{D} \approx \mathrm{T}} > \mathrm{Num} \approx \mathrm{Asp} > \mathrm{N} \approx \mathrm{V}$[11]

4.1.2 Category Selection in the Emonds-Grimshaw Model

Consider first the patterns of category selection already introduced in (26). Just as there are some verbs that select for a CP complement (26a), so there are some that select for a PP complement, as shown in (50) (cf. Merchant 2019). I therefore conclude that selection can target the highest layer of the nominal ExtP, just as it can target the highest layer of the clausal ExtP. No asymmetry can be seen in this domain.

(50) a. rely *(on) Mary — V ⇢ P (≈ V ⇢ C)
b. look *(at) Mary
c. listen *(to) Mary

Moving on to the second highest layer of the nominal and clausal ExtPs, we can observe that just as there are verbs that select for a TP complement (26b), so there are verbs that select for a DP complement (51). Once again, no asymmetry emerges.

(51) a. Mary had (*at/on...) *(a cake). — V ⇢ D (≈ V ⇢ T)
b. Mary devoured (*at/on/...) *(the cake).
c. Mary abandoned (*at/on...) *(the cake).

Finally, let us consider the lowest layer of the nominal and clausal ExtPs, represented by NP and VP respectively. The claim in Bruening (2009) is that there are verbs that select for VPs, as in (26c), but no verbs that select for NPs. This claim, I contend, is empirically incorrect, as demonstrated by the examples in (52).

(52) a. John$_i$ was nominated [$_{NP}$ $\mathbf{t}_i$ (*a/*the) king]. V --→ N (≈ V --→ V)
b. John$_i$ was elected [$_{NP}$ $\mathbf{t}_i$ (*a/*the) king].

The verbs *nominate* and *elect* in (52) select for a small clause complement with an NP predicate. Under Stowell's (1981, 1983) and Matushansky's (2019) approach to small clauses, this means that they select for a NP complement that contains as its specifier a subject DP, which then raises to the clausal subject position as indicated by the annotation in (52). As an alternative, one could always adopt a PredP approach to small clauses (Bowers 1993, 2001), but this would not affect my claim that NPs are targeted by categorial selection. In Bower's model, the verbs *nominate* and *elect* would select for a PredP complement, whose head Pred° would in turn select for an NP complement. It follows that, regardless of which model of small clauses one adopts, one must recognise that selection for NPs is indeed attested, *pace* Bruening (2009).

Further evidence that verbs can indeed select for an NP complement can be found in the recent literature on predicate nominals, in particular Roy (2014) for ample crosslinguistic data from French, Irish, Russian, and Spanish, Rinaldi (2018) for Rioplatense Spanish, and Adger (2020) for Scottish Gaelic. Some relevant examples are provided in (53) with the French verbs *devenir* 'become', *naître* 'be born', *mourir* 'die', *sembler* 'seem', *s'avérer* 'turn out', and *croire* 'believe'. Whether these verbs directly select for an NP predicate, or whether they take an NP small clause complement, the relevant NP must be able to be targeted by selection.

(53) a. Paul est devenu (*un) chanteur. V --→ N (≈ V --→ V)
Paul is become a singer
'Paul has become a singer.'
b. Il est né (*un) roi, et il mourra (*un) roi.
he is born a king and he will.die a king
'He was born a king, and he will die a king.'
c. Mon voisin semble (*un) gréviste / *Fidel Castro / *cet homme.
my neighbour seems a striker Fidel Castro this man
'My neighbour seems to be a striker / *Fidel Castro / *this man.'
d. Matisse s' avérait (*un) violoniste / *Degas / *cet homme.
Matisse SE turned.out a violinist Degas this man
'Matisse turned out to be a violinist / *Degas / *this man.'
e. Je croyais Matisse (*un) violoniste / *Degas / *cet homme.
I believed Matisse a violinist Degas this man
'I believed Matisse to be a violinist / *Degas / *this man.'
(French, adapted from Roy 2014: 40, 59–60)

