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Contextual Neutralization and the Elsewhere Principle

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12.1 Introduction

Against the setting of this book, our aim is to contextualize the present chapter within the background of developments in phonological and morphological theory of the last forty-odd years, largely those arising from contributions by Morris Halle and his collaborators. The notions of specificity-based competition and blocking, with their indubitable Pāninian pedigree, found their way into modern generative linguistics with the introduction of the Elsewhere Principle in Kiparsky 1973, the goal of which was an attempt to reduce extrinsic ordering in Chomsky and Halle 1968. The intuition behind such a principle was that certain rules (or more broadly, operations that modify linguistic representations) will *always* take precedence over others, given their forms and the relationship of their forms to each other in terms of the fundamental notion of the subset relation from Set Theory. Kiparsky's contribution to phonological theory allowed researchers—and by hypothesis, language acquirers—to merely inspect the form of certain rules in order to determine their relative ordering.¹

A similar paradigm shift (perhaps a term to be taken literally in this context) occurred within the view of Vocabulary Insertion as a procedural mapping from morphosyntactic terminals to phonological sequences. In Noyer 1992, vocabulary entries were rules with some extrinsic ordering among them, followed in turn by appeals to purely intrinsic ordering in DM, especially Halle and Marantz 1993, 1994, and Halle 1997a.²

The use of the Elsewhere Principle in DM is to regulate use of the *elsewhere item*, the least specified vocabulary entry that still does not constitute a superset or nonoverlapping set of the set of morphosyntactic features on the terminal node to be expressed. Consider for example the paradigm of third-singular pronouns in English. The masculine forms display a three-way case contrast (nominative *he*, accusative *him*, genitive *his*), and the

feminine forms neutralize accusative and genitive forms (*her*), which are distinct from the nominative form (*she*). Thus, *her* is arguably an elsewhere feminine singular form, without any case specification. What prevents it from being used in the nominative contexts, then? The Elsewhere Principle, which dictates that the elsewhere form is only to be used when a more specific form is not found. In the case at hand, nominative *she* is more specific, blocking use of the elsewhere item *her*. The Elsewhere Principle is also known as the Subset Principle, specifically because it is implemented in terms of subset-based comparisons among sets of morphosyntactic feature-value pairs.

The notion of specificity is normally used in reference to the inherent morphosyntactic properties borne by the vocabulary entry itself. But at times, vocabulary entries can be *contextually restricted*, meaning that they can only be used in environments defined by adjacency or dominance in a local sense. As an example of this, consider the allomorphy between *destroy* and *destruct*, regulated by sisterhood to transitive v^* . In the examples that follow with the format $E \leftrightarrow M/X \text{---} Y$, E is the exponent (the vocabulary entry), M is the morphosyntactic feature specification (MFS), and $X \text{---} Y$ is the contextual restriction. We assume that both /dɛstɔɪj/ and /dɛstɹɪkt/ are allomorphs of an abstract, categoryless root (in the sense of Arad 2003), denoted here as $\sqrt{\text{DESTRXYZ}}$:

(1) *Allomorphs of the root destroy/destruct, differing only in contextual restriction*

- a. /dɛstɔɪj/ $\leftrightarrow \sqrt{\text{DESTRXYZ}} / v^* \text{---}$
 b. /dɛstɹɪkt/ $\leftrightarrow \sqrt{\text{DESTRXYZ}}$

The second item, /dɛstɹɪkt/, is an elsewhere item—less specific with respect to context. As such, it occurs in all environments besides those with immediate sisterhood to v^* , including adjectives (*destructive*, *destructible*) nouns (*destruction*), and root compounds in which the root $\sqrt{\text{SELF}}$ blocks sisterhood with v^* in *self-destruct*.³ The allomorph /dɛstɔɪj/ is only used in a limited/specialized environment.⁴

In the two examples we have examined thus far, one involved competition in terms of specificity of morphosyntactic features (*she* vs. *her*) while the other involves specificity in terms of context (*destroy* vs. *destruct*). As such there is no potential need to arbitrate between vocabulary entries in which one might be more specific for MFS while the other for context. But in fact precisely such a formulation already exists in the DM literature, one in which specificity in MFS takes precedence over specificity in context (Halle and Marantz 1993, 120–124):

- (2) a *Underspecification*: The exponent in a vocabulary entry is eligible for insertion into a terminal node if the entry's MFS is a subset of the features in the terminal node, and if the contextual restriction of the former is compatible with the context of the latter.
- b. *Elsewhere Principle*: Where several entries meet Underspecification, the one matching the greatest number of features in the terminal node must be chosen.
- c. *Contextual Specificity*: Where several entries meet (2b), the one with the most specific contextual restriction must be chosen.

In other words, exponents whose MFS and/or context form a superset of the terminal node to be realized are immediately discarded (2a). Subsequently, the entry with the maximally matching MFS is chosen (2b), and only in the case of a tie is context appealed to (2c).

Interestingly, Halle and Marantz do not provide evidence for this prioritization. In fact, the phenomena discussed in the DM literature (including those in Halle and Marantz 1993) are typically consistent with this or the opposite preference of (2c) over (2b). In this chapter, we wish to reverse the importance (and indeed, computational priority) given to (2c) as opposed to (2b) above, thus placing Contextual Specificity *before* morphosyntactic specification, based on empirical arguments from Basque and Bulgarian, in which a morphosyntactic feature distinction ordinarily made—and indeed, one supported by ample vocabulary entries—is nonetheless jettisoned and neutralized in a particular environment.

The prediction of the “standard” prioritization, as schematized above, is that given Vocabulary Insertion alone (i.e., without the interference of impoverishment or other feature-modifying operations) defaults will never override specific entries, even if the default has a richer contextual restriction. The goal of this chapter is to provide evidence that Contextual Specificity takes precedence over the Elsewhere Principle, based on cases in which a featurally underspecified but contextually rich entry overrides more specific entries with a poorer contextual restriction. We provide two case studies as evidence: Basque pronominal clitics (section 12.2), and Bulgarian definite articles (sections 12.3 and 12.4). Before we turn to these case studies, we outline certain assumptions about the architecture of the grammar that will provide an important guide to our analysis of Basque and Bulgarian.

