Coordinated Numeral Phrases in Czech

Koordinierte Numeralphrasen im Tschechischen

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Contents

1 Introduction

This master's thesis is concerned with a well-known, but less well understood phenomenon found in the Slavic languages: Numeral phrases, especially those containing a numeral that is higher than four, affect case on the noun that follows them. Additionally, they influence verbal and adjectival agreement. These effects interact with each other, and they differ within the Slavic language group. Of central importance is the effect that the presence of such numeral phrases has on verb agreement with conjoined phrases. Investigating these interactions reveals the process of agreement in the Slavic languages, as well as their structural peculiarities. The Czech language will be the primary focus of this thesis, due to its comparative neglect in the field. The literature provides an extensive investigation of the relevant structures in Russian, the language which is the dominant object of investigation.

My intention is to examine how Slavic, and especially Czech, agree mechanisms handle nouns modified by a numeral higher than four, so-called 5&Ups. Specifically, I investigate the interplay of such phrases with coordinated structures, another field of linguistic data which is especially interesting for understanding agreement. I examine which predictions different theories make for these structures and compare these predictions to data obtained from native speakers of Czech with the help of a questionnaire.

This thesis is structured as follows. First, in section 2, I will explain the phenomena which form the empirical basis for this thesis: numeral phrases and coordination. Then, section 3 will first introduce and clarify the theoretical notions relevant for this paper, and then proceed to a detailed discussion of the data found in the literature in the light of this theoretic background. Section 4 describes the methodology used for the questionnaire on Czech, until I turn to the results and their preliminary discussion in section 5. Finally, section 6 summarises and discusses the combination of these results with each other and their connection to the data and the literature. It concludes the thesis with an outlook to further research.

The focus of this thesis is on Slavic languages. Whilst my own investigation is concerned with Czech, data from other West, South and East Slavic languages are also included in the discussion. However, the choice of languages discussed

is usually determined by the literature available on the subject. While some Slavic languages, above all Russian, have been thoroughly investigated, literature on many other Slavic languages, including Czech, is more rare. In consequence, linguistic data in the first half of this thesis comes to a large extent from Russian, and is complemented by data from the West and South Slavic languages. The second half then focusses on Czech. This allows a comparison between languages at the end of the thesis.

2 The Phenomenon

To a speaker of English or German, the phenomena that constitute the subject of this thesis might at first appear rather bewildering. They also pose considerable difficulty for everyone who wants to learn a Slavic language at a proficient level. The effects discussed here are caused by the presence of numerals above 4, which I hereafter refer to as "5&Ups", following Marušič, Nevins and Badecker (2015a). The numerals below these (2, 3 and 4) are commonly referred to as "paucal numerals", from the Latin *paucalis* 'few'.

I will illustrate the relevant patterns in Russian, the language on which most of the research on the topic has been conducted. Example (1) below reflects the effect of the presence of a 5&Up:[1]

(1)

Анна	*купила*	*пять*	*яблок.*
Anna	kupila	pjat'	jablok.
Anna.NOM	bought.F	5	apple.GEN.PL

'Anna bought five apples.'

The first three words of this sentence are unsurprising: the subject is in nominative case and the verb agrees with this subject. The numeral 5, which is part of the direct object, is in a form which resembles the nominative.[2] But the noun *jablok* appears in a form which speakers of English and many other non-Slavic languages might find puzzling: instead of being in the accusative, as part of the

[1] When no reference is given, examples are my own.

[2] I do not gloss the numerals for case because it is not clear whether they carry any case at all, and if they do, which case it is. In general, the form *pjat'* in sentences like (1) might be either accusative or nominative. However, the numeral might also be caseless, an idea related to the assumption that the numeral is a quantifier which does not require case (cf. Franks, 1994, p. 646). This issue will be discussed in detail in section 3.2.3.

direct object, *jablok* is in the genitive (cf. Franks, 1994, p. 600). This is not a behaviour normally displayed by direct objects, as the following equivalent of example (1), without the numeral, shows:

(2) *Анна* *купила* *яблоки.*
Anna kupila jabloki.
Anna.NOM bought.F apple.ACC.PL
'Anna bought apples.'

Clearly, it is the numeral 5 that triggers the genitive on the noun following it. Paucal numerals display a different kind of behaviour, as illustrated by the Russian example (3). Replacing 5 by 3 changes the marking on the object in another unusual way: the noun is singular, but still bears genitive case (cf. Franks, 1994, p. 600). This is counterintuitive because it refers to a multitude of apples, not just one.

(3) *Анна* *купила* *три* *яблока.*
Anna kupila tri jabloka.
Anna.NOM bought.F 3.ACC apple.GEN.SG
'Anna bought three apples.'

Not all Slavic languages display this kind of agreement with paucals. In Czech, for example, they do not have any effect on the noun they precede. In the following section, I explore the roots of this phenomenon and of the difference between paucals and higher numerals. For the remaining part of this thesis, neither paucal numerals nor the numeral 1 will be discussed. The reason for this is that the properties of these lower numerals are not as surprising as they seem at first sight, as section 2.1 demonstrates. Instead, the principal issue of this thesis is the phenomenon of unexpected verb forms when a 5&Up is contained in a subject, which is closely tied to genitive marking after 5&Ups. I will present this relation in section 2.2.

Before continuing, another peculiarity of 5&Up phrases should be noted: when they are not in a position to which the verb (or preposition) assigns nominative or accusative, they do not assign genitive to the noun that follows. In these configurations, they behave just like any other modifier, allowing the noun to agree in case with the verb and also agreeing themselves.

(4) a. *Иван* *владеет* *пятью* *фабриками.*
Ivan vladeet pjat'ju fabrikami.
Ivan.NOM owns.3SG 5.INS factory.INS.PL
'Ivan owns five factories.'

b. *о* *пяти* *книгах*
o pjati knigah
about 5.LOC book.LOC.PL
'about five books'

(cf. Franks, 1994, p. 601)

In example (4a), the verb *vladet'* 'to own' assigns instrumental to the object. Both the numeral and the noun carry this case. Example (4b) reveals the same effect with a preposition that assigns locative. Something must prevent the numeral from assigning the genitive in these configurations, as it does in accusative positions as in example (1) above.

2.1 A note on the history of Slavic numerals

Some of the puzzling properties of Slavic nouns following numerals can be explained when considering the historic development of the status of numerals in Slavic. Neidle (1988) provides a theory of how Russian numerals changed their status in the language's development. One crucial factor here is the existence of a third type of number value,[3] dual, in Old Russian. Dual was triggered by the numeral 2, the numeral 1 triggered singular and all others triggered plural. While 2 was in this respect different from the other paucal numerals, they shared the property of being adjectival, in contrast to higher numerals, which were nominal.[4] Table 1 illustrates the pattern (cf. Neidle, 1988, p. 90).

When the dual disappeared, all adjectival numerals formed a single class. The numerals 3 and 4 adapted in their properties to the numeral 2. This is still visible in Russian, where the genitive singular on nouns following paucals is not always identical to the genitive singular found in other contexts, differing, for example,

[3] I use *number* to refer to the category containing singular, plural, dual and others, but never when speaking about *numerals* like 1, 3, 5 and so on.

[4] As will be elaborated later in the theoretical considerations in section 3.2.1, Neidle's (1988) claim that the higher numerals were nouns cannot be extended to modern Slavic languages for multiple reasons.

	1	2	3	4	> 4
adjectival	x	x	x	x	
nominal					x
with singular	x				
with dual		x			
with plural			x	x	x

Table 1: Old Russian numerals and their effects on number

in stress placement. One could consequently speak of the remnants of a special paucal case, a case which is still fully present in Serbo-Croatian (cf. Franks, 1994, p. 600).

In Czech, the language in the centre of this thesis, the situation is slightly less complicated. Here, the paucal numerals do not trigger any specific case, but behave purely adjectival, modifying a plural noun. This is exemplified by the sentence in example (5).

(5) *Anna* *koupila* *tři* *jablka.*
Anna.NOM bought.F 3.ACC apple.ACC.PL
'Anna bought three apples.'

A possible explanation is that when the Czech dual[5] disappeared, the numeral 2 adapted to the numerals 3 and 4 in triggering the plural, a process just opposite of what happened in Russian. In both cases, the difference between paucal and higher numerals remained, due to their different syntactic status. Consequently, with 5&Ups, the same pattern arises in Czech and Russian, with those numerals triggering the genitive plural. This is demonstrated for Czech in example (6):

(6) *Anna* *koupila* *pět* *jablek.*
Anna.NOM bought.F 5 apple.GEN.PL
'Anna bought five apples.'

[5]Modern Czech still shows relics of the dual in the plural forms of nouns which typically appear in pairs, such as hands: The regular plural form of *ruka* 'hand' would be *ruky*. But this form is seldom used. If so, it is predominantly used in figurative contexts, whereas the plural typically used for this noun is *ruce*, a form deriving from the lost dual (cf. Naughton, 2008, p. 40).

2.2 How 5&Ups affect verb agreement

It is clear that the presence of a 5&Up in a phrase has effects on case marking. This raises an immediate question: What is the status of such phrases? Are they still headed by the noun contained within them? Or is the numeral, which after all appears to assign case, the head of this phrase? These questions will be discussed in depth in section 3.2.1. In this section, I turn to a factor that is crucial for answering them, namely verb agreement. When a 5&Up is part of the subject of a sentence, it has effects on verbal (and adjectival) morphology. However, these effects are not the same in all Slavic languages.

2.2.1 West Slavic: Czech and Polish

A comparison of the Czech sentences in example (7) reveals the difference described in the preceding section: The noun modified by the adjective *veselé* is in the nominative, just as the noun modified by the paucal numeral *tři*. In contrast, the noun preceded by the numeral 7 is in the genitive. The verb agrees with the feminine plural noun *krávy* in sentences (7a) and (7b), but not so in (7c), where it carries the neuter singular suffix *-lo*. This is the typical default verb form in Czech, which is also found with subjectless expressions as in example (8a) and with clausal subjects that do not provide phi- and case features as in (8b).

(7) a. *Veselé* *krávy* *jedly* *seno.*
happy.NOM.F.PL cow.NOM.F.PL ate.F.PL hay.ACC
'The happy cows ate hay.'

b. *Tři* *krávy* *jedly* *seno.*
3.NOM cow.NOM.F.PL ate.F.PL hay.ACC
'Three cows ate hay.'

c. *Sedm* *krav* *jedlo* *seno.*
7 cow.GEN.F.PL ate.N.SG hay.ACC
'Seven cows ate hay.'

(8) a. *Pršelo.*
rained.N.SG
'It rained.'

b. *Že* *Petr* *nepřišel,* *nebylo* *dobré.*
that Petr NEG:came NEG:was.N.SG good.NOM.N.SG
'That Petr didn't come wasn't good.'

(cf. Kučerová, to appear, p. 3)

For Polish, the situation seems to be exactly the same as in Czech. Only neuter singular agreement is available with a 5&Up subject; plural agreement is ungrammatical:

(9) *Pięć* *kobiet* *głosowało* *przeciwko* *Wałęsie.*
5 woman.GEN.PL voted.N.SG against Walesa.DAT
'Five women voted against Walesa.'

(cf. Franks, 1994, p. 664)

2.2.2 South Slavic: Serbo-Croatian and Slovenian

Whilst default neuter singular agreement with numeral phrases is typical in Slavic, some languages also allow for other options. In Serbo-Croatian, agreement with the counted noun is possible, but strongly dispreferred, "having the status of a performance error" (Franks, 1994, p. 662). This is demonstrated by the contrast in grammaticality of (10a) and (10b). The first sentence, as in Czech, displays neuter singular default agreement through the suffix *-lo* on the participle and is perfectly grammatical. The second sentence, with the participle ending in the masculine plural suffix *-li*, is much less acceptable:

(10) (a) *70* *miliona* *lica* *je* *napustilo* *ovaj*
70 million people.GEN.PL AUX.SG left.N.SG this.ACC
kontinent.
continent.ACC
'70 million people left this continent.'

(b) *?70* *miliona* *lica* *su* *napustili* *ovaj*
70 million people.GEN.PL AUX.PL left.M.PL this.ACC
kontinent.
continent.ACC
'70 million people left this continent.'

(cf. Franks, 1994, p. 662)

Slovenian is as strict concerning agreement as Czech and Polish, as for sentence (11), Marušič, Nevins and Badecker (2015b) mention no alternative to neuter singular on the verb *went*:

(11) *Pet* *krav* *je* *odšlo* *na* *pašo.*
5 cow.GEN.PL AUX.SG went.N.SG on graze.ACC
'Five cows went grazing.'

(cf. Marušič et al., 2015b, p. 1)

2.2.3 East Slavic: Russian

In Russian, there is true optionality between singular and plural agreement, with neither of the two being as marginal as plural agreement in Serbo-Croatian, as example (12) illustrates:

(12) *Шесть* *студентов* *пришли/* *пришло.*
Šest' studentov prišli/ prišlo.
6 student.GEN.PL arrived.PL arrived.N.SG
'Six students arrived.'

(cf. Pesetsky, 1982, p. 76)

However, there are some restrictions on the grammaticality of either option, depending on both syntactic and semantic context. This makes Russian particularly interesting for the analysis by helping to detect the mechanisms that control agreement with numeral phrases. In sections 3.2.4 and 3.2.5 I illustrate in detail how singular and plural agreement with 5&Up subjects are distributed in Russian.

2.3 Agreement with conjoined phrases

In general, conjoined phrases are an interesting object for investigation because they reveal how grammars deal with competing sources for agreement. One reason they are especially worth examining in Slavic is the nuanced agreement system in these languages. Consider a sentence like (13a). When two plural phrases in English are conjoined, the source of verb agreement cannot be determined. Of course, the plural on the verb might be agreement with the entire conjoined

phrase. However, examples such as (13b), with singular agreement on the verb, reveal that it is not necessarily the entire phrase, which logically should be plural, that provides agreement.

(13) a. Natives and tourists come to the castle each day.

b. Frost and freezing fog has affected most of the country today.

(cf. Corbett, 1979, p. 207)[6]

In contrast to English, Slavic also displays gender agreement on the verb, in addition to number. Thus, whilst the question of the agreement source must remain unsolved for two conjoined plurals in English, Slavic languages often permit to identify the agreement controller. This is evident through the Czech example in (14), where the masculine conjunct determines gender on the verb in (14a), whereas in (14b), it is the feminine conjunct.

(14) a. *Člověk* *a* *stroj* *pracovali.*
man.M.ANM.SG and machine.M.IANM.SG worked.M.ANM.PL
'The man and the machine worked.'

b. *Matka* *a* *dítě* *čekaly.*
mother.F.SG and child.N.SG worked.F.PL
'The mother and the child waited.'

(cf. Corbett, 1983, p. 192)

Section 3.3 sheds more light on how agreement with conjoined phrases works and explores the variability in agreement sources found in Slavic. I now turn to the special case of agreement with conjuncts that contain one or more 5&Up phrases.

2.4 Agreement with conjuncts containing a 5&Up

What happens when numeral phrases are coordinated? What conclusions can be drawn about the structure of numeral phrases from the agreement patterns found with conjuncts? And what does this imply for the mechanism of conjunct agreement? These questions are of central importance to this thesis. They have also been investigated in a study of Slovenian by Marušič et al. (2015b).

[6]Example (13a) is my own.

As outlined in section 2.2.2, Slovenian 5&Ups trigger neuter singular agreement. In order to ascertain whether they structurally resemble neuter singular noun phrases, Marušič et al. (2015b) compared the two systematically in coordinated structures. Section 3.4 presents the results and their theoretical implications in detail. Here, I discuss the direct comparison of two conjoined numeral phrases with two conjoined neuters. This provides a first impression of the effects of 5&Ups on conjunct agreement.

In their elicited production experiment, the authors compared sentences with conjoined neuter singular NPs as in example (15a) with conjoined numeral phrases as in (15b).

(15) a. *Čistilo* *in* *razkužilo* _ *izginil-_* *iz*
cleaner.N.SG and disinfectant.N.SG AUX disappared-SFX from
omare.
cabinet
'A cleaner and a disinfectant disappeared from the cabinet.'

b. *Pet* *bifejev* *in* *deset* *uradov* *se* _
5 pub.GEN.PL and 10 office.GEN.PL REFL AUX
preuredil-_ *v* *igralnico.*
transformed-SFX in casino
'Five pubs and ten offices transformed into a casino.'

(cf. Marušič et al., 2015b, p. 2)

The result was a clear difference in agreement: about two thirds of agreement choices with the conjoined neuters were dual agreement. In a language that possesses dual number, this is expected when two singulars are conjoined. In contrast, the conjoined 5&Up phrases yielded about 80 % of singular agreement (cf. Marušič et al., 2015b, p. 2). From a conceptual viewpoint, this is unexpected, because the total amount of pubs and offices in (15b) is 15, which is compatible with neither dual nor singular, but only with plural agreement. Indeed, plural was, with close to 20 %, the participants' second choice. Dual agreement did virtually not occur. These results and others will play an important role in this paper's reasoning and argument. In addition, I investigate whether Czech displays similar patterns as Slovenian.

3 Theoretical Background

When talking about agreement and coordination, a number of underlying theoretic concepts must be considered. I seek to make clear in this section which general assumptions concerning the architecture of coordination and the process of agreement are made in this thesis, to avoid ambiguity, but also implying that those underlying assumptions are not trivial. Changing them might steer a discussion of the phenomena presented here into a different direction. The section also provides a more detailed insight into the available data and their implications for different theories.

The theoretic framework within which I will be arguing here is that of Generative Grammar: the literature cited in this thesis is mostly situated in Government and Binding theory or in the Minimalist Program. However, work on the issues discussed here has also been done in other frameworks, such as Lexical Functional Grammar by Neidle (1988) or Head Driven Phrase Structure Grammar by Wechsler and Zlatić (2000). While I will include the data and general insights provided by such work, I will not discuss their theoretic viewpoints on these issues, in order to keep the discussion within the scope of a master's thesis.

3.1 Agreement

I will follow Corbett (1983) and others in calling the agreeing element the *target* and the element that it agrees with the *controller* (cf. Corbett, 1983, p. 8). For clarity, alternative terminology, such as that of *goal* and *probe* (employed for example by Smith (2015) and Kučerová (to appear)) will be translated into those terms. The authors presented in this thesis have different views on the exact nature of the agreement process. For a large part of the argumentation, an intuitive approach is sufficient. However, the discussion of agreement with numeral phrases and conjuncts entails a number of conclusions about the structure of agreement. These will be discussed in due course.

3.1.1 Syntactic vs. semantic agreement

How can variation in agreement, as found with Russian numeral phrases and with coordinated structures, be explained? In some contexts, it might be attributed to the presence of two potential controllers. However, this is not always the case.

Even when clearly just one agreement controller is available, variation can occur. Wechsler and Zlatić (2000) propose that a noun has not one single set of features, but two. The first set consists of *concord features*, the second of *index features* (cf. Wechsler & Zlatić, 2000, p. 799). This former set of features is also called *syntactic*, in the sense that these represent formal feature values. The latter can be called *semantic*: their values represent the conceptual content of an element.

Smith (2015) takes Wechsler and Zlatić's (2000) approach, developed in the framework of Head Driven Phrase Structure Grammar, as a point of departure for his theory of feature mismatches in the Minimalist Program. Here, syntactic features are *uninterpretable* features, short uFs; semantic features, in contrast, are *interpretable* features, short iFs (cf. Smith, 2015, p. 5 et seq.). Usually, the values for uFs and iFs are the same, but this is not necessarily the case. For example, a collective noun like *committee* is morphologically singular. Semantically, however, it denotes a plurality. In a number of varieties of English, such nouns optionally allow plural (iF) agreement as an alternative to the standard singular (uF) agreement, as example (16) shows:

(16) The committee is/are drawing up a proposal right now.