As a possible rejoinder to the data in (52) and (53), one could claim that syntactic, and in particular *categorial*, selection plays no role in deriving these patterns. They can instead be reduced to the mere semantic requirement that the relevant nominal should be a predicate, rather than a referential or quantificational expression, together with the assumption that determiners turn an object of semantic type $< e, t >$ (a predicate) into one of type $< e >$ (a R-expression) or $<< e, t >, t >$ (a generalised quantifier). However, if the patterns of NP selection in (52) and (53) can be explained away in this manner, so should the pattern of VP selection in (26). VP selection would then reduce to the requirement that the relevant phrase should be a predicate of events (semantic type $< \epsilon, t >$), of time-intervals (type $< i, t >$), or of possible worlds (type $< s, t >$) (see

e.g. von Stechow and Beck 2015 and references therein)[12]. The existence of NP selection, therefore, stands or falls together with VP selection: one should either accept both or reject both, on the same theoretical grounds. Crucially, we once again find no surprising asymmetry between the behaviour of nominal and verbal ExtPs.

4.1.3 More Evidence for X ⇢ N Selection

It is fairly uncontroversial that selection for P, the nominal analogue of selection for C, is amply attested. The same goes for selection of D, the nominal counterpart of selection for T. Whether there is selection for N, on the other hand, seems to be more controversial. I present here new arguments that, if we admit selection of categories into our theory in the first place, one of those categories must be N.

The first case I consider comes from Italian, where certain prepositions seem to require an NP complement. This is the case for the preposition *di* 'of' when it heads a classifying PP, as shown in (54a), and the preposition *da* 'from' when it heads a qualifying PP, as in (54b-c). A selection-based account would simply have to posit that there can be different "flavours" for these multifunctional prepositions, each with its own distinctive semantics and c-selectional profile. For example, the preposition *da* would have a version that c-selects for a DP complement and is interpreted as 'from', and one that c-selects for a NP complement and is interpreted as 'like', as in (54b,c).

(54) P ⇢ N

a. una lezione di [$_{NP}$ danza classica] / *di [$_{DP}$ una danza tradizionale
a lesson of dance classical of a dance traditional
armena] / *de- [$_{DP}$ -lla danza de-l mio villaggio].
Armenian of the dance of-the my village
'a lesson on classical ballet / on a traditional Armenian dance / on my village's dance.' (classifying PP, Italian)

b. un sorriso da [$_{NP}$ (*un) politico esperto]
a smile from a politician expert
'a smile like a skilful politician' (qualifying PP, Italian)

c. una voce da [$_{NP}$ (*-l) ministro de-ll' istruzione].
a voice from the minister of-the education
'a voice like the minister for education.' (qualifying PP, Italian)

A second case of NP selection comes from the pseudo-partitive constructions in Greek and Dutch, as discussed in Alexiadou, Haegeman, and Stavrou (2007). As exemplified in (55) with Dutch, these constructions involve a lexical noun that selects for an NP complement. The addition of any numerals or determiners between the first and the second nouns results in ungrammaticality. Further, the verbal agreement pattern in the examples given demonstrates that it is the nouns *doos* in (55a) and *glazen* in (55b) that head the subject DP, thereby excluding the possibility of analysing the first nouns as left branches in the ExtPs of the second nouns (cf. Klooster 1972, van Gestel 1986, van Riemsdijk 1998, Vos 1999, Grimshaw 2007, Ruys 2017).

(55) N ⇢ N

[12]Note that this is not the only possible semantic implementation of the relevant distinctions: I choose it because it offers the best level of fine-grainedness for the current discussion. More or less fine-grained semantic types could have been adopted as necessary.

a. Er is / *zijn één doos [$_{NP}$ (*vijf / *die) sigar-en] gerookt.
there is are one box.SG five those cigar-PL smoked
'A box of cigars has been smoked.'

b. Er zijn / *is zes glaz-en [$_{NP}$ (*deze / *haar) wijn] gedronken.
there are is six glass-PL this her wine.SG drunk
'Six glasses of wine have been drunk.'

(Dutch, adapted from Alexiadou, Haegeman, and Stavrou 2007:424)

The main alternative to a story in terms of categorial selection for an NP that also respects the agreement pattern in (55) is to analyse the first noun as the head of a projection in the functional spine of the second noun (cf. Stavrou 2003). This analytical strategy, however, is not available in the system put forward in Bruening (2009), where there are no projecting functional heads above any noun. Given the evidence reviewed in this and the previous section, we must conclude that there is no empirical basis for the claim that selection for NPs is unattested, thereby undermining the argument in Bruening (2009).

