Resolving polite conflicts in predicate agreement
Puškar-Gallien, Zorica

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

RESEARCH

Resolving polite conflicts in predicate agreement

Zorica Puškar-Gallien

Leibniz-Zentrum Allgemeine Sprachwissenschaft, Schützenstrasse 18, Berlin, DE
puskar@leibniz-zas.de

When an agreement controller contains conflicting semantic and formal features, the predicates that agree with it can differ with respect to the type of features they reflect. With the second person pronoun used for politely addressing a single referent, finite verbs always agree in (formal) plural number, while participles in some languages may or must agree in (natural) singular number and gender. Building on the claims from the previous literature that the honorific pronoun formally encodes both the grammatical features (plural number and person) and the natural gender and singular number, the analysis proposed in this paper derives the variation in predicate agreement by combining the formal tools of feature geometries, separate probing and variation in the ordering of Agree operations. The main claim advanced by the paper is that predicates differ with respect to the ϕ-features they probe for, and the order in which this probing applies.

Keywords: agreement; mismatches; phi-features; feature geometries; rule ordering

1 Introduction and overview

This paper investigates a conflict in the realm of agreement that pertains to mismatches between formal and semantic ϕ-features on pronouns and their manifestation in agreement with different types of predicates. Formal (henceforth: grammatical) features determine the pronoun's form (e.g. person and number), while semantic (henceforth: natural) features are not visible in the pronoun's form, but nevertheless appear on predicates that agree with this pronoun (e.g. gender on 1st and 2nd person pronouns). Mismatches in agreement occur when the natural features do not correspond to the grammatical ones with respect to their values, for instance when a formally plural pronoun is used to denote a single entity.

When an agreement controller contains conflicting natural and grammatical features, the predicates that agree with it can differ with respect to the features they reflect. Systematic crosslinguistic differences have been observed in the previous literature, with some of the first observations coming from Comrie's (1975) study on the curious behaviour of the pronoun for polite address, or the honorific pronoun. In languages such as Slavic, some from the Romance family (French, Italian, Romanian), as well as Modern Greek, the second person plural pronoun is used when politely addressing a single person. Some predicates in these languages, such as finite verbs, always show plural agreement, i.e. they agree with the *grammatical* features of the second person *plural* pronoun. However, other predicates, such as participles and adjectives, can show either plural agreement, consistent with the finite verbs and auxiliaries, or they can show the remarkable *singular* agreement and agreement in the *natural gender* of the referent, which has traditionally been termed *semantic* agreement.

Based on their agreement patterns, crosslinguistically different types of predicates have been shown to align according to the following hierarchy:

(1)   *The Predicate Hierarchy* (Corbett 1983: 43p.; Corbett 2006: 231)
        finite verb > participle > adjective > noun
        "For any controller that permits alternative agreements, as we move rightwards
        along the Predicate Hierarchy, the likelihood of agreement with greater semantic
        justification will increase monotonically (that is, with no intervening decrease)."

This paper will review the evidence for the existence of the hierarchy effects based on data from number agreement in the languages mentioned above. We will see that the honorific pronoun controls [π:2, #:pl][1] agreement on finite verbs cross-linguistically. However, the languages will differ in agreement on participles and predicate adjectives; in some languages, they may, or must, control singular and gender-dependent agreement. This paper will concentrate on the verbal predicate types on the Predicate Hierarchy by exploring the causes of variation on finite verbs and participles.[2]

The formal analysis will rest upon the assumption from the previous literature that the honorific pronoun formally encodes both the grammatical features (plural number and person) and the natural features (gender and singular number) (cf. Despić 2017). These features will be argued to have a hierarchically organised complex internal structure, formally modelled in the spirit of Harley and Ritter's (2002) feature geometries. Moreover, the features will be argued to occupy different positions in the complex structure of the pronominal DP, grammatical features being higher than the natural ones. This will set the stage for the proposal whose central claim is that predicates differ with respect to the ϕ-features they probe for, and the order in which this probing applies. In particular, I will propose that finite verbs agree in person and number, in that order. Unlike them, participles and adjectives perform number and gender agreement. Variation among and within languages emerges from the order of these operations (strict or underspecified). If gender agreement is carried out first, the natural gender and number features will be copied from the lower parts of the DP. If number agreement is carried out first, the grammatical number features will be copied from the higher phrases in the DP, which will lead to an intervention effect for natural gender and number agreement.

The paper is structured as follows. Section 2 introduces the empirical puzzle with an overview of different types of languages and their respective predicate agreement patterns. The presentation of the theoretical background occupies Section 3. The main theoretical assumptions for the system to be developed in this paper are outlined in Section 4, after which the patterns of agreement with finite verbs and participles are presented in Sections 5.1 and 5.2. Section 6 discusses some implications of the analysis for regular agreement patterns and similar instances of mixed agreement in other contexts and Section 7 summarizes and concludes.[3]

2 Data: Agreement with honorific pronouns

Mixed agreement effects with honorific pronouns in Slavic, Romance (French, Romanian, Italian dialects), Greek and Icelandic have been documented and analysed in the works of Comrie (1975); Corbett (1983); Wechsler (2011); Wechsler & Hahm (2011); Arsenijević (2014); Despić (2017), among others. Slavic languages, the focus of this paper, present a convenient study ground due to the extensive range of variation that can be observed

---

[1] Throughout the paper, π will be used as abbreviation for *person*, while # and γ will denote *number* and *gender*, respectively.

[2] See Puškar (2017) for a more detailed account of agreement of the honorific pronoun with predicate adjectives and predicate nouns.

[3] The analysis will mostly be modelled on data from Bosnian/Croatian/Serbian, since the previous generative literature on the issues addressed in this paper draws heavily on evidence from this language. As indicated throughout the paper, the analysis straightforwardly extends to other languages under discussion.

within a single language group. Most Slavic languages use the second person plural pronoun *Vy/Wy/Vi/Vie* for polite address. As this pronoun is grammatically specified for [π:2] and [#:pl] features, these features are expected to be reflected in agreement. However, different predicates in different languages may allow singular agreement (when addressing an atomic individual), accompanied by agreement in natural gender. Based on the patterns allowed on their predicates, the languages above lend themselves to a three-way classification.

The first group comprises languages in which finite verbs show [π:2, #:pl], while the participle, predicate adjective and predicate noun show agreement in singular number and the natural gender of the pronoun's referent. Czech is one of the typical representatives of this pattern (2),[4] together with French, some Italian dialects, Romanian and Modern Greek.[5]

(2)   *Czech* (Comrie 1975: 408)
   a.   Vy   jste   byl-a   dobr-á   / *byl-y   dobr-é.
        you AUX.2.PL been-F.SG good-F.SG / been-F.PL good-F.PL
        'You (female addressee) were good.'
   b.   Vy   jste   byl-a   učitelk-a   / *byl-y   učitelk-y.
        you AUX.2.PL been-F.SG teacher-F.SG / been-F.PL teacher-F.PL
        'You (female addressee) were a teacher.'

The second group comprises languages such as Ukrainian, Belorussian (cf. Corbett 1983: 51) and Russian, whose finite verbs consistently show [π:2, #:pl] agreement as in Group 1 (3a), but unlike in Group 1, the participle now agrees in plural number (3).

(3)   *Ukrainian*
        Vy   kupyl-y   / *kupyl-a   avto.[6]
        you buy.PRT-PL / buy.PRT-F.SG car
        'You (female addressee) bought a car.'

Predicate adjectives pattern with the ones in Czech, showing semantic singular agreement (4).[7]

(4)   *Ukrainian*
        Vy (je)   ğarn-a.
        you (aux.PRES) beautiful-F.SG.NOM
        'You (female addressee) are beautiful.'

Before proceeding to the final group, a brief comment on Russian is in order. Russian owes its Group-2 status to the behaviour of its so-called long-form (LF) adjectives. While the LF adjectives always agree in natural gender and singular number, short-form (SF)

---

[4] Even though Comrie (1975: 408) classifies Czech as a language that optionally allows formal agreement on the participle and the predicate adjective, contemporary native speakers seem to use semantic agreement as the only option. Thanks to Petr Biskup (pers.comm.) for confirming the judgments.

[5] Upper Sorbian can in principle be treated as a Group 1 language since the standard variety requires the usage of singular agreement. However, it is classified into Group 3 due to the availability of plural agreement as an option for some speakers.

[6] Judgments provided by Yuriy Kushnir, pers. comm.

[7] Note that Corbett (1983: 51) asserts that variation is found on the participle and the predicate adjective, a fact also confirmed by my informant. Ukrainian is nevertheless a part of the current group based on the claim that plural agreement is becoming rare, obsolete and unacceptable.

adjectives admit only plural agreement, just like participles.[8] There is a general consensus in the literature that LF predicate adjectives are more "adjectival" while SF predicate adjectives are more "verbal" in nature (Babby 1975; Bailyn 1994; 2012; Pereltsvaig 2007; Geist 2010; Borik 2014: 139). Following previous literature that treats the syntactic structure of SF adjectives as essentially verbal, I assume that they agree in the same way that verbs do, while LF adjectives are true adjectival predicates in the narrow sense.[9]

Languages that belong to the final group (Slovak, Upper and Lower Sorbian, Slovenian, Bulgarian, Macedonian) optionally permit formal or semantic agreement either on the participle, or on the predicate adjective, or on both of them. In these languages it is often the case that the prescriptive rules of the standard language require the usage of a particular form, which the usage of some speakers diverges from. For instance, in Bulgarian, even though the prescribed patterns mirror those from Group 2 languages, singular agreement can be found on participles as well (5).[10] The same situation can be observed in Slovak.

