

The DP Hypothesis and (A)Symmetries Between DP and CP*

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Abstract

Bruening (2009) and Bruening, Dinh and Kim (2018) argue against the DP Hypothesis of Szabolsci (1983, 1989), Fukui and Speas (1986) and Abney (1987) on grounds of “missing parallelisms” to CP. DP syntax, they assert, predicts selectional relations between predicates and D/DP matching selectional relations between predicates and C/CP. Likewise, we expect featural dependencies in the DP domain to parallel featural dependencies in the CP domain. They argue that neither expectation is fulfilled and that the DP hypothesis should be discarded in favor of the more traditional NP analysis. Here I evaluate Bruening (2009) and Bruening, Dinh and Kim’s (2018) claims finding both lines of argument unconvincing. First, I argue that the DP Hypothesis is supported independently of any parallels to the specific category CP. Second, I show that their arguments against non-selection of D and for selection of N in the nominal are not persuasive; V-object idioms, the centerpiece of their argument for N-selection not only do not show what they claim, but in fact present problems for their own NP account. Third and finally, I argue that Bruening (2009) and Bruening, Dinh and Kim (2018)’s claim of DP/CP asymmetry in “form determination” is simply not well-founded under current analyses of features and agreement, which allow both to be viewed in similar terms.

Chomsky (1986) reanalyzes the category of embedded clauses from S' (Bresnan 1972) to CP, taking them to be projections of their complementizers (cf. 1a-b). Szabolsci (1983, 1989), Fukui and Speas (1986) and Abney (1987) propose a parallel reanalysis of nominal phrases from NP to DP, taking them to be projections of their determiners (cf. 1c-d).

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- (1) a. [_S Comp IP] → b. [_{CP} C IP]
 c. [_{NP} Det N] → d. [_{DP} D NP]

Parallelism of structure in (1b)/(2b) predicts certain parallelisms in behavior. *Ceteris paribus* we might expect selectional relations between predicates and C (2a) to be matched by selectional relations between predicates and D (2b).

- (2) a. V [_{CP} C TP] b. V [_{DP} D NP]
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Likewise, we might expect featural dependencies in the CP domain (3a), the “extended projection of the verb” (Grimshaw 1991), to resemble featural dependencies in the DP domain (3b), the “extended projection of the noun.”

- (3) a. [_{CP} C [...α [...β [...V]]]] b. [_{DP} D [...α [...β [...N]]]]
 [φ] [φ] [φ] [φ] [φ] [φ] [φ] [φ]

Bruening (2009) and Bruening, Dinh and Kim (2018) argue that neither expectation is fulfilled—that clauses and nominals are asymmetric in this sense and that this result undermines the DP hypothesis. They assert that whereas selection is observed between V and C, nothing comparable is found between V and D. Instead, one finds evidence for selection between V and N. Likewise, they argue that whereas featural dependencies show a general “downward” direction in CP, so that higher elements determine the form of lower ones, “in nominals the form of everything else is determined by the head noun” (Bruening 2009, p.30)—in effect, form determination in nominals is “upward.” Based on these claimed asymmetries,¹

¹ Bruening (2009) briefly suggests a third asymmetry (attributed to S. Tomioka), viz., that whereas languages may lack determiners they never lack complementizers. “There is always something to mark embedded versus main clauses, questions versus declaratives, and so on” Bruening (2009, p. 31). This claim is debatable in at least two respects. First it is not clear what is to count as lacking the category D. Whereas many languages lack articles, many of these nonetheless contain demonstratives and quantifiers. Furthermore, languages without a morphologically distinct class of articles can often recruit an unstressed demonstrative in contexts where articles are used (Larson and Laterza 2017). Absent a clear definition of D, it is unclear what counts as absence of D. Second, it’s not clear what the claim about complementizer presence amounts to. Mandarin, for example, shows no form comparable to English *that* for embedded declaratives, or to *whether/if* for embedded polarity questions, although it does show a polarity complementizer (*ma*) in matrix polarity questions.

Bruening (2009) and Bruening, Dinh and Kim (2018) argue that the DP hypothesis is wrong and should be discarded in favor of the more traditional NP analysis.²

Bruening (2009) and Bruening, Dinh and Kim (2018)'s are mistaken in their key assumption that failure of CP-DP symmetry yields a refutation of the DP hypothesis. The DP hypothesis has support independently of any parallels to the specific category CP. Furthermore Bruening (2009) and Bruening, Dinh and Kim (2018)'s core arguments for CP-DP asymmetry are not convincing in any case. In section 1, I review the motivation for the DP hypothesis, including its strong semantic justification under Generalized Quantifier Theory. As I note, the latter in fact limits our expectations of symmetry between DP and CP given the very different semantics of their heads. In section 2, I review Bruening (2009) and Bruening, Dinh and Kim (2018)'s arguments against V-D selection and for V-N selection. I show that the former neglect a key prior fact about DPs, viz., that whereas other arguments like CPs are selected *in situ* and interpreted *in situ* (5a), a large family of DPs either can or must move at LF due to a semantic type disparity they incur in object position (Heim and Kratzer 1988; Fox 2000) (5b).

$$(5) \quad \text{a. } V \left[{}_{\text{CP}} C \text{ TP} \right] \qquad \text{b. } \left[{}_{\text{DP}} D \text{ NP} \right]_i \dots V \ e_i$$

The diagram shows two syntactic structures, (5a) and (5b). In (5a), the structure is $V \left[{}_{\text{CP}} C \text{ TP} \right]$. A horizontal line is drawn under the C and TP elements, with an upward-pointing arrow from the center of this line to the C element. In (5b), the structure is $\left[{}_{\text{DP}} D \text{ NP} \right]_i \dots V \ e_i$. A horizontal line is drawn under the V and e_i elements, with an upward-pointing arrow from the center of this line to the e_i element.

As I show, the latter fact is compatible with a view wherein verbs uniformly select for definiteness in their objects, a feature associated with D. I go on to assess Bruening (2009) and Bruening, Dinh and Kim (2018)'s key arguments for V-N selection based on idioms. I demonstrate that their core observation of determiner variation in verb-object idioms doesn't show what they believe it shows, that the very presence of determiners in verb-object idioms is problematic under their own NP account, and that they don't predict the main empirical phenomena in any case under their own selection-based theory of idioms. Finally, in section 3 I address Bruening (2009) and Bruening, Dinh and Kim (2018)'s second claimed CP-DP asymmetry regarding form determination. I show that under current analyses of agreement, which factor features into interpretable and valued instances, the two domains can be understood as behaving fully in parallel.

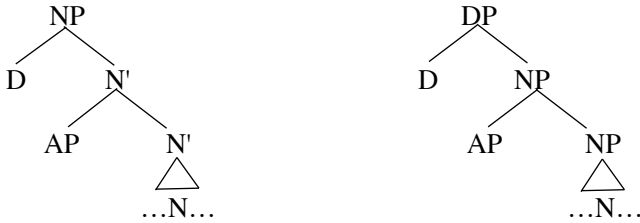
² Bruening (2009) reviews arguments for DP in Bernstein (2001) finding them unconvincing. But Bernstein (2001) does not argue for DP per se, but rather for DP-IP parallelism. Here I agree with Bruening (2009) that Bernstein's evidence is inconclusive.

1. Motivation for DP vs. NP

The DP Analysis involves a fundamental rethinking of the nominal. In place of a traditional view like (6a), where N is the head, D is a specifier and AP is a modifier of an N projection, the DP hypothesis posits a structure as in (6b), wherein D is the selecting head, whose complement is a full nominal phrase and its modifiers:

(6)

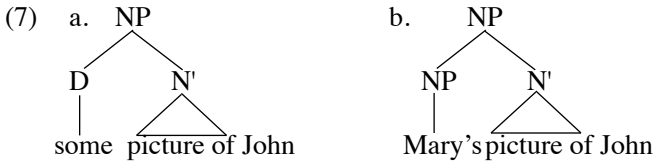
a. The NP Analysis of Nominals b. The DP Analysis of Nominals



Bruening, Dinh and Kim (2018) assert “The primary motivation for the DP Hypothesis has always been a conceptual parallel with the structure of the clause, which was reworked by Chomsky (1986) as CP–IP–VP” (p.3). But in fact this claim is untrue, at least if “motivation” is understood as “justification” or “evidential support.” Certainly parallelisms could, and in some cases did, motivate the DP analysis for some researchers; however, these were not, and are not, the primary evidence for it. The DP analysis (6b) resolved a variety of issues facing the older NP analysis (6a), quite apart from any considerations of, or comparisons to, clausal syntax. Furthermore the DP analysis fit far more smoothly with developing semantic analyses of determiners than the older NP account.

1.1. What is a Specifier?

One problematic issue for the NP analysis was the notion of “specifier,” which in Chomsky’s original (1970) formulation of X-bar theory embraced both apparent heads (*the*) (7a) and phrases (*Mary’s*) (7b).



The similarities between these two classes of item were not apparent at the time and in succeeding years became no clearer. The phrasal notion of specifier expanded dramatically to include the site of moved items in the case of Spec CP and Spec IP (8a-b) (Chomsky 1986), the original site of subject arguments under the “VP-Internal Subject Hypothesis” (8c) (Koopman and Sportiche 1988, Kuroda 1988, McCloskey 1997), and the site of some object arguments under the “split VP” structure (8d) (Larson 1988, Chomsky 1995):

- (8) a. [_{CP} who [_C C [**who** will leave]].
 b. [_{IP} John [_I will [_{VP} seem [**John** to be innocent]].
 c. [_{IP} John [_I will [_{VP} **John** [_V leave]].
 d. [_{IP} John [_I will [_{VP} **John** [_V v-send [_{VP} a message [_V send to Max]]]]]].

But these developments left the status of simplex determiners like *some*, *every*, *the*, etc. increasingly obscure. Even if one proposed to recategorize them as phrases, so that *some* in (7a), for example, is reanalyzed as a full DP, simplex determiners were neither moved items nor apparent arguments. They simply did not align with the broader, developing picture.

1.2. Apparent Selection and Governance Relations

Also puzzling for (6a) was the existence of co-occurrence restrictions between Ds and their accompanying nominals that were strongly suggestive of selection. Thus it was well known that determiners as a general class co-occur with categorial nominals as opposed to other phrasal types (9), despite their shared semantic status as predicates. Likewise some determiners, but not others, co-occur with partitive *of*-phrases (10).

