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Agreement in Slavic[*]

1. Introduction

Agreement in Slavic has attracted and challenged researchers for many years. Besides numerous theses and articles in journals and collections on the topic, there are also several monographs, usually devoted to a single language, sometimes broader in scope.[1] One aim is to give a synthesis of this research, demonstrating both the complexity of the topic and the interest of some of the results (section 2). Such a synthesis is complicated by the liveliness of current work, which is both deepening our understanding of the scale of the problems and trying to bring formal models closer to being able to give adequate accounts of well-established phenomena. A further aim, then, is to outline this current work (section 3). Finally the paper suggests a prospective of promising and challenging directions for future research, some which arise naturally from the directions of earlier and current work, some which are less obvious, depending on cross-disciplinary collaboration (section 4). As preparation for the main sections, we first consider the terms we require and the advantages which the Slavic family provides for research on agreement.

ACC	accusative	N	neuter
AUX	auxiliary	NEG	negative
DAT	dative	NOM	nominative
DEF	definite article	NM.PERS	non-masculine personal
DU	dual	PL	plural
EMPH	emphatic particle	PST	past
F	feminine	POSS	possessive adjective suffix
FUT	future	Q	question particle
GEN	genitive	REFL	reflexive
INS	instrumental	SG	singular
M	masculine	1	first person
M.PERS	masculine personal	2	second person
n	total number of examples	3	third person

[1] These are Popov (1964), Vanek (1970), Skoblikova (1971), Crockett (1976), Corbett (1979a, 1983a), Iomdin (1990) and Schmidt and Lehfeldt (1995). I have made available a fuller bibliography on the topic, at: http://www.surrey.ac.uk/LIS/SMG/projects/agreement/agreement_bib_unicode.htm#Slavonic.

1.1. Basic definitions

Defining agreement is difficult (but see recent work noted in section 3.1 below). As Anderson (1992: 103) remarks: 'this is a quite intuitive notion which is nonetheless surprisingly difficult to delimit with precision'. Steele points to the 'systematic covariance between a semantic or formal property of one element and a formal property of another' (1978: 610). The essential notion is the covariance or matching of feature specifications between two separate elements, such as subject noun phrase and verb. We should then clarify whether the determination of the form of anaphoric pronouns falls within agreement. Barlow (1988/1992: 134-52; 1991) reviews the literature and concludes that there are no good grounds for distinguishing between agreement and antecedent-anaphora relations. Indeed, most mainstream work on agreement uses the term in this wider sense, to include pronouns, and we shall do so too. We shall call the element which determines the agreement (say the subject noun phrase) the **controller**. The element whose form is determined by agreement is the **target**. The syntactic environment in which agreement occurs is the **domain** of agreement. And when we indicate in what respect there is agreement, we are referring to agreement **features** (or **categories**). Thus number is an agreement feature, it has the **values** singular, dual, plural and so on. As these terms suggest, there is a clear intuition that agreement is asymmetric (a point taken up in section 2.4.1).

1.2. Variation across the Slavic family

We should consider briefly how Slavic agreement appears from a typological vantage, and then consider the range of possibilities within the family.

1.2.1. Agreement in Slavic from a typological viewpoint

From a broad typological viewpoint, the Slavic languages are very similar, showing the characteristics one would expect from conservative Indo-European languages. This is particularly true in respect of agreement, where they show just the traits one might consider typical from traditional works on agreement: obligatory agreement with the subject, agreement in gender and number within the noun phrase, and so on (a summary is given at the beginning of section 2). There is an extensive literature on agreement in Slavic, including several monographs (see the bibliography mentioned in footnote 1), and yet there is a good deal still to be done; suggestions for future directions are given in section 4. In fact, since the basics are well established, and moderately well understood, this makes the Slavic languages a good basis for taking our understanding of agreement further. Particularly since they provide the linguist with almost 'laboratory conditions'.

1.2.2. 'Laboratory conditions'

The challenge of humanities research is analysis in the face of an overwhelming number of variables. We shall see that in agreement, there are indeed substantial numbers of factors which can vary independently. Typically scientists then can take two approaches. One is idealization — eliminating some of the variables: we may deal with one language only, with a particular structure, with a particular genre. The second approach is to control for particular variables. The chemist can quite directly manipulate the variables in experiments. For linguists this is possible to some extent (in the way we choose the speakers we investigate, for example). An alternative approach here is to look for situations in which experimental conditions are provided for us (Pateman 1987: 258); for instance, sometimes a set of related dialects will provide variation in a particular factor of interest, so that we can see the results of manipulating a particular variable 'on the ground'.

The Slavic languages provide a remarkable laboratory, in two ways. First in terms of their structures. The categories we are discussing here show slight variation from language to language: if we find that a particular factor or variable is particularly important, then it may well be possible to find a Slavic language which has this factor and another language, for comparison, which does not. The second way in which the Slavic languages provide near laboratory conditions is in terms of their status. We have those with millions of monolingual speakers at one end of the scale, and at the other end we have Sorbian, all of whose adult speakers are bilingual (the great majority are speakers of Upper Sorbian, while the position of Lower Sorbian is grave).

2. The 'State of the Art'

We shall review the established generalizations which hold across the Slavic family. Typically we find agreement within the noun phrase in number and gender. Finite verbs generally agree with their subject in person and number. Past tenses are frequently formed with the so-called *l*-participle, which creates a more interesting situation: here the auxiliary verb shows agreement in person and number, while the participle shows agreement in number and gender. Some Slavic languages, such as Russian, use a null form for the verb 'be' in its present tense, so that the former participle is the sole form in the past tense; it may be said therefore that Russian verbs agree in person and number in the present, but in number and gender in the past. Various types of pronoun, including the relative pronoun, also show agreement with their antecedents, in number and gender.

The description given so far covers a large proportion of the instances of agreement in Slavic — the more straightforward cases. However, there are several instances in which more than one agreement form may be found. The different constructions have in common a choice between agreement determined by the form, **syntactic agreement,** or by the meaning, **semantic agreement**. As we shall see, the choice may be influenced by the agreement controller (section 2.1) and by the target (section 2.2). We show that the various influences on the choice operate independently of each other

(section 2.3), before going on to review what is established about agreement features (section 2.4). And then, in section 2.5, we consider constructions which do not fall readily within the description given above, and which are surprising typologically.

2.1. The effect of controllers

When there is a choice of agreement, this is normally made possible by the controller. There are certain controller types (within Slavic and beyond) which regularly permit agreement choices, and we discuss these in section 2.1.1. And then there are certain factors which range over different controller types, and which favour one or other agreement choice; we treat these in section 2.1.2. ('Favouring' a particular choice may include favouring it to such a degree that the alternative is excluded in some circumstances.)

2.1.1. Controller types

Agreement rules are frequently formulated as though a controller's features were constant, that is, that all agreements will be identical. In fact, we regularly find agreement choices: a given controller allows two (occasionally three)[2] agreement possibilities. It is important to be clear about the possible meanings of choice here. The Russian noun *para* 'couple', as we shall see in section 2.2.1.1, takes feminine singular and plural agreements. In one sense, then, it allows a choice of agreement, in a way that a noun like *kniga* 'book' does not. However, for any given target the form is determined; the speaker does not have a choice. Other controllers, like Russian *vrač* 'doctor' when denoting a woman, allow two possibilities for the same target type, thus the predicate may be masculine or feminine. For both controllers simple-minded agreement rules would be inadequate.

The choices arise from a mismatch of semantic and formal properties of the controller. The controller may have the semantics expected of a particular number or gender but a form which is normally associated with a different specification. Controllers which allow agreement choices may be classified as in Table 1.

Table 1. Types of controllers which induce agreement mismatches

controller type	example
lexical item(s)	Serbo-Croat *deca* 'children'
lexically restricted construction	masculine nouns quantified by numeral 'two', 'three' or 'four' in Serbo-Croat
construction	conjoined noun phrases

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[2] Instances where there are three possibilities are discussed briefly in section 4.1.4.

This classification turns out to be too crude, as we shall see in the following sections. There are indeed individual lexical items which induce agreement choices, like Russian *para* 'couple', which denotes a plurality but has the form of a singular noun. There are also large sets of such items, for instance Russian nouns like Russian *vrač* '(female) doctor', that is nouns for professions, denoting women but having the morphology of masculine nouns. Then there are constructions which are lexically restricted; this is clear for the Serbo-Croat example given in the table. There are also more open-ended quantified expressions. Next there are constructions like the associative where the head noun may be drawn from a large subset of those denoting humans, hence it is lexically restricted but the restrictions are quite generous. Finally there are construction types whose structure invokes agreement options, but which appear not to be lexically restricted, such as conjoined noun phrases. (Even here, however, we find that the noun phrases which are conjoined tend to be headed by noun phrases of the same type, all animate or all inanimate.) Thus the types given in Table 1 represent pointers for the following sections, but the main conclusion is that controllers which allow agreement choices range all the way from unique lexical items to open-ended constructions.

2.1.1.1. Lexical items

We might expect that the features associated with a given lexical item in a given use could be stated just once, and that the problem would then be to formulate appropriate agreement rules. However, there are several lexical items for which this is not the case, but which allow agreement choices; such items are known as 'hybrids'. These may relate to number, or gender, or both, and they arise from a mismatch between the meaning of the noun and its morphological form.[3] An example of a number mismatch has been mentioned already, namely Russian *para* 'couple', which has the morphology of a singular, but denotes more than one. As we shall see (section 2.2.1.1), it takes singular agreements, except of the personal pronoun. Another example of a number mismatch is provided by Old Church Slavic *družina* 'company' and similar nouns, which most often take singular attributive modifiers and plurals in other positions (see Huntley 1989: 24-25 for details). For gender mismatches we may take the Czech *děvče* 'girl (colloquial), which takes neuter agreements, except for the personal pronoun, which may be neuter or feminine (Vanek 1970: 87-88). There are also various honorific titles, which take feminine and masculine agreements in Polish, neuter and feminine in Russian. A considerably researched type of controller is Russian nouns like *vrač* 'doctor', when denoting a female. Since such nouns have the morphology typically associated with masculines, but denote females, a complex pattern of masculine and feminine agreements occurs (Corbett 1991: 183-184, 231–232 and sources

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[3] For additional data and examples of items discussed in this section see Corbett 1983a; for titles pp. 23-24, for Serbo-Croat *gazda* 'landlord, master, boss' pp. 14-17 and references there, for Serbo-Croat *deca* 'children' pp. 76-88, for Russian *značitel´noe lico* 'important person' pp. 25-26, and for *vrač* '(female) doctor' pp. 30–39.

there). And then there are nouns which show gender mismatches in the plural: Serbo-Croat *gazda* 'landlord, master, boss' and similar nouns, which are now established as masculine in the singular, but which allow masculine and feminine agreements in the plural; and Polish nouns like *łajdak* 'wretch', which take a combination of non-masculine personal and masculine personal agreements (Corbett 1991: 233-236 and references there). A truly remarkable instance is Serbo-Croat *deca* 'children' which takes feminine singular, neuter plural and masculine plural agreements. All these items show patterns of agreement which are in accord with the Agreement Hierarchy (section 2.2.1.1).

Two general points are worth noting. First, these examples may comprise individual lexical items (even single items in the use of a particular individual, as in the case of the special agreements found with *značitel´noe lico* 'important person' by Gogol´), or relatively large numbers of nouns, as in the case of nouns like Russian *vrač* '(female) doctor'. In the latter situation, though the system of agreements may be the same, we must not assume that the actual frequency of the different options will be the same from item to item. Quite the opposite: there is evidence that *vrač* '(female) doctor' and *buxgalter* '(female) accountant' behave rather differently. And second, while the reason for these agreement choices is to be found in a mismatch between semantics and morphology, such a mismatch is not a sufficient condition for an agreement choice. Thus Russian *djadja* 'uncle' (like similar nouns) denotes a male but belongs to the morphological class whose members are usually feminine. The semantics overrides the morphology, such that the noun is straightforwardly masculine; for agreement purposes it behaves just like *otec* 'father'.

2.1.1.2. Honorifics

The use of address forms is well known, and there is an extensive literature. When we have a pronoun like Russian *vy* 'you' used in this way, there are interesting agreement effects. Since the pronoun is plural, it takes some plural agreements; as shown by the verb in this Russian example:

(1) vy   xot-ite ...
     2PL   want-2PL
     'You (polite) want ...'

However, the pronoun is being used to address a single individual, and some singular agreements are found (as usually in the Russian long form adjective):

(2) vy   molčaliv-aja
     2PL   silent-SG.F
     'You (polite) are silent'

A comparison of the agreement patterns in the different Slavic languages will be given in section 2.2.1.2. In a sense this is still an example of an agreement choice being lexically determined, but it is a

special use of the lexical item. We can extend the claim about honorifics, in that not only pronouns are affected. This latter usage is syntactically rather different and will be considered in section 2.1.1.5.

2.1.1.3. Quantifier phrases, especially numeral phrases

In this section we examine a type of phrase where the choice of predicate agreement in Slavic shows considerable variation. We shall concentrate here on numeral phrases; data on other quantifiers in Russian will be given in Table 14 below. Often two forms are possible. This is more like a construction than the instances considered in sections 2.1.1.1 and 2.1.1.2, but the actual quantifier involved has a dramatic effect on the agreement found. At this point we shall continue discussing controller types. (The choice is also affected by controller factors: animacy of the subject, and its position relative to the predicate; for now we abstract away from those and concentrate on the substantial influence of the quantifier.) Table 2 gives data on predicate agreement with noun phrases headed by various numerals in the different Slavic languages.

