The Predicate Hierarchy from a derivational perspective

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Problem: When an agreement controller contains conflicting semantic and formal features, the predicates that agree with it can differ in which of the features they reflect. Different types of predicates crosslinguistically have been shown to align according to the following hierarchy:

(1) *The Predicate Hierarchy*:
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.' (Corbett 1983:43p., Corbett 2006:231)

Case study: agreement with the [π:2, #:pl] honorific pronoun (Comrie 1975; Corbett 1983; Wechsler 2011). This pronoun controls [π:2, #:pl] agreement on finite verbs cross-linguistically, but in some languages, it may, or must, control singular and gender-dependent agreement. The predicate noun always agrees in semantic singular features of the pronoun.

(2) finite verb > participle > adjective > noun
[#:pl] > [#:pl]/[#:sg] > [#:pl]/[#:sg] > [#:sg]

Claim: The honorific pronoun formally encodes both the grammatical features (plural number and person) and the natural features (gender and singular number). Predicates differ with respect to the ϕ-features they probe for, and the order in which this probing applies.

- Finite verbs agree in number and person, in that order.
- Participles and adjectives perform number and gender agreement. Variation among and within languages emerges from the order of these operations (strict or underspecified).
- Predicate nouns do not agree, as they have their own ϕ-feature set.

Outline:

① Data: Typology of honorific agreement
② Theoretical challenges
③ Main assumptions: The layout of the system
④ DP-internal agreement
⑤ Agreement on finite verbs
⑥ Agreement on participles
⑦ Agreement on predicate adjectives
⑧ A note on predicate nouns

1 Data: Agreement with honorific pronouns

- Case study: second person plural pronoun *Vy* for polite address in Slavic (and Romance, Greek and Icelandic; cf. Comrie 1975; Corbett 1983; Wechsler 2011; Wechsler & Hahm 2011).
- Based on agreement patterns on their predicates, the languages can be divided into 4 groups.

Group 1

- In Czech, the finite verb shows [π:2, #:pl] agreement, while the participle, adjective and noun show [#:sg] and gender-dependent agreement:[1]

(3) 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.' [Czech] (Comrie 1975:408)

- French, some Italian dialects, Romanian and Modern Greek behave the same as Czech.
- These languages seem to have a clear cut-off point between the finite verb and the participle (4).

(4) finite verb || participle > adjective > noun
(gram. [π:2, #:pl]) (nat. [γ:M/F, #:sg])

Group 2

- In Ukrainian and Belorussian, the participle agrees in plural number and masculine gender (5a), (6), while the predicate adjective shows singular and gender-dependent agreement (5b), (6).[2]

(5) a. Čoho vy tam **sidite**?
why you there sit.M.PL
'Why are you (single addressee) sitting there?'
b. Vy tam **potribnyj**.
you there necessary.M.SG
'You (male addressee) are needed there.' [Ukrainian] (Corbett 1983:50-51)

(6) Vy – **malady**, a **paspeli** tak mnoha načytacca.
you young.SG but managed.M.PL so much read.refl
'You (single addressee) are so young, but you managed to read so much.'
[Belorussian] (Corbett 1983:51)

- The cut-off point seems to be between the participle and the predicate adjective:

(7) finite verb > participle || adjective > noun
(gram. [π:2, γ:M, #:pl]) (nat. [γ:M/F #:sg])

[1] Gender agreement value depends on the natural gender of the referent. 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 allow semantic agreement as the only option. Thanks to Petr Biskup (p.c.) for confirming the judgments.

[2] Even though Corbett (1983:51) asserts that some Ukrainian writers contend that there is variation in both positions, the participle and the predicate adjective, Ukrainian is listed as a language that has a strict cut-off point between the participle and the predicate adjective based on the claims of contemporary native speaker intuitions (Yurir Kushnir, p.c.).

Group 3

- This group tentatively includes only Slovak, where both the participle (8a) and the predicate adjective (8b) show the grammatical masculine plural agreement:[3]

(8) a. Vy ste mi **podali** nesprávnu informaciu.
you aux.2.PL me gave.M.PL wrong information
'You (single addressee) gave me a wrong piece of information.'
b. Vy ste veľmi **láskavý**.
you aux.2PL very kind.M.PL
'You (single addressee) are very kind.'
c. Vy ste učiteľ.
you aux.2.PL teacher.M.SG
'You (male addressee) are a teacher.' [Slovak]

- This group seems to insist on formal agreement on all the targets, but the right-most one:

(9) finite verb > participle > adjective || noun
(gram. [π:2, γ: M, #:pl]) (nat. [γ:M/F #:sg])

Group 4

- Languages in this group (Bulgarian, Polish (dialects), Slovenian, Macedonian, Icelandic; and possibly Upper and Lower Sorbian) optionally allow formal or semantic agreement on the participle, predicate adjective, or both.
- In Bulgarian, semantic agreement is optionally allowed on the participle (10a), while in Macedonian, it is optionally allowed on the predicate adjective.[4]

(10) a. Vie nikoga ne ste **bili** / **bila** na opera.
you never not aux.2.PL been.M.PL / been.F.SG in opera
'You (male addressee) have never been to the opera.' [Bulgarian]
b. Vie ste **ubava** / **ubavi**.
you aux.2.PL beautiful.F.SG / beautiful.PL
'You (female addressee) are smart / beautiful.' [Macedonian]

- N.B. I tentatively place Bosnian/Croatian/Serbian (BCS) in this group, since speakers of some varieties seem to allow singular agreement (see however Wechsler 2011; Despić 2017, who place BCS in Group 3).

(11) a. Vi ste **bili** **pospani**.
you aux.2.PL been.M.PL sleepy.M.PL
'You (single addressee) were sleepy.'
b. #Vi ste **bila** **pospana**.
you aux.2.PL been.F.SG sleepy.F.SG
'You (female addressee) were sleepy.'

[3] Judgements come from my informant, Dušan Janać. Singular agreement on predicative adjectives seems to be rejected by native speakers (cf. Corbett 1983:45).

[4] Data from Bulgarian and Macedonian come from my informants Asen Tar and Roza Kitanoska, respectively.