- (9) a. every [_N **man**]/[_N **happiness**]/*[_A happy]/*[_{CP} who is a man]
 b. no [_N **man**]/[_N **happiness**]/*[_A happy]/*[_{CP} who is a man]

- (10) a. both [_N **men**]/[_{PP} **of the men**]; some [_N **men**]/[_{PP} **of the men**]
 b. no [_N **men**]/[*_{PP} of the men]

In the earliest versions of X' theory, such co-occurrence restrictions were stipulated via a relational understanding of specifiers: specifiers were understood as “specifiers of” a certain category, hence determiners were specifiers of nominals, degree elements were specifiers of adjectivals, etc. But the mechanism for imposing category-specific restrictions on specifiers was obscure under X' theory, precisely given its category-neutral nature. In fact such patterning simply looked like categorial selection, the kind of restriction that a head (D) would impose on a phrasal complement (NP/*of*-PP).

Likewise it was familiar that some determiners co-occur with singular nominals, some with plural nominals and some with both (11); and that some determiners co-occur with count nominals, some with mass nominals and some with both (12).³

- (11) a. **every** man/*men; **each** man/*men
 b. **all** *man/men; **few** *man/men
 c. **some** man/men; **no** man/men
- (12) a. **every** chair/*furniture; **a** chair/*furniture
 b. **much** *chair/furniture; **all** *chair/furniture
 c. **no** chair/furniture; **the** chair/furniture

Whereas attributive modifiers are known to agree with nominal heads on number, agreement for mass-noun reference is unattested to my knowledge. Hence this looks very much like semantic selection.

None of this behavior comports well with the picture of specifiers in (8), where, if anything, the character of the specifier seems to be determined by its accompanying X'; that is, C' requires a *wh*-XP, I' in general requires a DP specifier; V' requires a thematic DP, etc. In contrast, these facts fit smoothly with a view of nominal syntax as in (6b), where D selects N(P) and where (9)-(12) reflect selectional relations.

There were also well-known distributional data implying grammatical governance relations between D and N and of D itself. Many

³ Note that *chair* in (12b) has an acceptable (but irrelevant) reading on it that refers to “chair-stuff.” Similarly for (12b).

languages exhibit “indefinite pronoun constructions,” apparently composed of a quantificational determiner (*every, some, no, any,* etc.) and an indefinite noun (*-one, -body, -where, -place,* etc.) (13a).⁴

The shape of these forms suggests a source wherein the indefinite nominal has incorporated into the quantificational D (13b).^{5,6}

- (13) a. **everyone, somebody, nowhere, anyplace**
 b. [every-one **one**], [any-place **place**]
 c. [_α α β] ⇒ [_α α-β β]
 d. [_{DP} every-one **one**]

On the widely held view that incorporation of β into α requires government of β by α in the head-complement relation (13c) (Baker 1988), this would imply that D governs the nominal and heads a larger DP (13d). This structure is made available by (6b). By contrast (6a) would require incorporation of (the head of) a specifier or an alternative account not involving incorporation at all.

In a similar vein, consider familiar preposition-definite article portmanteaus exemplified in (14a) from German, and found also in Romance languages (French, Italian), Irish Gaelic, Maltese, and Modern Greek, among others.⁷

⁴ See Haspelmath 1997 for illuminating cross-linguistic discussion of indefinite pronoun constructions, their form, function, and typology.

⁵ Note that we can reject an alternative derivation on which D incorporates into N (ia) in virtue of examples like (ib), where the presence of the N' adjunct would require “downward incorporation” of D into a structurally lower head (ic):

- (i) a. [every every-one]
 b. everyone in my family
 c. [every [N' [N' every-one] in my family]]

⁶ English locatives formed with *-place* like (13b) seem to be of recent derivation insofar as they are pronounced like indefinite pronouns with initial stress on the quantifier (*sómeplace*) but are still written formally as separate words (*some place*) reflecting their source as independent items (*American Heritage Dictionary of the English Language*). In general, indefinite pronouns do not appear to be actively derived in the syntax. This is shown, for example, by the fact that whereas indefinite pronouns like *everyone, someone, no one* quantify only over persons, analytic examples with *one* like (ia,b) allow pronoun reference to persons and inanimate objects equally:

- (i) a. every single one (was a family member/was made of lead).
 b. every nice one (came from my side of the family/was woven in Italy).

Relatedly Larson and Marusic (2004) show that examples like (iia) do not result by incorporation of an indefinite noun across a pronominal adjective (ib). Briefly put, the postnominal adjective behaves as if it were postnominal at all stages of the derivation.

- (ii) a. everyone tall
 b. [every-one tall one]

I am grateful to Anna Maria di Sciullo (p.c.) for discussion on these points.

⁷ I am grateful to Alan Libert (p.c.) for discussion on this point.

Again, the shape of these forms plainly suggests a source wherein D has incorporated into a higher P (14b).^{8,9}

- (14) a. *zur* = *zu* + *der*, *zum* = *zu* + *dem*, *ins* = *in* + *das*, *am* = *an* + *dem*
 b. [_{PP} *zu-der* [**der** NP], [_{PP} *in-das* [**das** NP]]
 c. [_{PP} α [_{BP} β NP]] ⇒ [_{PP} α-β [_{BP} β NP]]
 d. [_{PP} *zu-der* [_{DP} **der** NP]]

Again assuming incorporation requires government in the head-complement relation (14c), this implies that P governs D and that D heads a larger DP (14d). These relations are provided by (6b), whereas (6a) would again require incorporation of (the head of a) specifier or else an alternative non-incorporation account.^{8,9}

1.3. The Semantics of Determiners

Even more compelling logic for D as the head of the nominal derives from the formal semantics of determiners, which developed contemporaneously with, although independently of, the syntactic DP analysis. Montague (1974) proposed that determiners like *every*, *no*, *some* and *the* be given analyses as in (15a-d), respectively, according to which these elements express quantificational relations between one-place predicates.

⁸ The phenomena in (14) potentially present an additional argument for DP. (ia) shows that presence of an overt nominal (*Wasser*) is no apparent barrier to incorporation of D. To the best of my knowledge, however, presence of an overt D is always a barrier to incorporation of N; cf. (iib-c). The latter does not appear to reflect some kind of atomicity constraint on N, since an accompanying modifier is marginally possible as long as D is absent (id):

- (i) a. *in das Wasser* ⇒ *in-das das Wasser* ⇒ *ins Wasser*
 b. *We hunt duck* ⇒ *We duck-hunt duck*.
 c. *We hunt a duck* ⇒ **We duck-hunt a duck*.
 d. *We hunt wild duck* ⇒ ?*We wild duck-hunt wild duck*.

Assuming incorporation cannot occur across a closer governor, these facts again comport with the view that within the nominal, D governs N, but not vice versa. This predicts D to incorporate in the presence of a governed N but precludes N from incorporating in the presence of a governing D.

⁹ D has been argued to be present in even so-called “bare noun” nominals where no overt determiner is observed (see Stowell 1989, Szabolcsi 1994, Longobardi 1994, among others). Thus the fact that argument bare nouns support anaphora involving individual reference might be taken as evidence for the presence of a D that converts a type <e,t> predicate-denoting noun into to a type <e>, individual-denoting nominal. Note however that this line of reasoning does not, in itself, give evidence for DP. An NP analysis could ascribe the very same function to a null D “bare noun” nominals without analyzing D as their head. I am grateful to Anna Maria di Sciullo (p.c.) for discussion on this point.

- (15) a. *Every* $\Rightarrow \lambda Q \lambda P \forall x [Q(x) \rightarrow P(x)]$
 b. *No* $\Rightarrow \lambda Q \lambda P \forall x [Q(x) \rightarrow \neg P(x)]$
 c. *Some* $\Rightarrow \lambda Q \lambda P \exists x [Q(x) \& P(x)]$
 d. *The* $\Rightarrow \lambda Q \lambda P \exists x \forall y [((Q(y) \leftrightarrow y = x) \& P(x))$

Montague's ideas were taken up in the work of Barwise and Cooper (1981), Higginbotham and May (1981) and Keenan and Stavi (1986), developing so-called "Generalized Quantifier Theory," in which determiners were analyzed as expressing binary cardinality relations C between sets X and Y , where Y represents the restriction on the quantifier—the individuals provided by the nominal restriction and over which quantification ranges—and X represents the scope of the quantifier—the things of which the main predicate is true (16).

- (16) $C(X,Y)$ iff ... $X \dots Y \dots$

As work in Generalized Quantifier Theory showed, the relational analysis can be applied to a wide range of determiners (17), including quantifiers like *most* (17g), which are well known to escape first-order treatment (Barwise and Cooper 1981):

- (17) a. $EVERY(X,Y)$ iff $|Y - X| = 0$
 b. $NO(X,Y)$ iff $|Y \cap X| = 0$
 c. $SOME(X,Y)$ iff $|Y \cap X| \neq 0$
 d. $THE(X,Y)$ iff $|Y - X| = 0 \& |Y| = 1$
 e. $BOTH(X,Y)$ iff $|Y - X| = 0 \& |Y| = 2$
 f. $NEITHER(X,Y)$ iff $|Y \cap X| = 0 \& |Y| = 2$
 g. $MOST(X,Y)$ iff $|Y \cap X| > |Y - X|$

1.3.1. Determiner Valence

Under the relational analysis, determiners are semantically contentful and can be viewed as possessing argument structure and valence, counterpart to verbs. Typical Ds like *some* or *most* express binary relations, selecting two arguments (cf. 15 and 17a-g). These have the status of transitive predicates, albeit transitive predicates of sets rather than transitive predicates of individuals. And in fact the notion of D-valence can be generalized further.

Following original ideas by Postal (1969), pronouns can be regarded as intransitive determiners—Ds taking only a single set argument

corresponding to the scope. Assuming pronouns to bear an index (n) that is mapped by an assignment function (g) to an individual, a pronoun is true of all sets X of which $g(n)$ is a member (18):

(18) **Intransitive Ds (Pronouns)**

$\text{HEn}(X)$ iff $g(n) \in X$

Likewise it is coherent to speak of ditransitive determiners. Keenan and Stavi (1986) offer comparative determiners like *more-than* and *as-many-as* and determiners with exception phrases like *every-except* or *none-but* as potential examples. Intuitively, a sentence like (19a) with *more-than* expresses a relation between three sets—smokers (X), men (Y), and women (Z). The sentence is true if the size of $Y \cap X$ (the men who are smokers) is greater than the size of $Z \cap X$ (the women who are smokers). Similarly the truth conditions of (19b) involves three sets: smilers (X), boys (Y), and the set containing John and Max ($\{j,m\}$). The sentence is true if $Y - \{j,m\}$ (the boys minus John and Max) is a subset of X (the smilers), and if $\{j, m\}$ does not intersect X (if John and Max are not smilers themselves).