Within DM, it is generally agreed that impoverishment is early and linearization is late. The overall architecture of the postsyntactic morphological component in Arregi and Nevins 2012, which we adopt here, is depicted in figure 12.1. The main points that run through our architecture that are

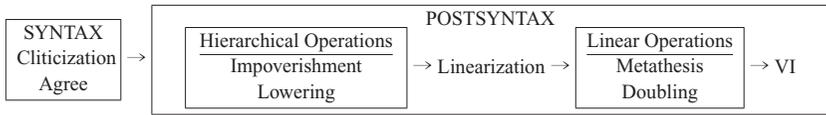


Figure 12.1

The structure of Spellout, as proposed by Arregi and Nevins 2012

important for this chapter are the hypothesis that impoverishment is, as often as possible, principled, while vocabulary entries—later down in the chain—are more idiosyncratic and language particular. For this reason, highly specific contextual effects on allomorph selection are likely to be the provenance of Vocabulary Insertion, and thus more likely to change, cross-dialectally, than impoverishment-based ones. In addition, operations that apply before linearization, such as impoverishment and lowering, are defined in terms of hierarchical relations, while postlinearization processes such as metathesis (section 12.2) are sensitive to linear order.

12.2 Contextual Neutralization in Basque Pronominal Clitics

In Biscayan Basque, pronominal enclitics exhibit case contrasts that are neutralized in proclitic position. This, we argue, is a case of contextual neutralization in the sense defined above: case-neutral vocabulary entries specific to proclitic contexts override case-specific entries. This provides the first piece of evidence that Contextual Specificity takes precedence over the Elsewhere Principle in determining competition at Vocabulary Insertion. For reasons of space, we omit many of the details of the analysis, and the reader is referred to Arregi and Nevins 2012 for extensive argumentation and comparison with alternative accounts, as well as further illustration of the phenomena discussed here.

Since most verbs in this language lack finite forms, finite clauses are typically headed by an auxiliary that cross-references phi-features of absolutive, dative, and ergative arguments in the clause. The following example from the Biscayan variety of Ondarru is illustrative:⁵

- (3) Neu-k seu- \emptyset ikus-i s -*atxu* -*t*.
 I.ERG you(SG).ABS see.PFV CL.ABS.2SG -PRS.2SG -CL.ERG.1SG
 ‘I’ve seen you(SG).’ Ondarru

In this auxiliary, the root *-atxu-* encodes present tense, in addition to agreement (second singular) with the absolutive argument. Following Arregi and Nevins

2012, we take this exponent to be the realization of T. Pronominal clitics are illustrated by the second singular absolutive proclitic *s-* and the first singular ergative enclitic *-t*. The following descriptive template displays the relative position of the different morphemes in the auxiliary:

(4) *Morphemes in the Basque auxiliary*⁶

abs proclitic – T (root) – dat enclitic – erg enclitic – complementizer

We assume that this is little more than a descriptive template of surface auxiliary form, derivable in a principled way from the syntax of the morphemes involved. Since these details are not directly relevant to the issues of interest here, we abstract away from them in this chapter.

As shown in (4), absolutive clitics precede the root, while dative and ergative clitics follow it (with important exceptions discussed below). The following examples from Ondarru provide further illustration of first singular pronominal clitics in all three cases:

(5) *Dative enclitic*

Neu-ri emo-n *d* -o -*sta* -∅ (>emo-sta).
 me-DAT give-PFV CL.EP -PRS.3SG -CL.DAT.1SG -CL.ERG.3SG
 ‘She’s given it to me.’ Ondarru

(6) *Ergative enclitic*

Neu-k emo-n *d* -o -*tza* -*t* (>emo-tzat).
 I-ERG give-PFV CL.EP -PR.3SG -CL.DAT.3SG -CL.ERG.1SG
 ‘I’ve given it to him.’ Ondarru

(7) *Absolutive proclitic*

Neu-∅ etorr-i *n* -as.
 I-ABS come-PFV CL.ABS.1SG -PRS.1SG
 ‘I’ve come.’ Ondarru

These examples illustrate the fact that enclitics display case contrasts: the first singular dative enclitic is *-sta* (5), while its ergative counterpart is *-t* (6). Table 12.1 provides a full paradigm of the surface form of pronominal clitics in the Biscayan dialectal area (this figure abstracts away from allomorphy and dialectal variation not directly relevant here).⁷ As shown in this paradigm, enclitics in all phi-feature combinations contrast in case. Despite significant variation in surface form, these case contrasts are present throughout the Biscayan dialect (de Yrizar 1992). Absolutive proclitics are illustrated in (7);

Table 12.1
Pronominal clitic forms in Biscayan Basque

	Proclitics		Dative enclitics		Ergative enclitics	
	Singular	Plural	Singular	Plural	Singular	Plural
First	n-	g-	-sta	-sku	-t	-gu
Second	s-	s- . . .-e	-tzu	-tzue	-su	-sue
Third	—	—	-tza	-tze	-∅	-e

their exponents are given a case-neutral label in table 12.1, since, as argued below, proclitics of the same form can also double ergative and dative arguments.

Contextual neutralization of case can be observed in certain forms where the proclitic doubles an ergative or dative argument (instead of the expected absolutive). This is due to the application of different processes that displace or copy an enclitic into auxiliary-initial position:

(8) *Ergative Metathesis: Ergative in proclitic position*

Neu-k emo-n **n** -e -tza -n (>emo-netzan).
I-ERG give-PFV **CL.ERG.1SG** -PST.3SG -CL.DAT.3SG -CPST
'I gave it to her.' Ondarru

(9) *Ergative Doubling: Ergative in enclitic and proclitic position*

s -eu -sku -**su** -n
CL.ERG.2SG -PST.3SG -CL.DAT.1PL -**CL.ERG.2SG** -CPST
Alboniga (de Yrizar 1992, vol. 1, 470)

(10) *Dative Doubling: Dative in enclitic and proclitic position*

Ar-ek ne-ri sagarr-a emu-n
he-ERG me-DAT apple-ABS.SG give-PFV
n -o -**sta** ∅ -n.
CL.DAT.1SG -PST.3SG -**CL.DAT.1SG** -CL.ERG.3SG -CPST
'He gave me the apple.' Oñati (Rezac 2008a, 710)

In addition to causing a change in position, these processes also have an effect on the form of the clitic. All proclitics in these examples, regardless of case, are realized as shown in the case-neutral proclitic paradigm in table 12.1. This is perhaps most clearly seen in the doubling examples (9) and (10), where the enclitic copy has the expected case-specific form (see table 12.1), but the auxiliary-initial copy has the case-neutral proclitic form. Thus, the Basque clitic paradigm displays contextual neutralization: the case contrasts

visible in enclitic position in (5)–(6) are neutralized in proclitic position in (8)–(10).

