On the theoretical and empirical challenges of multiple agreement with subjects and objects

Zorica Puškar-Gallien

puskar@leibniz-zas.de

ZAS Berlin

Goethe-Universität Frankfurt, Syntax Colloquium
24.10.2022

Leibniz-Zentrum
Allgemeine Sprachwissenschaft

Introduction

Problem

- In some languages in which the verb agrees with both subjects (S) and objects (O), it has been argued that O-agreement is performed by a syntactic head located high in the clausal structure.
- In some of them O-agreement affixes appear closer to the stem than S-affixes...
- or it can be otherwise demonstrated that O-agreement affects S-agreement.
- Problematic for all aspects of Agree (Chomsky 2001).

Illustration: *Khanty object agreement (Volkova & Reuland 2014:608)*

(1) (ma) tam kalaŋ-ŋəŋ weːl-sə-ŋil-am.
I this reindeer-DL kill-PST-DL.O-1.SG.S
'I killed these two reindeer.

Introduction

Goal

- Provide an overview of the challenges of high-O-Probe configurations for the Minimalist theory of agreement.
- Present a preliminary survey of the languages claimed to have high object probes, and their common properties.
- Discuss the generalisations, open questions and potential solutions.

Claim

- A unified analysis of S/O-agreement should involve a single probing head, dynamic Agree domains and an analysis of Differential Object Agreement in terms of nominal size and precise conditions on matching and valuation.

Introduction

Empirical focus

Uralic: Hungarian (Trommer 2003; É. Kiss 2021), Tundra Nenets (Nikolaeva 2014), Khanty, Mansi, Mordvin (É. Kiss 2021);
Quechuan: Cuzco, Huallaga, Ancash, Ayacucho, San Martin, Cajamarca, Potosi and Santiago del Estero Quechua (Myler 2017);
Penutian: Nez Perce (Deal 2017), Sahaptin (Georgi 2013*b*);
Additionally:
Inuit: Greenlandic, Inuktitut (Yuan 2018);
Algonquian: Proto-Algonquian (Oxford 2014), Passamaquoddy (Bruening 2009), Cheyenne (Despić et al. 2019);
Chukotko-Kamchatkan: Itelmen, Chukchi, Alutor (Bobaljik & Wurmbrand 2002);
Guiacuran: Kadiwéu (Nevins & Sandalo 2011);
Basque (Arregi & Nevins 2012).

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

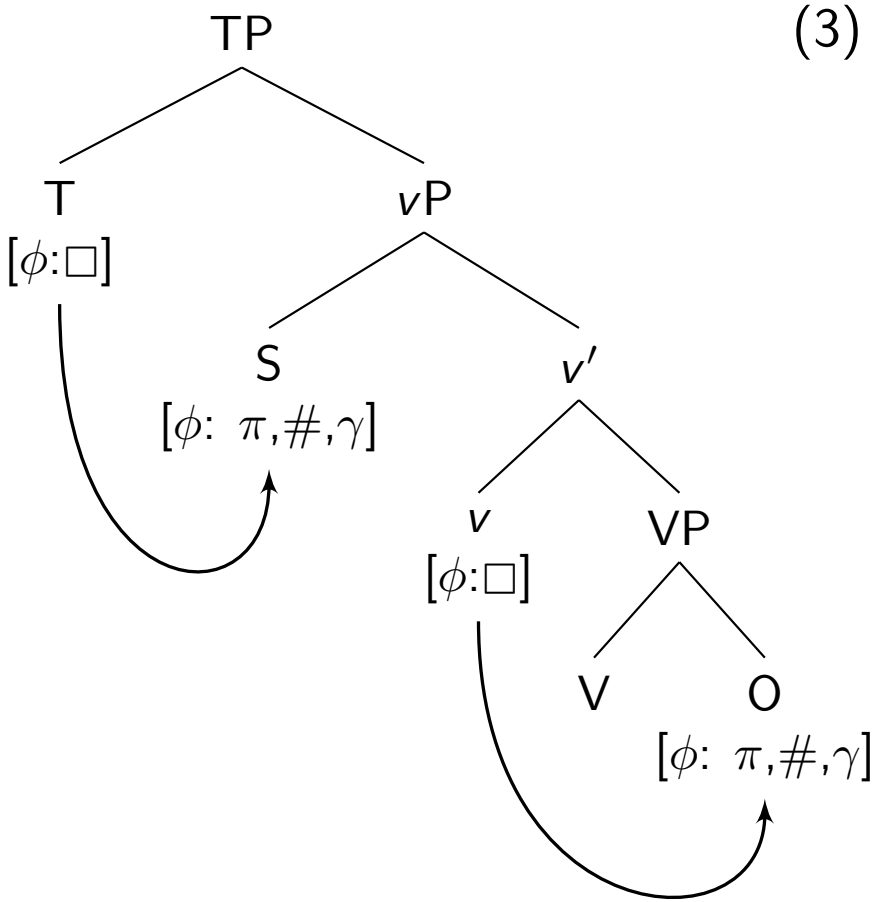
5. Summary and the big picture

Theoretical challenges in a nutshell

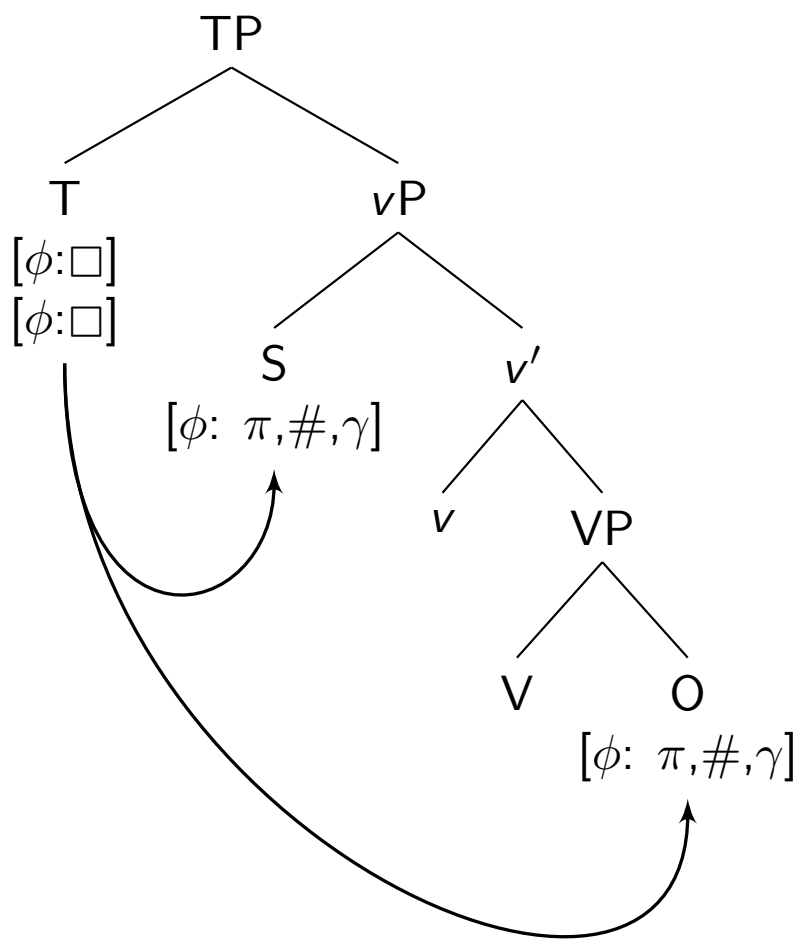
- Operation Agree (Chomsky 2000, 2001): holds between a Probe (lacks features and needs them valued) and a Goal (inherently carries the features that the Probe needs). The Probe searches through its (c-command) domain in order to find the *closest matching* Goal to *value* its missing features.
- Important concepts:
  - **Matching (+Valuation):** Only the element with the exact *same features* as the Probe can be the Goal;
  - **Minimality:** In case of multiple potential elements with matching features, only the *closest* element will be the Goal;
  - **Locality:** Only the element found in a particular *domain* can be accessed by Agree;
  - **Activity:** A Goal must be *active* (i.e. visible).
  - **Locus of agreement**: O-agreement by *v*, S-agreement by T (2).