- (19) a. More men than women smoke.
b. Every boy except John and Max smiled.

We can formalize ditransitive determiners as in (20a-d), where X is the set contributed by the main predicate (the scope), Y is the set contributed by the nominal complement of D (the restriction), and where Z is the set contributed by the *than*-phrase or *except*-phrase:

(20) **Ditransitive Ds**

- a. MORE-THAN(X,Y,Z) iff $|Y \cap X| > |Z \cap X|$
 b. AS-MANY-AS(X,Y,Z) iff $|Y \cap X| \geq |Z \cap X|$
 c. EVERY-EXCEPT(X,Y,Z) iff ALL($X, (Y - Z)$) & NO(X,Z)
 d. NO-EXCEPT(X,Y,Z) iff NO($X, (Y - Z)$) & ALL(X,Z)

1.3.2. Determiner Thematic Roles

The semantic parallels between V and can also be extended to notions like thematic-role.¹⁰ Canonically, verbs describe events and

¹⁰ The idea of extending theta-roles to determiners is first discussed (to my knowledge) in Larson (1991).

concepts like agent, theme, goal, etc. describe the recurring semantic/functional roles that verbal arguments play with respect to those events. As has been widely discussed since the original work of Gruber (1962, 1972) and Jackendoff (1972), thematic roles seem to underlie certain recurrent syntactic generalizations, for example, the fact that phrases understood as denoting agents are typically realized as subjects, that phrases denoting agents and themes typically show evidence of being projected higher in syntactic structure than oblique elements, etc.¹¹

In a similar way, determiners canonically express quantifications; concepts like restriction and scope describe the two main recurrent semantic/functional roles that set arguments play with respect to quantification. Semantically, the restriction fixes the domain of quantification, whereas the scope determines what is true of the individuals in that domain. Again, these roles appear to be relevant to syntactic mapping. The restriction role is uniformly mapped to the sortal NP argument of D. The scope role is associated with a main clause predication. Given these points it is plausible to consider the notions of scope and restriction as the counterparts of verbal thematic roles: θ_{RESTRICT} and θ_{SCOPE} . Furthermore, since triadic determiners allow for a third set argument, typically introduced by an oblique, preposition-like element such as *than*, *as* or *except*, it seems appropriate to recognize oblique thematic-roles for predicate arguments, like θ_{STANDARD} and θ_{EXCEPT} born by a phrase expressing a standard of comparison or an exception, respectively.¹²

1.3.3. Implications for D(P)-C(P) Symmetry

In exhibiting argument structure, valence and potential factorization by thematic-roles, Ds are plainly displaying head-like—indeed, predicate-like—properties. This result comports naturally with a status for D as head of the nominal phrase (6b), but less naturally with status as a specifier (6a). At the same time, as discussed in Larson (1991, 2014), these properties also severely limit expectations for strong D(P)-C(P) parallelism. A defining feature of functional categories for Abney (1987) and subsequent researchers is lack of

¹¹ For recent, comprehensive discussion of verb valency and thematic roles see Perini (2015, 2019).

¹² These oblique quantificational roles are also recurrent. Exception phrases are found in adverbial quantification, expressed by *unless* (von Stechow 1994); likewise for *than* phrases in adverbial frequency quantifications (*more frequently/often...than...*).

argument structure, which entails that functional categories cannot combine by normal thematic selection and require a separate notion of “functional selection” for syntactic composition. Whereas the C-TP combination is quite plausibly a case of functional selection in Abney’s sense, this is not true for D-NP under Generalized Quantifier Theory. Ds both categorially select NPs and semantically select them as (sortal or mass) predicate arguments.^{13,14}

Furthermore, the internal composition of CPs and DPs are semantically quite different. Bruening, Dinh and Kim (2018) note the fact that verbs may select not only CPs, but also subprojections of it. Thus *think* selects full finite CPs (*think that Mary is guilty*), *seem* selects bare TPs on many accounts (*seem to be guilty*) (Chomsky 1981) and *try* has been proposed to select something close to a bare vP (*try to leave*) (Wurmbrand 2007). Bruening, Dinh and Kim (2018) note the absence of parallel selection phenomena with nominals and cite this as a problem for the DP analysis. But in fact such divergence is predictable on semantic grounds, CP and its functional subprojections (TP, NegP, PerfP, ProgP and vP) are all typically analyzed as of propositional semantic type (<τ> or <s,t>). By contrast DPs, whether quantificational or referring, are semantically type-distinct from their lexical subconstituent NP.¹⁵

¹³ Thematic/semantic selection by D is compatible with the view that DPs contain functional projections if the latter are analyzed as of the appropriate semantic type. Thus the proposal that Num(ber)P and Gen(der)P projections intervene between D and NP (i) is compatible with the view that D thematically/semantically selects Num(P), Num functionally selects Gen(P) and Gen functionally selects NP. So long as NumP is of type <e,t> and denotes a sortal predicate related to N in the right way, combination with D will be semantically coherent.

(i) [_{DP} D [_{NumP} Num [_{GenP} Gen NP]]]

¹⁴ For reasons of space, the discussion above must put aside important semantic distinctions between weak/cardinal determiners and strong/presuppositional determiners, which do have implications for syntax (Diesing 1992). Weak determiners like *many*, *few*, and *two* can pattern like quantity adjectives in certain contexts, both in English (iia) and in other languages like French (iib). This patterning is not found with strong determiners like *every/chaque* (iia-b):

(ii) a. the **many/few/two/numerous/multitudinous/myriad** problems with this report.

b. les **quelques** livres
the some books ‘some books’

(iii) a. *the **every** problem with this report.

b. *les **chaque** livre
the **every** books ‘every book’

I am grateful to Anna Maria Di Sciullo (p.c.) for example (iib) and for general discussion of points in footnotes 13 and 14.

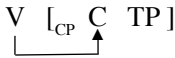
¹⁵ Quantificational DPs are type <<e,t>,t>; individual denoting DPs are of type <e>. Both are thus distinct from NP, which is of type <e,t>.

Therefore whereas we might expect verbs selecting both CPs and “smaller clauses,” there is no counterpart expectation of verbs selecting both DPs and “smaller nominals,” since the latter will be of semantic type quite different than DP itself. Put more generally, given the sharp semantic differences between C and D, expectations about parallel syntactic behavior in CP and DP must be adjusted accordingly.

2. Selection for DP versus NP

Bruening (2009) and Bruening, Dinh and Kim (2018) argue against the DP analysis and for the NP analysis based on predicted and observed selectional relations between verbs and object nominals. They first note the cogency of the CP analysis of complement clauses given force selection by verbs like *think*, *wonder* and *know*. In each case, choice of V determines whether a complement of the relevant force-type is forbidden, allowed, or required, as signaled by complementizer choice (21a-c).

(21) CP Selection



- a. Sue thinks **that**/***whether** the world is flat.
- b. Sue wonders **whether**/***that** the world is flat.
- c. Sue knows **whether**/**that** the world is flat.

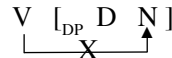
The authors follow Baltin (1989) in holding that predicates need only select the heads of their complements in order to capture distribution appropriately—that selectors need “see” no further down. Thus apparent selection by *want* for nonfiniteness within its complement (22a,b) need not be analyzed in terms of *want* directly selecting T (*to*) inside CP. Rather *want* can be viewed as selecting C (*FOR*), which in turn selects non-finite T (22c), the head of the clause, etc.

- (22) a. Bertrand wants the world to be flat.
- b. *Bertrand wants that the world is flat.
- c. Bertrand wants $\left[\begin{array}{c} \text{CP} \quad \text{FOR} \quad \text{TP} \\ \underbrace{\hspace{1.5cm}} \uparrow \quad \underbrace{\hspace{1.5cm}} \uparrow \end{array} \left[\text{the world } \mathbf{to} \text{ be flat} \right] \right]$.

Bruening (2009) and Bruening, Dinh and Kim (2018) then go on to observe that under this picture, where selection holds head-to-head,

the DP analysis predicts selection between V and D, and its absence between V and N (23a), whereas the NP analysis predicts selection between V and N and its absence between V and D (23b).

(23) a. **DP Selection**



b. **NP Selection**



The facts, they claim, weigh in favor of the NP analysis (23b).

2.1. V - D Selection?

Following observations by Baltin (1989), Bruening (2009) and Bruening, Dinh and Kim (2018) note that under (23a), verbs should be able to select for features typically encoded in D, such as definiteness, possession or quantificational type. Accordingly, we might expect verbs allowing an indefinite, but not a definite D (24a), verbs rejecting a possessive D but allowing a bare one (24b), or verbs requiring a universal D, but disallowing an existential one (24c).

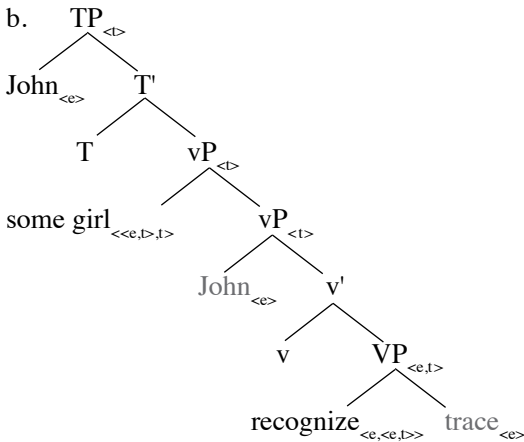
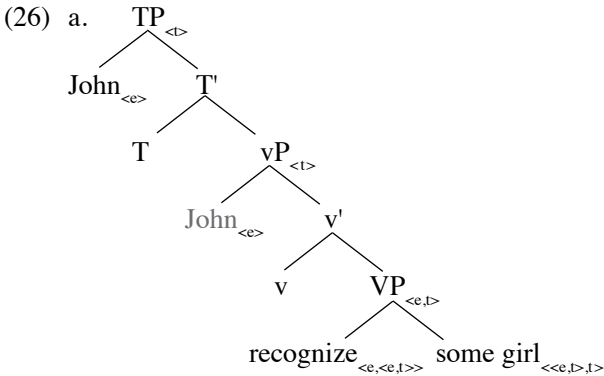
- (24) a. Samuel is **streading** a/*the book.
 b. John **glorped** (*his) books.
 c. Alice **blurfed** every/*one book.