Table 2. Predicate agreement with numeral phrases in Slavic

	'2'	'3'	'4'	'5'-'10'	'100'
West Slavic:					
Czech	PL	PL	PL	sg	sg
Slovak	PL	PL	PL	PL/sg	sg
Sorbian	DUAL	PL	PL	PL/sg	sg
Polish	99% PL (n=123)[4]	91% PL (n=43)	||100% PL (n=15)	7% PL (n=68)	
South Slavic:					
Old Church Slavic	DUAL	PL	PL	(PL)/sg	
Bulgarian	PL	PL	PL	PL	PL
Macedonian	PL	PL	PL	PL	PL
Serbo-Croat	97% PL (n=735)	89% PL (n=249)	83% PL (n=133)	7% PL (n=1161)	
Slovene	DUAL	PL	PL	sg	sg
East Slavic:					
Ukrainian	83% PL (n=208)	79% PL (n=150)	74% PL (n=34)	38% PL (n=45)	21% PL (n=14)
Belarusian	92% PL (n=219)	78% PL (n=67)	63% PL (n=16)	39% PL (n=49)	|| 50% PL (n=2)
Russian	86% PL (n=541)	77% PL (n=247)	76% PL (n=68)	50% PL (n=220)	

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[4] Thus in the texts scanned there were 123 examples of phrases with the numeral 'two' controlling predicate agreement, of which 99% (rounded to the nearest whole number) showed plural agreement.

In Table 2, DUAL (where available) and PL(URAL) represent semantic agreement. When a cell has a single entry (e.g. 'PL'), this indicates that the form is used in the majority of instances, though not necessarily all. Thus in Slovene, the plural is normal with 'three' and 'four', but the singular may be used in expressions of time. Where we do not have more precise data, these few exceptions are ignored (time expressions also account for some of the singular forms with 'two', 'three' and 'four' in other languages). A gap indicates a lack of data. The judgements and statistics in the table come from Suprun (1969: 175–187) unless otherwise stated, and were discussed in Corbett (1983a: 220–224).

In Slovak, with the numerals 'five'-'ten' the plural is used with masculine personal forms and otherwise the singular; according to Suprun, exceptions account for less than one per cent of the examples. *Sto* '100' takes the singular (Ján Bosák and Ľubomir Ďurovič personal communications). Sorbian preserves the dual; otherwise agreements are broadly similar to those of Slovak (Suprun 1963a). The Polish figures are calculated from the data given in Suprun (1963b); instances where the numeral itself is in the genitive are excluded. The final Polish entry is for numerals of all types from 'five' up to '999'. Suprun also gives seven examples of agreement with phrases with *tysiąc* '1,000', all singular. Suprun (1961: 81-86) provides data on Old Church Slavic: for 'five–ten', he has ten examples of singular predicates, six of plural predicates and two where one source has singular agreement and another has plural. According to Večerka (1960: 197), however, in the Gospels the singular is used in the overwhelming majority of instances, hence the plural entry is bracketed. Suprun also gives an example with *sъto* '100', one with *tysęšta* '1,000' and one with *tьma* '10,000'; all three have singular agreement. The Serbo-Croat statistics are taken from Sand (1971: 51-52, 73); the figure for *dva* 'two' includes examples with *oba* 'both'; 'two', 'three' and 'four' include compound numerals ending in 'two–four' and the remaining figure is for all other numerals above 'four'. Slovene judgements are from Vincenot (1975: 196) and Suprun (1969, 176). The final entry for Ukrainian includes examples with *sorok* '40' as well as *sto* '100'.

Let us turn to the pattern revealed by Table 2. The South Slavic languages Bulgarian and Macedonian differ from the others in using the plural with all numerals above 'one' in almost all instances. Other Slavic languages use both singular and plural. The remaining South Slavic languages (Old Church Slavic, Serbo-Croat and Slovene) use the dual (when available) with phrases with the numeral 'two'; otherwise they show a strong preference for plural agreement for quantified phrases with the numerals 'two'-'four', and for singular agreement (though with varying degrees of tolerance towards the plural) with numerals from 'five' and above. In several languages the distinction between 'two'-'four' on the one hand, and 'five' upwards on the other, is fairly sharp. However, the statistics for Serbo-Croat and Polish show that here the division is not absolute. The overall picture is clear: the higher the numeral the more likely is singular agreement. The form which is semantically justified becomes more likely the lower the numeral. This is clearly true in the straightforward cases like

Slovak. The statistical data too support this claim, apart from two minor inconsistencies (indicated in the table with ‖). These two cases need not concern us as the sample size for both numerals is small. Even apart from these, it is not the case that there is a statistically significant difference between every pair of successive numerals in each language. However, statistical advice is that the pattern is so overwhelming that statistical tests of significance are superfluous. Apart from the two exceptions mentioned, the rank order of the numerals according to the frequency with which they take plural agreement is the same in the different languages and this order is inversely related to numerical value.

Given that the lower the numeral is, the more likely it is to take semantically justified agreement, why should this be? The groups which we quantify with larger numbers are the groups which are less individuated and conversely are more likely to be viewed as a unit. For this reason they are more likely to be encoded grammatically as a noun. And as a result, when there is a grammatical choice, the higher are more likely to be treated somewhat more like nouns. Russian *četyre knigi* 'four books' is 'more plural' than *pjat´ knig* 'five books', and in a sense *tri knigi* 'three books' is 'more plural' than *četyre knigi* 'four books'; we are better able to individuate three items than four (Corbett 2000: chapter 6). An extended discussion of possible structures giving rise to these agreement options with some numerals in different Slavic languages can be found in Franks (1995: 93-219); he adopts a GB approach, drawing on Pesetsky (1982) and Babby (1987).

2.1.1.4. Associatives

An interesting construction variously called the 'group plural', 'representative plural' and the 'associative' (the term we shall used) has been highlighted by Moravcsik (1994). Typically we find forms consisting of a nominal plus a marker, which denote a set comprised of the referent of the nominal (the main member) plus one or more associated members: Hungarian *János-ék* (*János-*ASSOCIATIVE) 'John and his family/friends'. Slavic has no special marker of this type but some languages allow the use of the ordinary plural morphology with this same effect. A particularly interesting case for us is found in the Talitsk dialect of Russian (Bogdanov 1968). In this dialect, a plural verb can be used with a singular noun phrase, to indicate reference to a person or persons besides the one indicated directly. That is to say, the associative is marked not by a marker on the nominal, but by plural agreement:

(3) Góša   pr´ijéxal´i !
     Gosha   arrived.PST.PL[5]
     'Gosha and his family have arrived'

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[5] Bogdanov's transcription has been transliterated in these examples.

This was used when the named person arrived with his wife and children; the fact that more than just one person is involved is shown in this dialect exclusively by the agreement. (Bogdanov makes clear that these examples are not examples of honorific usage, and that there is a singular/plural opposition in examples like those given, the singular having the straightforward non-associative meaning.) This plural agreement does not extend into the noun phrase, and so conflicting agreements can be found in the same sentence:

(4) moj   brat   tam   tóža žýl´i
    my.SG   brother[SG] there also lived.PL
    'my brother and his family also lived there'

The question of different possible agreements with the same controller is one we return to in section 2.2.1.1.

Bogdanov (1968: 69-70) points out the possibility of this construction with a noun phrase headed by a third person pronoun:[6]

(5) on   tútyka fp´ir´ót   nas pr´ijéxal´i
    he   here   before   us   arrived.PL
    'he and his family came here before we did'

Thus again the range of possible controllers is quite large.

2.1.1.5. Respected nouns

As noted above, plural agreement may be the only indicator of honorific usage, as in this example of a maid talking in turn of her master and mistress:

(6) <<Mamen´ka plačut, — šepnula   ona   vsled uxodivšej Elene, a
    mother   cry.PL   whispered she   after   leaving   Elena and

    papen´ka   gnevajutsja ... >>
    father   be.angry.PL
    "Your mother is crying", she whispered after Elena, who was leaving, "and your father is angry
    ..."   (Turgenev *Nakanune,* 1860)

Here the plural verbs with singular subjects indicate that the speaker is showing respect for the people referred to. This demonstrates that in cases like this the controllers cannot be restricted to particular lexical items, but that a range of noun phrases may be involved. (For evidence that this construction

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[6] Here we are interested in the pronoun as the controller of the agreement. Bogdanov does not specifically state that this type of construction is not found with other pronouns, but the implication (and expectation) would be that such forms would be impossible. If so, at first sight, this would be a problem for the attempt to integrate constraints on possible numbers with the Animacy Hierarchy. The problem that associatives appear to pose for a typology of number systems is dealt with in Corbett and Mithun (1996).

follows the constraints of the Agreement Hierarchy, see Corbett 1983a: 24-25, and for sources on the construction in Belarusian, Czech, Polish, Slovak, Slovene and Ukrainian see 1983a: 41n8.)[7]

2.1.1.6. Conjoined noun phrases

An agreement controller consisting of conjoined noun phrases may well give rise to an agreement option. It may allow agreement with both or all the conjuncts, and it may allow agreement with just one conjunct. The latter type is frequent both in texts and in naturally occurring discourse. When agreement is with one conjunct it is almost always with the nearest. (As we shall see in section 2.5.3, some languages, exceptionally, allow agreement with the first conjunct when it is not the nearest.) Here is a typical example of agreement with the nearest conjunct from Russian:

(7) Teperˊ na nej by-l   sinij   kostjum   i   novaja
     now   on her be-PST[SG.M] (dark) blue dress(M)[SG] and new

     belaja   bluzk-a ...
     white   blouse(F)-SG.
     'She was now wearing a blue dress and a new white blouse ...'   (Vojnovič)

In this example the verb agrees just with the conjunct *sinij kostjum* 'blue dress', and the nearest conjunct is also the first. The more significant examples are those where the nearest are first are distinct. Here is a clear example from Cassubian (Stone 1993: 784):

(8) Odraz-a   i   strach   czierowô-ł   jego   postępkama
     revulsion.(F)-SG and fear(M)[SG] direct-PST[SG.M] his   actions
     'Revulsion and fear directed his actions.'

Here again the genders of the nouns make it clear that agreement is with the nearest. The alternative is for agreement to be with all the conjuncts, as in this Slovene example (Lenček 1972):

(9) Tonček   in   Marina   sta   prizadevn-a
     Tonček.M and Marina.F be.DU   assiduous-DU.M
     'Tonček and Marina are assiduous'

Agreement is with both conjuncts, and the gender and number resolution rules specify the form of the target as dual and, where appropriate, masculine. We discuss resolution rules in section 2.4.3 below. For many of the Slavic languages the number resolution rule simply specifies plural, and in some there

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[7] Wayles Browne points out that the construction is found in Kajkavian Serbo-Croat too (personal communication), as in the song:
   (i) Mamica   su   štrukl-e   pek-l-i
       Mummy   AUX.PL dumpling-PL bake-PST-PL.M
       'Mummy was baking dumplings.'

Note the masculine plural is used.

is no place for gender resolution since gender is not distinguished in the plural. More examples of agreement with the nearest conjunct and with all conjuncts can be found in section 2.2.1.1.

2.1.1.7. Comitative constructions

This construction together with alternative agreement possibilities is found in some but not all the Slavic languages. We may illustrate it from Belarusian (Bukatevič et al. 1958: 292):

(10) Dzed   z   unukam   laviŭ   rybu
     grandfather with grandson catch.PST.SG.M   fish
     'Grandfather and grandson were fishing'

(11) Brat   z   sjastroju pajš-l-i   ŭ tèatr
     brother with sister   go-PST-PL to theatre
     'Brother and sister went to the theatre'

The head noun in the nominative case may control the agreement ((10) — syntactic agreement) or there may be agreement with the expression as a whole ((11) — semantic agreement, as determined by resolution rules, discussed in section 2.4.3.4). As we might expect, semantic agreement is less likely with comitative expressions than with conjoined noun phrases, as shown by Russian data.

Table 3. Comparison of agreement with comitative phrases and
conjoined noun phrases in contemporary Russian[8]

	comitative phrases			conjoined noun phrases		
	SG	PL	%PL	SG	PL	%PL
literature	5	4	44	28	57	67
press	15	15	50	30	723	96

2.1.2. Controller factors

These are factors relating to controllers but which range over different controller types. Two are well established, and their interaction is also moderately well researched.

2.1.2.1. Animacy

There is a massive amount of evidence, primarily from text counts but also from work with consultants, that controllers referring to animates are more likely to take semantically justified

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[8] From Corbett (1983a: 154-155). The literary corpus consists of Panova's *Sputniki* (1946) and Nekrasov's *Kira Georgievna* (1961); the figures for the language of the press come from Graudina, Ickovič and Katlinskaja (1976: 31, 346). There is an unfortunate transposition of headings in my original table: the data are correct above. The difference between the two constructions is more marked than these figures suggest, since comitatives are almost entirely limited to animate noun phrases, and animacy, as we shall see, is a factor favouring semantic agreement. If the examples of conjoined noun phrases were restricted to animates, the percentage plural agreement would be higher.

agreement than are those referring to inanimates. The evidence comes from different Slavic languages, and involves various quantified expressions and conjoined noun phrases (for a survey and sources see Corbett 1983a: 110-132, 139, 143-146). To give one example, Patton examined a large corpus of 19th and 20th century Russian literary texts, and a sample from Pravda, for examples of predicate agreement with quantified subjects. From her data (1969: 35, 63, 148, 160) the following may be calculated:[9]

Table 4. The effect of animacy on agreement with quantified expressions in Russian

	SINGULAR	PLURAL	PERCENT PLURAL
ANIMATE	790	1293	62
INANIMATE	1047	740	41

We shall see further evidence for the effect of animacy in section 2.1.2.3. While animacy is firmly established as a controller factor, there is less work on how it might be subdivided. For instance, abstracts are less likely to control semantic agreement than are concrete noun phrases, as can be seen in agreement with conjoined noun phrases (Timberlake 1993: 865).