Summary of the patterns:

Group 1	finite verb ||	participle	adjective	noun
French	PL	SG	SG	SG
Romanian	PL	SG/(PL?)	SG	SG
Italian dialects	PL	SG	SG	SG
Modern Greek	PL	SG	SG	SG
Czech	PL	SG	SG	SG
Group 2	**finite verb**	**participle ||**	**adjective**	**noun**
Ukrainian	PL	PL	SG	SG
Belorussian	PL	PL	SG	SG
Russian	PL	PL	short form PL 97%	SG
			long form SG 89%	SG
Group 3	**finite verb**	**participle**	**adjective ||**	**noun**
Slovak	PL	PL	PL	SG
Group 4	**finite verb ||**	**participle**	**adjective ||**	**noun**
Icelandic	PL	n.a.	PL / SG	n.a.
Lower Sorbian	PL	PL	PL / SG	SG
Macedonian	PL	PL	(PL) / SG	SG
Bulgarian	PL	PL / SG	SG	SG
Upper Sorbian	PL	(PL) / SG	(PL) / SG	SG
Polish dialects	PL	PL / SG	PL / SG	SG
BCS	PL	PL / (SG)	PL / (SG)	SG
Slovenian	PL	PL / (SG)	PL / (SG)	SG

Table 1: Predicate Hierarchy effects by Wechsler (2011:1003) (based on Comrie 1975:406-407,409ff., Corbett 1983:45-46,56ff.), rearranged.

2 Theoretical challenges

2.1 Are natural number and gender encoded on pronouns?

- Evidence from agreement with local (i.e. 1st and 2nd) person pronouns in the languages under study indicates a positive answer to this question (cf. Nevins & Parrott 2010; Nevins 2011; Wechsler 2011; Wechsler & Hahm 2011; Parrott 2015; Despić 2017).
- In the languages above, local person pronouns control natural gender and number agreement.

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

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

c. Vi ste umorne.
you.2.PL aux.2.PL tired.F.PL
'You (female referents) are tired.'

- Even in languages where predicates resists semantic agreement, honorific pronouns can control natural gender and number agreement in certain contexts (cf. Wechsler 2011; Wechsler & Hahm 2011; Despić 2017):

(13) Draga Ana, juče sam Vas video potpuno **pijanu** / dear Ana yesterday aux.1.SG you.ACC seen completely drunk.F.SG.ACC / ***pijane**. drunk.PL.ACC
'Dear Ana, yesterday I saw you (female addressee) completely drunk.' (Despić 2017:259)

(14) Slavice, ja Vas smatram **pažljivom** / *pažljivim.
Slavica I you.2.PL.ACC consider.1.SG attentive.F.SG.INS / attentive.M.PL.INS
'Slavica, I consider you attentive.'

- Examples (12)–(14) demonstrate that local person pronouns, as well as the honorific pronoun do in fact trigger gender agreement in a language such as BCS in certain environments;
⇒ features which control this agreement should belong to the pronouns' feature inventory.

2.2 How are number and gender features encoded on pronouns?

- What is the nature and location of grammatical number and natural gender and number on the honorific pronoun? Is [γ:M] that appears alongside [#:pl] on predicates and adjectives a proper feature on the honorific pronoun, or a default value?
- I follow Despić (2017) in assuming that [γ:M] is not (and must not be) present on a honorific pronoun, but is instead a default gender value (pace Wechsler 2011; Wechsler & Hahm 2011).
- Evidence from conjunct agreement. In BCS, singular conjoined nouns of mixed gender trigger default masculine plural agreement (15). Two feminine nouns, however, trigger feminine plural agreement (16).

(15) Brat i sestra su čitali knjigu.
brother.M.SG and sister.F.SG aux.3.PL read.M.PL book
'The brother and sister were reading a book.'

(16) Ana i Ljubica su stigle.
Ana.F.SG and Ljubica.F.SG aux.3.PL arrived.F.PL
'Ana and Ljubica arrived.'

- Coordinated honorific pronouns (with feminine referents) pattern with two feminine nouns. If at least one of them had a feature [γ:M], this would inevitably yield masculine agreement.

(17) Vi (Ana) i Vi (Ljubice) ste bile zauzete.
you Ana and you Ljubica aux.2.PL been.F.PL busy.F.PL
'You Ana and you Ljubica were busy.'

⇒ Masculine as a default value, resulting from failed gender agreement (following Despić 2017).

2.3 How is variation in agreement derived?

- Despić (2017) (contra Wechsler 2011; Wechsler & Hahm 2011): differences in agreement result from different agreement strategy, not from the different structure of the pronoun.

- Agreement target that can show mixed agreement must agree either in fully formal (18a) or fully semantic features of the hybrid controller (18b-c). There is never a situation (18d) where the participle agrees with the honorific pronoun such that it copies grammatical number (plural) and the natural gender (feminine/masculine).

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

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

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

d. Vi ste putoval-e.
you.2.PL aux.2.PL travelled-F.PL
*'You (one formal addressee) travelled.' *NATURAL: [γ:F] GRAMMATICAL: [#:pl]

⇒ Despić (2017): The honorific pronoun is constant across languages, it encodes both the formal [π:2, #:pl] and the semantic [γ:M/F, #:sg]. A probe must copy either exclusively formal or exclusively semantic features. Copying of natural number imposes copying of natural gender. Copying of grammatical number imposes copying of strictly grammatical features.

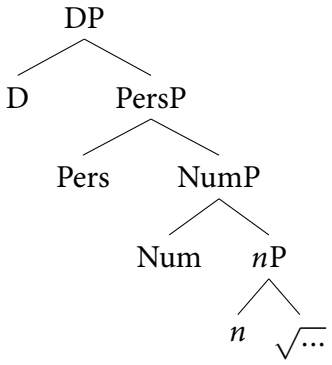
- I provide a derivational implementation of this observation. Natural number agreement will come as a by-product of natural gender agreement ⇒ semantic agreement; agreement in grammatical number blocks (bleeds) natural gender agreement, hence gender agreement fails.

3 Proposal: Main assumptions

3.1 Structure of pronouns

- I assume pronouns are DPs in the languages under survey (cf. Progovac 1998; Franks & Pereltsvaig 2004; see also Puškar 2017 for evidence based on Déchaine & Wiltschko 2002 tests).
- Under the Distributed Morphology framework (Halle & Marantz 1993; Harley & Noyer 1999), I assume that the DP consists of several sub-phrases, responsible for hosting different ϕ-features (Kihm 2005; Lowenstamm 2008; Acquaviva 2009; Kramer 2015).
- I assume pronouns have an *n*P as their core (pace Moskal 2015; van Urk 2016).
- Person and number are encoded on two different projections, person being higher than number (van Koppen 2012, building on Pollock 1989; Shlonsky 1989; Poletto 2000; Platzack 2004).