Asserting that verbs with such selectional patterns do not seem to exist, Bruening (2009) and Bruening, Dinh and Kim (2018) offer this as evidence against V-D selection.

In fact, this argument is far less straightforward than it seems. An important distinction between nominals and other sorts of arguments (e.g., CPs) is that many nominals undergo obligatory displacement as a result of their semantics. Specifically, whereas proper names, pronouns, and perhaps certain definite descriptions may be interpreted *in situ* in object position (25a), quantified nominal objects (25b) must raise to a position where they are sister to a clausal projection (vP, TP, etc.), leaving a “trace” in their original position (25c).

- (25) a. John recognized **Julie/her/the girl**.
 b. John recognized **some girl**.
 c. John [_{VP} [**some girl**] [_{VP} recognized **trace**]].

Current theory (Heim and Kratzer 1998; Fox 2000) ascribes this displacement to a semantic type disparity incurred by quantifiers in object position. Under the relational analysis of determiners (section 1.3), quantified DPs are of semantic type $\langle\langle e,t \rangle, t \rangle$ whereas their selecting predicates demand a complement of type $\langle e \rangle$. Object position is thus “type-inappropriate” for quantifiers (26a), forcing them to raise at LF in order to yield a type-appropriate, interpretable structure (26b).¹⁶



¹⁶ In (26a,b) the vP internal subject has raised to TP spec position.

The trace of all operator-type movements is widely argued to be definite (Basri and Finer 1987; Heim 1989). Interestingly, Fox (1999, 2002) has argued that under the copy theory of movement, quantifier traces in particular should be interpreted, not as simple type-*e* variables (27a), but rather as complex iota-terms (27b)—in effect, as definite descriptions under the analysis in Heim and Kratzer (1998). This proposal would construe the logical semantics of *John recognized some girl*, not as in the traditional (28a), but rather as in (28b), which is truth-conditionally equivalent in the simple case.

- (27) a. $[[t]]^g = g(x)$
 b. $[[t]]^g = \iota y[N(y) \ \& \ y = g(x)]$
- (28) a. For some girl *x*, John recognized *x*.
 b. For some girl, John recognized **the *x*, *x* a girl**.

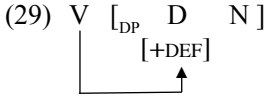
Finally, we note that the nominals that are type-theoretically appropriate for object position and are allowed to remain *in situ*—proper names, pronouns and perhaps certain definite descriptions—are all semantically definite.¹⁷

Taking these points together, it follows that at the level of Logical Form, all verbs selecting a nominal object are in fact combining with a definite nominal object—either a proper name, a pronoun, a definite description or a definite trace. We might take this result precisely as reflecting V - D selection. If selection is imposed at LF, which is implicit in theories embracing semantic-type driven movement, then these results are compatible with the view that verbs do select a D-related feature on their objects, surface appearances notwithstanding: all object-taking verbs would select a definite object, with definiteness checked at LF (29):

¹⁷ Proper names have been argued to be disguised definite descriptions (Graff Fara 2015), an idea already suggested by the widespread tendency of natural languages to use definite articles with proper names (i-iii are drawn from Larson and Segal 1995):

- (i) a. **Der** letzten Pharaoh ist weggegangen. 'The last Pharaoh is gone' (German)
 b. **Der** Hans ist weggegangen. 'Hans is gone'
 (ii) a. **O** teleutaios Faraw efuge. 'The last Pharaoh is gone' (Greek)
 b. **O** Kostis efuge. 'Kostis is gone'
 (ii) a. **El** último faraó'n se fue 'The last pharaoh is gone.' (Spanish)
 b. **El** Juan se fue 'John is gone'

It is also a familiar fact that languages may derive definite articles directly from pronouns, as in the case of Spanish (Luján 2002).



It thus appears plausible that selection of the kind predicted under the DP analysis does in fact hold, once independent factors of semantic type and their consequences are factored in.

2.2. V - N Selection?

Bruening (2009) and Bruening, Dinh and Kim (2018) also offer positive arguments for (23b) based on putative selection relations between verbs and the noun of an object nominal.

2.2.1. Semantic Selection of *N*?

Bruening (2009) and Bruening, Dinh and Kim (2018) suggest selection for number as a potential case in point. They note that verbs like *gather* or *collect* require a plural- or mass-construed object in its transitive form (30a-b).

- (30) a. John gathered the students/the coven/the mist.
 b. #John gathered the scissors/the pants.
 (When there is one pair of scissors or pants)

As Bruening (2009) notes, such selection appears to be purely semantic in nature. This is shown in (30a) by the acceptability of expressions like *the coven*, which is formally singular but notionally plural; and in (30b) by the anomaly of expressions like *the pants* and *the scissors*, which are formally plural but notionally singular on the relevant construal.¹⁸

Importantly, semantic selection does not, and indeed cannot, decide between NP and DP analyses on the semantic account of determiners given in 1.3 above. Recall that under Generalized Quantifier Theory, determiners in general relate sets. Canonical binary Ds, like *all* in (31a), relate the set given by the nominal restriction and the set given by the scope (31b) according to the ALL/EVERY-relation (cf. 17a):

¹⁸ Unacceptability in (30b) is surely pragmatic anomaly (#) and not grammatical ill-formedness (*) insofar as it results only from our current inability to conceive gathering the component atoms and molecules of pairs of scissors and pants together to make a single object, unlike the gathering of water vapor to become a mist.

- (31) a. John gathered [all students].
 b. $|\{x: \text{students}(x)\} - \{x: \text{gathered}(\text{John}, x)\}| = 0$
- $\underbrace{\hspace{10em}}_{\text{Restriction set}} \quad \underbrace{\hspace{10em}}_{\text{Scope set}}$

As discussed first by Barwise and Cooper (1981) and subsequently by many other authors, a crucial property of natural language determiners is that they obey Conservativity, as characterized in (32).

- (32) **Conservativity:** For all Q, $Q(X, Y)$ iff $Q(X \cap Y, Y)$.

Conservativity is reflected in our intuition that when we evaluate a quantified sentence like *All birds fly*, we look only at birds in doing so. Given that $X \cap Y$ and Y are both subsets of Y , saying that $Q(X, Y)$ holds if and only if $Q(X \cap Y, Y)$ holds amounts to saying that Q doesn't ever consider individuals beyond those given by Y , the restriction set. Accordingly, in evaluating (31b), the individuals that we are considering in the scope set must also occur in the nominal set; that is, we are not simply looking at things gathered by John, but at (pluralities of) students gathered by John. In effect, the semantics of quantifiers + Conservativity forces a match-up between the semantic requirements of the predicate and the denotation of the nominal. This result holds not only for the semantic feature of plurality imposed by *gather* in (30). Quite generally, any semantic requirement imposed on arguments x of the scope predicate will need to match the properties of the x 's denoted by the nominal. Ds thus behave "transparently" with respect to the semantic features of their contained nominal, not as a matter of headedness or feature percolation, but by virtue of the semantics of quantification itself. Selection for semantic number, and semantic selection in general, therefore offers no argument for NP over DP. Given the semantics of determiners, we expect the facts in (30), even when D heads the nominal syntactically.

2.2.2. *Lexical Selection of N?*

A more telling argument for selection between V and the N of a complement nominal would be phenomena comparable to those seen in (33a-c), where V or A apparently determines the lexical form (or range of forms) of the head of a complement PP.

- (33) a. i. Mary gave the present **to/*at/*of** John.
 ii. Mary awarded John **with/*of** the present.
- b. i. Mary believes **of/about/*from** John that he is guilty.
 ii. Mary expects **of/*about/from** John that he is guilty.
- c. i. Mary is angry **at/with/about** John.
 ii. Mary is happy ***at/with/about** John.
 iii. Mary is depressed ***at/*with/about** John.

Bruening, Dinh and Kim (2018) suggest the patterning of verb-object idioms as potential evidence of this kind. Their main proposal is based on the analysis of idiom formation embodied in (34a-c) from Bruening (2010):¹⁹

- (34) **Principles of Idiom Formation**
- a. X and Y may be interpreted idiomatically only if X selects Y.
 b. If X selects a lexical category Y, and X and Y are interpreted idiomatically, all of the selected arguments of Y must be interpreted as part of the idiom that includes X and Y.
 c. Lexical categories are V, N, A, Adv.

Under the assumption that selection goes head-to-head, (34a) implies that if V forms an idiom with a constituent (α) in a complement of V, α must be the head of that complement (35a); idiom formation with a non-head constituent is proscribed (35b).

- (35) a. $V \left[\underset{\uparrow}{\alpha_P} \alpha \quad \beta \right]$ b. $V \left[\underset{\uparrow}{\alpha_P} \alpha \quad \underset{\uparrow}{X} \beta \right]$

Idiom-formation thus supplies a diagnostic for headedness under (34a). This proposal has interesting implications for cases where V appears to select its complement phrase “as a block” (36a). Under (34) such cases must be analyzed as involving a chain of idiom-relations where V forms an idiom with the head of the complement, which in turn forms an idiom with the remainder (36b)

¹⁹ Bruening, Dinh and Kim (2018) define “phrasal idiom” as follows: “We consider phrasal idioms to be two or more words that, just when combined with each other, do not have the meaning that is expected from the combination of their constituent parts, but some other meaning. It is crucial that this meaning only arises when the parts co-occur” (p.16).

- (36) a. $V \left[\underset{\uparrow}{\alpha \beta} \right]$ b. $V \left[\underset{\uparrow}{\alpha} \underset{\uparrow}{\beta} \right]$

Bruening, Dinh and Kim (2018) suggest this as an analysis of complex idioms like *Neg hold a candle to X*; *Neg* selects *hold* which in turn selects the nominal.