(cf. Smith, 2015, p. 73)

A criterion to distinguish between syntactic and semantic agreement is provided by Corbett (1979). According to him, semantic agreement is "agreement which cannot be justified solely by syntactic features" (cf. Corbett, 1979, p. 204), which applies to plural agreement in (16). Based on the finding that semantic agreement is usually more restricted than syntactic agreement, Smith (2015) assumes that semantic agreement can only take place when the controller c-commands the target at LF (cf. Smith, 2015, p. 78). Such structural differences play an important role in the analysis of Slavic later in the text.

3.1.2 The Agreement Hierarchy

As mentioned above, the distribution of semantic and syntactic agreement is not equal. For example, some syntactic categories prefer one option over the other, or even disallow one option completely, as illustrated by the Russian example (17), where the syntactically masculine noun *vrač*, 'doctor', refers to a female person:

(17) *Иванова* *хороший/* *хорошая* *врач.* *Она/* **Он* *заведует*
Ivanova horošij/ horošaja vrač. Ona/ *On zaveduet
Ivanova.F good.M.SG good.F.SG doctor.M she he manage.3SG
этим *корпусом.*
etim korpusom.
this.INS ward.INS
'Ivanova is a good doctor. She is in charge of this ward.'

(cf. Corbett, 1979, p. 209)

The adjective *good* in the first sentence of (17) can be both masculine or feminine, which means that both syntactic and semantic agreement are possible in attributive position here. In contrast, the personal pronoun in the second sentence cannot agree syntactically: only feminine agreement is possible. Based on such categorical asymmetries between semantic and syntactic agreement, Corbett (1979) proposes the following hierarchy:

(18) The Agreement Hierarchy
attributive – predicate – relative pronoun – personal pronoun

The closer an element is to the right edge of the hierarchy, the more likely semantic agreement becomes. Semantic agreement at one point in the hierarchy also implies that all elements to the right of this point will show semantic agreement as well. The same is true for syntactic agremeent in the other direction (cf. Corbett, 1979, p. 204). In this sense, the Agreement Hierarchy has a certain predictive force.

Note that from a syntactic viewpoint the Agreement Hierarchy is not random: moving rightwards across it increases syntactic distance. Besides this, the hierarchy is mostly descriptive. However, Corbett (1979) argues that it cannot be reduced to more general syntactic principles. Consequently, "the hierarchy is an independent feature of natural languages" (Corbett, 1979, p. 217).

Corbett (1979) provides various types of data as evidence for his hierarchy. Some of them are directly relevant to the subject of this thesis, as these of conjoined phrases in English, presented in example (19). Plural agreement with conjoined singular NPs is semantic in the sense that a plural value is not present on either of the two conjuncts. Syntactic agreement is singular agreement with one of the NPs.

(19) a. This/*These frost and freezing fog...

b. Frost and freezing fog has/have affected most of the country today.

c. Frost and freezing fog, which has/have affected most of the country today, caused particular havoc in the north.

d. They/?It will be with us again tomorrow.

(cf. Corbett, 1979, p. 207)

Each example represents one point in the hierarchy, starting from the left. In attributive position (example (19a)), only syntactic agreement is possible. The predicate in (19b) shows optionality between syntactic and semantic agreement.[7] The same optionality applies to relative pronouns in (19c). Finally, at the rightmost point of the hierarchy, with personal pronouns, syntactic agreement is no longer an option (example (19d)). The effects the Agreement Hierarchy has on agreement with conjoined numeral phrases are of central concern to this thesis.

3.1.3 Other factors influencing agreement

It not only matters what category the agreeing element belongs to. Furthermore, its position relative to the agreement controller has an effect. When the target precedes the controller, syntactic agreement is more likely than when it follows it (cf. Corbett, 1979, p. 219). This issue will become relevant for our analysis of numeral phrases later on. Example (20) illustrates the effect. When the verb follows the controller, as in (20a), syntactic agreement is not possible. However, in (20b), where the verb precedes the controller, syntactic agreement is the preferred option:

(20) a. A man and a woman were/*was squatting in the castle.

b. There was/?were a witch and a wizard living in the moat.

(cf. Corbett, 1979, p. 207)

Contrasted with example (19) in section 3.1.2 above, this example also shows the effect of animacy on verb agreement: animate controllers favour semantic

[7] This is different with animate NPs, where semantic agreement is often obligatory in predicate position (cf. Corbett, 1979, p. 207). Animacy effects for Slavic numeral phrases will be discussed in section 3.2.5.

agreement (cf. Corbett, 1979, p. 219). A comparison of sentences (19b) and (20a) demonstrates that both syntactic and semantic agreement are possible with the inanimate conjunct *frost and freezing fog*, but that with the animate *a man and a woman*, only semantic agreement is possible. This issue, too, is relevant for numeral phrases, and will be addressed again in section 3.2.5.

An additional factor is distance. In a corpus study of agreement with collective nouns, Nixon (1972) investigates the effects of distance on pronominal agreement. He finds that the probability of syntactic agreement decreases steadily with rising word numbers between target and controller. Put differently, a pronoun which is close to its controller is more likely to show syntactic agreement than one which is further away (cf. Nixon, 1972, p. 125).

3.2 Numeral phrases

So far, I have tried to use theory-neutral terminology such as “numeral phrase" or “5&Up" in order to avoid the issue of the status of these phrases in the prescriptive part. At this point, the analysis turns to a closer investigation of such phrases, with the objective of reaching an understanding of their structures.

I will first present an older theory of numeral phrases, as developed by Pesetsky (1982) and Franks (1994). Different sets of data will be examined to explore their compatibility with this account. Finally, I will present a more recent approach, as argued for by Glushan (2013) and Smith (2015) and outline the advantages and disadvantages it has in comparison with the more traditional view. What both approaches agree on is the status of the 5&Up: it is a quantifier, not a noun. This might not be evident at first glance, so I reveal the reasons for this view in the following section.

3.2.1 The numeral is a quantifier

In section 2.1, I have illustrated Neidle's (1988) theory of how the different case triggering properties of Russian paucal and higher numerals developed. It states that 5&Ups used to be nominal, in contrast to paucal numerals, which were adjectival. At first glance, it is attractive to extend this analysis to modern Slavic languages and assume 5&Ups to still be nominal today. As will become clear

in the following paragraphs, however, this turns out to be problematic in several respects.

If the numeral was a noun, the genitive on the noun following it could be analysed as adnominal, as the genitive on the noun *biatlonistů* in the Czech sentence in (21a). At first glance, (21a) and (21b) seem to be structurally identical. Through this, the conclusion could be that both *družstvo* 'team' and *sedm* 'seven' have the same status, and that the numeral phrase is simply a neuter NP. Neuter singular on the verb would consequently represent agreement with the numeral.

(21) (a) *Družstvo* *mladých* *biatlonistů* *se* *ztratilo.*
team.NOM.N.SG young.GEN.PL biathlete.GEN.PL REFL lost.N.SG
'The team of the young biathletes lost.'

(b) *Sedm* *mladých* *biatlonistů* *se* *ztratilo.*
7 young.GEN.PL biathlete.GEN.PL REFL lost.N.SG
'Seven young biathletes lost.'

However, the analysis of Slavic 5&Ups as nouns is problematic. A first piece of counter-evidence is the fact that, in modern Czech as well as in modern Russian, they can never be used as nouns. When one wishes to speak, for example, about *the five*, a special noun, *pětka*, is used.

Secondly, as demonstrated in section 2, the genitive on the noun disappears in positions where the numeral phrase is not assigned nominative or accusative. In such cases, both noun and numeral agree in case with the verb or preposition. Such contrasts do not occur with adnominal genitives, as comparing (22a) with (22b) shows. In the first sentence, the neuter noun *družstvo* receives instrumental case from the preposition *s*, but the following adjective and noun still carry genitive case. In contrast, in the second sentence, both the numeral and the following noun bear the case assigned by the preposition:

(22) a. *Trenér* *přiletěl* *s* *družstvem* *mladých*
coach.*nom* flew.in.M with team.INS.SG young.GEN.PL
biatlonistů.
biathlete.GEN.PL
'The coach flew in with a team of young biathletes.'

b. *Trenér* *přiletěl* *se* *sedmi* *mladými* *biatlonisty.*
coach.*nom* flew.in.M with 7.INS young.INS.PL biathlete.INS.PL
'The coach flew in with seven young biathletes.'

According to Veselovská (2001), 5&Ups can also never appear alone. In contrast to NPs, they always require the presence of some kind of complement. In order to express *I saw five*, a clitic with the rough meaning of *of them* must be used for the sentence to be grammatical. This is demonstrated by the contrast between the sentences in example (23): the adjectival numeral 3 in (23a) does not require a complement, but the same sentence with the numeral 5 in (23b) is ungrammatical; it is only felicitous with the clitic complement *jich* in (23c).

(23) (a) *Včera* *viděl* *tři.*
yesterday saw.M.SG 3.ACC
'Yesterday he saw three.'

(b) **Včera* *viděl* *pět.*
yesterday saw.M.SG 5
'Yesterday he saw five.'

(c) *Včera* *jich* *viděl* *pět.*
yesterday them.GEN saw.M.SG 5
'Yesterday he saw five of them.'

(cf. Veselovská, 2001, p. 283 et seq.)

Another problem with the analysis of 5&Ups as nouns is one which is especially relevant to the subject of this thesis. An NP analysis would entail the prediction that two conjoined numeral phrases behave just like two conjoined neuter NPs. However, in section 2.4 I have presented data from Slovenian which shows that this is not the case: whilst two conjoined neuter NPs yield dual agreement, two conjoined 5&Ups generate neuter singular.

Finally, Veselovská (2001) shows that 5&Ups in Czech pattern in their properties with existential quantifiers like *mnoho* 'many/much', *málo* 'little/few', *dost* 'enough' and *kolik* 'how many' (cf. Veselovská, 2001, p. 275). Thus it is reasonable not to regard them as nouns, but as quantifiers.

Having presented the arguments against analysing 5&Ups in modern Slavic as NPs, I conclude that the numeral phrase is headed by the numeral, and that this numeral is a quantifier. Consequently, I will henceforth use the expression *quantified noun phrase* (QNP) when referring to a numeral phrase, as used by Smith (2015). It has the advantage of only referring to 5&Ups (while avoiding this rather cumbersome expression), excluding paucal numerals which are adjectival.

Additionally, it implies that a discussion of their properties also includes their structural twins, the existential quantifiers mentioned above.

3.2.2 Analysis 1: QPs and NPs

Theories that aim to explain the patterns found with QNPs in Slavic need to consider at least the following questions:

- Why does the numeral cause genitive agreement on its complement NP?
- Why does this effect disappear as soon as the QNP is not in a nominative or accusative position?
- Why does a QNP subject influence verb agreement?

An approach attempting to answer these questions for Russian was developed by Pesetsky (1982) and advanced by Franks (1994). Their general assumption is founded on the fact that in Russian, as illustrated in section 2.2.3, both singular and plural agreement are possible with QNPs. In order to account for this variation, both authors assume that Russian QNPs can be either QPs or NPs. I will call this view on numeral phrases the *categorical approach*, because it rests on the assumption that variation in the QNP's category leads to variation in agreement.

The reasoning, as described within Franks' (1994) theory, is as follows: If the subject phrase is headed by a quantifier (the numeral), then it is a QP. The QP lacks phi-feature specification, and consequently the verb cannot agree with it, which then leads to default agreement.[8] If, on the other hand, the phrase is headed by a noun, then the entire phrase is an NP. The NP derives its phi-features from its head noun and the verb agrees with these features (cf. Franks, 1994, p. 620). This explains the effect on verb agreement.

Franks' (1994) explanation of the presence or absence of genitive on the noun relies on the distinction between structural and oblique cases. Structural cases are such that are assigned by default, so nominative and accusative belong to the

[8]To be precise, Franks (1994) assumes that neuter singular agreement is not a default, but agreement with an empty subject (cf. Franks, 1994, p. 621). This view is problematic when analysing conjuncts of numeral phrases and plural NPs, because the plural NP would then be the subject, whilst the other part of the conjunct, the numeral phrase, would not. Consequently, I will depart from this view and interpret neuter singular agreement as a default throughout this thesis.

former group. Other cases, such as dative and instrumental in Slavic, belong to the latter group of oblique cases. These are part of the lexical information of a verb or preposition. The oblique cases are assigned first, whilst the structural cases are assigned only later to those phrases that still lack, but require, case (cf. Franks, 1994, p. 603 et seq.). Franks (1994) now assumes the genitive assigned by the numeral, which he calls *genitive of quantification* (GEN-Q), to be structural in Russian – in contrast to the ordinary genitive. The consequence is that the oblique cases block the assignment of GEN-Q, because they are assigned before it can apply. However, the structural cases nominative and accusative are not assigned, because the noun already carries GEN-Q at the point at which they would apply.

Whilst the two assumptions offer an explanation of the data, their combination yields a problem. It follows from the argumentation that QNPs which trigger plural agreement on the verb are NPs. However, these NPs still allow the numeral to assign case to the noun, which constitutes the head of the phrase. Franks (1994) addresses the problem and argues for keeping the QP/NP distinction based on reasons also given by Pesetsky (1982). These will be outlined in sections 3.2.4 and 3.2.5. However, he offers no solution to this problem of case assignment by the modifier (cf. Franks, 1994, p. 620 et seq.).

3.2.3 The case on the numeral

As was mentioned in footnote 2, I have not glossed the numerals for case because it is unclear which case they carry or whether they carry any case at all. I have already presented arguments against analysing the numeral as a noun. The question is now as to whether the numeral could be a case-bearing quantifier.

The existential quantifiers that QNPs pattern with, described in section 3.2.1, also show similar properties in their case morphology: none of them distinguishes nominative and accusative. Like numerals, they only distinguish oblique from structural cases. I have demonstrated that in oblique positions, these elements carry the case assigned by the verb or adjective. In these configurations, they behave just like any other adjectival modifier and consequently carry case. The question remains as to whether they carry case in structural positions.

Franks (1994) presents arguments for analysing the numeral as caseless in Russian, based mainly on the interaction of QNPs with the distributive preposition

po. At the same time he provides data from Polish that suggests that the numeral in this language might always be accusative (cf. Franks, 1994, p. 633, 664). Discussing this data and Franks' (1994) analysis of it would exceed the limits of this paper.[9] However, I attempt to answer the question for Czech after having examined the results of the questionnaire.

3.2.4 Binding and control data

This section presents a set of data from Russian used as confirmation for the assumption that there is a categorical difference between QNPs that control singular agreement and such that control plural agreement. The data comprises binding and control structures, to which verbal agreement is tied in Russian.

I start with example (24), which illustrates the effect a reflexive bound by the QNP has on predicate agreement. Sentence (24a) displays the familiar optionality of singular and plural agreement with a QNP subject. However, this optionality is lost when the QNP binds a reflexive particle, as *sebja* in (24b). Then, only plural agreement is possible:

(24) (a) *Пять женщин смотрели/ смотрело на Ивана.*
Pjat' ženščin smotreli/ smotrelo na Ivana.
5 woman.GEN.PL looked.PL looked.N.SG at Ivan.ACC
'Five women looked at Ivan.'

(b) *Пять женщин смотрели/ *смотрело на себя.*
Pjat' ženščin smotreli/ *smotrelo na sebja.
5 woman.GEN.PL looked.PL looked.N.SG at REFL
'Five women looked at themselves.'

(cf. Franks, 1994, p. 659)

The same effect is found for control of gerunds, as demonstrated in example (25). Sentence (25b) is not grammatical with neuter singular agreement because the subject *five boys* controls a gerund, roughly equivalent to the English phrase *returning home*:

[9] However, Franks' (1994) discussion of the case on Polish numerals will be relevant in section 5.7 in the context of agreement of demonstratives with QNPs.

(25) (a) *По дороге домой, пять мальчиков зашли/*
Po doroge domoj, pjat' mal'čikov zašli/
on way.DAT home 5 boy.GEN.PL dropped.in.PL
зашло в магазин.
zašlo v magazin.
dropped.in.N.SG in store.ACC
'On the way home, five boys dropped in at the store.'

(b) *Возвращаясь домой, пять мальчиков зашли/*
Vozvraščajas' domoj, pjat' mal'čikov zašli/
returning home.CAS 5 boy.GEN.PL dropped.in.PL
**зашло в магазин.*
*zašlo v magazin.
dropped.in.N.SG in store.ACC
'Returning home, five boys dropped in at the store.'

(cf. Franks, 1994, p. 659)

Franks (1994) uses this set of data as confirmation for his distinction between QP and NP numeral phrases: NPs induce plural agreement on the verb and can bind reflexives and control gerunds, whereas QPs cannot do either of these. Yet the crucial explanation for those effects in his theory is not categorical, but structural: binding and control are only possible if the numeral NP is the specifier of IP. This is based on the general observation that in Russian, binding of reflexives and control of gerunds are only possible from the IP specifier position (cf. Franks, 1994, p. 659).

However, data from other Slavic languages does not conform with this argumentation, as the Polish sentence in (26) exemplifies. Although Polish only allows neuter singular agreement with QNPs, gerund control is possible:

(26) *Pięć kobiet weszło do pokoju śpiewając.*
5 woman.GEN.PL entered.N.SG to room.GEN.SG singing
'Five women entered the room singing.'

(cf. Franks, 1994, p. 665)

Also in Serbo-Croatian, where neuter singular agreement with QNPs is standard as well, binding of reflexives and control of gerunds are possible with these

singular verbs. The possibility to bind the reflexive *sebe* in combination with singular agreement is demonstrated in example (27a). Control of a gerund, *going home*, by a QNP subject with singular on the verb is illustrated in example (27b):

(27) a. *Pet* *žena* *je* *kupilo* *ovu* *knjigu*
5 woman.GEN.PL AUX.SG bought.N.SG this.ACC book.ACC
za *sebe.*
for REFL
'Five women bought this book for themselves.'

b. *Pet* *žena* *je* *to* *diskutovalo* *idući*
5 woman.GEN.PL AUX.SG that.ACC discussed.N.SG going
kući.
home
'Five women discussed that going home.'

(cf. Franks, 1994, p. 659)

I have included such data into the questionnaire to investigate whether Czech is like Russian in this respect, or whether it patterns with Polish, a language to which it is more closely related. The relevant question is if the categorical approach can be extended to other Slavic languages. If not, this either means that the theory must be abandoned or modified, or that it only applies to Russian, whilst West and South Slavic languages require a different analysis.

3.2.5 Other restrictions on agreement with QNPs

I have shown that QNPs' influence on verb agreement is dependent on syntactic context. In this section, I consider the properties of the QNP subject itself that affect agreement: the position of the subject, the type of subject as selected by the verb, and the animacy of the subject. Each of these factors will be discussed in turn.

First, neuter singular agreement is preferred in Russian when the subject follows the verb, whereas plural agreement is best when the subject precedes the verb. Like in many Slavic languages, in Russian the order of constituents is free to a very large extent (cf. Haider & Szucsich, 2012, p. 3 et seq.), so both orders in example (28) are grammatical. However, with the verb in neuter singular, as in (28a), the subject is "most natural" postverbally, while with plural agreement, as in (28b), the subject is "most natural preverbally" (Pesetsky, 1982, p. 76):

(28) (a) *Пришло* *шесть* *студентов.*
Prišlo šest' studentov.
arrived.N.SG 6 student.GEN.PL
'Six students arrived.'

(b) *Шесть* *студентов* *пришли.*
Šest' studentov prišli.
6 student.GEN.PL arrived.PL
'Six students arrived.'

(cf. Pesetsky, 1982, p. 76)

In addition, the base position[10] of a numeral phrase influences verb agreement: unaccusative verbs like *came* in example (28) are assumed to be underlying objects in the sense that they originate from the verb's complement position. Such verbs allow for both agreement forms. In contrast, "true" subjects, which are those originating in the higher, subject position, do not permit neuter singular agreement, as the (rather cruel) example in (29) shows. The verb *ubit'* 'to kill' in this sentence requires an agent subject. With this subject, it must display plural agreement:

(29) *Шесть* *студентов* *убили/* *??убило* *кошку.*
Šest' studentov ubili/ ??ubilo košku.
6 student.GEN.PL killed.PL killed.N.SG cat.ACC.SG
'Six students killed a cat.'