2.1.2.2. Precedence

There is also strong evidence that controllers which precede their targets are more likely to take semantically justified agreement than are those which follow (for the argument for treating this as a controller factor see Nichols, Rappaport and Timberlake 1980, and commentary in Corbett 1983a: 137, 154, 175). Again there is evidence from different Slavic languages, and it involves quantified expressions, conjoined noun phrases and comitative phrases (Corbett 1983a: 107-150 passim). To give just one part of the evidence: Sand examined a large corpus of Serbo-Croat texts (literature of the 1960s, non-fiction 1951-1968 and the newspaper *Politika* 1969-1970). The largest controller type investigated was the numerals from *pet* 'five' upwards. Table 5 has been drawn up from her data (1971: 73-75):

Table 5. The effect of precedence on agreement with quantified expressions
(involving '5' and above) in Serbo-Croat

	SINGULAR	PLURAL	PERCENT PLURAL
subject-predicate	249	61	20
predicate-subject	830	21	2

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[9] The effect of the calculation is to combine her main and secondary corpus and to eliminate examples with plural determiners (such as *èti* 'these', which make a plural predicate obligatory).

There will be further evidence for the effect of precedence in the next section 2.1.2.3. While it is easiest to show the effect of precedence in subject-predicate domains, with different types of controller subjects, it is also relevant to controllers of attributive modifiers.

2.1.2.3. The interaction of animacy and precedence

We have seen that controllers which refer to animates are more likely to take agreement forms with a greater degree of semantic justification than are those referring to inanimates. Similarly, controllers which precede their targets are more likely to take agreement forms with a greater degree of semantic justification than are those which follow. Since these two controller factors are independent, we can cross-classify for them. Table 6 records agreement with a set of quantifiers in a selection of Russian literary texts of the last two centuries (details in Corbett 1983a: 150-153.)

Table 6. Predicate agreement with quantified expressions in Russian

	ANIMATE			INANIMATE		
	SG	PL	%PL	SG	PL	%PL
subject-predicate	11	48	81	21	20	49
predicate-subject	24	23	49	70	18	20

Both animacy and precedence exert a major influence on the agreement form selected. The plural, the form with greater semantic justification, is more likely if the subject is animate and if it precedes the predicate. With both factors exerting an influence, the likelihood of semantic agreement is greatest, with neither factor it is lowest, and with just one it falls in the middle.

As similar pattern, though with different percentages, can be found with conjoined noun phrases. In table 7, the data are taken from modern literary texts, from Russian (1930-1979) and from Serbo-Croat (a corpus of short works by Ivo Andrić).[10]

Table 7. Predicate agreement with conjoined noun phrases

word order	subject type	ANIMATE			INANIMATE		
		SG	PL	% PL	SG	PL	%PL
subject-predicate	Russian	0	115	100	10	57	85
	Serbo-Croat	0	21	100	3	32	91
predicate-subject	Russian	14	75	84	82	32	28
	Serbo-Croat	7	16	70	46	16	26

It is evident that both factors favour resolution. When both are present, Russian and Serbo-Croat (in the samples here) require the plural form (which is the resolved form, the semantically justified form).

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[10] Details in Corbett (1983a, pp. 105-35 especially p. 130 on Russian, and pp. 139-140 and p. 101 on Serbo-Croat).

When either one of the factors is present, the plural form is found in a significantly higher proportion of the cases than when neither is present. In Russian the two factors are of about equal weight, and in Serbo-Croat precedence appears to be the more important factor. Thus both animacy and precedence have a substantial effect on agreement choices, ranging over different controller types.

2.2. The effect of targets

As we have seen, particular controllers make agreement choices possible, with varying degrees of openness to the choice. And controller factors, which apply to different types of controller, exert a clear influence on the choice. We now investigate the considerable impact which targets also have on that choice. First we consider the different target types we can distinguish (section 2.2.1) and then we look at target factors which range over the different types (section 2.2.2).

2.2.1. Target types

We shall consider target types in terms of two hierarchies, starting from the higher level and moving to the more detailed.

2.2.1.1. The Agreement Hierarchy

We begin with the largest syntactic domains, and here agreement options are constrained by the Agreement Hierarchy (Corbett 1979b; 1983a: 8-41, 81–86; 1991: 225-241). This hierarchy was proposed on the basis of data from a range of languages, but the strongest evidence comes from detailed analysis of Slavic. Four types of agreement targets can be distinguished:

attributive < predicate < relative pronoun < personal pronoun

Figure 1. The Agreement Hierarchy

Possible agreement patterns are constrained as follows:

> For any controller that permits alternative agreement forms, as we move rightwards along the Agreement Hierarchy, the likelihood of agreement forms with greater semantic justification will increase monotonically (that is, with no intervening decrease).

As an illustration of the type of data covered by the Agreement Hierarchy, consider agreement with numeral phrases in Serbo-Croat involving the numerals 'two', 'three' and 'four'. These require a special form of masculine nouns, a survival of the dual number which is synchronically equivalent to the genitive singular. Attributive modifiers to such nouns must take the ending *-a;* it has been argued

that it should be analysed synchronically as a neuter plural.[11] However it is analysed, this -a form represents syntactic agreement.

(12) dva dobr-a   čovek-a
      two good-PL.N men-SG.GEN
      'two good men'

In the predicate the neuter plural form (syntactic agreement) and the masculine plural form (semantic agreement) are both possible:

(13) ov-a   dva čovek-a   su   dobr-a/dobr-i
      this-PL.N two men-SG.GEN be.PL good-PL.N/good-PL.M
      'these two men are good'

The relative pronoun is also found in both forms:

(14) dva čovek-a   koj-a/koj-i ...
      two men-SG.GEN who-PL.N/who-PL.M ...
      'two men who ...'

The personal pronoun must stand in the masculine plural form *oni* (*ona* is unacceptable). We therefore find syntactic agreement in attributive position, both types of agreement of the predicate and relative pronoun, and only semantic agreement of the personal pronoun. We can go further, in that there are figures for the relative frequency of the two forms in the positions where there is an option. These are derived from Sand (1971: 55-56, 63) and presented in Table 8:

Table 8. Percentage distribution of masculine plural (versus
neuter plural) forms in Serbo-Croat

	attributive	predicate	relative pronoun	personal pronoun
percentage showing plural (semantic) agreement	0	18 (n = 376)	62 (n = 32)	100

Table 8 shows a monotonic increase in the likelihood of agreement forms with greater semantic justification.

We will analyse three further sets of data (from Corbett 1983a: 12-25). First we consider agreement with Russian *para* 'couple, man and woman'. In the following example we find singular agreement of the attributive adjective, predicate and relative pronoun:

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[11] Corbett (1983a: 13-14, 89-92). Browne (1993: 373) labels the form on nouns and on agreement targets the '234' form. Sometimes it is labelled the 'paucal'; this latter usage it better avoided, since the paucal is a number form parallel to singular, plural and dual, and is used for a small number. The Serbo-Croat form is not like this; it is not possible to use čovek-a 'man-SG.GEN/234' independently to refer to a small number of men.'

(15) ...by-l-a   izjaščn-aja   vljublenn-aja para,   za   kotor-oj   vse   s   ljubopytstvom
      be- PST-SG.F   elegant-SG.F   loving-SG.F   couple   after which-SG.F   all   with   curiosity

      sledili   i   kotor-aja   ne   skryvala svoego sčast´ja: *on* tanceval tol´ko s   nej,
      followed and which-SG.F   NEG   hid   own   happiness   he   danced   only   with her

      i   vse   vyxodilo   u   nix   tak tonko,   očarovatel´no, čto   tol´ko odin
      and everything turned.out at them so   delicately   charmingly   that   only   alone

      komandir znal, čto èt-a   para   nanjat-a   Lloyd-om igrat´ v ljubov´ za
      captain   knew that this-SG.F couple employed-SG.F Lloyds-INS to.play at love   for

      xorošie den´gi i   uže   davno   plavaet to   na odnom, to   na drugom korable.
      good   money and already long.time sails   now on one   now on other   ship.

      'there was an elegant loving couple, who everyone watched with curiosity and who did not hide
      their happiness: he danced only with her and with them everything turned out so delicately and
      charmingly that only the captain knew that this couple was employed by Lloyds for good money
      to play at being in love and had already being sailing for some time on different ships.'   (Bunin,
      Gospodin iz San-Francisko)

What of the personal pronoun? Here the form is the plural *oni*, as in (15) but also more clearly in this
example (with the derived form *paročka*):

(16) Krome Mariny,   avtobusa dožida-l-a-s´   kakaja-to   paročka.
      besides Marina   for bus   wait-PST-SG.F-REFL some.SG.F couple

      Im,   kak vidno, bylo vse ravno — pridet   avtobus ili ne   pridet.
      3PL.DAT as   evident was   all equal   will come bus   or   NEG come.FUT.3SG

      'Besides Marina, there was a couple waiting for the bus. It was evidently all the same to them
      whether the bus came or not.'   (Laskin, *Kak togda*)

Thus we find syntactic agreement in all positions except the one on the extreme right of the
hierarchy.[12]

    Consider now conjoined noun phrases. In attributive position in Russian we normally find
singular agreement:

(17) Èt-a   vzyskatel´nost´, samokritičnost´   tože raspolaga-l-i   k nemu
      this-SG.F   exactingness(F)   self-criticalness(F)   also dispose-PST-PL to him
      'This exactingness and self-criticalness also disposed me favourably towards him.'
                                  (Černov, Introduction to Smol´janinov, *Sredi morennyx xolmov*)

---

[12] Examples are scarce, however. The Uppsala corpus has just two relevant examples; the agreements are as described
above.

However, the plural is also possible:

(18) Marija zadumalas´ ob   ostavlenn-yx   muže   i   dočeri: kak oni
      Maria   thought   about   left.behind-PL   husband and daughter how 3PL.NOM

      tam,   čto   s   nimi?
      there what   with 3PL.INS?
      'Maria thought about the husband and daughter she had left behind, and wondered how they
      were and what was happening to them.'   (Maksimov, *Karantin)*

There is an interaction of controller factors here; as we saw in section 2.1.2.1, the fact that the
controller is animate is a factor in favour of semantic agreement. Overall (taking animate and
inanimate together) in attributive position the singular is more likely; in a sample of literary prose
(n=44) 14% of the examples had plural agreement.

In the predicate, again both forms are found. Example (19) shows singular agreement, and plural
agreement is illustrated in (17) above, and in (20):

(19) By-l-a   u   nego ešče gitar-a   i   samoučitel´   k   nej
      be-PST-SG.F   at   him   also guitar(F)-SG and   manual(M)[SG] for   it
      'He also had a guitar and a manual for it.'   (Vojnovič, *Putem vzaimnoj perepiski)*

(20) Pečk-u   mne   počini-l-i   brigadir   i   muž
      stove-ACC   1SG.DAT   mend-PST-PL   brigade.leader   and   husband

      kladovščic-y,   kotor-ym   ja   postavi-l   za   èto   vypit´.
      storekeeper-GEN   who-PL.DAT   I   provide-PST[SG.M]   for   this   to.drink
      'The stove was mended by the brigade leader and the husband of the storekeeper, and in return I
      provided them with drinks'   (Amal´rik, *Neželannoe putešestvie v Sibir´)*

Here the plural is more likely; again using a sample of literary prose (n=290) 71% of the
examples showed plural agreement (as in (17) and in (20)). Relative pronouns are almost always plural
in this construction, as in (20). However, there are rare examples of singulars:

(21) Kazalos´, on skol´zit po   žizni s   toj   že   stremitel´nost´ju i
      seemed   he glides   through   life   with that very swiftness(F)   and

      neprinuždennost´ju,   s   kak-oju   pero ego skol´zit po   bumage.
      ease(F)   with   which-SG.F.INS pen   his glides   over   paper
      'It seemed he glided through life with the same swiftness and ease with which his pen glides
      over paper.'   (Adamovič, Introduction to Nabokov, *Zaščita Lužina)*

The personal pronoun (as in (18) above) is normally in the plural.

There is more to be said about conjoined noun phrases (section 2.4.3). At this point the important
thing is that conjoined noun phrases in Russian allow agreement options but in accord with the
Agreement Hierarchy.

The last topic is one we have touched on already, namely associative plurals. We discussed example (4) from the Talitsk dialect of Russian, repeated for convenience as (22):

(22) moj   brat   tam   tóža žý-l´-i
     my[SG] brother[SG] there also live-PST-PL
     'my brother and his family also lived there'

Here we find singular (syntactic) agreement of the attributive modifier and plural agreement in the predicate. No examples of relative pronouns are given by Bogdanov, however, the personal pronoun in this construction is plural (Bogdanov 1968: 71):

(23) Pra   Kuz´mú my   šypka ab´is´n´ít´ tóža n´e móžym, paš´imú   on´í
     about Kuz´ma 1PL.NOM much explain also NEG can   because   3PL.NOM

     n´e   p´íšut vam
     NEG   write   2PL.DAT
     'We can't tell you much about Kuz´ma either, because they don't write to you.'

Again agreements in this construction adhere to the hierarchy. The data from these different constructions are summarized in Table 9. This constitutes only a small part of the supporting evidence (see Corbett 1979b, 1983a: 8-41, 1991: 225-260; Leko 1986: 203-212, Huntley 1989 for further data).

Table 9. The Agreement Hierarchy: evidence from four controllers and controller types

	attributive	predicate	relative pronoun	personal pronoun
'two'-'four' plus noun in Serbo-Croat	neut pl	neut pl/(MASC PL) [MASC PL 18%]	(neut pl)/MASC PL [MASC PL 62%]	MASC PL
Russian *para*	sg	sg	sg	PL
Russian conjoined NPs	sg/(PL) [PL 14%]	(sg)/PL [PL 71%]	(sg)/PL	PL
Associative construction (Russian dialect)	sg	PL	no data	PL

Note: Lower case indicates syntactic agreement, and upper case SEMANTIC AGREEMENT; parentheses indicate a less frequent variant.