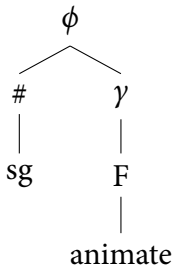
(19) Structure of pronouns:



3.2 The encoding and distribution of ϕ-features on pronouns

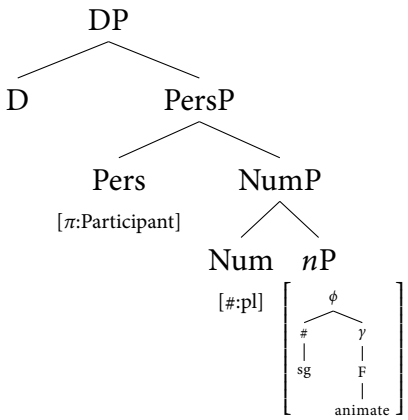
- I propose that the honorific pronoun has [π:Participant] feature encoded on the PersP, while its [#:pl] feature is present on the NumP. These features define its morphological shape, as well as (formal plural) agreement with finite verbs.
- However, we also need a way to encode natural gender and number, such that they can participate in agreement (cf. Despić 2017). I propose that these features are present on the *n*P (Kramer 2015).
- Following the Harley & Ritter (2002) feature geometry approach, natural gender and number features can be represented as in (20) (see Preminger 2014:47, Deal 2015 for equivalent assumptions on structural representation of person and number):

(20)



- The assumptions above yield the following structure for the honorific pronoun:

(21) Honorific 2nd person pronoun:



3.3 Assumptions on agreement

3.3.1 Ordering of Agree

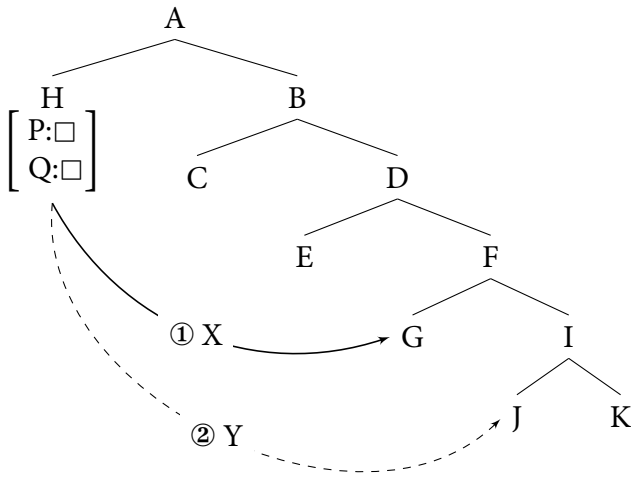
- Person, number and gender agreement are carried out by means of separate Agree operations (see Picallo 1991; Laka 1993; Ritter 1993; Chomsky 2000; Antón-Méndez et al. 2002; Béjar 2003; Carstens 2003; Řezáč 2004; Bošković 2009; Marušič et al. 2015; Preminger 2014; Arsenijević & Mitić 2016 for various applications of this proposal).
- I follow Béjar & Řezáč (2009) in locating the relevant probes on the same head.
- Multiple probes on a single head pose the question of the order of their discharge. I assume this to be a matter of parametric variation. The order may, but need not, be underspecified in a language (Müller 2009; Georgi 2014; Assmann et al. 2015; Puškar 2017), as a result of which Number Agree can precede or follow Person/Gender Agree on a given head.

3.3.2 Locality of Agree

- Agree operations from the same head can interact such that one operation creates a locality domain within which the following operation must apply.
- An Agree operation renders the domain c-commanded by the targeted head opaque for further agreement:

(22) *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.

(23)



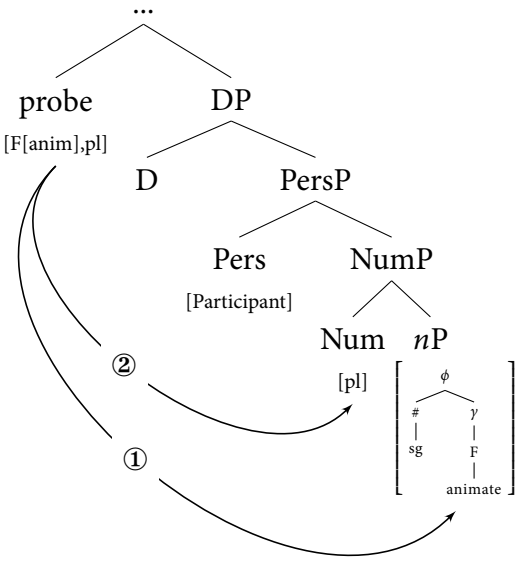
- The CAD can be seen as a locality constraint parallel to constraints on movement such *Shortest Move* (Richards 2001) or *Approach the Probe Principle* (Branigan 2012, 2013).
- It does not assume deactivation of the goal phrase (e.g. in the sense of Kalin & van Urk (2015), or Chomsky (2001)'s Activity Condition). Instead, it 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.

3.3.3 Valuation of features

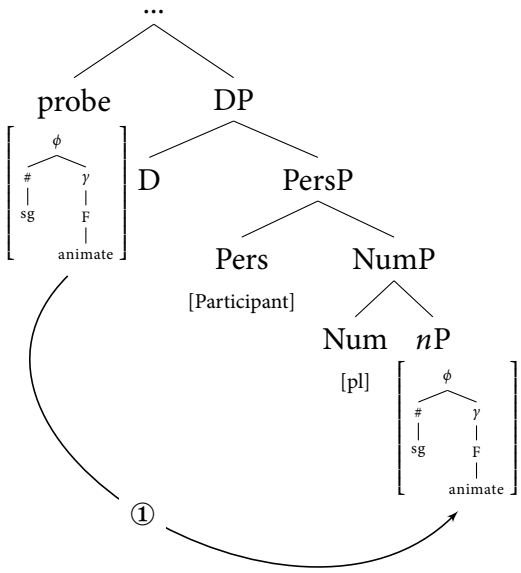
- Recall the generalisation of Despić (2017) from (18), that an agreement target must copy either a full set of natural, or a full set of grammatical features.

- This means that we should never have the situation where the participle would copy the natural gender (but not natural number) from *n*, and grammatical number from Num, as in (24). It seems that, since natural gender and number are connected in a hierarchical entailment relationship, copying one without the other does not occur.
- I propose that copying gender features entails copying the entire 'snippet', i.e. all the other features present in the geometry (cf. Preminger 2014:47, see also Béjar 2003; Béjar & Řezáč 2009; Preminger 2014; Deal 2015 for similar interactions of person and number agreement).

(24) ✘ Incorrect derivation:



(25) ✔ Correct derivation:



- Finally, Agree needs to be carried out in appropriate circumstances once it is triggered, but its failure to find a goal does not result in a crash (Preminger 2014).