(cf. Pesetsky, 1982, p. 78)

Animacy is another factor relevant for agreement choices. In the examples shown so far, the subject was always animate. For inanimates, however, plural agreement is much less acceptable, as the contrast between examples (30a) and (30b) illustrates:

[10]Slavic languages are generally considered to be underlyingly SVO. However, many of their properties do not conform with this classification. The consequence is that it remains unclear whether Slavic languages are SVO or SOV, or whether they represent a third type (cf. Haider & Szucsich, 2012, p. 3). I will not commit myself to one of those views here.

(30) (a) *Пять* *человек* *работали/* *работало* *на* *этом*
Pjat' čelovek rabotali/ rabotalo na etom
5 person.GEN.PL worked.PL worked.N.SG at this.LOC
заводе.
zavode.
factory.LOC
'Five people worked at this factory.'

(b) *Пять* *холодильников* *??работали/* *работало* *на*
Pjat' holodil'nikov ??rabotali/ rabotalo na
5 fridge.GEN.PL worked.PL worked.N.SG at
кухне.
kuhne.
kitchen.LOC
'Five fridges worked in the kitchen.'

(cf. Glushan, 2013, p. 2)

Examples like (28) and (29) have been used by proponents of the categorical approach to QNPs as evidence for this view. However, these structures primarily illustrate the importance of positional factors for agreement, whereas they do not provide direct evidence for a division of numeral phrases into NPs and QPs. Furthermore, also animacy effects as reflected in example (30) do not support this distinction. Why should animate QNPs be optionally NPs or QPs, whilst inanimate QNPs can only be QPs?

The general problem the approach faces is exactly this dichotomy. It is not clear why QNPs should sometimes be QPs and sometimes NPs. First, there is the issue outlined in section 3.2.2 that these two kinds of phrases have exactly the same internal morphology: the numeral always assigns case to the NP. Second, it is unclear what bars QPs from oblique positions. Third, the account requires additional assumptions regarding position and movement of these phrases. Alternatively, it might be promising to found an analysis of QNPs on those assumptions. This would entail that the difference between agreeing and non-agreeing numeral phrases is not a categorical, but a structural one.

3.2.6 Analysis 2: case and movement

Smith (2015) proposes an alternative theory, which takes, among others, Franks' (1994) categorical approach as a point of departure, but then significantly devi-

ates from it. Components of this approach were presented in section 3.1.1 when describing the distinction between syntactic and semantic features. Smith (2015) assumes that plural agreement with Russian QNPs is semantic agreement (agreement with the QNP's iFs). Neuter singular agreement can then be seen as syntactic agreement, or, as he argues, default agreement. Crucially, the QNP's uFs are not specified for neuter singular. Instead, it is a default form that occurs when agreement is not possible (Smith, 2015, p. 126). The effects that have been described in the previous sections are attributed to an interaction of movement and case.

First, agreement with the iFs of a QNP is only possible from the specifier position of TP. In this respect, the analysis resembles both Franks' (1994) and Pesetsky's (1982) assumption sketched above: plural agreement requires the controller to be in a higher position.[11] Second, only QNPs that carry case move upwards. Caseless QNPs simply do not control agreement, and are not required to. But QNPs that carry nominative case form a link with the agreement target. Now, agreement must take place for the derivation to be successful, so the QNP moves upwards to Spec-TP, from where iF agreement is possible (cf. Smith, 2015, p. 119 et seq.). For notional ease, I will call this line of thought the *movement approach*.

The approach does not require the assumption of NP and QP numeral phrases. Movement is more central here, which is supported by the fact that agreement with Russian QNPs is clearly dependent on positional and derivational effects, as the examples of word order, base position, binding and control have shown. The contrast between animate and inanimate QNPs is also attributed to positional differences (cf. Smith, 2015, p. 116 et seq.). Tying case to agreement is independently supported by the fact that a crucial feature of Russian grammar is a strong connection between predicate agreement and nominative case (cf. Comrie, 1989, p. 83).

Finally, an important difference between the categorical and the movement approach is the view on plural agreement with QNPs. Whilst Franks (1994) assumes that it is the consequence of agreement with the internal NP, Smith (2015) attributes it to semantic agreement. The syntactic phi-features of the

[11] An additional assumption made by Smith (2015) is that iFs can be either active or inactive. For Russian, however, this distinction is not crucial because he assumes that the iFs of Russian QNPs are always active (cf. Smith, 2015, p. 118).

internal NP and the semantic phi-features of the entire QNP typically coincide: *five women* refers to a plurality of female persons, so the semantic values of the QNP are plural and femininum. However, the NP carries genitive case, whereas it is difficult to determine the semantic case value of the QNP. Since Russian verbs do not inflect for case, they cannot disambiguate between the two concepts. A consideration of adjective agreement in the Czech data can shed more light on the issue.

3.3 Coordination and agreement

I now turn to the mechanisms that control agreement with coordinated phrases. These are particularly interesting to investigate in the Slavic languages, because those not only have a rich inflectional morphology that helps to identify agreement controllers, they are also known for the variability they allow in such contexts (cf. Corbett, 1983, p. 2). There are several questions concerning agreement with coordinated phrases in general (cf. Marušič et al., 2015a, p. 39):

- What is the role of hierarchical structures, linearity and featural aspects in agreement with coordinated structures? Do certain languages have tendencies to prefer one over the other?
- Can agreement target several controllers at once, or must all features be provided by one single source?
- If variability exists in a language, how does it arise?

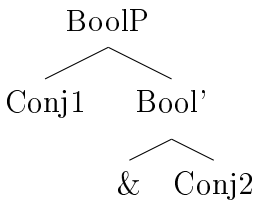
I begin with a consideration of how Slavic languages resolve conflicts between controllers in simple cases. For example, why does the verb in the following sentence display plural agreement if it is only preceded by singular subjects?

(31) *Lev* *a* *slon* *spali.*
lion.NOM.M.SG and elephant.NOM.M.SG slept.M.PL
'The lion and the elephant slept.'

The question might appear trivial. However, whilst it is obvious that two singulars combined form a plural subject, the question is how the grammar provides the verb with this information. It is commonly assumed that the two conjoined NPs are part of a higher phrase, also called *Boolean Phrase* (BoolP). The BoolP is

headed by an operator such as *and* or *or* (cf. Munn, 1993, p. 12). The head of BoolP "computes" its number from the individual nouns. Thus, in example (31), the head counts two singulars and consequently must be plural.[12] The core of this approach is the assumption of a binary structure for conjuncts, as shown by the tree structure in (32) (cf. Marušič et al., 2015a, p. 41):[13]

(32)



Example (31) is straightforward because it avoids the problem of gender resolution. When two masculines are combined, the BoolP itself is also masculine and thus is the verb. However, when genders are mixed, feature computation is complicated by the fact that gender cannot be resolved like number: while it is intuitive to say that anything of which there is more than one must be plural (in a language without dual or paucal), the result of operations such as masculine + feminine or feminine + neuter is less obvious (cf. Marušič et al., 2015a, p. 57). Languages deal differently with this problem. Whilst some languages, like Slovenian, possess one single default gender, others, such as Czech, display a gender and animacy hierarchy. In such a system, the choice of the suffix is dependent on the gender and animacy values present on the conjoined NPs (cf. Kučerová, to appear, p. 2).

In an elicited written and oral production study, Marušič et al. (2015a) examined the effect of conjuncts on participle endings in Slovenian. They confronted their participants with sentences like the following one in (33):

[12] In terms of features, Marušič et al. (2015a) propose that in a ternary number system, BoolP is plural as soon as one of the conjuncts is [-singular], otherwise it is dual. In binary systems, BoolP is logically always plural, as long as number computation does not fail (cf. Marušič et al., 2015a, p. 57).

[13] For both theoretical and empirical arguments why coordination structures are not assumed to be flat, but instead are, like any other phrase, hierarchical, see Munn (1993).

(33) *Sadike* *in* *zrna* _ *pognal-_* *le* *v*
Seedling.NOM.F.PL and grain.NOM.N.PL AUX sprouted-SFX only in
črni *zemlji.*
black.LOC soil.LOC
'Seedlings and grains sprouted only in black soil.'

(cf. Marušič et al., 2015a, p. 49)

There are now three logical possibilities for verb agreement:

- The verb can agree with the entire conjunction phrase. Since the head of BoolP cannot compute gender, a resort to the default form, masculinum, would be necessary and yield masculine plural agreement as a result.
- The verb can agree with the first conjunct, which would lead to feminine plural agreement.
- The verb can agree with the second conjunct, which would lead to neuter plural agreement.

Interestingly, Marušič et al.'s (2015) participants produce all logically conceivable possibilities. Agreement with the second conjunct (neuter plural) is the preferred option in more than half of the cases, whilst agreement with the first conjunct (feminine plural) and agreement whith BoolP (masculine plural) have an equal share in the smaller half (cf. Marušič et al., 2015a, p. 49).

Before exploring how this can be explained, it is important to reconsider the terminology in the enumeration above. It turns out that speaking of "first" and "second" conjunct agreement is technically not correct. This is shown by sentences with subjects consisting of three conjoined noun phrases, as in example (34):

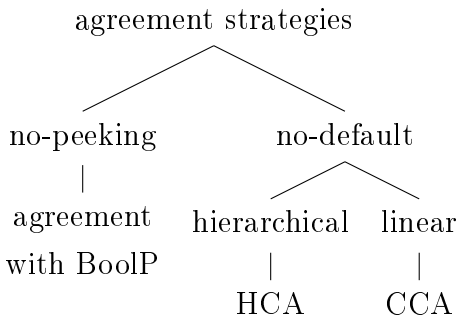
(34) **Naselja,* *graščine* *in* *mesta* *so*
village.NOM.N.PL villa.NOM.F.PL and city.NOM.N.PL AUX.PL
pogorele *po* *koncu* *vojne.*
burned.down.F.PL after end.DAT war.DAT
'Villages, villas and cities burned down after the end of the war.'

(cf. Marušič et al., 2015a, p. 55)

Such constructions were tested by Marušič et al. (2015a). If "first conjunct" and "second conjunct" were options accessible to the grammar, then in the above sentence, both neuter and feminine agreement should appear on the verb. However, Marušič et al. (2015a) find that agreement with the second conjunct virtually never[14] occurred. Instead, only the two outer noun phrases are accessible. Therefore, the authors choose to speak of two options for individual conjunct agreement, which are *highest conjunct agreement* and *closest conjunct agreement*, henceforth abbreviated HCA and CCA (cf. Marušič et al., 2015a, p. 50, 56).

Marušič et al. (2015a) assume that there are two basic strategies speakers can employ. One is to only allow agreement with the BoolP, even if it is deficient. The authors call this strategy *no peeking*. In the other strategy, this "peeking" is allowed because it avoids having to resort to a default through searching for a full set of phi-features within BoolP. This is called the *no-default strategy*. Whether the highest or the closest conjunct is chosen depends on whether feature copying happens before or after *conjunct flattening* (cf. Marušič et al., 2015a, p. 62). Before this linearisation process, the hierarchical structure of the conjunct must be respected, thus only the highest conjunct is accessible. After flattening, only the linear structure can be accessed, which leads to CCA. The structure in (35) illustrates the different agreement choices (cf. Marušič et al., 2015a, p. 58 et seq.):

(35)



In all constructions discussed so far, only one number, plural, is present on both conjuncts and BoolP. What happens when two singulars are conjoined? This case is illustrated in the following example:

[14]The 5 % of feminine plural agreement in sentences like (34) were statistically indistinguishable from feminine plural agreement in cases were non of the subject noun phrases were feminine (cf. Marušič et al., 2015a, p. 56).

(36) *Panorama* *in* *tihožitje* *se* _ *prodal-_* *za* *med.*
panorama.F.SG and still-life.N.SG REFL AUX sold-SFX for honey.ACC
'The panorama and the still-life were sold for a lot of money.'

(cf. Marušič et al., 2015a, p. 63)

One possibility for agreement in example (36) is masculine dual, thus meaning that the head of BoolP computes dual in the presence of two singulars and then, lacking the possibility to compute gender, takes on the default masculine form. But would it also be possible to agree fully with one of the individual conjuncts? Or, returning to the question whether several agreement controllers are possible for one target: could gender be taken from a singular conjunct, while BoolP provides plural number?

Marušič et al. (2015a) do not find singular agreement with sentences like (36) in their Slovenian data. Two other possibilities would be the mixed variants derived by number agreement with BoolP and gender agreement with one of the singular conjuncts. In sentence (36), this would lead to either feminine dual or neuter dual agreement morphology. Marušič et al. (2015a) find only a few of these cases.[15] The authors deduce that "something must be disfavoring gender agreement with a conjunct that is nonplural" (Marušič et al., 2015a, p. 64).

In order to explain the patterns just described, Marušič et al. (2015a) postulate a Consistency Principle, which states that partial agreement is possible, but only if the conjunct has the same number value as BoolP (cf. Marušič et al., 2015a, p. 66). This makes the correct predictions for the majority of the Slovenian data (but ignoring the smaller amount of split agreement actually found). However, if number agreement is possible only with BoolP or with a conjunct that has the same number as BoolP, it is impossible to determine what constitutes the source of number agreement in these cases.

An alternative assumption is that both number and gender are copied from the conjunct, the condition that the conjunct have the same number as BoolP still

[15]For conjoined feminine and neuter singulars, Marušič et al. (2015a) find about 80 % of masculine dual agreement. The amount of feminine/neuter dual agreement is in contrast only about 15 %. Since in the dual, neuter and femininum are syncretic, these 15 % could constitute HCA, CCA, or both. The authors argue that because neuter and femininum are often syncretic in Slovenian, "these responses might thus constitute conjunction of uniform genders" (Marušič et al., 2015a, p. 64).

holding. The result would be the same in both cases. The question is whether or not it is desirable to allow agreement with two different sources. I leave the question of the Consistency Principle's validity open for now and return to it when analysing the Czech data.

Not all languages allow for all options to be realised. In Serbo-Croatian, for example, Corbett (1979) notes that only CCA or masculine plural (default agreement) are possible (cf. Corbett, 1979, p. 206). In general, it seems that HCA is less preferred in Slavic languages (cf. Corbett, 1983, p. 99). This will be investigated for Czech in the analysis of the questionnaire.

There is a connection between conjunct agreement and the difference between syntactic and semantic agreement: agreement with BoolP is semantic in the sense that, at least for number, it reflects the conceptual number value of the entire phrase. In contrast, HCA and CCA are syntactic, because they represent agreement with formal features that are present on the conjuncts. This is the view held by Bošković (2009). He assumes that BoolP only computes semantic feature values. In his approach, only number is semantic, for the reason stated above. In contrast, gender does not represent a referent's sex in most cases. It is consequently syntactic and not computed by BoolP (cf. Bošković, 2009, p. 469).

Example (19) in section 3.1.2 demonstrates how coordinated structures exhibit the effects predicted by the Agreement Hierarchy. Corbett (1979) presents a wider survey of agreement of different syntactic categories with conjoined phrases in English and Slavic. The patterns he finds are summarised in table 2 (cf. Corbett, 1979, p. 213).

	attributive	**predicate**	**rel. prn.**	**pers. prn.**
English ianm.	synt	synt/sem	synt/sem	(synt)/sem
English anm.	synt	synt/sem	sem	sem
Russian	synt/(sem)	(synt)/sem	(synt)/sem	sem
Serbo-Croatian	synt	synt/(sem)	synt/(sem)	sem

Table 2: Agreement of different categories with conjuncts

Table 2 shows that the most promising area for investigating variation in agreement with conjoined phrases is the predicate, which displays the greatest degree of optionality. In general, it is interesting to examine whether additional data from Czech reflects these patterns.

3.4 Agreement with conjoined QNPs

Section 3.2.1 has shown that coordination structures provide evidence for the status of the 5&Up as a quantifier. If two conjoined numeral phrases were simply two conjoined neuter NPs (such as in example (31) above), then the verb would be neuter plural. However, as revealed in section 2.4, this is incompatible with the results of Marušič et al.'s (2015) comparison of conjoined neuter singulars with conjoined QNPs.

Marušič et al. (2015b) extended their examination of QNPs by conjoining them with plural NPs. Again, each such sentence was paired with one that contained a neuter singular NP instead of a QNP, so the two categories could be compared. The results are shown in figure 1 below (cf. Marušič et al., 2015b, p. 4).

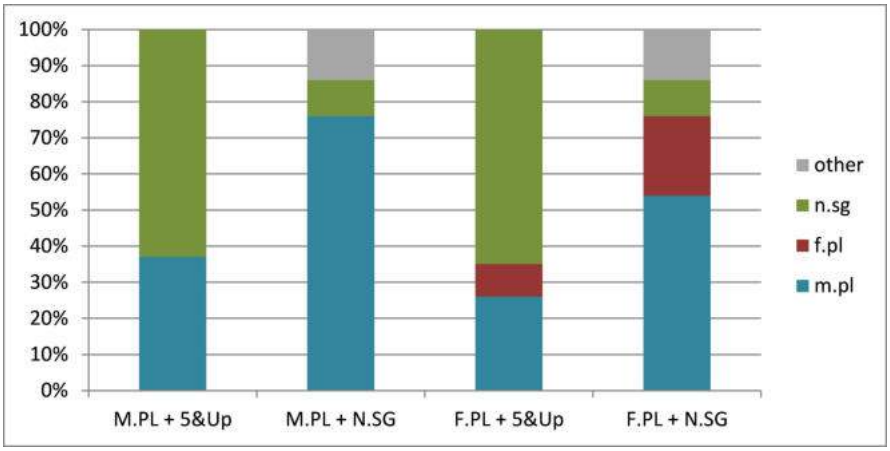


Figure 1: Results for conjunction of NPs and QNPs

Figure 1 again reveals that the presence of a QNP affects agreement: neuter singular, the verb form also found in agreement with single QNPs, is dominant. Less frequent forms of agreement found with QNPs largely reflect those that appear on their QNP-free counterparts: masculine plural agreement is dominant with conjuncts of masculine plural and neuter singular. When that masculine plural phrase is instead conjoined with a QNP, masculine plural is the second most frequent form. The same holds for the two right bars, where feminine plural agreement is an additional option.

Marušič et al. (2015b) conclude from these results that neuter singular does not result from these feature values being specified on the numeral. Instead, 5&Ups lack any feature specifications. Neuter singular on the participle is then a default

form as the result of failed agreement (cf. Marušič et al., 2015b, p. 2). This thus confirms the assumption that neuter singular does not represent agreement with any part of a numeral phrase subject, but instead is the default form also found in cases where no subject is found at all, and the verb consequently has nothing to agree with.

How do Marušič et al.'s (2015) results fit into the agreement strategies assumed by them? As the tree structure in (35) has shown, speakers either avoid "peeking" into the structure, or they avoid defaults. Consider the third bar in figure 1, where a feminine plural NP was conjoined with a QNP: feminine plural agreement is the result of a no-default strategy, where the speaker chooses one of the conjuncts as agreement controller. In contrast, masculine plural on the verb is the consequence of no-peeking. The presence of a plural NP within the conjunct leads to specification of plural on BoolP (and not dual, as it would be for conjoined singular NPs). However, no gender value is found on BoolP, so masculine is inserted as a default.

But how does neuter singular agreement arise? There are two possible interpretations: first, it could be the result of failed agreement with the QNP. This would mean that the speaker pursues a no-default strategy, and therefore looks into BoolP. The available conjunct is the QNP. As suggested through Marušič et al.'s (2015) terms, this would either mean that it is the highest conjunct and that agreement takes place before conjunct flattening. Alternatively, the QNP is the closest conjunct, and agreement happens after conjunct flattening. In any case, the QNP then causes neuter singular agreement on the verb. The result is default agreement as the consequence of a no-default strategy.

The second possibility for interpreting neuter singular agreement is that it represents default agreement with the entire BoolP as a result of the no-peeking strategy. In this case, BoolP would not only fail to compute gender, but also number. This is the approach taken by Marušič et al. (2015a). The authors follow Franks (1994) in assuming that the presence of the numeral head prevents the upwards percolation of the NP's phi-features. The numeral itself is phi-less, so the entire conjunct cannot provide BoolP with any features. The consequence is that the computation of features fails entirely (cf. Marušič et al., 2015b, p. 2 et seq.).

