

Word Formation at the Syntax-Morphology Interface: Denominal Adjectives in Bulgarian

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A major goal in the study of the interface between syntax and morphology (understood as part of the PF component) is to understand mismatches between syntactic representations and the corresponding morphological representations. Denominal adjectives in Bulgarian provide one such mismatch. In morphology, they are composed of a nominal component D adjoined to an adjectivizing head F. In syntax, however, the nominal component D behaves like a nominal phrase occupying the specifier of F. Denominal adjectives in Bulgarian thus present both a structural mismatch whereby a *syntactic specifier-head relation* is mapped to *head adjunction at PF* and a mismatch between the syntactic and morphological category of denominal adjectives. I analyze these mismatches as the result of a morphological (postsyntactic) operation, which converts nominal phrases into denominal adjectives postsyntactically, as part of the word formation process that combines the nominal phrases with adjectivizing morphology. The proposal is an extension of the theory of the syntax-morphology mapping developed within Distributed Morphology (Embick and Noyer 2001, et seq.) on the basis of Marantz's (1984) Morphological Merger and relies on the implementation of Morphological Merger developed by Harizanov (2014a) in the context of cliticization, itself an elaboration of Matushansky's (2006) and Nevins's (2011) proposals.

Keywords: syntax-morphology interface, denominal adjectives, Morphological Merger, Bulgarian

1 Introduction

At every level of linguistic description and analysis, various criteria are used to infer the structural relations between the objects that are relevant at that level. Different criteria can, in principle, pick out different kinds of objects. For example, the units of syntax are identified by their relevance

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Abbreviations: 1, 2, 3 – person, ACC – accusative, ADJ – adjectivizer, DE – direct experience, DEF – definiteness, F – feminine, M – masculine, N – neuter, PL – plural, REFL – reflexive, SG – singular. Transliteration standard used in the Bulgarian examples: ISO 9 (1968). Where no source is given, data are based on the author's consultation with native speakers, the author's own judgments (in the case of Bulgarian), naturally occurring (corpus) examples, or a combination of these.

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to various syntactic processes and usually include words, phrases, and clauses. On the other hand, the units of morphology are identified via morphological criteria and usually include roots, stems, and affixes. While what constitutes a syntactic or morphological diagnostic depends to a significant degree on the theoretical context (see Pullum and Zwicky 1988), there is a general consensus that syntactic diagnostics reveal hierarchically organized constituent structure composed of elements that are at least as small as words, while morphological diagnostics pick out elements smaller than words.

Given this independence of syntax (i.e., the syntactically motivated hierarchical structure) and morphology (i.e., the corresponding morphologically motivated hierarchical structure), a central question concerns the mapping between structural descriptions at each of the two levels. Since various mismatches between syntax and morphology have been identified, the mapping does not seem to be an identity mapping. For instance, while some syntactic objects are realized as autonomous words, others are realized as parts of words (Baker 1985, 1988, Pollock 1989, Belletti 1990, Chomsky 1991, Sadock 1991, et seq.). In English, main verbs do not raise to the syntactically independent T (the category of modals and tense suffixes like *-ed*). Yet, under certain circumstances, T surfaces as part of the morphological word (i.e., complex head) that also contains the verb: *They enter-ed the room* (cf. the morphologically autonomous T *must*: *They must enter the room*).¹

- (1) a. *Syntax*
 [_{TP} [_T -ed] [_{VP} [_V enter] . . .]]
 b. *Morphology*
 [_{VP} [_V [_V enter] [_T -ed]] . . .]

Given such structural mismatches between syntax and morphology, certain restructuring (or rebracketing) is required as part of the mapping. An important empirical question in this regard concerns the types of restructuring that are found crosslinguistically: for example, if two terminals X and Y are parts of a single morphological word (i.e., complex head), what are the possible syntactic configurations in which X and Y can stand? An equally important, and related, theoretical question is how to restrict the power of the mechanisms responsible for the observed instances of restructuring. My goal in this article is to further develop the theory of the types of syntax-morphology mismatches found crosslinguistically and the mechanisms necessary to account for them. The empirical focus is on denominal adjectivization in Bulgarian, which involves the formation of a morphological word (i.e., complex head) composed of syntactic objects that stand in a

¹ This treatment of inflectional affixes is predicated on the assumption—common within the Principles-and-Parameters framework (Chomsky 1981) and the Minimalist Program (Chomsky 2000, 2001)—that they are syntactically independent despite their morphological dependence (Chomsky 1957, et seq.). However, according to theories that assume syntactic structures less abstract and less articulated than (1), *entered* in (1) may be unanalyzable (e.g., Bresnan 1982, 2001, Gazdar et al. 1985, Pollard and Sag 1994, Culicover and Jackendoff 2005).

specifier-head relation. This structural mismatch is accompanied by a mismatch in syntactic and morphological category: a denominal adjective in Bulgarian is formed in the morphology on the basis of a nominal component, which is a nominal phrase in the syntax. As a result, denominal adjectives have a mixed morphosyntactic character, exhibiting both adjectival and nominal behaviors. The mixed-category character of denominal adjectives can be understood as resulting from the same mechanisms responsible for mismatches in constituency once these mechanisms are coupled with a particular view of categories as bundles of features.

1.1 Background Assumptions

I assume a model of grammar in which syntax and morphology are independent modules: syntax builds and manipulates hierarchical structures according to its principles, and morphology does so according to its own principles. I take word-internal units and the structural relations among them to be basic theoretical entities, and I assume that words, like phrases, have complex constituent structure—a central tenet of Distributed Morphology (Halle and Marantz 1993, 1994, et seq.; but see, e.g., Anderson 1992 and Stump 2001 for alternatives). As for syntax, I assume it includes the circumscribed set of operations associated with the Minimalist Program, Merge and Agree, which manipulate terminal elements (morphemes) and the objects obtained by combining terminals into larger hierarchical structures (Chomsky 2000, 2001). The output of syntax serves as the input to PF (the interface with sensorimotor systems) and LF (the interface with conceptual-intentional systems). At PF, the hierarchical structures of syntax are translated by a set of postsyntactic operations into representations that the motor system can manipulate. I assume (at least) the following ordered PF operations (Embick and Noyer 2001, Ackema and Neeleman 2003, Chung 2003):

- (2) a. Morphological Merger (e.g., Lowering)
- b. Vocabulary Insertion (VI)/Linearization
- c. Construction of prosodic domains
- d. Prosodic Inversion/Other phonological rules

The hierarchical structure generated by the syntax persists (at least) until it has been linearized into an ordered string of terminal elements at VI (2b).² This hierarchical structure can be manipulated by PF restructuring (rebracketing) operations such as Lowering (3), which is itself an implementation of a special case of Morphological Merger (4).

- (3) *Lowering of X^0 to Y^0*
 $[_{XP} X^0 \dots [_{YP} \dots Y^0 \dots]] \rightarrow [_{XP} \dots [_{YP} \dots [Y^0 Y^0 + X^0] \dots]]$
 (Embick and Noyer 2001:561)

² Linearization may precede VI (Embick 2007), but this is inconsequential for present purposes.

(4) *Morphological Merger*

At any level of syntactic analysis (D-structure, S-structure, phonological structure), a relation between X and Y may be replaced by (expressed by) the affixation of the lexical head of X to the lexical head of Y.³ (Marantz 1988:261)

In this theoretical context, *morphology* is a cover term for the operations that apply at PF up to and including VI. There is no lexicon in this model of grammar, and word formation takes place in the syntax or in the morphology, through postsyntactic operations like Morphological Merger. Words are complex heads, defined as follows:

(5) *Morphological word*

A node X^0 is a (morphological) word if and only if it is the highest segment of an X^0 not contained in another X^0 . (If a node X^0 is a terminal node and not a (morphological) word, X^0 is a *subword*.) (adapted from Embick and Noyer 2001:574)

1.2 *Syntax-Morphology Mismatches*

Within this model of grammar, mismatches between syntactic structure and morphological structure are accounted for by the application of morphological operations at PF, such as Morphological Merger.⁴ Here, I focus on a particular type of mismatch whereby distinct syntactic objects are contained within the same morphological word at PF. Two well-studied syntactic configurations that yield a single morphological word are (a) the *head-head of a complement* configuration, as in (1), and (b) the *head-complement* configuration, as in incorporation of a bare lexical head in complement position into a higher lexical head (Baker 1988). Various syntactic and postsyntactic mechanisms (head movement, Lowering, affix hopping, etc.) have been proposed to derive morphological words from (a) and (b).

In this article, I focus on morphological words composed of syntactic objects that stand in a third type of configuration, which has received less attention than the other two (but see Matushansky 2006): the *specifier-head* configuration. In the syntactic structure (6a), Y(P) is the specifier of a phrase headed by X; in the morphological structure (6b) at PF, the labels of X and its specifier Y(P) are contained within a single morphological word.

³ What relations are being replaced depends on the level of representation at which Morphological Merger applies. In addition to Lowering, which applies before VI, Embick and Noyer (2001) propose Local Dislocation, which applies after or simultaneously with VI, and they point out that adjunction in prosodic structure (and related operations like Prosodic Inversion) can be viewed as an instance of Morphological Merger at the level of prosodic structure.

⁴ It is conceivable that such mismatches may in principle be accounted for, not by early PF operations like Morphological Merger, but by some late syntactic operation(s) instead (see Vicente 2007, Gallego 2010). To distinguish the two alternatives empirically, there would need to be evidence for a lower bound on how early in the derivation the relevant operation applies. The choice depends also on theory-internal considerations and, in particular, on whether operations other than Agree and Merge are admitted into the syntactic component. Finally, since alternative models of syntax-morphology mismatches exist (e.g., Sadock 1991), it is worth noting that the evidence in this article motivates a particular mismatch between syntactic and morphological structure and category but does not necessarily imply that the relevant modules of grammar are ordered sequentially.

- (6) a. *Syntax*
 [XP Y(P) [X . . .]]
 b. *Morphology*
 [XP [X Y X] . . .]

I demonstrate that such a mismatch is instantiated by a certain kind of denominal adjective in Bulgarian and develop an account of it within the model of grammar outlined above. Specifically, I attribute the *specifier-head* mismatch to the application of Morphological Merger (see Marantz 1984, Hale and Keyser 2002, Matushansky 2006). I implement it as an operation that applies postsyntactically, at PF, but prior to VI. This operation takes a syntactic phrase and a syntactic head that stand in a *syntactic specifier-head relation*, as in (6a), and creates a complex head, producing the morphological representation in (6b). While this representation still contains information about hierarchical structure, the labels of X and its specifier Y(P) are now contained within a single morphological word. A major result is that the mapping between syntax and morphology must be able to translate a *syntactic specifier-head relation between X and Y* (and a concomitant argument-licensing relation) into *head adjunction of X and Y within a single morphological word*.⁵

The mismatch in syntactic and morphological constituency of denominal adjectives in Bulgarian is accompanied by a certain mismatch in category: what is a unitary (denominal) adjective in the morphology contains a nominal element of category D, which exhibits purely nominal syntactic properties. This dissociation between syntactic and morphological category is understood within the present framework as the result of Morphological Merger, which embeds a nominal element within an adjective. The effects of this category “conversion” can thus be detected only postsyntactically, after Morphological Merger has applied, through the morphologically adjectival behavior of denominal adjectives. This analysis leads to a treatment of categories as bundles of features that appear in specific structural configurations and can be associated with distinct and, indeed, independent syntactic and morphological properties.

2 Denominal Adjectives in Bulgarian

On the one hand, Bulgarian denominal adjectives behave like adjectival modifiers in a number of ways. On the other, they are denominal in the sense that they are formed out of nominal

⁵ Given this much, it is necessary to distinguish apparently similar mismatches that involve a Prosodic Word—rather than a morphological word—that contains a head and (parts of) its specifier. There are numerous such cases, including the Saxon genitive in English and the question particle *li* in Slavic. I thank a reviewer for bringing these cases to my attention and pointing out their relevance; they are discussed in section 5.3. The relevant notion for this article is, however, the notion of morphological word, as defined in (5), and even though morphological words tend to be parsed as Prosodic Words, the focus here is not on Prosodic Words. Prosodic Words are units relevant for phonology/prosody—a distinct level of representation, introduced after VI—and are identified via purely phonological/prosodic criteria, like other phonologically relevant units such as syllables, feet, and phonological and intonational phrases. While there is a tendency for morphological words to be parsed as Prosodic Words, this is not a necessity: for example, in cases of simple cliticization (Zwicky 1977), a Prosodic Word presumably properly contains a morphological word. It is, of course, an empirical question whether constituency at each level (morphology, phonology/prosody) can be motivated. See section 3.1 for motivation in the relevant case in Bulgarian.

elements. One type of denominal adjective is formed on the basis of pronouns (7) and will be called *pronominal*; members of this class can be uniquely identified by their ϕ -featural content. Another type of denominal adjective is formed on the basis of animate proper names and kinship terms (8) and will be called *nonpronominal*.⁶

(7) *Pronominal adjectives*

- a. *tvoj* ‘your’
- b. *negov* ‘his’
- c. *tehen* ‘their’

(8) *Nonpronominal adjectives*

- a. *Ivanov* ‘Ivan’s’
- b. *Penkin* ‘Penka’s’
- c. *baštin* ‘father’s’

While these denominal adjectives are morphological words (and, as shown in section 3, not just Prosodic Words), their constituent parts are syntactically independent. In particular, their nominal components (pronoun, name, or kinship term) behave like independent nominal phrases in the syntax. The evidence comes from their occurrence inside *-N nominalizations*, a type of complex event nominalization (in the sense of Grimshaw 1990), which support their own argument structure (Georgiev 1999, Pashov 1999, Markova 2010).⁷ The morphosyntactic mechanisms that can express the external argument of an *-N* nominalization include denominal adjectives.⁸

- (9) a. **tjahno-to** zavladjavane na trakijskite zemi
 they.ADJ-the conquering of the.Thracian lands
 ‘their conquering of the Thracian lands’
- b. **Cezarovo-to** pokorjavane na Galija
 Caesar.ADJ-the subjugation of Gaul
 ‘Caesar’s subjugation of Gaul’

These examples illustrate that the nominal components of denominal adjectives can express external θ -roles in *-N* nominalizations. In particular, the pronoun within *tjahno* ‘their’ in (9a) is inter-

⁶ There is another type of denominal adjective, based on place names: for example, *frenski* ‘French’, *italianski* ‘Italian’, and *bălgarski* ‘Bulgarian’. Such adjectives are known by various names: group (Grimshaw 1990), referential (Giorgi and Longobardi 1991), thematic (Cinque 1994), ethnic (Alexiadou and Wilder 1998), nationality (Cinque 2010). As a reviewer points out, these labels do not always do justice to the properties of this type of adjective since, for example, one and the same adjective can be ‘thematic’ when interpreted as an argument of a derived nominal or ‘nationality’ when interpreted as a place of origin. Such issues aside, it is an empirical question whether adjectives based on place names in Bulgarian are amenable to the same analysis as the denominal adjectives that are the focus here (for a comparison, see Alexiadou and Stavrou 2011). In particular, it needs to be determined whether the nominal components of these adjectives (i.e., the place names) are DP specifiers in the extended nominal projection (see section 4).