Note, furthermore, that these are bona fide ergative and dative proclitics, not analyzable in terms of absolutive case assignment to an external or Goal argument, as evinced by the fact that the strong pronouns cross-referenced by the proclitics in (8) and (10) have ergative and dative case, respectively. In addition, in the doubling cases in (9) and (10), the auxiliaries themselves contain another clitic exponent with unmistakably ergative or dative form cross-referencing the same argument. Another indication that the proclitic in these examples is not absolutive is that, if that were the case, we would expect it to trigger agreement in T, but, as shown by the glosses, the form of T in these auxiliaries is specific to third-person agreement, not first- or second-person.⁸

Ergative Metathesis, also known as *ergative displacement* in the literature (Heath 1976; Bonet 1991; Laka 1993; Albizu and Eguren 2000; Fernández and Albizu 2000; Rezac 2003), occurs in all dialects of Basque, and is limited to contexts where tense is nonpast and the absolutive argument is either third singular or altogether absent. Following Laka 1993, we propose in Arregi and Nevins 2012 a postsyntactic displacement analysis in which the ergative cliticizes to enclitic position in the syntax, but is displaced to auxiliary-initial position prior to Vocabulary Insertion. This postsyntactic displacement is triggered by Noninitiality, a constraint on the linearization of T that prevents it from surfacing in initial position in the auxiliary. In auxiliaries with absolutive clitics (e.g., (7)), the latter are linearized to the left of T, and therefore no postsyntactic repair operation is needed to satisfy Noninitiality. In the absence of an absolutive clitic, certain repair operations apply to shield T from the left edge. Ergative Metathesis, which applies under the conditions specified above, is one of those operations: by displacing the ergative clitic to the left of T, the structure satisfies Noninitiality. In other contexts (e.g., in the present tense, or in the absence of an ergative clitic), an epenthetic morpheme is inserted to satisfy the constraint. This epenthetic morpheme is exemplified in (5)–(6) (glossed as “CL.EP”).

In Arregi and Nevins 2012, chap. 5, we implement this displacement operation in terms of Harris and Halle’s (2005) Generalized Reduplication formalism. This implementation allows us to extend the analysis to Ergative and Dative Doubling. These processes, which have a more restricted dialectal distribution (Fernández 2001; Fernández and Ezeizabarrena 2003; Rezac 2008a, 2008b),⁹ apply instead of Ergative Metathesis in a subset of the contexts where the latter is expected to apply, and are similarly triggered by the need to shield T from the left edge of the auxiliary.

The generalizations about the form of (Biscayan) Basque pronominal clitics uncovered above can be implemented in terms of vocabulary entries for proclitics that are case neutral (hence resulting in contextual neutralization of case) competing with entries that are specific for dative and ergative case. *In other words, there are no clitics specified as absolutive in Basque.* In the case of first-person singular, the following entries have these properties (entries for other phi-features are similar):¹⁰

(11) *Vocabulary entries for first singular clitics in Biscayan Basque*

- a. /n/ ↔ [first, singular]/____T
- b. /t/ ↔ [first, singular, ergative]
- c. /sta/ ↔ [first, singular, dative]

The entry for *n-* in (11a) is specific to proclitic position (before T), and is therefore not relevant in the realization of clitics following T.¹¹ Thus, enclitics are realized as ergative *-t* (11b) or dative *-sta* (11c)—that is, the realization of enclitics results in the observed case contrast in this position. In proclitic position, on the other hand, both the case-neutral proclitic entry (11a) and one of the two case-specific entries are candidates for insertion (as long as the proclitic is ergative (11b) or dative (11c); if absolutive, only (11a) is eligible). Given our hypothesis that Contextual Specificity takes precedence over the Elsewhere Principle, the correct prediction is that case-neutral (11a) is inserted, since, despite the fact that its MFS is a subset of the MFS of the case-specific entries, its contextual restriction (before T) is richer than the null contextual restriction in the other entries.¹²

Before we turn to further evidence from Bulgarian, we need to rule out other possible analyses of contextual neutralization in Basque pronominal clitics. Relying on certain phonological similarities between dative and ergative enclitics evident in table 12.1, one might argue that they are derived by phonological processes from common case-neutral underlying enclitic forms. Under this analysis, the paradigm would not display contextual neutralization, since no case contrasts would be posited in enclitic position in the first place. Although these phonological similarities provide evidence for a common diachronic analysis of the form of dative and ergative enclitics, we argue in Arregi and Nevins 2012, 127–132, that they do not justify such an analysis in the synchronic grammar of Biscayan Basque. These similarities are greater in other dialects—for instance, first- and second-person enclitics have case-neutral forms in the standard dialect (Batua; see Hualde 2003), and in several spoken varieties of other dialects. On the other hand, enclitics in many other varieties do have case-based contrasts not attributable to synchronic phonology. For instance, in Souletin, the first plural ergative enclitic is *-gü*, while its dative counterpart is *-kü* (de Yrizar 2002), but their phonological contexts (e.g.,

dü-gu, *zai-kü*) do not warrant an analysis in terms of (de)voicing. A similar argument for contextual neutralization can also be made based on these latter dialects, but we concentrate on Biscayan here because these enclitic case contrasts are clearer in this dialect.

A different type of alternative analysis would, like ours, account for the facts in terms of contextual neutralization, but would rely on independently motivated mechanisms instead of a change in the way that Vocabulary Insertion determines competition. First, one could add some restriction to the case-specific entries that excludes them from auxiliary-initial position. Since the case-specific exponents in (11b) and (11c) only appear in enclitic position, it is tempting to add the contextual restriction T_____ to them, thus making them ineligible for insertion in proclitic position. This would make competition for the realization of proclitics a nonissue and the proposed change to Vocabulary Insertion unnecessary. Unfortunately, given certain well-founded assumptions in current work on Distributed Morphology, this alternative analysis does not make the correct predictions. Under the hypothesis that a contextual restriction can only make reference to features on adjacent terminal nodes (Embick 2010), it would wrongly predict that both case-specific entries in (11) are restricted to clitics that are right-adjacent to T. Although ergative clitics can be right-adjacent to T (in the absence of a dative clitic), they need not be, as shown in (6), where the ergative clitic follows a dative clitic. However, the form of the ergative clitic is identical in both cases and clearly not dependent on how close it is linearly to T.