4 Proposal: Deriving the patterns

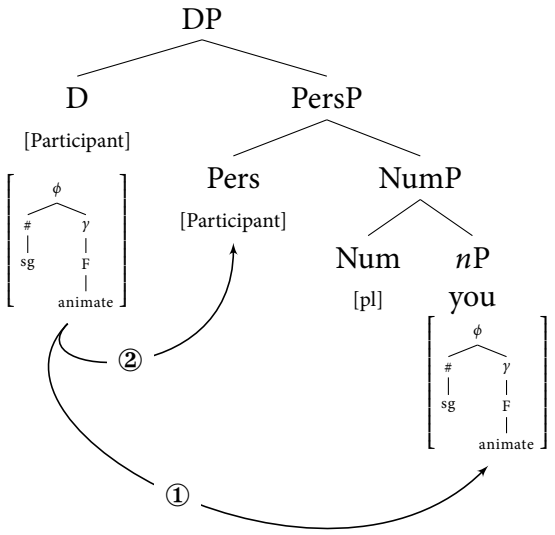
4.1 Agreement on the DP level

- I propose D to be the only ϕ-complete probe in the languages under scrutiny.
- Following Baker (2008:114), I will assume that D contains all three probes, for person, number and gender, which enables it to unify all the distributed ϕ-features of its internal functional phrases into one node (see also Landau 2016).
- The possible logical combinations in agreement with the honorific pronoun and their results:

(26) a. Gender Agree > {Number Agree, Person Agree} ⇒ [γ:F/M,anim, #:sg, π:Participant]
b. Number Agree > {Gender Agree, Person Agree} ⇒ [γ:∅, #:pl, π:Participant]
c. Person Agree > {Gender Agree, Number Agree} ⇒ [γ:∅, #:∅, π:Participant]

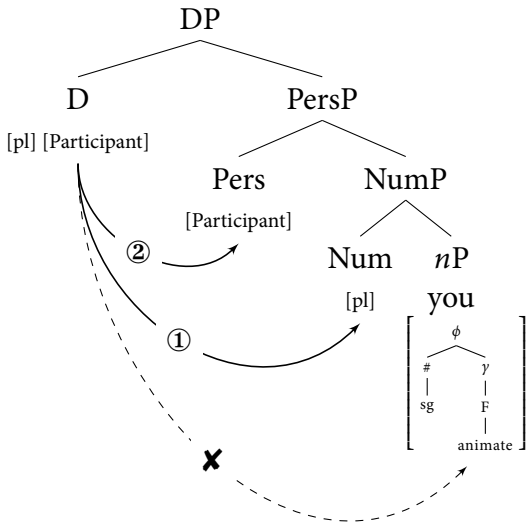
- If Gender Agree always precedes the other two operations, D's gender feature will always be valued with the natural gender of the pronoun (26a).
- The gender probe encounters the matching features on the *n*P, and the gender feature pied-pipes the number value onto the D head.
- Number Agree is rendered unnecessary; unvalued number feature of D is saturated.
- Person Agree applies afterwards, and copies the features from PersP, respecting the CAD.
- D collects a full set of ϕ-features [γ:F/M,anim, #:sg, π:Participant].

(27) Gender Agree (+ number valuation) ① > Person Agree ②:



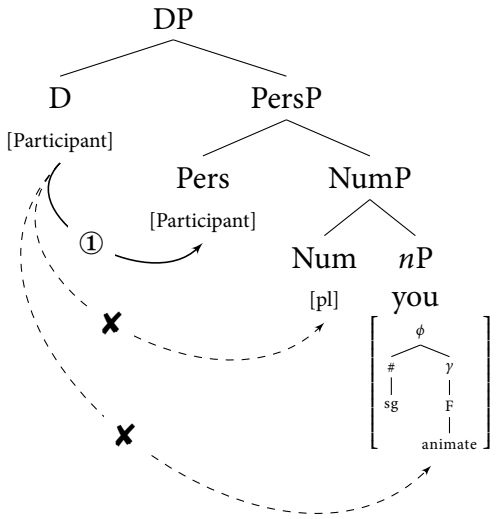
- If Number Agree precedes all the other operations, D would not be able to copy natural gender and number (26b).
- Number Agree locates the closest goal on Num, which triggers a CAD effect, whereby any attempt to reach natural gender and number on *n* will fail.
- Person Agree follows Number Agree, and the head hosting this feature is above the NumP; the person probe will always be able to reach its features (28).
- D collects a partial set of ϕ-features [#:pl, π:Participant].

(28) Number Agree ① > {Gender Agree ✘, Person Agree ②}:



- Finally, probing for person features first (26c) yields a CAD effect for the subsequent number and gender agreement.
- The other two operations will fail to copy their features and the result will be a D that only has the value for person [π:Participant]:

(29) Person Agree ① > {Gender Agree, Number Agree ✘ }:



- What all the possible orderings above have in common is that the values for person features will always arrive to D. This fact will play a role in agreement on finite verbs, but it will be largely irrelevant for all the other predicates that only look for number and gender features.

4.2 Agreement on finite verbs

- What is uniform about all the languages that exhibit Predicate Hierarchy effects (e.g. French (30a), Czech (30b) or BCS (30c)) is that finite verbs in all of them agree for formal [π:2, #:pl] features.

(30) a. Vy **jste** byla dobrá.
you **aux.2.PL** been.F.SG good.F.SG
'You (female referent) were good.' [Czech] (Comrie 1975:408)

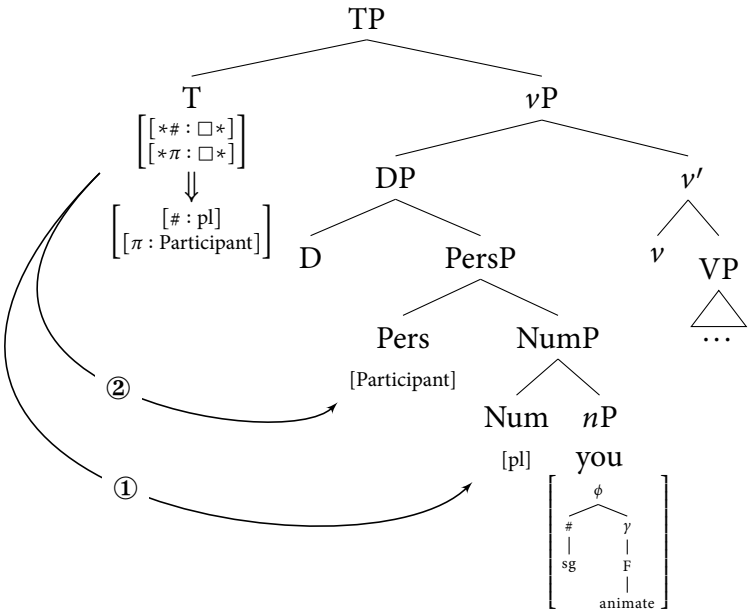
b. Vous **êtes** loyal.
you **aux.2.PL** loyal.M.SG
'You (male referent) are loyal.' [French] (Comrie 1975:409)

c. Vi **ste** pažljivi.
you.2.PL **aux.2.PL** attentive.M.PL
'You (male or female referent) are attentive.' [BCS]