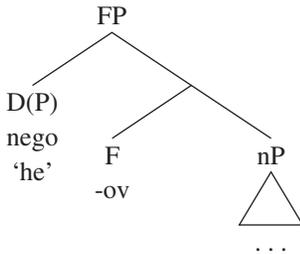
⁷ These nominalizations are formed by a nominalizing suffix whose morphophonological exponent is *-(e)n* and which I refer to as *-N*—hence the term *-N nominalization*.

⁸ Other mechanisms include *ot*-phrases (the counterpart to English *by*-phrases), clitics, and (clitic-doubled) case-marked DPs, as well as PRO.

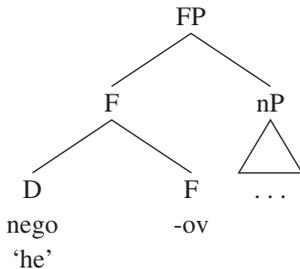
preted as the external argument agent of the nominalization. The external argument of the nominalization in (9b), on the other hand, is expressed by the name within *Cezarovo* ‘Caesar’s’.

With respect to syntactic criteria, discussed in section 4, the nominal component of such a denominal adjective behaves like a nominal phrase that occupies a specifier position in the extended nominal projection, as in (10a). This is the syntactic representation of the denominal adjective in (7b). At the same time, the nominal component behaves like a subword with respect to morphology, as discussed in section 3, being a proper part of a word-sized denominal adjective. These diagnostics, in turn, suggest that the postsyntactic morphological representation associated with denominal adjectives is (10b), where the adjective is a morphologically complex word.⁹

(10) a. (Partial) syntactic representation



b. (Partial) morphological representation



Consequently, I treat denominal adjectives as underlying noun phrases, as in (10a), that are embedded inside adjectives, as in (10b), in the course of the derivation (see Alexiadou and Stavrou 2011 and Babyonyshev 1997 for similar approaches to Modern Greek and Russian, respectively). This category ‘conversion’ is part of the word formation process that combines a nominal phrase (D) with a morpheme (F) that triggers the morphologically adjectival behaviors of the resulting D+F unit.¹⁰ It follows then that proper parts of words can be independent syntactic objects. The

⁹ The label *F* is used for expository reasons only; the actual label of the lexical item is the lexical item itself (Chomsky 2000:133). On what features *F* is composed of, see sections 4.1 and 5.

¹⁰ The head *F* also causes the D+F unit to have the distribution of an adjective, presumably a syntactic behavior. This follows readily from the analysis developed in section 5, since the syntactic position of *F* determines the position of the D+F complex (see also section 3.5).

syntactic decomposition of morphological words, in turn, leads to a syntactic treatment of (at least some aspects of) word formation: the mapping procedure must be able to translate a *syntactic specifier-head relation between X and Y* into *head adjunction of X and Y within a single morphological word*.

While the focus here is on denominal adjectives that express the external arguments of complex event nominalizations, these adjectives (or a set of adjectives homophonous to them) appear to be able to express, in addition, a variety of DP-internal relations within simple event, result, and object-denoting nominals, including the possessor relation. On the one hand, as a reviewer points out, these “nonthematic” adjectives (e.g., *Ivanovata kniga* ‘Ivan’s book’), which do not express external arguments but have one of these nonthematic uses, appear to have the same morphological structure (at PF) as their “thematic” counterparts, which do express external arguments (namely, (10b)). On the other hand, as far as the syntactic structure of the nonthematic adjectives is concerned, it may or may not be the same as that of their thematic counterparts (see (10a)). Specifically, if the thematic and nonthematic denominal adjectives are associated with distinct syntactic structures, that may be because the nonthematic adjectives involve the construction of the complex head in (10b) in the syntax rather than in the morphology.

The issue of whether thematic adjectives and their nonthematic counterparts can receive a unified morphosyntactic analysis has been discussed by, among others, Alexiadou and Stavrou (2011) in connection with what they call *ethnic adjectives* in Modern Greek. According to Alexiadou and Stavrou, ethnic adjectives like *Italian* in *the Italian invasion* are thematic (i.e., they encode “a thematic role assigned to them by the noun they modify” (p. 117)), while their homophonous counterparts, *classificatory adjectives* like *Italian* in *the Italian bag*, are nonthematic (instead, they “assign to the modified noun a property which is related to some origin, provenance, place, country, town, region, more generally” (p. 119)). Alexiadou and Stavrou analyze classificatory adjectives in Modern Greek as “deep” adjectives because of their apparently complete opacity to syntacticosemantic processes, while they analyze ethnic adjectives as having a nominal source visible at the level of interpretation. This is intended to explain the distinct morphosyntactic and semantic behaviors of the two types of adjectives (see also Fábregas 2007). A prominent alternative approach challenges the view that what Alexiadou and Stavrou call ethnic adjectives are nominals in disguise. For example, building on the analysis of the semantics of relational adjectives proposed in McNally and Boleda 2004, Arsenijević et al. (2014) propose a semantics for both the thematic and the nonthematic uses of these adjectives that allows the adjectives to be treated uniformly as proper adjectives, while also aiming to account for the properties that led to the nominals-in-disguise analysis.

As far as nonthematic denominal adjectives in Bulgarian are concerned, establishing whether they have the same syntactic structure as their thematic counterparts would require careful application of the relevant diagnostics (see section 4), an endeavor left for future work. If it turns out that they do, the analysis of the thematic adjectives put forward here could be extended to the nonthematic ones if the head F is allowed to pass the relevant relation (e.g., the possessor relation) up the tree, as suggested by a reviewer. If it turns out that they do not, the present approach can

presumably accommodate this state of affairs by associating the two types of adjectives with distinct syntactic structures.¹¹

3 Adjectival Characteristics

Evidence that denominal adjectives in Bulgarian are morphological words (i.e., complex heads) at PF comes from their structural makeup and from certain local interactions among their constituent parts. In addition, denominal adjectives share a number of characteristics with pronominal modifiers more generally, which have to do with their morphological composition (including inflection) and distribution. Specifically, denominal adjectives behave like pronominal modifiers in that (a) they exhibit number and gender concord with the head noun, (b) they can host the suffixal definiteness marker, (c) they behave like (complex) heads and do not contain branching phrasal material, and (d) they have the distribution of regular adjectives. I attribute these properties of denominal adjectives to the presence of a functional head (F in (10)) in their structural makeup. It is this element that endows denominal adjectives with their modifier/adjectival properties. Against this backdrop, the rest of the article explores how the complex morphological heads that constitute denominal adjectives are derived in the syntax by focusing, in particular, on the syntactic independence exhibited by their nominal components (D in (10)).¹²

3.1 Internal Structure

As the rows in table 1 indicate, pronominal adjectives express person, number, and gender in the third person singular. Pronominal adjectives may also express other kinds of features that are characteristic of pronouns in Bulgarian more generally. For instance, there are series of pronominal adjectives that can be classified as reflexive, *wh*, indefinite, and negative (see table 1).

Nonpronominal adjectives, on the other hand, are formed on the basis of a restricted class of animate proper names and kinship terms that combine with a suffix, realized as either *-ov* or *-in* (e.g., Andrejčín et al. 1983:152ff., Scatton 1984:277, Pancheva 2004).

(11) *The -ov suffix*

- a. čič-ov-a
uncle-ADJ-F
'uncle's'

¹¹ To the extent that thematic denominal adjectives systematically have homophonous nonthematic counterparts crosslinguistically, this state of affairs would raise the interesting question of why that is. Establishing the properties of the nonthematic denominal adjectives in Bulgarian would lay the groundwork for addressing this question and related ones from the perspective of this language. Some initial evidence that nonthematic adjectives that express a possessor relation are actually different from their thematic counterparts is offered in footnote 35.

¹² Since denominal adjectives are, in fact, denominal pronominal modifiers, it is worth emphasizing that the label *denominal adjective* serves an expository purpose here.

Table 1
 Pronominal adjectives in Bulgarian

Features	Masc.	Fem.	Neut.	Plural	Gloss
1SG	moj	moja	moe	moi	'my/mine'
2SG	tvoj	tvoja	tvoe	tvoi	'your(s)'
3SG.NONFEM	negov	negova	negovo	negovi	'his'
3SG.FEM	nejn	nejna	nejno	nejni	'her(s)'
1PL	naš	naša	naše	naši	'our(s)'
2PL	vaš	vaša	vaše	vaši	'your(s)'
3PL	tehen	tjahna	tjahno	tehni	'their(s)'
Reflexive	svoj	svoja	svoe	svoi	'one's own'
Wh	čij	čija	čie	čii	'whose'
Indefinite	nečij	nečija	nečie	nečii	'someone's'
Negative	ničij	ničija	ničie	ničii	'no one's'

b. Elin Pelin-ov- \emptyset

Elin Pelin-ADJ-M

'Elin Pelin's'

(12) *The -in suffix*

a. kak-in- \emptyset

sister-ADJ-M

'sister's'

b. Penk-in-i

Penka-ADJ-PL

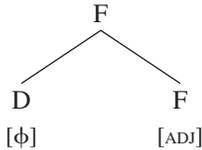
'Penka's'

Since the suffixes *-ov* and *-in* are in complementary distribution and make the same semantic contribution, I treat them as allomorphs of the same abstract morpheme (glossed as ADJ). This morpheme is realized as *-in* after stems that end in /a/ (e.g., *Penka* 'Penka' (proper name) and *kaka* '(older) sister' in (12)) and as *-ov* elsewhere (e.g., the kinship term *čičo* 'uncle' and the name *Elin Pelin* 'Elin Pelin' in (11)).¹³

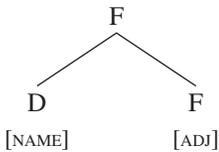
¹³ The final vowel of the stem, if any, is regularly deleted upon the addition of either vowel-initial allomorph of the ADJ morpheme, as in (11a) and (12b). The choice between the two allomorphs of ADJ is not conditioned by gender, since masculine kinship terms that end in /a/ still condition the appearance of the *-in* allomorph: *bašta* 'father' (masculine) – *baštin* 'father's'. The choice between the two allomorphs of ADJ cannot be conditioned by declension class either because Bulgarian lacks distinguishable declension classes (Aronson 1968, Andrejčin et al. 1983, Scatton 1984, Hauge 1999).

A denominal adjective is formed by combining an ADJ suffix, represented as a head F, with a certain kind of nominal component. The nominal component within a pronominal adjective is a bundle of ϕ -features D, as in (13), while it is a name within nonpronominal adjectives, as in (14). This structure is most transparently revealed by the 3SG.NONFEM forms in table 1: for example, *negov* is composed of the pronoun *nego* and the suffix *-ov*.

(13) *Pronominal adjectives*



(14) *Nonpronominal adjectives*



A major difference between the two classes of denominal adjective lies in the nature of their D: a bundle of ϕ -features in pronominal adjectives but a name in nonpronominal adjectives. Names (proper names and kinship terms) are intransitive Ds that are simultaneously minimal and maximal projections. Evidence for their D status in Bulgarian comes from their complementary distribution with the suffixal definiteness marker (*-ta* in (15b) and *-to* in (16b)) and with pronouns ((15c) and (16c)), which are the exponents of various types of D head.

- (15) a. Marija ‘Maria’
 b. *Marija-ta
 Maria-the
 c. *neja Marija
 3SG.F.ACC Maria

- (16) a. čičo (mi) ‘(my) uncle’
 b. *čičo-to (mi)
 uncle-the (my)
 c. *nego čičo (mi)
 3SG.M.ACC uncle (my)

It is possible that the categorial D status of names is derived via head-to-head movement of names to D from some lower position. In this respect, it is quite intriguing that the relevant class of elements in Bulgarian—those that can be classified as names (including kinship terms)—is, up to lexical specification, the same as the class of elements that have been claimed to undergo N-to-D raising in Italian (Longobardi 1994). Since what is relevant here is that these elements are Ds in Bulgarian by the time they merge with F, and how they end up as Ds is orthogonal to the present concerns, I leave various interesting issues open for now.

The structures of denominal adjectives (13) and (14) and, in particular, their morphological wordhood, allow interactions between D and F that are otherwise known to be subject to stringent locality conditions. First, a morpheme or a feature X is assumed to be able to condition allomorphy on another morpheme Y only if X and Y are in the same morphological word, that is, complex head (Embick 2010, Bobaljik 2012, Arregi and Nevins 2013, Merchant 2015).¹⁴ As noted above, F exhibits contextual allomorphy sensitive to D. Therefore, D and F must belong to the same morphological word at the point in the derivation when VI, the locus of allomorphy, applies.

Second, some of the pronominal adjective forms in table 1, such as the 1SG and 3PL forms, are portmanteau forms that cannot be decomposed into discrete constituent parts on the surface. In such cases, a single phonological exponent corresponds to more than one terminal element in morphological structure. As Bobaljik (2012) points out, the theoretical framework assumed here offers at least two ways of dealing with portmanteaus. On the one hand, a portmanteau may involve mutual contextual allomorphy so that, for example, D[1,SG] is spelled out as *moj* ‘my’ in the context of F[ADJ], while F[ADJ] is spelled out by a null allomorph (or vice versa). Alternatively, the ADJ suffix and the nominal component D may be allowed to be targeted by VI as a unit, so that both come to be associated with a single exponent. For this to be possible, the two must undergo Fusion (Halle and Marantz 1993, 1994, Harley and Noyer 1999), which results in the formation of a single terminal bundle of features that can then be targeted by VI (but see Neeleman and Szendrői 2007, Caha 2009, and Radkevich 2010 for alternative implementations). Crucially, both ways of approaching portmanteaus require the participating morphemes to belong to the same morphological word (i.e., complex head). In the case of mutual contextual allomorphy, this follows from the general locality condition on allomorphy discussed above; in the case of Fusion, it follows from the locality of Fusion, an operation restricted to apply to sister nodes.