(5)   *Bulgarian*
        Vie ste   bil-i   (standard) / bil-a   (possible) umoren-a.
        you AUX.2.PL been-PL   / been-F.SG   tired-F.SG
        'You (female addressee) were tired.'

Unlike Bulgarian and Slovak, Macedonian is strict about its participles, which resolutely agree in the plural, while the predicate adjectives keep their right to disagree from the norm by allowing plural agreement.

(6)   *Macedonian*
        Vie ste   bil-e   pametn-a / pametn-i!
        you AUX.2.PL been-PL   smart-F.SG / smart-PL
        'Oh, you (female addressee) are smart!'

Bosnian/Croatian/Serbian (BCS) is tentatively placed it in this group due to variation present in some dialects, notably those spoken in the west of Croatia, around Zagreb, Rijeka or Gorski Kotar (see Comrie 1975; Corbett 1983; 2006; Stevanović 1989; Wechsler 2011; Wechsler & Hahm 2011; Despić 2017; Puškar 2017 for more detail on the possible variation).[11] Yet, plural is the standard option, and the only one acceptable to most of the native speakers consulted.

(7)   *BCS*
        a. Vi   ste   bil-i   pospan-i.
            you AUX.2.PL been-M.PL   sleepy-M.PL
            'You (single addressee) were sleepy.'

        b. #Vi ste   bil-a   pospan-a.
            you AUX.2.PL been-F.SG   sleepy-F.SG
            'You (female addressee) were sleepy.'

---

[8] This distinction is also present in Ukrainian, where SF adjectives are disappearing from active usage.

[9] As a more detailed account of their agreement is outside the scope of this paper, I direct the reader to Puškar (2017) for more detail.

[10] Data from Bulgarian come from Elena Karagjosova and Asen Tar, while the Macedonian data below were provided by Roza Kitanoska and Branimir Stanković.

[11] As for the acceptability status of singular agreement, Despić (2017: 258) treats it as "marginal/ungrammatical and considered non-standard". Following Schütze & Sprouse (2013); Sprouse, Schütze & Almeida (2013), I will use the term "acceptable" rather than "grammatical" since the sentences under discussion are grammatical in the sense that they can be generated by the grammars of Slavic languages, but not all of the generated options are going to be perceived as well-sounding or acceptable by all speakers.

Table 1: Predicate Hierarchy effects (based on Comrie 1975: 406–407, 409pp.; Corbett 1983: 45–46, 56pp.; Wechsler 2011: 1003).

	Finite verb	Participle	Adjective
Group 1			
Czech, French, Romanian, Italian dialects, Greek	PL	SG	SG
Group 2			
Ukrainian, Belorussian, Russian	PL	PL	SG
Group 3			
Slovak, Lower Sorbian, Upper Sorbian, Macedonian, Bulgarian, BCS, Slovenian	PL	PL/SG	PL/SG

To sum up, Table 1 presents the agreement options for different predicates in the languages mentioned above. What the languages have in common is constant grammatical plural agreement on the finite verb. They diverge in agreement on the participles – while the first group admits only agreement in natural gender and singular number, and the second group opts for the grammatical plural agreement, the third group optionally allows both possibilities.

The patterns from Table 1 raise several important questions for any theory of agreement, such as whether gender is encoded on local-person pronouns, and if the answer is yes, how exactly it is encoded if it is not visible in the pronouns' morphology. Furthermore, if gender features do in fact exist on pronouns, does this mean that in Czech-type languages these are natural gender features, but in standard-BCS-type languages the honorific pronoun carries inherent grammatical masculine gender and plural number? Or is the masculine feature the result of default agreement? Finally, what principles of agreement force natural gender and number agreement on participles in Group 1, while restricting Group 2 participles only to formal agreement? Finding answers to these questions is going to be the task of the sections to follow.

3 The honorific pronoun in the previous literature

Even in languages which do not accept natural gender agreement with the honorific pronoun, such as standard BCS, elements that stand in an agreement relation with local-person pronouns bear gender and number morphology that reflects the properties of the pronoun's referent (8). This poses the crucial question whether gender belongs to the pronoun's feature inventory.

(8)   a.   Ja   sam   umorna.
                1.SG be.1.SG tired.F.SG
                'I (female referent) am tired.'

          b.   Ti   si   umoran.
                2.SG be.2.SG tired.M.SG
                'You (male referent) are tired.'

          c.   Mi   smo   umorne.
                1.PL be.1.PL tired.F.PL
                'We (female referents) are tired.'

          d.   Vi   ste   umorne.
                2.PL be.2.PL tired.F.PL
                'You (female referents) are tired.'

A negative answer to this question is advocated by *unification-based approaches*, as proposed by Pollard & Sag (1994) or Wechsler (2011) and Wechsler & Hahm (2011). The latter two

accounts argue that the agreement controller in (8) is underspecified for gender features, and its interpretation as male or female comes through interpreting the morphology of the agreement target.

The proposal put forward by Wechsler (2011); Wechsler & Hahm (2011) focuses particularly on honorific agreement. They make a distinction between two sets of features: *concord features,* which denote purely grammatical properties of an element (case, number and gender) and *index features* (person, number and gender), more closely tied to semantics and related to an element's referential index, e.g. whether a noun denotes a male or female entity (cf. Wechsler & Zlatić 2003). A pronoun is argued to contain both sets of features. *Concord features* participate in agreement with targets which themselves also express gender and number (but not person) features, e.g. adjectives, while *index features* participate in agreement between the pronoun and the finite verb, which agrees in person and number. The main difference between Czech-type languages and BCS-type languages lies in the feature specification of the honorific pronoun, such that in the latter this pronoun contains formal masculine plural features. Since the honorific pronoun in standard BCS controls masculine plural agreement, it is assumed to have both masculine plural [γ:M, #:pl] *concord* features and 2nd person masculine plural [π:2, γ:M, #:pl] *index* features, copied by adjectives and finite verbs, respectively. In contrast, the honorific pronoun in Group 1 languages has the same *index* features, but it lacks *concord* features altogether. Agreement is regulated by the *Agreement Marking Principle* (Wechsler 2011: 1009) which demands that if a pronoun lacks ϕ-features, the features of the agreement target must be interpreted such that it specifies the denotation of the controller. This principle ensures that the pronoun lacking concord features receives the correct interpretation.

This account faces certain challenges in accounting for variation across the Slavic family due to the lack of discussion of participial agreement. Given that participles agree in number and gender, they can be assumed to agree in concord features like adjectives. However in languages that allow the combination of a plural participle and a singular predicate adjective, there emerges a conflict in the representation of the features of the pronoun. The plural agreement on the participle in languages like Bulgarian (9) requires the presence of a [#:pl] concord feature on the honorific pronoun, whereas the singular agreement on the predicate adjective would require either a complete absence of concord features, or the contradictory [#:sg] concord feature. Patterns of this type are not discussed in these accounts.[12]

(9)   *Bulgarian*
        Vie ste   bil-i   umoren-a.
        you AUX.2.PL been-PL tired-F.SG
        'You (female addressee) were tired.'

A further challenge is posed by patterns identified in BCS by Arsenijević (2014) and Despić (2017). Even though the honorific pronoun is assumed to contain two masculine features (concord and index), it is nevertheless capable of controlling natural gender agreement in certain environments. According to Despić (2017), the evidence comes from agreement in coordination. In BCS, singular conjoined nouns of different gender control default masculine plural agreement (10a). Two feminine nouns, however, control feminine plural agreement (10b).

---

[12] The account of Ackema & Neeleman (2013) would face a similar problem. Instead of the Agreement Marking Principle, they employ a mechanism of feature spreading from the agreement target to the agreement controller. The mechanism of feature spreading however lacks an explicit discussion on the restrictions that would account for the whole range of variation between participial and adjectival agreement outlined in Section 2.

(10)   a.   Brat   i   sestra   su   gledali   film.
                 brother.M.SG and sister.F.SG AUX.3.PL watch.M.PL film
                 'The brother and sister were watching a film.'

         b.   Ana   i   Ljubica   su   stigle.
                 Ana.F.SG and Ljubica.F.SG AUX.3.PL arrived.F.PL
                 'Ana and Ljubica arrived.'

Assuming the presence of two masculine features, the honorific pronoun should be expected to pattern with masculine nouns and force masculine plural agreement when coordinated with another nominal. Despić (2017) shows that this is not borne out. If a female-referring honorific pronoun is coordinated with another feminine noun, it can control feminine agreement (11), just like in coordination of two feminine nouns in (10b).[13] This at the very least indicates that there should be a [γ:F] feature encoded on the pronoun.[14]

(11)   Despić (2017: 261)
         Vi   i   Vaša   kćerka   ste   bile   veoma zauzete.
         2.PL and your.F.SG daughter aux.2.PL been.F.PL very   busy.F.PL
         'You (female addressee) and your daughter were very busy.'