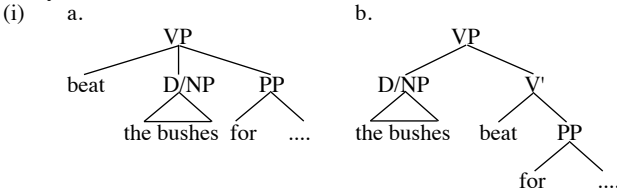
Bruening, Dinh and Kim (2018) explore the consequences of (34)-(36) in relation to the three configurations in (37), where *V* takes a PP complement (37a), and where *V* takes a nominal object under the DP analysis (37b), and under the NP analysis (37c):

- (37) a. $V \left[\underset{PP}{P} \underset{OBJ}{N} \right]$ b. $V \left[\underset{DP}{D} \underset{N}{N} \right]$ c. $V \left[\underset{NP}{D} \underset{N}{N} \right]$

Regarding (37a), their account predicts the existence of V-P idioms that do not fix the nominal object of P (cf 35a); and it predicts the existence of V-PP idioms that fix the entire PP complement (cf. 36b); but it predicts the absence of V-N idioms that ignore the prepositional head of PP allowing it to vary freely (cf. 35b). Bruening, Dinh and Kim (2018) argue that these are in fact the patterns we observe. Thus we see examples like (38a-p), taken from Bruening, Dinh and Kim (2018), which fix *V* and *P* but not the object of *P*.²⁰ Likewise, we see examples like (39a-m), which fix *V* and the entire PP complement.

- (38) a. beat the bushes for X i. pay lip service to X
 b. cast a pall on X j. pull the plug on X
 c. do a number on X k. shed light on X
 d. give it to X l. sink Y's teeth into X
 e. give rise to X m. take a back seat to X
 f. give voice to X n. take a gander at X
 g. light a fire under X o. throw the book at X
 h. Neg hold a candle to X p. turn a blind eye to X

²⁰ The nominal occurring between *V* and PP can be ignored insofar as under either a flat VP structure (ia) or a shelled one along the lines of Larson (1988) and Chomsky (1995), *V* selects both NP and PP.



- (39) a. bark up the wrong tree h. read between the lines
 b. beat around the bush i. sit on X's hands
 c. fall in line j. slip through X's fingers
 d. get to first base k. start from scratch
 e. jump on the bandwagon l. stick to X's guns
 f. knock on wood m. swim against the current
 g. pay through the nose

But, Bruening, Dinh and Kim (2018) claim, we do not find V-N idioms that fix the nominal and leave the head of PP freely substitutable.²¹

Consider now (37b,c) and their patterns. Citing data from Riehm-ann (2001), Bruening, Dinh and Kim (2018) note that we find V-N idioms that do not fix the determiner; in corpus study, all of (40a-y), for example, were found to admit alternative determiner choices (e.g., *bite some bullets*, *break some ice*, *call every shot*, etc.)

- (40) a. bite the bullet n. lose ground
 b. break the ice o. make waves
 c. break the mold p. pay dividends
 d. bury the hatchet q. pay the piper
 e. call the shots r. raise hell
 f. cat out of the bag s. rear its head
 g. clear the air t. run the show
 h. close ranks u. saw logs
 i. deliver the goods v. sound the death knell
 j. keep tabs on w. spill the beans
 k. lead the field x. strike a chord
 l. level the playing field
 m. lose face

Likewise, Riehm-ann (2001) identified a (much smaller) number of verb-object idioms that fix the entire content of the object nominal (41a-h):

- (41) a. hit the ceiling/roof e. make tracks
 b. hit home f. shoot the breeze
 c. kick the bucket g. speak volumes
 d. look the other way h. take a powder

²¹ In fact we do find a limited amount of P-substitution in both of the types of idioms identified in (38) and (39). See the discussion in (44) below.

Bruening, Dinh and Kim (2018) cite additional corpus research of their own confirming that the number of verb-object idioms like (41a-h), in which D is fixed, is quite small. They state: “in 66 out of 73 verb-object idioms, or 90%, the determiner is not fixed (p.24).” Correlatively neither they nor Riehmman (2001) found idioms in which V-D was fixed and where N admitted variation. Regarding verb-object idioms Bruening, Dinh and Kim (2018) thus conclude:

This pattern indicates that verbs relate directly to Ns, not to Ds. This means that the head of the sister of V must be N, not D Determiners in idioms behave like optional modifiers (adjectives, possessors, relative clauses), which can be left out, added, or replaced with another; the typical rules for determiner use will determine what is appropriate. (p.25)

Bruening, Dinh and Kim (2018)’s idiom argument for N-headedness in nominals is both conceptually and empirically interesting. But once again matters are not so straightforward as they might appear. First of all, it is not clear that determiner variation shows what it is purported to show. Second, determiner presence in general raises a serious problem for Bruening, Dinh and Kim (2018). Finally, Bruening, Dinh and Kim (2018)’s theory of idiom formation would itself appear to predict the existence of V-D-N idioms under plausible views of the relation between D and N’.

Determiner Variation and Presence in Verb-Object Idioms

Idioms are typically both described and regarded as “fixed phrases.” However, idioms do in fact show variation, including in what would be regarded as their core parts. The V-PP idioms in (44a-d), for example, show some variation in their prepositional component:

- (44) a. cast a pall **on/upon/over** X
 b. light a fire **under/beneath** X
 c. turn a blind eye **to/toward** X
 d. slip **through/between** X’s fingers

Synonymy of the relevant Ps appears to be a factor here since preserved figurative sense in the idiom is matched by preserved sense in the P subpart.

Beyond what is seen in (44), idioms often also show more “creative” variation that is not conventionalized, but rather occurs in spontaneous use. Examples (45a-ii-bii) from O’Grady (1998) (and cited in Bruening, Dinh and Kim 2018) are cases in point. These involve adding an adjectival modifier to the canonical form of an idiom.

- (45) a. i. leave leave no stone unturned
 ‘make every possible effort’
 ii. leave no **legal** stone unturned
 ‘make every possible **legal** effort’
- b. i. jump on the bandwagon
 ‘join a popular/fashionable activity’
 ii. jump on the **latest** bandwagon
 ‘join the **latest** popular/fashionable activity’

Impressionistically, in producing such forms, the speaker has associated a subcomponent of the canonical idiom (*stone/bandwagon*) with a subcomponent of its meaning (‘effort’/fashionable activity’) and has applied the modifier (*legal/latest*) to the former intending it to be understood as modifying the latter.

Creative elaboration like this is not confined to “adding on” to a fixed idiomatic core. Consider the idiom in (46), which involves an attributive adjective (*dead*) that is surely part of the core idiom. Consider next (47a) and the potential creative responses to it in (47b-e), which are all licit and perfectly interpretable in the author’s judgment:

- (46) beating a dead horse
 ‘continuing to pursue an already settled point’
- (47) a. A: You are beating a dead horse!
 b. B: I am beating a **nearly** dead horse.
 c. B: I am beating a **partially** dead horse
 d. B: On the contrary, I am beating a **live** horse!
 e. B: On the contrary, I am beating a horse **that is alive and kicking!**

Here again, B is identifying a subcomponent of the canonical idiom (*dead*) with a subcomponent of its meaning (‘already settled’) and is varying the former intending corresponding variation in the inter-

pretation of the latter ('nearly settled,' 'partially settled,' 'not settled,' 'wide open'). As in (45a-b), the figurative meaning of the idiom is preserved throughout these alterations, which even include complete replacement of a part of the core idiom (47d) and replacement plus syntactic alteration that preserves modifier status (47e).

Given these points, consider the idiom in (48), the statement in (49a), and the potential creative responses to it in (49b-c), which again are all licit and perfectly interpretable in the author's judgment, with the meanings given.

- (48) bring down **the** house
 'win overwhelming approval from an audience'
- (49) a. A: I heard you brought down the house everywhere on your recent tour!
 b. B: Well, I brought down **some** houses.
 'I won overwhelming approval from an audience on some occasions'²²
 c. B: Well, I brought down **most** houses.
 'I won overwhelming approval from audiences on most occasions'
 d. B: I brought down **every** house **on the east coast**.
 'I won overwhelming approval from audiences everywhere on the east coast'

In each case the figurative meaning of the idiom is preserved. *House* in (48)/(49a) doesn't reference any definite house, despite presence of the definite article; correspondingly, the substituted determiners in (49b-d) don't quantify over *houses*, despite surface syntax. Furthermore, substitution has a consistent and predictable semantic effect. Evidently, the Ds are interpreted adverbially as quantifying over events of the sort referenced by the idiomatic predicate itself, either

²² Alternatively, "I won overwhelming approval from some audiences," and equivalently for (49b-c).

by frequency (48b,c) or by location (48d).²³ One way of interpreting the facts in (49a-d) is as Bruening, Dinh and Kim (2018) do: that D simply isn't part of the idiom and that substitution is analogous to (45a-b) where we add on to the core idiom. Another possibility, however, is that D is indeed part of the idiom and what we are seeing is something more similar to (46)-(47), where substitution is possible because of a systematic option for reconstruing D as an adverb that does not disrupt figurative meaning.²⁴

In fact the second option seems more plausible since we are apparently *not* “adding on” to the canonical idiom as in (45) but rather substituting for an existing subpart of it (*the*), as in (46)-(47). This observation raises a larger, fundamental question for Bruening, Dinh and Kim (2018)'s view of V-object idioms. Dictionaries and native speakers uniformly identify the canonical idiom in (48) as shown, i.e., as “bring down the house,” not as “bring down a house” and still less as “bring down house.” Clearly (48) is also the form of the idiom that is stored and recalled by speakers. What sense does it make, therefore, to hold that the canonical, stored form of an idiom contains elements that are “not part of it”?

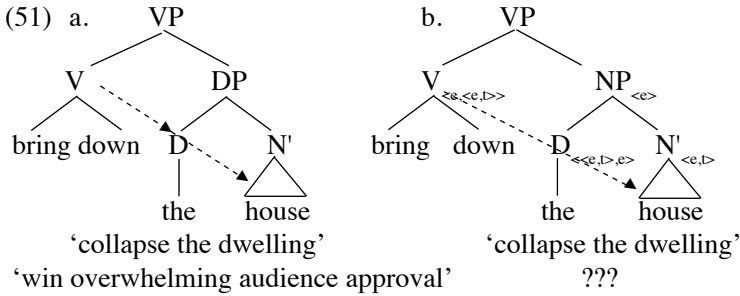
Relatedly, if *the* is indeed *not* part of (48), what accounts for its presence at all in the idiom for Bruening, Dinh and Kim (2018)? Determiner presence is explained straightforwardly on a DP analysis of nominal idioms: V (*bring-down*) categorially selects D (*the*), which in turn categorially selects N (*house*) (51a). D is thus required independently of semantics. Creative substitution for the canonical D can be analyzed analogously to (46) and (47), as discussed above. We

²³ The situation of a nominal element being interpreted adverbially is known to arise in other, similar contexts, both in English and cross-linguistically. Thus (ia) shows an attributive adjective with apparent adverbial interpretation; the Japanese example (ib-c), from Kitagawa (1986), shows object-internal adjectives that are interpreted as VP-manner adverbs.