These local morphological interactions between D and F motivate their constituency and, in particular, structures (13) and (14) at the level of representation that precedes allomorph choice (for an additional argument, see section 5.3). In the model of grammar assumed here, the locus of allomorphy is VI, which takes place at PF. Thus, the wordhood of denominal adjectives can be motivated at the level of morphology (the part of PF that precedes VI).¹⁵ Before considering whether denominal adjectives are constituents in the syntactic component of grammar as well (in section 4), I discuss additional data consistent with their morphological wordhood.

¹⁴ Some of Bobaljik’s (2012) most important results, such as the explanation for the Root Suppletion Generalization and the Synthetic Superlative Generalization, crucially depend on this view of the locality of allomorph selection (Bobaljik 2012:sec. 3). Bennett, Elfner, and McCloskey (2016) make this point as well and offer an additional argument on the basis of subject pronoun incorporation in Irish.

¹⁵ Morphological wordhood is motivated independently of prosodic wordhood, although the two may be related (see footnote 5). If the local interactions responsible for contextual allomorphy and portmanteaus must be defined with respect to prosodic domains (e.g., the Prosodic Word) rather than morphological ones (such as the complex head), the argumentation offered here would need to be reevaluated (Ackema and Neeleman 2003)—but see footnote 14.

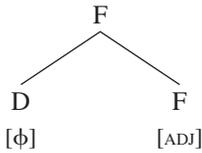
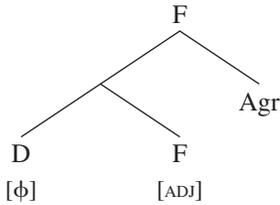
3.2 Nominal Concord

As indicated by the columns in table 1, pronominal adjectives bear inflectional morphology, which expresses the gender and number features of the nominal phrase they belong to. Participation in nominal concord characterizes adjectives more generally, as well as all other pronominal modifiers in Bulgarian, including demonstratives, quantifiers, and numerals. In pronominal adjectives, the correspondence between gender/number feature bundles and their exponents is rather regular, as shown in (17): \emptyset encodes masculine singular, *-a* feminine singular, *-o* neuter singular, and *-i* plural (where gender distinctions are neutralized). Like their pronominal counterparts, nonpronominal adjectives also pattern with other pronominal modifiers in that they exhibit concord in gender and number features. The examples in (18) illustrate how the form of nonpronominal adjectives that are based on the kinship term *vujčo* ‘uncle’ varies with the number and gender feature values of the container nominal phrase. The exponents of gender and number features that these adjectives acquire via concord are identical to those of other pronominal modifiers.

- | | | | | |
|---------|----------------------|----------------------|----------------------|----------------------|
| (17) a. | neg-ov- \emptyset | b. neg-ov- a | c. neg-ov- o | d. neg-ov- i |
| | he-ADJ-M | he-ADJ-F | he-ADJ-N | he-ADJ-PL |
| (18) a. | vujč-ov- \emptyset | b. vujč-ov- a | c. vujč-ov- o | d. vujč-ov- i |
| | uncle-ADJ-M | uncle-ADJ-F | uncle-ADJ-N | uncle-ADJ-PL |

This parallel between the morphological behavior of adjectives and that of pronominal modifiers, among the others discussed in this section, indicates that both pronominal and nonpronominal adjectives belong to the larger class of pronominal modifiers (Dimitrova-Vulchanova and Giusti 1999 and references therein).

The appearance of adjectival inflection on denominal adjectives (and pronominal modifiers in general) is conditioned by the morphologically ‘‘adjectivizing’’ element F. In particular, I assume that the insertion of gender/number marking morphology on pronominal modifiers is postsyntactic and involves the adjunction of an Agr node to elements of the appropriate type (Embick 1997, Harley and Noyer 1999, Embick and Noyer 2001, Kramer 2009, Norris 2014). Since the class of elements that exhibit concord includes all pronominal modifiers, the insertion of Agr nodes must be sensitive to a unique property of pronominal modifiers that guides the application of Agr-insertion. For present purposes, it is sufficient to identify this property with their morphological category feature (or label), that is, (some flavor of) the head F. Leaving aside further implementational details, orthogonal to present concerns, concord qua Agr-insertion targets all heads F (as in (19a)) contained in a given nominal projection, producing the morphosyntactic structure (19b).

(19) a. *Input to Agr-insertion*b. *Output of Agr-insertion*

This dissociated Agr morpheme, inserted at PF, inherits the relevant values for gender and number and is subsequently spelled out according to the feature specification it acquires and its structural context (Kramer 2009, Norris 2014).

3.3 *Definiteness Marking*

Another property that both pronominal and nonpronominal adjectives in Bulgarian share with all other pronominal modifiers in the language is that they can host the suffixal definiteness marker. Within a definite nominal phrase in Bulgarian, the definiteness marker—an exponent of a definite determiner $D_{[DEF]}$ —surfaces as a suffix on the leftmost head that expresses the number and gender features of the head noun. This could be the head noun itself, as in (20a), or an element of the class of pronominal modifiers identified above.

(20) a. *kniga-ta*

book-the
'the book'

b. *interesna-ta kniga*

interesting-the book
'the interesting book'

c. *nova-ta interesna kniga*

new-the interesting book
'the new, interesting book'

d. [*gorda-ta sās sina si*] *majka*

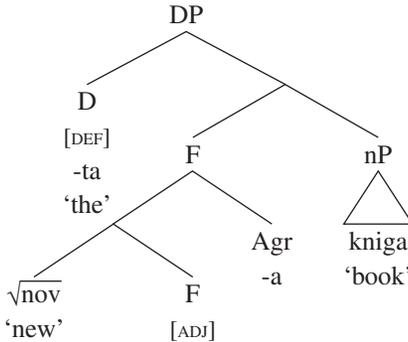
proud-the with son her mother
'the mother proud of her son'

e. [*nova-ta i interesna*] *kniga*

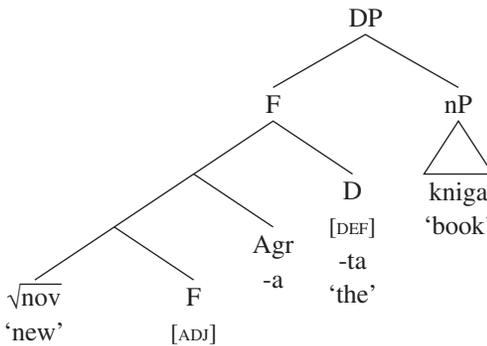
new-the and interesting book
'the new and interesting book'

Placement of D[DEF] is assumed to be determined postsyntactically, following a large body of literature that exposes the shortcomings of purely syntactic approaches (Mayer 1987, 1988, Sadock 1991, Embick and Noyer 2001, Franks 2001, Dost and Gribanova 2006, among many others).¹⁶ According to (a version of) the postsyntactic approach, D[DEF] is displaced from its base position to the immediate right of its host at PF.

(21) a. *Input to D[DEF] placement*



b. *Output of D[DEF] placement*



Since the set of legitimate hosts of the definiteness marker is the set of elements that express the number and gender features of the DP, I assume that the attraction of D[DEF] to its host is conditioned by the postsyntactically inserted Agr node (i.e., the gender/number morpheme itself). Thus, what makes prenominal modifiers legitimate hosts of the definiteness marker is their Agr node, whose insertion is triggered by the morphologically “adjectivizing” element F. As expected, the definiteness marker appears as a suffix on a denominal adjective, as long as it is the leftmost prenominal modifier in the DP.

¹⁶ For example, if the derivation of (20d) and (20e) involved leftward syntactic movement of the host of the definiteness marker (*gorda* ‘proud’ and *nova* ‘new’, respectively), this movement would violate the Left-Branch Condition in (20d) and the Coordinate Structure Constraint in (20e), both of which are active in Bulgarian.

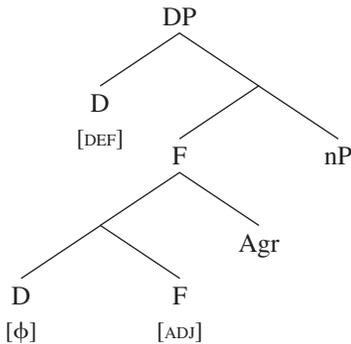
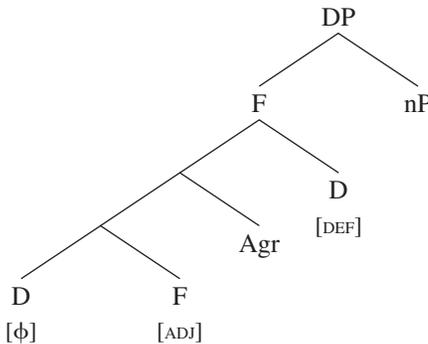
(22) *Pronominal adjectives*

- a. **nein-a-ta**
her-F-the
b. **vaš-i-te**
your-PL-the

(23) *Nonpronominal adjectives*

- a. **Ivan-ov-o-to**
Ivan-ADJ-N-the
b. **vujč-ov-i-te**
uncle-ADJ-PL-the

The postsyntactic rightward displacement of D_[DEF], along with concord-induced Agr-insertion, produces the following structure for denominal adjectives:

(24) a. *Input to D_[DEF] placement*b. *Output of D_[DEF] placement*

This is a structural analysis of denominal adjectives at PF (prior to VI), where the relevant pieces of a denominal adjective form a morphological word. In section 5.1, it will be complemented by a detailed analysis of their syntactic behavior, according to which the word structure in (24) is formed postsyntactically out of several syntactically independent components.

3.4 The Single-Head Restriction

Denominal adjectives and their nominal components are single (complex) heads that do not head branching phrases. First, pronominal and nonpronominal adjectives in Bulgarian are not gradable and cannot participate in the formation of comparatives or be modified by degree words like *mnogo* ‘very’ or *tvārde* ‘too’—a property they share with relational adjectives (Levi 1978). The following examples illustrate this behavior for pronominal adjectives and contrast them with adjectives like *nov* ‘new’ and *navāseno* ‘murky’, which are gradable and can be compared:

- (25) a. **tvoj**, *po/naj **tvoj**
 you.ADJ.M more/most you.ADJ.M
 ‘your(s), more your(s), most your(s)’
 b. *mnogo **moja** kniga
 very I.ADJ.F book
 ‘very my/mine book’
- (26) a. mnogo nova
 very new
 ‘very new’
 b. tvārde navāseno
 too murky
 ‘excessively murky’

Second, even though complement-taking adjectives do exist in Bulgarian (e.g., (20d)), pronominal adjectives do not take complements. The end result is that, because these denominal adjectives can neither be compared or modified nor take complements, the phrases that they head do not branch. Furthermore, it is not just the denominal adjective as a whole that does not head a branching phrase: its nominal component—the ϕ -feature bundle D—cannot be the head of a DP that contains anything but the D head itself. In other words, the nominal component D of pronominal adjectives simultaneously has the status of a minimal and a maximal projection in Bare Phrase Structure terms (Chomsky 1995).¹⁷

Nonpronominal adjectives exhibit the same behavior as their pronominal counterparts in this respect: both they and their nominal components are simultaneously minimal and maximal projections. The examples in (27) show that nonpronominal adjectives cannot be compared, are not modifiable by degree words, and do not take complements. In other words, these adjectival modifiers are composed of at most a single adjective and do not contain any multiword constituents.

¹⁷ Examples like *nie, lingvistite* ‘we, the linguists’ are possible in Bulgarian but they obligatorily contain a definiteness marker on the noun, which indicates that these are likely two DPs in apposition (one headed by the pronoun *nie* and the other by the (suffixal) definiteness marker *-te*).

- (27) a. **Ivanova**, *po/naj **Ivanova**
 Ivan.ADJ.F more/most Ivan.ADJ.F
 ‘Ivan’s, more Ivan’s, most Ivan’s’
- b. **vujčova**, *po/naj **vujčova**
 uncle.ADJ.F more/most uncle.ADJ.F
 ‘uncle’s, more uncle’s, most uncle’s’
- c. *tvärde **Ivanovi-te**
 too Ivan.ADJ.PL-the
 ‘excessively Ivan’s’
- d. *mnogo **vujčova**
 very uncle.ADJ.F
 ‘very uncle’s’

Like the nominal component of a pronominal adjective, the nominal component of a nonpronominal adjective cannot head a branching DP either.

- (28) a. *mladi-ja **vujčova**
 young-the uncle.ADJ.F
 ‘young uncle’s’
- b. *stari-ja **Ivanova**
 old-the Ivan.ADJ.F
 ‘old Ivan’s’

At first glance this may seem surprising, given that names and kinship terms are, in fact, modifiable in Bulgarian: for example, *mladi-ja vujčo* ‘the young uncle’ and *stari-ja Ivan* ‘old Ivan’. However, as the reemergence of the definiteness marker, *-ja*, as a suffix on the modifier in such forms indicates, the name and the kinship term in these expressions must occupy a lower position in the nominal projection; that is, they are not Ds.¹⁸

There do exist various nonpronominal adjectives in Bulgarian that appear to contain multiple heads. For instance, such adjectives can be formed by combining a first name and a last name (*Elin Pelin* ‘Elin Pelin’) or by combining a title or a kinship term with a name (*čičo Tom* ‘Uncle Tom’).

- (29) a. Elin Pelinov
 Elin Pelin.ADJ
 ‘Elin Pelin’s’
- b. čičo Tomova-ta
 uncle Tom.ADJ-the
 ‘Uncle Tom’s’

¹⁸ Whether the nominal component of a denominal adjective can be a branching phrase or not appears to be a point of crosslinguistic variation. Relevant data from other Slavic languages, as well as a possible approach to this kind of variation, are discussed in appendix A.