Moreover, the honorific pronoun can control natural gender and number agreement on non-nominative adjectives, such as the case with the secondary predicate in (12). In addition to that, and contrary to the claims of Wechsler (2011) and Wechsler & Hahm (2011), Arsenijević (2014) demonstrates that semantic agreement is available in the nominative as well, as long as the adjective is non-restrictive. According to Arsenijević (2014), the possibility of semantic agreement depends on whether the adjective is used restrictively and whether the honorific pronoun is used as a strong pronoun (13) or a clitic (12), and not on whether or not it contains concord gender features. As my account below will mostly be concerned with verbal agreement, I refer the reader to Arsenijević (2014) for further detail on adjectives.

(12)   Despić (2017: 286)
         Draga Ana, juče   sam   vas   video potpuno   *pijane   /
         dear Ana yesterday be.1.SG you.2.PL.ACC seen completely drunk.PL.ACC /
         pijanu.
         drunk.F.SG.ACC
         'Dear Ana, yesterday I saw you (one formal female addressee) completely drunk.'

(13)   Arsenijević (2014)
         Ako vi, tako dobro obrazovani   / ??obrazovana,   ne znate
         if   you so   well   educated.M.PL.NOM / educated.F.SG.NOM not know.2.SG
         odgovor…
         answer
         'If you (single female), who are so well educated, do not know the answer…'

If the honorific pronoun does contain natural gender and number features in addition to the grammatical 2nd person plural, the final issue left to solve is how hybrid agreement comes about. I will follow Despić (2017) who argues for the "same pronoun hypothesis",

---

[13] Two conjoined honorific pronouns with feminine referents can also control masculine agreement, but Despić (2017) argues that this is in fact default agreement (the particular implementation depends on the theory of conjunct agreement; see this paper for further detail).

[14] As correctly noted by an anonymous reviewer, these examples only show that an [γ:F] feature may be present, but do not necessarily constitute an argument against having a [γ:M] feature.

whereby the features encoded by the pronoun should be the same in different types of languages and the difference lies in the way in which they are copied by agreement targets. His proposal holds that each of the pronouns below encodes *formal* person and number features, as well as *semantic* gender and number, whereby the formal features [π:2, #:pl] do not match the semantic ones [γ:F/M, #:sg]. An agreement target that can optionally show either formal or semantic features must agree either in fully formal (grammatical) (14a) or fully semantic (natural) features of the hybrid controller (14b–c). There is never a situation (14d) where the participle agrees with the honorific pronoun such that it copies grammatical number (plural) and the natural gender (feminine/masculine).

(14)　a.　Vi　ste　　putoval-i.
　　　　　2.PL AUX.2.PL travelled-M.PL
　　　　　'You (single female addressee) travelled.'　　　GRAMMATICAL: [#:pl, γ:$\varnothing$]

　　　b. #Vi　ste　　putoval-a.
　　　　　2.PL AUX.2.PL travelled-F.SG
　　　　　'You (single female addressee) travelled.'　　　NATURAL: [#:sg, γ:F]

　　　c.　Vi　ste　　putoval-e.
　　　　　2.PL AUX.2.PL travelled-F.PL
　　　　　'You (multiple female addressees) travelled.'　　NATURAL: [#:pl, γ:F]

　　　d.　Vi　ste　　putoval-e.
　　　　　2.PL AUX.2.PL travelled-F.PL
　　　　　*'You (single female addressee) travelled.'　　*NAT.: [γ:F] GRAM.: [#:pl]

According to Despić (2017), the predicate in standard-BCS-type languages will copy the formal plural number, which restricts agreement only to formal features. A default masculine exponent is inserted in the absence of a gender feature to satisfy the well-formedness requirements of a predicate. On the other hand, a predicate in a language like Czech will copy the semantic number, which will further restrict it only to semantic features, forcing it to copy the semantic gender of the pronoun as well.

　　What is left unsolved in this account is how semantic and formal number features are represented and in what way they are exactly encoded on the pronoun. Moreover, what forces agreement targets in Czech, as opposed to ones in BCS, to copy exclusively semantic features (i.e. the exact nature of the agreement restrictions) is another matter left without an explicit proposal in this account. I will propose a derivational account that will address exactly these issues.

4 Theoretical assumptions

The following sections introduce the theoretical tools for the subsequent analysis. Recall that the three main questions addressed by this paper are (i) how pronouns are structured, (ii) how ϕ-features are encoded on them and (iii) what kind of an agreement mechanism is responsible for the patterns above. I will propose that the pronominal DP consists of several sub-phrases, each of them hosting different ϕ-features. The lower phrases will encode natural gender and number bundled together, while the higher phrases will encode person and grammatical number. Finally, I will show how separate Agree operations, whose ordering can vary, derive the agreement patterns abiding by strict locality principles.

4.1 *The structure of pronouns and ϕ-feature encoding*

Following Progovac (1998); Franks & Pereltsvaig (2004), I treat pronouns in languages under study as DPs. In order to account for their internal structure, I rely on the abundant evidence from the Distributed Morphology literature (Halle & Marantz 1993;

Harley & Noyer 1999) that even the less morphologically transparent units such as pronouns may consist of several sub-phrases, along which ϕ-features are distributed (see, i.a. Marantz 1997; 2001; Arad 2003; 2005; Embick & Noyer 2007; Harley 2014; Kramer 2015). This assumption will be combined with the *Feature geometry* approach by Harley & Ritter (2002), which treats ϕ-features as complex units with articulated internal structure.

The essential property of personal pronouns, person features, have been argued to reside at a lower syntactic projection in the pronominal spine than number (Moskal 2015b; Harbour 2016; Smith et al. 2018; van Urk 2018). This point is advocated particularly strongly by Harbour (2016), who argues that encoding person higher than number makes wrong predictions for possible and impossible pronoun inventories. A structural implementation of this line of thinking was proposed by van Urk (2018) as in (15), building on the work of Moskal (2015b) and Smith et al. (2018). The pronoun is argued to have an nP[15] as its core, which is also taken to encode [Person] features. According to him, basing the pronominal structure on nP is also compatible with the view that pronouns realise a DP without a noun (Postal 1969; Elbourne 2005).[16] I will slightly diverge from this approach by nevertheless advocating a further split between a Pers(on)P and an nP in a way presented in (16), where person features reside in their own projection, below the grammatical number features, but still above the features hosted by the nP. The effect of this configuration on agreement with the honorific pronoun will be explored in the remainder of this section, while its consequences for the rest of the pronominal system will be addressed in Section 6.

(15)   Structure of pronouns (van Urk 2018):

```
        DP
       /  \
      D   NumP
          /  \
       Num    nP
             [Pers]
```
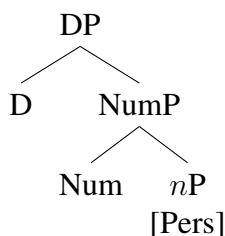
(16)   Structure of pronouns (cf. Déchaine & Wiltschko 2002):

```
        DP
       /  \
      D   NumP
          /   \
       Num   PersP
             /  \
          Pers   nP
```
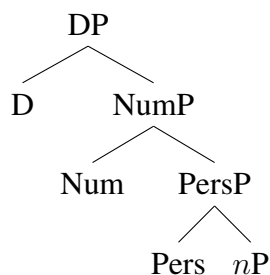
In formalising the representation of ϕ-features, I adopt the premises of the feature geometry approach by Harley & Ritter (2002). Instead of constituting unorganised bundles, person,

---

[15] See Kramer 2015 and references therein on the role of the nP and the possible features it may encode.

[16] Following Moskal (2015a); Smith et al. (2018) this nP contains no lexical root and is thus a purely functional category. This is is what differentiates pronouns from nouns, which contain a root, nominalized by the n-head.

number and gender features have a strictly organised structure. They consist of sub-features that stand in a hierarchical relationship with respect to one another. A certain type of feature increases in complexity or markedness depending on how many nodes in the hierarchy it contains. For the purposes of the account, I will adopt the modified geometry in (17). Moreover, I follow van Koppen (2012) in assuming that even though the individual feature types (π, # and γ) can be complex, they do not necessarily have to be encoded on the same syntactic head.[17]

(17)

$$\phi$$

π IND (=*Individuation*)

Participant   # γ

Speaker   sg/pl   F/M/N

Animate
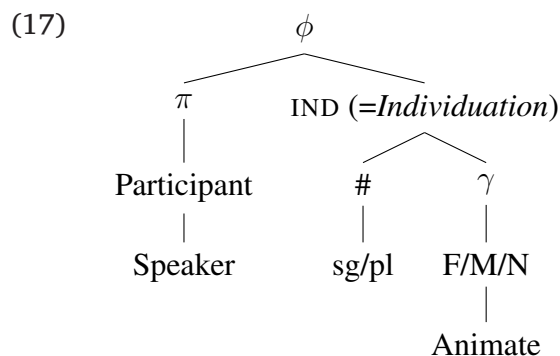
As for π features, I assume that 1st person is represented by all three nodes in the hierarchy in (17), while 2nd person contains only the [π:Participant] feature. Third person will essentially be treated as the lack of person features (cf. Béjar & Řezáč 2003; Anagnostopoulou 2005; Adger & Harbour 2007). Under the structure in (16), I assume that these are hosted by PersP, which is only projected if it carries a [π:Participant] feature and its dependents, and absent otherwise. Furthermore, I treat the NumP as the locus of *grammatical* plural number. These two features are what formally distinguishes a second person plural pronoun and defines its morphological shape, as well as what controls agreement on finite verbs.