In this section, I have argued that nominal and clausal ExtPs behave in the same way for the purposes of categorial selection, *pace* Bruening (2009). I have provided evidence that selection can target the highest, the second highest, and the lowest layer of both ExtPs, indiscriminately. The purportedly missing parallel between nominals and clauses is nowhere to be found.

4.2 Category Selection - Paradigmatic Dimension

The second important claim contained in Bruening (2009) as part of the argument against the DP Hypothesis is that selection for specific features borne by a categorially fixed complement is only attested for clausal functional material (cf. also Bruening, Dinh, and Kim 2018 for the same point). In the following examples, the verbs appear to select not only for the category of their complement, a CP, but also for its specific featural makeup. In (56), the verb *think* requires a declarative complement, which can be formally represented as a CP bearing the feature $[-Q]$[13]. The verb *wonder*, on the other hand, selects for an interrogative complement, representable as a CP bearing the feature $[+Q]$. Similarly, in (57) *want* selects for a nonfinite CP with the feature $[-FIN]$, while *complain* requires a finite CP complement with the feature $[+FIN]$. Finally, in (58), *ask* selects for a subjunctive CP bearing the feature $[+SUBJ]$, while *think* selects for a indicative CP with the feature $[-SUBJ]$ (see Bruening 2009 and Bruening, Dinh, and Kim 2018 for the claim that English possesses two distinct but homophonous categorisers: $that_{[INDIC]}$ and $that_{[SUBJ]}$). Crucially, it is claimed, there are no equivalent patterns of feature selection that target nominal functional material: for example, there are no verbs that specifically require a definite DP complement, or an indefinite one, as shown in (59).

(56) V ⇢ $C_{[\pm Q]}$

a. Sue thinks [$_{CP}$ that/*whether the world is flat].

b. Sue wonders [$_{CP}$ whether/*that the world is flat].

(adapted from Bruening 2009:27)

[13]For the purposes of clarity, I am adopting a perhaps somewhat simplistic vocabulary of binary features. Whether the relevant patterns are best described in terms of privative, binary, or multivalent features goes beyond the purview of this brief paper. See Harley and Ritter (2002), Harbour (2006), Adger (2010), Adger and Svenonius (2011) for some pertinent discussions.

(57) V ⇢ $C_{[\pm FIN]}$

a. Bertrand wants [$_{CP}$ (for his friend) to be a better philosopher].
b. *Bertrand wants [$_{CP}$ that his friend is a better philosopher].
c. *Bertrand complained [$_{CP}$ (for the world) to be too flat].
d. Bertrand complained [$_{CP}$ that the word was too flat].

(58) V ⇢ $C_{[\pm SUBJ]}$

a. Sue asked [$_{CP}$ that the answer be/*is two].
b. Sue thinks [$_{CP}$ that the answer is/*be two]. (Bruening 2009:28)

(59) **unattested**: V ⇢ $D_{[\pm DEF]}$
e.g. John glorped a/*the book.

As was the case in §4.1, the case against the DP Hypothesis rests specifically on the idea that D° should be the nominal equivalent of C°, which in turn derives from the Szabolcsi-Stowell model of the isomorphism between clauses and nominals in (28). Under the alternative Emonds-Grimshaw model (29), we should expect prepositions to behave on a par with complementisers, and determiners with tense. With this shift in perspective, the purported selectional asymmetries between clausal and nominal ExtPs disappear. As I will argue in the remainder of this section, feature selection seems to be attested only for the highest layer of both ExtPs: namely, CP and PP.

I will begin to make my case by focusing on the clausal ExtP. The data in (56) to (58) demonstrates that feature selection can target the CP layer, so all that remains to be shown is that there is no feature selection for any lower functional projection. First, consider the second highest layer of the clausal ExtP, namely TP. As is well known, all the ECM and raising verbs that select for a TP complement can only combine with a nonfinite TP. If it was possible for verbs to select a $[\pm FIN]$ on their TP complement, we would expect to find a class of ECM verbs that requires a nonfinite TP complement, and another hypothetical class of ECM verbs that requires a finite one. That this is not the case demonstrates that verbs cannot select for finiteness on TP, as indicated in (60)[14].