- (i) a. John saw the **occasional** sailor.
 ('John **occasionally** saw a sailor.)
 b. [_{VP} [_{NP} [_A **usu**] [_N me]]]-o [_V akeru]]
 thin eye -ACC open
 'open one's eyes slightly' (lit. 'open one's thin eyes')
 c. [_{VP} [_{NP} [_A **oo**] [_N guti]]-o [_V akeru]]
 big mouth -ACC open
 'open one's mouth wide' (lit. 'open one's big mouth')

²⁴ Unfortunately the data in Bruening, Dinh and Kim (2018) for determiner variation in verb-object idioms do not include comparisons with replacements in other portions of the same idioms. Thus we are not told, for example, whether substitutions like *beating several dead horses* occur statistically more or less often than substitutions like *beating a nearly dead/live horse*.

might also note also that the presence of D is unproblematic on an NP analysis of non-idiomatic object nominals: V (*bring-down*) categorial selects N (*house*), but also semantically selects an argument of type $\langle e \rangle$. Presence of *the* can be viewed as required in order to turn a type $\langle e, t \rangle$ predicate (*house*) into a type $\langle e \rangle$ term (*the house*) (51b).



But note this reasoning cannot apply to the idiomatic reading of (51b), where *the house* is not a referring phrase and where V does not select a type $\langle e \rangle$ object semantically. Indeed, under Bruening, Dinh and Kim (2018) it seems we might expect determiners to disappear in verb-object idioms, exactly because their presence can be motivated neither syntactically by categorial selection nor semantically by a need for type conversion.²⁵

These points show that not only does determiner variation in verb-object idioms fail to provide a decisive argument for the NP analysis of nominals, it actually raises a serious challenge to that view. Since determiners are neither categorially selected nor semantically required, why are they present at all in verb-object idioms, as elements of structure or as parts recalled by speakers or listed in dictionaries? In fact, as we will see directly below, Bruening, Dinh and Kim (2018) arguably need to analyze determiners as selected elements of idioms, undermining this line of argument for the NP analysis of nominals at its base.

²⁵ Bruening, Dinh and Kim (2018) note that articles in idioms are dropped in headlines and other forms of telegraphic speech suggesting their peripherality (“Trump Beats Bushes for Support!”). But in fact articles are dropped uniformly in headlines and telegraphic speech, including when they would be semantically contentful (“Trump Bashes Squad!”), so this shows nothing about idiom Ds in particular. Furthermore, we note that Cs—selected items according to Bruening, Dinh and Kim (2018)—are also dropped in headlines and telegraphic speech (“Trump Insists Tariffs Working”). Hence headline/telegraphic speech elision cannot imply lack of selection.

Bruening, Dinh and Kim 2018 Arguably Predicts and Requires V-D Idioms

Bruening, Dinh and Kim (2018)'s theory of idiom formation appeals crucially to selection, but the notion of selection required is nonstandard, with nonstandard consequences. Specifically, under their proposals, selection must be exerted, not only by heads α upon phrases, but also by phrases αP upon other phrases βP . Furthermore, when an item α selects and combines with a phrase βP , their projection must be allowed to be βP , the category of the selected item, rather than αP , the category of the selector.

These results are necessary for them in order to deal with idioms like (52-a-d) from Bruening, Dinh and Kim (2018), which involve V-adverbial (52a-b) and V-adjective (52c-d) combinations:

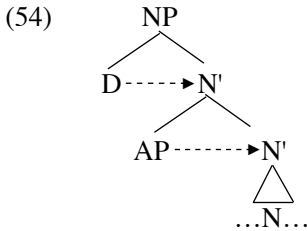
- (52) a. strike while the iron is hot
 b. close the stable door after the horse has bolted
 c. beat a dead horse
 d. bite the big one

Assuming standard right-adjunction of adverbials and adjectives, (52a) has the structure in (53a), and (52c) has the structure in (53b):

- (53) a. [_{VP} [_{VP} strike] [_{PP} while the iron is hot]]
 b. [_{VP} beat [a [_{N'} [_{AP} dead] [_{N'} horse]]]]

Under (34), idiom formation requires a selection between idiomatic elements. Therefore, contrary to more usual views of adjuncts, Bruening, Dinh and Kim (2018) must assume selection between [_{VP} *strike*] and [_{PP} *while the iron is hot*] in (53a), and between [_{AP} *dead*] and [_{N'} *horse*] in (53b). Bruening (2010) asserts that adverbials display categorial selection in combining specifically with VPs; he concludes from this that PP selects VP. Likewise Bruening asserts that adjectives display categorial selection in combining specifically with nominals and concludes that AP selects N'. In each case we thus have a phrase (PP/AP) selecting a phrase (VP/N') and projecting the category of the selected phrase (VP and N', resp.) rather than the category of the selector.

Recall now our observation from section 1.2 that determiners exert categorial selection on their accompanying nominal. Just like adjectival modifiers, Ds combine specifically with Ns or with participative phrases. If so, under Bruening, Dinh and Kim (2018) D should select N' and should allow their combination to be an N-projection N, just as with adjectival modifiers. In other words, projection and selection as in (54) should be available to Bruening, Dinh and Kim (2018) under their NP analysis of nominals, where the arrows represent categorial selection:

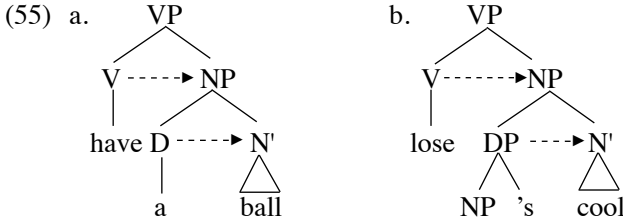


Arguably this result is a positive one for Bruening, Dinh and Kim (2018) given our observation in the previous section that they fail to explain the presence of determiners in idioms either on syntactic or semantic grounds. The result is also positive insofar as they do not succeed in showing that all V-object idioms exclude the determiner. Examples like *bite the big one*, *bite the dust*, *hit the ceiling/roof*, *kick the bucket*, *have a ball* display a fixed article according to their corpus study results. To these we might add cases like *lose X's cool/nerve* and *get X's goat*, which seem to show a fixed possessive.²⁶ Under Bruening, Dinh and Kim (2018) these idioms would seem to require structures and selection relations as in (55a,b), respectively, which are similar to the adjectival cases:

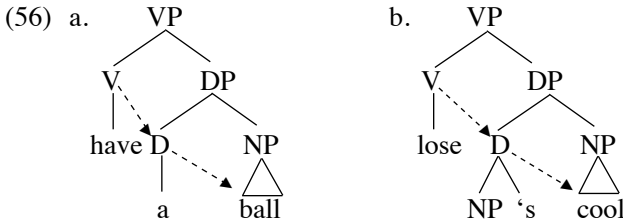
²⁶ Anna Maria Di Sciullo (p.c.) observes a variety of French verb-object idioms (ia-e) wherein the determiner appears as a fixed component.

- (i) a. prendre *(la) fuite
take the flee 'to flee'
- b. brûler *(des) ponts
burn the bridges 'to take irreversible action'
- c. tirer *(la) reverence
draw the reverence 'to bow'
- d. perdre *(le) nord
lose the north 'be disoriented'
- e. prendre du poids
lose of the weight 'lose (some) weight'

See Di Sciullo (1982) and Di Sciullo and Williams (1987) for discussion.



But of course once selection between D and N' is admitted, the possibility of V-D-N idioms follows directly and the idiom argument for NP-headedness collapses. As we have noted, selection-based idiom formation is also compatible with DP structures like (56a,b), where the idiom is constructed by chained head-head selection:



Thus in the absence of arguments against categorial selection of N' by D that would clearly distinguish D from adjectives, the theory in Bruening, Dinh and Kim (2018) actually predicts V-D-N idioms and thus fails to predict the observations in (40) and (41) about D substitutability. Indeed their analysis would seem to require a supplementary account like the one suggested in the previous section.²⁷

In summary, then, Bruening, Dinh and Kim (2018)'s verb-object idiom argument for N-headedness in the nominal does not succeed. The crucial observation about determiner variability does not show that determiners are not part of verb-object idioms. Indeed, the presence of determiners in verb-object idioms presents its own serious problem for the NP analysis. Finally, the theory of idiom formation in Bruening, Dinh and Kim (2018) itself arguably allows for V-D-N idioms and therefore doesn't explain the D-substitution facts in any case.

²⁷ We also note without elaboration an important data gap in Bruening, Dinh and Kim (2018). The authors observe, discuss, but do not explain, the conspicuous absence of V-CP complement idioms, despite the presence of a selection relation between V and C. Note that *ceteris paribus*, one might have expected Bruening, Dinh and Kim

3. “Form Determination” in CP versus DP

I now turn to Bruening (2009) and Bruening, Dinh and Kim (2018)’s observations regarding form determination. Their claim is that “in the clausal domain, form determination is downward: each head determines the form of the head of its complement” (Bruening 2009 p.29). This claim is illustrated with the examples in (57)-(59) (= (11)-(13) in Bruening 2009).

(57) *C determines I (finite vs. nonfinite):*

- a. I would like **for** the Jamaicans **to** win.
- b. I expect **that** the Jamaicans **will** win.

(58) *Each auxiliary determines the form of the next:*

- a. I might have been being handed some cocaine (when the police caught me).
- b. (*might*: bare form; *have*: -en form; *be* (Prog): -ing form; *be* (Pass): -en form)

(59) *The auxiliary elements determine the form of the main verb:*

- a. I **broke** the vase.
- b. I **was breaking** the vase (when you came in).
- c. I **have broken** the vase.
- d. I **might break** the vase.
- e. I want **to break** the vase.

By contrast, Bruening (2009) claims that “in nominals the form of everything else is determined by the head noun” (p.30). This claim is illustrated with the examples in (60)-(61) (= (14)-(15) in Bruening 2009), where the English examples illustrate number agreement and the Spanish examples illustrate agreement for both number and gender.

(2018) to treat this absence like the absence of the hypothetical D-selecting verbs in (24), namely, as reflecting non-C-headedness in complement clauses. But Bruening, Dinh and Kim (2018) do not, and indeed cannot, draw this conclusion because they have already demonstrated V-C selection by other means. It follows that although selection may be a necessary condition for idiom formation under their theory, it cannot be a sufficient one since V-CP complement idioms should exist by their lights, but don’t. This weakens their analysis of the V-DP case since we don’t know whether relevant factors aren’t in play there as well, especially given the frequent analogies drawn between D(P) and C(P).