A second alternative analysis along similar lines involves impoverishment. This type of rule, which either deletes a feature or changes it to an unmarked value, is often used in the DM literature in order to account for contextual neutralization facts. For instance, several authors propose an impoverishment-based analysis of spurious *se* in Spanish (Bonet 1991, 153–173; Halle and Marantz 1994; Nevins 2007, 274–283). In this language, the dative clitic is *le* (*les* in the plural), except in the context of an accusative clitic, in which case it is realized as *se*, which is syncretic with the reflexive/impersonal pronoun. Thus, a contrast between dative and reflexive clitics is neutralized in the context of accusative clitics. Under the assumption that the *se* exponent lacks some feature that dative *le* is specified for (person in Bonet 1991 and Nevins 2007; case in Halle and Marantz 1993), we can account for this case of contextual neutralization by impoverishing that feature in a dative clitic if it occurs in the same cluster as an accusative clitic.

This would suggest an alternative account of the contextual neutralization facts in Basque pronominal clitics in which an impoverishment rule deletes case features (or changes them to unmarked absolutive) in proclitic position. Since ergative and dative clitics surface in proclitic position due to the application of

Ergative Metathesis/Doubling and Dative Doubling, this impoverishment rule would have to apply after these operations affect the position of these clitics. Given the restrictive and modular architecture of the postsyntactic component proposed in Arregi and Nevins 2012 and briefly reviewed in section 12.1, this is not a viable option for the Basque facts. In particular, impoverishment rules, which are typically not sensitive to morpheme order, apply before linearization, and rules that alter the linear order of morphemes, such as the metathesis and doubling rules discussed above, apply after linearization. This predicts that impoverishment rules systematically apply prior to metathesis and doubling processes, and therefore have the potential to feed or bleed them, a prediction that we provide evidence for in Arregi and Nevins 2012, chap. 6.

To summarize so far, contextual neutralization facts in Basque pronominal clitics provide evidence for our hypothesis that Contextual Specificity takes precedence over the Elsewhere Principle at Vocabulary Insertion. In the following section, we present additional evidence from the realization of the definite article in Bulgarian.

12.3 Contextual Neutralization in Bulgarian Definite Articles

The Bulgarian definite article paradigm displays phi-feature-based contrasts that are neutralized in certain phonologically defined environments. As with Basque pronominal clitics, we propose an analysis in which this case of contextual neutralization is the result of underspecified vocabulary entries with (phonological) contextual restrictions overriding entries that are phi-feature specific but lack a contextual restriction.

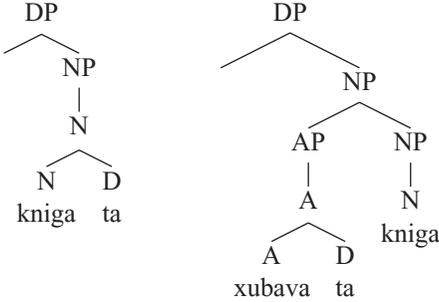
In Bulgarian, the definite article surfaces as an enclitic attaching to either the head noun or the first noun modifier in the DP, whichever comes first. The following are relevant examples from Embick and Noyer 2001, 568–569:¹³

- (12) a. kniga-**ta**
 book.FEM.SG-DEF
 ‘the book’
- b. xubava-**ta** kniga
 nice-DEF book.FEM.SG
 ‘the nice book’
- c. mnogo starij-**a** teatər
 very old-DEF theater.MASC.SG
 ‘the very old theater’

A lot of the literature on the Bulgarian definite article concentrates on accounting for its position within the structure of DP (see, among others, Franks 2001;

Embick and Noyer 2001; Dost and Gribanova 2006).¹⁴ We adopt Embick and Noyer's (2001) analysis, according to which the article is generated in the syntax as the head of DP, and its surface position is due to postsyntactic lowering:

(13) *Structure of (12a–b) after lowering*



As illustrated in these examples, lowering, like head movement, results in X^0 -adjunction. In terms of the architecture of the grammar in figure 12.1, lowering is a hierarchically defined postsyntactic operation that applies before linearization and is thus distinct from other morpheme-displacement operations such as syntactic head movement and postlinearization metathesis.¹⁵

The form of the article, which is the main topic of this section, is in part dependent on the gender and number features of the word it attaches to. For instance, the adjective *starij-* in (12c) is masculine singular, due to agreement with the noun *teatər*, and, accordingly, the form of the definite article *-a* attached to the adjective is specific to masculine singular hosts. We assume that the source of this sensitivity to (masculine/feminine/neuter) gender and (singular/plural) number features in the article are due to DP-internal agreement—that is, at the point of Vocabulary Insertion, the article (in addition to its host) is specified for valued phi-features. We provide an analysis of DP-internal agreement in Bulgarian in section 12.4.

Both morphosyntactic and phonological factors determine the form of the definite article. The following are the relevant generalizations (Harizanov and Gribanova 2011):¹⁶

(14) *The realization of the definite article in Bulgarian*

- a. If the host ends in the vowel *a* or *o*, then the definite article is realized as *-ta* or *-to*, respectively; otherwise,
- b. if the definite article is singular masculine, then it is realized as *-a*,
- c. if the definite article is singular feminine, then it is realized as *-tá*,
- d. if the definite article is singular neuter, then it is realized as *-to*, and
- e. if the definite article is plural, then it is realized as *-te*.

While (14b–e) make reference to the phi-features of the article, (14a) makes reference to the phonological features of its context. As stated clearly in (14), the latter takes precedence over the former, hence this is a case of contextual neutralization: phi-featural distinctions in the article that are otherwise visible in the paradigm are neutralized in the specific context of a host that ends in the vowel *a* or *o*.

The following examples illustrate the generalizations above.¹⁷ First, masculine singular nouns that end in a consonant take the *-a* allomorph of the article:

- (15) *Masculine singular nouns ending in C: -a*
 mǝz-**a** ‘the man’ stol-**a** ‘the chair’

Masculine singular nouns can also end in the vowels *a* and *o*, in which case they take the *-ta* and *-to* allomorphs of the article, respectively:

- (16) *Masculine singular nouns ending in a: -ta*
 bafta-**ta** ‘the father’ sǝdija-**ta** ‘the judge’
- (17) *Masculine singular nouns ending in o: -to*
 tatko-**to** ‘the father’ djado-**to** ‘the grandfather’

Feminine singular nouns typically end in the vowel *a* and accordingly take the *-ta* allomorph of the definite article:

- (18) *Feminine singular nouns ending in a: -ta*
 zena-**ta** ‘the woman’ staja-**ta** ‘the room’

However, a few feminine singular nouns end in a consonant. These take a different allomorph of the article, *-tá*, specific to feminine singular and distinguishable from *-ta* in that it attracts stress:

- (19) *Feminine singular nouns ending in a consonant: -tá*
 mladost-**tá** ‘the youth’ doblest-**tá** ‘the valor’ cev-**tá** ‘the barrel’