(60) **unattested**: V ⇢ $T_{[\pm FIN]}$
e.g. Mary$_i$ was glorped [$_{TP}$ $\mathbf{t}_i$ was/*to be astute].

Similarly, there are no ECM or raising verbs that impose restrictions on the tense (i.e. $[+PST]$ and $[-PST]$) feature of their TP complement, as summarised in (61).

(61) **unattested**: V ⇢ $T_{[\pm PST]}$

According to an anonymous reviewer, some occurrences of the auxiliary *have* may signal the presence of true simple past tense, as opposed to any aspect-level feature. As evidence for this, the reviewer points out that predicates that do not seem to allow for the perfect tense in a finite clause, such as *be short* in *John was/*has been short* and *be in the park yesterday* in *Mary was/*has been in the park yesterday*, are completely fine in a nonfinite clause with auxiliary *have*, as in *John is believed to have been short* and *Mary is rumoured to have been at the park yesterday*. Even under this understanding of *non-finite simple*

[14]As a reviewer observes, the pattern in (60) could be said to be independently ruled out by the fact that finiteness requires overt subjects, which themselves require nominative case assignment, which in turn seems to require the presence of C (see the work on so-called "feature inheritance", starting with Chomsky (2008)). Be as it may, this does not detract from the observation that there is no such thing as seletion for (non)finite TPs in English.

past tense in English, it remains the case that selection for this kind of tense is unattested (see also the discussion of auxiliaries and Asp below for further supporting evidence).

It should be noted that there are ECM verbs that seem to require a simultaneous (62a) or a future-oriented (62b) reading of their complement, as discussed in Abusch (2004), Wurmbrand (2014), and Williamson (2019). However, there are various reasons to believe that this phenomenon should not be analysed in terms of selection for tense features.

(62) a. Mary_i is believed [$_\text{TP}$ $\mathbf{t}_\text{i}$ to be in the park (*yesterday / right now / *tomorrow)].
b. Mary_i is forecast [$_\text{TP}$ $\mathbf{t}_\text{i}$ to be in the park (*yesterday / *right now / tomorrow)].

First of all, the pattern in (62) concerns the presence of the modal element WOLL inside the complement clause (cf. Abusch 1985, 1988, Copley 2002, Kaufmann 2005), rather than any specific tense value. In fact, WOLL is entirely independent of tense features: when overtly realised, it results in the modal *will* if embedded under a present tense ($[-PST]$) TP, and in the modal *would* if embedded under a past tense ($[+PST]$) TP. Crucially, neither *believe* nor *forecast* impose any selectional requirement on the feature $[\pm PST]$. One may even go as far as arguing that nonfinite T° is entirely incompatible with the presence of tense features in the first place. Secondly, the phenomenon in (62) cannot be a matter of selection because it is independent of the size of the verb's complement, and carries over to control verbs that select for a CP, as shown in (63). Because the strict locality conditions on selection are violated in (63), it seems likely that the pattern in (62) involves a long distance relationship of a different kind.

(63) a. Mary_i claims [$_\text{CP}$ PRO_i to be in the park (*yesterday / right now / *tomorrow)].
b. Mary_i promises [$_\text{CP}$ PRO_i to be in the park (*yesterday / *right now / tomorrow)].

Moving onto the AspP layer of the clausal ExtP, there are to my knowledge no verbs in English that select for an AspP complement with a particular aspectual value, as illustrated in (64)[15].

(64) a. **unattested**: V ⇢ $\text{AspP}_{[\pm PERF]}$
e.g. John glorped Mary (to) have left / *leave / *be leaving.
b. **unattested**: V ⇢ $\text{AspP}_{[\pm PROG]}$
e.g. John glorped Mary (to) be leaving / *leave / *have left.

As a matter of fact, it is not clear whether there are any verbs that select for an AspP complement in the first place. To the extent that ECM and raising verbs can be given such an analysis, they impose no restrictions on the aspectual profile of their complement, as shown in (65).

(65) John believed/expected [$_\text{TP/AspP?}$ Mary to have slept already / be sleeping on the rug / sleep early].

[15] I have included the aspectual auxiliaries *have* and *be* in the examples in order to avoid confusion with cases of selection for participial forms in *-en/-ed* or gerundive forms in *-ing*.