- (60) a. too many/*much people
 b. too much/*many rice
 c. these/*this scissors
- (61) a. todos esos lobos blancos
 all.MASC.PL those.MASC.PL wolves.MASC.PL white.MASC.PL
 ‘all those white wolves’
- b. todas esas jirafas blancas
 all.FEM.PL those.FEM.PL giraffes.FEM.PL white.FEM.PL
 ‘all those white giraffes’

Thus in nominals, according to Bruening (2009) and Bruening, Dinh and Kim (2018), form determination is “from the head noun up.”

On reflection, these observations are seen to be a recapitulation of the familiar, traditional distinction between agreement-by-government versus agreement-by-concord, reframed here as an argument for clause-nominal asymmetry. Agreement-by-government typically involves a higher governing element α “controlling” agreement on a lower governed element β (62a). Agreement-by-concord typically involves a lower element α “controlling” agreement on a higher, typically modifying element β (62a).

- (62) a. [α [... β ...]] b. [β [... α ...]]
-

Auxiliary inflection (58) is plausibly an example of the former, where each higher auxiliary controls inflection on its immediately lower auxiliary or main verb. Agreement of a noun with accompanying articles, demonstratives, and other modifiers is frequently cited as an example of the latter.

In fact both agreement types are found in both syntactic domains. Napoli (1975) discusses interesting phenomena in Italian where certain manner adverbs like *svelt-* ‘fast’ can appear either in an invariant form (*svelto*) or can agree with the subject, like a modifier. In the dialects of speakers where both forms are available, there is a semantic difference accompanying the morphological one: the invariant form expresses duration (63a) whereas the agreeing form expresses rate (63b):

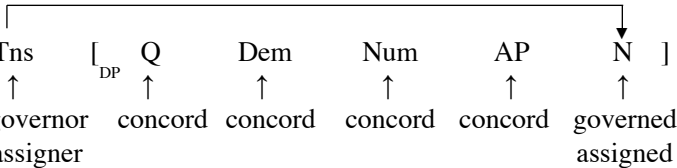
- (63) a. Maria ha parlato **svelto**.
 Maria aux speak fast
 ‘Mary spoke for a brief period of time.’
- b. Maria ha parlato **svelta**.
 Maria aux speak fast.F.SG
 ‘Mary spoke with her words coming out rapidly.’

The latter looks very much like concord in the clausal domain.²⁸

Conversely compare the Spanish example in (61) with the Icelandic example in (64) (from Kester 1996). The Icelandic nominal shows agreement for number and gender, but in addition it shows agreement for case.

- (64) **allar** þessar þrjár
 all.FEM.PL.NOM these.FEM.PL.NOM three.FEM.PL.NOM
nyju kennigar
 new.FEM.PL.NOM theories.FEM.PL.NOM
 ‘all these three new theories’

The traditional view of case-marking is that it is governed on N by some higher element—for example, finite tense (TNS) with NOM(INATIVE) case—and that its appearance on intervening elements (Q, Dem, Num, AP, etc.) represents agreement or “concord” with N.

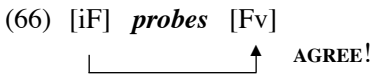
- (65) 

Such examples thus would be described traditionally as showing both agreement-by-government and agreement-by-concord.

It is an interesting question for current grammatical theory whether patterns of agreement like those displayed above can be given a unified account wherein the directional asymmetries of the traditional view are eliminated. In fact this does appear possible. Modern theories of features starting with Chomsky (1995) assume a 2-fold distinction

²⁸ For further extensive discussion of adverbial agreement in southern Italian dialects, see Ledgeway (2011, 2017).

between interpretable (but unvalued) feature instances [iF] versus valued (but uninterpretable) [Fv] instances. To say that features have both interpretable and valued instances is to claim, in essence, that features are like other kinds of syntactic objects: they must be “legible” at the two interfaces of logical form (LF) and phonetic form (PF). The interpretable instance of a feature ([iF]) represent its LF-legible aspect. The valued instance of a feature ([Fv]) represents its PF-legible aspect. Under current assumptions, an unvalued instance probes downward under c-command and agrees with another instance beneath it, in the basic case, a valued instance (66):



Once the two feature instances have undergone agreement, they may be seen as constituting a single syntactic object possessing both of the dimensions required for interface legibility.

The picture in (66) can be applied straightforwardly to the cases Bruening (2009) and Bruening, Dinh and Kim (2018) describe as “downward form determination” in the CP domain (57)-(59)—i.e., agreement under government. In each case, we can analyze the higher head as hosting an interpretable feature instance and the lower head, a valued feature instance.

- (67) a. [_{CP} C [_{TP} T ...]]
 [iFIN] → [FINV]
- b. [_{TP} T [_{XP} X-d ...]]
 [iPST] → [PSTV]
- c. [_{TP} T [_{XP} X-s ...]]
 [iNPST] → [NPSTV]
- d. [_{PerfP} *have* [_{XP} X-en ...]]
 [iPERF] → [PERFV]
- e. [_{ProgP} *be* [_{XP} X-ing ...]]
 [iPROG] → [PROGV]

In (65b-c), the interpretable instance of the feature quite plausibly resides on the item introducing the corresponding tense or aspectual

operator into semantic composition. The valued instance resides on the head immediately below, and, as it were, visibly marks the phrase it projects as the scope of the higher operator. The situation in (67a) is entirely parallel to (67b-c) formally although the intuitive interpretation of [FIN] is less clear in this instance.²⁹ Notice that (67a-d) represent “downward form determination” only insofar as the valued/pronounced feature instance [Fv] must occur lower than its unvalued probe [iF]. There is no real sense however in which the latter “determines” the shape of the former. The valued instance simply spells out in the way it does morphologically, and the two agreed instances together constitute a complete or legible feature.

Extending this picture to nominals requires an additional wrinkle given that nominals can also include concordial elements (recall 61 and 64). Pesetsky and Torrego (2007) propose an interesting extension of (66) that admits the full space of possibilities for [\pm interpretable] and [\pm valued] feature instances (68), including two ([F] and [iFv]) not previously available.

(68)

	+valued	-valued
+interpretable	iF-v	iF
-interpretable	Fv	F

This in turn offers a natural mapping from feature instances to the descriptive notions referenced above for case-features (67).

(69)

<i>Feature instance Type</i>	<i>Descriptive Notion</i>
a. interpretable [iF]	⇒ governor/assigner
b. valued [Fv]	⇒ governed/assigned
c. neither interpretable nor valued [F]	⇒ concordial item
d. both interpretable and valued [iFv]	⇒ independent item

Under (69), (65) can be reinterpreted as in (70).

(70)

Tns	...	[_{DP} Q	[Dem	[Num	[A	[N]]]]
[iNOM]		[NOM]	[NOM]	[NOM]	[NOM]	[NOMv]	
		⑤	④	③	②	①	
		↑	↑	↑	↑	↑	

²⁹ It is well-known that languages mark tense in the left-periphery, so it possible that [FIN]/[TNS] represent a two-part determination of some single feature. I will leave this issue unresolved.

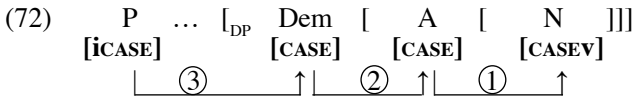
Assuming a normal right-descending syntax that is constructed bottom-up, an agreement chain can be established between T and N through a series of five links (①→⑤). In each case an unvalued instance of F—here [NOM]—probes downward. After the last link (⑤) is forged by agreement, the [NOM] feature is both interpretable and valued, that is, it is a fully interface-legible object, as required.

As noted earlier, case-marking of this kind can be viewed as “downward form determination,” insofar as the concordial ([NOM]) and valued ([NOMV]) feature instances that spell out case morphologically occur lower than the unvalued probe ([iNOM]). But in fact there is no real sense in this theory in which T_{ns} [iNOM] “determines” the shape of the items below it bearing [NOM] and [NOMV]. Nor is there any sense in which [NOMV] on the lowest N “determines” the shape of the concordial elements above it. Rather each individual item separately bears a [NOM] feature instance of the appropriate kind and each item spells out its feature in the way morphologically appropriate for it. What is crucial is that the agreed instances jointly constitute a complete or legible feature upon agreement.

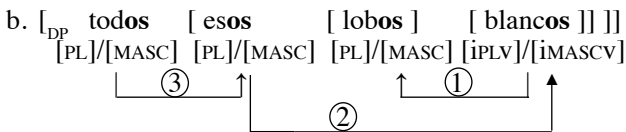
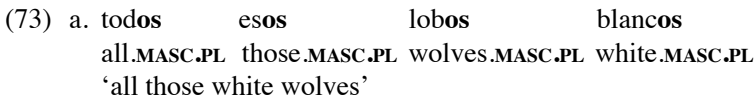
A picture like that above, in which the elements of (70) are all independent of each other, none “determining the form” of the other, each simply spelling out its own individual feature as determined by morphology, is strongly suggested by languages like German, where, in the general instance, case is spelled out only on articles, demonstratives, and modifiers, and typically not on the noun itself. Thus in (71), the German prepositions *durch* ‘through’, *in* ‘in’ and *außerhalb* ‘outside’ govern accusative, dative, and genitive, respectively. Case agreement is realized uniformly on the demonstratives and adjectives in (71a-c), but on the noun only with the genitive (71c).

- (71) a. *durch diesen alten Wald*
 through this.ACC old.ACC forest
 ‘through this old forest’
- b. *in diesem alten Wald*
 in this.DAT old.DAT forest
 ‘in this old forest’
- c. *außerhalb dieses alten Waldes*
 outside this.GEN old.GEN forest.GEN
 ‘outside this old forest’

There is thus no obvious sense in which the morphological form of the nominal *Wald* “determines” the case form of concordial elements in the accusative and dative since N itself shows no case morphology at all. Under the picture above we construct the same set of feature agreement relations, bottom-up, link-by-link, with the feature licensed as legible if it contains both interpretable and valued instances. Each lexical element independently spells out its case feature according to its category, including not at all in the case of valued [ACC] [DAT] (and [NOM]) features on N.