One problem here is that masculine plural and neuter singular agreement should not coexist: if the QNP really cannot provide any phi-features to BoolP, computation of number should always fail. But then, masculine plural agreement should not occur. However, if neuter singular is agreement with the QNP, masculine plural can be seen as agreement with BoolP, which would compute its features based on the semantic values of the NP and the QNP. This is something Marušič et al. (2015b) have not taken into account in their experiment. Specifically, gender on the quantified noun was not controlled. In a language like Czech, where the gender values present on the conjuncts determine gender agreement with the entire conjunct, the influence of QNP's gender value can become visible. If semantic number of the QNP is accessible to BoolP, so might be gender. I investigate these dynamics through the evaluation of the Czech questionnaire.

4 A Questionnaire for Czech

It has become clear throughout this paper that further research into the fields of numeral phrases and coordination structures is required. Extending our analysis to Czech not only broadens the picture, but simultaneously helps to investigate the validity of theoretical claims presented in the previous sections. In order to provide a wide range of data for the discussion, the questionnaire thus covers different aspects of numeral phrases and coordinated structures.

4.1 Hypotheses

Before turning to the design and method of the questionnaire, this section presents central hypotheses that form the experiment's conceptual basis.

First of all, it can be expected that Czech QNPs display effects on verbal agreement similar to those in Slovenian when a QNP is part of a coordination structure. This assumption is based on the fact that Czech, as well as Slovenian, shows neuter singular agreement with single QNPs, as section 2.2 has demonstrated. The implication is that, if QNPs are structured similarly within both languages, similar outcomes can be predicted. However, since Czech, in contrast to Slovenian, does not possess a dual anymore, the feature resolution mechanism possibly works differently. Also, as noted above, gender resolution is more complex

in Czech than in Slovenian. Consequently, whilst an effect of QNPs in conjuncts can be expected, the distribution of agreement patterns might be different.

For conjuncts with singular NPs, Marušič et al.'s (2015) Consistency Principle, discussed in section 3.3, excludes instances where the singular NP provides the verb with a gender value. However, a small portion of the authors' own Slovenian data contained cases of plural agreement with the gender of a singular conjunct. The Czech data can shed more light on the validity of the Consistency Principle.

The binding and control data presented in section 3.2.4 are crucial for both the categorical and the movement approach to QNPs. Since Czech QNPs do not control verb agreement, they should, according to both lines of argument, not be able to control gerunds or PROs or to bind reflexives. However, it has already been illustrated that Polish and Serbo-Croatian pose a problem in this respect, because they allow these structures with neuter singular agreement. Crucially, these are both languages where, just as in Czech, neuter singular agreement with QNPs is the only option. Considering also that Polish and Czech are closely related, it can be predicted that in Czech too, neuter singular agreement on the verb does not exclude the possibility of binding and control.

In order to gain insight into the featural configuration of the QNP, the type of predicate in a sentence was methodologically controlled. So far, only verbal agreement has been considered. However, adjectival predicates can shed light on the question of case on the numeral: if the numeral is indeed caseless, Czech adjectives, which require a case value, should not be able to agree with it.

Factors that influence the choice between syntactic and semantic agreement in general should be valid for QNPs, too. One can thus predict that the Agreement Hierarchy presented in section 3.1.2 also applies to QNPs. This will be verified by comparing the agreement of attributives with that of predicates. For the purpose of further examining the influence of semantic features on QNP agreement in Czech, modified numerals which display a mismatch between morphology and semantics are also included.

Finally, the questionnaire also includes structures for which the literature already provides Czech data, such as sentences with animacy contrasts. First, this permits an investigation into the validity of claims about the grammaticality of certain structures. Second, a comparison is possible between the participants'

individual judgements of simple structures and their answers in the more complex domain of coordination.

4.2 Participants

I interviewed ten adult speakers of Czech, seven of them female and three male. All of them were monolingual native speakers, in the sense that they had grown up in a monolingual Czech household and had attended a Czech primary and secondary school.

4.3 Design and method

The participants were given a paper questionnaire that was divided into two parts. The first, main part was an elicited written production task, which consisted of 61 sentences. The second part was an acceptability judgement task, consisting of eight sentences. The entire questionnaire as it was presented to the participants can be found in appendix A. Appendix B provides a list of the test sentences and their English translations, grouped with respect to conditions and subconditions.

4.3.1 Elicited written production

The participants were asked to fill in missing verbal or adjectival suffixes. In some cases, they could additionally choose between the singular and the plural form of the auxiliary *být*. Table 3 shows the factors that were controlled, as well as the number of test sentences contained within each condition.

In order to ensure that the results show whether there is a general preference for HCA or CCA, without a possible bias due to other factors, every sentence with a conjoined subject was contained twice in the questionnaire (marked by *x2* in table 3). The only difference between each member of a pair was the order of the two phrases within BoolP. This means, for example, that a sentence with a masculine and a feminine phrase was included in the questionnaire once with the masculine phrase first, and once with the feminine one first. Consequently, assuming it turned out that the masculine phrases attracted agreement, it would become clear whether in such contexts the position of the phrase within BoolP plays an additional role.

Condition	**verb agr.**	**adjective agr.**
Coordination with *and*		
- QNP+QNP	-	3x2
- QNP+Pl	6x2	2x2
- QNP+Sg	1x2	1x2
- Pl+Pl	-	2x2
- Pl+Sg	-	2x2
- Sg+Sg	-	1x2
Coordination with *or*		
- QNP or Pl	1x2	1x2
- Pl or Pl	1x2	1x2
Distance to controller		
- QNP+Pl	2x2	2x2
Single QNPs		
- preverbal animate	1	1
- preverbal inanimate	1	1
- postverbal animate	1	-
- postverbal inanimate	1	-
- no subject	1	-
- modified numeral	1	1

Table 3: Written elicited production: conditions with number of sentences

To ensure a succinct test for the participants and to honour their co-operation, the test sentences had to be limited and time-restricted. In addition, syncretism in both adjectival and verbal suffixes limited the choice of useful combinations for conjuncts. This is why the number of sentences could not always be equal in all conditions. Section 4.3.3 provides an overview of Czech agreement suffixes.

All sentences were randomised. Speakers were asked to fill in the questionnaire based on their own intuitions. In order to see whether a participant accepted several options for agreement, they were also encouraged to note alternatives. To demonstrate the correct approach, an example sentence without a QNP was placed before the test sentences.

4.3.2 Acceptability judgements

The second part was an acceptability judgement task. The goal was to ascertain whether certain structures are possible in general with QNPs. Participants were given the instruction to rate each sentence by ticking one of five boxes. On a sliding scale, the left box represented complete ungrammaticality, the right box full grammaticality.

To ensure that the participants gave each sentence the best chance possible, they could choose the participle suffix themselves in all sentences where the QNP was the subject. This was also done to exclude the possibility that specific structural configurations license plural agreement on the verb. They were instructed to first choose the suffix that fitted the sentence best and then to rate the sentence's grammaticality with that suffix. Table 4 shows the different conditions that featured in the second half, and whether they contained a blank for the verbal suffix.

Condition	**verb agreement**
Demonstrative	
- nominative	yes
- genitive	yes
Independence	
- independent	-
- with clitic	-
Subject properties	
- gerund control	yes
- control of PRO	yes
- binding of reflexive	yes

Table 4: Acceptability judgements: conditions

As for the first half, speakers were asked to rely on their personal intuition when completing and judging the sentences, and to note potential alternative agreement options. Here, too, an example sentence without a QNP was placed before the test sentences.

4.3.3 Czech agreement suffixes

For the purpose of this experiment, the predicate must inflect for number and gender. Czech past participles satisfy this condition. Since the test sentences only contained third person subjects, and the past tense auxiliary *být*, 'to be', is never present in the third person, the participle appears without the auxiliary in all sentences (cf. Naughton, 2008, p. 142).

Tables 5 and 6 show that, for both participles and adjectives, a certain degree of syncretism exists. In the plural, for instance, inanimate masculine agreement is indistinguishable from feminine agreement. Consequently, no inanimate masculine nouns were used for this study (cf. Naughton, 2008, p. 141, 52). Participles display a further ambiguity in the plural, as the rightmost column in table 5 shows. Whilst in written Czech, the suffix *-la* can be used to distinguish the neuter verb form from all other plural endings, *-la* is seldom used in spoken Czech, where instead *-ly* is used, which is identical to the feminine plural form (cf. Naughton, 2008, p. 141).

	masculine animate	masculine inanimate	feminine	neuter
singular	-l	-l	-la	-lo
plural	-li	-ly	-ly	-ly/-la

Table 5: Czech participle endings

	masculine animate	masculine inanimate	feminine	neuter
singular	-ý	-ý	-á	-é
plural	-í	-é	-é	-á

Table 6: Czech nominative adjective endings

4.4 Evaluation

The answers from each participant were coded twice. Firstly, each suffix was coded for number, gender and, where applicable, case. For syncretic suffixes, all possible interpretations were coded. Secondly, each answer was assigned its structural

value in the context, expressing whether it constituted HCA, CCA, and so on. Cases with multiple interpretations were coded as ambiguous. Consequently, in what follows, all instances of, for example, HCA are unambiguous.

Since the participants could optionally note two or more alternative suffixes, the number of answers for a given test sentence could exceed the number of participants. For every sentence in the production task, an average of 10.9 answers was recorded. With a total number of 61 test sentences, this means that each participant gave an alternative answer for about six of those 61 sentences in average. As one might expect, some categories were more prone to optionality than others.

For the acceptability judgements, where one of five boxes was ticked to rate a sentence, the results could be quantified by giving the leftmost box the value 1, the second box the value 2, and so on, with 5 being the highest score a sentence could rate. Thus, an average could be calculated for each sentence.

5 Results

The following subsections present the Czech data obtained through the questionnaire, in the order of the conditions listed in tables 3 and 4 above. In each case, the results are immediately discussed and their theoretical implications considered.

5.1 Agreement with conjoined NPs

In contrast to Slovenian, Czech does not possess one single form of default plural agreement (cf. section 3.3). According to Naughton (2008), the masculine animate plural takes precedence with animate conjuncts. For inanimate conjuncts, the suffix *-ly* (syncretic for feminine plural and masculine inanimate plural) should be used, even if both conjuncts are neuter (cf. Naughton, 2008, p. 141). Strictly speaking, this is not compatible with the assumption that BoolP cannot compute its own gender, described in section 3.3. Some computation mechanism must exist in Czech, in the sense that for the choice of "default", the gender values present within the conjunct must be taken into account.

The just described rules for gender resolution are confirmed by Kučerová (to appear), but only for verbal agreement. Adjectival agreement, on the other hand, displays restricted feature resolution that is only fully successful with animate

conjuncts (cf. Kučerová, to appear, p. 4). Consequently, adjectives represent a more interesting field of investigation for conjoined NPs in Czech. For the questionnaire, simple conjoined NPs without a numeral were divided into three subconditions: conjoined singulars, conjoined plurals, and conjuncts consisting of one singular and one plural NP. The predicate always consisted of an auxiliary and an adjective. Participants were asked to provide the suffix for the latter, as in the following example:

(37) *Kočka* *a* *psi* *jsou* *vesel-_*.
cat.NOM.SG and dog.NOM.PL AUX.PL happy-SFX
'The cat and the dogs are happy.'

Figure 2 reveals the agreement suffixes chosen in a total of 103 answers.[16] [17] Surprisingly, the speakers mostly follow the prescriptive rules stated above for verbal agreement. The four leftmost bars show the priority of masculine animate features. However, when the feminine is plural, it can, to a small extent, influence verb agreement, especially when the masculine NP is singular, as in the third bar.

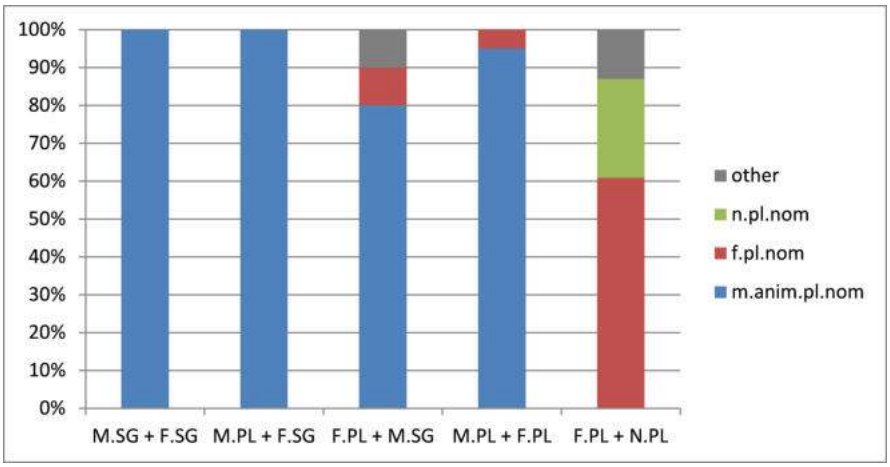


Figure 2: Adjectival agreement suffixes for conjoined NPs

The contrast between feminine singulars and plurals confirms Marušič et al.'s (2015) Consistency Principle (cf. section 3.3): for conjoined phrases, gender agree-

[16] What is coded as feminine plural nominative agreement in figure 2 is actually syncretic for feminine and inanimate masculine plural agreement. However, as noted in section 4.3.3, no inanimate masculine nouns were used throughout the experiment. This also means that all nouns referred to as "masculine" in the context of the experiment are necessarily animate.

[17] The label "other" contains ambiguous or unclear answers. Here as in the following, this label conflates different, isolated answers that are statistically negligible.

ment with one of the conjuncts is only possible if that conjunct is plural. The logical conclusion is that masculine plural agreement triggered by the presence of a masculine singular noun is not agreement with the gender value on that noun, but possibly agreement with BoolP or a context-sensitive default.

The rightmost bar shows the effect of two conjoined inanimates, one feminine and one neuter: both feminine plural and neuter plural agreement are possible. This is neither what grammars prescribe for verbal agreement, nor does it conform with Kučerová's (2017) description of Czech adjective agreement. The former only allows for feminine plural agreement in this context, the latter notes that a colloquial plural form, syncretic for all genders, is the preferred option.[18]

The same set of data was analysed for structural relations. In order to allow for a neutral description of the results, all instances of gender and number identity between adjective and one of the conjuncts were valued as agreement with that conjunct. Of course, masculine plural agreement could also represent agreement with BoolP. However, if I analysed it as such, this would conceal a possible effect of the masculine NP's position. Moreover, as mentioned in section 3.3, Bošković (2009) argues that BoolP never computes gender, only number. If this is correct, then gender is always provided by agreement with a single conjunct.

The results are represented in figure 3. For two conjoined plurals (blue bars), there is a preference for CCA. The only other significant option is HCA. When two singulars are conjoined (green bars), agreement is always plural, and gender is identical with one of the singular NPs. In this case, no preference exists: these kinds of partial HCA and CCA occur in exactly the same proportion. This can be predicted from figure 2, because gender is always masculine, irrespective of the masculine NP's position.

The results of conjoining a singular and a plural NP (red bars) constitute a mix of the two homogeneous conditions just described: full HCA and CCA are present, with a slight preference for the latter. But partial agreement in gender occurs almost as often. In this subcondition, however, differences are much smaller.

The conclusion is that in Czech, an interplay between a preference for masculine agreement, the Consistency Principle and a preference for CCA determines

[18]This suffix, the colloquial plural suffix *-ý*, accounts for most of the answers labelled as "other" in the rightmost bar. According to Kučerová (to appear), it occurs on adjectives in the absence of an animate masculine conjunct (cf. Kučerová, to appear, p. 4). However, in comparison to feminine and neuter plural agreement, its appearance in my data is remarkably small.

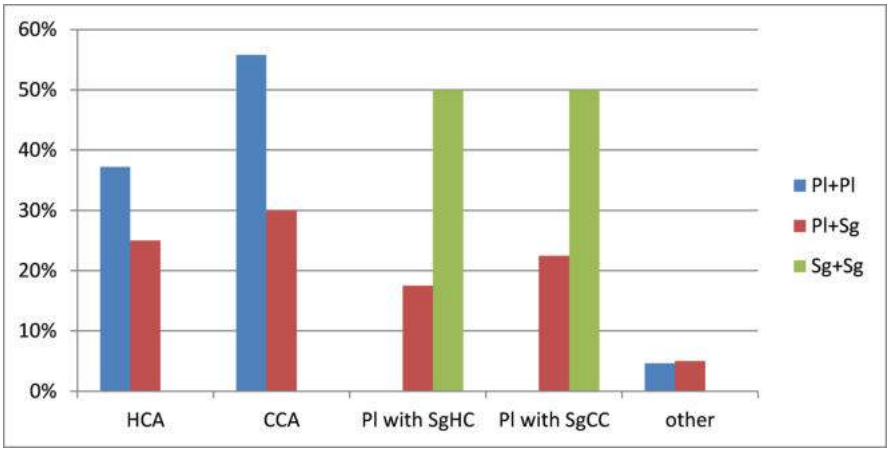


Figure 3: Adjectival agreement sources for conjoined NPs

adjectival agreement with conjoined NPs. In Marušič et al.'s (2015) terms, this final point indicates that agreement happens late in the derivation, after linearisation. As outlined in section 3.3, CCA is an effect of linear proximity, not of hierarchical structure. Consequently, it must occur after what Marušič et al. (2015a) refer to as *conjunct flattening*.

5.2 Agreement with conjoined QNPs

In the condition with conjoined QNPs, participants were asked to fill in missing adjectival and verbal endings in sentences as the following:

(38) *Pět* *krtků* *a* *tři* *rypadla* *byl-_* *na*
5 mole.GEN.PL and 3.NOM excavator.NOM.PL were-SFX on
staveništi.
construction.site.LOC
'Five moles and three excavators were at the construction site.'

When the predicate was adjectival, the participants also had to choose between the singular and plural form of the auxiliary *být*:[19]

[19]All adjectives that were used are of the so-called "hard declension" type. These show a variety of different vowels in their endings (ý, á, é, í, ou) for number, gender and case. Adjectives that belong to the "soft declension", on the other hand, only make use of one vowel, í, in all their forms, which leads to strong syncretism and makes these adjectives unsuitable for experimental purposes (cf. Naughton, 2008, p. 52).

(39) *Tři* *vědra* *a* *šest* *lvů* *je/* *jsou*
3.NOM bucket.N.NOM.PL and 6 lion.M.GEN.PL AUX.SG AUX.PL
nevypátrateln-_ *v* *pražské* *zoo.*
untraceable-SFX in Prague.ADJ.LOC zoo.LOC.SG
'Three buckets and six lions are untraceable in Prague zoo.'

Paucal numerals were used for plural NPs. I demonstrated in section 2.1 that paucals in Czech are purely adjectival and consequently have no effect on case on the following noun or on predicate agreement. They were included to make the sentences more natural and to prevent the participants from misreading NP conjuncts as part of a preceding QNP conjunct, since then only the suffix would indicate that it is nominative, and not genitive.

5.2.1 Verbal agreement

I begin with the analysis of verbal agreement with conjoined QNPs and NPs. Here, the participants gave a total of 152 answers for seven different types of conjuncts. Figure 4 outlines the suffixes chosen with each of those types.

