

MARKEDNESS AND AGREEMENT¹

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ABSTRACT

This paper presents an account of the interpretation of unmarked verb forms in which the entries of unmarked forms are uniformly unspecified for agreement features. The entries of impersonal verbs directly sanction agreement-neutral syntagmatic structures. However, the entries of unmarked personal verbs sanction structures with negative agreement values, as a consequence of an inflectional blocking principle that preserves paradigmatic contrasts by ‘inferring’ values in the mapping from lexical entries to syntagmatic structures. The interpretation of an unmarked form thus reflects the opposition of marked forms in its paradigm.

1. INTRODUCTION

The forms or exponents that realise unmarked agreement features often have a dual status in inflectional systems. In the constructions traditionally classed as personal, verb forms that realise third person, singular number, nominative/absolute case and neuter gender require compatible agreement ‘controllers’. Yet in impersonal constructions the same forms or exponents may signal the relaxation of agreement demands. These elements thus alternate between a distinctive interpretation in personal constructions and a neutral interpretation in impersonal constructions.

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Present indicative forms in German provide a familiar illustration. The exponent *-t* expresses 3sg agreement demands in a personal form like *spricht* 'speaks' but signals a lack of agreement in the impersonal *graut* 'dreads'. In the case of auxiliaries, a single form may alternate between personal and impersonal interpretations. The German passive auxiliary *wird* 'be' requires a 3sg subject when it takes a personal complement, as in *Er wird freigelassen* 'He is being released'. Yet *wird* is subjectless when it takes an impersonal complement, as in *Heute wird nicht gearbeitet* 'There is no working today'. Past indicative forms in Russian show a similar alternation. The exponent *-o* expresses neuter singular agreement demands in a personal form like *upalo* 'fell' but again signals a lack of agreement in the impersonal *svetalo* 'dawn broke'. The past auxiliary *bylo* likewise selects a neuter singular subject when it takes a personal complement like *interesnoe* 'interesting', but is subjectless when it takes an impersonal complement such as *skučno* 'boring'.

Neither the personal nor the impersonal interpretation of unmarked forms is problematic in isolation. The personal interpretation is standardly described by associating a verb form with agreement features, such as [NUM SG], [PER 3RD] and [GEND NEUT], and requiring compatibility between these features and the features of its syntactic subject. Conversely, the impersonal use of an unmarked form is described by associating the verb with no subject selection properties and hence with no subject agreement features. The descriptive challenge for theories of agreement lies in explaining how and why a single exponent or form may alternate between these interpretations.

Approaches that describe agreement properties in terms of unstructured atomic values like '3RD', 'SG' or 'NEUT' provide no formal basis for the fact that it is 3sg forms, rather than 1pl or 2pl forms, that alternate between personal and impersonal interpretations. The context-dependence of this alternation presents a further challenge. Nonfinite complements like *freigelassen* and *gearbeitet* cannot plausibly be assigned agreement features. Hence the agreement properties of *wird freigelassen* and *wird gearbeitet* must be associated with the auxiliary *wird*. In any lexicalist approach, the agreement features of *wird* must be specifiable independently of the syntagmatic context in which *wird* occurs. Yet the *interpretation* of

these features appears to correlate with the status of the complement of *wird*. In short, the properties that *realise* the features assigned to a lexical form depend systematically on the syntagmatic context in which the form occurs.

1.1. *The paradigmatic dimension*

The problems posed by unmarked forms are attributable to general features of the post-Bloomfieldian analytical tradition. The use of essentially taxonomic feature systems provides no formal distinction between traditionally unmarked values like '3RD', 'SG' or '-' and marked values like '1ST', 'PL' or '+'. Moreover, although most contemporary accounts follow Saussure 1916 in according primacy to synchronic over diachronic description, they largely suppress the *associative* or *paradigmatic* dimension that Saussure viewed as a central component of a synchronic system. The purely syntagmatic accounts developed within the post-Bloomfieldian tradition accordingly lack any general mechanism for relating syntagmatic interpretation to paradigmatic factors.

The more dynamic conception of grammatical systems developed by European structuralists provides an instructive contrast. The asymmetrical analysis of agreement features proposed in Jakobson 1932 offers a formal basis for the alternation between unmarked and unspecified values. The central asymmetry in this system resides in the fact that unmarked properties are principally characterised by the 'failure to signal' a marked '+' value and thus may be realised either by a negative '-' value or by no value at all. These two realisations cover the interpretive range of unmarked forms. The negative value characterises the distinctive personal interpretation, while the unspecified realisation characterises the non-agreeing impersonal interpretation.

The recognition of a paradigmatic dimension also suggests an account of context-dependency; one which proceeds from the observation that an unmarked verb form is only syntagmatically distinctive in environments where it is paradigmatically contrastive. A form like *wird* only imposes distinctive agreement demands in a syntagmatic context in which other forms of the lexeme *werden* may impose different agreement demands. In the personal construction

wird freigelassen, *wird* contrasts with 2sg *wirst* and 2pl *werdet*, since *wirst freigelassen* requires a 2sg subject and *werdet freigelassen* demands a 2pl subject. On the other hand, *wird* is not paradigmatically contrastive in *wird nicht gearbeitet*. Rather, marked forms of *werden* simply disallow an impersonal complement, as reflected by the outright unacceptability of **wirst nicht gearbeitet* or **werdet viel gearbeitet*. In short, *wird* receives a distinctive 3sg interpretation where it competes with other forms of *werden*, but is unspecified for agreement features in the absence of paradigmatic competition.