At last, it is necessary to encode *natural* gender and number, such that they can participate in agreement (cf. Despić 2017). To this end, I propose that feminine or masculine natural gender and singular number exist under the *Individuation* (IND) node, which according to Harley & Ritter (2002) unites number and gender/class, to the exclusion of person. As evident in (17), I assume a particular internal structure for gender features. I take it that they consist of a general gender node γ that can take three values: masculine [M], feminine [F] and neuter [N], each of which can optionally include an additional "animate" node below it. *Natural gender* is thus a combination of a gender and an animacy value. The assumption that [Animate] is a subfeature of gender and not vice versa (as posed by Harley & Ritter 2002) goes back to Corbett (1991: 164). Based on syncretism in inflectional paradigms and certain agreement properties Corbett (1991: 161) identifies two *subgenders* for BCS within the category of masculine

---

[17] Exactly how the hierarchies are assembled and how they become encoded on the pronoun has received only so much attention in the literature. In their original proposal, Harley & Ritter (2002) try to capture the morphological realisation of these features, disregarding their structure in the syntax and role in agreement (Harley & Ritter 2002: 482). Thus, due to the scarce theoretical coverage, the origin of feature geometries must be left as a task for future research. For the purposes of the account, I will assume that such structures are assembled outside the derivation in progress (either in the lexicon, in the numeration, or on a separate workspace), after which they are connected to the respective heads that host them in syntax, together with which they enter the derivation. They may eventually undergo unification at the DP level (van Koppen 2012), or may be copied by agreement operations performed by the D head, as elaborated in Puškar (2017).

gender: animate and inanimate; the same is true for Russian for all three genders (Corbett 1991: 167). The advantage of this way of modelling gender hierarchy is that differences between natural and grammatical gender fall out from their internal feature structures. The greater structural complexity of natural gender makes it more specific and more marked than the grammatical one, which has consequences for agreement and interpretation.[18]

Finally, I assume that IND features are carried by the pronouns' nP (cf. Kramer 2015 for regular nouns), as in (17). Incidentally, this corresponds to van Koppen's (2012) proposal that the [π:Participant] feature is encoded above the IND features. The assumptions above yield the structure of the honorific pronoun as in (18). As a consequence, a crucial difference emerges between the regular local-person pronouns and the honorific pronoun. While with the former the formal number on the NumP matches the semantic number of the referent, with the latter there is a mismatch in the number values. The NumP encodes formal plural number and the *natural* or the real-world singular number is encoded on the nP.

(18)   Honorific 2nd person pronoun:
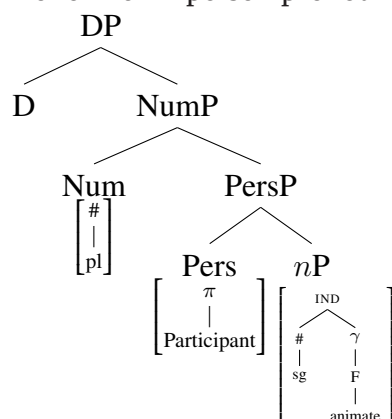
Below I will argue that the configuration of the features on n makes it necessary to copy all the features that belong to this hierarchy together, i.e. to copy the entire snippet with all its values (cf. Preminger 2014: 47). This will derive the observation of Despić (2017) that the valuation of a probe with a semantic feature forces the copying of the rest of the semantic features.

4.2 Assumptions on agreement

4.2.1 Ordering of Agree

I assume that probing for person, number and gender features is performed separately by means of independent Agree operations (see Picallo 1991; Laka 1993; Ritter 1993; Antón-Méndez et al. 2002; Béjar 2003; Carstens 2003; Řezáč 2004; Bošković 2009; Preminger 2014; Marušič et al. 2015; Arsenijević & Mitić 2016 for various applications of this proposal). I follow Béjar & Řezáč (2009) in assuming that a single syntactic head can carry multiple agreement probes. The question that arises as an immediate consequence of this assumption is exactly what order these probes are discharged in.

---

[18] The difference in animacy on masculine nouns in BCS leads to genitive-accusative syncretism on masculine nouns and nominative-accusative syncretism on inanimate nouns and to differences in agreement with nominal modifiers and relative pronouns. For detailed argumentation behind the assumptions on the structure of gender features and their consequences for the BCS nominal system I refer the reader to Puškar (2017; 2018).

In response to this issue, I assume that the order of application of Agree operations may be parametrised across languages. It may be strict, such that one type of Agree operation always precedes another one, however I propose that the order can also be underspecified (following similar proposals by Müller 2009; Georgi 2014; Assmann et al. 2015; Puškar 2018). As a result, Number Agree can precede or follow Person and/or Gender Agree on a given head.

4.2.2 Locality of Agree

Systematic restrictions on agreement evident in the Predicate Hierarchy indicate that multiple Agree operations with underspecified order of application do need to be constrained in some way. I argue that what constrains Agree operations are locality restrictions that operate on them. In particular, I assume that Agree operations from the same head can interact such that one operation creates a locality domain within which the following operation must apply. As a result, an Agree operation can render the domain c-commanded by the targeted head opaque for further agreement. I assume the following formalisation of this condition (see also Puškar 2017):

(19)   *Condition on Agree Domains (CAD)*
        After an Agree operation X, triggered by a probe P from a syntactic head H, has targeted a goal G, any subsequent Agree operation Y, triggered by a probe Q on H cannot target any constituents c-commanded by G.

(20)
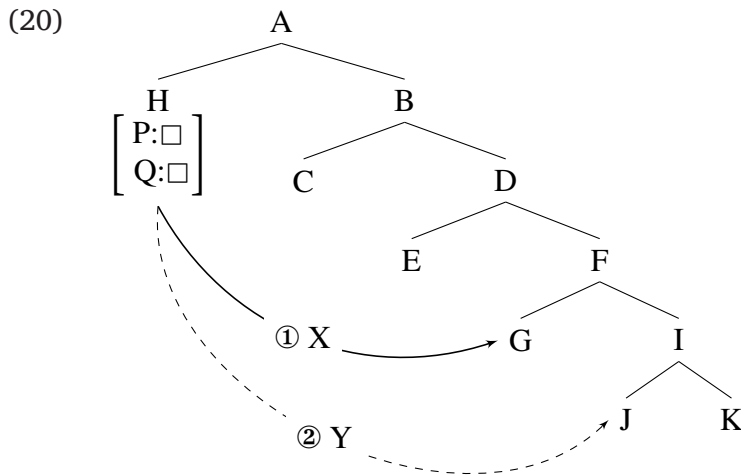
The CAD can be viewed as an economy condition on Agree. Once the Agree operation with the highest priority has applied, the following Agree from the same head needs to minimize its search domain. In other words, the first Agree does what is best and it is allowed to seek for its most appropriate possible goal as far in its c-command domain as possible, while the following Agree must be as economical as possible and converge with whatever it manages to find. The CAD can thus be seen as a locality constraint parallel to constraints on movement such as *Shortest Move* (Richards 2001) or *Approach the Probe Principle* (Branigan 2012; 2013). These principles apply in case a head triggers more than one Move operation, insisting that the element affected by the second Move operation must land as close to the movement-triggering probe as possible. Moreover, the CAD does not assume deactivation of the goal phrase (e.g. in the sense of Kalin & van Urk 2015, or Chomsky 2001's Activity Condition). Instead, this is a restriction on the domains of the operation Agree itself, which is independent of the properties, or

activity, of ϕ-features on a noun. Consequently, nothing prevents a feature targeted by an Agree operation from one head to be targeted again by another Agree from the same, or from a different head, provided that the Condition on Agree Domains in (19) is obeyed.

4.2.3 Valuation of features

Recall the generalisation of Despić (2017), illustrated in (14) above, that an agreement target which can show mixed agreement must copy either the fully formal or the fully semantic set of features of the hybrid controller. There is never a situation where the participle agrees with the honorific pronoun such that it copies grammatical number (plural) and the natural gender (feminine/masculine). Under the system laid out above, this means that the situation should never arise in which the participle would copy the natural gender (to the exclusion of natural number) from *n*, and grammatical number from Num, as in (21). It seems that, since natural gender and number are connected, copying one without the other does not occur (22).

(21) ✗ Incorrect derivation:
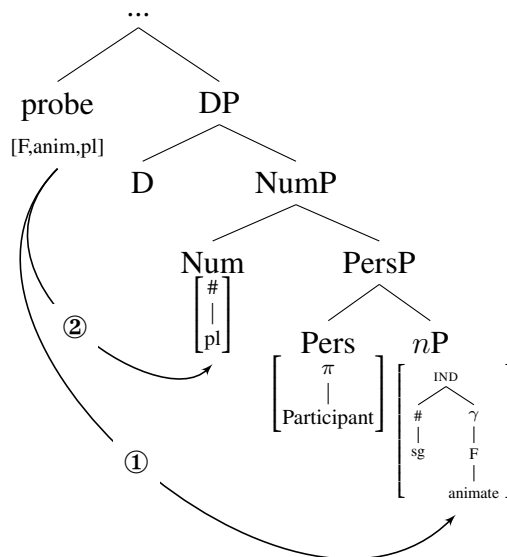
(22) ✓ Correct derivation:
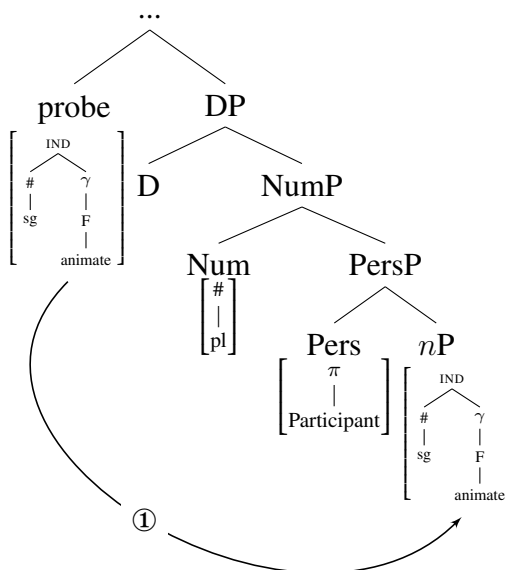
In order to formalize this observation, I propose that copying one feature from a geometry implies "pulling together", i.e. pied-piping the rest of the features connected to it.[19] Under this approach, copying ϕ-features means copying the entire snippet. The welcome consequence of this approach is that it integrates gender agreement into the family of previous proposals that have inspected interactions of person and number agreement, e.g. Béjar (2003); Béjar & Řezáč (2009); Preminger (2014); Deal (2015).