It can be seen that this wide variety of agreement options is indeed constrained by the Agreement Hierarchy.

2.2.1.2. The Predicate Hierarchy

We now focus on the predicate, which was one position on the Agreement Hierarchy. In a paper drawing largely but not exclusively on Slavic data, Comrie (1975) showed how honorific plural

pronouns may take singular or plural agreement, but that this variation is constrained by what I shall call the 'Predicate Hierarchy':

verb < participle < adjective < noun

Figure 2. The Predicate Hierarchy

Reformulating Comrie's proposal we may claim that:

> For any controller that permits alternative agreement forms, as we move rightwards along the Predicate Hierarchy, the likelihood of agreement forms with greater semantic justification will increase monotonically (that is, with no intervening decrease).

In subsequent research I investigated evidence for all the Slavic languages, for agreement with honorific pronouns, and the results are given in summary form in Table 10.

Table 10. Agreement with honorific *vy* in the Slavic Languages

	finite verb	participle	adjective	noun
West Slavic:				
Czech	pl	(pl)/SG	(pl)/SG	SG
Slovak	pl	pl/(SG)	SG	SG
Lower Sorbian	pl	pl	pl/SG	SG
Upper Sorbian	pl	(pl)/SG	(pl)/SG	SG
Polish dialects	pl	pl/SG	pl/SG	SG
South Slavic:				
Bulgarian	pl	pl [96%] n=167	SG [97%] n=163	SG
Macedonian	pl	pl	(pl)/SG	SG
Serbo-Croat	pl	pl	pl/(SG)	SG
Slovene	pl	pl/(SG)	pl(SG)	SG
East Slavic:				
Ukrainian	pl	pl/(SG)	(pl)/SG	SG
Belarusian	pl	pl	SG	SG
Russian	pl	pl	short form pl [97%] n=145 / long form SG [89%] n=37	SG[13]

Note: lower case indicates syntactic agreement, and upper case SEMANTIC AGREEMENT. Parentheses indicate less frequent or less preferred variants. The sources of the percentage figures are given in Corbett (1983a: 42-59).

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[13] Though this is rare, even predicate nominals may be involved. This appears to have been found in nineteenth century Russian, in the speech of the less educated:

(i) Izmennik-i vy,   čto li?
     traitor-PL 2PL.NOM that Q
     'Are you a traitor then?'
            (Čexov, *Xolodnaja krov´* 1887; quoted in Vinogradov and Istrina 1954: 520)

Again there is great variation, but the overall pattern is very clear and it is fully in accord with the Predicate Hierarchy.[14]

2.2.2. Target factors

Target factors are those which range over different target types. There are four cases to discuss.

2.2.2.1. The Predicate Hierarchy of Individuation

It has been known for some time that predicate type has a role in influencing agreement choices. However, it is not clear how this fits with the other factors we have considered. The clearest data come from Robblee (1993b), so we will look at her results first and then return to the question of how they relate to the Predicate Hierarchy just discussed. Robblee reports that predicates form a hierarchy of individuation, which she motivates from other phenomena as well as agreement, including the genitive case marking of subjects in negated sentences (Robblee 1993a). There are three main classes, each split into two; the reader is referred to Robblee's work for justification of these, but the examples in Table 11 give an indication of membership. The six subtypes represent increasing degrees of inherent individuation of the predicate.[15] "A predicate of low inherent individuation may be attributed to and thus occurs with many more kinds of arguments than a predicate of high individuation. For instance, the predicate *byt´* 'be' regularly occurs with subject noun phrases that are abstract, and also with those that are concrete. In contrast, only noun phrases denoting concrete objects normally occur as the subject of the stative predicate *krasnet´* 'redden [intrans.]'." (Robblee 1993b: 425).

The question is whether this hierarchy of predicates is relevant to agreement. Robblee took a corpus of eight works of Russian prose published from 1976 to 1988. She extracted instances of predicate agreement with quantified noun phrases including either a numeral or one of *neskol´ko* 'several', *malo* 'few' or *nemalo* 'several, more than a few' (for details see Robblee 1993b), giving 373 relevant examples. The results are given in Table 11.

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[14] Naturally we should consider how the two hierarchies combine. This is not straightforward: the Predicate Hierarchy forms a sub-hierarchy within the Agreement Hierarchy. For data and discussion see Corbett (1983a: 76-93).

[15] Individuation as a controller factor came up in section 2.1.1.3.

Table 11. Agreement with quantified noun phrases according to predicate type
(Robblee 1993b: 428; her percentage figures rounded to whole numbers)

	Examples with singular	Total examples	Percent singular
Subtype Ia *byt´* 'be'	71	76	93
Subtype Ib, e.g. *proizojti* 'occur'	42	47	89
CLASS I ("Inversion") subtotal	113	123	92
Subtype IIa, e.g. *stojat´* 'stand'	66	122	54
Subtype IIb, e.g. *krasnet´* 'redden'	16	38	42
CLASS II ("Intransitive") subtotal	82	160	51
Subtype IIIa, e.g. *rabotat´* 'work'	4	13	31
Subtype IIIb, e.g. *udarit´* 'hit'	8	77	10
CLASS III ("Agentive") subtotal	12	90	13
OVERALL TOTAL	207	373	56

The results are clear; syntactic (singular) agreement is most common with *byt´* and successively less common with more individuated predicates.

The effect of the predicate is substantiated convincingly. However, we need to disentangle the different factors at work. Thus Robblee's first class comprises 'inversion predicates' (a Relational Grammar term). Among other properties, these predicates are more likely to appear in predicate-subject structures than are other predicates; and predicate-subject word-order disfavours semantic agreement (section 2.1.2.2); it would be helpful, therefore, to have a count in which the factor of word-order is held constant, in order to isolate the effect of the predicate type. Robblee provides this in a later paper; she takes the same 373 examples as in Table 11 and cross-classifies her three main predicate types with word-order.

Table 12. Singular agreement with quantified noun phrases
according to word order and predicate type
(Robblee 1997: 235; her percentage figures rounded to whole numbers)

	SV word order		VS word order		TOTAL		VS/SV
CLASS I ("Inversion")	11/13	85%	102/110	93%	113/123	92%	1.1
CLASS II ("Intransitive")	16/43	37%	66/117	56%	82/160	51%	1.5
CLASS III ("Agentive")	2/55	4%	10/35	29%	12/90	13%	7.9

Thus of the class I (inversion) predicates, of the 13 found with subject-verb word-order, 11 (i.e. 85%) had singular agreement. As we already knew, singular agreement is more like with verb-subject order than with subject-verb order (and we find this with each class of predicate). But equally, if we keep the word-order constant and consider the class of predicate, then we see that singular is most likely with

inversion predicates, less so with intransitives and least likely with agentives. The effect of word-order increases as we move down the Predicate Hierarchy of Individuation, as we see n the last column, derived by dividing the percentage singular agreement with verb-subject sentences by the percentage with subject-verb sentences.[16] Here then we have clear evidence that this hierarchy has an effect independent of word-order.

The question which remains is how this hierarchy relates to Comrie's Predicate Hierarchy. Robblee's Predicate Hierarchy of Individuation provides a cross-cutting classification, as becomes clear when we consider non-verbal predicates. A few of these, such as *vidno* 'visible' are in class Ib (Robblee 1993a: 216), while the majority are lower on the hierarchy (1993a: 230).[17] In Comrie's Predicate Hierarchy, which has a syntactic and morphological basis, verbs and non-verbs are fully separated. Thus Robblee's hierarchy can be seen as a target factor, ranging over the predicate types defined in Comrie's hierarchy. It would be of great interest to know more about the interactions between the two, in particular to know more about how adjectives behave in structures which allow agreement choices.[18]

2.2.2.2. Stacking

The remaining target factors are syntactic in nature. Like the last factor discussed, they range over different target types, but not necessarily all target types. The clear cases of stacking involve attributive modifiers. As an instance, Serbo-Croat nouns like *gazda* ''master', when in the plural, permit both masculine and feminine modifiers. If we find stacked modifiers, usually both take the same form. This is not always so, as in this example (Marković 1954: 95):

(24)   ov-i   privatn-e   zanatlije
       this-PL.M   private-PL.F   artisans
       'these private artisans'

Both agreement possibilities are found together. According to Leko (1986: 216) many speakers would not accept this, preferring *ove* 'this-PL.F'. What matters here is that those who do accept different forms in stacked modifiers have them as in (24), with the form with greater semantic justification, the masculine, further from the controller (we do not find the reverse: **ove privatni zanatlije*). The constraint is as follows:

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[16] Robblee's figures in this column are correct: my rounding of percentages means that checking that column requires recalculation of the percentages themselves.

[17] Overall, predicative nouns and adjectives would be more individuating than transitive verbs, so the most individuating in the Predicate Hierarchy of Individuation (Karen Robblee, personal communication).

[18] It is known that, when other factors are held constant, adjectives favour semantic agreement by comparison with verbs (Corbett 1983a: 163–170).

If stacked targets show different agreement forms, the target further from the controller will show the form with greater semantic justification

To incorporate a constraint of this type means allowing the agreement shown by one target to be constrained in part by that of another target. It is claimed that it will apply equally to any stacked targets, and so would apply to stacked relative clauses. These are rare in Slavic and as yet no relevant examples have been found.

2.2.2.3. Parallelism

This constraint clearly applies to different target types. Two targets are said to be parallel when they fill the same syntactic slot in relation to the same controller. Normally we find the same agreement form for both, but this is not always the case, as in this example from Serbo-Croat:

(25) Sarajlije   su   igral-e   bolje i   gotovo potpuno dominira-l-i   terenom.
      Sarajevans AUX.3PL played-PL.F better and almost completely dominate-PST-PL.M field
      'The Sarajevans played better and dominated the field almost completely.'
                                                        (Oslobođenje 27.2.1953, quoted by Marković 1954:96)

The two verbal predicates are parallel. The controller of both is *Sarajlije* 'Sarajevans', a noun like *gazde* 'landlords'. The nearer target shows syntactic agreement while the further shows semantic agreement. The following constraint applies:

If parallel targets show different agreement forms, then the further target will show semantic agreement.

This constraint ranges over different target types; for further examples of predicates and an example of relative pronouns see Corbett (1983a: 71-74). An alternative way of looking at parallel targets is to say that they are minimally stacked, and so this constraint is a sub-case of that in the previous section.

These latter two constraints operate at sentence level; they refer to the simultaneous presence of two targets. They are linked to a more general corpus level regularity which is the effect of 'real' distance.

2.2.2.4. 'Real distance'

It has been claimed, more from data from outside Slavic than from within, that for any particular target type, the further it is removed from its controller, the greater the likelihood of semantic agreement. The examples almost always concern targets following the controller. Thus a target moved increasing far after its controller becomes increasingly more likely to take semantic agreement. In the other direction the position is not clear (data are harder to find) but the reverse effect is likely. It appears then that greater 'real distance' accentuates the effect of the word-order factor.

2.3. Independence of influences

We have seen that the factors that range over controller types are independent of those types; they can in principle affect each of them.[19] Even within controller types, variation is independent of the controller factors: for instance, the difference in the likelihood of semantic agreement with different quantifiers is independent of the factors of animacy and word-order (some evidence is reported in Corbett 1986: 1016 and in Robblee 1997: 237). Equally target types and factors are independent of each other. Finally, influences on controllers are in principle independent of those arising from targets. However, the independence of all these influences has not been demonstrated in detail. It does suggest, however, that agreement is much more complex than is generally recognized.

2.4. Features

In this section we first consider which are the agreement features (section 2.4.1), then we look at regularities in the way they are expressed (section 2.4.2), before examining the complex issue of feature resolution (section 2.4.3) and the question of default values (2.4.4).

2.4.1. Person, number and gender

The three features which are indisputably agreement features are somewhat different in nature. Gender is an inherent feature of the noun. It is found on the target, say the adjective, as a consequence of its presence in the noun (overt or covert). Thus an ending marking gender on an adjective has nothing to do with the lexical meaning of the adjective. A somewhat similar situation obtains for person; person is an inherent feature of the pronoun, but not of the verb. Number is more difficult. It is an inherent feature of some nouns: those which are only singular (like Serbo-Croat *hrabrost* 'courage') or only plural (like Russian *šči* 'cabbage soup') impose this feature value on their modifiers. However, a considerable proportion of the nouns in Slavic languages can be associated with both (or all) numbers. In straightforward examples involving such nouns, the number feature appears to relate primarily to the noun; the property denoted by the adjective is not affected by the change in number. The three agreement features are all nominal; they are what Zwicky (1992: 378) calls the 'direct features' of nouns and noun phrases. As Nichols shows, they have an interesting hierarchical relationship: gender is the one which is most prone to be marked only by agreement; number is quite likely to be marked only in this way, but this never occurs with person (1992: 160-162). Further discussion of the relations between the three features can be found in Bybee (1985: 22–24, 28-33) and Wunderlich (1993).

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[19] 'In principle' because in some instances there is no opportunity for such influence; for instance, the factor of animacy cannot affect individual lexical items which always denote animates or always inanimates.

Traditional accounts of Slavic languages also include agreement in case. In a phrase like Russian: *v novom avtomobile* 'in a new car', the adjective and noun stands in the same case, but this covariance differs from that found with gender, number or person. Case is not a feature of the noun: it is imposed on the noun phrase by government by some other syntactic element. Thus the noun and adjective are in the same case because it is imposed equally on both. This is not agreement, if we take seriously the question of asymmetry. Following that view, we would not recognize case as an agreement feature, though we should recognize that it interacts strongly with agreement features.