Proposal (short version):

- Finite verb agreement is carried out by T, which only has person and number probes.
- Agreement in person and number is established by means of two separate operations: Number Agree and Person Agree (cf. Anagnostopoulou 2003; Béjar 2003; Béjar & Řezáč 2009; Laka 1993; Preminger 2014; Sigurðsson 1996).
- Number Agree is always carried out before Person Agree.
- The unvalued features of the number probe will always be valued by the closest-matching goal, i.e. the NumP. The person probe will copy the closer matching [π:Participant] feature from PartP, obeying the *Condition on Agree Domains* (22) as illustrated in (31).

(31) Agreement on finite verbs

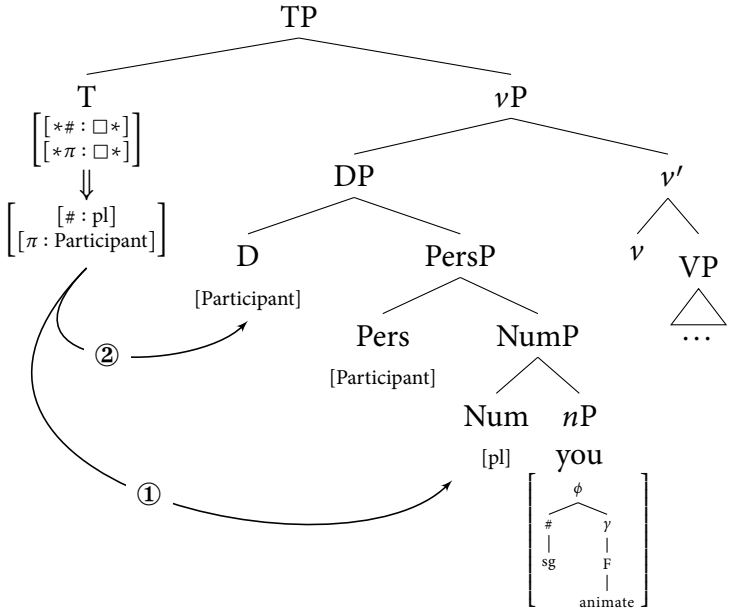


- What unifies all the languages from Table 1 is the fact that T does not probe for gender (and thus cannot reach the natural number), as well as that (the closer) grammatical number and person are copied by means of two strictly ordered operations.

Proposal (long version):

- Agreement on T depends on the results of DP-internal agreement.
- If D has copied only [π:Participant] feature, as in (29) above: Number Agree will copy the [#:pl] feature from Num, while Person Agree will copy the [π:Participant] feature from D.

(32) Agreement on finite verbs with D[π:Participant]

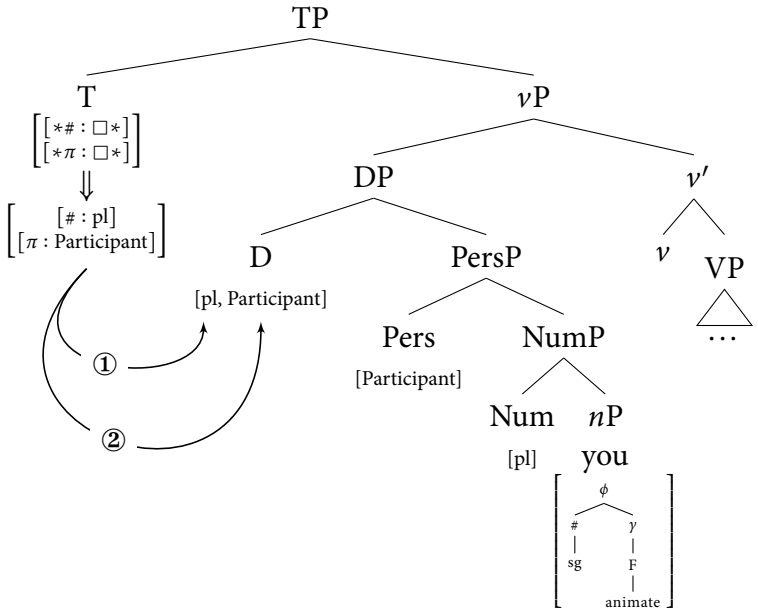


- Under the opposite order of operations, Person Agree would copy the person feature of D first. This would trigger a CAD effect, which prohibits Number Agree to probe beyond D. As a result,

we would expect a failure of number agreement, and the insertion of the default singular exponent. 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 Number Agree always precedes Person Agree.

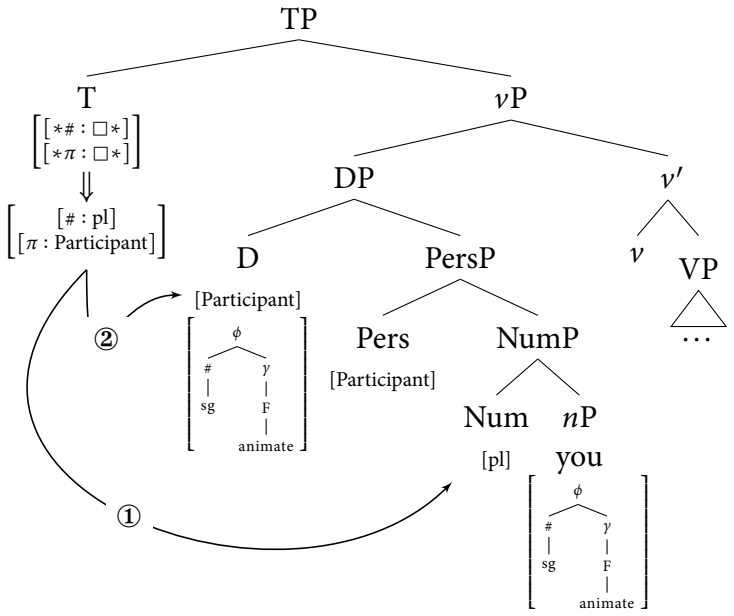
- If D has copied the formal [#:pl, π:Participant] feature, as in (28) above: both features are available on D, where T can copy them from.