In such cases, the complex denominal adjective behaves as a compound (i.e., a head with complex internal structure) for the purposes of the placement of the definiteness marker: for example, in (29b), the definiteness marker is suffixed to the whole complex head that includes both the kinship term *čičo* ‘uncle’ and the name *Tom* (cf. **čičo-to Tomova*).

3.5 Prenominal Distribution

In their distribution, denominal adjectives in Bulgarian behave like typical prenominal adjectives, which precede head nouns and follow quantifiers and demonstratives. As long as a prenominal adjective remains within this region of the extended nominal projection, it is otherwise characterized by relative word order freedom. Even though denominal adjectives that are interpreted as the external arguments of complex event nominalizations tend to precede most other adjectives, as in (30), prenominal adjectives can appear in any order with concomitant changes in scope, as long as they remain to the right of quantifiers and demonstratives and to the left of the head noun.

- (30) *negovo-to* / *Cezarovo-to* *postojanno netaktično prenebregvane na dogovora*
 he.ADJ.N-the / Caesar.ADJ.N-the constant tactless ignoring of the.treaty
 ‘his/Caesar’s constant tactless ignoring of the treaty’

In section 5, the source of the adjectival distribution of denominal adjectives is analytically traced to the distribution of the F head, which governs the distribution of the resulting adjective. According to this approach, all modifier properties of denominal adjectives—from their inflection to their distribution—are due to the properties of the functional head F. In the next section, I turn to the nominal component that F combines with to form a denominal adjective.

4 Nominal Characteristics

While denominal adjectives in Bulgarian behave like word-sized prenominal modifiers, their nominal components pattern with nominal phrases in a number of ways.¹⁹ First, the nominal component of a denominal adjective bears a thematic relation within the complex event nominalization that it is part of (section 4.1). Second, it participates in binding relations in a way characteristic of typical nominal elements (section 4.2). Third, it interacts with the syntactic movement of nominal phrases within complex event nominalizations. Specifically, the nominal component of a denominal adjective is capable of blocking DP-internal movement of phrases across it in the same way that nominal phrases in argument positions block such movement (section 4.3). According to these diagnostics, the nominal component of denominal adjectives patterns with DP specifiers in the extended nominal projection. These findings lead to the syntactic decomposition of denominal adjectives into a functional head in the extended nominal projection and its DP specifier. The analysis developed in section 5 accounts for the behavior of the nominal component and reconciles it with the morphological wordhood of denominal adjectives.

¹⁹ As discussed in section 2, the focus here is on denominal adjectives that express the external arguments of complex event nominalizations.

4.1 Interpretation

One of the ways to morphosyntactically express the external argument of an -N nominalization in Bulgarian (Markova 2010, Harizanov 2014b) involves a noun phrase that is introduced by the case-marking element *na* (31a–b) or occurs within an *ot*-phrase, the Bulgarian counterpart of the English *by*-phrase (31c).

- (31) a. *čupene-to na Ivan na čaši*
 breaking-the of Ivan of glasses
 ‘Ivan’s breaking of glasses’
 (Markova 2010:109)
- b. *nepodpisvane-to na zemedelcīte na tǎrgovskoto sporazumenie*
 non.signing-the of the.farmers of the.trade treaty
 ‘the farmers’ nonsigning of the trade treaty’
- c. *postojanno-to razgrabvane na gradovete ot Cezar*
 constant-the looting of the.cities by Caesar
 ‘the constant looting of the cities by Caesar’

As mentioned in section 2, denominal adjectives provide another way to express the external argument of such a nominalization. Like a noun phrase, the nominal component of a denominal adjective can bear the external argument θ -role of an -N nominalization.

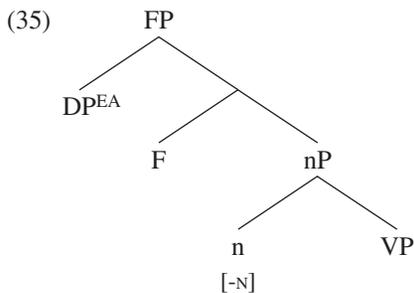
- (32) a. *neg-ov-o-to zavladjavane na trakijskite zemi*
 he-ADJ-N-the conquering of the.Thracian lands
 ‘his conquering of the Thracian lands’
- b. *Cezar-ov-o-to pokorjavane na Galija*
 Caesar-ADJ-N-the subjugation of Gaul
 ‘Caesar’s subjugation of Gaul’

Specifically, the 3SG.M pronoun embedded within the denominal adjective *negovoto* ‘his’ in (32a) is interpreted as the external argument in the given nominalization. The external argument of the nominalization in (32b), on the other hand, is expressed by the name *Cezar* ‘Caesar’ embedded within the nonpronominal adjective *Cezarov* ‘Caesar’s’. Evidence that (the nominal component of) the denominal adjective actually receives the external θ -role in such nominalizations comes from its complementarity with the other mechanisms for the expression of the external θ -role, such as *na*-phrases and *ot*-phrases.²⁰

²⁰ In fact, it appears that denominal adjectives are limited to the expression of external arguments within event nominalizations and cannot express internal arguments. In this respect, denominal adjectives pattern with nationality adjectives like *French* and *Italian* (see footnote 6), which are able to express only external arguments crosslinguistically (see Kayne 1981, 1984). As a reviewer points out, these adjectives can, in fact, be related to an internal argument θ -role in examples like *the French defeat*. In this connection, Alexiadou (2001:104) suggests that, in such cases, the adjective actually modifies a result nominal and not an event nominal (see also Grimshaw 1990:81).

- (33) a. ***tjahno-to** zavladjavane na trakijskite zemi ot Cezar
 their-the conquering of the.Thracian lands by Caesar
 ‘their conquering of the Thracian lands by Caesar’
 b. ***tjahno-to** zavladjavane na Cezar na trakijskite zemi
 their-the conquering of Caesar of the.Thracian lands
- (34) a. ***Cezarovo-to** zavladjavane na trakijskite zemi ot negovite voiski
 Caesar.ADJ-the conquering of the.Thracian lands by his armies
 ‘Caesar’s conquering of the Thracian lands by his armies’
 b. ***Cezarovo-to** zavladjavane na negovite voiski na trakijskite zemi
 Caesar.ADJ-the conquering of his armies of the.Thracian lands

I take the ability to bear a θ -role to be a property of nominal phrases in complement or specifier positions.²¹ Consequently, I treat what is analyzed on the surface as a denominal adjective as a syntactic complex that is the result of combining the head F in the extended nominal projection with the syntactically independent D(P) in its specifier, which receives the external argument θ -role (hence the EA superscript), as in (35). Here, I assume that nominalizations are formed by a nominalizing little n morpheme, which takes a VP as its complement (see, e.g., Marantz 1997, Alexiadou 2001, Harley 2009).



This structure allows for a unified understanding of the thematic relatedness of denominal adjectives and the thematic relatedness of other arguments in both clauses and nominalizations. In particular, I assume that thematic relations are established between predicates and their arguments upon external Merge of a nominal phrase (the argument) with a constituent that represents the (unsaturated) predicate (Hale and Keyser 1993, Chomsky 1995, Heim and Kratzer 1998,

²¹ As a reviewer points out, if true syntactic adjectives are also assumed to be able to be linked to θ -roles, the fact that the nominal component of a denominal adjective bears a θ -role within the complex event nominalization is, strictly speaking, only consistent with the nominal component’s being a DP specifier in the extended nominal projection. This assumption (that adjectives can bear θ -roles) alone, however, cannot account for the binding and intervention evidence discussed in the following two sections, which instead supports the treatment of the nominal components of denominal adjectives as DP specifiers. In addition, allowing adjectives to bear θ -roles presumably requires relaxation of the Uniformity of Theta Assignment Hypothesis (Baker 1988) and modifications of the θ -Criterion (and concomitantly, of what counts as an argument). See footnote 25.

Harley 2011). The meaning of the nominalizing *n* in (35) is such that it takes the function denoted by its complement and adds an external argument to it via the Initiator relation (Bruening 2013:21)—see (36b). Syntactically, however, *n* projects a nominal specifier only optionally (Harizanov 2014b)—see (36a), where the projection of the specifier is encoded by a selectional feature (see Adger 2003, Bruening 2013). Thus, if *n* comes in the flavor that does not project a nominal specifier, the external argument role will remain unsaturated as the construction of the nP in (35) is completed.²²

- (36) a. $n[-N]$ contains $[S:VP]$ or $[S:VP,S:DP]$ ²³
 (i.e., it takes a specifier optionally)
 b. $\llbracket n[-N] \rrbracket = \lambda f.\lambda x.\lambda e.f(e)\&Initiator(e,x)$

One way to saturate the external argument role is to merge as an adjunct to nP an *ot*-phrase (*by*-phrase), as in (31c). The *ot*-phrase supplies a nominal phrase that semantically fills the open position of the function that nP denotes (Bruening 2013). Alternatively, however, Bulgarian allows nP to be merged with a functional head whose syntacticosemantic properties ensure the subsequent semantic saturation of the relevant open position. This is exactly the role that the F head in (35) appears to play: it obligatorily projects a nominal specifier in the syntax, but it itself makes no semantic contribution.

- (37) a. F contains $[S:nP,S:DP]$
 (i.e., it requires a nominal specifier)
 b. $\llbracket F \rrbracket = \lambda f.\lambda e.f(e)$

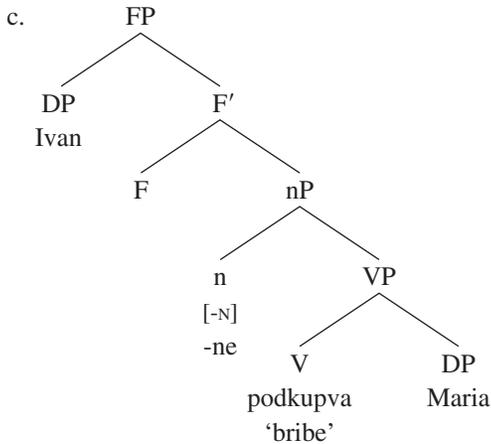
Thus, the nominal phrase in Spec,FP is interpreted as the external argument introduced semantically within nP; F provides the means for its morphosyntactic expression by the projection of a nominal specifier, much like *ot* ‘by’ does.²⁴ The semantic composition for a transitive -N nominalization containing a denominal adjective proceeds as follows:

- (38) a. Ivanovo-to podkupvane na Marija
 Ivan.ADJ-the bribing of Maria
 ‘Ivan’s bribing of Maria’
 b. i. $\llbracket \text{bribe} \rrbracket = \lambda x.\lambda e.\text{bribing}(e,x)$
 ii. $\llbracket \text{VP} \rrbracket = \lambda e.\text{bribing}(e,\text{Maria})$
 iii. $\llbracket \text{nP} \rrbracket = \lambda x.\lambda e.\text{bribing}(e,\text{Maria})\&Initiator(e,x)$
 iv. $\llbracket F' \rrbracket = \lambda x.\lambda e.\text{bribing}(e,\text{Maria})\&Initiator(e,x)$
 v. $\llbracket \text{FP} \rrbracket = \lambda e.\text{bribing}(e,\text{Maria})\&Initiator(e,\text{Ivan})$

²² When *n* does project a specifier, this specifier is filled by a DP introduced by the case-marking element *na* (see (31)). The postnominal surface position of the *na*-phrase is the result of inflection-related N raising past this specifier.

²³ This ordered S(electional) feature notation indicates that *n* must merge with a VP first, and the resulting object must then merge with a DP (see Bruening 2013).

²⁴ This head F and the preposition *ot* ‘by’ differ, of course, in how they are introduced in the structure: the former is a head in the extended nominal projection taking nP as its complement, while the latter heads an adjunct *ot*-phrase (*by*-phrase) to nP.



In sum, the thematic relation between the D(P) in Spec,FP and its sister constituent is established when the D(P) undergoes external Merge. Thus, the thematic relatedness of denominal adjectives is derived in the same way as for arguments in clauses or other arguments of -N nominalizations that are expressed via different morphosyntactic mechanisms.²⁵ Finally, n exhibits variable syntactic behavior: it may either project a nominal specifier or not (see (36a)). F is compatible only with the n that does not project a nominal specifier since, if F took as its complement an nP with a nominal specifier as its external argument, there would be no way for the obligatorily projected Spec,FP to receive an interpretation (in violation of the θ -Criterion).²⁶

4.2 Binding

If the nominal component of a denominal adjective is a noun phrase in a specifier position, it should behave like one in other ways as well. The sensitivity of denominal adjectives to c-commanding binding antecedents (sections 4.2.1–4.2.3) reveals that this is indeed the case. Specifically, the distribution of pronominal adjectives is governed by Principles A and B of the binding theory, while that of nonpronominal adjectives (those formed from names) is partially governed by Principle C.

²⁵ If this result is to be sacrificed, an alternative account of the thematic relatedness of denominal adjectives becomes available. According to the alternative, the nominal component of denominal adjectives does not have to be base-generated as a specifier of F; instead, it can be base-generated as part of a complex syntactic head that contains F. However, as shown in sections 4.2 and 4.3, such a structure is not viable for independent reasons.

²⁶ The semantic vacuity of F allows further semantic composition of FP with higher elements in the extended nominal projection, such as determiners and demonstratives. And, as far as syntactic structure building is concerned, F takes nP as its complement while higher heads (such as D) take FP as their complement. In other words, F is a head in the extended nominal projection, like n and D. Thus, F is ‘‘adjectivizing’’ only in the sense that it is the postsyntactic locus of various adjectival behaviors. See sections 5.1 and 5.2.2 for further discussion.

4.2.1 *Principle A* A subset of the pronominal adjectives in table 1 have traditionally been designated as *reflexive*. One way in which they are reflexive is that they behave like anaphors with respect to Principle A of the binding theory in that they must be bound by a c-commanding antecedent within a binding domain of the relevant size (Schürcks 2003, Franks 2013, Harizanov 2014b).²⁷

(39) *Principle A*

An anaphor (a reflexive or reciprocal pronoun) is interpreted as bound by (and only by) a c-commanding nominal phrase within a specified syntactic domain.