There is, however, a problem with this view. It concerns Polish expressions like the following (Dziwirek 1990: 147):

(26) Sześć   kobiet   by-ł-o   smutn-ych
       six   woman[PL.GEN]   be-PST-SG.N   sad-PL.GEN
       'Six women were sad.'

The verb is third singular neuter 'by default' (see section 2.4.4); the adjective appears to agree in number and case with the quantified noun within the subject noun phrase (this is not the only possibility; according to Dziwirek (1990: 158n16) the neuter singular is found in 'informal spoken Polish'). This construction is in any case difficult to analyse, but it suggests that we may have to allow for agreement in case.[20]

2.4.2. Exponents of features

Since the major interest of Slavic agreement is in the syntax, we have concentrated on this. But the morphology too deserves some attention (for a general account of the morphology of agreement, showing the wider typological frame, see Corbett 1998). We might have imagined that agreement features could be stated just at the level of the language. But, of course, we cannot simply say that a particular language has gender agreement. There is likely to be variation among the elements identified as agreement targets, as in this example from Upper Sorbian:

(27) wón   je   pisa-ł
       he   AUX.3SG   write-PST.SG.M
       'he wrote'

Here the finite verb agrees in number and person, while the participle agrees in number and gender. While observing differences *between* word classes in respect of the agreements they may show, we might expect to treat word classes as internally uniform in respect of their agreement potential. This too is an oversimplification since there are instances of systematic differences *within* word classes. Thus Russian verbs agree with their subject in person and number, except in the past tense, which

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[20] Another possible instance is the secondary predicates of Old Church Slavic (Wayles Browne, personal communication).

agrees in gender and number. This generalization holds for all verbs. But there are also instances of idiosyncratically different agreement possibilities within word classes. Macedonian adjectives show this clearly:

Table 13. Agreement of Macedonian adjectives (Friedman 1993: 266-267)

MASCULINE	FEMININE	NEUTER	PLURAL	gloss
nov	nova	novo	novi	new
kasmetlija	kasmetlija	kasmetlija	kasmetlii	lucky
taze	taze	taze	taze	fresh

Nov 'new' and similar adjectives distinguish three genders and two numbers; those like *kasmetlija* 'lucky' agree in number but not gender, while *taze* 'fresh' and adjectives like it are indeclinable.

2.4.3. Resolution rules

A problem where Slavic data have been important is that of 'resolution rules', the rules which determine the number, gender and person of the target for controllers consisting of conjoined noun phrases. I have dealt with these previously at some length and the interested reader may consult that work in Corbett (1983a: 177-214; 1983b; 1983c; 1991: 261-306); see also Wechsler and Zlatić (2003: 171-195) for an important contribution, and Corbett (2006: 238-263) for a new overview. The account here will cover just the main points. Let us first take Slovene for illustration. If a masculine singular and a feminine singular are conjoined, it is the gender and number resolution rules which specify the form of the target, say the predicative adjective, as masculine dual (data from Lenček 1972):

(28) Tonček   in   Marina   sta   prizadevn-a
      Tonček.M   and   Marina.F be.DU   assiduous-DU.M
      'Tonček and Marina are assiduous.'

This example illustrates the point that resolution rules do not operate only to resolve feature clashes but can also operate when conjuncts share features (singular in this example). The next shows the same thing with relation to gender:

(29) to   drevo in   gnezdo na njem mi   bosta   ostal-a   v   spominu
      that tree.N and nest.N on it   1SG.DAT AUX.FUT.3DU   remain-DU.M   in   memory
      'That tree and the nest on it will remain in my memory.'

Though both conjuncts are neuter, the gender resolution rules specify masculine agreement (as we shall see later). It is important to recall that resolution is generally not obligatory; instead agreement is often with one conjunct only, and so resolution is not involved (section 2.1.1.6).

Number and person resolution are the easier ones; in Slavic and elsewhere, if resolution occurs, then two singulars (in Old Church Slavic, Slovene and Sorbian) require a dual and in all other instances a plural is used (see Corbett 1983b: 177-178, 189-190 for a complication here). And for person, the presence of a first person determines first person agreement, failing that a second person will give second person agreement (and failing both of these conditions the third person arises by a general default).[21]

Let us return to the most interesting type, namely gender resolution. This may follow two distinct principles: the syntactic principle or the semantic principle. Gender resolution by the syntactic principle operates according to the syntactic gender of the conjoined items, irrespective of their meaning. Gender resolution by the semantic principle involves reference to the meaning of the conjoined elements, even if this implies disregard for their syntactic gender. This gives us two types; there is a third (mixed) type, since some languages use interesting combinations of the two principles. We shall consider these three types in turn (sections 2.4.3.1-2.4.3.3). Since this overview was first presented there has been interesting progress on gender resolution. The data are presented here according to the old typology and the pointers to new ideas are given in section 2.4.3.3. Then, having seen various instance of gender resolution, we shall consider further the typology of resolution systems (section 2.4.3.4).

2.4.3.1. Syntactic gender resolution

Syntactic gender resolution is found in Slovene. In Slovene, a masculine conjoined with a feminine, as we saw in (28) above, or with a neuter, as in (30) takes a masculine predicate:

(30) Tonček   in   to   dekletce   sta   prizadevn-a
      Tonček(M) and that little.girl(N) be.DU assiduous-DU.M
      'Tonček and that little girl are assiduous.'

When a feminine and a neuter are conjoined, the masculine is still found (examples (31), (32) and (33) are from Priestly (1993: 433), the remainder are from Lenček 1972):

(31) Milka   in   njeno tele   sta   bi-l-a   zunaj
      Milka(F) and her   calf(N) AUX.3DU   be-PST-DU.M   outside
      'Milka and her calf were outside.'

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[21] The problems of incorporating resolution rules into linguistic theory have been partly addressed, particularly within the framework of Generalized Phrase Structure Grammar (Farkas and Ojeda 1983; Morgan 1984; Sag, Gazdar, Wasow and Weisler 1985: 152-155).

Similarly, two conjoined neuter singulars take a masculine dual, as we saw in (29).[22] The way in which the feminine/neuter dual form can result from the resolution rules is if two feminines are conjoined:

(32) Milka   in   njena mačka sta   bi-l-i   zunaj
      Milka(F)   and   her   cat(F) AUX.3DU   be-PST-DU.F   outside
      'Milka and her cat were outside.'

The gender resolution rules are as follows:

1. if all conjuncts are feminine, then the feminine form is used;
2. otherwise the masculine is used.

The number resolution rules determine when the dual and when the plural form are to be used. As this is so, the rules just given will also account for gender resolution when the plural results. Thus in (33), all the conjuncts are neuter, but the masculine plural form is required:

(33) Dve   telet-i   in   eno   žrebe   so   bi-l-i   zunaj
      two   foal(N)-DU   and   one   calf(N) AUX.3PL   be-PST-PL.M   outside
      'Two foals and a calf were outside.'

Again, the feminine is possible only if all the conjuncts are feminine:

(34) Marina,   Marta   in   Marjanca   so   prizadevn-e
      Marina(F)   Marta(F) and   Marjanca(F)   be.3PL   assiduous-PL.F
      'Marina, Marta and Marjanca are assiduous.'

The important point for our typology is that in the rules given there is no recourse to semantic factors; the syntactic gender is the sufficient determining factor.

2.4.3.2. Mixed gender resolution

Polish has three forms for gender agreement in the singular; in the plural there is a division into masculine personal (abbreviated 'M.PERS') and the remainder (non-masculine personal, 'NM.PERS'). When in conjoined structures none of the conjuncts is headed by a masculine personal noun, then the non-masculine personal is used (Rothstein 1993: 732–733):

(35) Basia   i   Marysia   przynioś-ł-y   sałatę
      Basia(F)   and Marysia(F)   brought-PST-PL.NM.PERS   salad
      'Basia and Marysia brought salad.'

If a masculine personal noun heads one of the conjuncts then the masculine personal form is used:

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[22] We follow Lenček here, who gives the fullest and clearest account. For a possible complication with examples like (29) see Corbett (1983a: 212n6).

(36) Janek   i   Marysia   przynieś-l-i   ciastk-a
     Janek(M) and Marysia(F) bring-PST-M.PERS.PL pastry-PL.ACC
     'Janek and Marysia brought pastries.'

    The resolution rules required appear to be as follows:

    1. if at least one conjunct is masculine personal, then the masculine personal form is used;
    2. otherwise the non-masculine personal form is used.

Rules like these can be found in numerous descriptions, and they operate in other West Slavic languages. However, Polish is actually more interesting. Consider this example from Doroszewski (1962: 237):

(37) Hania   i   Reks   bawi-l-i   się   piłk-ą
     Hania(F) and Rex(M) play-PST-PL.M.PERS REFL ball-INS
     'Hania and Rex were playing with a ball.'

There is no masculine personal conjunct in (37), since *Reks*, a dog, is masculine but not personal, and yet the predicate is masculine personal. Sentences like (37) have been discussed at length. The best data are provided by Zieniukowa (1979), who gives responses to a questionnaire by 31 young people in their upper teens.[23] For a sentence comparable to (37), only two speakers used the non-masculine personal form (and one used a different construction). The masculine personal form, as in (37), is the preferred form. It cannot result simply from the presence of the noun *Hania* denoting a person, since in (35) both conjuncts denoted humans but a non-masculine personal form was used. It is worth checking whether having a masculine animate conjunct is sufficient: in the following example both conjuncts are masculine animate:

(38) pies   i   kot   jedl-i   na podwórzu
     dog(M) and cat(M) eat-PST-PL.M.PERS on yard
     'The dog and the cat were eating in the yard.'

Zieniukowa found that the masculine personal form (as in the example) was the majority choice; however, seven speakers chose the non-masculine personal form. Thus masculine animates are less likely to produce a masculine personal form than masculine animate plus a feminine denoting a human. Even the combination of feminine denoting a human conjoined with masculine inanimate can result in a masculine personal form:

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[23] Compare Weiss (1985: 354-355).

(39) Mama, córeczka i wózek ukaza-l-i się nagle
 Mother(F) daughter(F) and pram(M) show-PST-PL.M.PERS REFL suddenly
 'The mother, daughter and pram appeared suddenly.'

In this example speakers were equally divided between the masculine personal and the non-masculine personal *ukazały* (one speaker chose neither).

The rules required to cover these examples (and other types described in Corbett 1983a: 197–200) are as follows:

1. if the subject includes a masculine personal conjunct, the predicate will be in the masculine personal form;
2. (optional) if the subject includes the features masculine and personal, whether these are syntactic or semantic, the predicate may be in the masculine personal form;
3. (optional) if the subject includes a masculine animate conjunct, the predicate may be in the masculine personal form;
4. otherwise the predicate will be in the non-masculine personal form.

The first rule, which accounts for the form in (36), is straightforward. The optional Rules 2 and 3 both represent relaxations of Rule 1: in Rule 2 the conditions apply to the subject as a whole rather than to a single conjunct and, more surprisingly, they allow semantic or syntactic features or a combination of these. Rule 3, on the other hand, retains the restriction to a single conjunct but reduces the requirement from personal to animate. Rule 2 accounts for the form in sentence (39) while Rule 3 permits (38). It is significant that when both Rule 2 and Rule 3 can apply, as in (37) then for those Zieniukowa consulted the masculine personal form is almost obligatory. When none of these rules apply, the non-masculine personal form is assigned by Rule 4, as in sentence (35). The rules refer both to syntactic gender and to semantic criteria. Thus Polish stands between the clearly semantic gender resolution and the syntactic type.

2.4.3.3. Semantic gender resolution

Slavic does not have a language with semantic gender resolution, but Serbo-Croat gives fascinating signs of a system that may be moving that way. The resolution rules seem to be as in Slovene, that is, if all the conjuncts are feminine then the feminine form is used and otherwise the masculine form is used. Given at least one non-feminine conjunct there is no problem — the masculine form is the resolved form. Here feminine and neuter are conjoined:

(40) Znanje i intuicija su kod njega
 knowledge(N) and intuition(F) AUX.3PL with him

 sarađiva-l-i i dopunjava-l-i se...
 work.together-PST-PL.M and supplement-PST-PL.M REFL
 'Knowledge and intuition worked together in him and supplemented each other...'

(Andrić, *Travnička Hronika*)

Similarly, when neuters are conjoined we find a masculine plural predicate:

(41) Njegovo mesto   u   razvitku   kasabe   i   njegovo
      his   place(N) in   development   town.GEN   and   his

      značenje   u   životu kasabalij-a   bi-l-i   su
      importance(N) in   life   inhabitants-PL.GEN be-PST-PL.M   AUX.3PL

      onakv-i   kako   smo   ih   napred ukratko opisali.
      such-PL.M   as   AUX.1PL them   before briefly described
      'His place in the development of the town and his importance in the life of the inhabitants were
      such as we described them briefly before.'   (Andrić, *Travnička Hronika*)

When all the conjuncts are feminine, then we would expect feminine agreements, as we find in the following example:

(42) Opreznost,   suptilnost   i   pedanterija tih   bezbrojnih
      discretion(F), subtlety(F) and   pedantry(F) these   innumerable

      poruka   zbunjiva-l-e   su   mladića ...
      assignments.GEN   perplex-PST-PL.F AUX.3PL   young.man
      'The discretion, subtlety and pedantry of these innumerable assignments perplexed the young
      man ... '   (Andrić, *Travnička Hronika*)

So far the examples can be handled by the simple rules, found in Slovene (if all conjuncts are feminine, agreements will be feminine, otherwise masculine). And this must have been the earlier situation in Serbo-Croat. More recently in Serbo-Croat we find the use of masculine agreements in instances not sanctioned by the old rules. Gudkov (1965) claimed that a masculine predicate is possible, even though all the conjuncts are feminine, provided that at least one of them is headed by a noun of the *i*-stem type (with no ending in the nominative singular):

(43) Vređa-l-i   su   ga   nebriga   i   lakomislenost   Tahir-beg-ov-a.
      offend –PST-PL.M AUX.3PL him carelessness(F) and capriciousness(F) Tahir-beg-POSS-F
      'Tahir-beg's carelessness and capriciousness offended him.'   (Andrić, *Travnička Hronika)*

Masculine agreement here is not obligatory, as example (42) shows: both masculine and feminine agreements are both found. The gender resolution rules are similar to those required for Slovene, but we must allow for the first rule to be optional. The interesting point is the nature of the condition on this optionality. Gudkov suggested a morphological condition, so our rules would be along these lines:

1. if all conjuncts are feminine, then the feminine form will be used; (if at least one of the conjuncts is a noun of the *i*-stem declension, then this rule is optional);
2. otherwise the masculine will be used.