Theoretical challenges in a nutshell

(2)



(3)



Theoretical challenges in a nutshell

- Languages involving multiple agreement from the T head (3) will be problematic for at least one of the core properties of Agree:
  - **Matching(+Valuation):** Two Goals; can be *partial* (not necessarily a complete ϕ-set);
  - **Minimality:** The Probe can skip a higher subject (S) Goal and agree with the lower object (O) Goal first;
  - **Locality:** The two Goals belong to two different locality domains (O is in the *v*P domain, S is at the edge);
  - **Activity:** Agreement across an active S should be impossible.
  - **Locus of agreement:** Both S- and O-agreement at a head high in the structure (T).

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

High object Probe diagnostics

Morphological template of the verb

- O-agreement affixes following (or appearing in between) tense, mood and/or negation (c.f. Mirror Principle, Baker 1985).

(4) *Khanty object agreement* (Dalrymple & Nikolaeva 2011:142f.)

a. (ma) tam kalaŋ-ət we:l-sə-l-am.
I this reindeer-PL kill-PST-PL.O-1.SG.S
'I killed these reindeer.'

b. (ma) tam kalaŋ-ŋəŋ we:l-sə-ŋil-am.
I this reindeer-DL kill-PST-DL.O-1.SG.S
'I killed these two reindeer.

- Khanty also exemplifies a language where O-agreement affixes are closer to the stem, indicating that O-agreement precedes S-agreement.

High object Probe diagnostics

Morphological template of the verb

- Some more abstract patterns:
  - Hungarian (É Kiss 2002:43):
    V – Mod – T – Mood – **AgrO** – **AgrS**
  - Khanty (Nikolaeva 1999*b*:23):
    V – T – (Pass) – **(AgrO#)** – **AgrSπ+#**
  - Mansi (Riese 2001)
    V – T – Mood – **AgrO#** - **AgrSπ+#**
  - Tundra Nenets (Nikolaeva 2014:78):
    V – (Tfut/habitual/Mood (non-ind)) – **AgrO** – **AgrS** – T(past)
  - Quechuan (Myler 2017:761)
    V – **Argument Structure** – Asp – T – **AgrS** – Mood
  - Nez Perce (Deal 2015*b*):
    Agrπ – **AgrS#** – **AgrO#** – Caus – V – Appl – Asp/Mood – AgrS# – space – T

High object Probe diagnostics

Morphological processes

- S+O agreement affixes can (i) show allomorphy/suppletion for tense, mood and/or Neg, or (ii) fuse with TAM morphemes, or (iii) form a portmanteau:

(5) *Tundra Nenets S-agr*
(Nikolaeva 2014:78)

a. mənc○rɑə-d○m
work-1.SG.S
'I work.'

b. mənc○rɑə-n○
work-2.SG.S
'You work.'

c. mənc○rɑ○
work.3.SG.S
'He/she works.'

(6) *S/O portmanteau*
(Nikolaeva 2014:79)

a. meə-w○
take/do-1.SG.S>SG.O
'I take/do it.'

b. meə-r○
take/do-2.SG.S>SG.O
'You take/do it.'

c. me○-dɑ
take/do-3.SG.S>SG.O
'He/she takes/does it.'

High object Probe diagnostics

Non-finite contexts

- O-agreement affixes disappear:

(7) *Khanty non-finite contexts* (Nikolaeva 1999*a*:46)
luw xaś-ə-s [∅ naŋ-eːn waːn-tiji]
he stay-EP-PST.3.SG you-ACC see-INF
'He stayed to see you.'

- Compare (7) to Swahili O-agreement on an infinitive form of the V (8).

(8) *Swahili (Diercks 2012:259)*
I-na-wezakana (*kwa) Maiko ku-m-pig-i-a Tegani
9.S-PRES-possible (*for) 1.Michael INF-1.O-beat-APPL-FV 1.Tegan
simu.
phone
'It is possible for Michael to call Tegan.'

High object Probe diagnostics

Perihprastic verbal constructions

- Object agreement is on Aux:

(9) *Hungarian present vs. future (Bárány 2015b:209, Rounds 2002:50)*

a. Lát-om ő-t / ők-et.
see-1.SG.S>3.O s/he-ACC / they-ACC
'I see him/her/them.'

b. Látni fog-om.
see.INF will-1.SG.S>3.O
'I will see him/her/them.'

High object Probe diagnostics

- Patterns above problematic for
  - **Locality:** The two Goals belong to two different locality domains (O is in the *v*P domain, S is at the edge);
  - **Locus of agreement:** Are both S- and O-agreement conducted by the same head?

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Evidence for Multiple Agreement

Feature preference and bleeding effects

- Features of S or O can bleed agreement with the other argument.
- Erzya Mordvin: [Prtcpnt] O is the preferred Goal for person agreement, [pl] S is the preferred Goal for number agreement (10c).

(10) a. soda-s-y-ńek
know-TNS-PL-1
'We know him.' [1PL] ≻ 3SG

b. soda-s-y-ń
know-TNS-PL-1
'I know them.' [1]SG ≻ 3[PL]

c. soda-s-am-iź
know-TNS-1-PL
'They know me.'3[PL] ≻ [1]SG

d. soda-s-am-iź
know-TNS-1-PL
'He knows us.' 3SG ≻ [1PL]
(Béjar 2008:131)

Evidence for Multiple Agreement

Feature preference and bleeding effects

- Quechuan: [Addr] (or [Prtcpnt, pl]) O bleeds S-agreement;

(11) *Agreement with non-2π O* (Myler 2017:753)

a. maylla-wa-rqa-**n**
wash-1.O-PST-3.S
'S/he washed me.' $3_{SBJ} \succ 1_{OBJ} = 3$

b. maylla-∅-rqa-**nchis**
wash-3.O-PST-1INCL.S
'We (incl.) washed him/her.' $1_{INCL.SBJ} \succ 3_{OBJ} = 1_{INCL.}$

c. maylla-wa-rqa-NKI
wash-1.O-PST-2.S
'You washed me' $2_{SBJ} \succ 1_{OBJ} = 2$

d. maylla-∅-rqa-**ni**
wash-3.O-PST-1.S
'I washed him/her.' $1_{SBJ} \succ 3_{OBJ} = 1$