Finally, I assume that Agree needs to be carried out once it is triggered, but its failure to find a goal does not result in a crash of the derivation (Preminger 2014). If a probe has failed to find appropriate features, the PF will realise its inflection by means of a default exponent.

5 Deriving the agreement patterns

5.1 Agreement on finite verbs

What is uniform about all the languages in which Predicate Hierarchy effects were recorded so far is agreement in strictly formal features on finite verbs (e.g. Czech (23) or BCS (24)). In the specific case of the honorific pronoun, those features include [π:2, #:pl].

(23)　　*Czech* (Comrie 1975: 408)
　　　　Vy **jste**　　　byla　　　dobrá.
　　　　you **AUX.2.PL** been.F.SG good.F.SG
　　　　'You (female addressee) were good.'

(24)　　Vi **ste**　　　　pažljivi.
　　　　you **AUX.2.PL** attentive.M.PL
　　　　'You (male or female addressee) are attentive.'

A straightforward assumption would be to treat finite verb agreement as agreement carried out by T. The languages under study belong to the Indo-European family, where finite verbs only show person and number, but not gender agreement. As such, it is safe to assume that these predicates do not have a gender probe at all, but rather probe only for person and number. I follow Laka (1993); Sigurðsson (1996); Anagnostopoulou (2003); Béjar (2003); Béjar & Řezáč (2009); Preminger (2014), among many others, in assuming that agreement in person and number is established by means of two separate Agree operations. Additionally, I propose that in the languages under survey, the order of operations on T is fixed – Person Agree always precedes Number Agree.

As T probes for its unvalued features, the person probe will always be valued by the closest-matching goal, the Pers head. The number probe will then copy the closer

---

[19] See also Preminger (2014: 57) for a similar proposal employed in Agent Focus constructions in Kichean. According to him, in clitic doubling constructions in this language, the person probe, even though it searches only for person features, must copy the entire geometry of ϕ-features it finds, which includes number values as well. This condition can also be thought of as a version of Chomsky's (2001: 15) *Maximise Matching Effects* or Pesetsky's (1989) *Earliness Principle*, the idea behind which is that if the probe and the goal match, the valuation has to apply as soon as possible, as efficiently as possible. More importantly, according to Chomsky (2001: 15) "partial elimination of features under Match, followed by elimination of the residue under more remote Match, is not an option". In terms of the current system, partial valuation after matching only a subset of features, followed by valuation of another goal with the residue features, is not possible.

matching [#:pl] feature from Num, obeying the Condition on Agree Domains (19) as illustrated in (25).[20]

(25)   Agreement on finite verbs:
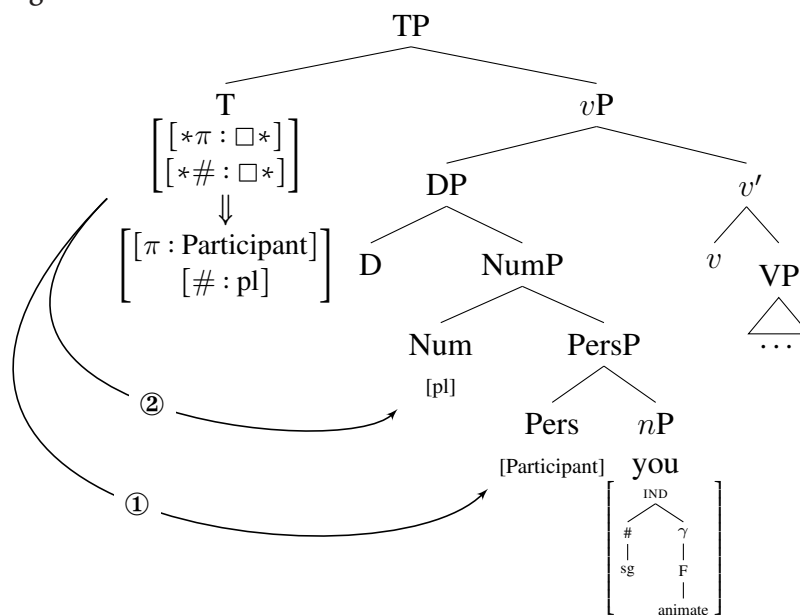
Under the opposite order of operations, Number Agree would be triggered first, and copy its feature from Num. The CAD would then prohibit Person Agree to probe beyond the previously targeted goal. As a result, we would expect a failure of person agreement, and the insertion of the default third person exponent (as a value inserted in cases where no person feature is present). Since a situation like this never arises in agreement with the honorific pronoun, I take this to mean that the order of operations on finite T is actually fixed, such that Person Agree always precedes Number Agree (see Béjar & Řezáč 2009; Preminger 2014; Deal 2015; Kalin & van Urk 2015 for the same claim). In sum, what unifies all the languages above is the fact that T does not probe for gender (and thus cannot reach the natural number), as well as that grammatical number and person are copied by two strictly ordered operations.

5.2 Agreement on participles

This section will focus on deriving the different possibilities of agreement on the participle. Its concluding discussion will inspect how the patterns become restricted to particular languages, or available in a single language.
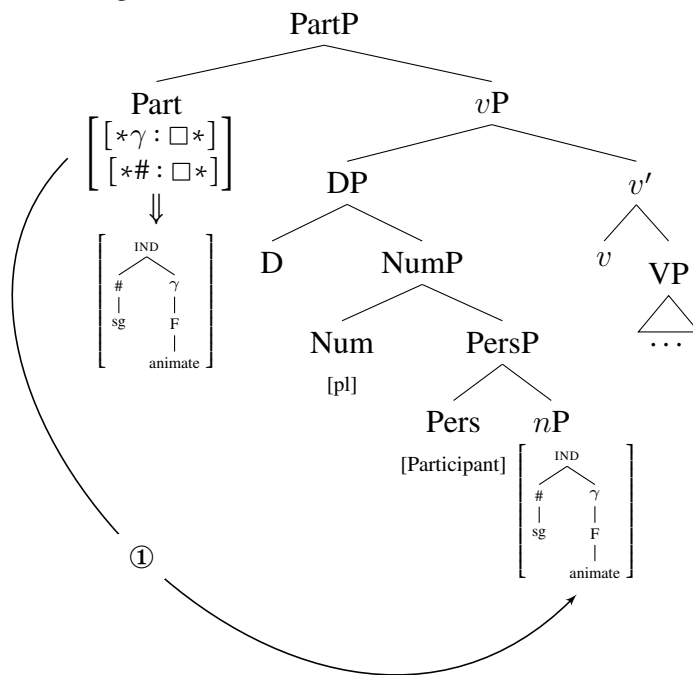
Recall that in languages such as Czech and French, the participle agrees in singular number and referent dependent gender, repeated in (26). These languages will therefore be taken to instantiate the semantic agreement pattern.

(26)   *Czech* (Comrie 1975: 408)
Vy   jste   **byla**   dobrá.
you AUX.2.PL **been.F.SG** good.F.SG
'You (female addressee) were good.'

---

[20] In order to simplify their representation in the derivations, person and number features are represented with the shorthand [Participant] and [pl], respectively.

Following Bošković (1997; 2009); Adger (2003); Migdalski (2003; 2008), I propose that participial agreement is performed by Part(iciple) head, located above the vP, which carries probes for number an gender. Under the current assumptions, in (26) it must be the case that the participle realises the natural gender and number it has copied from the nP. Semantic agreement pattern on the participle will then be the result of ordering Gender Agree before Number Agree. The gender probe reaches down to nP, where it finds the matching gender features. Since these features are embedded within a geometry that also contains singular number, this number feature is pied-piped with gender, as the whole feature snippet is copied. As a result, the number feature automatically saturates the number probe on Part, which does not need to conduct a new Agree operation. The participle is thus valued with the natural gender and number of the honorific pronoun. The process is schematised in (27).