Such a rule would be quite remarkable, because agreement rules normally refer to syntactic or semantic categories. The condition referring to a noun of a particular declensional type would be a considerable weakening of the theory of agreement.[24] It turns out that the morphological condition does not cover all the relevant instances. Gudkov himself subsequently pointed out occasional examples in which subjects headed exclusively by feminine nouns in *-a* take masculine agreements (1974: 61):

(44) štula   i   štaka   bi-l-i   su   sve   što
      wooden.leg(F) and   crutch(F) be-PST-PL.M   AUX.3PL all   that

      je   tadašnja   medicina   mogla   da   mu   pruži.
      AUX.3SG   of that time   medicine   could   that   him.DAT   offer
      'A wooden leg and a crutch were all that medical science of that time could offer him.'
                                                                                                       (Popović)

Gudkov was quite right; I can add this confirming example:

(45) Žustrina sa   kojom je   pisao i   lakoća sa   kojom je
      speed(F) with   which AUX.3SG   wrote and   ease(F) with   which AUX.3SG

      nalazio reči   i   poređenja   zagreja-l-i   su   ga,   i
      found   words and   comparisons warm-PST-PL.M AUX.3PL him   and

      konzul   oseti   nešto   kao   olakšanje.
      consul   felt   something   like relief
      'The speed with which he wrote and the ease with which he found words and comparisons encouraged him, and the consul felt a kind of relief.'
                                                                                         (Andrić, *Travnička Hronika)*

Even if we accepted the weakening implied by the morphological condition, we would still be unable to account for some of the examples involved, including (44) and (45). The significant point is that in all the examples with feminine conjuncts but masculine agreement, the noun phrases denote

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[24] A more serious weakening would be to suggest that the rule should be stated in phonological terms (which would then infringe the *principle of phonology-free syntax* (Pullum and Zwicky 1988: 278). The rule would then refer to the presence of a noun ending in a consonant (since the nouns of the *i*-stem declension typically end in a consonant, in the nominative singular like the typical masculines). However, there are also nouns like *misao* 'thought' which belong to the *i*-stem declension yet end in a vowel. This final vowel alternates with a consonant, but in a not fully predictable way (see Corbett 1983a: 190 for details). Hence the phonological condition is inadequate.

inanimates. I have found no examples of masculine agreement with feminine nouns denoting persons.[25] Therefore the condition can and should be stated as a semantic one:

1. if all conjuncts are feminine, then the feminine form will be used; (if the conjuncts denote inanimates, then this rule is optional);
2. otherwise the masculine will be used.

We still need to explain why the majority of examples with feminine conjuncts and masculine agreements involve a noun of the *i*-stem declension. This declension includes a large proportion of abstract nouns, and practically no animates. When one collects genuine examples of conjoined noun phrases it is striking that the overwhelming majority have conjuncts of the same semantic type (all animate or all inanimate). Thus when a feminine noun of the *i*-stem declension is one of the conjuncts then there will normally be no animates in the subject. This means, in turn, that the use of the feminine agreement form will have no semantic justification (unlike its use with animate conjuncts which denote females). What seems to be happening is that Serbo-Croat is is moving from gender resolution rules operating on syntactic conditions towards a semantic system. We may represent the development as follows:

Stage 1 (earlier Serbo-Croat, as still in Slovene)

1. all conjuncts feminine   →   feminine
2. otherwise   →   masculine

This is a simple syntactic system.

Stage 2 (present Serbo-Croat)

1. all conjuncts feminine   →   feminine (optional for inanimates)
2. otherwise   →   masculine

It is not clear whether the option should relate to inanimates or non-humans. In either case the crucial point is that the rules include a reference to semantics, and so we have moved from a syntactic to a mixed system. These rules can be formulated differently:

Stage 2 (alternative formulation)

1. all conjuncts female   →   feminine
2. all conjuncts feminine   →   feminine (optional)
3. otherwise   →   masculine

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[25] Ljubomir Popović informs me (personal communication) that he has found rare examples even of this type in written text.

A possible development is for the optional rule to be dropped.

    Stage 3 (hypothetical)

    1. all conjuncts female   →   feminine
    2. otherwise   →   masculine

If this development occurs, then we shall have had the development from a syntactic system, through a mixed system, to a semantic system. (For further discussion of resolution in Serbo-Croat see Leko (1986: 220-243), and for the earlier period of Slavic see Šul´ga (1997).)

The importance of semantic considerations should give pause for thought here. Perhaps too the rather special rules for coordinate noun phrases, which are a phenomenon somewhat peripheral to the syntactic system should concern us. Wechsler and Zlatić (2003: 171-95) made the interesting suggestion that across languages *animate* noun phrases are subject to semantic resolution, while *inanimates* are subject to syntactic resolution. In all languages, even those like Slovene and Serbo-Croat, gender resolution is semantically driven. A key piece of evidence concerns the behaviour of hybrid nouns (§2.1.1.1) in coordinate structures. They cite Farkaş and Zec (1995) for this; in fact the observation had been made earlier by Megaard (1976: 95), though its significance was not recognized then. We may rethink their suggestion as follows: resolution *must* be based in part on semantic criteria; it may additionally be based on syntactic criteria. This then gives us two pleasing effects. First, gender resolution is more like person and number resolution. Second, gender resolution directly reflects gender assignment, since gender assignment is always based on semantic criteria, which may or may not be supplemented by formal criteria; for details of this new typology see Corbett (2006: 258-263).

2.4.3.4. More on the typology of resolution systems

There are further types of feature which might have been expected to have a role, and their exclusion from gender resolution (and usually from resolution in general) allows us to constrain further the possible types of resolution system.

First there are no rules of the type: 'if there is a first person feminine conjunct then ...' or 'if there is a neuter dual conjunct then ...'. Gender resolution needs to refer only to gender (and equally person resolution refers only to person, and number resolution refers only to number).[26] It might appear that

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[26] Smith, Tsimpli and Ouhalla (1993: 316-317) report on an attempt to teach (among other things) impossible resolution rules to Christopher, a polyglot *savant,* and to a control group. Their invented language Epun has these (impossible) rules:
    1st singular plus third singular feminine is resolved as third plural feminine;
    1st singular plus third singular masculine is resolved as second singular.
    (Gender is distinguished only in the third person.)
In translating from English to Epun, Christopher followed the first rule, but generalized it to the second case and used the third plural masculine there. Of the four subjects used as controls (all first year undergraduate students of linguistics, one managed the impossible agreements, the other three used the forms expected in genuine natural languages (the first person plural) in both the situations above.

the resolution rules are completely independent of each other. However, while they are independent in their formulation, they are not independent in their operation; in other words, they operate as a set or not at all. Agreement may be with one conjunct or with all conjuncts; if the latter, that is if resolution operates, then all applicable resolution rules must operate. There cannot, say, be resolution in gender but not in person. For more on the interdependence of resolution rules see Corbett (1983b: 182-183, 2003).

Resolution is also independent of the agreement target. That is to say, there are no resolution rules of the type 'if all conjuncts are neuter, then adjectival targets take masculine agreement while verbal targets take neuter agreement.' Information about the target cannot be part of a resolution rule. What *does* differ is the likelihood of resolution as compared with agreement with the nearest conjunct. Resolution is a particular case of semantic agreement. The distribution of resolution (semantic agreement) versus agreement with the nearest conjunct (syntactic agreement) is therefore constrained by the Agreement Hierarchy (see section 2.2.1.1).

A third type of conceivable conditioning factor which is never employed is that of the construction: resolution is 'construction independent'. As we saw in section 2.1.1.7, some Slavic languages have a comitative construction where agreement is possible with the governed noun phrase as well as with the head (for this reason they are sometimes called quasi-comitatives). When this is the case, resolution in comitative constructions will always be as in conjoined constructions. Thus Polish has a comitative construction which allows agreement with both noun phrases (resolution), (Dyła 1988: 386):[27]

(46) Jurek   z   Jankiem   posz-l-i   na spacer
     Jurek(M)   with Janek(M)   go-PST-PL.M.PERS   for walk
     'Jurek and Janek went for a walk.'

(47) Ewa   z   Jankiem   posz-l-i   na   spacer
     Ewa(F)   with Janek(M)   go-PST-PL.M.PERS   for   walk
     'Ewa and Janek went for a walk.'

(48) Ewa   z   Marią   posz-ł-y   na spacer
     Ewa(F)   with Maria(F)   go-PST-PL.NM.PERS   for walk
     'Ewa and Maria went for a walk.'

As Dyła points out, resolution rules operate to give the same results as with conjoined expressions: where we have a masculine personal conjunct then masculine personal agreement results

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[27] See also Szupryczyńska (1991). For a small amount of Slovene data see Lenček (1972: 61-62), and for a discussion of the semantics of these constructions in Russian and Polish see McNally (1993).

(as in (46) and (47)).[28] It should be noted, however, that once again the likelihood of resolution as opposed to agreement with just one element (the head noun phrase in this instance) does depend on the construction.

2.4.4. Default values

Agreement targets which are morphologically able to agree typically *must* agree in Slavic, even when their controller lacks the appropriate features (as when it is a complete clause or an infinitive construction)[29] or is totally lacking (as in impersonal constructions). In such circumstances default values appear, normally third person, singular and neuter.

These defaults may differ from the normal occurrences of third person neuter singulars in two ways. First, they may in some circumstances be morphologically distinct. Thus Ukrainian predicative adjectives have *-o* for 'neutral agreement', the failure to agree, as opposed to *-e* for the neuter singular. And Russian uses the pronoun *èto* 'this' rather than *ono* 'it' for antecedents that are not genuinely neuter singulars. And second, they differ syntactically, in that conjoining controllers which take default agreements simply leads to the same default agreement (not neuter plural).

This line of research was continued by Dziwirek in a Relational Grammar account (1990); she shows that numeral phrases in Polish can fill the subject position (that is, she argues against the impersonal sentence analysis) but that the predicate agreement (neuter singular) represents default values. Her analysis is discussed in Stroińska (1992). Defaults also figure prominently in accounts of Serbo-Croat numeral phrases: the GB account of Franks (1995: 114-115) and the HPSG account of Wechsler and Zlatić (1997).

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[28] A further construction type is what Schwartz (1988) calls verb-coded coordinations: she illustrates the construction from various languages, including Polish (1988: 54; two typographical errors have been corrected):

  (i) posz-l-i-śmy   z   matką   do   kina
       go-PST-PL.M.PERS-AUX.1PL   with   mother to   cinema
       'mother and I went to the cinema'

In this construction, one of the conjuncts is omitted. However, the verb form (masculine personal) shows the form expected from gender resolution, provided the first person (speaker) is male. If the speaker is female, then the form would be:

  (ii) posz-ł-y-śmy   z   matką do   kina
       go-PST-NM.PERS.PL-AUX.1PL with   mother to   cinema
       'mother and I went to the cinema'

Compare with the following, also with a female speaker:

  (iii) posz-l-i-śmy   z   ojcem do   kina
       go-PST-PL.M.PERS-AUX.1PL with father to   cinema
       'father and I went to the cinema'

We again find the forms predicted by the normal resolution rules. (I am grateful to Katarzyna Jaszolt and Roland Sussex for help with the data.)

[29] See Browne (1990) on Serbo-Croat and (1998) on South Slavic more generally.

2.5. Typologically unusual domains

The agreement domains typical for Slavic, discussed briefly at the beginning of section 2, are not remarkable typologically. There are, however, some agreement constructions which are more unusual, and we consider them in turn here.

2.5.1. Possessives in Upper Sorbian and Slovak

Perhaps the most remarkable instance of agreement in Slavic is found in Upper Sorbian, where the possessive adjective can control an attributive modifier, as in this example (from Fasske 1981: 382-383):

(49) moj-eho   muž-ow-a   sotr-a
       my-SG.M.GEN   husband-POSS-SG.F.NOM   sister-SG.F.NOM
       'my husband's sister'

In (49), the possessive suffix *-ow-* may be thought of as marking the phrase *mój muž* 'my husband'. To it is added the inflectional marker for nominative singular feminine, showing agreement with the head noun *sotra* 'sister'. The particularly interesting form is *mojeho;* this is masculine since *muž* 'husband', which is the source of *mužowa,* is masculine. It is singular for the same reason (the formation of the possessive adjective requires a singular referent). Thus we have the possessive adjective as a controller of agreement, taking another attributive modifier as its target, which is a totally unexpected agreement domain. The construction has been discussed in detail in Corbett (1987, 1995) and so it will be just noted here; see those sources for references and for the distribution of the construction in the Sorbian dialects see Fasske (1996: 66-73). This Upper Sorbian construction is indeed remarkable; the only other modern Slavic language which has it, and to a more limited extent, is Slovak. Control of the relative pronoun by the possessive adjective is much more common, while control of the anaphoric pronoun is general in Slavic (except for Polish, where it is limited).