Evidence for Multiple Agreement

Feature preference and bleeding effects

- Quechuan: [Addr] (or [Prtcpnt, pl]) O bleeds S-agreement;

(12) *Agreement with 2π O* (Myler 2017:753)

a. maylla-rqa-su-**nki**
wash-PST-2.O-2.S
'S/he washed you.' $3_{SBJ} \succ 2_{OBJ} = 2$

b. maylla-wa-rqa-**nchis**
wash-1.O-PST-1_{INCL}.S
'S/he washed us (incl.).' $3_{SBJ} \succ 1_{INCL.OBJ} = 1_{\ INCL}$

c. maylla-rqa-∅-**yki**
wash-PST-2.O-2.S
'I washed you.' $1_{SBJ} \succ 2_{OBJ} = 2$

Evidence for Multiple Agreement

Feature preference and bleeding effects

- Itelmen: The O suffix realises [Prtcpnt] features of the O; when none available, the suffix realises S π-features (Bobaljik & Wurmbrand 2002).
- Nez Perce: [Addr] bleeds [pl]-agreement of the O; [Prtcpnt,pl] S bleeds O-agreement; [3π,pl] S bleeds O-agreement with 3π (Deal 2015*b*).

Evidence for Multiple Agreement

Inverse agreement:

- If O is lower than S on a language-specific person scale, special morphological marking appears:
- Hungarian: 1≻2≻3 scale; 3π O always agrees, [Prtcpnt] O only agrees if lower than S resulting in a 1≻2 portmanteau.
- Eastern Khanty: 1,2≻3 scale; [Prtcpnt] O never agrees.
- Algonquian: 1,2≻3≻Obv≻Inan; argument higher on scale indexed by prefix+inner suffix; if O higher, use inverse theme sign on verb.
- Kadiwéu: 2≻1≻3; prefix realises the higher argument + inverse theme sign added; [Addr] argument trumps all.
- Sahaptin: 1≻2≻3≻3Top - basic hierarchy; 1≻2 portmanteau; 2sg≻1sg, 3≻3Top inverse marker.

Evidence for Multiple Agreement

Hungarian inverse agreement
When the object is a third-person pronoun, it always controls agreement (13).
Having only subject agreement leads to ungrammaticality.

(13) a. Lát-ja ő-t / ők-et.
see-3SG.OBJ s/he-ACC / they-ACC
'S/he sees him/her / them.' 3SG → 3SG/PL: OBJ

b. *Lát-∅ ő-t / ők-et.
see-3SG.SUBJ s/he-ACC / they-ACC
intended: 'S/he sees him/her / them.' 3SG → 3SG/PL: *SUBJ

(14) a. Lát-od ő-t / ők-et.
see-2SG.OBJ s/he-ACC / they-ACC
'You (sg.) see him/her / them.' 2SG → 3SG/PL: OBJ

b. *Lát-sz ő-t / ők-et.
see-2SG.SUBJ s/he-ACC / they-ACC
int.: 'You see him/her / them.' 2SG → 3SG/PL: *SUBJ

Evidence for Multiple Agreement

Hungarian inverse agreement

(15) a. Lát-om ő-t / ők-et.
see-1SG.OBJ s/he-ACC / they-ACC
'I see him/her / them.'
1SG → 3SG/PL: OBJ

b. *Lát-ok ő-t / ők-et.
see-1SG.SUBJ s/he-ACC / they-ACC
int.: 'I see him/her / them.'
1SG → 3SG/PL: *SUBJ

(Bárány 2015*b*:209)

Evidence for Multiple Agreement

Hungarian inverse agreement

With first person objects, the verb only shows agreement in the features of the subject. Object agreement is ungrammatical regardless of the feature composition of the subject.

(16) a. Lát-∅ engem / minket.
see-3SG.SUBJ I.ACC / we.ACC
'S/he sees me / us.' 3SG → 1SG/PL: SUBJ

b. *Lát-ja engem / minket.
see-3SG.OBJ I.ACC / we.aACC
int.: 'S/he sees me / us.' 3SG → 1SG/PL: *OBJ

(17) a. Lát-sz engem / minket.
see-2SG.SUBJ I.ACC / we.ACC
'You.sg see me / us.' 2SG → 1SG/PL: SUBJ

b. *Lát-od engem / minket.
see-2SG.OBJ I.ACC / we.ACC
int.: 'You.sg see me / us.' 2SG → 1SG/PL: *OBJ

(Bárány 2015*b*:209)

Evidence for Multiple Agreement

Hungarian inverse agreement

If the direct object is second person, with a third-person subject, object agreement is unavailable (18). However, second person object does trigger agreement only if the subject is 1st person (19). (Bárány 2015*b*:210)

(18) a. Lát-∅ téged / titeket.
see-3SG.SUBJ you.SG.ACC / you.PL.ACC
'S/he sees you.sg/pl.'
3SG → 2SG/PL: SUBJ

b. *Lát-ja téged / titeket.
see-3SG.OBJ you.SG.ACC / you.PL.ACC
int.: 'S/he sees you.sg/pl.'
3SG → 2SG/PL: *OBJ

(Bárány 2015*b*:209)

(19) Lát-lak téged / titeket.
see-1SG>2 you.SG.ACC / you.PL.ACC
'I see you.sg/pl.'
1SG → 2SG/PL: *-lak/-lek*

(Bárány 2015*b*:210)

Evidence for Multiple Agreement

Hungarian inverse agreement

Table 1 presents a summary of the agreement patterns with personal pronouns in Hungarian. The cells with subject agreement have been argued to be an instance of *inverse agreement* (see É. Kiss 2013 and references therein). In short, given the *Person Hierarchy*: $1 \succ 2 \succ 3$, if an object is higher than the subject on this hierarchy, object agreement becomes impossible.

EA→IA	1	2	3
1		OBJ	OBJ
2	SUBJ		OBJ
3	SUBJ	SUBJ	OBJ

Table 1: Pronominal agreement Hungarian (Bárány 2015*c*)

Evidence for Multiple Agreement

- Patterns above problematic for
  - **Matching(+Valuation):** Two Goals; Valuation may be *partial* (not necessarily a complete ϕ-set), or conditioned by O-features;
  - **Minimality:** The Probe may prefer to skip a higher subject (S) Goal and agree with the lower object (O) Goal first;
  - **Activity:** S-agreement and O-agreement can actively interact with each other and their features sometimes compete for realisation.

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Previous accounts

- Previous literature offers independent solutions to each of the challenges.
- **Matching(+Valuation):**
  - two Goals can be targeted either simultaneously (some version of *Multiple Agree*, cf. Hiraiwa 2001; Nevins 2007, 2011; Myler 2017), or sequentially (Keine 2010 for Surinam Carib, Umatilla Sahaptin or Yurok; Baker 2008 for Nez Perce; Georgi 2013*a*,*b* for Mordvin, Yuan 2018 for Inuit);
  - ϕ-completeness as a precondition to Agree should be abandoned (Danon 2011).
- **Minimality:**
  - Some version of Relativized Minimality, implemented mostly through Relativized Probing (Béjar & Řezáč 2009)
  - and/or bypassed by O-movement (see below).