The paradigmatic and syntagmatic dimensions can be bridged by extending the morphological blocking principle proposed in Aronoff 1976 to regulate competition between inflected forms. A blocking principle that mediates between lexical entries and the structures they determine provides a general means of associating a single entry with multiple syntagmatic interpretations.

To make this proposal more concrete, let us adopt some explicit – and largely conservative – assumptions about the relation between lexical entries and the syntagmatic structures they ‘sanction’ or ‘determine’. Let us first adopt the standard assumption that the feature information in an entry is preserved in any structure that it determines. Hence an underspecified structure can only be determined by a comparably underspecified entry. Unmarked forms that support an unspecified interpretation must therefore have lexical entries that lack marked agreement features. These unmarked entries directly sanction agreement-neutral structures in impersonal contexts.

In isolation, underspecified entries may also, incorrectly, sanction agreement-neutral structures in personal contexts. A distinctive interpretation is attributable in these contexts to an inflectional blocking principle. The underlying intuition is that blocking preserves paradigmatic contrasts by ‘inferring’ values in the mapping from lexical entries to the syntagmatic structures that they determine. More precisely, any structure sanctioned by an unmarked entry *E* is assigned values that conflict with the entries that compete with *E* in its lexical paradigm. These inferred values project paradigmatic contrasts onto a syntagmatic analysis by ensuring that each (preterminal) structure is sanctioned by a unique entry.

An entry that is unmarked for agreement features will thus sanction an agreement-neutral structure in contexts where it is unopposed, but will sanction a structure with negative agreement values where it competes with other entries.

1.2. *The interpretation of unmarked forms*

The body of this paper illustrates how Jakobsonian markedness and inflectional blocking may interact to determine the interpretation of unmarked finite verb forms in German, (GER), and Russian, (RUS). The present section first reviews some examples that establish the dual status of unmarked forms.

Since most discussions of agreement focus on personal constructions, these provide a useful point of departure. The unmarked verbs in (1) require agreeing 3sg and neuter singular subjects.

- (1) a. *Das Kind* *spricht* *leise.* (GER)
 the child.3SG.NEUT.NOM speaks.3SG softly
 ‘The child speaks softly.’
 b. *ono* *upalo.* (RUS)
 3sg.NEUT.NOM fell.SG.NEUT
 ‘It fell.’

Personal passive constructions show a similar pattern. The past passive auxiliaries *wurde* and *bylo* in (2) again require agreeing nominative subjects. Moreover, as (2c) shows, *bylo* also requires a neuter singular subject when it occurs with a personal adjectival complement.

- (2) a. *Der Brief* *wurde* *gestern* *zugestellt.* (GER)
 the letter.3SG.MASC.NOM was.3SG yesterday delivered
 ‘The letter was delivered yesterday.’
 b. *moloko* *bylo* *vypito.* (RUS)
 milk.SG.NEUT.NOM was.SG.NEUT drunk.SG.NEUT
 ‘The milk was drunk.’
 c. *pis'mo* *bylo* *interesnoe* (RUS)
 letter.SG.NEUT.NOM was .SG.NEUT interesting.SG.NEUT
 ‘The letter was interesting.’

The obvious but significant point illustrated in (1) and (2) is that the 3sg and neuter singular forms behave like other verb forms in personal constructions. In particular, these unmarked forms impose person, number, gender (and case) requirements that a syntactic subject must satisfy.

Nevertheless, unlike other verb forms, unmarked forms may occur in a variety of impersonal constructions in which agreement demands are neutralised. Russian contains a variety of 'nontransitive' verbs that express natural processes or external forces and occur exclusively in impersonal 3sg and singular neuter forms. The example in (3a) exhibits the present and past indicative forms of *svetaet* 'to dawn'. The subjectless verb *tošnit* 'to be ill' in (3b) likewise occurs in the 3sg and neuter singular, while *bylo* occurs with the impersonal complement *skučno* 'boring' in (3b).

- (3) a. *svetaet/svetalo*. (RUS)
 dawns.3SG/dawned.SG.NEUT
 'Dawn is/was breaking.'
- b. *ikh tošnit/tošnilo ot zapakha*. (RUS)
 they.ACC nauseates.3SG/nauseated.SG.NEUT from smell
 'The smell makes/made them nauseous.' (cf. Babby (1994: 26))
- c. *skučno bylo rabotat' na fabrike*. (RUS)
 boring.IMPER was.SG.NEUT work in factory
 'It was boring to work in the factory.'

German also exhibits a range of subjectless constructions containing unmarked verb forms. Although weather verbs generally require expletive subjects, nontransitive predicates can be productively derived through the passivisation of intransitive verbs. The resulting impersonal passive participles, such as *gekämpft* in (4b), permit only 3sg forms of the passive auxiliary *werden*. Passive participles of verbs that govern a dative complement, such as *danken* 'thank' in (4b), are also impersonal. A few basic lexemes, such as *grauen* 'dread' in (4c), exhibit the same pattern.

- (4) a. *Während der Verhandlungen wurde weiter gekämpft*. (GER)
 during the negotiations was.3SG further fought
 'There was continued fighting during the negotiations.'

2. MARKEDNESS AND BLOCKING

The examples in section 1.2 highlight two salient features. First of all, the interpretation of unmarked forms and exponents may *alternate*. Moreover, this alternation ranges over values that Jakobson classifies as *unmarked*. Verb forms that may realise marked agreement features do not show a comparable alternation. The marked forms of impersonal verbs like *grauen* or *tošnit'* are simply illformed. Marked forms of auxiliary verbs, such as plural *byli* or *wurden*, are likewise incompatible with impersonal complements like *skučno* or *gedankt* in (3c) and (4b).