Next, consider the VP layer. Slightly updating the functional inventory assumed so far, I will relabel as 'VoiceP' what was earlier referred to as 'VP'. I take the functional head Voice° to always project above VP and to introduce the external argument of the clause, when this is present (cf. Kratzer 1996, Pylkkänen 2008, Alexiadou, Anagnostopoulou, and Schäfer 2015, Harley 2017, as well as Chomsky's 2000, 2001, 2008 v* head). Given that many verbs can select for a VoiceP complement, including perception verbs (e.g. *see*, *hear*, etc...) and causative verbs (e.g. *make*, *have*, *let*, etc...), we may expect them to also be able to select for a specific valency of VoiceP. Some verbs would require a transitive or unergative complement headed by Voice°$_{[+TR]}$, the version of Voice that introduces an external argument it its specifier position, contains a ϕ-probe that can assign accusative case, and projects a phase, as in Chomsky's (2000, *et seq.*) system. Other verbs would require an unaccusative complement headed by Voice°$_{[-TR]}$, the version that does not introduce any argument and does not project a phase. This expectation, however, is not met: every verb that selects for a VoiceP complement accepts transitive, unergative, and unaccusative structures alike, as (66) exemplifies. There is no selection for a hypothetical $[\pm TR]$ feature.

(66) John saw/heard/let [$_{\text{VoiceP}}$ Mary sing (the anthem) / go to Athens /...].

(67) **unattested**: V ⇢ VoiceP$_{[\pm TR]}$
e.g. John glorped Mary sing (the anthem)/ *go to Athens.

As an alternative possibility, one may suggest that the relevant feature encoded on Voice is $[\pm ACT]$, distinguishing active and passive verb phrases. However, none of the verbs that select a VoiceP impose any restrictions on the voice of their complement, as demonstrated in (68).

(68) John saw/heard/let [$_{\text{vP}}$ Mary bite the cat / get bitten (by the cat)].

As (69) shows, passive VoiceP complements of some causative and perception verbs seem less natural with the auxiliary *be* than they are with the auxiliary *get*. However, they are nevertheless attested, as discussed in Sheehan (2018) and Cyrino and Sheehan (2018) and demonstrated in (70).

(69) I saw/heard/made Mary get/??be bitten (by the cat).

(70) I made/had/let/saw/heard the teachers be fired. (Cyrino and Sheehan 2018:3)

The degraded nature of *be* in (69) may be easily reducible to the semantic requirement that the complement of causative and perception verbs should denote a dynamic eventuality, conjoined with the assumption that the passive auxiliary *be*, unlike the auxiliary *get*, denotes a state (see Ramchand 2018). The very same semantic requirement accounts for the degradedness of *know* in (71), which cannot be captured in purely syntactic terms.

(71) John saw Mary speak/??know French.

In conclusion, there are no verbs that select for a specific value of a hypothetical $[\pm ACT]$ feature on their VoiceP complement. To my knowledge, there are also no verbs that select for a participial complement with a specific value of $[\pm ACT]$, as exemplified in (72). We can therefore conclude that feature selection is not attested for VoiceP, as shown in (73).

(72) John had/wanted [$_{\text{PartP}}$ Mary biting the cat / bitten (by the cat)].

(73) **unattested**: V --→ $\text{VoiceP}_{[\pm ACT]}$ or $\text{PartP}_{[\pm ACT]}$
e.g. John glorped Mary bite the cat / *be/get bitten.
John glorped Mary biting the cat / *bitten.

The interim results of this discussion are summarised in Table 1 below. What emerges is that feature selection is only attested for the highest functional layer of the clausal ExtP.