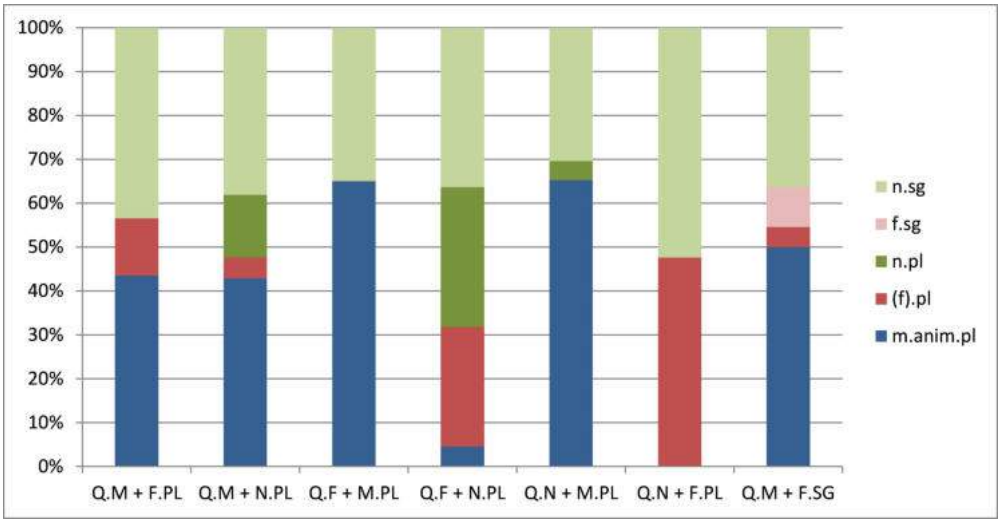


Figure 4: Verbal agreement suffixes for conjoined (Q)NPs

As with conjoined simple NPs, masculine plural (coloured in blue) is a frequent choice. This is also the case when the masculine NP is part of a QNP, as the first bar represents. However, when no masculine NP is present at all, as in the fourth and sixth bar, masculine plural agreement only occurs marginally. This reveals

that the NP within the QNP is visible to the agreement mechanism, either directly or through semantic feature computation of BoolP.

Agreement with feminine NPs and QNPs (coloured in dark red) is harder to analyse, because the verbal plural suffix *-ly* can, in colloquial speech, also be used for neuter plural. So it is not clear whether in the fourth bar the instances of this suffix reflect agreement with the NP inside QNP or colloquial agreement with the neuter plural NP. In any case, the second and fourth bar show that neuter plural agreement is available when the other conjunct is a masculine or feminine QNP, ignoring the prescriptive rules stated above. This might be the result of avoiding agreement with the QNP.

As in Marušič et al.'s (2015) results for Slovenian (cf. section 3.4), another option becomes available when a QNP is involved in the conjunct: neuter singular constitutes about one third of agreement in all subconditions. This is however less than the almost two thirds of neuter singular the authors found with their conjuncts of QNPs and NPs.

A surprising effect can be found upon inspection of agreement with a conjunct consisting of a QNP and a singular NP, shown in the rightmost bar. The previous section has demonstrated that non-masculine singulars do not control gender agreement with simple NP conjuncts. However, a few instances of feminine agreement (dark and pale red) can be found when the other conjunct is a QNP.[20] Again, this might be an effect of avoiding QNP agreement. However, the unusual gender preference patterns found here could also result from the difficulty some participants had with conjuncts containing QNPs. Several of them told me during the task that they did no know which rules to apply in their choice of the correct suffix. As shown in the previous section, agreement with simple NP conjuncts already involves multiple restrictions that must be considered. QNPs add another level of complexity to the process. This might compel speakers to abandon a restriction they otherwise observe.

I now turn to the structural analysis of verbal agreement with QNP conjuncts. Figure 5 reflects the choices of agreement sources in the different subconditions. When a QNP and a plural NP are conjoined (blue bars), the clear preference is CCA. HCA constitutes less than a sixth of agreement choices, and all other

[20]Note that the dark red parts in this bar are unambiguously feminine plural, because no neuter or inanimate masculine plural NP is present in the conjunct.

types of agreement are marginal. When the features on the verb unambiguously coincided with the gender and number features of a QNP-internal NP, I labelled this as semantic agreement.[21] It occurs only rarely and without a significant positional effect. This could be interpreted as a clue that semantic agreement with a QNP is in fact agreement with BoolP, whose features coincide with that of the QNP. Otherwise, a preference for CCA should be found. However, the instances of semantic agreement are few, which makes the analysis difficult.

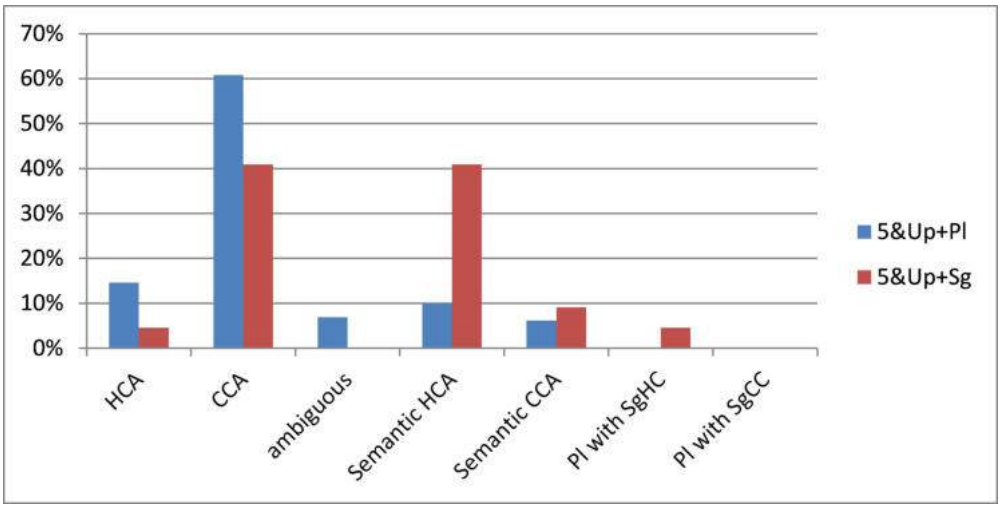


Figure 5: Verbal agreement sources for conjoined (Q)NPs

The results are different for conjuncts of QNP and singular NP (red bars). Here, too, CCA is strongly preferred to HCA. This general preference for CCA is not surprising. As noted in section 3.3, Corbett (1983) finds this tendency in many Slavic languages. However, within semantic agreement, the data for conjoined QNPs and singulars reveal a clear preference for HCA. A comparison of figures 4 and 5 explains this: the feminine singular NP is almost never the source of agreement. Only the QNP is available, regardless of its position within BoolP. When the QNP is the closer conjunct, agreement with it is attempted and, due to its lack of phi-features, fails. The result is neuter singular agreement. When it is the higher conjunct, semantic agreement is preferred. In the next section, I return to the question of why semantic and syntactic agreement differ in this respect.

[21] As outlined in section 3.2.6, semantic agreement typically coincides with agreement with the phi-features of the QNP-internal NP because these represent the QNP's conceptual content. When considering verb agreement, the two cannot be distinguished.

In figure 5, I have subsumed neuter singular as instances of HCA or CCA. This approach is justified, because this suffix is clearly triggered by the presence of a single conjunct, the QNP. The analysis of its uses, as above, demonstrates that it does not appear in configurations without QNPs. However, as discussed in section 3.4, neuter singular agreement might also reflect failed agreement with BoolP, assuming that BoolP cannot compute its own phi-features due to the phi-less numeral. If this analysis is correct, then neuter singular agreement should be independent of the QNP's position within BoolP. But this is not the case: 85 % of neuter singular suffixes occur when the QNP is the closer conjunct. The logical conclusion is that neuter singular agreement reflects failed agreement with the QNP, and not with BoolP. This solves the problem of co-occurring masculine plural and neuter singular agreement in Marušič et al.'s (2015b) account, discussed in section 3.4: neuter singular represents is failed syntactic agreement with the QNP, whereas masculine plural results from BoolP's semantic feature computation.

5.2.2 Adjectival agreement

Now I turn to adjectival agreement with conjoined QNPs and NPs. For all subconditions, 141 answers were recorded. The agreement suffixes chosen for each type of conjunct are depicted in figure 6. In many ways, the results resemble those for verbal agreement: masculine plural (blue) is common whenever a masculine NP is present. Feminine agreement (red) is preferred to neuter agreement (green), but the neuter NP can still provide agreement sometimes. Especially when a neuter plural noun is conjoined with a QNP, as in the fourth bar, agreement might shift towards that non-quantified noun. All of these suffixes are in nominative case. This means that they cannot be the consequence of agreement with the QNP-internal NP, which is genitive. Consequently, in the first bar, for example, feminine plural nominative on the adjective does not result from agreement with the feminine NP, but more plausibly from agreement with the semantic feature values of the feminine QNP.[22]

[22]The label "other" in figure 6 again contains mostly answers with the colloquial plural suffix *-ý*. As noted in section 5.1, it should only occur in the absence of an animate conjunct (cf. Kučerová, to appear, p. 4). The fact that it marginally appears in my data even when none of the conjuncts is animate (as in the third bar) could be a result of the involvement of QNPs and/or of the complexity of the task.

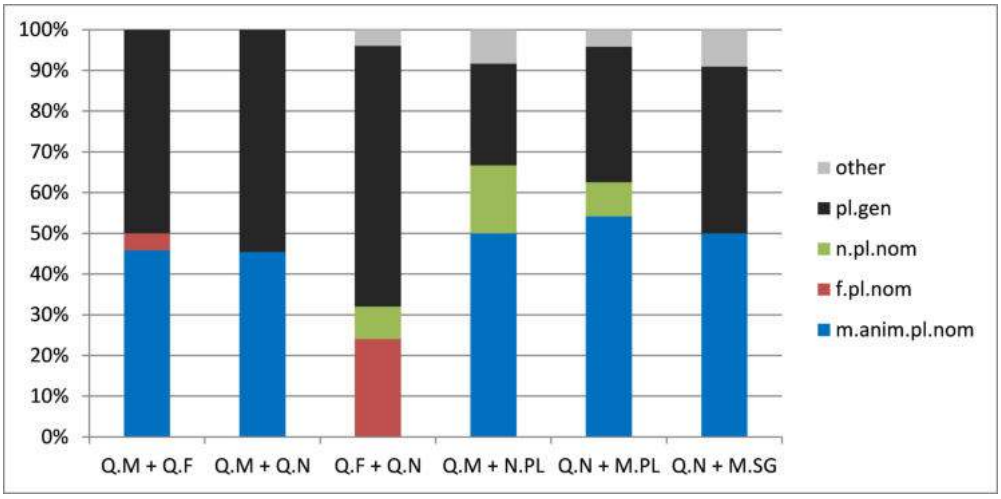


Figure 6: Adjectival agreement suffixes for conjoined (Q)NPs

However, with most conjuncts, a large proportion of agreement suffixes is not nominative, but genitive, as revealed through the black segments of the bars in figure 6. This is a type of agreement not found with simple conjoined NPs, as revealed in section 5.1. More precisely, the adjective is in the genitive plural, which is syncretic for all genders. In spite of this, the auxiliary is in these cases never plural, but always singular, as illustrated in example (40), where the singular auxiliary *je* precedes the genitive plural form of the adjective:

(40) *Šest* *mužů* *a* *sedm* *žen* *je* *opilých.*
6 man.GEN.PL and 7 woman.GEN.PL AUX.SG drunk.GEN.PL
'Six men and seven women are drunk.'

This type of agreement is especially common with two conjoined QNPs (represented by the first three bars). Since adjectives do not distinguish gender in the genitive plural, it is not possible to relate the agreement suffix found on the verb specifically to one of the conjuncts in (40). In consequence, genitive plural agreement might be a convenient way for speakers to deal with competing sources for agreement. However, the number mismatch between auxiliary and participle still demands an explanation.

First, it must be noted that this mismatch cannot be explained by the Agreement Hierarchy, discussed in section 3.1.2, because both auxiliary and adjective

are part of the same segment in that hierarchy, the predicate. To respond to this problem, Corbett (1983) provides evidence from the Slavic languages for a special Predicate Hierarchy, including the following Czech example:

(41) *Vy* *jste* *byla* *dobrá.*
you AUX.2PL been.F.SG good.F.SG
'You were good.'

(cf. Corbett, 1983, p. 44)

The speaker who utters this sentence addresses a woman using the polite pronoun *vy*, which is identical to the second person plural pronoun, and is syntactically plural. The finite verb, the auxiliary *jste*, agrees syntactically with the pronoun, but both the participle *byla* and the adjective *dobrá* show semantic agreement. Based on such data, Corbett (1983) proposes the following hierarchy, including the category of predicate-internal nouns. Here, as in the Agreement Hierarchy, the likelihood of semantic agreement increases when moving rightwards across the hierarchy (cf. Corbett, 1983, p. 44 et seq.).

(42) The Predicate Hierarchy
finite verb – participle – adjective – noun

Table 7 summarises the options found for verbal and adjectival agreement in the last two sections, applied to the above hierarchy. In the questionnaire, verbal agreement is tested on participles, whilst adjectival agreement conditions contain an adjective as well as an auxiliary, the latter representing the finite verb. How does genitive plural fit into the pattern? When the adjective is in the nominative plural, the auxiliary also bears plural. For two conjoined QNPs, this clearly is semantic agreement with BoolP, which can be concluded from the fact that no element within in the conjunct carries both a plural and a nominative value.

	finite verb	**participle**	**adjective**
Synt. Agr.	SG	N.SG	GEN.PL
Sem. Agr.	PL	PL	NOM.PL

Table 7: Agreement with QNP conjuncts in the Predicate Hierarchy

However, genitive plural agreement on the adjective only occurs with a singular verb. In contrast to participles, adjectives do not display neuter singular agreement. Why is that? I propose that the different agreement sources originate from different featural requirements of the targets. Assume that the predicate aims for syntactic agreement with a QNP. The lack of phi-features leads to neuter singular agreement on the verb. But adjectives in Czech not only require gender and number information, they also require case. Example (8b) from section 2.2.1, repeated here as (43), shows that Czech does possess a default case, most plausibly nominative,[23] when none is provided by the subject:

(43) *Že* *Petr* *nepřišel,* *nebylo* *dobré.*
that Petr NEG:came.M.SG NEG:was.N.SG good.N.SG.NOM
'That Petr didn't come wasn't good.'

(cf. Kučerová, to appear, p. 3)

An explanation as to why this default case does not appear with conjoined QNP subjects presents itself when reconsidering Franks's (1994) analysis of the genitive after numerals, as outlined in section 3.2.2. His assumption is that the genitive assigned by the numeral (GEN-Q) is, in contrast to the ordinary genitive, structural. Structural cases are assigned later in the derivation, in case no oblique case has applied. GEN-Q prevents the assignment of the other structural cases, nominative and accusative. This is what happens with the adjective in 40. Its search for a syntactic case controller leads to agreement with the genitive NP. Nominative default case can then not apply to it. I propose that case agreement with this internal NP differs from gender and number agreement precisely because of the nature of this case: GEN-Q itself is a form of default agreement and consequently available to the adjective. For this reason, the adjective can access the internal NP, while the verb cannot.[24]

Table 7 consequently classifies genitive plural agreement as syntactic agreement. This means that in Czech, the entire predicate either completely agrees

[23]The neuter singular suffix *-é* in example (43) is syncretic for nominative, accusative and vocative case (cf. Naughton, 2008, p. 52).

[24]An alternative view would be that the adjective receives case from the numeral, which also assigns case to the following NP. Then, the adjective looks inside QNP to provide itself with a number and gender feature. Whilst this would capture the difference between adjectival and verbal agreement more elegantly, this view poses another problem: it entails case agreement with a caseless element.

semantically or syntactically. In the case of semantic agreement, nominative is most plausibly available from BoolP.

Crucially, the adjective does not split its agreement sources: once case agreement has taken place, also number and gender are copied from the internal NP, and no default number value is assigned. The consequence is that the adjective agrees not with BoolP or a QNP, but with the NP inside one of the QNPs, which carries exactly the feature values present on the adjective in such cases: plural and genitive.

The idea that agreement is dependent on the target's requirements, rather than solely on a mechanism that is focussed on the controller, is also expressed by Kučerová (to appear), who assesses differences between verbal and adjectival agreement with conjoined NPs in Czech. Her explanation is that verbs require a person feature, whereas adjectives require gender and number. Whilst Kučerová (to appear) does not discuss case, the general reasoning is similar (cf. Kučerová, to appear, p. 5).

A consideration of the distribution of agreement controllers completes the analysis of adjective agreement with QNPs. The results of the evaluation are presented in figure 7. With two conjoined QNPs (blue bars), agreement is in more than half of the cases ambiguous. This can be predicted from the above presumption that genitive plural is a strategy for avoiding the choice of a controller. I have demonstrated that semantic agreement in this subcondition consists mostly of masculine plural, or, in the absence of a masculine NP, of feminine plural agreement. Figure 7 reveals a slight preference for CCA in this respect. This is contrary to the results for verbal agreement with a QNP and a singular NP discussed above. There, I suggested that semantic HCA is the consequence of avoiding both syntactic HCA and agreement with a singular controller. The results for adjective agreement thus shed new light on semantic agreement: in contrast to syntactic agreement, it occurs regardless of the controller's position within BoolP.

The results for QNPs conjoined with plurals (red bars) are similar to those found for verbal agreement: participants favour CCA, but HCA and semantic agreement with both positions are produced as well. For conjuncts consisting of a QNP and a singular NP (green bars), the difference between HCA and CCA is smaller. As demonstrated above, they all constitute genitive plural agreement. Since the singular NP was masculine, plural agreement with gender from that NP

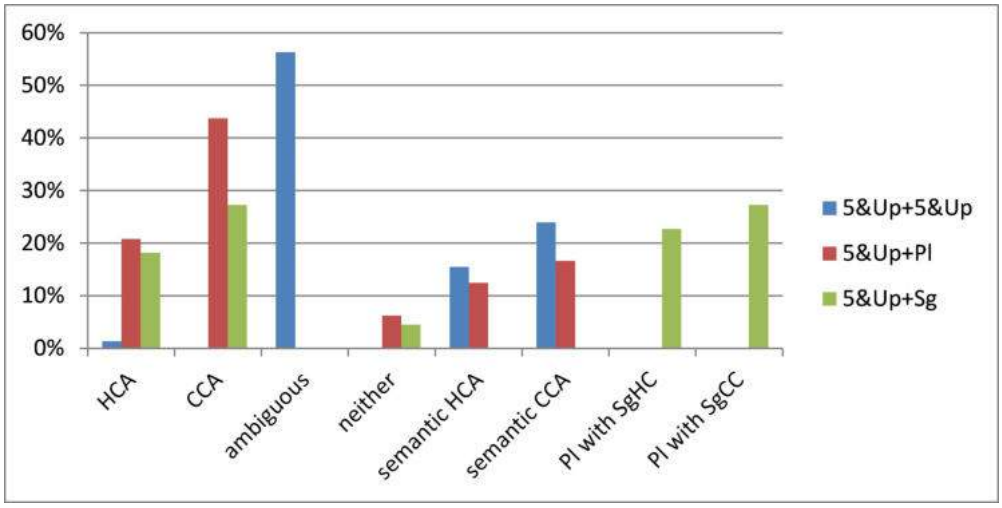


Figure 7: Adjectival agreement sources for conjoined (Q)NPs

was frequently chosen. Again, no clear preference for either conjunct is visible. This suggests that the gender value is provided only indirectly by the singular NP, through QNP's feature resolution mechanism. Semantic agreement with the neuter QNP does not occur.

Moving towards conclusion, I summarise the central insights of sections 5.2.1 and 5.2.2. I have demonstrated that verbal and adjectival agreement must be regarded separately, because the strategies for agreement with QNPs differ between the two categories: verbs – participles as well as auxiliaries – appear in the (neuter) singular, whilst adjectives agree in case and number with the NP inside QNP.

An important conclusion from the analysis of conjoined QNPs is that neuter singular agreement does not reflect the lack of phi-features on BoolP. It is instead the result of an attempt to agree directly with the QNP. The same is true for genitive plural agreement on adjectives, with the difference that the adjective targets a different controller in order to satisfy its case requirements. Both neuter singular and genitive plural agreement constitute syntactic agreement.