For instance, the pronominal adjective *svoe* ‘one’s own (neuter)’ in (40) is bound by the matrix subject *vsjaka dāržava* ‘every country’ and *Gärcija* ‘Greece’. Following the discussion in section 4.1, the pronominal adjectives in these examples are interpreted as the external arguments of the -N nominalizations *izlizane* ‘leaving’ and *podpisvane* ‘signing’.

- (40) a. Vsjaka dāržava može da uvedomi za **svoe-to** izlizane ot dogovora.
 every country can to announce about REFL.ADJ-the leaving from the.treaty
 ‘Every country_i can announce its_i (own) leaving of the treaty.’
 b. Gärcija e nesigurna v **svoe-to** podpisvane na tezi dva dokumenta.
 Greece is uncertain in REFL.ADJ-the signing of these two documents
 ‘Greece_i is uncertain about its_i (own) signing of these two documents.’

Example (41) shows that c-command is relevant for the binding of reflexive adjectives. In particular, only the matrix subject *säjuznicite na Kitaj* ‘China’s allies’ can bind the reflexive adjective *svoe* ‘one’s own (neuter)’. On the other hand, binding by any DP that is properly contained within the subject, such as *Kitaj* ‘China’, fails.

- (41) [Säjuznicite na Kitaj] odobriha **svoe-to** podpisvane na tezi dva važni
 the.allies of China approved REFL.ADJ-the signing of these two important
 dokumenta.
 documents.
 ‘China_k’s allies_j approved their_j/*its_k (own) signing of these two important documents.’

In addition, the minimal clause that contains these reflexive adjectives qualifies as the relevant binding domain. The reflexive adjective *svoe* ‘one’s own (neuter)’, which is interpreted as the external argument in (42), can only be bound by the c-commanding antecedent *Kitaj* ‘China’, which is the subject of the clause that immediately contains the -N nominalization. In contrast, binding of the reflexive adjective by the subject *Rusija* ‘Russia’ of the higher clause fails.

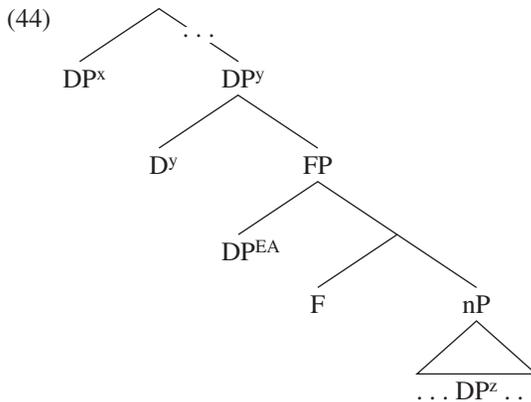
²⁷ I state the binding principles informally here, leaving aside orthogonal questions about their interaction with the indexing procedure. Instead, following Reinhart (1983b) and Chomsky and Lasnik (1993), I formulate them in terms of their appropriate output.

- (42) Rusija znae, če Kitaj odobri **svoe-to** podpisvane na tezi dva dokumenta.
 Russia knows that China approved REFL.ADJ-the signing of these two documents
 ‘Russia_k knows that China_j approved its_{j/*k} (own) signing of these two documents.’

As expected of nominal phrases, the interaction of denominal adjectives with Principle A is of a more general nature. In particular, the nominal components of denominal adjectives based on nonreflexive pronouns (see table 1) are themselves legitimate antecedents for anaphors. In the following -N nominalizations, the denominal adjective *tjahno* ‘their’ binds a reciprocal internal argument:²⁸

- (43) a. **Tjahno-to** često rugane edin na drug prodālžava da me pritesnjava.
 they.ADJ-the frequent calling.names one of other continues to me disturb
 ‘Their_i frequent name-calling of each other_i continues to disturb me.’
 b. **Tjahno-to** postojanno kljukarene edin za drug prodālžava do den dnešen.
 they.ADJ-the constant gossiping one about other continues to day today’s
 ‘Their_i constant gossiping about each other_i continues to this day.’

The interaction of denominal adjectives with c-commanding antecedents (40) and anaphors (43) according to Principle A supports the syntactic decomposition of denominal adjectives into multiple syntactic pieces, one of which is an independent nominal phrase. This nominal component DP^{EA} of denominal adjectives—which, in the output of syntax, occupies a specifier position in the extended nominal projection—is responsible for their behavior as binders and bindees.



This structure serves as the input to the component(s) of grammar responsible for the computation of binding relations. In such a structure, the potential antecedent DP^x is predicted to bind an anaphoric DP^{EA} unproblematically. Coindexation is additionally constrained by Principle A, which

²⁸ The relevant binding domain for reflexives and reciprocals in Bulgarian is the minimal clause or event nominalization that contains the anaphor (Schürcks 2003, Franks 2013). However, while reflexives are subject-oriented in this language, reciprocals are not (Harizanov 2014b).

ensures that DP^x c-commands DP^{EA} and that both are sufficiently close to each other. Likewise, an anaphoric DP^z can be bound by DP^{EA} when DP^{EA} is the closest c-commanding antecedent.²⁹

4.2.2 *Principle B* A subset of the denominal adjectives based on nonreflexive pronouns—those specified for third person (see table 1)—behave like regular pronouns with respect to the binding principles as well. In particular, they obey Principle B and cannot be bound in the relevant locality domain (Reinhart 1983b, Chomsky and Lasnik 1993).

(45) *Principle B*

A pronoun must be interpreted as not bound by any c-commanding nominal phrase within a specified syntactic domain.

As with reflexive binding, the relevant domain is the minimal clause. So, in the presence of a c-commanding antecedent within the same minimal clause, it is the reflexive counterparts of these pronominal adjectives that are compatible with binding of this kind and would appear instead. For instance, the third person pronominal adjective *nejno* ‘her’ is necessarily interpreted as disjoint from the matrix subject *Gărcija* ‘Greece’ in (46a). In addition, the pronominal adjective *nejnoto* ‘her’ in (46b) can legitimately appear as the external argument of an -N nominalization, as long as it is not bound by the subject *Gărcija* ‘Greece’ of the minimal clause that contains that nominalization.

- (46) a. **Gărcija e nesigurna v nejno-to podpisvane na tezi dva dokumenta.*
 Greece is uncertain in she.ADJ-the signing of these two documents
 ‘Greece_i is uncertain about its_i (own) signing of these two documents.’ (cf. (40b))
 b. *Rusija znae, če Gărcija odobri nejno-to podpisvane na dokumentite.*
 Russia knows that Greece approved she.ADJ-the signing of the documents
 ‘Russia_j knows that Greece_k approved its_{j/*k} signing of the documents.’

Denominal adjectives not only exhibit the behavior of regular pronouns with respect to Principle B, but are themselves potential antecedents for pronouns. As a result, they cannot c-command pronouns within the relevant locality domain.³⁰

- (47) a. **nejno-to često usmihvane na neja*
 she.ADJ-the frequent smiling to her
 ‘her_i frequent smiling to herself_i’

²⁹ As a reviewer points out, in their ability to bind reflexives, the Bulgarian denominal adjectives behave like English possessors (*France* in (i)) and unlike English adjectives (*French* in (ii)).

(i) France’s destruction of itself

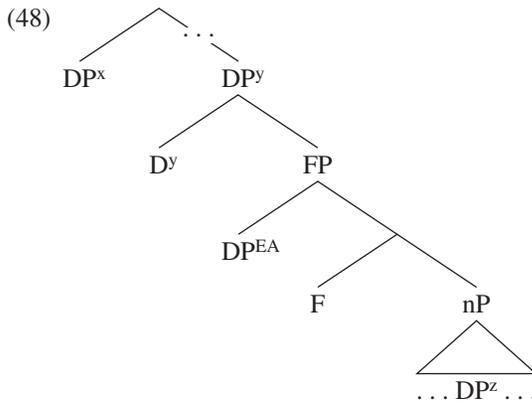
(ii) ??the French destruction of itself

The present analysis allows a unified understanding of this fact on the basis of the common syntactic position that English possessors and the nominal components of the Bulgarian denominal adjectives occupy—namely, a specifier position in the extended nominal projection. However, related examples like *the French destruction of the city* raise the question of whether the external θ -role can actually be assigned to the adjective (Kayne 1984:139; see also footnote 21).

³⁰ There are certain discourse factors that interact with the distribution of strong pronouns in Bulgarian such as *neja* ‘her’ and *nego* ‘his’ in (47), which may independently contribute to the unacceptability of such examples.

- b. ***Ivanovo-to** postojanno kritikuvane na nego
 Ivan.ADJ-the constant critiquing of him
 ‘Ivan_i’s constant critiquing of him_i’

The sensitivity of denominal adjectives to c-commanding nominal phrases and their behavior as potential binders with respect to Principle B is expected if their nominal component is syntactically represented as an independent pronoun or name. Consequently, the interpretive component is handed a syntactic structure in which a pronominal DP^{EA} cannot be bound by a c-commanding DP^x within the relevant binding domain. Likewise, DP^{EA} cannot itself bind a pronominal internal argument DP^z that it c-commands.



4.2.3 *Principle C* Finally, as expected, the distribution of denominal adjectives formed from names is governed by Principle C (Reinhart 1983b, Chomsky and Lasnik 1993).

(49) *Principle C*

An R-expression (i.e., a nonpronominal referring expression) is interpreted as not bound by any c-commanding nominal phrase.

For example, in each of the following -N nominalizations, the external argument *Cezarovo* ‘Caesar’s’ fails to be bound by the pronominal matrix subject *toj* ‘he’, regardless of the hierarchical distance between the two elements:

- (50) a. **Toj* odobri **Cezarovo-to** podpisvane na tezi dva važni dokumenta.
 he approved Caesar.ADJ-the signing of these two important documents
 ‘He_i approved Caesar_i’s signing of these two important documents.’
 b. **Toj* pomoli Egipet da odobri **Cezarovo-to** podpisvane na tezi dva
 he asked Egypt to approve Caesar.ADJ-the signing of these two
 dokumenta.
 documents
 ‘He_i asked Egypt to approve Caesar_i’s signing of these two documents.’

These examples should be contrasted with ones where no Principle C violation arises.

- (51) Sled kato sávetnicite na Cezar obsádiha riskovete, te odobriha **Cezarovo-to**
 after that advisors of Caesar discussed the.risks they approved Caesar.ADJ-the
 razgrabvane na gradovete.
 looting of the.cities
 ‘After Caesar’s advisors discussed the risks, they approved Caesar’s looting of the
 cities.’

This behavior of denominal adjectives parallels the general behavior of names in Bulgarian. For instance, if the external argument of a nominalization is a name in a *na*-phrase, it still cannot be *c*-commanded by a coindexed pronoun, regardless of how many clause boundaries away the pronoun is.

- (52) a. *Toj odobri podpisvane-to na Cezar na tezi dva vážni dokumenta.
 he approved signing-the of Caesar of these two important documents
 ‘He_i approved Caesar_i’s signing of these two important documents.’
 b. *Toj pomoli Egípet da odobri podpisvane-to na Cezar na tezi dva vážni
 he asked Egypt to approve signing-the of Caesar of these two important
 dokumenta.
 documents
 ‘He_i asked Egypt to approve Caesar_i’s signing of these two important documents.’

Lieber (1984) explains the following contrast in English in a similar way: (53b) is unacceptable because *he* *c*-commands the R-expression *McCarthy*, which results in a Principle C violation.³¹

- (53) a. McCarthy_iites are now puzzled by him_i.
 b. *He_i distrusts McCarthy_iites.

Finally, R-expressions cannot be bound by *c*-commanding denominal adjectives based on pronouns.

- (54) a. ***nejno-to** često usmihvane na Marija
 she.ADJ-the frequent smiling to Maria
 ‘her_i frequent smiling to Maria_i’

³¹ Ward, Sproat, and McKoon (1991) argue that the deviance of (53b) is due to the absence of an antecedent for the pronoun in the context provided. In support of their claim, they consider the acceptability of the following examples:

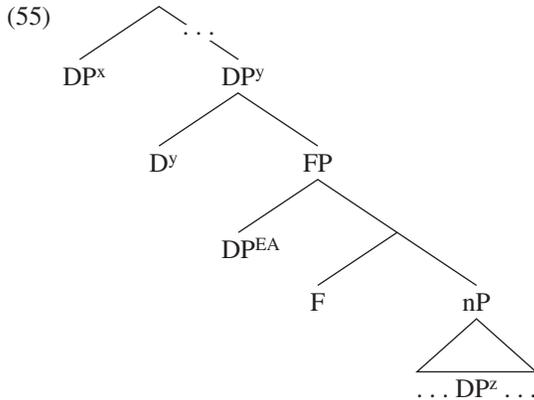
- (i) After McCarthy had undergone a change of heart and issued a public apology, he began to distrust the very McCarthyites who previously had been so fiercely loyal.
 (ii) He has called editors to tell them Rushdie jokes . . .
 (*New York Times Magazine*, “Rushdie in Hiding,” 3 November 1990, p. 68)

In Bulgarian, however, adjectives formed from names must be free even in such contexts. For instance, it is still unacceptable for the pronoun *toj* ‘he’ to bind the denominal adjective *Cezarovo* ‘Caesar’s’, which is interpreted as the external argument of an -N nominalization.

- (iii) *Sled kato Cezar obsádi riskovete, toj odobri **Cezarovo-to** razgrabvane na gradovete.
 after that Caesar discussed the.risks he approved Caesar.ADJ-the looting of the.cities
 ‘After Caesar_i discussed the risks, he_i approved Caesar_i’s looting of the cities.’