(33) Agreement on finite verbs with D[#:pl, π:Participant]



- Finally, if D has copied a full set of ϕ-features [γ:F,anim, #:pl, π:Participant], as in (27), T will still nevertheless copy the formal person and number features.

(34) Agreement on finite verbs with D[γ:F,anim, #:pl, π:Participant]



- Two possible reasons why T should skip [#:sg] on D:

  1. Since T does not contain a gender probe, it follows that it lacks the possibility to accommodate gender features. As copying the natural [#:sg] number would entail pied-piping the natural gender connected to it, the gender feature that T would copy would not match the configuration of T's unvalued features container. Such a derivation would crash due to incompatibility of the features that T receives with the ones that it actually searches for.
  2. T is relativized towards plural number (cf. Preminger 2014:62). Evidence from agreement in copular clauses. Assuming that the copular verb enters into an Agree relation with both of its arguments (Veselovská 2008:566), (35) shows that agreement is determined by the more marked number, i.e. plural.

(35) a. Ty knihy jsou / *je vylovzený brak.
the books.PL are / is a.real trash.SG
'The books are real trash.'
b. Čas jsou / *je peníze.
time.SG are / is money.PL
'Time is money.' [Czech] (Veselovská 2008:566)

4.3 Agreement on participles

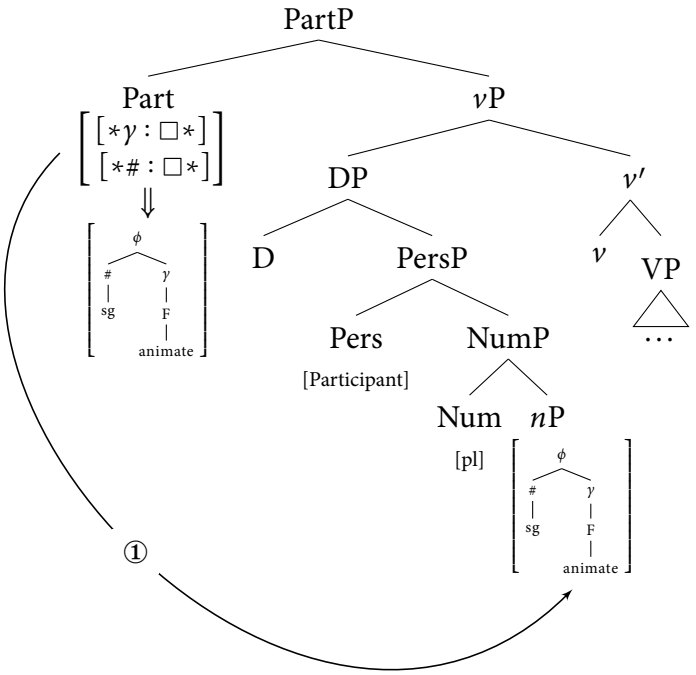
Proposal (short version):

- Recall that in languages such as Czech and French, the participle agrees in singular number and referent dependent gender, repeated in (36). These languages will therefore be taken to instantiate the **semantic agreement** pattern.

(36) a. Vy jste **byla** dobrá.
you AUX.2.PL **been.F.SG** good.F.SG
'You (female addressee) were good.' [Czech] (Comrie 1975:408)
b. Vous êtes **venu**.
you AUX.2.PL **come.M.SG**
'You (male addressee) have come.' [French] (Comrie 1975:409)

- Participial agreement is performed by Part(iciple) head, located above the *v*P (Bošković 1997; Bošković 2009; Adger 2003; Migdalski 2003, 2008), which carries probes for number an gender.
- The order of Number Agree and Gender Agree on the participle can be underspecified in a language. Thus, one operation may precede or follow the other.
- Semantic agreement pattern (36) will result from the ordering Gender Agree > Number Agree.
- The gender probe reaches down to *n*P, 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 (37).

(37) Natural gender and number on the Part:



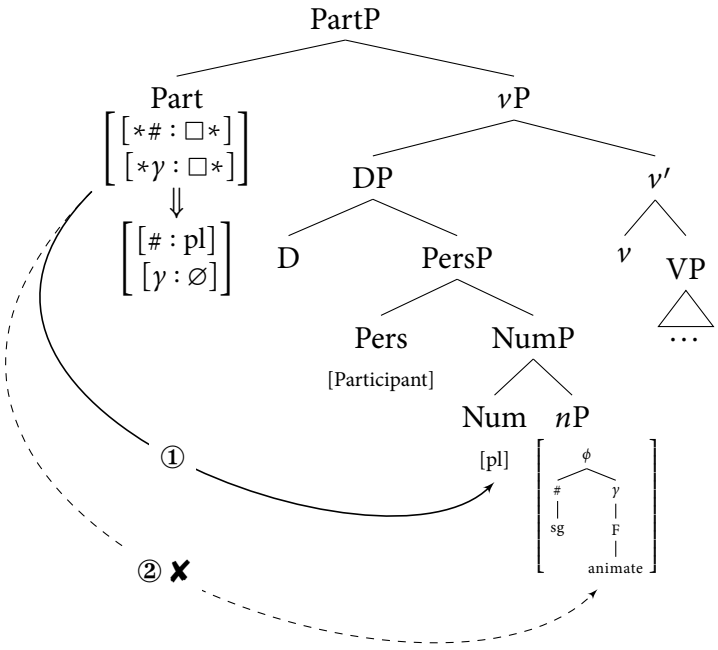
- **Grammatical agreement** arises when the participle's features are valued by the grammatical plural number and the default masculine gender, as in Slovak and BCS below.

(38) a. Mama, čo ste **robil-i**?
father what aux.2.PL **done-M.PL**
'Mother, what have you done?' [Slovak] (Corbett 1983:44)

b. Šta ste **uradil-i**?
what aux.2.PL **done-M.PL**
'What have you (feminine addressee) done?' [BCS]

- This pattern is the result of the opposite order of operations, Number Agree > Gender Agree.
- The default masculine gender agreement in (38) means that gender agreement has failed (cf. Preminger 2014; Despić 2017).
- This is true if Gender Agree has not managed to reach the gender features on the *n*P. I take this to be a consequence of the CAD, triggered by the early application of Number Agree.
- The closest goal for this operation is [#:pl] on Num. Copying this feature establishes a domain for the following Agree operation. Gender Agree cannot reach the *n*P any more, which leads to a failure of gender agreement. This results in the insertion of the default gender marker.

(39) Grammatical number and default gender on the Part:



- As a result, we can classify languages from Table 1 in terms of their order of operations on Part.