The data also shows that the QNP-internal NP's phi-features are accessible for agreement. However, adjectives which reflect these phi-features are nominative, whereas the NP itself is genitive. From this I deduce that this is semantic agreement. It remains to explain the difference between syntactic and semantic

agreement regarding the choice of agreement controllers: I have stated above that syntactic agreement prefers CCA, whilst semantic agreement occurs regardless of the controller's position within BoolP. This is because semantic agreement is in fact not agreement with a single conjunct, but a consequence of BoolP's resolution mechanism. BoolP computes its features based on rules of gender preference. It does so by accessing both conjuncts' semantic features. The output is not influenced by the order of these conjuncts. This implies that the target does not directly access the internal NP. It instead agrees with the features provided by BoolP.

The Consistency Principle is mostly valid. However, gender can be provided by a singular masculine conjunct if the other conjunct is highly dispreferred for agreement, such as a neuter QNP. Since there is no simple default gender value in Czech, the singular NP's gender feature must be accessed by BoolP in these cases. I conclude that the Consistency Principle holds for Czech, but not at all costs.

To summarise, the data reveals a number of competing restrictions that guide the choice of verbal and adjectival agreement with conjoined QNPs and NPs:

- Syntactic CCA is preferred over syntactic HCA.
- Syntactic agreement is preferred over semantic agreement.
- Semantic agreement is only possible with BoolP.
- The Consistency Principle should be observed: plural agreement is only possible with a plural conjunct.

5.3 Comparing *and* with *or*

In the discussion of coordination, *and* is the most typically examined coordinator. However, it is well known that different coordinators not only influence the semantics of a conjunct, but also its agreement properties. For example, in English, the disjunction phrase, in contrast to the conjunction phrase, cannot compute number. Instead, both default agreement and agreement with a single disjunct occur (cf. Marušič et al., 2015a, p. 72). The following sentences illustrate agreement with the disjunct that is closest to the verb:

(44) a. Neither that dog nor those cats are house-trained.

b. Neither those cats nor that dog is house-trained.

c. Is neither that dog nor those cats house-trained?

d. Are neither those cats nor that dog house-trained?

(cf. Marušič et al., 2015a, p. 72)

To investigate the effect the choice of the coordinator has on agreement with coordinated QNPs in Czech, I included three sentences with the coordinator *or* into the questionnaire that could be compared with their structural counterparts from the data sets presented in the previous sections. The following sentence is an example of disjoining a plural NP with a QNP:

(45) *Tři* *krávy* *nebo* *sedm* *oslů* *vážil-*_
3.NOM cow.NOM.F.PL or 7 donkey.GEN.M.PL weighed-SFX
dvě *tuny.*
2.NOM tonne.NOM.PL
'Three cows or seven donkeys weighed two tonnes.'

Firstly, I consider the choice of suffixes, shown in figure 8. Each two bars represent a pair of structurally identical sentences, differing only in the operator within BoolP. The two rightmost pairs, both with an adjectival predicate, are almost identical. A slight effect is visible in the leftmost pair: *or* seems to increase masculine plural and to decrease neuter singular. However, note that only two sentences, each featuring twice for reversed conjunct order, were compared.

When analysing the same set of data for agreement sources, the result is the same: the differences between each pair of bars in figure 9 are negligible. I therefore conclude that, at least for the sentences chosen in this experiment, there is no difference in agreement with conjoined QNPs and NPs when the operator is changed from conjunctive to disjunctive.

5.4 Effects of linear distance

In section 3.1.3, I illustrated that greater linear distance between controller and target increases the likelihood of semantic agreement. Not only is it interesting to see whether this effect also appears in agreement with conjoined QNPs, but

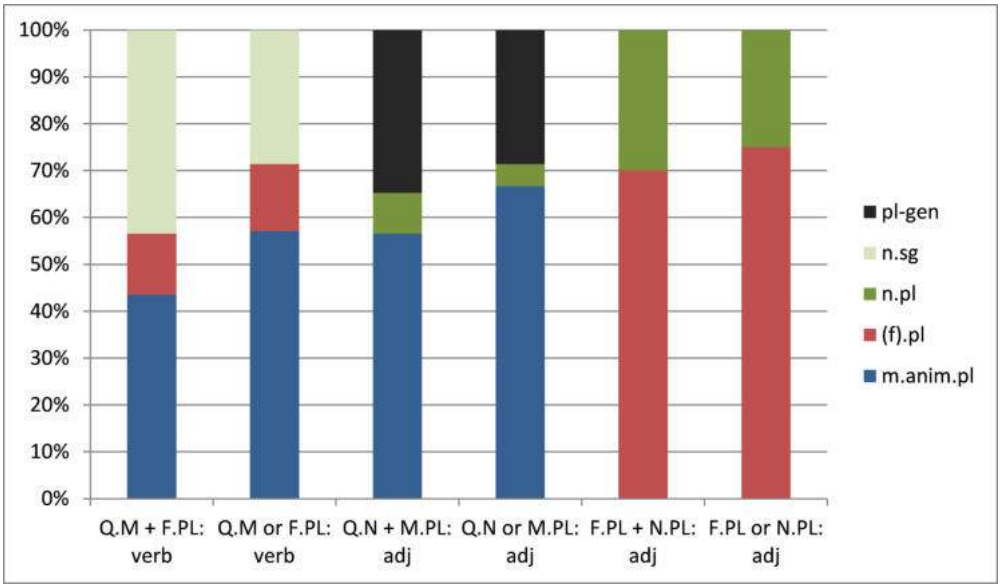


Figure 8: Agreement suffixes for disjoined (Q)NPs

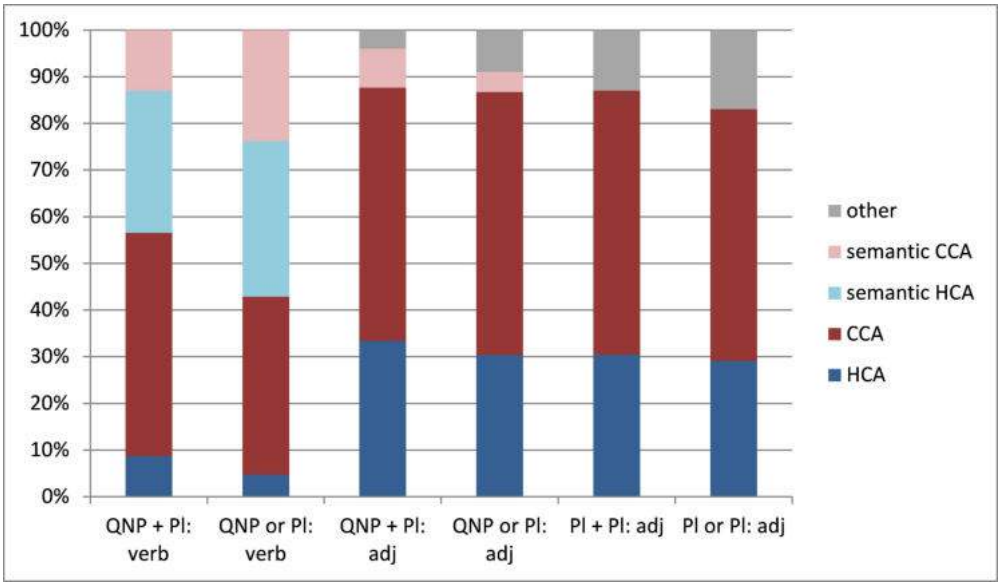


Figure 9: Agreement sources for disjoined (Q)NPs

controlling such a factor within the data more importantly sheds light on the linearity effects found so far. It remains unclear as to whether the preference for CCA is an effect of the order of phrases within BoolP, or whether it is caused

by linear adjacency. If the latter is true, inserting material between target and controller will influence agreement choices.

In order to investigate the effects of linear distance on verb and adjective agreement, participants were confronted with sentences as in example (46), where distance was created by adjoining a complex genitive NP to the subject phrase. These sentences could then be compared with structurally identical ones from the set of data already analysed.

(46) *Sedm* *oslů* *a* *čtyři* *krávy* *bohatého*
7 donkey.GEN.M.PL and 4.NOM cow.NOM.F.PL rich.GEN.SG
sedláka *jedl-_* *kaviár.*
peasant.GEN.SG ate-SFX caviar.ACC
'The rich peasant's seven donkeys and four cows ate caviar.'

Figures 10 and 11 chart the effects of distance on verbal and adjectival agreement, respectively. As in the previous section, each pair of bars represents a structural minimal pair. In each figure, only the left two bars indicate differences between adjacent and distant conditions: agreement with the NP inside QNP decreases with distance. It is compensated by an increase in default agreement with the QNP. Contrary to what was described in section 3.1.3, this constitutes a reduction of semantic agreement with distance. However, these differences are small, especially given the small sample size of only about 23 answers per conjunct.

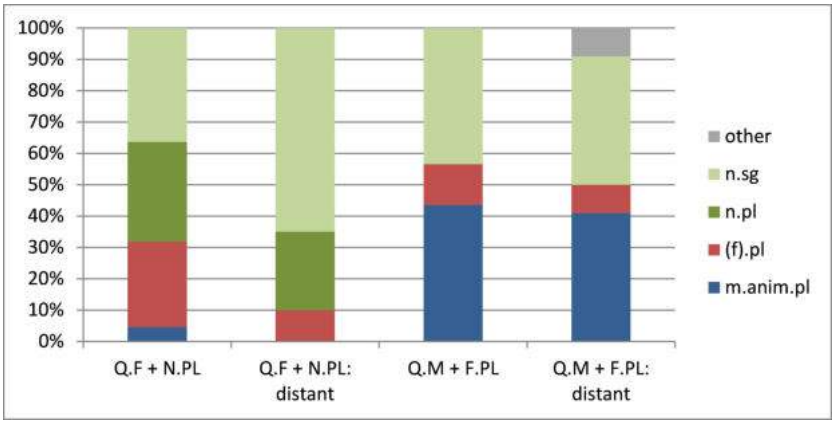


Figure 10: Distance effects on verbal suffixes for conjoined (Q)NPs

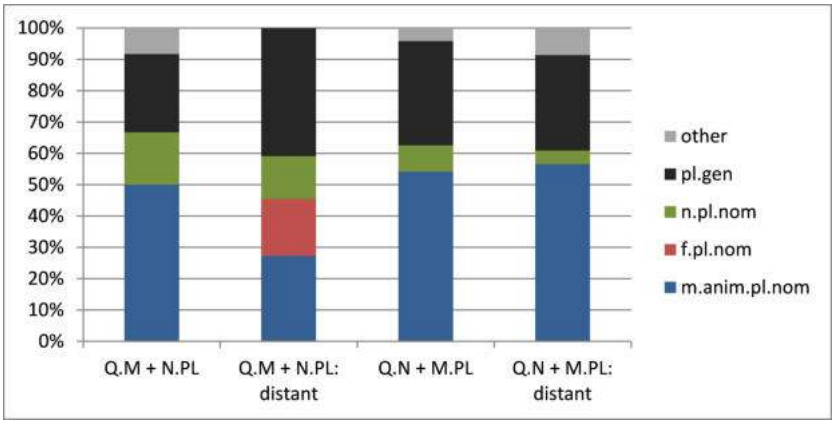


Figure 11: Distance effects on adjectival suffixes for conjoined (Q)NPs

The occurrence of feminine plural agreement in the second bar in figure 11 is unexpected. No feminine feature can be found on the NPs in the conjunct. However, it was produced by five participants. Possibly it is the result of an intervention effect. The test sentence in question is the following:

(47) *Pět tygrů a tři vědra brněnské*
5 tiger.GEN.M.PL and 3.NOM bucket.NOM.N.PL Brno.ADJ.GEN.F
zoo jsou pruhované.
zoo.F/N AUX.PL striped.F.PL/N.SG
'Five tigers and three buckets of Brno zoo are striped.'

Zoo is an indeclinable noun that can be either feminine or neuter in Czech. The adjective preceding it is feminine. The entire phrase *brněnské zoo* could in fact morphologically be nominative plural. It is thus reasonable to assume that the predicate in example (47) agrees with what the participants took to be a nominative feminine plural phrase.

Turning to the sources of agreement, reflected in figure 12, the effect of distance is equally minor in this respect. The data thus indicates that CCA with Czech conjuncts is not a consequence of adjacency. However, relative distance might influence agreement choices. Note that the distance between controller and target in this experiment consists only of two words. Probably a longer intervener, such as a relative clause, would lead to greater effects.

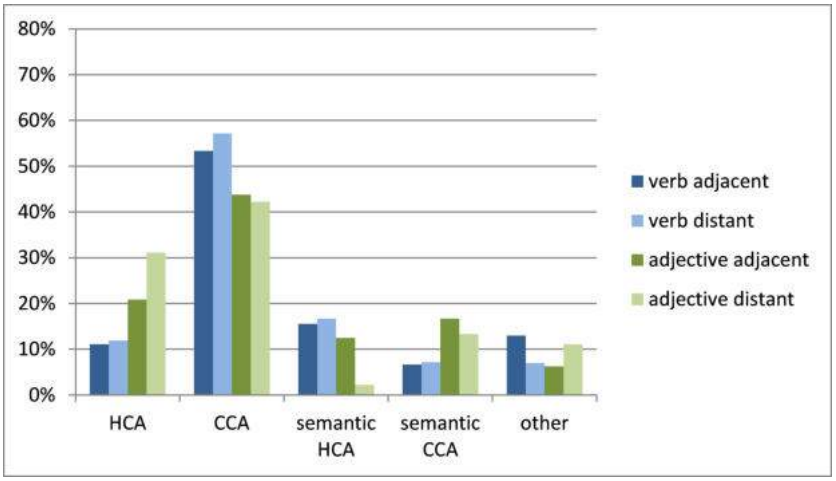


Figure 12: Distance effects on agreement sources for conjoined (Q)NPs

5.5 Single QNPs

The inclusion of single QNPs into the questionnaire served predominantly as a control condition. The main reason for this decision was to ensure that the participant's judgements of QNP conjuncts were not distorted by unexpected agreement strategies for single QNPs.

For verbal agreement, participants always chose neuter singular. This suggests that this is indeed the only possible strategy for agreement with QNP subjects. Adjectival agreement was less homogeneous. Genitive plural agreement occurred in 14 out of 20 cases. The other six were instances of nominative agreement and will be discussed in the following sections.

It is important to note the differences between verbal agreement with single QNPs and such with coordinated ones, as analysed in section 5.2.1. The fact that plural agreement is not found with the former, but frequently occurs with the latter, implies that it is not simply an instance of semantic agreement with the QNP in Czech. Instead, I argue that it is a result of feature resolution on BoolP. BoolP accesses the semantic features of the QNP, since agreement with the entire conjunction phrase is always a form of semantic agreement.

5.5.1 Animacy

In section 3.2.5, the effect of animacy on verbal agreement in Russian was illustrated: plural agreement is less preferred with inanimate QNPs. This effect is related to the general tendency that animate controllers favour semantic agreement, as discussed in section 3.1.3. Glushan (2013) and Smith (2015) attribute it to the position of animate controllers in the sentence: they occupy a higher position than inanimate controllers. For both authors, semantic agreement can only be controlled from above a certain point in the structure.[25]

So far this survey has revealed a strong preference for syntactic agreement with single QNPs in Czech. This suggests that animacy should not affect agreement choices, because when even animate QNPs prefer syntactic agreement, inanimates should show an equal or stronger tendency towards this type of agreement. I included four sentences with animacy contrasts in the questionnaire, two with verbal and two with adjectival predicates. This provides an impression of the participants' agreement preferences, which can then be considered in relation to the entire data set.

Figure 13 evidences the results. Animacy has no effect on verbal agreement, as revealed through the contrasting dark and light blue bars. It does however influence adjectival agreement, as the dark and light green bars show. Genitive plural is the preferred suffix for animate QNPs. For inanimates, only five of the eleven answers are genitive plural. Four answers contained the short neuter singular suffix *-o*, an alternative form of adjective agreement which used to be productive, but is today only available with some adjectives (cf. Naughton, 2008, p. 55). Both types of answers are shown in example (48):

(48) *Pět* *lahví* *je* *rozbitých/* *rozbito.*
5 bottle.GEN.F.PL AUX.SG broken.GEN.PL broken.NOM.N.SG
'Five bottles are broken.'

This short vowel suffix is a form of adjective agreement not found with conjoined QNPs. I argued in section 5.2.2 that in the case of syntactic agreement,

[25] This is evidenced through the fact that plural agreement is forced with inanimate controllers that are presupposed (cf. Smith, 2015, p. 113 et seq.). The two authors' theories differ regarding the exact domain in which semantic agreement is possible or obligatory. However, they agree that semantic agreement requires a higher position of the controller than syntactic agreement (cf. Smith, 2015, p. 116 et seq.).

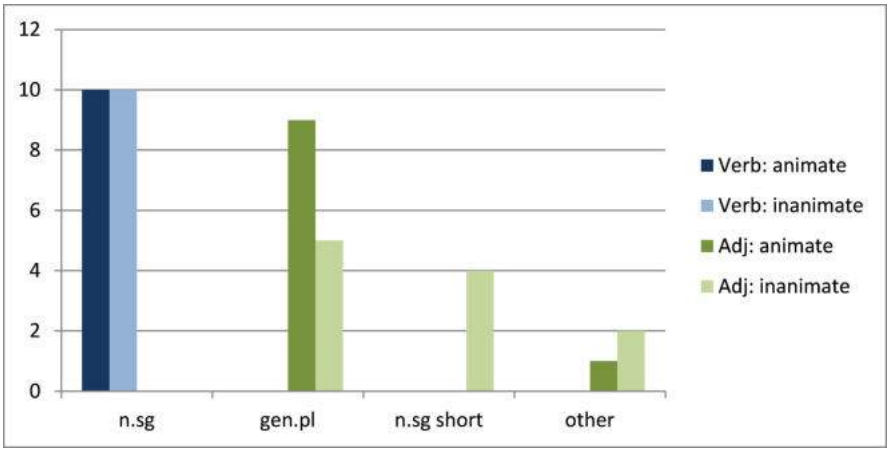


Figure 13: Animacy effects for preverbal single QNPs

GEN-Q is assigned to the adjective before nominative default case can apply. Nominative agreement only occurs as semantic agreement provided by BoolP. If this is true, what is the source of nominative case on the adjective in example (48)? The answer may lie in the fact that short vowel adjectives possess an incomplete paradigm: only nominative and accusative forms exist, and the latter not even for all genders (cf. Naughton, 2008, p. 55). Consequently, these adjectives cannot agree with the NP inside QNP, and thus nominative agreement is the only option.[26] I suggest that, as a result of these adjectives possessing their "own" default case, default assignment of gender and number is possible. Importantly, the long-vowel adjective, which has a complete paradigm, does not occur in the nominative. This provides further evidence for the claim that default case cannot be assigned to adjectives that agree with QNPs.

I conclude that the apparent difference between animate and inanimate adjectival nouns is in fact caused by the type of adjective used. No other significant alternatives exist. Consequently, animacy does not seem to play a role for agreement with Czech QNPs. Although the data set is small, it is unlikely that a more extensive survey would reveal animacy effects in Czech.

[26]To be precise, the suffix *-o* in example (48) is syncretic for nominative and accusative.

5.5.2 Position relative to the verb

As demonstrated in section 3.2.5, in Russian, the position of the controller relative to the target influences agreement with QNPs: plural agreement is dispreferred with postverbal subjects. Since even preverbal QNPs do not show plural agreement in Czech, a positional effect would be unexpected and indeed is not recorded for Czech (cf. Veselovská, 2001, p. 290). This was confirmed by all participants. QNP subjects always triggered neuter singular agreement, regardless of their position with respect to the verb.

5.5.3 Modified numerals

In Russian, agreement is typically strictly syntactic. Whilst QNP agreement displays optionality between syntactic and semantic agreement in this language, compound numerals with a nominative component only allow agreement with this element, as example (49) illustrates. Although 21 should logically be a 5&Up, it does not trigger neuter singular agreement. In contrast, its final component, the numeral 1, is a singular modifier followed by a singular noun, with which the verb agrees. Glushan (2013) attributes this to the presence of nominative on the numeral 1 (cf. Glushan, 2013, p. 174).

(49) *С дерева нападал/ *нападало двадцать один*
S dereva napadal/ *napadalo dvadcat' odin
from tree.GEN fell.M.SG fell.N.SG twenty one.NOM.SG
листик.
listik.
leaf.NOM.M.SG
'Twenty one leaves have fallen from the tree.'