The present account captures this alternation by associating unmarked forms with entries that are underspecified for agreement features and then 'filling in' negative values in personal structures. The basic assumptions of this analysis are summarised in (5) and elaborated in Sections 2.1–2.4.

- (5) a. Agreement features may be analysed in terms of oppositions between marked and unmarked properties. These oppositions are asymmetrical in the sense that marked forms are defined by the presence of a '+' value, while unmarked forms are defined by the absence of a '+' value, not by the presence of a '-' value. Forms that realise only unmarked values may thus remain literally unspecified for agreement features.
- b. There is a fundamental distinction between the *entries* assigned to forms, and the *structures* that they 'sanction', 'determine' or 'license'. More concretely, following description-based frameworks such as LFG (Kaplan and Bresnan 1982) and HPSG (Pollard and Sag 1994), lexical entries are assigned sets of grammatical constraints, which 'describe' or 'are satisfied by' preterminal structures in a syntagmatic analysis.
- c. The structures sanctioned by an underspecified entry are restricted by an inflectional variant of a morphological blocking principle. This principle bars feature neutralisation in the mapping from entries to structures by preventing entries from determining any structure that is sanctioned by a more informative entry in its inflectional paradigm.

The components in (5) are all reasonably familiar, in one form or another. Most approaches to morphosyntax incorporate some type of blocking principle. The distinction between underspecified entries and more highly specified structures in (5b) likewise corresponds to the familiar contrast between ‘underlying’ and ‘surface’ representations. Constraint-based approaches clarify this distinction by treating entries and structures as different sorts of objects. However, for the most part, one can think of entries as underspecified structures, as in GPSG (Gazdar et al. 1985).

2.1. *Morphosyntactic markedness*

The Jakobsonian notion of markedness is the only component in (5) that lacks a transparent analogue in most contemporary accounts. This section introduces the relevant notion of markedness and distinguishes it from some separate but overlapping senses in which the term ‘markedness’ is currently applied within the domain of morphology. A category or form class may be characterised as *typologically* unmarked if it has a high frequency of occurrence across languages or if its presence in a grammatical system implies the presence of some other category or class. A particular form within an inflectional paradigm of a given lexeme may also be described as *morphotactically* unmarked if it preserves the stem that functions as a base for other forms of the paradigm.

However, it is a third – essentially *morphosyntactic* – sense of markedness that is of importance in the present context. This notion, deriving largely from the work of Jakobson 1932, 1936, classifies feature systems into asymmetrical oppositions between marked and unmarked values.²

Jakobson’s 1932 study of the Russian conjugational system opens with a classic discussion of morphosyntactic markedness, which he repeats in his 1936 study of the declensional system.

² The morphotactic sense of markedness supplies the link with the other notions, insofar as morphologically unmarked forms canonically realise morphosyntactically unmarked values, and show a high frequency of occurrence, at least in the languages that Aronoff (1994: 34), extending Bloomfield 1933, terms ‘word-based’.

When a linguist investigates two morphological categories in mutual opposition, he often starts from the assumption that both categories should be of equal value, and that each of them should possess a positive meaning of its own. Category I should signify α while Category II should signify β , or at least I should signify α and II the absence or negation of α . In reality, the general meanings of correlative categories are distributed in a different way. If Category I signals the existence of α , then Category II does not signify the existence of α , i.e. it does not say whether α is present or not. The general meaning of the unmarked Category II, as compared to the marked Category I, is restricted to the lack of “ α -signalization”. (Jakobson 1932: 1)

The central claim in this passage is that distinctive oppositions are fundamentally asymmetrical. This asymmetry resides in the fact that a category which is marked for a property α is opposed by a category that merely fails to signify α . To make this point more concrete, let us take α to be a feature with a marked value ‘+’. Then the marked [α +] category is not directly opposed by [α –], which signifies the negation of α , nor by the underspecified category that explicitly signifies the absence of α . The opponent of [α +] is, rather, a general category that is principally characterised by the fact that it does not – and, indeed, may not – signal a marked value for α .

To formalise ‘the lack of α -signalization’, we must first determine where unmarked categories are defined. Jakobsonian markedness is often interpreted as characterising syntagmatic structures.³ On this interpretation, unmarked forms are taken to lack values or ‘marks’ for features that define marked forms. Thus the realisation of the properties ‘third person’, ‘singular’ and ‘neuter’ would lack values for the features that characterise marked agreement properties. One problem with this interpretation is that it does not allow us to distinguish the distinctive and impersonal realisations of unmarked forms. For example, if ‘third person’ and ‘singular’ properties are uniformly realised by the absence of a feature values, there is no straightforward way to distinguish the agreeing 3sg interpretation of *spricht* in (1a) from the impersonal interpretation of *graut* in (4c).

³ See, for example, the analysis of case agreement proposed in Neidle 1982 and the discussion in Andrews (1982: 498).

The lexical entries of marked forms can, however, remain unspecified for agreement features, provided that personal and impersonal interpretations are associated with distinctive entries or realisations.⁴ In the first case, an unmarked personal form is associated with paradigmatic constraints that prevent it from combining with subjects that are compatible with a marked form in its inflectional paradigm. In the second case, the unmarked form determines a syntagmatic realisation that conflicts with each marked form in its paradigm. The difference between these alternatives reflects two conceptions of blocking. The first treats blocking as a paradigmatic wellformedness condition that is independent of the syntagmatic properties of a form. The second expresses the effects of paradigmatic competition by inferring values on syntagmatic realisations. It does not matter which we choose, as the present account is fully compatible with either alternative.