The view sketched above extends without issue to the cases cited by Bruening (2009) as showing “upward form determination” by N. Reconsider the Spanish example (61a), repeated below as (73a), and the candidate structure and feature agreement relations for it in (73b), where the AP (*blancos*) is assumed to be right-adjoined, in contrast to the Icelandic and German examples:



Assume, following Bruening (2009) and Bruening, Dinh and Kim (2018), that plurality and gender features are not only valued on the head noun, but also interpretable there as well, so that *lobos* itself is both [iPLV] and [iMASCV], instances of the “independent” feature type in (69d). Note carefully that although plurality and masculine gender are on N and are not linked to a higher interpretable element, the agreement relations for the higher adjective (*blancos*), demonstrative (*esos*) and quantifier (*todos*) are no different. Just as in (70) and (72), feature agreement chains are established in (73b) by bottom-up structure building, accompanied by downward probing of a local,

unvalued, concordial feature instance ([PL]/[MASC]). These points apply equally to Bruening's English plural examples in (60). In this picture there is thus no essential difference in how feature agreement and morphological spell-out occur in the clausal or nominal domain. The same mechanisms apply equally in both, and in neither case is there "directional form determination" in the sense that Bruening (2009) and Bruening, Dinh and Kim (2018) appeal to. The apparent asymmetry in agreement relations is thus a surface one, not reflecting any real difference in underlying relations.

4. Conclusion

In this article I have reviewed evidence for the DP analysis of nominals, along with two lines of criticism of it by Bruening (2009) and Bruening, Dinh and Kim (2018) who urge the traditional NP account as an alternative. The first criticism concerns selection of object nominals and whether it is D or N that is selected. The second criticism involves a claimed asymmetry in the way that agreement relations are determined in the clause versus the nominal. Regarding the first point, upon review we have seen that the selection for D predicted under the DP analysis is plausibly found, with verbs uniformly selecting for definiteness in their objects, despite surface appearances. Furthermore, apparent arguments for N selection based on verb-object idioms not only do not refute the DP account, but indeed raise serious questions for the traditional NP analysis. Regarding the alleged asymmetry in agreement relations in clauses versus nominals, we have shown that modern analyses of agreement deploying interpretable versus valued instances of features and downward probe-goal relations offer a uniform picture of clausal and nominal agreement with no discontinuity between them. Thus the various interesting challenges adduced by Bruening (2009) and Bruening, Dinh and Kim (2018) notwithstanding, the modern DP analysis seems to rest on secure foundations.

Works Cited

1. Abney, S. 1987. *The English noun phrase in its sentential aspect*. PhD thesis. MIT.
2. Baker, M. 1988. *Incorporation*. Chicago: University of Chicago Press.
3. Baltin, M. 1989. Heads and projections. In *Alternative Conceptions of Phrase Structure*, M. Baltin and A. Kroch, eds. Chicago: The University of Chicago Press, 1–16.
4. Barwise, J and R. Cooper. 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4: 159-219.
5. Basri, H. and D. Finer. 1987. The definiteness of trace. *Linguistic Inquiry* 18: 141-147.
6. Bernstein, Judy. 2001. The DP Hypothesis: Identifying clausal properties in the nominal domain. In *The Handbook of Contemporary Syntactic Theory*, M. Baltin and C. Collins, eds. Oxford: Blackwell, 536–561.
7. Bresnan, J. 1972. *Theory of complementation in English Syntax*. PhD thesis. MIT.
8. Bruening, B. 2009. Selectional asymmetries between CP and DP suggest that the DP Hypothesis is wrong. *University of Pennsylvania Working Papers in Linguistics: Vol. 15 : Iss. 1 , Article 5*.
9. Bruening, Benjamin, et al. 2018. Selection, idioms, and the structure of nominal phrases with and without classifiers. *Glossa: a journal of general linguistics* 3(1): 42. 1–46.
10. Chomsky, N. 1970. Remarks on nominalization. In R. Jacobs and P. Rosenbaum, eds. *Readings in English transformational grammar*. Boston, MA: Ginn, 184-221.
11. —. 1981. *Lectures on government and binding*. Dordrecht: Foris.
12. —. 1986. *Barriers*. Cambridge, MA: MIT Press.
13. —. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
14. Cooper, R. 1979. The interpretation of pronouns. In *Syntax and Semantics 10: Selections from the Third Groningen Round Table*, F. Heny & H. S. Schnelle, eds. New York: Academic Press, 61-92.
15. Diesing, M. 1992. *Indefinites*. Cambridge, MA: MIT Press.
16. Di Sciullo, A.M. 1982. Des principes généraux qui couvrent la syntaxe et la morphologie : le cas des composés syntaxiques. *Recherches Linguistiques à Montréal/Montreal Working Papers in Linguistics*: 197-218.
17. Di Sciullo, A.M. and E. Williams. 1987. *On the definition of word*. Cambridge, MA: MIT Press.
18. Fox, D. 1999. Reconstruction, binding theory, and the interpretation of chains. *Linguistic Inquiry* 30: 157 – 196.

19. —. 2000. *Economy and Semantic Interpretation*. Cambridge, MA: MIT Press.
20. Frege, G. 1879. *Begriffsschrift: eine der arithmetischen nachgebildete Formelsprache des reinen Denkens*. Halle, 1879.
21. Fukui, N and P. Speas. 1986. Specifiers and projection. In *Papers in Theoretical Linguistics*, N. Fukui, T. Rapoport, and E. Sagey, eds. volume 8 of *MIT Working Papers in Linguistics*. Cambridge, MA: MITWPL, 128–172.
22. Graff Fara, D. 2015. Names are predicates. *Philosophical Review* 124: 59–117.
23. Grimshaw, J. (1991/2005). Extended projection. In *Words and Structure*, J. Grimshaw, ed. Stanford: CSLI, 1–73.
24. Gruber, J. 1962. *Studies in lexical relations*. Ph.D thesis. MIT.
25. —. 1972. *Lexical structures in syntax and semantics*. Dordrecht: North-Holland.
26. Grzankowski, A. and M. Montague. 2018. *Non-Propositional Intentionality*. Oxford: Oxford University Press.
27. Haspelmath, M. 1997. *Indefinite pronouns*. Oxford: Oxford University Press.
28. Heim, I. 1989. Where does the definiteness restriction apply? Evidence from the definiteness of variables. In *The representation of (in)definiteness*. E. Reuland and A. ter Meulen, eds. Cambridge, MA: MIT Press, 21–42.
29. Heim, I. and A. Kratzer. 1998. *Semantics in generative grammar*. Malden: Blackwell.
30. Higginbotham, J. and R. May. 1981. Questions, quantifiers and crossing. *The Linguistic Review* 1: 41–80.
31. Jackendoff, R. 1972. *Semantic interpretation in generative grammar*. Cambridge, MA: MIT Press.
32. Keenan, E. and Y. Stavi. 1986. A semantic characterization of natural language determiners. *Linguistics and Philosophy* 9: 253–326.
33. Kester, E-P. 1996. *The nature of adjectival inflection*. Utrecht: OTS.
34. Kitagawa, Yoshihisa. 1986. More on bracketing paradoxes. *Linguistic Inquiry* 17: 177–183.
35. Koopman, H. and D. Sportiche. 1988. Subjects. Unpublished Ms. UCLA.
36. Kuroda, S.Y. 1988. Whether we agree or not: a comparative syntax of English and Japanese. *Linguisticae Investigations* 12: 1–47.
37. Larson, R. 1988. One the double object construction. *Linguistic Inquiry* 19: 335–391.

38. —. 1991. The projection of DP (and DegP). In Larson 2014.
39. —. 2014. *On shell structure*. London: Routledge.
40. Larson, R.K. and F. Marusic. 2004. Indefinite pronoun structures with APs. *Linguistic Inquiry* 35: 268-287.
41. Larson, R. and G. Segal. 1995. *Knowledge of meaning*. Cambridge, MA: MIT Press.
42. Ledgeway, A. 2011. Adverb agreement and split intransitivity: evidence from Southern Italy. *Archivio glottologico italiano* 96:31-66.
43. —. 2017. Parameters in Romance adverb agreement. In *Adjective Adverb Interfaces in Romance*. M. Hummel and S. Valera, eds. Amsterdam: Benjamins, 47-80.
44. Longobardi, G. 1994. Reference and proper names: a theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25: 609-665.
45. Luján, M. 2002. Determiners as modified pronouns. *CÍRCULO de Lingüística Aplicada a la Comunicación (clac)* 9: 19-34.
46. May, R. 1977. *The grammar of quantification*. PhD thesis. MIT.
47. McCloskey, J. 1997. Subjecthood and subject positions. In *Elements of grammar: handbook in generative syntax*. L. Haegeman, ed. Dordrecht: Kluwer, 197-235.
48. Montague, R. 1974. *Formal Philosophy*. New Haven: Yale University Press.
50. Napoli, D. 1975. A global agreement phenomenon. *Linguistic Inquiry* 6: 413-1435.
51. O'Grady, W. 1998. The syntax of idioms. *Natural Language and Linguistic Theory* 16: 279-312.
52. Perini, Mario. 2015. *Describing verb valency. Practical and theoretical issues*. Heidelberg: Springer.
53. —. 2019. *Thematic relations: A study in the grammar-cognition interface*. Heidelberg: Springer.
54. Pesetsky, D. and E. Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and clausal architecture*, S. Karimi, V. Samiian and W. Wilkins, eds. Amsterdam: Benjamins, 262-294.
55. Postal, P. 1969. On so-called "pronouns" in English. In *Modern Studies in English*. D. Reibel and S. Schane, eds. Englewood Cliffs, NJ: Prentice-Hall Inc, 201-224.
56. Riehemann, Susanne Z. 2001. *A constructional approach to idioms and word formation*. Ph.D. thesis. Stanford University.
57. Stowell, T. 1989. Determiners in NP and DP. In *Views on phrase structure*. K. Leffel and D. Bouchard, eds. Dordrecht: Kluwer, 37-56.

58. Szabolsci, A. 1983. The possessor that ran away from home. *The Linguistic Review* 3: 89- 102.
59. —. 1989. Noun phrases and clauses: is DP analogous to IP or CP? *Proceedings of the Colloquium on Noun Phrase Structure*, J. Payne, ed., Manchester, UK.
60. —. 1994. The Noun Phrase. In *Syntax and semantics 27: the syntactic structure of Hungarian*. I. Kenesei, ed. New York: Academic Press, 179-275.
61. Von Stechow, P. 1994. *Restrictions on quantifier domains*. Ph.D. thesis. University of Massachusetts, Amherst.
62. Wurmbrand, S. 2007. How complex are complex predicates? *Syntax* 10: 243–288.