Previous accounts

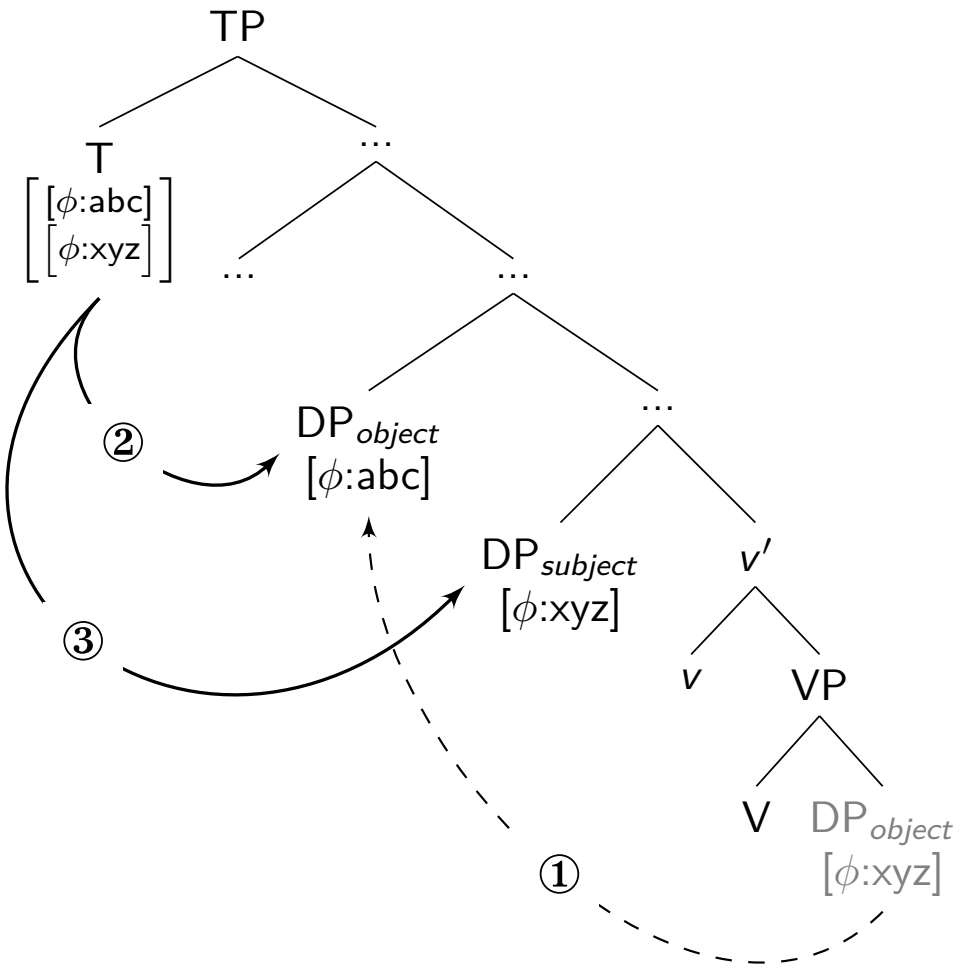
- Previous literature offers independent solutions to each of the challenges.
- **Locality:**
  - Adopting Chomsky (2001) version of the PIC – the domain of the lower phase is available until the next phase head is merged (e.g. Keine 2010; Georgi 2013*a*,*b*),
  - dynamic Agree domains (Bobaljik & Wurmbrand 2005),
  - or O-movement (see below);
- **Activity:**
  - Deactivation of the higher Goal after Agree by Case or licensing (Georgi 2013*a*,*b*; Kalin & van Urk 2015; Yuan 2018);
- **Locus of agreement:**
  - Both S- and O-agreement at T (e.g. Keine 2010; Arregi & Nevins 2012; Georgi 2013*b*; Deal 2015*a*; Myler 2017; Colley 2018);
  - separate AgrS and AgrO probing heads above the TP (É. Kiss 2021 for Uralic; Yuan 2018 for Inuit; Bobaljik & Wurmbrand 2002 for Itelmen and Chukchi);
  - cyclic expansion (Béjar & Řezáč 2009 for Algonquian, Basque, Mordvin; Bárány 2015*a*,*c* for Hungarian).

Previous accounts

- Almost as many proposals as there are languages under study.
- Colley (2018): To my knowledge the only all-encompassing analysis applied to the same set of data;
- argues for a unified acount of all of the languages above based on O-movement out of the VP, above the S, becoming the closest Goal for T.
- Indeed, O-movement is an integral part of most of the analyses of the languages above (Inuit: Yuan 2020, Khanty: Nikolaeva 1999*b*, Mansi: É. Kiss 2021, Tundra Nenets: Nikolaeva 2014, Erzya Mordvin: Colley 2018, Algonquian: Bruening 2001; Oxford 2014, Quechuan: Myler 2017, Kadiwéu: Nevins & Sandalo 2011, Chukchi: Bobaljik & Branigan 2006, Nez Perce: Deal 2017).

Previous accounts

(20)



- This circumvents Minimality and Locality issues.

Previous accounts

- Open questions:
  - In Hungarian evidence is not clear that O-movement feeds O-agreement (É. Kiss 2021).
  - Missing data from Itelmen and Basque (although Bobaljik & Wurmbrand 2002 and Arregi & Nevins 2012, respectively, do not invoke O-movement to analyse O-agreement).
  - Even if O-movement feeds O-agreement, this turns the Minimality problem on its head: How do you reach the subject below the object, cf. (20)?
- O-movement is thus insufficient to account for the set of data.
- Lack of an account that systematically addresses all the problematic points for Agree outlined above.
- Lack of systematic overview and crosslinguistic comparison of languages with a high object Probe (mostly studied separately).

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

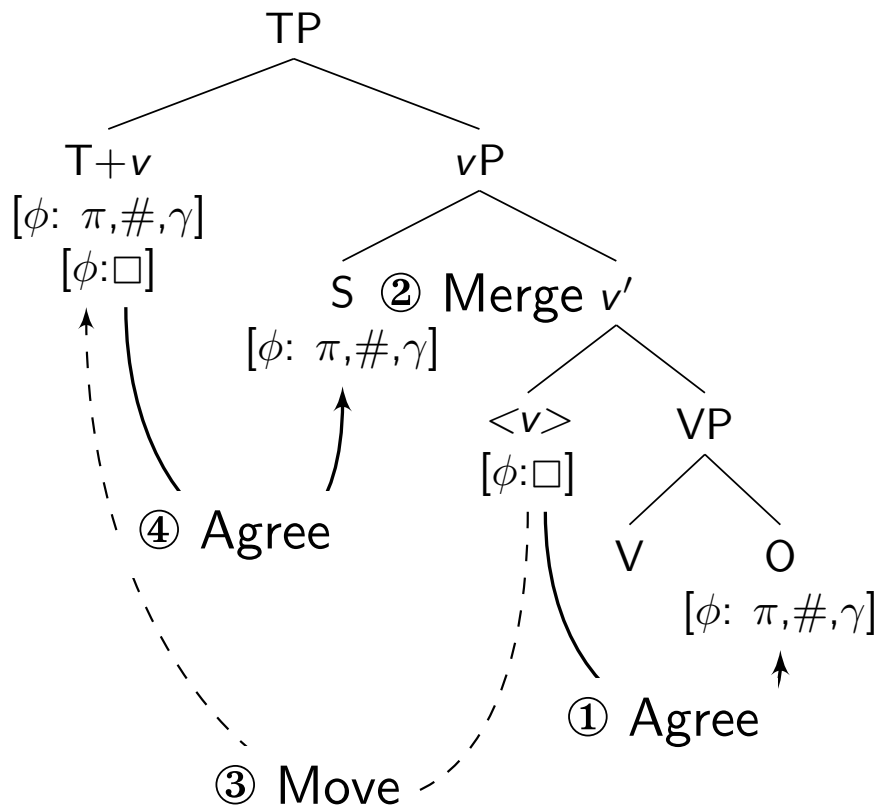
4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Locus of agreement