The alternation between unspecified and negative values then follows from the assumption that all marked values are represented in lexical entries and hence that only negative values may be inferred in the entry-to-structure mapping. It is not necessary, or, for that matter, desirable, to insist that *only* marked values are present in lexical entries, as in approaches that adopt a version of ‘radical underspecification’ (Archangeli 1988). The key point is that the *morphosyntactic properties* (Matthews 1991) traditionally classified as ‘marked’ are assigned marked values for the features that define those properties, whereas the properties ‘third’ ‘singular’ and ‘neuter’ are assigned unmarked values. This requirement is satisfied by the componential analyses in (6).

(6) a.

NUMBER	PLU
Plural	+
Singular	–

⁴ In systems that allow feature deletion in the entry-to-structure mapping, the unmarked category can be represented by a negative value, which determines a negative or absent realisation, depending on the rules that govern deletion.

(6) b.

PERSON	1	2
1 in(clusive)	+	+
2 ex(clusive)	+	-
2nd	-	+
3rd	-	-

c.

GENDER	MASC	FEM
Masculine	+	-
Feminine	-	+
Neuter	-	-

The number analysis in (6a) identifies plural as the marked property in a binary system and singular as the unmarked property. The person analysis in (6b) follows Anderson 1992, Steele 1995 and Wunderlich and Fabri 1995 in distinguishing first from non-first and second from non-second person. The third person property is the unmarked member of this system. The gender analysis in (6b) likewise distinguishes masculine from non-masculine and feminine from non-feminine genders. As in Jakobson (1960: 142), neuter is identified as the unmarked target gender.⁵

The unmarked status of third person, singular number and neuter gender is the only significant aspect of these analyses. The present account is compatible with any feature decomposition that maintains the unmarked character of these properties. Thus, for example, one could substitute either of the person analyses in (7) for the

⁵ Corbett 1991 argues at some length for a general distinction between controller and target genders. Whereas Jakobson proposes generally consistent analyses of person and number properties, he identifies neuter as the unmarked gender in the verbal system but as the marked gender in the nominal system (Jakobson (1932: 7), Jakobson (1960: 141)).

analysis in (6b). The analysis in (7a), which Jakobson 1932 assigns to Russian verbs, introduces a primary opposition between personal (first and second) and non-personal (third), and a secondary opposition between first and non-first person.

(7) a.

PERSON	PER	I
1st	+	+
2nd	+	–
3rd	–	–

b.

PERSON	PER	1	2
1in	+	+	+
1ex	+	+	–
2nd	+	–	+
3rd	–	–	–

The primary advantage of the analysis in (7a) is that it allows first and second person to be characterised as a natural class of [PER +] properties. Yet the elimination of a hearer-oriented [2] feature loses the non-second class, along with the distinction between first person inclusive and exclusive in (6b). All three distinctions are expressed by consolidating [PER] and [2] in (7b).

It does not matter for present purposes how we analyse the opposition between first and second person, provided that third person is the unmarked property. The same point applies to analyses of gender, which might substitute or add a feature representing a notion such as animacy. As long as neuter remains the unmarked property, nothing hinges on the precise analysis of marked elements. This reflects a general feature of componential analyses, namely that ‘the arguments for the decomposition of feature values into marks seem on the whole more difficult to motivate than those

for considering one value of a grammatical feature as unmarked' Andrews (1982: 498).⁶

It is perhaps worth remarking that componential analyses do not represent impersonal interpretations, which signify the lack of agreement rather than an agreement property *per se*. Componential analyses also do not enumerate the properties that can be defined by leaving one or more features unspecified, as these neutral properties are properly associated with individual lexical entries.⁷

2.2. *Entries and structures*

To clarify how the components in (5) determine the interpretation of unmarked forms, we must be more explicit about the relation between entries and structures. This section outlines a standard conception of this relation, with an emphasis on underlying intuitions rather than execution details.

Following accounts such as Anderson 1992 and Aronoff 1994, lexical entries are represented as pairs (φ, C) , where φ is a phonological form (rendered orthographically), which is associated with the distinctive properties represented by C . In accordance with assumption (5b), C is not a structure, but rather a set of lexical constraints that describe a preterminal structure. Structures are conventionally regarded as graphs, which may be represented as attribute-value matrices (AVMS).

Thus the plural form *upali* 'fell' would be associated with the (partial) entry and structure in (8).

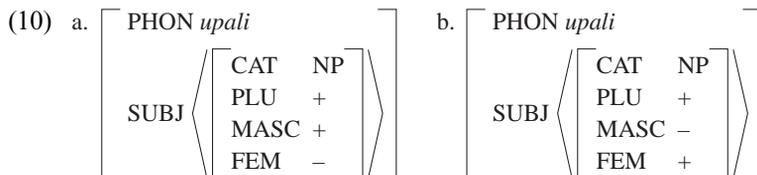
⁶ Though patterns of principled resolution, of the sort described in Corbett 1983, 1991, might be taken to provide a measure of independent support for the decompositions in (6). For example, the observation that 'the first person takes precedence over the second and the second over the third' (Corbett 1983: 176–7), exhibits a priority that is consistent with the claim that first person is the most marked and third person the least marked property.

⁷ Entries are also the appropriate place to describe natural classes of feature specifications. For example, the fact that the feature [1] is only distinctive for non-second verb forms in German (Wunderlich and Fabri 1995) may be expressed by requiring that every verb entry specified for [1] is also specified as [2 –]. Then [2 –] will define the natural class that syncretises first and third, whereas [1 –] implies a [2 –] value that uniquely defines the third person property.

impersonal verbs. Personal verbs select a singleton SUBJ value, for example ‘⟨NP⟩’, while impersonal verbs select the empty list ‘⟨ ⟩’. To simplify the matrix in (9a), subject selection is represented under the SUBJ value, separate from agreement properties. Nevertheless, it is important to remember that the agreement properties in (9a) are associated with the SUBJ element, as represented in (9b).