Gender Agree > Number Agree	both orders	Number Agree > Gender Agree
French, Italian (dialects), Modern Greek, Czech	Romanian (?), Slovak, Upper Sorbian, Polish (dialects), Slovenian, BCS	Slovak, Ukrainian, Lower Sorbian, Bulgarian, Macedonian, Belorussian, Russian

Table 2: Variation in the orders of Agree on Part

Proposal (long(er) version):

- Participial agreement will depend on the result of DP-internal agreement.
- The possible outcomes are summarised in Table 3. Importantly, every possible result of DP-internal agreement will lead to an attested pattern of participial agreement.

	Gender Agree > Number Agree	Number Agree > Gender Agree
D[γ:∅, #:∅, π:Participant]	[γ:F/M, animate, #:sg]	[γ:∅, #:pl]
D[γ:∅, #:pl, π:Participant]	[γ:F/M, animate, #:sg]	[γ:∅, #:pl]
D[γ:F/M, #:sg, π:Participant]	[γ:F/M, animate, #:sg]	[γ:F/M, animate, #:sg]

Table 3: Possibilities for agreement on Part

4.4 Agreement on predicate adjectives

- Just as with participles, with predicate adjectives many languages from Table 1 allow either exclusively semantic (40), or formal (41) or optionally both types of agreement (42).

(40) Vy jste byla **dobrá**.
you aux.2.pl been.f.sg good.f.sg
'You (female referent) were good.' [Czech] (Comrie 1975:408)

(41) Vy ste vel'mi **láskavý**.
you.2.pl aux.2.pl very kind.m.pl
'You (single addressee) are very kind.' [Slovak]

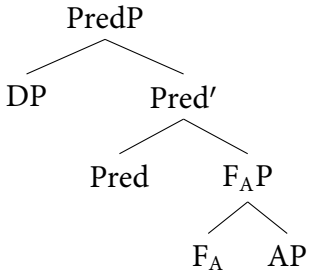
(42) Wy bedziecie **chorzy** / **chora**.
you.2.sg aux.fut.pl ill.pl / ill.f.sg
'You will be ill.' (Comrie 1975:407)

- I will argue that these patterns fall out from (i) the result of the operations at the DP level, (ii) the configuration in which the subject honorific pronoun and the predicate adjective are found, and (iii) the order of operations on both the DP and the A(djective) P(hrase).

4.4.1 The structure of predication

- Following Baker (2003:31) (see also Bowers 1993; Bailyn 1994, 2012), I will treat predicate adjectives are as complements in a Pred(ication) P(hrase)
- Regarding the adjectival phrase, following Baker (2008), I assume that predicate adjectives contain a functional projection, F_AP, above the AP, which is responsible for carrying out agreement.

(43) predicate adjectives (Baker 2008:45)



- In this configuration, the subject noun is located above the adjective, i.e. the goal c-commands the probe. In order to account for agreement between the two, Baker (2008) revises the c-command condition on Agree:

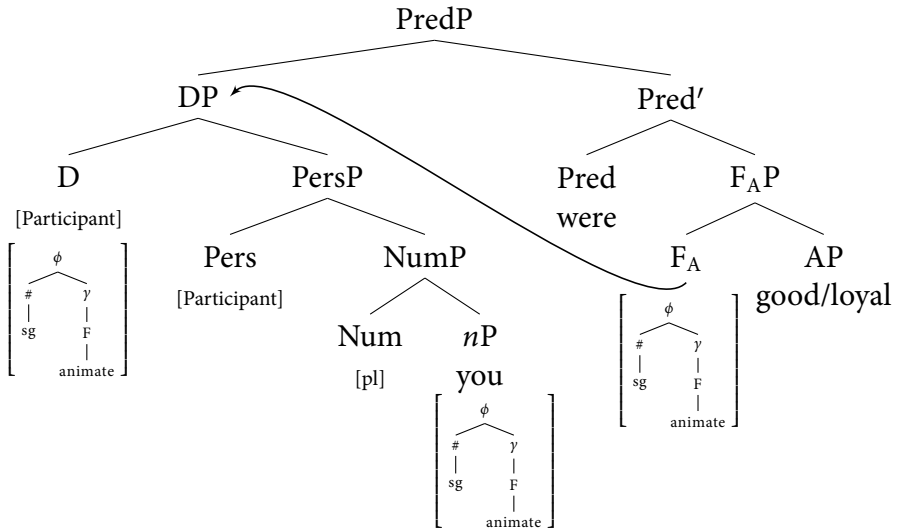
(44) *The c-command condition on Agree* (Baker 2008:45):
F agrees with XP, XP a maximal projection, only if:
F c-commands XP *or XP c-commands F.*

- The DP in Spec-PredP c-commands the agreeing head F_A, which allows (upward) agreement to obtain between the two.
- An immediate consequence in our system is that the only possible target for the adjective is the top-most DP layer of the subject nominal phrase. Therefore, the predicate adjective can only agree with whatever the DP has copied, as a result of its internal Agree operations.
- This also makes the order of operations on the F_A irrelevant.

4.4.2 Deriving the patterns

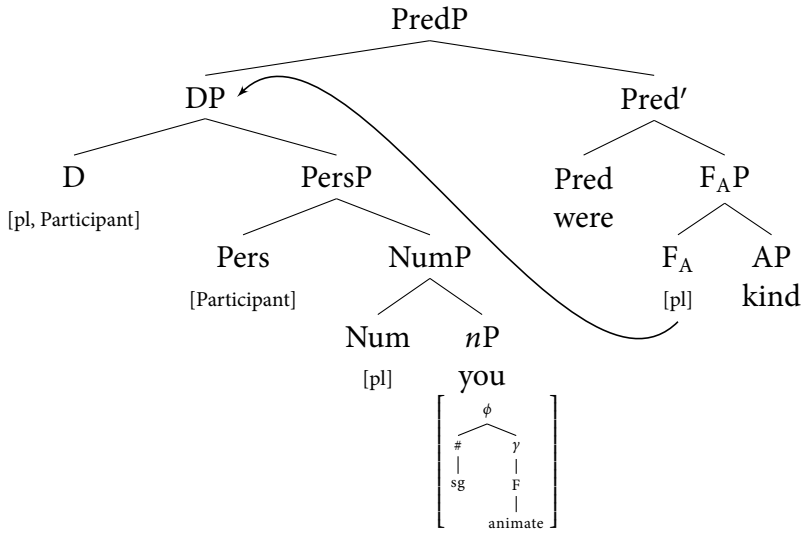
- If D has collected the natural gender and number (and the 2nd person of the honorific pronoun), these will be the features that the F_A-head will copy under any order of operations.