(cf. Glushan, 2013, p. 174)

Similarly, modified numerals can cause mismatches between the syntax and semantics of a numeral phrase. In a phrase like *more than four women*, the numeral before the noun is paucal, but the semantics of the sentence is (roughly) equal to *at least five women*.[27] In order to assess whether predicate agreement and case on

[27] A number of studies on the semantics of modified numerals have shown that their meaning cannot always be equated to numerical relations such as $>$ or $<$ (cf. Nouwen, 2010, p. 2).

the noun are influenced by such a discrepancy between iFs and uFs in Czech, I included two sentences with modified paucal numerals into the questionnaire, one with a verbal and one with an adjectival predicate:

(50) a. *Více než čtyři žen-_ byl-_ v kavárně.*
more than 4.NOM woman-SFX were-SFX in café.LOC
'More than four women were in the café.'

b. *Více než čtyři žen-_ je/ jsou*
more than 4.NOM woman-SFX AUX.SG AUX.PL
nachlazen-_ .
having.a.cold-SFX
'More than four women have a cold.'

On the whole, the result was unanimous: all participants chose feminine plural agreement forms, compatible with NPs modified by a paucal, disregarding the semantics. Only one participant gave neuter singular and genitive plural agreement as alternative options for verbal and adjectival agreement. However, also in this context, only nominative was possible on the noun. This confirms the observation that syntactic distance increases the likelihood of semantic agreement, as discussed in the context of the Agreement Hierarchy in section 3.1.2.

The conclusion is that agreement with a QNP is not determined by its semantics, but by the syntax: in contrast to modified paucals as in (50), they do not contain a nominative argument. It is their lack of case that triggers neuter singular agreement and their specific quantificational properties that lead to genitive to the following noun.

To summarise the discussion of single QNPs in the previous sections, the data shows that in Czech, neither structural nor semantic factors promote the choice of semantic agreement. In contrast to Russian, syntactic agreement in Czech is obligatory even with QNPs. This entails the conclusion that the variability found for agreement with conjoined QNPs is due to the complexity added to the structure by BoolP. Semantic agreement with QNPs is not triggered by those QNPs themselves, but by BoolP's resolution mechanism that processes semantic features.

5.6 Individual strategies

In section 5.2.2, I outlined a number of restrictions and preferences guiding the choice of agreement with conjoined NPs and QNPs. Among those are the preference of CCA over HCA and the preference of syntactic over semantic agreement. The data also reveals that no positional bias exists for semantic agreement, because it is mediated by BoolP. Yet the question remains: are these only statistical effects, or are they principles found in each individual's grammar?

Figure 14 reflects the individual analysis of the data for conjuncts consisting of a QNP and a plural NP. All participants favour syntactic over semantic agreement, albeit not to the same extent. Eight out of ten participants display a strong preference for CCA. Of those, participant B is the only one who consistently uses CCA. Participants C and J employ HCA and CCA in almost equal proportions. Importantly, no participant favours HCA over CCA. Speakers who employ semantic agreement to a larger extent to not show a pronounced preference for a single conjunct, which provides further evidence that semantic agreement is agreement with BoolP.

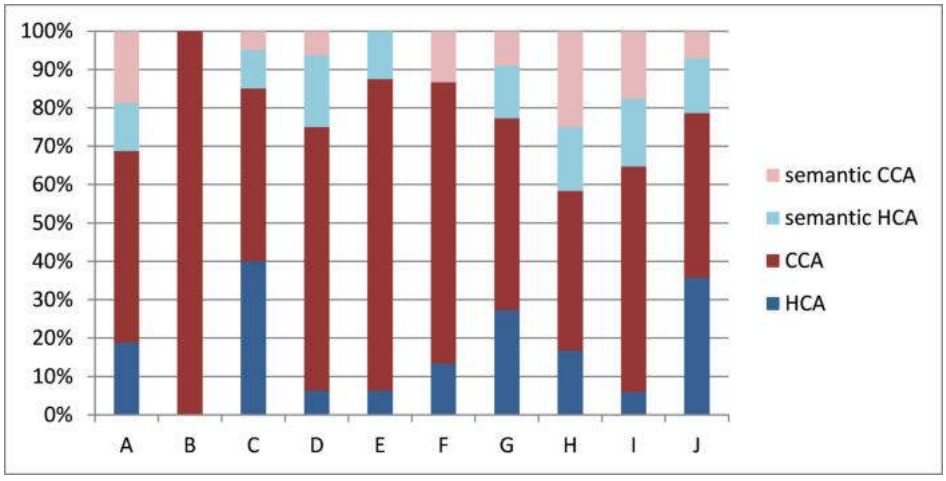


Figure 14: Individual agreement sources for conjuncts of QNP + Plural NP

Figure 15 permits a comparison of the participants' structural preferences with their strategies for gender resolution. The connection is clear: participants whose tendency towards syntactic agreement is less pronounced, such as A and H, favour masculine plural agreement. Where syntactic agreement strongly dominates, as with speakers B, E and F, masculine agreement does not prevail. This is precisely

because gender preferences only play a role for BoolP's semantic feature resolution. However, not all speakers have the same preferences: speaker F displays a pronounced tendency towards neuter plural, combined with a strong preference for syntactic agreement.

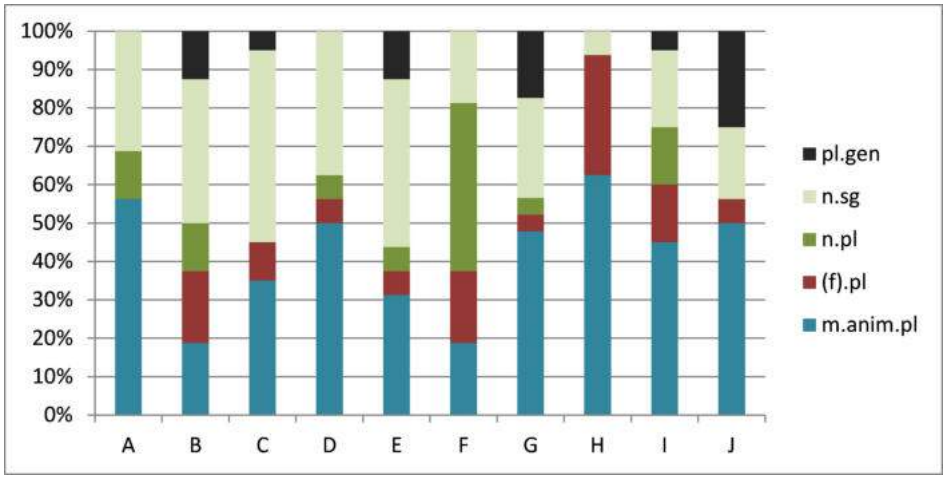


Figure 15: Individual agreement suffixes for conjuncts of QNP + Plural NP

For default agreement with QNPs, a difference between verbal and adjectival agreement becomes apparent: whilst neuter singular on verbs (light green) is chosen by all participants, only six out of ten use genitive plural agreement on adjectives. This is probably due to the fact that the process that yields genitive is less preferred than that for nominative: adjectival syntactic agreement with QNPs involves agreement with the QNP-internal NP, an option not available otherwise.

To summarise, not all speakers adhere to all rules of conjunction agreement, described in section 5.2.2 and repeated below, to the same extent.[28] However, no speaker violates any of these rules either. The consequence of this interplay is intra-individual variation within a defined space.

- Syntactic CCA is preferred over syntactic HCA.
- Syntactic agreement is preferred over semantic agreement.
- Semantic agreement is only possible with BoolP.

[28]The individual analysis restricts itself to conjuncts of QNPs and plural NPs because, with a total of 178 answers, the sample size is large enough for this purpose. For QNPs conjoined with singular NPs, the number of sentences is too small to provide a statistical basis for individual investigation. For this reason, the Consistency Principle, which is only active with singular NPs, does not feature in the discussion here.

5.7 Demonstratives

I now turn to the results of the acceptability judgement task. This second part of the questionnaire contained sentences without conjoined subjects in Czech which are relevant to the broader discussion of the structure of QNPs.

The first subcondition served the investigation of demonstrative agreement. Demonstratives before QNPs are especially interesting with respect to the Agreement Hierarchy, which predicts that attributives are more prone to syntactic agreement than predicates. Sentence (51) exemplifies demonstrative agreement in Polish:

(51) *Tych/* *Te* *pięć* *kobiet* *pojechało* *do*
these.GEN.PL these.NOM.F.PL 5 woman.GEN.PL drove.N.SG to
Warszawy.
Warsaw.GEN
'These five women drove to Warsaw.'

(cf. Franks, 1994, p. 667)

As outlined in section 2.2.1, only neuter singular verbal agreement is possible with Polish QNPs. However, Polish demonstratives preceding QNPs are always in the plural. They can carry either genitive or nominative case. At first glance, this is contrary to what the Agreement Hierarchy predicts: when verbal agreement is syntactic, so should agreement on the attributive. Before turning to the analysis of this pattern, a consideration of the Czech data is advisable. I included two sentences into the acceptability judgement task which only differed in the case on the demonstrative before the numeral. Participants were asked to provide the verbal suffix and rate the sentence.

For the genitive demonstrative, participants always chose neuter singular agreement on the verb and rated the entire sentence with an average of 4.7 out of 5 points.[29] For the version with the nominative demonstrative, participants either chose neuter singular agreement or left it blank, each one of them judging it with 1 point, the lowest rating possible. The conclusion is that genitive is the

[29] One participant alternatively proposed masculine plural agreement, but gave it only a rating of 2 points. He also rated the neuter singular version with only 3 points. It might be that the fact that the sentence was presented without context caused this participant to judge it as infelicitous.

only possible case on demonstratives modifying a QNP in Czech. Example (52) demonstrates this contrast in grammaticality:

(52) *Těch/* **Ty* *pět* *žen* *pilo*
these.GEN.PL these.NOM.F.PL 5 woman.GEN.PL drank.N.SG
víno.
wine.ACC
'These five women drank wine.'

Genitive plural, which is grammatical in both Polish and Czech, is a form of agreement that also appears on adjectival predicates. As elaborated in section 5.2.2, this represents agreement with the QNP-internal NP, which assigns the GEN-Q before default agreement can apply. The same assumption can be made for demonstratives, which also require case. Here, too, genitive plural agreement is a form of syntactic agreement which is only available with elements that require case. Consequently, Czech demonstratives do not constitute a counterexample to the Agreement Hierarchy.

Yet, how can nominative agreement in Polish be explained? Does it constitute semantic agreement? Franks (1994) remarks that the demonstrative *te* in example (51) is syncretic for nominative and accusative case. He further provides example (53b), which forms a minimal pair with (53a):[30] the NP in (53a) is feminine, in (53b) it is animate masculine. Morphologically, Polish and Czech numerals are typically ambiguous between nominative and accusative. However, in its animate masculine plural form, the Polish numeral displays a syncretism for genitive and accusative. The logical conclusion is that the Polish numeral is accusative. The form *te* in example (51) then reflects agreement with that numeral. Therefore, Polish neuter singular default agreement does not result from a lack of phi-features on the numeral, but from the lack of a nominative subject (cf. Franks, 1994, p. 666).[31] If this conclusion is correct, then nominative plural agreement on Polish demonstratives is syntactic and example (51) does not violate the Agreement Hierarchy. The nominative and the genitive version of the demonstrative differ in the choice of their syntactic agreement controller, which is the NP in the former and the numeral in the latter case.

[30] Sentence (53a) was originally presented as example (9) in section 2.2.1.
[31] This line of reasoning was mentioned, but not elaborated, in section 3.2.3.

(53) a. *Pięć* *kobiet* *głosowało* *przeciwko* *Wałęsie.*
5.NOM/ACC woman.GEN.PL voted.N.SG against Walesa.DAT
'Five women voted against Walesa.'

b. *Pięciu* *studentów* *głosowało* *przeciwko* *Wałęsie.*
5.GEN/ACC student.GEN.PL voted.N.SG against Walesa.DAT
'Five students voted against Walesa.'

(cf. Franks, 1994, p. 664)

The fact that the Czech language does not allow any alternative to genitive agreement on the demonstrative provides further evidence that the numeral is caseless, although no Czech equivalent to the Polish *pięciu* exists. If the numeral was accusative, this should be reflected in demonstratives and adjectives. Neither can it be genitive, because for Czech numerals, the genitive and all other oblique cases are morphologically distinct from nominative and accusative (cf. section 3.2.3). It is noteworthy that despite their close relatedness and many superficial parallels with regard to QNPs, Czech and Polish apparently possess fundamentally different QNP structures.

5.8 Subject properties

Section 3.2.4 presented the relation between verbal agreement and other structural configurations, such as binding of reflexives and control of gerunds. I demonstrated how theories about the effects of QNPs rely on the Russian phenomenon that such typical subject properties are only displayed in the presence of plural agreement on the verb. In sentences that include a neuter singular verb, the QNP subject is not able to bind reflexives or control gerunds. Both the categorical and the movement approach to QNPs hold that plural agreement, binding and control all require the subject to move to a higher position. In the categorical approach, this subject additionally must be an NP, whilst in the movement approach, only case-bearing QNPs rise to the higher position. I also outlined in section 3.2.4 that both Polish and Serbo-Croatian do not confirm this view. In Serbo-Croatian, plural agreement with QNP subjects is strongly dispreferred; in Polish, neuter singular agreement is the only available option. However, both languages allow binding of reflexives and gerund control in combination with neuter singular verbs.

The sentences I included in this questionnaire test the acceptability of three subject-related constructions and properties in combination with neuter agreement on the verb. These include binding of reflexives and control of gerunds, as discussed above. Pereltsvaig (2006), who analyses Russian numeral phrases based on Franks' (1994) approach, discusses further properties of QNPs that trigger plural agreement. For example, only plural licenses the control of PRO with an infinitival clause, whereas singular does not (cf. Pereltsvaig, 2006, p. 444). A sentence with this structural configuration was also included into the questionnaire. As with demonstratives, the participants were asked to fill in the participle suffixes. All chose neuter singular agreement for each of the three sentences. They are presented in example (54), together with the respective ratings:

(54) a. Binding of a reflexive: 4.7 points

Pět *zpěvaček* *pozorovalo* *svůj* *obraz* *v*
5 singer.GEN.F.PL observed.N.SG POSS.REFL image.ACC in
zrcadle.
mirror.LOC
'Five singers looked at themselves in the mirror.'

b. Gerund control: 2.9 points

Osm *studentek* *nastoupilo* *do* *vlaku*
8 student.GEN.F.PL boarded.N.SG to train.GEN
zpívajíce/zpívavši.
singing
'Eight students got on the train singing.'

c. Control of infinitival PRO: 4.8 points

Sedm *žáků* *se* *rozhodlo* *čekat* *do*
7 pupil.GEN.M.PL REFL decided.N.SG wait.INF to
oběda.
lunch.GEN
'Seven pupils decided to wait until lunch.'

Given the fact that the highest possible score in the task is five points, the ratings for sentences (54a) and (54c) show that neuter singular agreement does not exclude the respective structures in Czech. Only sentence (54b) rates lower. The reason for this, as provided by the participants, is that in Czech the gerund

is obsolete. Whilst some speakers were familiar with this form, others did not know it. Different speakers also proposed different variants of the gerund *singing* in (54b), but most speakers preferred the form *zpívajíce*. Since all speakers who gave the sentence a lower rating stated that the reason for this was the archaic verb form, I conclude that QNPs with neuter singular agreement do not diminish the grammaticality of gerund control in Czech.

Whilst the connection between plural agreement and the configurations discussed here is evident in Russian, neuter singular agreement does not decrease their grammaticality in Czech. My conclusion is that what hinders plural agreement in this language is independent of the positional requirements that enable control and binding. Developing this, a possible solution might be the factor of case, as the previous sections have demonstrated a number of arguments that Czech QNPs are caseless. In contrast, as argued by Smith (2015), Russian QNPs optionally carry case (cf. section 3.2.6). In his approach, only case-bearing QNPs move to Spec-TP. Whilst this may be correct for Russian, the conclusion for the Czech data must be that upwards movement is independent of case in this language.[32]

5.9 Independence of numerals

The final feature of Czech QNPs that I discuss in this thesis is their independence. In the discussion of the quantificational status of numerals in section 3.2.1, I showed that in Czech they are not independent, in the sense that they cannot appear without a complement. Veselovská (2001) assumes that this is due to their lack of phi and case features (cf. Veselovská, 2001, p. 283 et seq.). In order to see whether the intuitions of my participants coincided with this claim, I included the sentences in (55) into the questionnaire:

(55) a. *Vzal* *jsem* *si* *pět.*
took.M.SG AUX.SG REFL 5
'I took five.'

[32]Pereltsvaig (2006) also discusses the effect of agreement on interpretation. For example, only plural agreement permits a specific interpretation of the subject (cf. Pereltsvaig, 2006, p. 441). I included a corresponding sentence with the modifier *certain* and singular agreement into the questionnaire that scored 4.2 points. However, a semantic analysis of numeral phrases would lead to far, so this result is not discussed here. The sentence and a translation are listed in appendix B.

b. *Vzal* *jsem* *si* *jich* *pět.*
took.M.SG AUX.SG REFL them.GEN.PL 5
'I took five of them.'

Sentence (55b) with the genitive clitic *jich* unanimously received 5 points, which implies that all participants judged it as fully grammatical. This is expected, because the clitic represents the numeral's DP complement. However, sentence (55a) without a complement did not rate much lower: the participants gave it an average of 4.0 points. Half of them judged it as fully grammatical (5 points), the other half gave it a rating between 2 and 4 points. Whilst this latter group confirms Veselovská's (2001) assumption that numerals cannot appear alone, or that this is at least dispreferred, the other group contradicts it. I conclude that the numeral's apparent lack of phi-features does affect its independence, but that this is not the case for all speakers.

6 Conclusion

In this thesis, I have presented a survey and discussion of Czech numeral phrases and their influence on coordinated structures. This section provides an overview of the central conclusions drawn from a comparison of the Czech data with existing research on QNPs and coordination in Slavic, followed by an outlook on promising future research.

Concerning the structure of the numeral phrase, I have argued that the numeral is the quantificational head of the numeral phrase. It assigns genitive to the following NP. In Czech, this head does not carry any phi- or case features. When the QNP is the subject, neuter singular on the verb is default agreement as a result of failed syntactic agreement with that QNP. Czech QNPs do not allow for semantic agreement.

Coordination has provided significant additional insights into the process of agreement with QNPs. Crucially, the fact that neuter singular agreement occurs mostly as CCA entails the conclusion that it reflects failed agreement with the QNP, and not with BoolP. On the other hand, Czech allows for conjunction agreement where gender is identical to that of a QNP. Consequently, Marušič et al.'s (2015b) assumption that BoolP cannot compute its features when it contains a numeral cannot be translated to Czech: here, BoolP's computation mechanism

accesses the semantic features of QNP. The consequence is that feature resolution is successful even in those cases. Comparing the agreement patterns with single QNPs to that of coordinated ones, I have argued that the semantic features of the QNP can only be accessed by BoolP. Furthermore, syntactic agreement with the internal NP is only possible when an element that requires case, such as an adjective or a demonstrative, looks inside the numeral phrase.

Conjunction of both NPs and QNPs has also provided general insight into conjunct agreement in Czech. The data shows a preference of syntactic over semantic agreement, which is a general feature in the Slavic languages and consequently also has a part in agreement with coordinated structures. In addition, I have demonstrated that linearity plays a crucial role, as revealed through the dominance of CCA. This linearity effect is not one of absolute adjacency, as data with intervening material between subject and verb has shown. Instead, it might depend on relative linear proximity, since the data reflects that the Agreement Hierarchy and other general factors that influence agreement are also valid for conjoined NPs and QNPs. I have also illustrated how BoolP's semantic gender resolution operates on the conjuncts' featural aspects. However, preference rules for gender and animacy are not inviolable, but can be overriden by the above stated preferences.