Neuter singular nouns always end in a vowel, and regardless of the features of this vowel, the article is realized as *-to*:

- (20) *Neuter singular nouns: -to*
 selo-**to** ‘the village’ dete-**to** ‘the child’
 menj-**to** ‘the menu’ taksi-**to** ‘the taxi’

Bulgarian plural nouns are formed on the basis of several allomorphs of a nominal plural suffix.¹⁸ Nouns with the plural suffixes ending in *a* take the *-ta* allomorph of the definite article, as expected:

- (21) *Plural nouns ending in a: -ta*
 brat-**ja-ta** ‘the brothers’ krai-**ja-ta** ‘the ends’

Table 12.2

Contextual neutralization in Bulgarian definite articles

	Masculine	Feminine	Neuter	Plural
Host ends in <i>a</i>	baŋ ta-ta	z ena-ta		brat- ja-ta
Host ends in <i>o</i>	tat ko-to		sel o-to	
Other hosts	məz- a	mladost- tá	dete- to	narod- i-te

With plural suffixes that end in a vowel other than *a*, the allomorph of the definite article is *-te*:

- (22) *Plural nouns ending in a vowel other than a: -te*
 narod-**i-te** ‘the peoples’ məz-**e-te** ‘the men’

These generalizations are succinctly summarized in table 12.2, which clearly represents the fact that the paradigm exhibits contextual neutralization. The bottom row exemplifies the four-way gender/number contrast that the form of the definite article is sensitive to. The other rows show that these phi-featural contrasts are neutralized in the context of hosts ending in the vowels *a* or *o*.

Contextual neutralization in Bulgarian definite articles can thus be accounted for in a way parallel to Basque pronominal clitics. First, we propose the following vocabulary entries (adapted from Harizanov and Gribanova 2011):¹⁹

- (23) *Vocabulary Entries for Bulgarian definite articles*
- /ta/ ↔ [definite] / [/-a/] _____
 - /to/ ↔ [definite] / [/-o/] _____
 - /a/ ↔ [definite, singular, masculine]
 - /tá/ ↔ [definite, singular, feminine]
 - /to/ ↔ [definite, singular, neuter]
 - /te/ ↔ [definite, plural]

With hosts other than those ending in *a* or *o*, only the phi-specific exponents in (23c–f) are eligible for insertion. As a consequence, in these contexts, the phi-featural contrasts are visible. Compare, for instance, masculine singular *məz-a* (15) and feminine singular *mladost-tá* (19):

- (24) [N [D definite, singular, masculine]] [N [D definite, singular, feminine]]
 məz -**a** mladost -**tá**

On the other hand, in the context of a host ending in *a* or *o*, these phi-specific entries compete with the phi-featurally underspecified but contextually rich entries for *-ta* (23a) and *-to* (23b). Given that Contextual Specificity takes

precedence over the Elsewhere Principle, the latter entries are chosen for insertion, as illustrated here with masculine singular *bařta-ta* (16) and feminine singular *řena-ta* (18):

- (25) [N [D definite, singular, masculine]] [N [D definite, singular, feminine]]
 bařta -ta řena -ta

The result is contextual neutralization: the phi-featural contrasts illustrated in (24) are neutralized in the context exemplified in (25).

The Bulgarian allomorphy data are representative of a larger class of phenomena in which phonologically sensitive considerations seem to trump morphosyntactic specificity. In this light, they are reminiscent of definite article allomorphy in well-known cases such as Spanish and French, in which vowel-initial nouns may take articles of the “wrong” gender. To take the simplest case among these, nouns beginning with stressed *á* in Spanish have the gender of their definite article *neutralized* to the form usually reserved for masculines, namely *el*. This constitutes a case of contextual neutralization in which the masculine/feminine distinction in the definite article, otherwise robust and based purely on morphosyntactic features, is jettisoned in favor of a context-sensitive form that looks at the phonology of the stem (see Nevins 2011c for an overview).

In this light it is interesting to compare our proposed revision of the Elsewhere Principle of Vocabulary Insertion to the novel two-step approach to Vocabulary Insertion proposed in Svenonius 2012b, on the basis of definite article in French, which is also phonologically sensitive. Svenonius’s proposal shares with ours the fact that the first step of Vocabulary Insertion is purely to eliminate superset candidates of vocabulary entries whose specification includes features not in the terminal node being matched. It also shares with ours the hypothesis that phonological factors may be referred to—and decisive in allomorph selection—before maximal subset considerations are taken into account. One of the differences, however, is that Svenonius’s proposal attempts to cleanly partition the two steps of Vocabulary Insertion into superset elimination (called ‘L-Match’) and a phonologically optimizing stage. It is on this latter point that we diverge from Svenonius, pointing specifically to the Bulgarian case at hand. Consider the feminine allomorphs, either stressed *-tá* or unstressed *-ta*, the latter chosen when the stem ends with the vowel *a*. It is not clear what types of phonotactic or metrical pressures would force the preference for *-ta* over *-tá* following an *a*. Coupled with the fact that the Basque case discussed above does not involve phonological sensitivity, we contend that the correct characterization of Vocabulary Insertion is indeed one in which context sensitivity trumps morphosyntactic specification, but where context sensitivity need not be limited to purely phonologically optimizing considerations. Nonetheless, we contend that Svenonius’s

division of labor of Vocabulary Insertion into two separate stages, in which a principle of Phonology-Free Syntax is upheld in the sense that vocabulary entries themselves never directly mention phonological context, rather leaving such choices up to the grammar, as it were, constitutes an interesting move in the direction of modularization in the general spirit of DM and is worthy of extensive further comparison with the proposal we have developed here.

12.4 The Syntax and Postsyntax of Agreement in Bulgarian Definite Articles

A crucial assumption in the analysis of Bulgarian given above is that the definite article is specified for phi-features as a consequence of DP-internal agreement. This assumption is challenged by Harizanov and Gribanova (2012), who claim that the phi-features that (partially) determine the form of the definite article are not due to features in the article itself, but to features in its host. For instance, under this analysis, the masculine singular *məʒ* in (24) selects the masculine singular allomorph *-a* of the definite article not because the article itself is specified for these features, but because the host *məʒ* is. Thus, in Harizanov and Gribanova 2012, the phi-features in the entries for (23c)–(23f) are not part of the MFS, but part of the contextual restriction. Under this view, the Bulgarian definite article paradigm does not constitute a case of contextual neutralization, since all the allomorphs have identical MFS ([definite]) and only differ in their contextual restriction.