The simple entries and structures in (9) support a correspondingly straightforward notion of compatibility. Constraint-based formalisms such as LFG and HPSG adopt a model-theoretic perspective in which the correspondence between entries and structures is expressed via a *satisfaction* or *description* relation. A standard description relation first establishes a relation between the atomic value names and feature names in a constraint language and the corresponding atomic structures and attributes. This correspondence provides the base for a general recursive definition of satisfaction. However, there is again nothing to be gained in the present context by repeating this procedure; interested readers may consult Kaplan and Bresnan 1982 or Carpenter 1992.

All that is really important is that a syntagmatic structure must at least preserve the information in an entry in order to satisfy that entry. The structure in (9b) thus satisfies the entry in (9a) in the intended sense. Yet given that (9a) does not specify values for [MASC] and [FEM], it is also satisfied by structures that fill in values for these features. In particular, the information in (9a) is also preserved in the masculine structure in (10a) as well as in the feminine structure in (10b).



It is thus necessary to specify which of the structures described by a set of constraints count as proper ‘solutions’. In LFG, this distinction is enforced by a minimality condition which, in effect, bars structures from bearing values that are not required by some

constraint. This condition nicely captures the intuition underlying the use of underspecification to indicate that particular features are not distinctive. A similar condition is provisionally expressed by the realisation relation in (11) (which suppresses the obvious requirement that *S* must directly dominate the terminal φ).

(11) SYNTAGMATIC REALISATION (Preliminary Version)

A structure *S* *realises* an entry (φ , *C*) iff *S* is the least informative structure that satisfies *C*.

The intuitive notion ‘least informative structure’ can be modelled formally by the subsumption relation (Shieber 1986), though in all of the cases we will consider the realisation of an entry will be transparent. For example, (9b) is the realisation of (9a), since (10a) and (10b) both contain the feature-value pairs in (9b), along with additional pairs that are not in (9b).

The entry and structure assigned to *upalo* in (12) provide an instructive contrast with (9). The least informative structure described by (12a) is the impersonal structure in (12b). Yet this structure fails to indicate that *upalo* is interpreted as neuter singular, not as neutral for agreement features.

(12) a.

	SUBJ	PLU	MASC	FEM
upalo	<NP>			

b. $\left[\begin{array}{ll} \text{PHON} & \textit{upalo} \\ \text{SUBJ} & \langle \{ \text{CAT NP} \} \rangle \end{array} \right]$

The underspecified entry assigned to unmarked *upalo* in (12a) presents a familiar problem. How do we prevent underspecified forms from encroaching on the syntagmatic environments reserved for more specific forms? Stated this way, the problem posed by underspecification is essentially paradigmatic in character and calls for a paradigmatic mechanism which, like the morphological blocking principle in Aronoff 1976, regulates competition between lexical alternatives.

2.3. *Paradigmatic blocking*

Aronoff's initial proposal, summarised in the passage below, attributes the non-occurrence of forms like **glorious + ity* to the prior existence of a 'synonymous' underived form like *glory*.

Blocking is the nonoccurrence of one form due to the simple existence of another . . .

We may assume that the lexicon is arranged according to stems, and that for each stem there is a slot for each canonical meaning, where "canonical" means derived by regular rules . . . Let us furthermore assume that for each stem there cannot be more than one item in each meaning slot. (Aronoff (1976: 42–44), emphasis in original)

Although Aronoff was principally concerned with derivational formations, blocking effects are, if anything, more robustly attested in inflectional paradigms. The extension of blocking to inflectional formations is all the more natural if we consider that Aronoff's use of 'stem' above corresponds to his later use of 'lexeme' (Aronoff (1994: 40ff)). A lexeme-based blocking principle also suggests a narrow construal of Aronoff's reference to 'meaning', in terms of what Jakobson calls 'grammatical meaning'. This construal captures the fact that systematic cases of blocking invariably apply within rather than across lexemes.⁸ To the extent that grammatical meaning is encoded by distinctive features, componential analyses permit an effective blocking mechanism.

Intuitively, the blocking principle must prevent an underspecified entry from being realised by any structure that is also described by a more informative entry in its paradigm. One way of achieving this is by inferring negative agreement values on the realisation of *upalo* in (13b).

⁸ The lack of cross-lexeme blocking is sometimes attributed to the claim that there are no true synonyms in language. However, if there are in fact no synonyms, synonymy cannot serve as the trigger for morphological blocking.

(13) a.

	SUBJ	PLU	MASC	FEM
upali	⟨NP⟩	+		
upal		–	+	–
upala		–	–	+
upalo				

b.

	PHON	<i>upalo</i>								
SUBJ	<table border="1"> <tr> <td>CAT</td> <td>NP</td> </tr> <tr> <td>PLU</td> <td>–</td> </tr> <tr> <td>MASC</td> <td>–</td> </tr> <tr> <td>FEM</td> <td>–</td> </tr> </table>	CAT	NP	PLU	–	MASC	–	FEM	–	
CAT	NP									
PLU	–									
MASC	–									
FEM	–									

The negative values in (13b) can be attributed to the opposition of marked values in the more informative entries in (13a), much as in the specificity-based approaches of Andrews 1982, 1990 and Blevins 1995. The inferred values prevent the unmarked entry for *upalo* from sanctioning an underspecified structure that neutralises paradigmatically contrastive features. The inferred [MASC –] value preserves the contrast with masculine *upal*, the [FEM –] value maintains the contrast with feminine *upala*, and the [PLU –] value preserves the contrast with plural *upali*. Moreover, the structure in (13b) maintains a qualified form of minimality, in that it is the least informative structure that contrasts with each of the marked alternatives in (13a). Removing any of the values inferred on (13b) will yield a structure that is admissible in a syntagmatic context that allows, and in some sense ‘calls for’, the realisation of one of the marked entries in (13a).