- O-agreement is conducted by *v* and S-agreement by T?
- The interaction between the two was captured by some form of *cyclic expansion* of agreement domains.
- An example for Hungarian from Bárány (2015*a*,*c*):

(21)



Locus of agreement

- A good argument against an approach like (21): (i) show that *v* and T do not have to form a complex head in the language; (ii) if additional material may intervene, both O-agreement and S-agreement should appear on the auxiliary.
- Basque is the only language that shows agreement exclusively on Aux; Arregi & Nevins (2012:29,33) argue that participle and Aux are two distinct morphosyntactic units, there is only a single high Probe that agrees with both ABS and DAT Goal.
- Other languages mostly show fused/agglutinative inflectional morphology on their verbs.
- If possible, periphrastic constructions should be sought in order to answer the following questions:
  - (i) Does the lexical verb show object agreement?
  - (ii) Can anything intervene between the lexical verb and the Aux?

Locus of agreement

- In Hungarian future tense, agreement is realised on Aux *fog-* (9). The order of Aux and the lexical verb can be changed (22a), and adverbs can intervene between them (22b).

(22) *Hungarian Aux+inf (András Bárány, p.c.)*

a. Fog-om látni.
will-1.SG.S>3.O see.INF

b. Látni holnap fog-om.
see.INF tomorrow will-1.SG.S>3.O
'I will see her/him/it tomorrow.'

c. Fog-om holnap látni.
will-1.SG.S>3.O tomorrow see.INF
'I will see her/him/it tomorrow.'

d. ÉN fog-om holnap látni(, nem te).
3.SG will-1.SG.S>3.O tomorrow see.INF not you
'I will see her/him/it tomorrow, not you.'

Locus of agreement

- In Tundra Nenets negative sentences (23), some elements can intervene between the two, e.g. objects (23a) and adverbs (23b), but not subjects (23c) or clausal adverbs (23d).

(23) *Tundra Nenets Neg+Conneg* (Nikolaeva 2014:218)

a. pet'ɑ n'ī(-dɑ) ti-m xada-q
Petya NEG-3.SGS>SG.O reindeer-ACC kill-CONNEG
'Petya didn't kill the reindeer.'

b. ŋəc'eki○-m n'ī-w○ m'er○-h xana-q
child-ACC NEG-1.SG.S>SG.O fast-GEN take.away-CONNEG
'I didn't take the child away quickly.'

c. *ti-m n'ī-da wera xada-q
reindeer-ACC NEG-3.SG.S>SG.O Wera kill-CONNEG
('Wera didn't kill the reindeer.')

d. *wera n'ī-c'○ t'en'ana xonara-q
Wera NEG-REFL.3.SG yesterday get.to.sleep-CONNEG
('Wera didn't get to sleep yesterday.')

Locus of agreement

- I will take this to serve as evidence that subject and object Probes are on the same head.
- The simplest assumption would be that this head is T.
- The inspection of other languages with respect to this property is in progress.

Outline

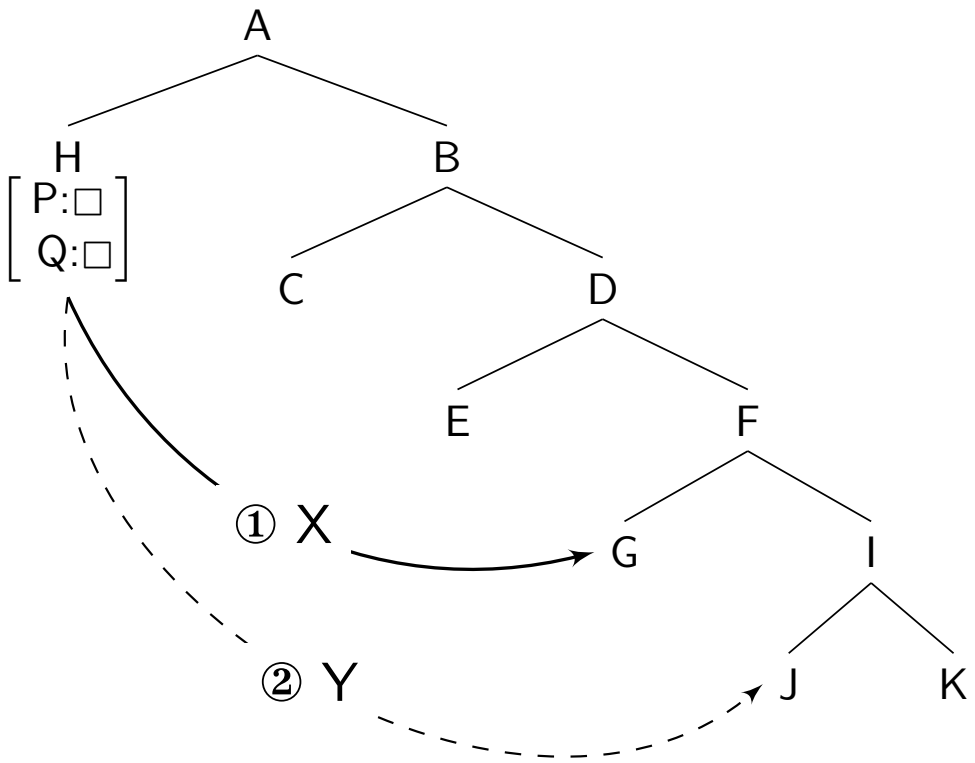
Locality domains in agreement

- If both Probes are on the T head, two additional problems emerge: Domains and feature interactions between the two Goals.
- The assumption that T can reach the O is explicitly or implicitly present in many of the analyses under discussion.
- Agree domains have been argued to differ from domains of movement and as such they merit different treatment (e.g. Bobaljik & Wurmbrand 2005; Keine 2018; Puškar 2018).
- I would like to explore the idea of dynamic Agree domains:
  - Two Probes on T trigger two separate Agree operations.
  - The Probes are fine-tuned to search for Goals with particular properties.
  - Once the first Agree operation has targeted the preferred Goal, the following one can only agree within the domain created by the first one (Puškar 2017, 2018).

Locality domains in agreement

(24) *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.

(25)



⇒ The domain c-commanded by G rendered opaque for further Agree operations.