(74) TABLE 1

Selectional Pattern	Attested?
V --→ $\text{C}_{[\pm Q]}$	✓
V --→ $\text{C}_{[\pm FIN]}$	✓
V --→ $\text{C}_{[\pm SUBJ]}$	✓
V --→ $\text{T}_{[\pm FIN]}$	✗
V --→ $\text{T}_{[\pm PST]}$	✗
V --→ $\text{Asp}_{[\pm PERF]}$	✗
V --→ $\text{Asp}_{[\pm PROG]}$	✗
V --→ $\text{Voice}_{[\pm TR]}$	✗
V --→ $\text{Voice}_{[\pm ACT]}$	✗

Moving onto the nominal ExtP, I submit that feature selection targeting its highest functional layer is also attested, as soon as the Emonds-Grimshaw model in (29) is adopted. To wit, there are many verbs that select not only for the category P of their complement, but also for the specific identity of the preposition heading the relevant PP, as shown in (75) (see Merchant 2019 for a detailed discussion). Under the assumption that *for*, *in*, *on*, and *with* are different instantiations of the same category P, distinguished by their different featural makeup, the pattern in (75) is the exact nominal equivalent of the patterns in (56) to (58) above.

(75) a. rely on/*in/*for/... Mary
b. believe in/*on/*about/... Mary
c. comply with/*for/*on/... Mary's rules

Let us grant, following Bruening (2009), that there really is no case of feature selection targeting the DP, the NumP, or any lower functional layers of the nominal ExtP, as shown in Table 2. Given the previous discussion, this is exactly what we should expect if clausal and nominal functional heads behave similarly for the purposes of selection, and if the nominal equivalent of C° is not D°, but rather P°. It follows that there is no asymmetry between the two ExtPs: "paradigmatic selection" can only target the features of the highest functional head in the clause (C°) and in the nominal (P°). If there is an asymmetry, it is between complementisers and prepositions on the one hand, and everything else on the other.

(76) TABLE 2

Selectional Pattern	Attested?
V --→ $\text{P}_{[\pm LOC,\ GOAL,\ ...]}$	✓
V --→ $\text{D}_{[\pm DEF]}$	✗
V --→ $\text{Num}_{[\pm PL]}$	✗
V --→ $n_{[\pm MASS]}$	✗

I should remind the reader that the purpose of the foregoing sections has not been to

argue directly for the Emonds-Grimshaw model in (29). Rather, I have conducted a thought experiment that has lead us to the following result: if we adopt the approach in (29), most of Bruening's (2009) argumentation is simply irrelevant and does not go through. To demonstrate that determiners do not behave like complementisers says nothing about the DP Hypothesis[16]. Conversely, even if we accept the arguments in Bruening (2009), all that we can conclude is simply that the Szabolcsi-Stowell model in (28) cannot be entirely right. This is a far cry from the claim that clausal functional material projects, and nominal functional material does not. In conclusion, Bruening's (2009) argument from selection rests on an implicit adoption of the Szabolcsi-Stowell model of the expected isomorphism, a choice which is never explicitly discussed, let alone motivated, and is only made more confusing by an incomplete assessment of the relevant empirical landscape.

4.3 "Selection" as an Epiphenomenon

Up until now, I have suspended any form of scepticism towards the notion of selection, in order to assess the merits of Bruening's (2009, 2020a) argumentation *in its own terms*. As I have detailed in the previous sections, there are many reasons for rejecting the cogency of those arguments, even if Bruening's reliance on the notion of selection is accepted unquestioningly. Such reliance, however, raises some serious methodological and theoretical qualms, to which I now turn.

The fundamental issue is that, as Bruening, Dinh, and Kim (2018:6) in fact themselves note, the term "selection" does not pick out any uniform syntactic phenomenon. It is rather an umbrella term for a large and heterogeneous set of epiphenomenal patterns that can be roughly characterised as *breakdowns* of syntactic productivity. To say that the verb *devour* obligatorily selects for a DP object, for example, is to say that the syntactic productivity observed with similar verbs, such as *eat* (e.g. *John ate*, *John ate the cake*, *John ate at the cake*), is unexpectedly unattested with *devour*. Completely different etiologies may be appealed to in different domains to explain away such breakdowns. It follows that any syntactic argument which revolves around an unqualified notion of "selection" should be viewed as theoretically questionable, and the claims put forward in Bruening (2009) are undermined. I give here three examples to illustrate why one should be sceptical about "selection".

The first example stems from Pesetsky's (1982) notion of *s-selection*, or semantic selection, and from the rich literature that ensued (cf. Pollard and Sag 1987, Grimshaw 1991, Webelhuth 1992, Chomsky and Lasnik 1993, a.o.). In the course of the argumentation, Bruening (2009) claims that, among those verbs that take a CP complement, some select specifically for *declarative* clauses (77a), while others select specifically for *interrogative* clauses (77b).