Harizanov and Gribanova's (2012) argument is based on DPs with coordinated adjectives:

- (26) *bălgarskij-a* *i* *ruski* *narod-i*
 Bulgarian.MASC.SG-DEF and Russian.MASC.SG nation.MASC-PL
 'the Bulgarian and Russian nations'
 (= the Bulgarian nation and the Russian nation) (Harizanov and
 Gribanova 2012, 9)

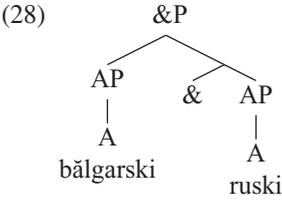
What is interesting about this type of example is that the coordinated singular adjectives do not agree in number with the plural noun. Since, as indicated by the meaning, the syntactic scope of the definite article is the entire DP, we might expect the definite article to agree with the plural noun. This is not the case: the article in this example, which is attached to the adjective in the first conjunct (i.e., the first noun modifier in the DP), is realized by the *singular* masculine allomorph *-a*, not plural *-te*. One might be tempted to conclude that this is due to some sort of closest conjunct agreement with the leftmost adjective. This does not seem to be the case, since an adjective with a similar syntactic scope as the article in (26) does agree with the noun:

- (27) prijatelsk-i-te bälgarski i ruski narod-i
 friendly-PL-DEF Bulgarian.MASC.SG and Russian.MASC.SG nation.MASC-PL
 ‘the friendly Bulgarian and Russian nations’ (Harizanov and
 Gribanova 2012, 10)

Taking (27) as representative of the agreement properties of items that have scope over the entire DP, Harizanov and Gribanova (2012) conclude that the singular allomorph *-a* of the article in (26) cannot be due to agreement (i.e., the article is not specified for phi-features); rather, it is due to contextual allomorphy conditioned by the singular adjective it is attached to.

We do not think that this conclusion is warranted, since it rests on the assumption that the agreement properties of agreeing items must be completely determined by their syntactic position and that therefore postsyntactic processes cannot have an effect on agreement. Recent literature on the topic suggests that this is not the case, and that postsyntactic properties of structures do indeed have an effect on agreement. Specifically, both Arregi and Nevins (2012, 81–88) and Bhatt and Walkow (forthcoming) argue (on quite different grounds) that agreement proceeds in two steps: agreement is established in the syntax, but implemented in the postsyntactic component, with the potential to be affected by information only available at this point in the derivation. We propose that the agreement asymmetry observed in (26) and (27) is due to this two-step procedure. The main motivation in the works cited above for splitting agreement into a syntactic step and a postsyntactic one is to account for phenomena that bear the structural signature of syntactic Agree, yet actual feature valuation is affected by postsyntactic operations (impoverishment in Arregi and Nevins 2012, and linearization in Bhatt and Walkow, forthcoming). This is, we claim, what accounts for the differing behavior of the article in (26) and the first adjective in (27): although they are in parallel structural configurations relevant for agreement in the syntax, the article, but not the adjective, is subject to postsyntactic displacement that alters this configuration and thus has an effect in the postsyntactic implementation of agreement. In particular, attachment of the article to the adjective in the first conjunct in (26) alters the locality relations with its potential agreement controllers in such a way that its feature values are copied from its (postsyntactic) sister adjective instead of the noun.

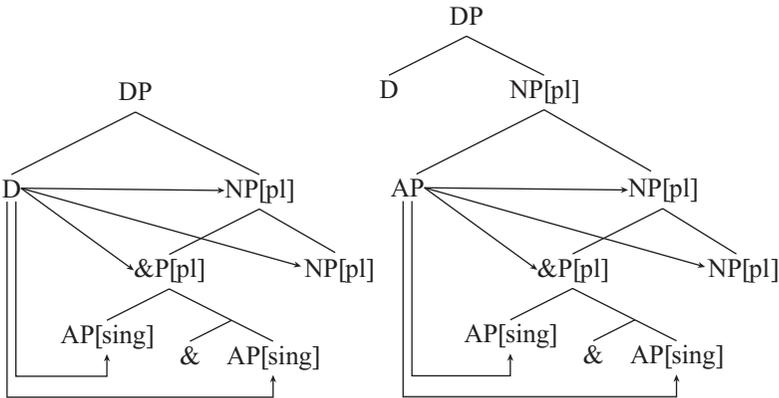
Before we spell out the details of our analysis, we need to make explicit our assumptions about the syntax of coordination, which is in part responsible for the mismatch in number between the coordinated singular adjectives and the plural head noun observed in (26)–(27). First, we assume an asymmetric analysis of coordination where a coordinating particle heads a phrase that we label “&P”; the coordinated elements fill the specifier and complement positions of this head (Munn 1992, Johannessen 1993, and much subsequent work). The conjoined adjectives in (26)–(27) thus have the following structure in the syntax:



This entire phrase occupies the same position as AP modifiers—that is, it is adjoined to NP (see below for detailed structures). Second, &P undergoes DP-internal agreement with the head noun, in the manner specified below for DP-internal modifiers. Thus, &P in (26)–(27) is specified as masculine plural. On the other hand, the phi-feature values of each conjoined adjective are determined by agreement resolution within coordination (Corbett 1983), which in these examples results in masculine singular.²⁰ This accounts for the number mismatch mentioned above. Finally, lowering, as a postsyntactic operation, is not subject to Ross’s (1967) Coordinate Structure Constraint, which accounts for the attachment of the article onto the first conjoined adjective in (26).

Our specific implementation of the two-step procedure for agreement is as follows.²¹ An agreement controller is a *probe* (in the sense of Chomsky 2000) with unvalued phi-features. A probe establishes an *Agree-Link* relation with suitable *goals* (elements with matching features that might be valued or not). Crucially, Agree-Link is an abstract relation between two nodes, and does not effect feature valuation (this is accomplished by postsyntactic Agree-Copy, as discussed below). In DP-internal agreement, a probe establishes Agree-Link with all phi-feature-bearing elements in its c-command domain (this is Multiple Agree, in Hiraiwa’s (2001) sense; see also van Koppen 2005 for Multiple Agree in coordinate structures). In the Bulgarian examples above, the article in (26) and first adjective in (27) establish the following Agree-Link relations (denoted by arrows):²²