(27)　　Natural gender and number on the Part:

PartP
- Part
  $\begin{bmatrix} [*\gamma : \Box *] \\ [*\# : \Box *] \end{bmatrix}$
  ⇓
  $\begin{bmatrix} \text{IND} \\ \# \quad \gamma \\ | \quad\quad | \\ \text{sg} \quad F \\ | \\ \text{animate} \end{bmatrix}$
- vP
  - DP
    - D
    - NumP
      - Num [pl]
      - PersP
        - Pers [Participant]
        - nP $\begin{bmatrix} \text{IND} \\ \# \quad \gamma \\ | \quad\quad | \\ \text{sg} \quad F \\ | \\ \text{animate} \end{bmatrix}$
  - v'
    - v
    - VP ⋯

① (arrow from Part to nP)

Grammatical agreement arises when the participle's features are valued by the grammatical plural number and the default masculine gender, as in languages of Group 2 above and BCS below. I propose that this pattern is the result of the opposite order of operations, Number Agree preceding Gender Agree. The default masculine gender agreement in (28) is an indication of a failed gender agreement (cf. Despić 2017). This is true if Gender Agree has not managed to reach the gender features located on the nP, due to an intervention effect. I take this to be a consequence of the CAD, triggered by the early application of Number Agree. The first goal that this operation finds is the [#:pl] feature on Num. Copying [#:pl] from this head will establish a domain for the following Agree operation. In this situation, Gender Agree cannot reach the nP any more, which leads to a failure of gender agreement. This results in the morphological insertion of a default masculine gender exponent. The derivation is presented in (29).

(28)　　Šta　ste　　**uradil-i**?
　　　　what　AUX.2.PL　**done-M.PL**
　　　　'What have you (feminine addressee) done?'

(29)   Grammatical number and default gender on the Part:
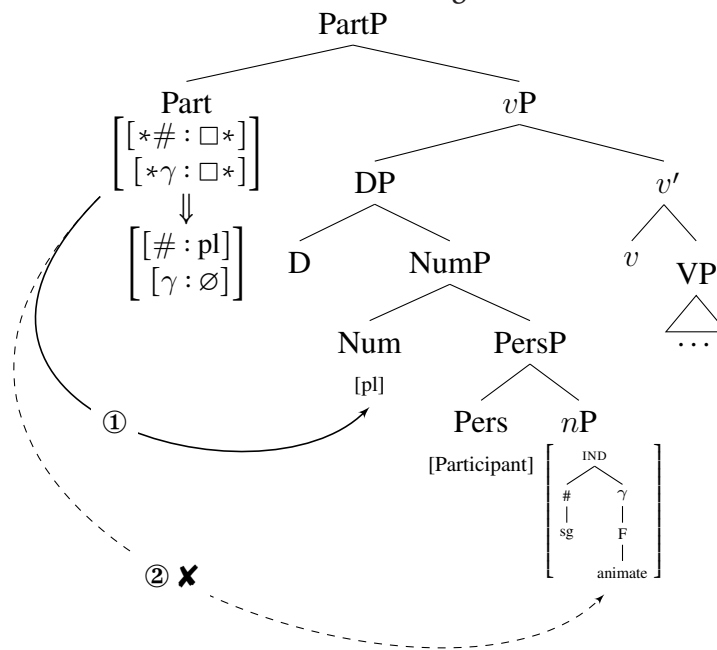
As a result of the system above, we can classify different languages in terms of the order of operations their Part heads employ as in Table 2.

In languages that only show semantic agreement, I assume a strict order of Agree operations, such that Gender Agree always precedes Number Agree. Such languages would include French, Italian (dialects), Modern Greek and Czech, all of which are characterised by natural gender and number agreement on the participle. Extending the same logic, languages in which the participle only shows grammatical number agreement, such as East Slavic, should give preference to Number Agree with respect to Gender Agree. Finally, languages in which optionality in the features of the participle obtains should have both orders of operations on Part at their disposal. These languages include Slovak, Upper and Lower Sorbian, and South Slavic. The preferences towards one or the other type of agreement may come from either usage preferences or pragmatic constraints, or a combination of the two.[21]

Table 2: Parametric variation.

	Finite verb	Participle
Group 1 Czech, French, Romanian, Italian dialects, Greek	π-Agree $>$ #-Agree	ɣ-Agree $>$ #-Agree
Group 2 Ukrainian, Belorussian, Russian	π-Agree $>$ #-Agree	#-Agree $>$ ɣ-Agree
Group 3 Slovak, Lower Sorbian, Upper Sorbian, Macedonian, Bulgarian, BCS, Slovenian	π-Agree $>$ #-Agree	#-Agree $>$ ɣ-Agree ɣ-Agree $>$ #-Agree

---

[21] BCS (especially the western Croatian dialects) probably falls into the category as well. We might assume that in those dialects where natural gender and number agreement are unacceptable, the order of operations is fixed, or rather, has become fixed as a result of some grammaticalisation process. Dialects such as those in (western) Croatia, in which natural gender and number agreement are allowed, can be treated as those allowing for both orders of Agree operations.

6 Generalizing and extending the account

This section aims to illustrate how agreement patterns of regular pronouns follow trivially from the system developed above. After the inspection of local-person pronouns and the extension to third person pronouns, the section ends with a discussion on the implications of the analysis for further mismatch phenomena, such as unagreement.

Recall that in the languages discussed in this paper local-person pronouns normally control natural gender and number agreement. For instance in BCS such agreement can be found both in the singular and in the plural:

(30)   a.   Ja   sam   došla.
              1.SG be.1.SG came.F.SG
              'I (female referent) came.'

        b.   Ti   si   došao.
              2.SG be.2.SG came.M.SG
              'You (male referent) came.'

        c.   Mi   smo   došle.
              2.PL be.1.PL came.F.PL
              'We (female referents) came.'

        d.   Vi   ste   došli.
              2.PL be.2.PL came.M.PL
              'You (male referents) came.'

Under the analysis proposed in this paper, the plural pronouns in (30c–d) will have the structure equivalent to that of the honorific pronoun in (18). Their NumP carries the formal plural number [#:pl], the neighbouring PersP houses person features, while the natural gender and plural number are bundled together under the IND node on the *n*P. Even though the double encoding of plural number may seem redundant, I argue that this assumption is welcome, and in fact necessary, to explain an additional type of agreement mismatch found with regular local-person pronouns. To illustrate, both (31a), with the natural feminine plural agreement, and (31b), with the formal plural and default (failed) gender agreement can be used if the pronoun refers to an all-female group. This strongly suggests that gender agreement with local-person pronouns, just like with the honorific pronoun, is not immune to failure in the plural.

(31)   a.   Mi   smo   došle.
              2.PL AUX.1.PL came.F.PL
              'We (female referents) came.'

        b.   ?Mi   smo   došli.
              2.PL AUX.1.PL came.M.PL
              'We (female referents) came.'

This situation can be modelled straightforwardly under the current account, and in fact, it provides further support for it. The pattern in (31a) will be derived when Gender Agree is given preference over Number Agree on the participle, parallel to (27) above. If the order of operations is reversed, Number Agree will copy the higher formal [#:pl] feature, making the copying of gender illicit due to the CAD, yielding (31b) in the manner derived in (29).

On the other hand, the only option in the singular is natural gender and number agreement. The lack of optionality can be explained by the lack of its trigger, i.e. the [#:pl] number feature. Following Nevins (2011); Pesetsky (2013); Despić (2017), I assume that

being formally singular entails having no formal number features. This can be modelled by assuming that the NumP is present only if it hosts the [#:pl] feature and absent otherwise. Aside from that, the structure of local-person pronouns remains unchanged; natural gender and singular number are encoded on the *n* head[22] and person features are specified above it. Consider (32) as a derivation of (30a). Since the pronoun denotes a single feminine speaker, its IND features on the *n*P include the natural feminine gender and singular number. Under any order of operations, either Gender Agree or Number Agree will be able to target this feature bundle. This ensures that, without the NumP to trigger the CAD, the end result is always strictly natural gender and number agreement, as indicated by the features copied by the Part head in (32). On the other hand, its person features will always be the Goal for finite verbs, yielding 1st person singular agreement.

(32) $[_{PartP}$ Part$_{[IND[\gamma:F,anim][\#:sg]]}$ $[_{...}$ $[_{DP}$ D $[_{PersP}$ Pers$_{[\pi:Participant[Speaker]]}$ $[_{nP}$ $n_{[IND[\gamma:F,anim][\#:sg]]}$ $]]]]]$

Unlike the local-person pronouns, 3rd person pronouns morphologically distinguish between masculine (*on-∅* 'he'), feminine (*on-a* 'she') and neuter form (*on-o* 'it'), each of them controlling the concomitant gender agreement. The gender that they overtly show seems to be grammatical, rather than natural, since a feminine pronoun, for instance, can be used to refer both to an animate and to an inanimate referent.[23] I propose that this grammatical gender differs from the hitherto discussed natural gender in two aspects – structural and positional. As for its structure, recall from Section 4.1 that grammatical gender was argued to be simpler than the natural one in that it lacks the additional [Animate] feature. Additionally, I argue that there is a difference in their locus in the nominal spine. While natural gender belongs to the realm of *n*P, grammatical gender is located on the Gen(der)P, above the NumP. Combined with the assumption that PersP is present only if it carries a [Participant] feature and otherwise absent (as proposed in Section 4.1), the structure of 3rd person pronouns can be represented as in (33).