(77) a. Sue thinks that/*whether the world is flat.
b. Sue wonders whether/*that the world is flat.
(adapted from Bruening 2009:27)

It is far from obvious that the syntax should be involved at all in deriving the patterns in (77). These can simply be analysed a side effect of the principles of semantic composition,

[16]Unless, of course, the *only* evidence for the DP Hypothesis was the purported similarity between determiners and complementisers. This is patently not the case, as various recent replies to Bruening (2009 *et seq.*) remind us (cf. Larson 2020, Salzmann 2020, Preminger 2020 a.o.).

as long as *think* denotes a function that takes a argument of type $< t >$, the semantic type of propositions, while *wonder* denotes a function that requires an argument of type $< t, t >$. If this is on the right track, there is no special relation in the syntax between the verb and the complementiser, or between the verb and a hypothetical $[\pm Q]$ feature on C°. It follows that any inference from the pattern in (77) to some conclusion about syntactic constituency or labelling is invalid, at least without additional assumptions about the LF interface. This is a particularly serious problem for the argument in Bruening (2009), because semantic composition is typically taken to be completely insensitive to matters of syntactic projection and labelling: in systems such as Heim and Kratzer (1998) and von Fintel and Heim (2011), all that matters is the denotation of each individual terminal, regardless of which label projects. Deducing anything about projection from semantic composition is therefore impossible.

A second example that sheds doubt on the usefulness of the notion of "selection" comes from the syntactic behaviour of English quantifiers. As discussed in Larson (2020), there are quantifiers that can be described as selecting for NPs only, as shown in (78), and others that instead appear to select both for bare NPs and for PPs headed by the preposition *of*, as in (79).

(78) a/every/no (*of the) child(*ren)

(79) a. some/three/many/several/more/both (of the) children
b. each/any (of the) child(ren)

It is of course possible to analyse this pattern in terms of c-selection for the features [N] and [P], as Larson (2020) suggests, but such an account would miss an important generalisation. All of the quanitifiers in (79) are able to combine with a null or elided noun, while all of those in (78) obligatorily require an overt NP complement. This is illustrated in (80) and (81), respectively.

(80) a. I saw some/three/many/several/more/both ∅.
b. I gave some water to each ∅.
c. I didn't give any ∅ to them.

(81) *I saw a/every/no ∅.

Under a brute force selection approach to (78) and (79), the pattern in (80) and (81) would remain completely independent, and the generalisation would be lost. A more insightful approach would be analyse the PPs in (79) as optional rightward modifiers of null nouns, following Hoeksema (1984, 1996), Cardinaletti and Giusti (1992), Barker (1998), Zamparelli (2000), and Ionin, Matushansky, and Ruys (2006). Under this approach, illustrated in (82), a quantifier's ability to "select for a PP complement" can be reduced entirely to its ability to combine with a null or deleted noun, and the two patterns in (78)–(79) and (80)–(81) turn out to be different instantiations of the same phenomenon.

(82) some/three/many/several/more/both/each/any $[_{\text{NP}}\ [_{\text{NP}}\ \emptyset\ ]$ (of the children)]

Regardless of the specific way in which some quantifiers but not others may license the nonpronunciation of their complement noun (cf. Merchant 2014), if (82) is on the right track there is no direct syntactic relation between the quantifiers and the PP. The relevant configuration is in fact not even strictly local, insofar as the PP and the quantifiers are not in a complement-head relationship. The vocabulary of "selection" not only misses the

important generalisation, but it also covers over the details of the syntactic dependencies at play.

Lastly, I want to return to cases where a selectional relationship is posited between verbs and their CP complements. There is a growing strand of research arguing that CP "complements" of attitude and speech report verbs should be analysed as modifiers, rather than arguments, and as adjuncts, rather than complements (cf. Kratzer 2006, Moulton 2009, Aboh 2010, Kayne 2014, Elliott 2018, Kratzer 2018). They can be modelled as modifiers of a silent noun in the complement position of the verb, as in (83a) (Kratzer's 'Pathway One'), or as modifiers directly adjoined to the verb phrase, as in (83b) (Kratzer's 'Pathway Two').