Yet as the term ‘blocking’ implies, blocking effects may also be attributed to ‘negative’ constraints that in some way restrict the formation or distribution of a form. For example, given that the relevant notion of opposition is lexeme-, and indeed paradigm-internal, we can associate each unmarked entry with a set of constraints that describe its more specific opponents. To avoid encroaching on *upali*, the realisation of *upalo* must not satisfy

[PLU +]; to avoid encroaching on *upal* and *upala*, it must not satisfy either [MASC +] or [FEM +]. Hence the set {[PLU +], [MASC +], [FEM +]} concisely specifies the ‘negative’ constraints that the realisation of *upalo* must be prohibited from satisfying.

The present account is compatible with either a constructive or negative construal of blocking. However, for concreteness, the following analyses provisionally adopt the first alternative, in which values are inferred on the realisations of unmarked entries to preserve lexical contrasts. An applicable notion of ‘contrast preservation’ can be captured by requiring, as in (14), that each realisation of an entry must conflict with the more specific entries in its inflectional paradigm.⁹

(14) SYNTAGMATIC REALISATION (Revised Version)

A structure *realises* an entry $E = (\varphi, C)$ whenever it is the least informative structure that satisfies C and conflicts with each more specific entry in the paradigm containing E .

The principle in (14) determines the negative values in (13b). Since this principle infers values solely to induce a conflict with the paradigmatic opponents, no values are inferred on a realisation that *independently* conflicts with the opponents of its sanctioning entry. Hence no values are inferred on the realisations of the marked entries in (13a), which already determine contrasting realisations. For similar reasons, no values are inferred on the impersonal structure in (15b).

(15) a.

	SUBJ	PLU	MASC	FEM
svetali	⟨ ⟩	+		
svetal		–	+	–
svetala		–	–	+
svetalo				

b. $\left[\begin{array}{l} \text{PHON } \textit{svetalo} \\ \text{SUBJ } \langle \rangle \end{array} \right]$

⁹ There is no guarantee that realisations will be unique in general, though all of the realisations considered below are

As in (13a), the unmarked entry *svetalo* is opposed by marked plural, feminine and masculine entries in (15a). However, each of these entries specifies a subject agreement value that conflicts with the empty list associated with the basic lexeme *svetat'*. Since each marked opponent of *svetalo* thus already conflicts with the realisation in (15b), no negative values need be – or may be – inferred. Hence the realisation in (15b) remains unspecified for agreement features.

The unmarked values that conflict with the realisation in (15b) also determine the unsatisfiability of each of the marked entries in (15a). However, the inconsistency of these entries plays no direct role in the present account. It is not necessary to construct or compare the structures determined by opposing entries to determine the status of *svetalo*, as the relevant relation is between the entries themselves and the realisation of *svetalo*. As in Andrews 1990, the notion of paradigmatic competition developed in the present account is thus not transderivational in nature.

Similar considerations account for the contrast between 3sg personal *spricht* 'speaks' and impersonal *grauf* 'dreads'. The negative values on the realisation of unmarked *spricht* in (16b) again maintain a contrast with the marked values in the more informative entries in (16a).

(16) a.

	SUBJ	PLU	1	2
spreche	⟨NP⟩	–	+	–
sprichst		–	–	+
sprechen		+		–
sprecht		+	–	+
spricht				

b.

PHON <i>spricht</i>									
SUBJ	<table border="1"> <tr> <td>CAT</td> <td>NP</td> </tr> <tr> <td>PLU</td> <td>–</td> </tr> <tr> <td>1</td> <td>–</td> </tr> <tr> <td>2</td> <td>–</td> </tr> </table>	CAT	NP	PLU	–	1	–	2	–
	CAT	NP							
	PLU	–							
	1	–							
2	–								

Like *spricht* in (16a), *graut* is literally unspecified for agreement features in (17a). However, like *svetalo* in (15), the entry for *graut* determines the unspecified realisation in (17b) because its empty SUBJ value conflicts with the marked agreement values of each opponent.

(16) a.

	SUBJ	PLU	1	2
graue	⟨ ⟩	–	+	–
graust		–	–	+
grauen		+		–
graut		+	–	+
graut				
graut				

b. $\left[\begin{array}{l} \text{PHON } \textit{graut} \\ \text{SUBJ } \langle \rangle \end{array} \right]$

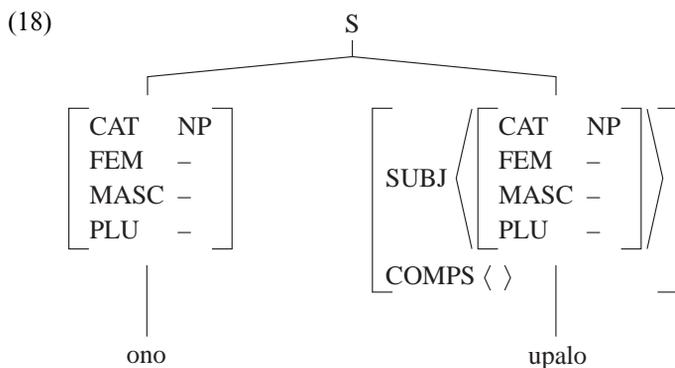
2.4. Auxiliaries and syntagmatic dependency

As in previous cases, the contrast between the unmarked personal form *spricht* in (16) and the impersonal form *graut* in (17) reflects contrasting patterns of paradigmatic competition rather than different lexical specifications for agreement features. As in Andrews 1990, this competition involves just a sanctioning entry, a set of opponents, and a single preterminal structure. Unlike Optimality accounts (Prince and Smolensky 1993), the use of competition does not involve the enumeration or evaluation of alternative structures, even at the preterminal level. In particular, the satisfiability or admissibility of paradigmatic alternatives does not have to be determined.