(33) $[_{DP}$ D $[_{GenP}$ Gen$_{[\gamma:M/F/N]}$ $[_{NumP}$ Num$_{[\#:pl]}$ $[_{nP}$ n $]]]]$

The structure in (33) has several beneficial consequences. First, the grammatical gender feature can be taken to be responsible for the realisation of gender morphology, yielding the *-∅*, *-a* and *-o* suffixes for [M], [F], and [N], respectively, as well as their plural counterparts (by fusing with the Num head). Moreover, this feature is responsible for gender agreement triggered by the third person pronouns. Finally, the structure in (33) has the benefit of equating the structure of 3rd person pronouns with the structure of other nouns in BCS. The assumption on two possible loci of gender features enables the modelling of mixed agreement with hybrid nouns that involve a mismatch between their grammatical and natural gender values. As a detailed discussion of such patterns is outside the scope of the present paper, I refer the reader to Puškar (2017; 2018) for further detail.

Putting together the possible building blocks of the DP, the question arises as to whether PersP and a GenP can co-occur, considering that GenP is absent on local-person pronouns, while PersP is absent on 3rd person pronouns and regular nouns. One possible candidate for the co-occurrence of the two are nouns that trigger the so-called *unagreement* patterns

---

[22] Importantly, I assume that the presence of the natural singular number on *n* does not give rise to any changes in the pronoun's morphology, but rather only influences its agreement patterns. The inflectional morphology of the pronoun is defined by the features above the *n*P, in this case the PersP.

[23] In case of an inanimate referent, a pronoun will have the same grammatical gender as the corresponding noun. Thus a grammatically feminine noun such as *stolica* 'chair' will be referred to by means of the feminine pronoun *ona* 'she'.

(cf. Mancini et al. 2011; Ackema & Neeleman 2013; Höhn 2016). Some languages such as Spanish allow for 1st or 2nd person agreement with regular nouns, as in (34a) and (34b), respectively.

(34)　　*Spanish* (Ackema & Neeleman 2013)
　　　a.　¡Qué desgraciad-as **somos** las　　mujer-es!
　　　　　how　unfortunate-F.PL AUX.1.PL DEF.F.PL women.F-PL
　　　　　'How unfortunate we women are!'
　　　b.　¡Qué desgraciad-as **sois** las　　mujer-es!
　　　　　how　unfortunate-F.PL AUX.2.PL DEF.F.PL women.F-PL
　　　　　'How unfortunate you women are!'

Under the account above, the patterns in (34) can be explained by a simultaneous presence of a GenP that carries the grammatical feminine gender and a PersP that carries local-person features. The feminine gender agreement on the adjective would result from copying the features of the GenP (or *n*P), while the local person agreement on the finite verb would come about as a result of copying of features from PersP (cf. Höhn 2016).

In sum, distributing ϕ-features across different projections on the DP-spine, as well as postulating multiple gender and number feature loci gives this account a possibility to explain regular agreement patterns as well as the potential to explain not only the mixed patterns in pronominal agreement, but also other instances of mixed agreement in different languages.

7 Conclusions

This paper has addressed patterns of formal and semantic agreement on finite verbs and participles collected by Comrie (1975); Corbett (1983); Wechsler (2011), whereby the agreement controller (the polite 2nd person pronoun) contains conflicting grammatical and natural feature values. What these languages have in common is the uniformly formal plural agreement on finite verbs. Where they differ is the type of agreement they show on participles (grammatical masculine plural agreement or natural singular agreement).

The account proposed above derives the effects of mixed agreement as a narrow-syntactic process which involves precise loci of ϕ-features in the DP structure, feature-geometric structure of ϕ-features, separate agreement for individual features and variable ordering of Agree operations. I have argued for a unified structure of honorific pronouns across different languages, which encode both grammatical features (person and number) and natural gender and number. What derives mismatches across languages (and within a single one) is the specific functioning of Agree. Finite verbs will only probe for person and number (in that order), while participles agree for number and gender under a strict, or underspecified order, depending on a language. The formal plural agreement pattern will result from probing for number first, and thereby blocking the access to natural gender due to a locality restriction on agreement (the Condition on Agree Domains (19)), while probing for gender first will lead to semantic agreement by copying the entire geometry of natural gender and number features in one fell swoop.

The current approach enables capturing crosslinguistic variation by letting languages choose whether they will allow both orders of Agree operations on all, some, or none of their probes. Languages can choose to maintain one order of operations throughout, or perhaps to vary the order of Agree operations depending on the type of the probe. As a result, a long-standing observation such as the Predicate Hierarchy need not be defined as a primitive of grammar, but can instead be derived as a result of the opaque interactions of Agree operations.

Abbreviations

AUX = auxiliary verb, 1 = 1st person, 2 = 2nd person, F = feminine, M = masculine, SG = singular, PL = plural, NOM = nominative, ACC = accusative, INS = instrumental, PRT = participle

Acknowledgements

Competing Interests

The author has no competing interests to declare.

References

Ackema, Peter & Ad Neeleman. 2013. Subset controllers in agreement relations. *Morphology* 23(2). 291–323. DOI: https://doi.org/10.1007/s11525-013-9218-4

Adger, David. 2003. *Core syntax: A minimalist approach*. Oxford: Oxford University Press.

Adger, David & Daniel Harbour. 2007. Syntax and syncretisms of the Person Case Constraint. *Syntax* 10(1). 2–37. DOI: https://doi.org/10.1111/j.1467-9612.2007.00095.x

Anagnostopoulou, Elena. 2003. *The syntax of ditransitives: Evidence from clitics*. Berlin: Mouton de Gruyter.

Anagnostopoulou, Elena. 2005. Strong and weak person restrictions: A feature checking analysis. In Lorie Heggie & Fernando Ordóñez (eds.), *Clitic and affix combinations*, 199–235. Amsterdam/Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/la.74.08ana

Antón-Méndez, Ines, Janet L. Nicol & Merrill F. Garrett. 2002. The relation between gender and number agreement processing. *Syntax* 5. 1–25. DOI: https://doi.org/10.1111/1467-9612.00045

Arad, Maya. 2003. Locality constraints on the interpretations of roots: The case of Hebrew denominal verbs. *Natural Language and Linguistic Theory* 4(21). 737–779. DOI: https://doi.org/10.1023/A:1025533719905

Arad, Maya. 2005. *Roots and patterns: Hebrew morpho-syntax*. Dordrecht: Springer.

Arsenijević, Boban. 2014. The agreement of adjectives with the honorific pronoun in Serbo-Croatian. *Philologia Mediana* VI(6). 39–50.

Arsenijević, Boban & Ivana Mitić. 2016. On the (in)dependence of gender with respect to number in agreement with coordinated subjects. *Journal of Slavic Linguistics* 24(1). 41–70. DOI: https://doi.org/10.1353/jsl.2016.0006

Assmann, Anke, Doreen Georgi, Fabian Heck, Gereon Müller & Philipp Weisser. 2015. Ergatives move too early: On an instance of opacity in syntax. *Syntax* 18(4). 343–387. DOI: https://doi.org/10.1111/synt.12034

Babby, Leonard H. 1975. *A transformational grammar of Russian adjectives*. The Hague: Mouton. DOI: https://doi.org/10.1515/9783111356822

Bailyn, John F. 1994. The syntax and semantics of Russian long and short adjectives: An X′-theoretic account. In Jindřich Toman (ed.), *Formal Approaches to Slavic Linguistics 1: The Ann Arbor meeting.* Ann Arbor: Michigan Slavic Publications.

Bailyn, John F. 2012. *The syntax of Russian.* Cambridge University Press.

Béjar, Susana. 2003. *Phi-syntax: A theory of agreement.* Toronto: University of Toronto dissertation.

Béjar, Susana & Milan Řezáč. 2003. Person licensing and the derivation of PCC effects. In Ana Teresa Perez-Leroux & Yves Roberge (eds.), *Romance linguistics: Theory and acquisition*, 49–62. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/cilt.244.07bej

Béjar, Susana & Milan Řezáč. 2009. Cyclic Agree. *Linguistic Inquiry* 40. 35–73. DOI: https://doi.org/10.1162/ling.2009.40.1.35

Borik, Olga. 2014. The argument structure of long and short form adjectives and participles in Russian. *Lingua* 149. 139–165. DOI: https://doi.org/10.1016/j.lingua.2014.05.019

Bošković, Željko. 1997. *The syntax of nonfinite complementation: An economy approach.* Cambridge, MA: MIT Press.

Bošković, Željko. 2009. Unifying first and last conjunct agreement. *Natural Language and Linguistic Theory* 27(3). 455–496. DOI: https://doi.org/10.1007/s11049-009-9072-6

Branigan, Phil. 2012. Approach the Probe. Ms. Memorial University of Newfoundland, St. John's.

Branigan, Phil. 2013. Cyclicity and the Approach the Probe Principle. Ms. Memorial University of Newfoundland, St. John's.

Carstens, Vicki. 2003. Rethinking complementizer agreement: Agree with the case-checked goal. *Linguistic Inquiry* 34(3). 393–412. DOI: https://doi.org/10.1162/002438903322247533

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge, MA: MIT Press.

Comrie, Bernard. 1975. Polite plurals and predicate agreement. *Language* 51(2). 406–418. DOI: https://doi.org/10.2307/412863

Corbett, Greville. 1983. *Hierarchies, targets and controllers: Agreement patterns in Slavic.* London: Croom Helm.

Corbett, Greville. 1991. *Gender.* Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139166119

Corbett, Greville. 2006. *Agreement.* Cambridge: Cambridge University Press.