- b. ***negovo-to** postojanno kritikuvane na Ivan
 he.ADJ-the constant criticizing of Ivan
 ‘his_i constant criticizing of Ivan_i’

The predictions of the decomposition analysis of denominal adjectives are then borne out. First, if the nominal component DP^{EA} of such an adjective is a name, it would interact with any c-commanding DP^x according to Principle C; see (55). In particular, DP^{EA} cannot be bound by DP^x . Second, if the nominal component DP^{EA} of such an adjective is a pronoun, it would not be able to bind an R-expression DP^z that it c-commands.³²



4.3 Intervention

Another way in which denominal adjectives in Bulgarian behave like typical noun phrases involves a certain kind of intervention effect that is syntactic in character. Specifically, like noun phrases in specifier position, denominal adjectives can intervene to block certain syntactic dependencies—in particular, DP-internal A-movement. Bulgarian allows arguments of event nominalizations that are introduced by the case-marking element *na* to be doubled by a clitic. In each of the following examples, the clitic doubles the internal argument, which remains in its canonical postnominal position:

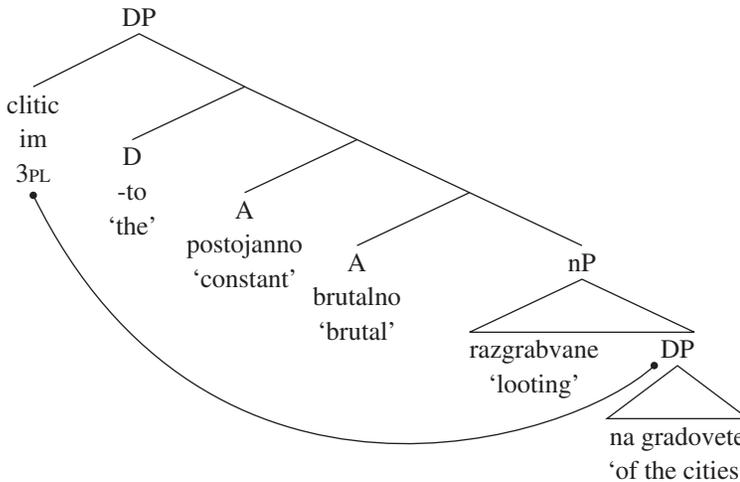
- (56) a. postojanno-to **im** brutalno razgrabvane **na gradovete**
 constant-the 3PL brutal looting of the.cities
 ‘the constant brutal looting of the cities’

³² While I do not make a specific claim about the division of labor among various grammatical components with respect to Principle C, the conclusions reached here hold as long as the syntactic structure (55) is utilized by the relevant grammatical component(s). It is, however, assumed sometimes that Principle C is not a syntactic condition (Chomsky 1982, Reinhart 1983a, Grodzinsky and Reinhart 1993, Reinhart and Reuland 1993). In that case, the sensitivity of denominal adjectives to Principle C might have to be reexamined analytically and may no longer bear on the plausibility of the syntactic decomposition analysis proposed here.

- b. posledvalo-to **im** brutalno potušavane **na buntovete**
 subsequent-the 3PL brutal quelling of the.rebellions
 ‘the subsequent brutal quelling of the rebellions’
- c. obsaždane-to **mu na zakona** v plenarnata zala
 discussing-the 3SG.M of the.law in the.plenary hall
 ‘the discussion of the law in the plenary hall’

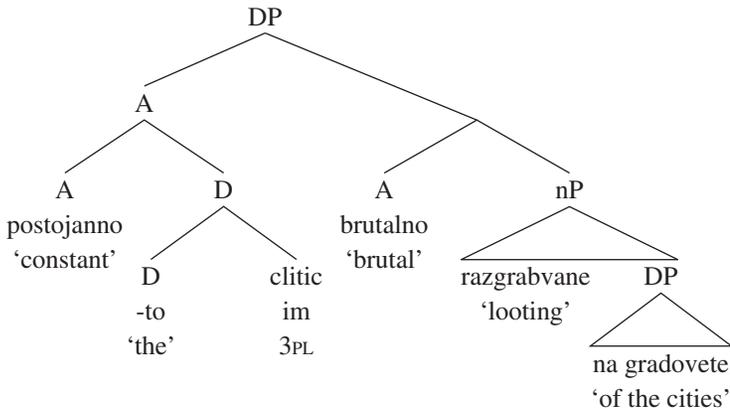
In Harizanov 2014a,b, I demonstrate that clitic doubling in Bulgarian involves a syntactic (A-movement) dependency between the clitic and the doubled noun phrase argument. As (57) shows for (56a), within -N nominalizations this A-movement dependency can be established across adjectives such as *brutalno* ‘brutal’ and *postojanno* ‘constant’.

(57) Syntactic representation (of (56a))



Even though the DP-internal clitic c-commands the definite D[DEF] in the syntax, on the surface it immediately follows the definiteness marker, which itself is a suffix on the leftmost pronominal modifier (see section 3.3). Since the D[DEF]+clitic cluster has the same distribution as D[DEF] in isolation, I follow Tomić 1996, Embick and Noyer 2001, and Harizanov 2011 in assuming that (a) the clitic adjoins to D[DEF] and (b) the complex D[DEF] head formed in this way undergoes the usual D[DEF] displacement discussed in section 3.3.³³ The morphological representation for (56a) is thus (58).

³³ In both (57) and (58), the representation of the adjectives has been simplified for expository reasons. Their actual structure, after Agr-insertion, is [[$\sqrt{\text{root}}$ F] Agr] (see section 3 for details).

(58) *Morphological representation* (of (56a))

While clitic doubling of an internal argument of an -N nominalization proceeds unimpeded by prenominal modifiers, such as the adjectives in (56a), it is impossible in the presence of a denominal adjective whose nominal component expresses an external θ -role. For instance, the denominal adjectives in the following examples block clitic doubling of the internal argument *gradovete* 'the cities' (or *Rim* 'Rome'). This happens in the absence of any other adjectives (59a), as well as in the presence of adjectives that follow (59b) or precede (59c–d) the denominal adjective. The corresponding examples without doubling clitics are acceptable, indicating that it is the clitics themselves that cause the observed unacceptability.³⁴

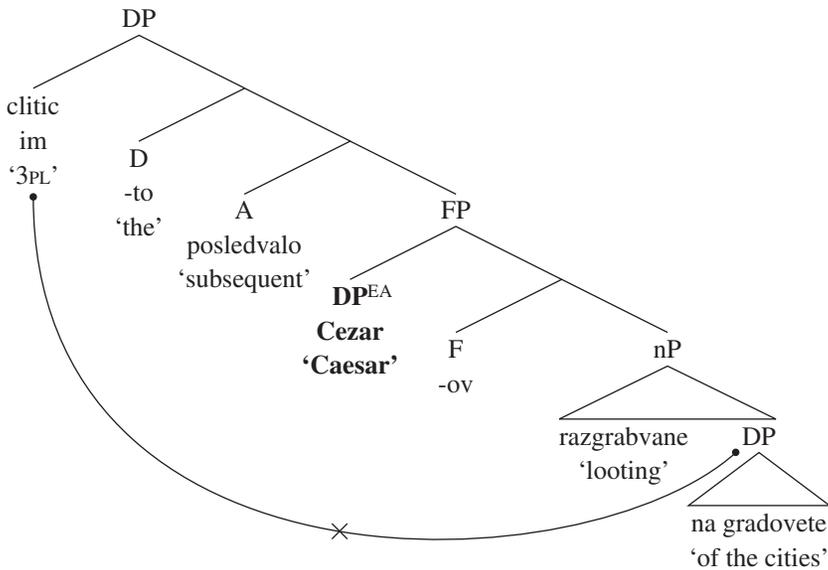
- (59) a. *tjahno-to* / *Cezarovo-to* (***im**) *razgrabvane na gradovete*
 they.ADJ-the / Caesar.ADJ-the 3PL looting of the.cities
 'their/Caesar's looting of the cities'
- b. *tjahno-to* / *Cezarovo-to* (***im**) *postojanno razgrabvane na gradovete*
 they.ADJ-the / Caesar.ADJ-the 3PL constant looting of the.cities
 'their/Caesar's constant looting of the cities'
- c. *posledvalo-to* (***im**) *tjahno* / *Cezarovo razgrabvane na gradovete*
 subsequent-the 3PL they.ADJ / Caesar.ADJ looting of the.cities
 'their/Caesar's subsequent looting of the cities'
- d. *neprestanno-to* (***mu**) *negovo razgrabvane na Rim*
 continual-the 3PL he.ADJ sacking of Rome
 'his continual sacking of Rome'

The decomposition analysis of denominal adjectives allows a way of understanding the intervention effect induced by denominal adjectives and the absence of similar effects with regular prenominal modifiers. In particular, the intervention effect can be seen as a reflex of the relative

³⁴ A reviewer asks whether examples like (59c) and (59d), where the denominal adjective is not leftmost within the nominal phrase, might involve movement of the other adjective and whether it might be this movement that blocks clitic doubling rather than the presence of a denominal adjective. For arguments against such a view, see appendix B.

structural positions in which external and internal arguments of -N nominalizations are introduced. Internal θ -roles are assigned within the complement of the nominalizer *n*, in positions that are structurally lower (in terms of *c*-command) than the positions where external arguments are introduced (outside the complement of *n*). Therefore, the failure of cliticization and clitic doubling of internal arguments across an external argument is expected under a Relativized Minimality view of constraints on the locality of A-movement (Rizzi 1990). In Harizanov 2014a,b, I demonstrate in the context of cliticization qua A-movement that DP-internal movement in Bulgarian obeys the logic of Relativized Minimality. For instance, a direct object inside an -N nominalization cannot move to Spec,DP across a higher external argument; an indirect object is likewise unable to move to Spec,DP across an intervening direct object. Specifically, given the structure in (60), the nominal component *Cezar* ‘Caesar’ of the denominal adjective is expected to block the initial movement to Spec,DP of a postnominal internal argument, as the DP *Cezar* occupies a specifier that is structurally closer to the probing head D than the internal argument. As a result, DP-internal cliticization is expected to be impossible in the presence of a denominal adjective that expresses the external argument of a complex event nominal.³⁵

(60) *Syntactic representation* (of (59c))



³⁵ The unacceptability of the examples in (59) is not due to an independent complementarity between DP-internal clitics and denominal adjectives of a more general nature. Clitics and denominal adjectives can cooccur with object-denoting nominals such as *kniga* ‘book’, which support both a *possessor* and an *author* relation.

- (i) vsički-te i Elin Pelinovi knigi **na Penka**
 all-the 3SG.F Elin Pelin.ADJ books of Penka
 ‘all of Penka’s books by Elin Pelin’
- (ii) Elin Pelinovi-te i knigi **na Penka**
 Elin Pelin.ADJ-the 3SG.F books of Penka
 ‘Penka’s books by Elin Pelin’

This treatment correctly predicts that nominal specifiers, but not adjuncts, block DP-internal cliticization and clitic doubling. First, external argument *na*-phrases (see section 4.1), which occupy Spec,nP, also block cliticization and clitic doubling of an internal argument. For example, the clitic *mu* in (61a) can double the internal argument *kanala* ‘the channel’ unless an external argument is present, as in (61c). If the external argument *decata* ‘the children’ is in fact present, it can be clitic-doubled, as in (61d). Such movement-blocking behavior is expected of nominal phrases in specifier position but not of adjectives or adjective phrases, and supports the representation above of the nominal component of denominal adjectives as a specifier in the extended nominal projection.

- (61) a. prepluvaneto **mu na kanala**
 the.swimming 3SG.M of the.channel
 ‘the swimming of the channel’
 (Franks 2010:105, (144k))
- b. prepluvaneto na decata na kanala
 the.swimming of the.children of the.channel
 ‘the children’s swimming of the channel’
- c. *prepluvaneto **mu na decata na kanala**
 the.swimming 3SG.M of the.children of the.channel
- d. prepluvaneto **im na decata na kanala**
 the.swimming 3PL of the.children of the.channel

Second, as expected, *ot*-phrases (*by*-phrases), which are nP adjuncts, do not block DP-internal cliticization and clitic doubling; see (62). In this respect, they behave unlike denominal adjectives and *na*-phrases, as the current analysis predicts.

- (62) a. postojannoto **i pokorjavane na Galija** (ot Cezar)
 the.constant 3SG.F subjugation of Gaul by Caesar
 ‘the constant subjugation of Gaul (by Caesar)’
- b. čestoto **mu podpisvane na dogovora** (ot dvete strani)
 the.frequent 3SG.M signing of the.contract by both sides
 ‘the frequent signing of the contract (by both sides)’
- c. prepluvaneto **mu na kanala** (ot decata)
 the.swimming 3SG.M of the.channel by the.children
 ‘the swimming of the channel (by the children)’

The interaction of denominal adjectives with syntactic movement points to their syntactically nominal character. In particular, unlike any other kind of adjective, they are able to block DP-internal A-movement—the kind of movement that gives rise to cliticization and clitic doubling in DPs.³⁶ The present approach to the syntactic composition of denominal adjectives allows an

³⁶ A reviewer points out that in the English example *Spain’s French defeat*, the adjective *French* arguably does not block movement of the internal argument *Spain* to its surface position. This is expected if *French* is an adjective syntactically, a hypothesis consistent with the observation that such adjectives cannot bind reflexives (see footnote 29).

explanation of this intervention effect in terms of standard assumptions about constraints on the locality of A-movement (e.g., Rizzi 1990).³⁷

5 Syntax-Morphology Interactions

On the one hand, denominal adjectives in Bulgarian behave like word-sized prenominal modifiers with respect to certain morphological criteria and their distribution (section 3). On the other, (the nominal components of) denominal adjectives pattern with syntactically independent noun phrases with respect to syntactic criteria (section 4). Within the framework presented in section 1, where morphology interprets syntax, it is possible to capture the dual properties of denominal adjectives by associating distinct clusters of properties with distinct stages of the derivation. In particular, an earlier part of the derivation involves their syntactically active nominal components while another (later) part of the derivation involves the adjectives constructed out of these nominal components at PF, as part of the morphology (for similar approaches, see Alexiadou and Stavrou 2011 on Modern Greek and Babyonyshev 1997 on Russian, among others). Thus, in the syntax, the nominal phrase component of denominal adjectives is visible to syntactic operations like Agree and Merge. Postsyntactically, these nominal phrases are converted into adjectives (or, more accurately, embedded inside adjectives, as discussed below), with a number of consequences that help explain the adjectival, complex-head characteristics that they exhibit at PF. The main ingredients of this analysis are the independently motivated syntax of nominal specifiers and the morphology of word formation.