2.5.2. 'Collaborative' agreement

The loss of the dual number has led to lower numerals being involved in complex constructions in various Slavic languages. Here we consider such numerals in Russian. The numerals *dva* 'two', *tri* 'three' and *četyre* 'four', when themselves in the nominative, take a noun in the genitive singular. *Dva* 'two' has the feminine form *dve*:

(50) dv-e   sosn-ý
       two-F pine-SG.GEN
       'two pines'

The special interest here is that the numeral governs the form of the noun, requiring it to be genitive and singular (the stress in this example makes the noun unambiguously genitive singular). It is only because the noun is singular that there can be agreement in gender, since gender is not distinguished in the plural in Russian. So the genitive singular noun, required to be in that form by the numeral, in turn acts as the controller for gender agreement of the numeral, hence the term 'collaborative agreement'. For further discussion of the headedness relations here see Corbett (1993).[30] The problems discussed in sections 2.5.1 and 2.5.2 were treated together as 'reluctant controllers' in Corbett (1986).

2.5.3. 'Distant' agreement

In agreement with conjoined noun phrases, as we saw in section 2.1.1.6, there are typically two possibilities (within Slavic and more widely): agreement with all conjuncts (in which case the operation of resolution rules is required) or agreement with just the nearest conjunct. There is, however, a further rare possibility. It is *distant* agreement, that is to say agreement with the first conjunct, which, with subject-verb word order, is not the nearest. Examples occur in Slovene:

(51) knjig-e   in   peres-a   so   se   podraži-l-e
      book(F)-PL and   pen(N)-PL AUX.3PL REFL   get.dear-PST-PL.F
      'Books and pens have become more expensive.'   (Lenček 1972: 59)

This must be an instance of agreement with the first conjunct; agreement with all would require the masculine plural (a result of the resolution rules, section 2.4.3). Similar examples occur in Serbo-Croat; the most extensive source is Megaard (1976), see also Leko (1986: 230). (It has also been claimed that in Č akavian dialects of the 16th-17th centuries agreement could be with the most important conjunct, even if this was not the nearest or the first, Glavan 1927-28: 143–145; the evidence is very limited.) Since these examples have been misunderstood outside Slavic circles it is worth stressing that distant agreement is rare, and that agreement with the nearest noun phrase is much more common.

2.5.4. 'Back' agreement

Some traditional grammars state that, in sentences consisting of subject noun phrase, copula and nominal predicate, besides the expected agreement with the subject, agreement of the copula with the noun phrase in the predicate may also be found. This phenomenon is called *attraction*, or *back* or *backward agreement*. Given that predicate-subject order is common in Slavic, it is of course not sufficient merely to find examples of agreement with the postverbal noun phrase. The evidence is

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[30] And for the special situation in Serbo-Croat see Corbett (2009).

assessed in Corbett (1986; see 1019-1020 for discussion of Russian data; see also Crockett 1976: 406-407). The following Czech sentences appear to be good *prima facie* evidence for back agreement (the construction is noted in Vanek (1970: 53):[31]

(52) jedna a   dvě   jsou   tři
     one   and two   be.PL three
     'one and two are (make) three'

(53) jedna a   tři   jsou   čtyři
     one   and three be.PL four
     'one and three are four'

(54) dvě   a   tři   je   pět
     two   and three be.SG five
     'two and three are five'

(55) tři   a   tři   je   šest
     three and three be.SG six
     'three and three are six'

The regularity is that if the numeral to the right (in our examples) of the copula is 'two', 'three' or 'four', then the copula takes plural agreement, while if it is 'five' or above, then the singular is found. Moreover, there are syntactic tests to show that the numeral in question is part of the predicate (Corbett 1986: 1002-1003). More needs to be done to specify the conditions under which this type of agreement can occur in different Slavic languages. This is made more difficult by the fact that its 'habitat' is being eroded by the rise of the instrumental predicate. However, the mere existence of back agreement would be problematical for some theoretical frameworks.

3. Innovations and ongoing research

Here we consider three broad areas: questions of definition (section 3.1), formal models (section 3.2), and the question of features (section 3.3).

3.1. Definitions

Two strands of work deserve attention here: the basic problem of defining agreement, and the interest of the phenomena which make that definition difficult.

3.1.1. Attempts to define agreement

As suggested in the quote from Anderson, it is a genuinely difficult task to define agreement in a clear and consistent way, separating it from allied but different phenemena. Work which should be noted

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[31] The acceptability of the sentences given according to Vanek's account was confirmed by three consultants: Robert Slonek, Magda Newman and Otto Pick.

here, as being particularly relevant to Slavic problems, is that of Kibrik (1977), Lehfeldt (1980) and Mel´čuk (1993). We shall do no more than note the problem and the fact of ongoing work here, since there is a book-length survey of research into the question by Schmidt and Lehfeldt (1995), and a recent 'canonical' approach to the issue in Corbett (2006).

3.1.2. 'Border phenomena'

Work on definitions highlights constructions which are of particular interest. Thus all the instances discussed in section 2.1 above are likely to be problematic for at least some definitions of agreement. Such 'border phenomena' deserve special attention. One which is of special interest is the clitic-doubling found in Bulgarian (Scatton 1993: 228-229, 234-235, and Rudin 1986), and in Macedonian. Consider this example from Macedonian (Friedman 1993: 285, see also 291):

(56) Kuče-to   ja   kaca   mačka-ta
      dog-DEF.SG.N   3SG.F.ACC   bites   cat.DEF.SG.F
      'the dog bites the cat'

In Macedonian, if the object is definite then an object clitic pronoun is required. Depending on one's definition of agreement this is either agreement conditioned by definiteness, or it is not yet a case of agreement but is an interesting instance of a source of future agreement. Either way, the development of this construction, and the differences between Bulgarian and Macedonian in this area, are of special interest (see Friedman 1994 and references there).

3.2. Formal models

Naturally we wish to describe the agreement patterns of Slavic with an appropriate formal model. Let us consider its desired properties. There is an intuition that agreement is asymmetric. Some accounts of agreement capture this intuition directly by copying feature specifications from the controller to the target. These feature-copying approaches face several problems: the controller may be absent (as in pro-drop languages), or it may be present but be underspecified, something which occurs frequently with pronouns (Barlow 1988/1992: 30–43; his arguments are developed in Pollard and Sag 1994: 62-67); or the feature specifications on the controller and the target may simply not match. Unification-based accounts, where agreement can be seen as a matter of cumulating partial information from the controller and the target, have much better prospects (Shieber 1986: 21-22, Barlow 1988/1992: 22-45, but see Bayer and Johnson 1995 for problems). Consider just one of the arguments, starting from the following example:

(57) Ja   bud-u   dovolen/dovol´n-a
      I   be.FUT-1SG   satisfied[SG.M]/satisfied-SG.F
      'I will be satisfied' (man/woman talking).

In accounts based on a rule of feature-copying, we need to say that Russian and other Slavic languages have two pronouns *ja,* one masculine and one feminine, which happen to be phonologically identical. In a unification-based approach, we could have the following feature structures, for the female instance (the first for the pronoun and the verb, and the second for the predicative adjective):

(58) $\begin{bmatrix} \text{number: singular} \\ \text{person: 1st} \end{bmatrix}$ $\begin{bmatrix} \text{number: singular} \\ \text{gender: feminine} \end{bmatrix}$

These feature structures can be unified, since they are compatible, to give the following structure:

(59) $\begin{bmatrix} \text{number: singular} \\ \text{person: 1st} \\ \text{gender: feminine} \end{bmatrix}$

Thus the information is cumulated from different parts of the structure. These approaches to language may be called 'constraint-based approaches' (Shieber 1992: 1); they specify, as constraints, that particular feature structures must unify.

However, specifically for representing agreement, this leaves the question of asymmetry. In Generalized Phrase Structure Grammar this notion is reintroduced by the Control Agreement Principle (based on Keenan 1974), which specifies possible controllers and targets, and gives them different statuses (see Gazdar, Klein, Pullum and Sag 1985). In Head-Driven Phrase Structure Grammar the asymmetry is captured through 'anchoring'; gender, number and person features are anchored to real world entities through noun phrase indices, even though they may be expressed morphologically other than on the noun phrase (see Pollard and Sag 1994: 60-99, and compare Kathol 1999).

A recurrent problem is that we find mismatches — instances where controller and target may realize feature values which do not unify neatly (we saw numerous examples in sections 2.2.1.1 and 2.4.3). We have seen areas where the pattern is clear, the data constrained by the Agreement Hierarchy (section 2.2.1.1), the data constrained by the Predicate Hierarchy (section 2.2.1.2) and predicate agreement with numeral phrases (Table 2 in section 2.1.1.3). But these constraints, which have substantial cross-linguistic support, do not fit readily into current accounts of agreement (Barlow 1991, Pollard and Sag 1994: 58, Kathol 1999).[32] Let us concentrate on just one, the Agreement Hierarchy.

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[32] See also Kirby (1999: 92-96) for recent discussion of the Agreement Hierarchy in terms of the emergence of language universals.

When developing a more refined account of agreement, which might address the kind of data covered by the Agreement Hierarchy, a common first move, as Barlow (1991 points out) is to split agreement into two different phenomena: for instance, in LFG it is grammatical vs anaphoric agreement (Bresnan and Mchombo 1987). Whatever the merits of splitting agreement into two phenomena, this does not solve our problem. We cannot simply say that, for instance, where there is a choice of agreement options, semantically justified agreement will be found within the structures which LFG calls anaphoric agreement. First, because the divide between syntactic and semantic agreement is not necessarily clear-cut. We saw this with agreement in Serbo-Croat (Table 9), there is a choice in predicate position and for the relative pronoun. Second, at the extremes, there can still be a choice: the noun phrase must surely come under 'grammatical agreement' if agreement is split, and yet we can find semantic agreement here (example (18)); conversely the personal pronoun would be expected to fall under anaphoric agreement, and yet syntactic agreement can be found here (for instance, neuter agreement with Czech *děvče* 'girl (colloquial), Vanek 1970: 87-88). Moreover, it is not at all clear that the problem is being tackled in terms of the right component. The constraints we have been discussing, in particular the Agreement Hierarchy, are violable at the 'sentence level'. The Agreement Hierarchy does not necessarily rule out specific sentences, as this Serbo-Croat example shows.

(60) Dva   tim-a,   koj-a   se   nalaze u donjem delu tabel-e,
      two   team-SG.GEN, which-PL.N REFL   find   in lower   part table-GEN,

      Radnički i   Olimpija, u   Kragujevcu na   teškom   terenu igra-l-i
      Radnički and   Olimpija, in   Kragujevac on   difficult pitch   play-PST-PL.M

      su   prljavo i   nesportski.
      AUX.3PL   dirtily and   unsportingly
      'Two teams, which find themselves in the lower part of the (league) table, Radnički and
      Olimpija, on a difficult pitch in Kragujevac played dirtily and unsportingly.'
                                                   (*Politika* 9.XII.1969, from Sand 1971: 63-65)

Here we have semantic agreement of the predicate, but syntactic agreement of the relative pronoun. We might have expected that it would be impossible to find semantic agreement at a point to the left on the Agreement Hierarchy occurring together with syntactic agreement at a point to the right. This example shows that that expectation is false. Such examples do occur, if relatively rarely. The important claim is that at the level of the corpus the constraints of the Agreement Hierarchy will hold. That is to say, overall the likelihood of semantic agreement will be greater with targets to the right on the hierarchy (which is indeed the case with this type of controller in Serbo-Croat, as the data in Table 9 demonstrate) but this constraint need not apply at the level of the individual sentence, and so

instances like (60) are not ruled out. (See Johnson and Postal 1980: 677-687 for a discussion of sentence-level versus corpus-level constraints.)

In HP too, agreement is split, into *index agreement*, *syntactic agreement* and *pragmatic agreement* (Pollard and Sag 1994: 60-62). Working within this framework, and attempting to take account of the many instances of agreement choices, Wechsler and Zlatić (1998, 2001, 2003, partly prefigured in Zlatić and Wechsler 1997) consider the types of information in lexical entries and possible mismatches between them. They suggest that lexical entries include four types of information:

$$\text{declension} \Leftrightarrow \text{concord} \Leftrightarrow \text{index} \Leftrightarrow \text{semantics}$$

In a completely regular noun all the types of information correlate. But others may break the chain at any of the three points given. Wechsler and Zlatić account for some of the interesting problems of Serbo-Croat and they formalize their account, providing a fragment in HPSG. There are still few analyses which address part of the complexity of the data and given a genuinely formal account.

3.3. Understanding agreement features

Many are interested in agreement as a syntactic problem. However, there is a tradition within Slavic studies of interest in the agreement features themselves, particularly in gender, but also in number. There is important work on establishing the features involved, by Zaliznjak (1964, 1973[33]) and by Gladkij (1969, 1973a, 1973b). And there are survey articles on the relevant features, like that of Naylor (1978).

3.3.1. Genders and subgenders

Gender is a fascinating category, which I have reviewed both specifically in relation to Slavic (Corbett 1988) and more widely (Corbett 1991), and will not consider at length here. Since the Slavic systems of gender assignment are of interest typologically (gender depends in part on inflectional class) a formal account of the Russian system is given by Fraser and Corbett (1995) in the Network Morphology framework. The rise of animacy is considered in section 4.3.2 below. A formal approach to the question of subgenders, concentrating on Polish also within the Network Morphology framework, is provided by Brown (1998).

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[33] While primarily on case, Zaliznjak (1973) is a major paper on the general issue of establishing the features and values required for analysing a given language.

3.3.2. Number

Here too an overview of the Slavic systems is available, with extensive references (Corbett 1994) and a general typology can be found in Corbett (2000). A bibliography of research on number in Slavic is available.[34]

4. Topics for future investigation

There are several areas which clearly merit research. The fact that so much has already been done makes it more likely that work in Slavic can lead to wider theoretical advances.

4.1. The typology of agreement systems

In some respects Slavic agreement systems are unremarkable typologically; after all, many languages have subject-predicate agreement, agreement in gender and number within the noun phrase, and so on. And yet there are points where Slavic is unusual, and these clearly deserve special attention.