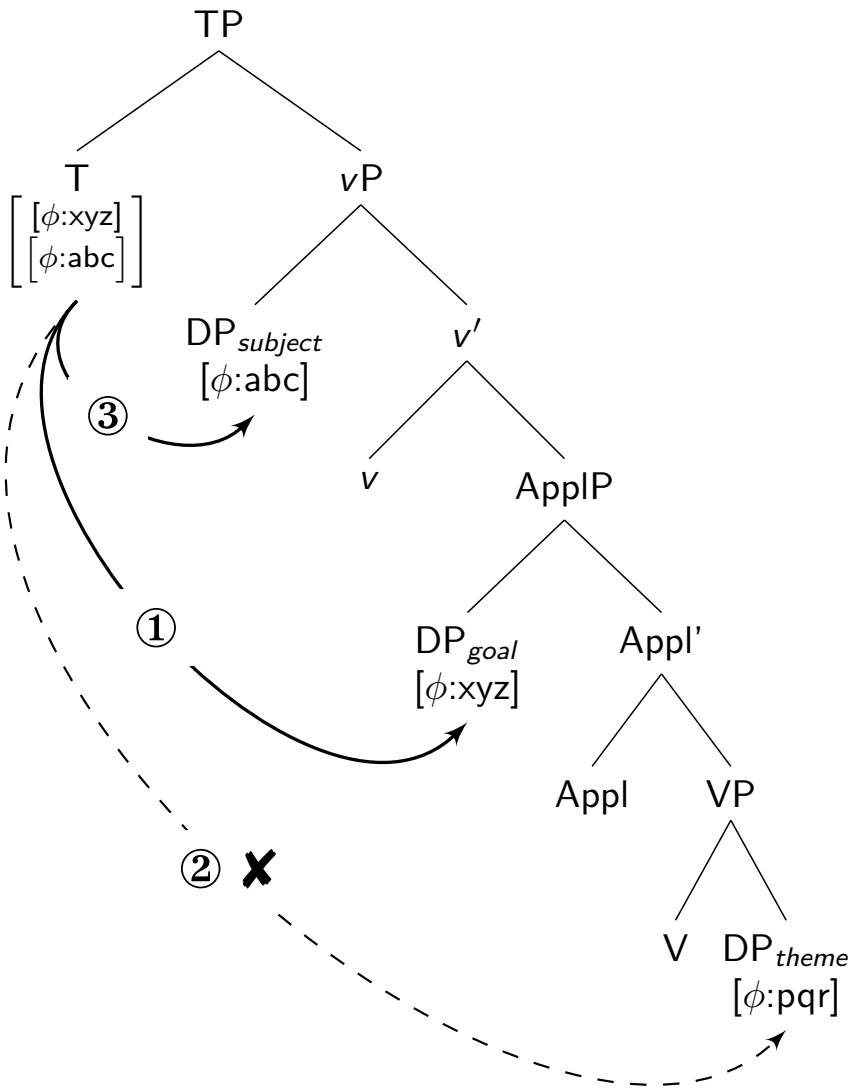
An example derivation

- The effects can be sketched briefly for Nez Perce, where an analysis along these lines would have the benefit of explaining why object agreement only ever occurs with the higher (indirect, accusative-marked) object:

(26) Beth-nim$_{agent}$ hi-neec-'ni-∅-ye lepit picaloo-na$_{goal}$ hipt$_{theme}$.
Beth-ERG 3S-O.PL-giveP-REM.PAST two kitten-ACC food.NOM
'Beth gave the two kittens food.' [Nez Perce] (Deal 2017)

An example derivation

(27)



Outline

Matching, Valuation and Minimality

- Object agreement in all languages under study is conditioned by particular properties of the noun:
  - → **topicality**: Khanty, Mansi, Tundra Nenets, Itelmen (ditrans.);
  - → **case**: Greenlandic, Inuktitut (ABS), Nez Perce, Sahaptin (ACC/OBJ), Basque (ABS/DAT), Chukchi (ABS/DAT);
  - → **definiteness**: Hungarian, Erzya Mordvin;
  - → **person**:
    - all persons: Greenlandic, Inuktitut, Hungarian, Northern Khanty, Mansi, Algonquian, Basque, Chukchi
    - only [Participant]: Mordvin, Quechuan, Kadiweu, Itelmen
    - only 3^{rd} person: Eastern Khanty, Tundra Nenets, Nez Perce, Sahaptin

Differential Object Agreement

- In other words, the languages demonstrate Differential Object Marking (DOM), or more specifically, Differential Object Agreement (Bárány 2015*a*).
- DOM is triggered by factors such as definiteness, animacy, affectedness, and information structure (see Bárány & Kalin 2020 for an overview).
- Being non-primitive notions, these are often modelled in terms of hierarchies.

(28) *Factors determining DOM (Bárány & Kalin 2020:2)*

a. Definiteness hierarchy (Silverstein 1976; Croft 1988; Comrie 1989):
personal pronoun $\succ$ proper name $\succ$ definite NP $\succ$ indefinite $\succ$ specific NP $\succ$ indefinite non-specific NP

b. Person/animacy hierarchy (Silverstein 1976; Croft 2003; Comrie 1989):
1st/2nd person $\succ$ 3rd person $\succ$ name $\succ$ human $\succ$ animate $\succ$ inanimate

c. Information structure (Dalrymple & Nikolaeva 2011):
topic $\succ$ non-topic

Differential Object Agreement

- These properties may be combined to organise our language set, yielding the results in Table 2.

Differential Object Agreement

info. strctr.	definiteness	animacy				case
topic/ given/ activated	personal pronoun	1^{st}, 2^{nd}	Quechuan, Kadiweu, Itelmen	Greenlandic, Inuktitut, Algonquian, Basque, Chukchi		unmarked
		3^{rd}	Eastern Khanty, Nez Perce, Sahaptin			
sec. topic			Tundra Nenets	Northern Khanty, Mansy		
	def. noun				Hungarian Mordvin	dependent

Table 2: Object agreement conditions

Differential Object Agreement

- Definiteness, animacy and topicality can be united under the common notion of *prominence/salience* (Silverstein 1976; Aissen 2003; van der Wal 2022:50ff.).
- Kalin (2017); Bárány & Kalin (2020): most common ways of modelling DOM invoke (i) object size, (ii) object movement, (iii) object licensing.
- Salience has been modelled under object size.
- E.g. Richards (2008) combines person and definiteness scale in terms of feature [Person] and NP size:

(29) *Person/definiteness scale (Richards 2008:141)*

$1^{st}/2^{nd}\text{-person} \succ 3^{rd}\text{-person} \succ \text{definite} \succ \text{specific} \succ \text{nonspecific}$

$[+\pi]\ (=\text{DP})$ $[\text{-}\pi]\ (=\text{NP})$

- van der Wal (2022:54) extends this to information structure arguing that [Person] can uniquely represent animacy, definiteness and givenness.
- Structurally represeted by a combination of a 'Big DP' (Roberts 2010) and Höhn's (2016) PersonP, which forms the additional layer on top of the DP.