(83) a. He says [$_{\text{NP}}$ THING [$_{\text{CP}}$ that Ortcutt is a spy]]. (Kratzer 2018:9)
b. He [$_{\text{VP}}$ [$_{\text{VP}}$ sighed] [$_{\text{CP}}$ SAY that Ortcutt was a spy]].
(adapted from Kratzer 2018:47)

As evidence for this proposal, Kratzer (2018) points out that any semantically suitable unergative verb can be coerced into a speech report interpretation when modified by a CP, as shown in (84). This suggests that a story in terms of "selection" has the explanatory relations upside down: it is not the lexical verb with its speech semantics that is responsible for the projection of a CP in the structure, but rather the other way around.

(84) a. John coughed/mooed/gurgled that he was hungry.
b. John tapped/drummed/clapped that he was hungry. (Morse code)
c. John waved/finger-tutted/winked that he was hungry. (sign languages)

If this research is on the right track, it turns out that there is no direct syntactic relation between verbs and their CP "complements" at all. Once again, the notion of "selection" looks like a descriptive *explanandum* that has no place in a more insightful and in-depth analysis of the relevant syntactic phenomena, because it is theoretically empty: *X selects Y* means nothing other than *X and Y are observed to co-occur in a (somewhat) local configuration* and says nothing about the cause of their co-occurrence.

5 Conclusion

In the course of this paper, I have laid out a series of objections to the arguments against the DP Hypothesis in Bruening (2009), Bruening, Dinh, and Kim (2018), and more recently Bruening (2020a). I have shown that none of the purported asymmetries and missing parallels between nominal and clausal ExtPs hold up to further scrutiny; neither the argument from conventionalised expression discussed in §2, nor the argument from selection in §4, nor the argument from form determination in §3 are empirically tenable. It follows that there is no evidence for abandoning the DP Hypothesis in favour of an endocentric and lexicalist approach to nominals, as in (1a).

There are various matters that I have left open. First, it would be naïve to expect the clausal and nominal ExtPs to behave syntactically in exactly the same fashion. I have already discussed in §3.1 an asymmetry that *does* emerge from the data I consider: agreement, concord, and feature spreading processes often target nominal modifiers, but are largely unattested for clausal modifiers. This observation in no way warrants the claim that only clauses contain projection functional heads, but future research should

nevertheless address this and similar puzzles.

Second, in order to refute Bruening's (2009) argumentation in its own terms, I have unquestioningly adopted its notion of "selection" as part of my theoretical vocabulary. Looking at the bigger picture, however, it is unclear whether selection picks out a natural class of syntactic phenomena, rather than a heterogeneous and epiphenomenal set of cooccurrence patterns, many of which can be reduced to completely independent semantic effects (cf. Pesetsky 1982, Pollard and Sag 1987, Grimshaw 1991, Webelhuth 1992, Chomsky and Lasnik 1993 *et seq.*) and many of which may not even involve strict sisterhood relationships (cf. Borer 2005b, Kratzer 2006, Ramchand 2008, Moulton 2009, Aboh 2010, Kayne 2014, Elliott 2018 for verbal DP and CP "complements"). This means that Bruening's (2009) argument from selection is not only empirically untenable, as we saw above, but also theoretically problematic because of its reliance on an unqualified—and therefore highly suspicious—notion of "selection". It falls to further research to work out how to derive all the selectional patterns described in §4.1 and §4.2, and to establish whether some syntactic relationship of selection is needed at all.

Abbreviations

ABL = ablative case, ACC = accusative case, ACT = active voice, ADE = adessive case, AH = addressee honorific, COMP = complementiser, DAT = dative case, EXH = exhortative, DECL = declarative, DEF = definite, F = feminine, FIN = finite, GEN = genitive case, HON = honorific, IMP = imperative, IMPFV = imperfective, IND = indicative mood, INF = infinitive, INS = instrumental case, LOC = locative case, M = masculine, NOM = nominative case, PAR = partitive case, PASS = passive, PERF = perfect, PFV = perfective, PL = plural, PROG = progressive, PST = past, Q = question, REQ = requestive mood, RPRT = reportative evidential, SG = singular, SH = subject honorific, SML = semelfactive, STR = strong inflection, SUBJ = subjunctive, TR = transitive, WK = weak inflection.

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