The data also demonstrates the general validity of Marušič et al.'s (2015) Consistency Principle, which prevents singular NPs from providing gender to plural agreement, for Czech. However, there are instances where other restrictions and preferences may override the Consistency Principle. Adjective agreement with QNPs shows a general tendency against split agreement sources: when the QNP-internal NP provides the adjective with case, it also provides number.

The analysis has confirmed the importance of case for Czech and Slavic syntax. First, the target's case requirements are the driving force behind unusual agreement patterns, such as those found with demonstratives and adjectives. Second, although the QNP in Czech can control gerunds and infinitives and bind reflexives, it cannot control verb agreement. I have argued that, whilst Russian QNPs might sometimes have case and sometimes not, Czech QNPs are always caseless. This is the reason for failed verb agreement. Polish QNPs, in contrast, are possibly accusative, which also prevents the verb from agreeing with them. It appears that binding and control through the numeral phrase are only restricted to plural

agreement in languages that display variability in QNP agreement in the first place.

This thesis has presented and discussed two major approaches to Russian QNPs. I have argued against the view of Pesetsky (1982) and Franks (1994) that the QNP is sometimes a QP and sometimes an NP based on significant theoretical concerns. However, the Czech data has so far not revealed additional counter-evidence. The claim would be additionally weakened by a mix of plural and singular agreement on targets that have a single QNP controller, because a phrase cannot be an NP and a QNP at the same time. Since syntactic, or default, agreement is the only available option with Czech QNPs, this prediction cannot be assessed. Furthermore, the data has provided confirmation of Franks's (1994) distinction between an oblique and structural genitive, as the concept of GEN-Q provides an explanation to this case's exceptional appearance on adjectives and demonstratives. The approach presented by Glushan (2013) and Smith (2015), which ties QNP agreement to movement and case, can be extended to Czech with the modification that Czech QNPs are, in contrast to Russian ones, always caseless and that movement to a higher position in Czech happens regardless of this lack of case.

An issue I have not discussed so far is the difference between QNPs in structural and oblique case positions. Based on the history of Russian numerals, Neidle (1988) assumes that numerals in oblique position are adjectival, but that they possess incomplete case paradigms: these adjectives do not have forms for nominative and accusative (cf. Neidle, 1988, p. 92). This is a straightforward explanation that allows to maintain the analysis of numerals in subject position as caseless quantificational heads.

6.1 Outlook

A question that arises from the variability found with conjunct agreement in Slavic is why such a great degree of variability exists in the first place. Based on data from Slovenian, Tsez and Ndebele, Marušič et al. (2015a) propose that it results from the syncretism found in these languages (cf. Marušič et al., 2015a, p. 73). This means that a child acquiring one of these languages cannot always find an unambiguous source for agreement with a conjoined phrase and thus it assumes

that several sources exist. The claim that variability in agreement is directly linked to syncretism in agreement morphology is an interesting one that deserves closer examination, which can be achieved by comparing the degree of variation in languages with high syncretism to such which possess only few ambiguities in their morphology.

It remains to be established whether a unified account for QNPs in the Slavic languages can be found. So far, it appears that Czech, Russian and Polish might require different analyses. This would mean that QNPs are not only a complex phenomenon in each individual language, but also that they represent a field of great variation within Slavic. A thorough diachronic analysis of QNPs in different languages can reveal the mechanisms that led to this variation. Also, a systematic investigation and comparison of coordinated QNPs in the Slavic languages can shed more light on this issue.

An empirical investigation of coordinated structures always involves the consideration of many parameters and a wide range of data material. However, it is a worthwhile endeavour. Factors such as position, animacy, distance between controller and target and the syntactic category of the target can be modified and investigated to provide a broader image of the interplay between hierarchical, linear and featural aspects in Czech.

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List of Abbreviations

Abbreviations used in the text

5&Up	numeral 5 or higher
BoolP	Boolean Phrase
CCA	closest conjunct agreement
GEN-Q	genitive of quantification
HCA	highest conjunct agreement
iF	interpretable feature
IP	inflection phrase
NP	noun phrase
QNP	quantified noun phrase
QP	quantifier phrase
TP	temporal phrase
uF	uninterpretable feature

Abbreviations used in the glosses

1	first person
2	second person
3	third person
ACC	accusative
ADJ	adjective
ANM	animate
DAT	dative
DIST	distributive
F	feminine
GEN	genitive
IANM	inanimate
INF	infinitive
INS	instrumental
LOC	locative
M	masculine
NEG	negation
N	neuter
NOM	nominative
PL	plural
POSS	possessive
REFL	reflexive
REL	relative
SFX	suffix
SG	singular

List of Tables

List of Figures

A The Questionnaire

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Jméno: _____ Věk: _____

→ Co je důležité, je Tvoje osobní intuice ve Tvém běžném jazyce, ne gramatická pravidla.

Část 1

Vyplň prázdná okénka koncovkou. Jestli existuje několik možností, můžeš také zapsat několik koncovek. Samozřejmě, jestli zní nejlépe bez koncovky, můžeš nechat okénko prázdné.

Příklad:

Č.	Věta	Komentář
0	Studentka koupil a Škodu.	

Č.	Věta	Komentář
1	Pět žen pil__ vodku.	
2	Šest mužů a sedm žen je/jsou opil__.	
3	Pět oslů a tři krávy jedl__ seno.	
4	Tři vědra a šest lvů je/jsou nevypátrateln__ v pražské zoo.	
5	Pět rypadel a tři krtci byl__ na staveništi.	
6	Šest oslů a jedna kráva spal__.	
7	Kočky a psi jsou hladov__.	
8	Žirafy a tygr jsou nachlazen__.	
9	Sedm oslů nebo tři krávy vážil__ dvě tuny.	
10	Pět tygrů a tři vědra brněnské zoo je/jsou pruhovan__.	
11	Více než čtyři žen__ byl__ v kavárně.	
12	Na stole stál__ šest lahví.	
13	Sedm studentek je/jsou nemocn__.	
14	Tady se nekouřil__.	
15	Sedm mužů a pět aut je/jsou nevypátrateln__.	
16	Pět krtků a tři rypadla byl__ na staveništi.	
17	Osm hrušek a pět jablek je/jsou zkažen__.	
18	Šest aut a tři leopardi plzeňské zoo je/jsou puntíkovan__.	
19	Čtyři osli a sedm krav jedl__ seno.	
20	Tři jablka a pět hrušek spadl__ na zem.	
21	Panenky nebo autíčka byl__ oblíbenými vánočními dárky.	
22	Sedm oslů a čtyři krávy bohatého sedláka jedl__ kaviár.	
23	Jablka a hrušky jsou zkažen__.	

24	Osm věder a jeden lev je/jsou nevypátrateln__ v ostravské zoo.	
25	Více než čtyři žen__ je/jsou nachlazen__.	
26	Pět hrušek a dvě jablka chudého sedláka spadl__ na zem.	
27	Vodku pil__ pět žen.	
28	Šest věder a tři lvi je/jsou nevypátrateln__ v pražské zoo.	
29	Muž a žena jsou střízliv__.	
30	Hrušky nebo jablka jsou vyprodan__.	
31	Pět věder nebo tři králíci je/jsou schovan__ v obchodě.	
32	Kočka a psi jsou vesel__.	
33	Jeden lev a osm věder je/jsou nevypátrateln__ v ostravské zoo.	
34	Pět jablek a tři hrušky spadl__ na zem.	
35	Šest lahví stál__ na stole.	
36	Sedm žen a šest mužů je/jsou opil__.	
37	Tři rypadla a pět krtků byl__ na staveništi.	
38	Tři králíci nebo pět věder je/jsou schovan__ v obchodě.	
39	Tygr a žirafy jsou nachlazen__.	
40	Tři leopardi a šest aut plzeňské zoo je/jsou puntíkovan__.	
41	Tři krávy nebo sedm oslů vážil__ dvě tuny.	
42	Žena a muž jsou střízliv__.	
43	Tři vědra a pět tygrů brněnské zoo je/jsou pruhovan__.	
44	Sedm krav a čtyři osli jedl__ seno.	
45	Šest lvů a tři vědra je/jsou nevypátrateln__ v pražské zoo.	
46	Pět lahví je/jsou rozbit__.	
47	Pět aut a sedm mužů je/jsou nevypátrateln__.	
48	Tři krávy a pět oslů jedl__ seno.	
49	Autíčka nebo panenky byl__ oblíbenými vánočními dárky.	
50	Čtyři krávy a sedm oslů bohatého sedláka jedl__ kaviár.	
51	Tři hrušky a pět jablek spadl__ na zem.	
52	Tři krtci a pět rypadel byl__ na staveništi.	
53	Tři lvi a šest věder je/jsou nevypátrateln__ v pražské zoo.	
54	Jablka nebo hrušky jsou vyprodan__.	
55	Psi a kočka jsou vesel__.	
56	Hrušky a jablka jsou zkažen__.	
57	Jedna kráva a šest oslů spal__.	
58	Pět hrušek a tři jablka spadl__ na zem.	
59	Psi a kočky jsou hladov__.	
60	Dvě jablka a pět hrušek chudého sedláka spadl__ na zem.	
61	Pět jablek a osm hrušek je/jsou zkažen__.	

Část 2

Vyplň prázdná okénka koncovkou. Jestli existuje několik možností, můžeš také zapsat několik koncovek. Samozřejmě, jestli zní nejlepé bez koncovky, můžeš nechat okénko prázdné.

Jak dobré jsou ty věty takhle? Myslíš, že je používaš? Slyšíš je někdy?

Příklad:

Č.	Věta	)=				=)	Komentář
0	Studentka vykoupil a Škodu.		×				

Č.	Věta	)=				=)	Komentář
62	Osm studentek nastoupil__ do vlaku zpívajíce/zpívavši.						
63	Ty pět žen pil__ víno.						
64	Sedm žáků se rozhodl__ čekat do oběda.						
65	Vzal jsem si jich pět.						
66	Jistých šest herců koupil__ Lamborghini.						
67	Těch pět žen pil__ víno.						
68	Pět zpěvaček pozoroval__ svůj obraz v zrcadle.						
69	Vzal jsem si pět.						

Děkuji moc! =)

B The Test Sentences

CONDITION	METHOD+AGREEMENT	SENTENCE + TRANSLATION	NO.
Conjunction			
Pl + Pl	Suffix production adjective	Psi a kočky jsou hladov__. The dogs and the cats are hungry.	59
Pl + Pl	Suffix production adjective	Kočky a psi jsou hladov__. The cats and the dogs are hungry.	7
Pl + Pl	Suffix production adjective	Hrušky a jablka jsou zkažen__. The pears and the apples are rotten.	56
Pl + Pl	Suffix production adjective	Jablka a hrušky jsou zkažen__. The apples and the pears are rotten.	23
Pl + Sg	Suffix production adjective	Psi a kočka jsou vesel__. The dogs and the cat are happy.	55
Pl + Sg	Suffix production adjective	Kočka a psi jsou vesel__. The cat and the dogs are happy.	32
Pl + Sg	Suffix production adjective	Žirafy a tygr jsou nachlazen__. The giraffes and the tiger have a cold.	8
Pl + Sg	Suffix production adjective	Tygr a žirafy jsou nachlazen__. The tiger and the giraffes have a cold.	39
QNP + Pl	Suffix production adjective	Šest lvů a tři vědra je/jsou nevypátrateln__ v pražské zoo. Six lions and three buckets are untraceable in Prague zoo.	45
QNP + Pl	Suffix production adjective	Tři vědra a šest lvů je/jsou nevypátrateln__ v pražské zoo. Three buckets and six lions are untraceable in Prague zoo.	4
QNP + Pl	Suffix production adjective	Šest věder a tři lvi je/jsou nevypátrateln__ v pražské zoo. Six buckets and three lions are untraceable in Prague zoo.	28
QNP + Pl	Suffix production adjective	Tři lvi a šest věder je/jsou nevypátrateln__ v pražské zoo. Three lions and six buckets are untraceable in Prague zoo.	53
QNP + Pl	Suffix production verb	Pět oslů a tři krávy jedl__ seno. Five donkeys and three cows ate hay.	3
QNP + Pl	Suffix production verb	Tři krávy a pět oslů jedl__ seno. Three cows and five donkeys ate hay.	48
QNP + Pl	Suffix production verb	Pět krtků a tři rypadla byl__ na staveništi. Five moles and three excavators were at the construction site.	16
QNP + Pl	Suffix production verb	Tři rypadla a pět krtků byl__ na staveništi. Three excavators and five moles were at the construction site.	37
QNP + Pl	Suffix production verb	Sedm krav a čtyři osli jedl__ seno. Seven cows and four donkeys ate hay.	44
QNP + Pl	Suffix production verb	Čtyři osli a sedm krav jedl__ seno. Four donkeys and seven cows ate hay.	19
QNP + Pl	Suffix production verb	Pět hrušek a tři jablka spadl__ na zem. Five pears and three apples fell to the ground.	58
QNP + Pl	Suffix production verb	Tři jablka a pět hrušek spadl__ na zem. Three apples and five pears fell to the ground.	20
QNP + Pl	Suffix production verb	Pět jablek a tři hrušky spadl__ na zem. Five apples and three pears fell to the ground.	34
QNP + Pl	Suffix production verb	Tři hrušky a pět jablek spadl__ na zem. Three pears and five apples fell to the ground.	51
QNP + Pl	Suffix production verb	Pět rypadel a tři krtci byl__ na staveništi. Five excavators and three moles were at the construction site.	5
QNP + Pl	Suffix production verb	Tři krtci a pět rypadel byl__ na staveništi. Three moles and five excavators were at the construction site.	52
QNP + QNP	Suffix production adjective	Šest mužů a sedm žen je/jsou opil__. Six men and seven women are drunk.	2
QNP + QNP	Suffix production adjective	Sedm žen a šest mužů je/jsou opil__. Seven women and six men are drunk.	36
QNP + QNP	Suffix production adjective	Sedm mužů a pět aut je/jsou nevypátrateln__. Seven men and five cars are untraceable.	15
QNP + QNP	Suffix production adjective	Pět aut a sedm mužů je/jsou nevypátrateln__. Five cars and seven men are untraceable.	47

CONDITION	METHOD+AGREEMENT	SENTENCE + TRANSLATION	NO.
QNP + QNP	Suffix production adjective	Osm hrušek a pět jablek je/jsou zkažen__. Eight pears and five apples are rotten.	17
QNP + QNP	Suffix production adjective	Pět jablek a osm hrušek je/jsou zkažen__. Five apples and eight pears are rotten.	61
QNP + Sg	Suffix production adjective	Osm věder a jeden lev je/jsou nevypátrateln__ v ostravské zoo. Eight buckets and one lion are untraceable in Ostrava zoo.	24
QNP + Sg	Suffix production adjective	Jeden lev a osm věder je/jsou nevypátrateln__ v ostravské zoo. One lion and eight buckets are untraceable in Ostrava zoo.	33
QNP + Sg	Suffix production verb	Šest oslů a jedna kráva spal__. Six donkeys and one cow slept.	6
QNP + Sg	Suffix production verb	Jedna kráva a šest oslů spal__. One cow and six donkeys slept.	57
Sg + Sg	Suffix production adjective	Muž a žena jsou střízliv__. The man and the woman are sober.	29
Sg + Sg	Suffix production adjective	Žena a muž jsou střízliv__. The woman and the man are sober.	42
Disjunction			
Pl + Pl	Suffix production adjective	Hrušky nebo jablka jsou vyprodan__. Pears or apples are sold out.	30
Pl + Pl	Suffix production adjective	Jablka nebo hrušky jsou vyprodan__. Apples or pears are sold out.	54
Pl + Pl	Suffix production verb	Panenky nebo autíčka byl__ oblíbenými vánočními dárky. Dolls or toy cars were popular Christmas presents.	21
Pl + Pl	Suffix production verb	Autíčka nebo panenky byl__ oblíbenými vánočními dárky. Toy cars or dolls were popular Christmas presents.	49
QNP + Pl	Suffix production adjective	Tři králíci nebo pět věder je/jsou schovan__ v obchodě. Three rabbits or five buckets are hidden in the shop.	38
QNP + Pl	Suffix production verb	Sedm oslů nebo tři krávy vážil__ dvě tuny. Seven donkeys or three cows weighed two tons.	9
QNP + Pl	Suffix production verb	Tři krávy nebo sedm oslů vážil__ dvě tuny. Three cows or seven donkeys weighed two tons.	41
QNP + Pl	Suffix production adjective	Pět věder nebo tři králíci je/jsou schovan__ v obchodě. Five buckets or three rabbits are hidden in the shop.	31
Distance			
QNP + Pl	Suffix production adjective	Pět tygrů a tři vědra brněnské zoo je/jsou pruhovan__. Five tigers and three buckets of Brno zoo are striped.	10
QNP + Pl	Suffix production adjective	Tři vědra a pět tygrů brněnské zoo je/jsou pruhovan__. Three buckets and five tigers of Brno zoo are striped.	43
QNP + Pl	Suffix production adjective	Šest aut a tři leopardi plzeňské zoo je/jsou puntíkovan__. Six cars and three leopards of Plzeň zoo are spotted.	18
QNP + Pl	Suffix production adjective	Tři leopardi a šest aut plzeňské zoo je/jsou puntíkovan__. Three leopards and six cars of Plzeň zoo are spotted.	40
QNP + Pl	Suffix production verb	Sedm oslů a čtyři krávy bohatého sedláka jedl__ kaviár. The rich peasant's seven donkeys and four cows ate caviar.	22
QNP + Pl	Suffix production verb	Čtyři krávy a sedm oslů bohatého sedláka jedl__ kaviár. The rich peasant's four cows and seven donkeys ate caviar.	50
QNP + Pl	Suffix production verb	Pět hrušek a dvě jablka chudého sedláka spadl__ na zem. The poor peasant's five pears and two apples fell to the ground.	26
QNP + Pl	Suffix production verb	Dvě jablka a pět hrušek chudého sedláka spadl__ na zem. The poor peasant's two apples and five pears fell to the ground.	60

CONDITION	METHOD+AGREEMENT	SENTENCE + TRANSLATION	NO.
Single QNPs			
Anim. postv.	Suffix production verb	Vodku pil__ pět žen. Five women drank vodka.	27
Anim. prev.	Suffix production adjective	Sedm studentek je/jsou nemocn__. Seven students are ill.	13
Anim. prev.	Suffix production verb	Pět žen pil__ vodku. Five women drank vodka.	1
Inanim. postv.	Suffix production verb	Na stole stál__ šest lahví. Six bottles stood on the table.	12
Inanim. prev.	Suffix production adjective	Pět lahví je/jsou rozbit__. Five bottles are broken.	46
Inanim. prev.	Suffix production verb	Šest lahví stál__ na stole. Six bottles stood on the table.	35
Modified num.	Suffix production noun+adjective	Více než čtyři žen__ jsou nachlazen__. More than four women have a cold.	25
Modified num.	Suffix production noun+verb	Více než čtyři žen__ byl__ v kavárně. More than four women were in the café.	11
No subject	Suffix production verb	Tady se nekouřil__. One did not smoke here.	14
Demonstrative			
Genitive	Suffix production+judgement verb	Těch pět žen pil__ víno. These five women drank wine.	67
Nominative	Suffix production+judgement verb	Ty pět žen pil__ víno. These five women drank wine.	63
Subject properties			
Gerund control	Suffix production+judgement verb	Osm studentek nastoupil__ do vlaku zpívajíce/zpívavši. Eight students got on the train singing.	62
PRO control	Suffix production+judgement verb	Sedm žáků se rozhodl__ čekat do oběda. Seven pupils decided to wait until lunch.	64
Refl. binding	Suffix production+judgement verb	Pět zpěvaček pozoroval__ svůj obraz v zrcadle. Five singers looked at themselves in the mirror.	68
Specific interpr.	Suffix production+judgement verb	Jistých šest herců koupil__ Lamborghini. Certain six actors bought a Lamborghini.	66
Independence			
Clitic	Judgement –	Vzal jsem si jich pět. I took five of them.	65
Independent	Judgement –	Vzal jsem si pět. I took five.	69