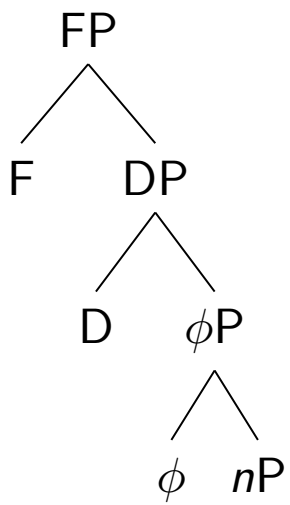
Differential Object Agreement

- Whether this can be extended to our language set requires further consideration.
- Some show divergence: e.g. Mansi only number agreement and secondary topic; Quechuan and Kadiweu 2^{nd} person is more prominent than 1^{st} person; Nez Perce and Hungarian show conspiracies of number and person that affect object agreement.
- Representation of person in the DP: Harbour (2011); Moskal (2015); van Urk (2018), among others, argue that [Person] is represented low in the nominal structure, see also Gruber (2013) for an alternative proposal.
- Alternative assumption: nominal phrase consists of four general layers

(30) *n*P (lexical) $\succ$ ϕP (person, number, gender) $\succ$ DP (definiteness) $\succ$ FP (information structure).

Differential Object Agreement

(31)



- Offers a separate locus for each of the important features above and an opportunity for parametrisation.
- See van Alem (2022) and references therein for the ideas on an additional functional phrase introducing information-structure features such as focus.
- The integration of case to the structure will be left for future research (will have to take into account the oblique cases in ditransitive constructions). A tentative assumption is that it may be represented as an additional (KP) phrase above the DP (or FP).

Modelling agreement preferences

- Having assumed that DPs come in different sizes, it is necessary to see how this affects agreement.
- Idea: Match and Value need to be two different operations.
  - Information structure and definiteness do not participate in ϕ-agreement as such, but they do determine which noun will participate in it.
  - This is in spirit similar to Deal's (2015*a*; 2022) Interaction and Satisfaction.

Modelling agreement preferences

- Probe scans the structure from the top down, encountering the FP first. In languages in which this is relevant, this should already meet the demands for object agreement (Tundra Nenets, Northern Khanty, Mansi) (32a).
- The Probe must then copy the ϕ-features (either they percolate, or the Probe keeps looking inside the FP).
- Next stop is to inspect the DP for definiteness as a condition on Match, and then look for ϕ-features as a condition on Value (Hungarian, Mordvin) (32b).
- Finally, in languages in which information structure and definiteness do not play a role, the Probe would only look for ϕ-features. This would be the Match condition, but Value would then have to be parametrised further (32c).

(32)
a. $[_{\mathrm{FP}}\ \boxed{\mathsf{F}}\ [_{\mathrm{DP}}\ \mathsf{D}\ [_{\Phi\mathrm{P}}\ \phi\ [_{n\mathrm{P}}\ n\ \sqrt{root}]]]]$
b. $[_{\mathrm{FP}}\ \mathsf{F}\ [_{\mathrm{DP}}\ \boxed{\mathsf{D}}\ [_{\Phi\mathrm{P}}\ \phi\ [_{n\mathrm{P}}\ n\ \sqrt{root}]]]]$
c. $[_{\mathrm{FP}}\ \mathsf{F}\ [_{\mathrm{DP}}\ \mathsf{D}\ [_{\Phi\mathrm{P}}\ \boxed{\phi}\ [_{n\mathrm{P}}\ n\ \sqrt{root}]]]]$

Modelling agreement preferences

- In all cases, the conditions on ϕ-valuation would have to be more elaborate and specific.
- Future task: formalizing the preference towards an NP with a particular case further (i.e. fine-tuning case-discriminating agreement, cf. Bobaljik 2008; Řezáč 2008; Preminger 2014; Bárány 2015*a*).

Outline

1. Theoretical challenges in a nutshell

2. Properties of languages with a high object Probe
   - High object Probe diagnostics
   - Evidence for Multiple Agreement

3. Previous accounts

4. Towards an analysis
   - Locus of agreement
   - Locality domains
   - Matching, Valuation and Minimality

5. Summary and the big picture

Benefits of the approach and the big picture

- Languages with a high object agreement Probe show
  - properties of One-Probe-Multiple-Goals configurations (hierarchy effects in agreement, omnivorous agreement)
  - Differential Object Agreement
  - signs that O-agreement may precede S-agreement.
- Object movement is not the crucial factor – even if O moves, we should still be able to agree with the S; what matters are the features carried by the arguments and not their syntactic configuration.
- An all-encompassing analysis should involve a single Probe for the two Goals, dynamic Agree domains and parametrised conditions on Agree.
- For future research: morphological factors.
- Potential further application to One-Probe-Multiple-Goals configurations in other domains, such as Person Case Constraint (vP) and complementizer agreement (CP).

References

Aissen, Judith (2003): 'Differential Object Marking: Iconicity vs. Economy', *Natural Language and Linguistic Theory* **21**, 435–483.

Arregi, Karlos & Andrew Nevins (2012): *Morphotactics: Basque auxiliaries and the structure of spellout*. Springer, Dordrecht.

Baker, Mark (1985): 'The Mirror Principle and Morphosyntactic Explanation', *Linguistic Inquiry* **16**, 373–415.

Baker, Mark C. (2008): *The syntax of Agreement and Concord*. Cambridge University Press, Cambridge.

Bárány, András (2015*a*): Differential object marking in Hungarian and the morphosyntax of case and agreement. PhD thesis, University of Cambridge.

Bárány, András (2015*b*): Hungarian object agreement with personal pronouns. *In:* U. e. a. Steindl, ed., *Proceedings of the 32nd West Coast Conference in Formal Linguistics (WCCFL 32)*. Cascadilla Proceedings Project, Somerville, MA, pp. 208–217.

Bárány, András (2015*c*): Inverse agreement and Hungarian verb paradigms. *In:* K. É. Kiss, B. Surányi & Éva Dékány, eds, *Approaches to Hungarian: Volume 14, Papers from the 2013 Piliscsaba conference*. John Benjamins, Amsterdam, pp. 37–64.

Bárány, András & Laura Kalin (2020): Introduction. *In:* A. Bárány & L. Kalin, eds, *Case, agreement and their interactions: New perspectives on differential argument marking*. De Gruyter, Berlin, pp. 1–26.

References

Béjar, Susana (2008): Conditions on Phi-Agree. *In:* D. Harbour, D. Adger & S. Béjar, eds, *Phi Theory: Phi Features across Modules and Interfaces*. Oxford University Press, Oxford, pp. 130–154.

Béjar, Susana & Milan Řezáč (2009): 'Cyclic Agree', *Linguistic Inquiry* **40**, 35–73.

Bobaljik, Jonathan (2008): Where's phi? Agreement as a postsyntactic operation. *In:* D. Harbour, D. Adger & S. Béjar, eds, *Phi-features across interfaces and modules*. Oxford University Press, Oxford, pp. 295–328.

Bobaljik, Jonathan & Phil Branigan (2006): Eccentric agreement and multiple case checking. *In:* A. Johns, D. Massam & J. Ndayiragije, eds, *Ergativity: Emerging Issues*. Springer, Dordrecht, pp. 47–77.