The present account is local in another significant respect. Whereas previous proposals, such as Andrews 1990 or Blevins 1995, impose wellformedness conditions on full syntactic analyses containing underspecified structures, (14) constrains only the structures directly sanctioned by an underspecified entry. The highly

circumscribed nature of this competition is evidenced by the fact that the preceding analyses all refer to a preterminal structure in isolation, without mentioning any surrounding syntagmatic context. This reflects the fact that the interpretation of these entries can be determined without reference to the external requirements imposed by valence or concord constraints. In the case of non-auxiliary verbs, the effects of blocking can thus be ‘cached out’ in advance, providing an interpretation of Aronoff’s ‘meaning slot’ as a ‘syntagmatic realisation’.

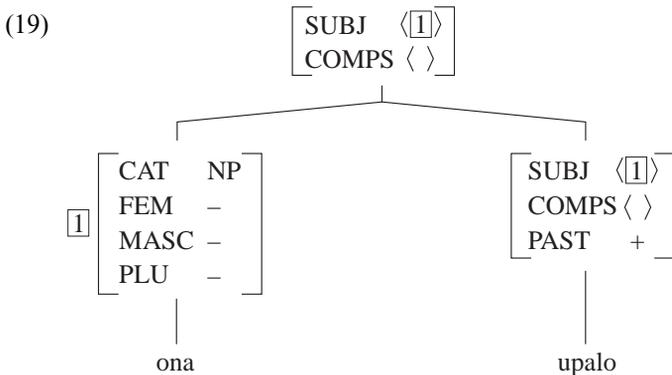
This consequence is implicit in the analyses assigned to paradigms in Section 2.3. For example, the realisation of *upalo* in (18) does not depend on the features of the subject *ono* ‘it’, but rather on the features of the opposing preterite forms of *upast*. The status of the sentence in (18) does of course depend on the compatibility of the subj features of *upalo* and the features of *ono*, though this compatibility is not directly regulated by the entry for *upalo*. Hence, substituting a masculine, feminine or plural subject in (18) does not affect the realisation of *upalo*, but instead yields a sentence which is inconsistent, as a consequence of the mechanism that regulates valence.



For present purposes, it does not matter how precisely we regulate valence demands in (18). The essential point is that the consistency of the SUBJ value of *upalo* and the features of *ono* is determined by an independent constraint. It is immaterial whether this constraint takes the form of the Control Agreement Principle of GPSG

(Gazdar *et al.* 1985), the functional annotations of LFG (Kaplan and Bresnan 1982), the Valence Principle of HPSG (Pollard and Sag 1994), a non-destructive set membership relation (Dalrymple and Kaplan (to appear)) or a semi-destructive subsumption relation (Blevins (to appear)). Purely for expositional convenience, let us assume that valence is regulated via unification or structure-sharing, as in standard models of LFG and HPSG. Specifically, let us assume that the SUBJ and COMPS values of a verb are identified with their syntactic subjects and complements, as well as with the verb phrases and sentences that they head.

On these, relatively conventional, assumptions, the analysis in (18) can be represented more concisely as (19). The three occurrences of the boxed integer '1' in (19) represent token identity or structure-sharing, and identify the features of *ono* with the SUBJ values of *upalo* and its mother.



Adopting these familiar assumptions allows us to focus on the syntagmatic dependency that interacts most significantly with the blocking principle in (14). The interpretation of the unmarked entries in Section 2.3 depends on their subject selection. Personal entries are realised by structures with negative values, while impersonal entries are realised by structures with no agreement features.

The unmarked auxiliary verbs in Section 1.2 exhibit the same alternation between personal and impersonal interpretation as main verbs. Yet unlike main verbs, the subject selection of auxiliaries depends on the subject selection of their complements.

This dependency is expressed in (20) by identifying the subject value of an auxiliary with the subject value of its syntactic complement.

(20) (SUBJ) = (COMPS SUBJ)

As in Kaplan and Bresnan (1982: 206), this constraint is stated independently of the constraints that regulate valence, though it interacts with valence constraints. If we associate this constraint with the auxiliaries *werden* and *byt'*, their preterite forms will have the entries in (21).

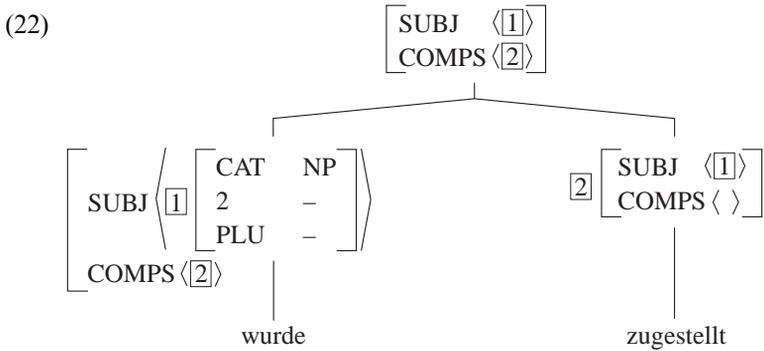
(21) a.