(45) Agreement of predicate adjectives in natural gender and number:
  a. Gender Agree > Number Agree: Match [*γ*:F[anim]] + Copy [#:sg]
  b. Number Agree > Gender Agree: Match [#:sg] + Copy [*γ*:F[anim]]



- If the F_A-head is supposed to agree with the honorific pronoun whose DP has inherited only the grammatical plural number (and second person) [*γ*:∅, #:pl, *π*:Participant], the outcome of both possible orders of operations will be the failure of Gender Agree and the valuation of the number probe with the grammatical number feature.

(46) Agreement of predicate adjectives in grammatical plural number:
  a. Gender Agree > Number Agree: Fail to copy gender + Copy [#:pl]
  b. Number Agree > Gender Agree: Copy [#:pl] + Fail to copy gender



- As (45) and (46) schematise, the dependences between DP-internal and DP-external agreement prove to be crucial. The result of DP-internal agreement, and the decisions made early in the derivation, will have an impact on all the following derivation steps.[5]

4.5 A note on agreement with predicate nouns

- Regardless of the agreement properties of adjectives and participles, all the languages under survey will have a singular noun in the predicate position (Czech (47), Slovak (48), and BCS (49)).

(47) Vy jste byla **učitelka**.
you aux.2.PL been.F.SG **teacher.F.SG**
'You (single female addressee) were a teacher.'
*'You (multiple female addressees) were teachers.' [Czech] (Comrie 1975:408)

(48) Vy ste **učiteľ**.
you aux.2.PL **teacher.M.SG**
'You (male addressee) are a teacher.'
*'You (multiple male addressees) are teachers.' [Slovak]

(49) Vi ste **profesorica**.
you be.2.PL **professor.F.SG**
'You (single female addressee) are a professor.'
*'You (multiple female addresses) are professors.' [BCS]

- All of the examples above refer to a single person – having a plural noun as a predicate is unacceptable. However, if the pronoun denotes multiple referents, regardless of whether they are addressed in a direct or a honorific manner, it is possible, in fact obligatory, for the predicate noun to bear plural number:

(50) Vi ste profesorice.
you be.2.PL professor.F.PL
'You (multiple female addresses) are professors.'
*'You (single female addressee) are professors.' [BCS]

- Therefore, from the point of view of syntax both the singular and a plural predicate noun are admissible, as shown in (47)–(50). However, the pronoun with the singular predicate noun is incompatible with plural interpretation, while the pronoun with a plural predicate noun is incompatible with a singular interpretation, which indicates a restriction of a semantic nature.
- I follow Baker (2008) and Wurmbrand (2017) in their claims that a predicate noun is actually not a probe in the narrow-syntactic sense of the word, in the same way as T and Part, since it already has its own inherent ϕ-features. It follows then that the 'agreement' between the honorific pronoun and the predicate noun is not a result of any narrow-syntactic Agree operations.
- What must be at work in regulating the agreement options is a semantic constraint that forces the number of the predicate noun to match the actual semantic number of the pronoun.
- I leave the exact formalization of this condition for future work.

[5] The third possibility of agreement, namely agreement with a D that has only copied the [π:Participant] feature is an issue that requires further research.

5 Consequences and conclusions

- Variation between formal and semantic agreement can be derived 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.
- Crosslinguistic variation may be captured by letting languages choose whether they will allow both orders of Agree operations on all, some, or none of their probes.
- Table 1 can be recast in terms of the following arrangement:

	D	T	Part	predicate adjective	noun
Group 1	γ-Agree > #-Agree	#-Agree > π-Agree	γ-Agree > #-Agree	γ-Agree > #-Agree	no Agree
Group 2	#-Agree > γ-Agree	#-Agree > π-Agree	#-Agree > γ-Agree	γ-Agree > #-Agree	no Agree
Group 3	#-Agree > γ-Agree	#-Agree > π-Agree	#-Agree > γ-Agree	#-Agree > γ-Agree	no Agree
Group 4	both	#-Agree > π-Agree	both orders	both orders	no Agree

Table 4: Orderings of Agree for different groups

- 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.
- 'Semantic agreement' is actually a process of syntactic feature valuation.
- The same analysis accounts for agreement with regular pronouns, other instances of hybrid agreement and Agreement Hierarchy (see Puškar 2017).

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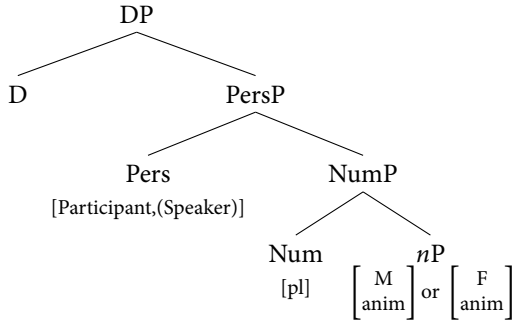
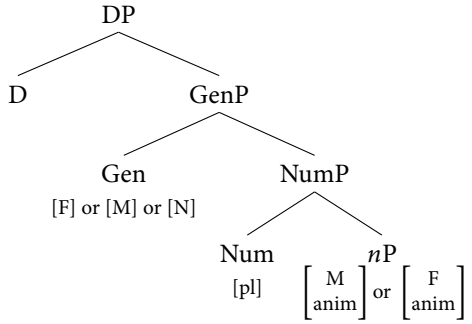
Appendix: The structure of regular pronouns

- Local person pronouns: 1st and 2nd person pronouns have the structure as in (51)–(52). Their PersP is merged above the NumP. The *n*P carries natural gender features (either [γ:M[anim]] or [γ:F[anim]]), while their PersP carries the features [π:Participant[Speaker]] for 1st person or [π:Participant] for 2nd person (51).
- NumP is only projected in the plural. Singular is treated as the lack of number.

(51) First and second-person pronouns:



(52) Third-person pronouns:



- The structure of 3rd person pronouns is then as in (52), which reflects the structure of other nominals. Crucially, PersP is absent with 3rd person pronouns, which enables treating 3rd person as the lack of person (Béjar & Řezáč 2003; Anagnostopoulou 2005; Adger & Harbour 2007). Moreover, since in (51) the PersP actually selects for NumP, GenP is automatically excluded from such a configuration, considering the fact that GenP also selects for the NumP, which makes the two projections, GenP and PersP, mutually exclusive. As a consequence, 1st and 2nd person pronouns cannot have grammatical gender because GenP can never be merged where PersP is present, and conversely, 3rd person pronouns contain a GenP, but then they will lack PersP, and accordingly, person features. GenP and PersP thus seem to be in complementary distribution.