4.1.1. Possessives in Upper Sorbian and Slovak

As noted in section 2.5.1, agreement of attributive modifiers with possessive adjectives is quite remarkable. It deserves further work, particularly given the uncertain situation of Upper Sorbian.

4.1.2. Distant agreement

This was discussed in section 2.5.3; it is unusual in Slavic and unusual cross-linguistically; little more is known. Megaard (1976: 80-81) suggests that distant agreement is possible in Serbo-Croat only if the conjuncts are of the same number — all singular or all plural; see also Leko 1986: 230 for discussion of the phenomenon. For this topic even the basic facts have not yet been established.

4.1.3. 'Back' agreement

With back agreement too (section 2.5.4) we have not got the essential data: which languages allow back agreement, under what circumstances, optionally or obligatorily.

4.1.4. Triple agreement possibilities

When discussing alternative agreement possibilities, there is a tendency to assume there must be just two options. This is normally the case, but there are also situations in which there are in principle at least three possible agreements. Phrases headed by the Russian numeral *tysjača* 'thousand' can,

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[34] At http://www.surrey.ac.uk/LIS/SMG/number.html

according to different authors, take feminine singular, neuter singular and plural agreement of the predicate. But whether any individual speaker has three possibilities is not clear. Or there are conjoined noun phrases in Serbo-Croat where the head nouns are feminines denoting abstracts: in principle we might expect it to be possible to have agreement with just the nearest (feminine singular), normal resolution (feminine plural), or the new type of resolution (masculine plural).[35]

Such three-way possibilities are relatively rare, and for this reason deserver a closer look. Are we dealing merely with two binary choices which happen to converge, or does the third option introduce anything new, in terms of variability, speaker uncertainty or even avoidance of certain constructions?

4.2. Modelling of variation

Slavic languages make it evident that agreement options are not temporary instabilities but are endemic in agreement systems. The interactions of several competing factors lead to complex patterns of variation. We should look to accounts which model the variation we observe. We might expect statistical approaches to have a place. We should also expect models to be testable. This is happening in morphology (thus Network Morphology accounts of Slavic data, like that of Corbett and Fraser 1993 have an implemented fragment, written in the lexical knowledge represent language DATR, which can be used to check computationally that the theory does indeed give the output claimed). We should expect that formal syntactic models too should more often be supported by implemented versions rather than by hand-waving.

4.3. Diachronic perspectives

It is natural to ask how agreement systems change over time. The Slavic family provides interesting data on a least four aspects of the question: the directionality of change, the rise of new feature values, the rise of object agreement and the development of resolution rules.[36]

4.3.1. 'There and back' changes

There are plenty of examples in the literature of change, over varying periods of time, from an initial state to a final state. We may come to expect that that is how change must be. But Slavic provides evidence for change proceeding in one direction and then turning back. Consider these data on predicate agreement in Russian.

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[35] Serbo-Croat *deca* 'children' takes feminine singular, neuter plural and masculine plural agreements; however, according to the analysis in Corbett (1983a: 76-85), for any given target in a specified agreement domain there are never more than two options with this controller.

[36] For change in the conditions on agreement in Russian over the last two centuries, on-line searches can be run on the Short-term Morphosyntactic Change Database (Krasovitsky, Brown, Corbett, Baerman, Long and Quilliam 2009).

Table 14. Predicate agreement with quantified subjects in Russian: 18–20th centuries

quantifier	18th century			19th century			20th century		
	SG	PL	%PL	SG	PL	%PL	SG	PL	%PL
'two'-'four'	55	357	87	54	357	87	146	710	83
'five'-'ten'	19	34	64	74	82	53	110	110	50
collectives (e.g. *dvoe* 'two')	25	41	62	23	82	78	35	255	88
complex numbers (e.g. *dvadcat´* '20')	48	26	35	71	62	47	103	65	39
compound numbers (e.g. *sorok pjat´* '45')	45	24	35	72	71	50	57	40	41
neskol´ko 'a few'	105	28	21	151	139	48	137	78	36
mnogo 'many', *skol´ko* 'how many', *stol´ko* 'so many'	42	0	0	not given			282	9	3

These data (derived from Suprun 1969: 185, 188) show the particular quantifier involved has a major influence on the form of predicate agreement, as discussed in section 2.1.1.3. What is of special interest here is the change in the agreement options over time. The table shows that if we consider complex numerals, compound numerals, or the quantifier *neskol´ko* 'a few', we find a rise in plural agreement from the eighteenth to the nineteenth century, and a drop again from the nineteenth to the twentieth century. Thus the change for these quantifiers moves in favour of semantic agreement and then back in favour of syntactic agreement.

4.3.2. The rise of animacy

Animacy is an agreement category, reflected in agreement of the adjective and relative pronoun, and also of the predicate verb in some languages. It is a sub-gender (Corbett 1991: 165-167), narrower in range than the three main genders. It is a more recent addition to the system than the main genders, and assignment to the animate sub-gender is (still) largely based on semantics. There are languages like Russian where, with very few exceptions, only nouns which are semantically animate can be grammatically animate. Then there are others in which animacy is becoming less clearly semantic; thus for some speakers of Polish, in some syntactic environments, a whole range of nouns denoting inanimates can be treated as animate, for example *banan* 'banana' (Wertz 1977: 57-59). If we look at the agreement targets affected by animacy, then in the south-west (Serbo-Croat) we see that only the singular of masculines is affected. In the north-east (Russian), all the plurals are affected in addition (Huntley 1980).

There are further developments in some West Slavic languages, most notably in Polish, where there is a distinction in the plural between nouns denoting male humans and all others. Assignment is fairly strictly semantic, and the expression involves the nouns and the agreeing forms (within the noun phrase and in the predicate). Here the masculine personal has unique forms of its own — they are not

syncretic with others. Let us look at Upper Sorbian, which has the complexity of Polish together with the dual number. It is described by Ermakova (1976) and Fasske (1981: 399–413); the relevant data are given in Table 15.

Table 15. Genders and subgenders in Upper Sorbian

	I	II	III	IV	V
NOM SG	dobry susod	dobry kóń	dobry štom	dobra žona	dobre słowo
ACC SG	dobreho susoda	dobreho konja	dobry štom	dobru žonu	dobre słowo
ACC DU	dobreju susodow	dobrej konjej	dobrej štomaj	dobrej žonje	dobrej słowje
NOM PL	dobri susodźi	dobre konje	dobre štomy	dobre žony	dobre słowa
	'good neighbour'	'good horse'	'good tree'	'good woman'	'good word'
	MASCULINE	MASCULINE	MASCULINE	FEMININE	NEUTER
	PERSONAL	ANIMATE	INANIMATE		

The target gender forms illustrated in Table 15 (selected from Upper Sorbian's three numbers and seven cases) allow us to establish five agreement classes (I–V). The nominative and accusative singular agreement forms provide the evidence to separate out agreement class IV (which is the feminine gender) and agreement class V (the neuter). Of the remaining agreement classes, II differs from III only in the accusative singular. Both have dependent (only syncretic) target forms, equivalent to the genitive and nominative respectively. They are thus subgenders, masculine animate and inanimate respectively. Agreement class I differs from them both in the accusative dual, a dependent target gender form, and in the nominative plural. (It differs in other forms not included in Table 15.) This agreement class (I), the masculine personal, can be treated as a separate gender since it varies in four forms out of 21, (seven cases multiplied by three numbers, though there is considerable syncretism) and it has an independent target gender form, the nominative plural (also arguably the nominative dual). This system is presented in Figure 3.
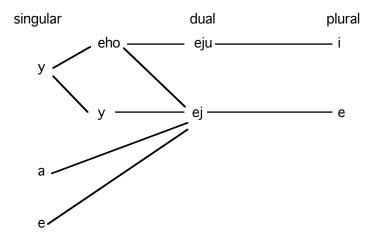

Figure 3. The gender system of Upper Sorbian

The variety of animate and personal forms in Slavic, many of which are of relatively recent origin, present a wonderful opportunity to see the rise of a new gender; it is easier to see how genders are born by looking at the recent history of Slavic than by speculating on the earlier period of Indo-European. For progress in this area specifically with regard to Russian see Krys′ko (1994) and Timberlake (1997).

4.3.3. Clitic doubling

Clitic doubling was discussed briefly in section 3.1.2. It appears to be the beginning of object agreement in Slavic. As such it deserves careful research. The differences already apparent in Bulgarian and Macedonian, and the comparison with similar languages with clitics but no clitic doubling, make it a potentially fruitful area.

4.3.4. The development of resolution rules in Serbo-Croatian

As we saw in section 2.4.3.3, the resolution rules of Serbo-Croatian are at a pivotal point where the system type appears to be changing to what would be a new type for Slavic. This change would be worth documenting.

4.4. Psycholinguistic work

Agreement has of late been proving of interest to psycholinguists; see, for example, Bock and Miller (1991), Vigliocco, Butterworth, Semenza (1995) and Clahsen and Hansen (1997). Often they work on systems which are rather less complex than those of Slavic. However, Kehayia, Jarema, and Kądziela (1990) include Polish as one of the languages in a cross-linguistic comparison. Given the existence of agreement systems in Slavic languages which vary in respect of quite small features, Slavic might well prove fertile ground. We should hope to see increasing collaboration with psycholinguists.

4.5. The acquisition of agreement and agreement categories

Given the complexity of the factors involved in agreement and the interest of the agreement categories for cognitive development, it would be natural to investigate their acquisition. There is fascinating information on the acquisition of Polish in Smoczyńska (1985: 629-630, 637-639, 641-642, 644-646). There is much more work that could be done in terms of acquisition, particularly with comparisons across the Slavic languages. It is demanding work, requiring careful separation of the categories being investigated and ideally a large corpus of acquisition data.

4.6. Conversational data

Work on agreement in Slavic has in the main been firmly based on empirical data, as in the work of Patton (1969), Suprun (1969), Sand (1971) and Robblee (1993b) for example. However, the data have most often been from written language. With the increasing availability of large corpora, we can look to further worthwhile work of this type. But detailed work on conversational data would be of particular value. Initial research shows that agreement choices, which are of considerable theoretical interest, occur relatively commonly in spoken language. A corpus of about 49,000 words of spoken Russian (Zemskaja and Kapanadze 1978) was scanned for examples of three agreement choices: those involving conjoined noun phrases, quantified expressions and relative *kto* 'who' (with a plural antecedent). There were 22 examples, in other words examples occurred more frequently than once in 2,500 words. In addition, there were instances of other agreement choices which were not included in the count. More generally, however, spoken data are where we must look for an understanding of the function of agreement.

4.7. The function of agreement

Given its pervasiveness and complexity, it is reasonable to ask what agreement does. This question is to be understood as relating to the agreement system as a whole. The old answer is that it introduces redundancy, so that if part of the message is lost, owing to noise in the communication channel, there is a greater chance that the original message can be reconstituted. This may well be part of the answer. Researchers have also pointed to a more specific function of agreement, namely its role in allowing the speaker to keep track of referents in a discourse, by means of the agreement categories (see Lehmann 1982: 233, 1988; Foley and Van Valin 1984: 327). This view is consistent with that of Barlow (1988/1992: 3, 7), according to whom the controller and target 'instigate discourse referents'. Pollard and Sag (1988: 242) also see the role of agreement as being to keep track of referents in discourse. The old and new suggestions as to the role of agreement may be seen as complementary. It may well be that its functions and importance may vary considerably from language to language.

There are also more specific questions, relating to particular parts of the agreement system. Concerning the function of agreement choices, Robblee (1993b: 433–437) considers singular and plural agreement with quantified noun phrases and argues that agreement expresses the speaker's view of the event in terms of individuation, with plural agreement having an individuating function and singular agreement being used for deindividuation. And then there is the relation between agreement morphology and the possibility of dropping subject pronouns. Franks (1995: 297-298), in a discussion of null subject phenomena, points out that in those Slavic languages where the copula and the past tense auxiliary have 'full-fledged' agreement systems (including person agreement), that is in West

and South Slavic, subject pronouns are standardly omitted. And in East Slavic, where there is no copula and past tense auxiliary showing person agreement, subject pronouns are not standardly dropped. However, a study based on texts with translations in different Slavic languages shows the picture to be more complex and gradient (Seo 2001).

5. Conclusion

Agreement in Slavic is an area that has already been relatively well researched. We have reasonable accounts of the different agreement systems, and ample evidence of the pervasive nature of options in agreement systems. The nature of the work that has been done makes Slavic agreement a potentially excellent area for new research, of various kinds. For instance, we know a good deal about individual factors which affect agreement choices, but much less on how they interact. We know something about the adult systems, but rather little about how they are acquired and what their function is. And the Slavic languages are sufficiently similar and sufficiently different to provide an attractive research laboratory.

Research on agreement continues steadily. In particular, the conditions on different agreement options in Slavic prove as fascinating as ever. They are tackled in an HPSG framework in a series of papers, concentrating on Serbian/Croatian, by Stephen Wechsler and Larisa Zlatić, notably in their 2001 paper. The various papers are drawn together in Wechsler and Zlatić (2003). Various interesting options in South Slavic are also documented by Mladenova (2001). Her data are directly relevant to the Agreement Hierarchy, which is specifically tested in Leko (2000), using Bosnian data and in Igartua (2004), looking at Old Russian. The relevant evidence on the Agreement Hierarchy, from Slavic and beyond, is summarized in Corbett (2006). Agreement in Czech is discussed both by Panevová and Petkevič (1997) and by Veselovská (2001). The diachrony of agreement is the subject of Igartua (2000). A particularly welcome departure is the use of psycholinguistic techniques to elucidate agreement, as in Nicol and Wilson (2000) and Rusakova (2001).

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