5.1 Syntax

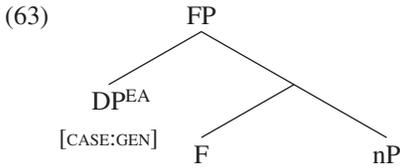
Of the morphological pieces that a denominal adjective can be decomposed into, the inflectional/concord markers and the definiteness marker come to occupy their positions within the adjectival complex head postsyntactically (section 3). The former are dissociated morphemes, not present in the syntax and inserted at PF (section 3.2); the latter is present in the syntax but is displaced postsyntactically (section 3.3). As far as the nominal component D(P) of a denominal adjective and the head F are concerned, I assume they are in a specifier-head relation in the syntax, following the discussion in section 4. That is, what is at PF a denominal adjective is a complex head that is formed by combining the head F in the extended nominal projection with the syntactically

³⁷ The nominal component of denominal adjectives is itself immobile: for example, it cannot undergo clitic doubling qua A-movement.

- (i) *postojanno-to **mu negovo / Cezarovo** razgrabvane na trakijskite zemi
 constant-the 3SG.M his / Caesar.ADJ looting of the.Thracian lands
 'his/Caesar's constant looting of the Thracian lands'

In this sense, the nominal components of denominal adjectives give rise to defective intervention: they block movement but do not undergo movement themselves. Their failure to move is expected: since the lexical/oblique case of the DP in Spec,FP has already been assigned to it by F in a specifier-head configuration (see section 5.1), the DP is rendered inactive for further syntactic manipulation and is unable to undergo movement (Chomsky 2000:123). This explanation for the immobility of the nominal component D of denominal adjectives ties D's immobility to the adjectival nature of F: D is introduced as a specifier of F, whose idiosyncratic case-marking properties render D immobile.

independent D(P) in its specifier, as in (63). DP^{EA} is syntactically introduced in the specifier of F, and F assigns to it lexical/oblique Case, which I call ‘genitive.’³⁸



This syntactic structure accounts for the nominal-specifier properties of the nominal component of denominal adjectives, discussed in section 4. First, this structure allows a unified understanding of θ -role assignment to both internal and external arguments in both clauses and nominalizations, whereby the base position of an argument is the position relevant for the determination of thematic relations. Specifically, the meaning of DP^{EA} semantically fills the open external argument position of the function that nP in (63) denotes; the head F obligatorily projects a nominal specifier syntactically but makes no semantic contribution (see section 4.1). Second, since DP^{EA} in (63) can be a pronoun (including a reflexive pronoun) or a name, it is expected that it would exhibit sensitivity to the principles of the binding theory. In particular, DP^{EA} would be a potential antecedent for nominal phrases within its c-command domain and it would be itself sensitive to potential c-commanding antecedents (see section 4.2). Third, since DP^{EA} in (63) occupies a specifier position from which it c-commands lower arguments within event nominalizations, it is expected to block A-movement of these lower arguments to the left periphery of the nominal phrase. As shown in section 4.3, DP^{EA} indeed prevents these arguments from participating in clitic doubling, in accordance with standard locality constraints on A-movement. In addition, the structure in (63) correctly predicts the behavior of denominal adjectives in examples that involve a certain type of coordination (see appendix C). Finally, we are also equipped to understand the distributional facts discussed in section 3.5: denominal adjectives precede head nouns and follow quantifiers and demonstratives. According to the present approach, the external argument D(P) of a complex event nominalization is generated in the specifier of the head F and, therefore, the distribution of D(P) and the resulting denominal adjective is closely related to that of F. In turn, the selectional requirements of F and the functional heads that c-command F dictate the relative position of F with respect to other elements in the extended nominal projection.³⁹

³⁸ (63) represents the partial DP structure relevant for present purposes. Nominal modifiers such as relative clauses and other adjectives—not shown here—are syntactic adjuncts in the extended nominal projection. How genitive case on DP^{EA} is interpreted at PF is the subject of section 5.2.

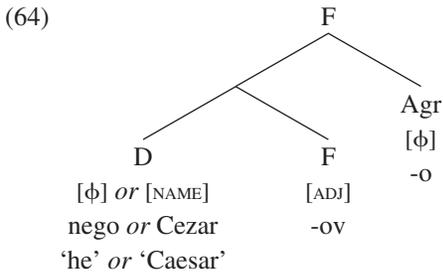
³⁹ As examples like (i) show, denominal adjectives cannot appear in predicative positions. In the present approach, this is presumably because F obligatorily takes an nP complement (see section 4.1 and (37))—a requirement that would remain unsatisfied in a predicative position.

(i) *zavladjavaneto na trakijskite zemi beše negovo / Cezarovo
 the.conquering of the.Thracian lands was he.ADJ.N / Caesar.ADJ.N
 ‘the conquering of the Thracian lands was his/Caesar’s’
 (see also Grimshaw 1990:97–98)

In sum, the functional head F that participates in the formation of denominal adjectives takes nP as its complement and obligatorily projects a nominal specifier. The nominal phrase in Spec,FP is interpreted as the external argument of nP and receives lexical/oblique genitive case, which is idiosyncratically conditioned in that position. The output of syntax is then interpreted by the PF component of grammar (including morphology) according to the principles examined in the following section.

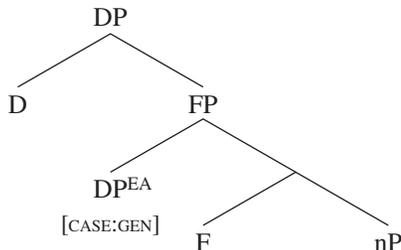
5.2 Morphology

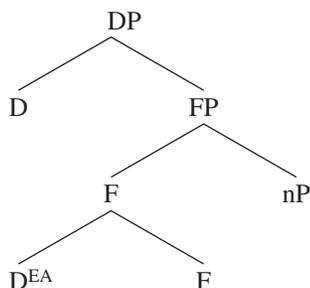
5.2.1 The Mismatch in Structure The independently motivated syntactic structure (63) must be converted into the independently motivated postsyntactic, morphological structure (64).



At this stage of the derivation (prior to VI, as shown in section 3.1), a denominal adjective consists of a nominal component D, an ADJ morpheme (which is the exponent of the head F), and a number/gender marker Agr. Within the present framework of assumptions, the burden of converting (63) into (64) falls on morphology—that is, the set of operations that apply in the PF component up to and including VI (see section 1). Henceforth, I refer to the PF operation that converts a syntactic specifier-head relation into a complex head adjunction representation as *Morphological Merger* (*M-Merger*). In particular, when confronted with an input like (65a), M-Merger can be thought of as rebracketing the head F and its specifier DP^{EA} , as in (65b). The output of M-Merger is a head adjunction structure containing the labels of the head and its specifier.

(65) a. *Input to M-Merger*



b. *Output of M-Merger*

This approach to M-Merger builds on and preserves the insights and empirical coverage of much previous work on M-Merger, despite differences in implementation (see Marantz 1984, 1988, Embick and Noyer 2001, Hale and Keyser 2002, Matushansky 2006, Nevins 2011, Harizanov 2014a,b, Kramer 2014). On the one hand, the type of M-Merger described here can be viewed as Lowering of a specifier to a head. In this sense, the current version of M-Merger is a generalization of Embick and Noyer's (2001) Lowering operation, which only lowers a head to a head.⁴⁰ On the other hand, since the type of M-Merger described here applies to both minimal and maximal specifiers, it is also a generalized version of Matushansky's (2006) M-Merger, which only applies to specifiers that are minimal.⁴¹

It is in this way that the complex morphological heads discussed in section 3, which constitute denominal adjectives, are formed out of a syntactic configuration in which the external argument of a nominalization and the head F stand in a specifier-head relation. This treatment allows the nominal component of a denominal adjective to exhibit properties characteristic of noun phrases in general, while at the same time the postsyntactically derived complex head structure explains why the resulting adjective behaves like a word-sized prenominal modifier with respect to morphological criteria. In particular, the complex F head in (65b) supports the inflectional morphology characteristic of prenominal modifiers in general and qualifies as a legitimate host for the suffixal definiteness marker. In addition, it behaves like a complex head that does not contain any branching phrasal material (modifiers or complements), since the output of M-Merger is obligatorily a (complex) head.

⁴⁰ For postsyntactic raising of a specifier to a head, see Bennett, Elfner, and McCloskey 2016 on subject pronoun incorporation in Irish.

⁴¹ When the present version of M-Merger applies to a maximal phrase that is not simultaneously minimal (i.e., a branching phrase), it reduces the phrase to its label. Since this involves nonpronunciation of material that is syntactically present, application of M-Merger (to a branching phrase) may need to be mediated by a recoverability condition that ensures material is not actually 'lost.' Thus, while M-Merger itself does not discriminate among the types of phrases that constitute its input, whether it can apply or not may depend on such a recoverability condition. When M-Merger is blocked, the derivation does not converge, presumably because M-Merger is taken to be the expression of an underlying abstract Case relation (see section 5.2.3). For further discussion, see Harizanov 2014b:sec. 5.2.

Within the theoretical framework assumed here, structural mismatches between syntax and morphology are accounted for by PF operations like M-Merger (see section 1). However, as a reviewer points out, the evidence for the morphological wordhood of denominal adjectives described in section 3 and the syntax-morphology mismatch they instantiate are, in principle, consistent with M-Merger (or an equivalent rebracketing operation) being part of syntax rather than PF. In particular, denominal adjectives may be formed by a syntactic rebracketing operation, as long as such an operation is such that it does not interfere with their observed syntactic behavior, discussed in section 4.

Whether such a rebracketing operation can be admitted into the syntactic component (as in Vicente 2007, Gallego 2010) depends, in large part, on theory-internal considerations (see footnote 4). In this connection, Matushansky (2006) discusses a number of potential conceptual advantages to treating (her version of) M-Merger as a postsyntactic operation. For Matushansky, placing M-Merger on the PF branch of grammar explains (a) why it is not subject to syntactic conditions like the C-Command/Extension Condition, and (b) why it creates an item whose internal structure is syntactically opaque. Matushansky considers the latter a major consequence of treating M-Merger as a morphological operation, since it is intended to account for the impossibility of excorporation out of complex heads derived by M-Merger (pp. 94–97).⁴²

The morphological and syntactic treatments of M-Merger make at least one distinct prediction that is, at least in principle, empirically testable. In particular, assuming that the output of syntax serves as the input to both PF and LF, a syntactic M-Merger is expected to have effects at both interfaces, while a morphological M-Merger is expected to have effects only at PF (after the point at which it applies). Thus, if M-Merger is syntactic, it is expected (to be able) to have LF effects, with certain interpretive consequences. While the structural effects of M-Merger at the PF interface are clearly observable, no LF effects associated with this rebracketing operation have been detected (to the best of my knowledge, in the context of denominal adjectivization in Bulgarian or other cases argued to involve M-Merger).

5.2.2 The Mismatch in Category The mismatch between the syntactic and the morphological structures associated with denominal adjectives is accompanied by a certain kind of mismatch between their syntactic and morphological category. Specifically, denominal adjectives exhibit behaviors associated with distinct lexical categories: according to various syntactic criteria, they contain an independent nominal element of category D. According to morphological criteria and distributional properties, they pattern with adjectives (or prenominal modifiers, more generally). If “lexical categories” are defined, as is traditional, in terms of various syntactic and morphological behaviors (distribution, agreement patterns, etc.), which often cluster together, it may indeed

⁴² For discussion of how M-Merger interacts with syntactic movement, see appendix D.

be unexpected to find elements like the Bulgarian denominal adjectives, which exhibit mixed behaviors.

According to an alternative view of categories, however, they are bundles of features (e.g., Chomsky 1970, and recent work within Distributed Morphology: e.g., Embick and Marantz 2008, Embick 2010, Chung 2012). If it is these features and the structural configurations in which they occur that give rise to various syntactic and morphological behaviors, it becomes possible to reconcile the apparently conflicting behaviors of the Bulgarian denominal adjectives. In particular, the syntax of these adjectives does not involve ‘‘adjectivization’’ or any other special lexical operation that converts an underlying D into an adjective and that has both syntacticosemantic and morphological effects. Instead, the observed category ‘‘conversion’’ takes place at PF, as the result of M-Merger—that is, M-Merger creates a structure whereby a D is embedded inside an adjective. This postsyntactic restructuring gives rise to the morphological properties of denominal adjectives, having to do with concord and definiteness marking. Denominal adjectives, however, are only adjectives in the morphological component, following their postsyntactic formation.⁴³

This view allows us to understand why the nominal component (D) of denominal adjectives behaves like a nominal specifier syntactically and does not exhibit adjectival syntax at all. In fact, Embick (2000) proposes a similar dissociation of syntactic and morphological category in his treatment of synthetic and analytic forms of the Latin perfect. As in the case of denominal adjectives in Bulgarian, ‘‘the difference in morphological category does not correspond to a difference in syntactic category’’ (Embick 2000:186) according to his analysis. That is, while synthetic and analytic forms behave differently as far as morphology is concerned, they share a common underlying syntax. A less flexible approach to categorization may not allow an element to exhibit syntactic and morphological properties associated with distinct categories and to occupy distinct positions in the syntactic and postsyntactic constituent structures. Such an approach, however, would necessitate a different explanation of why a denominal adjective can have nominal characteristics such as participation in binding and the blocking of A-movement.

5.2.3 The Trigger for M-Merger Since the containment of DP^{EA} and F within a single word (i.e., the output of M-Merger) is the only signal of the underlying syntactic argument-licensing relation (i.e., abstract Case) that holds between DP^{EA} and F, it is possible to view M-Merger as the PF expression of this syntactic abstract Case relation. Such a treatment leads to the conclusion that the interpretation of abstract Case (qua syntactic argument licensing) by PF is not limited to morphological case marking (i.e., inflectional morphology). Here we have, instead, a different

⁴³ Most well-known cases of categorization by little a/v/n heads involve categorization of elements that are complements to the categorizing head at PF but also in the syntax. The categorizing head F implicated in the derivation of the Bulgarian denominal adjectives likewise categorizes its complement at PF. However, the PF complement of F is, in fact, the syntactic specifier of F.

kind of word formation process expressing an underlying abstract Case relation, which involves the addition of what on the surface looks like derivational (categorizing, adjectivizing) morphology (see Fábregas 2007 and Alexiadou and Stavrou 2011 as well as Rappaport 1998 for a treatment of possessive adjectives in Russian as “‘hidden’, or ‘covert’ genitives” (p. 9)).⁴⁴

Given this much, it is possible to draw a connection between the treatment of M-Merger as a PF mechanism for the expression of an underlying syntactic relation and Baker’s (1988) Principle of PF Interpretation.