	SUBJ	PLU	1	2
wurdest	(COMPS SUBJ)	–	–	+
wurden		+		–
wurdet		+	–	+
wurde				

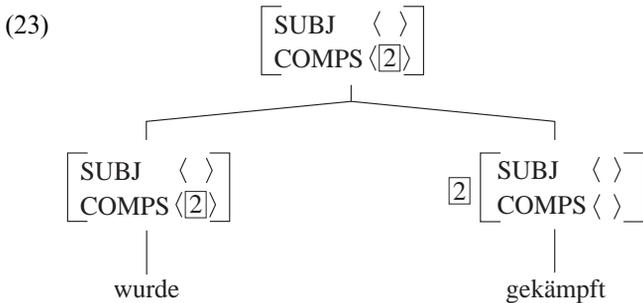
b.

	SUBJ	PLU	MASC	FEM
byli	(COMPS SUBJ)	+		
byl		–	+	–
byla		–	–	+
bylo				

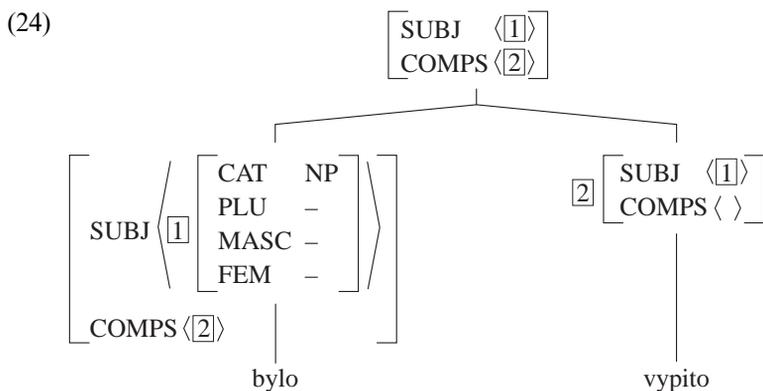
When unmarked *wurde* combines with a personal complement, such as *zugestellt* ‘delivered’ in (22), it shares the complement’s [CAT NP] demands, by virtue of the constraint in (20). To conflict with the opposing entries in (21), negative values for [PLU] and [2] are inferred on the realisation. In the absence of a marked first person opponent, *wurde* is compatible with a 1sg or 3sg subject.



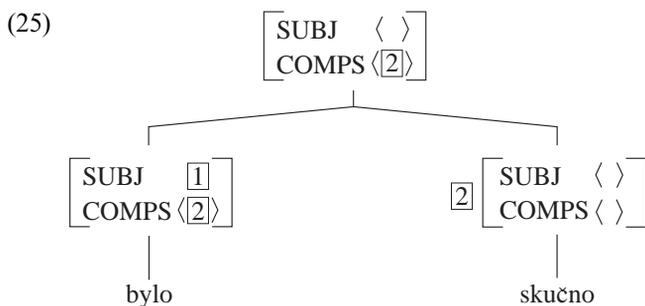
Yet when unmarked *wurde* combines with an impersonal complement, such as *gekämpft* ‘fought’ in (23), it shares the complement’s empty SUBJ value, again by virtue of the constraint in (20). This SUBJ value immediately conflicts with the subject agreement features of the marked entries in (21a). Thus no agreement values are inferred in (23), and the result is impersonal.



The dual interpretation of *bylo* is attributable to precisely the same factors. When *bylo* combines with a personal complement like *vypito* ‘drunk’ in (24), the resulting realisation requires negative values for gender and person agreement features to conflict with the marked entries in (21b).



However when *bylo* combines with an impersonal complement like *skučno* ‘bored’ in (25), it again acquires an empty SUBJ value that conflicts with the agreement specifications of the marked entries in (21b). Hence no agreement values need be inferred to satisfy the principle in (14).



3. CONCLUSIONS

From the present perspective, the interpretation of unmarked entries offers a window on the interaction of paradigmatic and syntagmatic dimensions. The analyses in Section 2.3 indicate how a blocking principle may determine the dual role of unmarked entries by inferring feature values that project paradigmatic contrasts onto syntagmatic structures. The analyses in Section 2.4 suggest how syntagmatic contexts may influence the realisation of

auxiliary verbs. The resulting account suggests a basis for the fact that the entries of unmarked personal forms pattern with the entries of impersonal forms, while their realisations pattern with the realisations of marked entries.

The components of this account are largely drawn from standard contemporary approaches. The individual analyses exploit the clarity of a description-based approach, while demonstrating the independence of such an approach from unstructured values and simple destructive operations. Componential analyses are likewise carried over from existing accounts. These analyses extend description-based formalisms by expressing natural classes that are not captured by taxonomic feature analyses. Substituting componential analyses for atomic values like '3RD' 'SG' or 'NEUT' is nevertheless fully consistent with feature-based approaches, as standard notions of constraint satisfaction apply directly to systems in which '+' and '-' remain the only atomic values.

The use of an asymmetrically structured value space represents the main innovation in this account, as this distinguishes specifications, such as '[PLURAL +]' and '[SINGULAR -]', which are intertranslatable on other approaches. This use of markedness and paradigmatic opposition incorporates the conception of logical structure that Jakobson attributes to grammatical systems.

It has become quite clear to me that the most complicated systems of declension and conjugation, to mention only those two paradigms, display a clear and simple logic when they are properly decomposed into a hierarchical ensemble of pairs of marked and unmarked components in opposition to each other. (Jakobson 1984: 137)

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