(29) *Agree-Link relations in (26) and (27)*

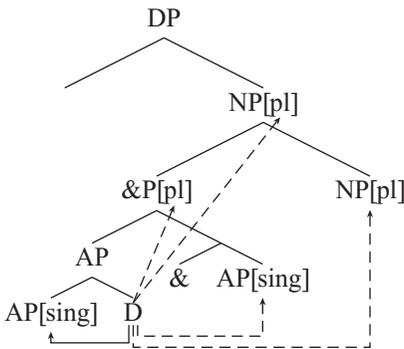


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In both examples, the probe is agree-linked with plural goals (NP and &P) as well as singular goals (the AP conjuncts). Feature valuation is accomplished by *Agree-Copy* in the postsyntactic component, which copies feature values from the goal to the c-commanding probe. In cases with more than one goal agree-linked to a probe, features from the closest goal are copied, where *closest* is defined by standard locality conditions stated in terms of c-command and dominance (Fitzpatrick 2002 and references cited there): given a node x that c-commands nodes y and z , y is closer to x than z iff y c-commands or dominates z . In (27) (see rightmost tree in (29)), the closest goal to the topmost AP probe is its sister NP, which results in plural agreement. In effect, this analysis imposes standard locality conditions on Agree in the postsyntactic component, rather than the syntax: the probe is agree-linked with several goals in the syntax, and the most local one is selected postsyntactically by Agree-Copy.

This separation of agreement into syntactic Agree-Link and postsyntactic Agree-Copy correctly predicts singular agreement on the article attached to the first conjunct in (26). As shown in (29), the D probe in (26) is agree-linked with the same goals as the topmost adjective in (27). However, in the postsyntactic component, lowering alters the structure by attaching D to the leftmost conjunct.

(30) *Structure of (26) after lowering*



This in effect undoes the Agree-Link relations between the D probe and all goals except for the leftmost AP conjunct, since the latter is the only goal c-commanded by D (this is indicated in (30) by dashed vs. solid lines). As a consequence, Agree-Copy, which applies after lowering, copies the feature values from this AP, and D surfaces with singular number.

Thus, the crucial difference between the leftmost adjective in (27) and the article in (26) is that the structural position of the latter is changed in the

postsyntactic component, which alters the locality relations relevant to Agree-Copy. Therefore, we contend, the phi-featural asymmetry observed in (26)–(27) is not a sign that the Bulgarian definite article does not agree; rather, it is a consequence of differences in the postsyntactic derivation of articles and adjectives that have an effect in the way that agreement is implemented in the postsyntactic component.

As in Arregi and Nevins 2012 and Bhatt and Walkow, forthcoming, the analysis detailed above is based on the idea that feature valuation is (at least in some cases) postsyntactic. However, there are important differences between the three analyses. One of these differences has to do with the location of Agree-Copy in the postsyntactic derivation. In our analysis of DP-internal agreement in Bulgarian, Agree-Copy applies after lowering, and the fact that the former is defined in purely hierarchical terms of c-command and dominance suggests that it precedes linearization, as proposed in Arregi and Nevins 2012. On the other hand, feature valuation in Bhatt and Walkow, forthcoming, is sensitive to linear order and therefore must apply after linearization. Whether the three analyses can be put together into a more comprehensive theory of agreement phenomena is a question that we leave for future research, but we note here that these differences in analysis are to a great extent due to the fact that they are designed to account for different phenomena: multiple agreement with absolutive and dative arguments in Basque in Arregi and Nevins 2012, closest conjunct agreement in Hindi in Bhatt and Walkow, forthcoming, and agreement fed by postsyntactic lowering in Bulgarian in the present chapter. It thus might well be the case that feature valuation is not a single operation and is in fact distributed in different stages of the postsyntactic derivation, with the concomitant expectation that crosslinguistic differences might be due to variation in the application of this postsyntactic process. In this light, it is worth noting that even within a uniform empirical domain, namely, closest conjunct agreement, the recent literature (van Koppen 2005; Bhatt and Walkow, forthcoming; Marušič, Nevins, and Badecker, forthcoming) reveals variation across languages (or even within a single language) in the factors that determine feature valuation (c-command, dominance, linear order, or even feature specificity in vocabulary entries).

12.5 Conclusion

We have shown that the Basque clitic system, with a three-way case distinction available among its clitics, nonetheless abandons the full utilization of such distinctions in a specific morphosyntactic context, namely left-adjacency to the auxiliary root. The fact that ending up in this highly “contingent”

environment nonetheless trumps the otherwise applicable decision based on closest matching feature specifications constitutes an argument that neutralization may occur during VI as a consequence of how exactly specificity is evaluated. The necessity of such context sensitivity as an early step in eliminating candidates for VI can then be extended to Bulgarian, in which the four-way gender-number distinction among allomorphs of the definite article is nonetheless jettisoned given a categorical context variable with a specific phonological shape. This analysis of sensitivity of allomorph selection to phonological form—while perhaps seemingly “Talmudic” in terms of its overall point about the details of a very specific DM-internal mechanism—is based on potentially important empirical observations that only arise within the context of a theory, and we wish to reflect on how incremental advances of this sort are necessary to constantly reevaluate how Vocabulary Insertion—arguably the singly most irreducible property of DM—works in its gory details. As vocabulary entries are one of the most variable aspects of human language, one does not always come across cases that decidedly favor one formulation over another. Nonetheless, a focus on the specific properties of how disjunctive ordering is determined is among the many steps necessary as part of the overall broad research program pioneered by Morris Halle and Alec Marantz, the goal of which is to examine the organization of the morphological component in terms of computations on representations enacted by mechanisms that are distributed and shared across various modules of the grammar.

Notes

*Thanks to Boris Harizanov, Vera Gribova, Peter Svenonius, and other participants at the Stanford Workshop on Locality and Directionality at the Morphosyntax-Phonology Interface, and to the members of GELA-Rio for excellent discussion. Special thanks to the editors, Ora Matushansky and Alec Marantz, for their encouragement and for organizing this endeavor.

1. One of Kiparsky’s subsequent breakthroughs, along similar lines, is found in Kiparsky 1982, in which intrinsic ordering is sought between pairs of rules based on their properties such as sensitivity to derived environments, word boundaries, and so forth, thereby constituting a *cluster* of properties that, by hypothesis were ordered into relative strata. It is this latter strategy that is pursued in its application to the organization of the morphological component in Arregi and Nevins 2012.

2. There may be examples in the literature of extrinsically ordered vocabulary entries but they are usually not accepted as optimal analyses, whereas in phonology extrinsic ordering in some cases continues to be irreducible.

3. In other words, there is no need for a back-formation analysis of *self-destruct* (Aronoff 1976, 27–28), which simply receives the elsewhere allomorph. Surprising confirmation of the analysis in the text comes from the lyrics to the song “As I Destruct”

by Threat Signal (http://www.youtube.com/watch?v=zuYRul_8W9o), which employ the verb in question in an unaccusative usage, where v^* is not present.