(66) *The Principle of PF Interpretation*

Every Case indexing relationship at S-structure must be interpreted by the rules of PF.
(Baker 1988:116)

According to this principle, every abstract Case relation encoded in the syntax is expressed via some PF mechanism. The PF mechanisms available to any given language vary, and Baker discusses case and agreement morphology as well as word order (among others) as possible PF expressions of abstract Case. Any one or more of these mechanisms may be utilized by a language in the expression of syntactic relations. More generally, then, PF interpretation amounts to at least the “assignment of morphology conditioned by one member of the relationship to the other member, and the enforcement of directed adjacency between the two” (Baker 1988:116).

Furthermore, Baker’s (1988) approach appears to replicate to a considerable extent the results of Marantz’s (1984) Projection Principle. Marantz’s (1989) version is a generalization of the principle to PF, so that it is able to govern the construction of morphological expressions as well.⁴⁵

(67) *Projection Principle*

For all pairs of constituents (X, Y), a relation $R(X, Y)$ at one level of representation of a sentence in the syntax must map onto a relation $R'(X', Y')$ at any other level of representation of the sentence, where X' and Y' are the constituents “‘corresponding’” to X and Y at the other representation.
(Marantz 1989:101)

According to the generalized Projection Principle, every syntactically encoded relation must map to some PF relation. In the case of denominal adjectives, the relevant syntactic relation that is

⁴⁴ Just like the insertion of inflectional morphology, the application of M-Merger is in principle independent of the expression of abstract Case. For instance, in addition to the expression of Case, M-Merger has been demonstrated to play a crucial role in cliticization (Matushansky 2006, Harizanov 2014a,b, Kramer 2014).

⁴⁵ In the original formulation of the Projection Principle (Chomsky 1981, 1986b), (a) representations at each level of representation are projections of the features of lexical items (notably their subcategorization features), and (b) if F is a lexical feature, it is projected at each syntactic level of representation (D-Structure, S-Structure, Logical Form). In the current theoretical landscape and, in particular, in a framework that eschews D- and S-Structure levels, the effects of the (generalized) Projection Principle as well as the Principle of PF Interpretation are presumably subsumed under Full Interpretation (Chomsky 1986a, 1995). This principle requires that all features of the output of syntax are interpreted at (and interpretable by) the interface levels PF and LF.

being encoded is that of abstract (genitive) Case, assigned idiosyncratically by the head F to its specifier. The PF expression of this relation amounts to word formation: via the application of M-Merger, the PF counterparts of F and its specifier (i.e., their labels) become part of the same morphological word. That is, we must add to the inventory of possible ways for PF to interpret syntactic relations that of *head adjunction of the two members of the relation within a single morphological word*.⁴⁶

5.3 Mismatches between Syntax and Prosody

Within the present framework of assumptions (section 1), once morphosyntactic feature bundles (i.e., morphemes) are linearized and supplied with phonological exponents by VI, prosodic constituents are constructed on the basis of both certain types of structural information available at PF and purely prosodic/phonological principles (see Selkirk 2011 for an overview). These prosodic constituents are taken to define the locality domains relevant for the application of phonological rules. In this sense, the framework described in section 1 incorporates an *indirect-reference theory* of the morphosyntax-phonology interface, which relies on an intermediate, prosodic level of representation to mediate between purely morphological and purely phonological levels of representations (Selkirk 1978, 1986, Nespor and Vogel 1982, 1986, Hayes 1989, et seq.). According to this view, phonology is not sensitive to morphological and syntactic information directly; instead, it makes reference to the intermediate prosodic level of representation, which is based on but distinct from both syntax and morphology.⁴⁷

While constituents in syntax and morphology tend to correspond to prosodic constituents (e.g., phrases correspond to Phonological Phrases, words correspond to Prosodic Words), certain mismatches are consistently found crosslinguistically and have been essential in the motivation of indirect-reference theories of the morphosyntax-phonology interface. For instance, a Prosodic Word constructed after VI may correspond either to a complex head at the level before VI (i.e., morphology) or to a sequence of morphemes that do not form a complex head at that earlier level.

- (68) a. *Morphological structure*
 [W [[X Y] Z]]
 b. *Prosodic structure*
 ... (_ω X Y)_ω ...

⁴⁶ This is a subcase of Marantz's (1984:266) assumption that 'the merger of lexical items at s [syntactic] structure expresses l-s [logicosemantic] relations between phrases headed by the lexical items.'

⁴⁷ For alternative views of the morphosyntax-phonology interface and *direct-reference theories* of the interface, in particular, see Lobeck and Kaisse 1983, Manzini 1983, Kaisse 1985, Rizzi and Savoia 1993, et seq. (see also Compton and Pittman 2010). For *mixed theories* of the morphosyntax-phonology interface, see for example Seidl 2001 and Pak 2008.

- (69) a. *Morphological structure*
 [W [X [Y Z]]]
 b. *Prosodic structure*
 ... (ω X Y) ω ...

(68) involves a transparent mapping between morphology and prosody, since the complex head [X Y] is matched by a Prosodic Word. (69), on the other hand, requires a nontrivial mapping that converts a morphological structure in which X and Y do not form a unit to the exclusion of W and Z to a prosodic structure in which they do. What is particularly important for present purposes is that both of these morphological structures may correspond to a single syntactic structure.

- (70) a. *Syntactic structure*
 [W [X [Y Z]]]
 b. *Morphological structure*
 [W [[X Y] Z]]
- (71) a. *Syntactic structure*
 [W [X [Y Z]]]
 b. *Morphological structure*
 [W [X [Y Z]]]

(70) involves a mismatch between syntactic structure and morphological structure: while X and Y do not form a constituent to the exclusion of W and Z in the syntax, they do so in the morphology (e.g., as the result of M-Merger). (71), on the other hand, requires no rebracketing and is an instance of a transparent mapping from syntax to morphology.

Putting these pairs of syntax-morphology and morphology-prosody mapping possibilities together, there are two distinct ways for the syntactic structure in (70) and (71) to yield the prosodic structure in (68) and (69): (72) involves a syntax-morphology mismatch and transparent mapping of a complex head to a Prosodic Word. On the other hand, (73) involves no mismatch between syntax and morphology but a nontrivial mapping to prosody (see Myler 2013, 2017 and references therein for relevant discussion on this issue and related ones).

- (72) *Derivation A*
 a. *Syntactic structure*
 [W [X [Y Z]]]
 b. *Morphological structure*
 [W [[X Y] Z]]
 c. *Prosodic structure*
 ... (ω X Y) ω ...
- (73) *Derivation B*
 a. *Syntactic structure*
 [W [X [Y Z]]]

b. *Morphological structure*

[W [X [Y Z]]]

c. *Prosodic structure*... (_ω X Y)_ω ...

In the case of the Bulgarian denominal adjectives, there is evidence that they are words in the morphology, prior to the construction of prosodic domains (section 3.1)—that is, denominal adjectivization involves a version of the derivation in (72), where X is the specifier of Y. The evidence discussed in section 3.1 comes from the locality of allomorph selection and portmanteau formation. At this point, given the discussion of the relevant syntactic and morphological structures above, an additional argument to this effect can be furnished. In particular, if D^{EA} and F in (63) did not form a complex head prior to VI (and allomorph selection), VI at F would violate the No Lookahead Condition (Bobaljik 2012). The reason for this is that the form of F depends on phonological features of D^{EA} (section 3.1), and if VI proceeds from the bottom up (as standardly assumed) in structure (63), at the point when VI (and allomorph selection) applies to F, D^{EA} has not been supplied with phonological features yet. Once an intermediate PF representation (between the output of syntax and the input to phonology) is motivated where F and D^{EA} form a complex head, it is up to the principles that govern the construction of prosodic domains to ensure that, at least in this case, the complex head (that constitutes a denominal adjective) is parsed as a Prosodic Word.⁴⁸

However, in other cases, there may be little to no evidence for the intermediate morphological wordhood of some pair of elements. Such cases are therefore more likely to involve the derivation in (73), where X and Y only form a unit in the prosody. A number of cases exist in which a Prosodic Word contains both a head and (a piece of) its specifier that do not form a unit prior to prosody.⁴⁹ For instance, according to one approach to the Saxon genitive in English, 's is the exponent of a D that takes a possessor DP in its specifier, (74a). Yet 's is itself part of the Prosodic Word that contains (part of) the specifier. That a head and its specifier can form a Prosodic Word has also been suggested by Muysken (1995) in an analysis of certain topic markers and evidentials in Quechua as phonologically encliticizing onto their specifiers, (74b). The topic/evidential marker is part of the Prosodic Word that contains (part of) the specifier. Another example involves the question particle *li* in Slavic, which (at least in some Slavic languages) phonologically encliticizes onto its specifier (e.g., Izvorski, King, and Rudin 1997, Rudin, King, and Izvorski 1997, Rudin et al. 1999).

⁴⁸ Since this part of the mapping between syntax and phonology falls outside the scope of this article, I leave the choice among various implementational alternatives for future work, noting at this point that various plausible options exist (e.g., edge-based approaches such as those proposed in Selkirk 1986, 2011, Truckenbrodt 1999, Elfner 2012, Myrberg 2013, among others).

⁴⁹ I thank a reviewer for bringing up the majority of these cases and pointing out their relevance.

- (74) a. the guy from Kona's canoe
 b. Pidru-n wasi-ta ruwa-n.
 Pedro-DE house-ACC make-3
 'It's Pedro that builds a house.'
 (Quechua; Muysken 1995:386)
 c. Prez gradinata li hodeše?
 through the.garden Q you.walked
 'Was it through the garden that you were walking?'
 (Bulgarian; Rudin et al. 1999:546)

In cases like this, it seems clear that the head and its specifier form a unit at a phonological/prosodic level of representation, but it may be difficult or impossible to motivate their constituency at earlier, intermediate stages of the derivation.⁵⁰

- (75) a. [_{DP} DP [[_D 's] NP]]
 b. [_{EvP} XP [[_{Ev} -n] IP]]
 (Muysken 1995:386)
 c. [_{CP} XP [[_C li] IP]]
 (Rudin et al. 1999:546)

Overall, numerous instances have been posited of the syntax-prosody mismatch whereby elements in a syntactic specifier-head configuration come to be contained within a single Prosodic Word. In the present framework of assumptions, such mismatches may come about in two ways, depending on how the relevant morphosyntactic pieces are structured at the intermediate, morphological level: the pieces that a Prosodic Word is composed of can either form a complex head in morphology (e.g., denominal adjectives in Bulgarian) or not (e.g., Saxon genitives in English). Thus, given a particular Prosodic Word in some language, which option is instantiated is an empirical question—a question that concerns whether there is evidence for or against morphological wordhood. The evidence for the morphological constituency of denominal adjectives in Bulgarian is based on the locality of allomorphy and the bottom-up application of VI.

6 Concluding Remarks

Denominal adjectives in Bulgarian exhibit dual behavior: while they contain an independent nominal projection with respect to syntactic diagnostics, they behave like adjectives with respect to morphological criteria and distribution. The analysis proposed here treats denominal adjectives as syntactically composed of a functional head (F) in the extended nominal projection and its nominal specifier (D(P)), which are joined into a morphological word postsyntactically.

⁵⁰ For additional discussion of another type of approach to syntax-prosody mismatches in specifier-head configurations, see appendix E.

The syntactic decomposition of denominal adjectives explains the nominal characteristics that they exhibit: they can express the external θ -roles of -N nominalizations; their form and distribution can be governed by the principles of the binding theory; they can block DP-internal A-movement. The subsequent application of M-Merger at PF explains the adjectival, head-like behavior of denominal adjectives: the adjectivizing head they contain triggers the postsyntactic insertion of inflectional morphology and ensures that denominal adjectives, like all pronominal modifiers, can host the suffixal definiteness marker. Finally, as a result of M-Merger denominal adjectives are invariably head-like, containing no branching material.

This treatment of denominal adjectives derives their apparently conflicting syntacticosemantic and morphological properties from the features of syntactic terminals involved in their construction. It might often be the case that certain syntactic and morphological behaviors cluster together, giving rise to the traditional notion of lexical categories such as N, V, A. However, this is not necessary: what is intriguing about the Bulgarian denominal adjectives is the confluence of features on the head F (see section 5), which leads to the mixture of nominal and adjectival behaviors of denominal adjectives (sections 4.1, 5).

(76) The head F

- a. takes nP as its complement;
- b. requires a DP specifier;
- c. makes no semantic contribution;
- d. triggers M-Merger (by the assignment of abstract genitive Case to its specifier);
- e. is the locus of the postsyntactic processes of Agr-insertion and D[DEF] placement.

According to this view, it is in the inventory of features and how they are packaged into syntactic terminals that language variation and universals lie. This conclusion echoes Embick's (2000) conclusion in his discussion of the Latin perfect that "notions like morphological 'adjective' and 'verb' are epiphenomenal: they result from general properties of the language, storable in terms of syntactic structures . . . [T]here is no simple and straight correspondence between lexical category labels like N, V, and A on both syntactic and morphological levels" (Embick 2000:225).

In addition, M-Merger also affects hierarchical structure at PF by converting a syntactic *specifier-head relation* (and a concomitant argument-licensing relation) between X and Y into *head adjunction of X and Y within a single morphological word*. Thus, if two exponents are part of the same word, they may stand in one of the following structural relations in the syntax: (a) head-head of complement, (b) head-complement, and (c) specifier-head. Cases (a) and (b) result in the construction of inflected words and various instances of incorporation, while case (c) has been implicated previously in cliticization, and now in the formation of denominal adjectives in Bulgarian. The construction of morphological words out of (a) and (b) is usually implemented in terms of syntactic head movement or postsyntactic operations like Lowering (e.g., Embick and Noyer 2001). On the other hand, the construction of words on the basis of (c) has been taken to involve M-Merger, presumably a distinct operation. At this point, it is an open theoretical question whether all cases of word formation on the basis of (a), (b), and (c) can be treated in a unified manner, as the result of a single operation that subsumes the effects of M-Merger, head movement, and Lowering.

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