Deal, Amy Rose. 2015. Interaction and satisfaction in ϕ-agreement. In Thuy Bui & Deniz Ozyildiz (eds.), *Proceedings of NELS 45* 1. 179–192. Amherst: Graduate Linguistic Student Association, University of Massachusetts.

Déchaine, Rose-Marie & Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33(3). 409–442. DOI: https://doi.org/10.1162/002438902760168554

Despić, Miloje. 2017. Investigations in mixed agreement: Polite plurals, hybrid nouns and coordinate structures. *Morphology* 27(3). 253–310. DOI: https://doi.org/10.1007/s11525-017-9301-3

Elbourne, Paul. 2005. *Situations and individuals.* Cambridge, MA: MIT Press.

Embick, David & Rolf Noyer. 2007. Distributed Morphology and the syntax/morphology interface. In Gillian Ramchand & Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces*, 289–324. Oxford: Oxford University Press.

Franks, Steven & Asya Pereltsvaig. 2004. Functional categories in the nominal domain. In Olga Arnaudova, Wayles Browne, Maria Luisa Rivero & Danijela Stojanović (eds.),

Annual workshop on Formal Approaches to Slavic Linguistics 12. The Ottawa meeting 2003, 109–128. Ann Arbor: University of Michigan Press.

Geist, Ljudmila. 2010. The argument structure of predicate adjectives in Russian. *Russian Linguistics* 34(3). 239–260. DOI: https://doi.org/10.1007/s11185-010-9064-5

Georgi, Doreen. 2014. *Opaque interactions of Merge and Agree: On the nature and order of elementary operations*. Leipzig: University of Leipzig dissertation.

Halle, Morris & Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In Kenneth Hale & Samuel Jay Keyser (eds.), *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, 111–176. Cambridge, MA: MIT Press.

Harbour, Daniel. 2016. *Impossible persons*. Cambrigde, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262034739.001.0001

Harley, Heidi. 2014. On the identity of roots. *Theoretical Linguistics* 40(3). 225–276. DOI: https://doi.org/10.1515/tl-2014-0010

Harley, Heidi & Elizabeth Ritter. 2002. Person and number in pronouns: A feature-geometric analysis. *Language* 78(3). 482–526. DOI: https://doi.org/10.1353/lan.2002.0158

Harley, Heidi & Rolf Noyer. 1999. State-of-the-article: Distributed Morphology. *Glot International* 3. 3–9.

Höhn, Georg F. K. 2016. Unagreement is an illusion: Apparent person mismatches and nominal structure. *Natural Language and Linguistic Theory* 34(2). 543–592. DOI: https://doi.org/10.1007/s11049-015-9311-y

Kalin, Laura & Coppe van Urk. 2015. Aspect splits without ergativity. *Natural Language and Linguistic Theory* 33(2). 659–702. DOI: https://doi.org/10.1007/s11049-014-9262-8

Kramer, Ruth. 2015. *The morphosyntax of gender*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199679935.001.0001

Laka, Itziar. 1993. The structure of inflection: A case study in Xo syntax. In Jose Ignacio Hualde & Jon Ortiz de Urbina (eds.), *Generative studies in Basque linguistics*, 21–70. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/cilt.105.02lak

Mancini, Simona, Nicola Molinaro, Luigi Rizzi & Manuel Carreiras. 2011. When persons disagree: An ERP study of unagreement in Spanish. *Psychophysiology* 48. 1361–1371. DOI: https://doi.org/10.1111/j.1469-8986.2011.01212.x

Marantz, Alec. 1997. No escape from syntax. *University of Pennsylvania Working Papers in Linguistics* 4. 201–225.

Marantz, Alec. 2001. Words. Ms. Massachusetts Institute of Technology, Cambridge, MA.

Marušič, Franc, Andrew Nevins & Bill Badecker. 2015. The grammars of conjunction agreement in Slovenian. *Syntax* 18(1). 39–77. DOI: https://doi.org/10.1111/synt.12025

Migdalski, Krzysztof. 2003. The syntax of the l-participle in Bulgarian, Serbo-Croatian and Polish. In Alexandra Cornilescu (ed.), *Bucharest working papers in linguistics: Syntaxphonology 5.1*, 54–64.

Migdalski, Krzysztof. 2008. The syntax of the l-participle in Bulgarian and Serbo-Croatian. In Gerhild Zybatow, Luka Szucsich, Uwe Junghanns & Roland Meyer (eds.), *Formal Description of Slavic Languages. The fifth conference, Leipzig 2003*, 435–447. Frankfurt am Main: Peter Lang Verlag.

Moskal, Beata. 2015a. *Domains on the border: Between morphology and phonology*. Storrs, CT: University of Connecticut dissertation. DOI: https://doi.org/10.1162/LING_a_00185

Moskal, Beata. 2015b. Limits on allomorphy: A case study in nominal suppletion. *Linguistic Inquiry* 46(2). 363–375. DOI: https://doi.org/10.1515/9783110213966.269

Müller, Gereon. 2009. Ergativity, accusativity, and the order of Merge and Agree. In Kleanthes K. Grohmann (ed.), *Explorations of Phase Theory. Features and arguments*, 269–308. Berlin: Mouton de Gruyter. DOI: https://doi.org/10.1515/9783110213966.269

Nevins, Andrew. 2011. Multiple Agree with clitics: Person complementarity vs. omnivorous number. *Natural Language and Linguistic Theory* 29(4). 939–971. DOI: https://doi.org/10.1007/s11049-011-9150-4

Pereltsvaig, Asya. 2007. *Copular sentences in Russian: A theory of intra-clausal relations*. Dordrecht: Springer. DOI: https://doi.org/10.1007/1-4020-5793-8_1

Pesetsky, David. 1989. Language-particular processes and the Earlines Principle. Ms. MIT, Cambridge, MA.

Pesetsky, David. 2013. *Russian case morphology and the syntactic categories*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262019729.001.0001

Picallo, M. Carme. 1991. Nominals and nominalization in Catalan. *Probus* 3(3). 279–316. DOI: https://doi.org/10.1515/prbs.1991.3.3.279

Pollard, Carl & Ivan Sag. 1994. *Head-Driven Phrase Structure Grammar*. Stanford and Chicago: CSLI Publications and University of Chicago Press.

Postal, Paul. 1969. On so-called "pronouns" in English. In David Reibel & Sanford Schane (eds.), *Modern readings in transformational grammar*, 201–224. Prentice-Hall.

Preminger, Omer. 2014. *Agreement and its failures*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262027403.001.0001

Progovac, Ljiljana. 1998. Determiner phrase in a language without determiners. *Journal of Linguistics* 34. 165–179. DOI: https://doi.org/10.1017/S0022226797006865

Puškar, Zorica. 2017. *Hybrid agreement: Modelling variation, hierarchy effects and ϕ-feature mismatches*. Leipzig: University of Leipzig dissertation.

Puškar, Zorica. 2018. Interactions of gender and number agreement: Evidence from Bosnian/Croatian/Serbian. *Syntax* 21(3). 275–318. DOI: https://doi.org/10.1111/synt.12154

Řezáč, Milan. 2004. *Elements of cyclic Agree*. Toronto: University of Toronto dissertation.

Richards, Norvin. 2001. *Movement in language: Interactions and architectures*. Oxford: Oxford University Press.

Ritter, Elizabeth. 1993. Where's gender? *Linguistic Inquiry* 24(3). 795–803.

Schütze, Carson T. & Jon Sprouse. 2013. Judgment data. In Robert J. Podesva & Devyani Sharma (eds.), *Research methods in linguistics*, 27–50. Cambridge; New York: Cambridge University Press.

Sigurðsson, Halldór Ármann. 1996. Icelandic finite verb agreement. In *Working papers in Scandinavian syntax* 57. 1–46. Lund: Lund University.

Smith, Peter W., Beata Moskal, Ting Xu, Jungmin Kang & Jonathan David Bobaljik. 2018. Case and number suppletion in pronouns. Ms. Goethe-Universtität Frankfurt am Main, Syracuse University, University of Connecticut.

Sprouse, Jon, Carson D. Schütze & Diogo Almeida. 2013. A comparison of informal and formal acceptability judgments using a random sample from *Linguistic Inquiry* 2001–2010. *Lingua* 134. 219–248. DOI: https://doi.org/10.1016/j.lingua.2013.07.002

Stevanović, Mihailo. 1989. *Savremeni srpskohrvatski jezik [Contermporary Serbo-Croatian language]*. Belgrade: IRO Naučna knjiga.

van Koppen, Marjo. 2012. The distribution of phi-features in pronouns. *Natural Language and Linguistic Theory* 30(1). 135–177. DOI: https://doi.org/10.1007/s11049-011-9159-8

van Urk, Coppe. 2018. Pronoun copying in Dinka and the copy theory of movement. *Natural Language and Linguistic Theory* 36(3). 937–990. DOI: https://doi.org/10.1007/s11049-017-9384-x

Wechsler, Stephen. 2011. Mixed agreement, the person feature, and the index/concord distinction. *Natural Language and Linguistic Theory* 29(4). 999–1031. DOI: https://doi.org/10.1007/s11049-011-9149-x

Wechsler, Stephen & Hyun-Jong Hahm. 2011. Polite plurals and adjective agreement. *Morphology* 21. 247–281. DOI: https://doi.org/10.1007/s11525-010-9168-z

Wechsler, Stephen & Larisa Zlatić. 2003. *The many faces of agreement.* Stanford: Center for the Study of Language and Information.