4. We assume that passive *destroyed* (not **destructured*) contains transitive v^* . This can be implemented in terms of a head Voice distinct from and higher than v^* that is responsible for the syntactic presence of the external argument in actives and its absence in passives, as well as other systematic differences between passive and active configurations (Kratzer 1996; Collins 2005; Pykkänen 2008; Harley 2013).

5. Except otherwise noted, all Basque data are from our own fieldwork. In representing Basque sentences, we use orthographic conventions that are standard in the dialectological literature. We have accordingly adapted the orthography of examples whose sources do not use these conventions. For ease of exposition, all auxiliaries in the Basque examples are given in italics, and their component morphemes are separated by spaces. In addition, they are given in their surface form in isolation. Where relevant, they are followed in parentheses by the form that results from morphophonological processes that apply across word boundaries.

6. Several processes, some of which are described below, can alter the relative position of these morphemes.

7. On the absence of third-person (absolutive) proclitics, see Arregi and Nevins 2012, 52–56.

8. Furthermore, the allomorphs of T (8) and (9) are specific to auxiliaries with Ergative Metathesis or Doubling—that is, these forms are conditioned on the presence of an ergative (as opposed to absolutive) clitic in proclitic position, which shows that the proclitic is ergative even at the point of Vocabulary Insertion when the form of T is determined.

9. Ergative and Dative Doubling are not as well described as Ergative Metathesis, and it is possible that their incidence in dialectal variation in Basque verbal morphology is underreported. One indication that this might be the case is the fact that Ergative Doubling (as opposed to Metathesis) is specifically proscribed against in Batua, the standard dialect. For instance, it is listed together with other “common errors” at several points in Zubiri and Zubiri 2012 (e.g., common error #5 on p. 473 and #3 on p. 481).

10. For ease of exposition, we implement these entries in terms of informal reference to features (e.g. “first,” “singular”) instead of binary features such as [\pm participant] and [\pm singular]. These details are not important for the discussion.

11. Note that linearization-dependent allomorphy—where neutralization is not necessarily even at stake—is found in many languages with proclisis/enclisis alternations, such as Paduan (see Poletto 2000, 51–55; Cardinaletti and Repetti 2008; and references cited there) and Valencian Catalan (Todolí 1992).

12. In Arregi and Nevins 2012, 117–124, we propose a different analysis in which, taking advantage of the fact that Basque proclitic entries such as (11a) must make reference to the category feature of the following morpheme (T), category features are privileged over other features in determining competition at Vocabulary Insertion. Although the analysis works for Basque pronominal clitics, it does not extend to the case of Bulgarian definite articles (section 12.3 below). We would like to thank Vera Gribanova for helpful discussion of this point.

13. All Bulgarian examples are from Harizanov and Gribanova 2011, unless otherwise noted.

14. See also Sadock 1991, 117–120, for similar patterns in Macedonian, with respect to both the position of the definite article and its allomorphy.

15. We adopt a traditional structure for adjectival modification where AP is an adjunct to NP (see Dost and Gribanova 2006 for arguments specific to Bulgarian). Embick and Noyer (2001) assume a structure where NP is the complement of A (Abney 1987). The main reason for this seems to be their hypothesis that lowering can only adjoin a head to the head of its complement. However, Embick and Noyer (2001, section 7.2) relax this condition on lowering in order to account for cases where the target of this operation is clearly not the head of the complement of the lowered head. Furthermore, in the specific case of Bulgarian, the article attaches to the first adjective in examples with coordinated adjectives ((26) below), which, even under Abney's (1987) analysis, is not in any clear sense the head of the complement of D. This raises interesting questions about the workings of lowering that go well beyond the scope of the present chapter.

16. According to Bontcheva and Kilbury 2003, some animate-denoting nouns that do not end in *-o*, such as *atashē* 'attaché', seem to be exceptions, since they take the neuter allomorph *-to*. However, they trigger neuter agreement in modifying adjectives (Boris Harizanov, personal communication), which entails that they are in fact neuter (with respect to grammatical gender, which mismatches natural gender), and thus selection of the neuter allomorph of the article is expected. On the other hand, plural numerals that end in *o* (e.g., *sto* 'hundred') are genuine exceptions, since they take the stress-attracting allomorph *-té* (Scatton 1984, 171) instead of the expected *-to*. In terms of the analysis proposed below, we assume that these idiosyncratic exceptions are due to an additional vocabulary entry for *-té* contextually specified for these hosts. We would like to thank Vera Gribanova, Boris Harizanov, and Ora Matushansky for bringing these data to our attention.

17. We only provide examples of articles attaching to nouns here. See Harizanov and Gribanova 2011 for relevant examples of noun modifiers, and for further illustration of the generalizations with nouns.

18. Bulgarian neutralizes gender distinctions in the plural.

19. In the first two entries, “/–V/” is taken to mean ‘ends in V’.

20. Although resolution in coordination is normally understood as operating “bottom-up” (the features on &P are determined by the features on coordinated elements), we assume that resolution rules are neutral in this respect, and can thus be used in a “top-down” fashion. Note that agreement resolution in (26)–(27) could also result in either or both conjoined adjectives being plural. The presence of singular agreement on both conjoined adjectives in (26)–(27) has a distributive effect on the meaning of these DPs, paraphrasable as ‘the (friendly) Bulgarian *nation* and the (friendly) Russian *nation*’ (not *nations*). It is not clear to us at this point whether this means that agreement can have semantic effects, or whether it calls for a change in the structure of coordination assumed here.

21. See below for brief comparison and discussion of differences between our account of agreement and the analyses in Arregi and Nevins 2012 and Bhatt and Walkow, forthcoming.

22. These structures abstract away from agreement relations established by D in (27) (which work the same way as in (26)) and by &P (which agrees with its sister NP). Note also that the features on &P and the conjuncts are only available after feature valuation in the postsyntactic component. We specify them in (29) for ease of exposition. Both AP and &P are phrasal probes. Although probes are normally assumed to be heads (e.g., Chomsky 2000), we assume that phrasal probes are possible (Carstens 2012). Under a traditional adjunction analysis of adjectival modification, where the agreeing adjective is inside an AP adjoined to the NP containing the agreed with noun, this assumption is necessary (at least for DP-internal agreement), unless one adopts Baker's (2008, chap. 2) proposal that agreement is possible when the goal c-commands the probe. Furthermore, in the case of coordinated APs in (29), the probe must be the plural &P, which is phrasal, not the singular As contained in it.

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