Bobaljik, Jonathan & Susi Wurmbrand (2002): 'Notes on Itelmen Agreement', *Linguistic Discovery* **1.1**.
URL: *http://linguistic-discovery.dartmouth.edu/WebObjects/Linguistics*

Bobaljik, Jonathan & Susi Wurmbrand (2005): 'The domain of agreement', *Natural Language and Linguistic Theory* **23**, 809–865.

Bruening, Benjamin (2001): Syntax at the Edge: Cross-Clausal Phenomena and the Syntax of Passamaquoddy. PhD thesis, MIT.

Bruening, Benjamin (2009): 'Algonquian Languages Have A-Movement and A-Agreement', *Linguistic Inquiry* **40**(3), 427–445.

References

Chomsky, Noam (2000): Minimalist inquiries: The framework. *In:* R. Martin, D. Michaels & J. Uriagereka, eds, *Step by step: Essays on Minimalist syntax in honor of Howard Lasnik*. MIT Press, Cambridge, MA, pp. 89–155.

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

Colley, Justin (2018): Object movement derives object preference. *In:* S. Hucklebridge & M. Nelson, eds, *Proceedings of NELS 48*. GLSA, Amherst, MA, pp. 149–162. s.

Comrie, Bernard (1989): *Language Universals and Linguistic Typology*. Universityof Chicago Press, Chicago.

Croft, William (1988): Agreement vs. case marking and direct objects. *In:* M. Barlow & C. A. Ferguson, eds, *Agreement in natural language: Approaches, theories, descriptions*. CSLI, Stanford.

Croft, William (2003): *Typology and universals*. Cambridge University Press, Cambridge, UK.

Dalrymple, Mary & Irina Nikolaeva (2011): *Objects and information structure*. Cambridge University Press, Cambridge.

Danon, Gabi (2011): 'Agreement and DP-internal Feature Distribution', *Syntax* **14**, 297–317.

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

References

Deal, Amy Rose (2015*b*): A note on Nez Perce verb agreement, with sample paradigms. *In:* N. Weber, E. Guntly, Z. Lam & S. Chen, eds, *Proceedings of the International Conference on Salish and Neighbouring Languages 50*. UBCWPL, Vancouver, pp. 389–413.

Deal, Amy Rose (2017): Interaction and satisfaction: a theory of agreement. Course notes for *Interaction and satisfaction: a theory of agreement*, EGG summer school, Olomouc, July 2017.

Deal, Amy Rose (2022): 'Interaction, Satisfaction, and the PCC', *Linguistic Inquiry* .

Despić, Miloje, Michael David Hamilton & Sarah E. Murray (2019): 'A Cyclic and Multiple Agree Account: Person/number Marking in Cheyenne', *Natural Language and Linguistic Theory* **37**, 51–89.
URL: *doi.org/10.1007/s11049-018-9405-4*

Diercks, Michael (2012): 'Parameterizing Case: Evidence from Bantu', *Syntax* **15**(3), 253–286.

É Kiss, Katalin (2002): *The syntax of Hungarian*. Cambridge University Press, Cambridge.

É. Kiss, Katalin (2013): 'The Inverse Agreement Constraint in Uralic Languages', *Finno-Ugric Languages and Linguistics* **2**(3), 2–21.

É. Kiss, Katalin (2021): Reconstructing Proto-Ugric and Proto-Uralic object marking. *In:* T. Eythorsson & J. G. Jónsson, eds, *Syntactic Features and the Limits of Syntactic Change*. Oxford University Press, Oxford.

References

Georgi, Doreen (2013*a*): Deriving the Distribution of Person Portmanteaux by Relativized Probing. *In:* S. Keine & S. Sloggett, eds, *Proceedings of NELS 42*. GLSA, Amherst, MA, pp. 155–168.

Georgi, Doreen (2013*b*): 'A relativized probing approach to person encoding in local scenarios', *Linguistic Variation* **12**(2), 153–210.

Gruber, Bettina (2013): *The spatiotemporal dimensions of person: A morphosyntactic account of indexical pronouns*. LOT, Utrecht.

Harbour, Daniel (2011): 'Valence and atomic number', *Linguistic Inquiry* **42**(4), 561–594.

Hiraiwa, Ken (2001): Multiple Agree and the Defective Intervention Constraint in Japanese. *In:* O. Matushansky, A. Costa, J. Martin-Gonzalez, L. Nathan & A. Szczegielniak, eds, *Proceedings of the HUMIT 2000. Vol. 40 of MITWPL*. MIT Press, Cambridge, MA, pp. 67–80.

Höhn, Georg F.K. (2016): 'Unagreement is an Illusion: Apparent person mismatches and nominal structure', *Natural Language and Linguistic Theory* **34**(2), 543–592.

Kalin, Laura (2017): Dropping the F-bomb: An argument for valued features as derivational time-bombs. *In:* A. Lamont & K. Tetzloff, eds, *Proceedings of NELS 47*. Vol. 2, GLSA, Amherst, MA, pp. 119–132.

Kalin, Laura & Coppe van Urk (2015): 'Aspect splits without ergativity', *Natural Language and Linguistic Theory* **33**(2), 659–702.

References

Keine, Stefan (2010): *Case and agreement from fringe to core: A Minimalist approach*. Mouton de Gruyter, Berlin.

Keine, Stefan (2018): 'Selective Opacity', *Linguistic Inquiry* .

Moskal, Beata (2015): 'Limits on allomorphy: A case study in nominal suppletion', *Linguistic Inquiry* **46**(2), 363–375.

Myler, Neil (2017): 'Cliticization Feeds Agreement: A View from Quechua', *Natural Language and Linguistic Theory* **35**, 751–800.

Nevins, Andrew (2007): 'The representation of third person and its consequences for the person–case constraint', *Natural Language and Linguistic Theory* **25**(3), 273–313.

Nevins, Andrew (2011): 'Multiple Agree with clitics: Person complementarity vs. omnivorous number', *Natural Language and Linguistic Theory* **29**(4), 939–971.

Nevins, Andrew & Filomena Sandalo (2011): 'Markedness and Morphotactics in Kadiwéu [+participant] Agreement', *Morphology* **21**(2), 351–378.

Nikolaeva, Irina (1999*a*): 'Object agreement, grammatical relations, and information structure', *Studies in Language* **23**(2), 331–376.

Nikolaeva, Irina (1999*b*): *Ostyak*. Lincom Europa, Muenchen; Newcastle.

Nikolaeva, Irina (2014): *A Grammar of Tundra Nenets*. Mouton de Gruyter, Berlin.

Oxford, Will (2014): Microparameters of Agreement: A Diachronic Perspective on Algonquian Verb Inflection. PhD thesis, University of Toronto.

References

Preminger, Omer (2014): *Agreement and its Failures*. MIT Press, Cambridge, MA.

Puškar, Zorica (2017): Hybrid Agreement: Modelling variation, hierarchy effects and ϕ-feature mismatches. PhD thesis, University of Leipzig, Leipzig.

Puškar, Zorica (2018): 'Interactions of gender and number agreement: Evidence from Bosnian/Croatian/Serbian', *Syntax* **21**(3), 275–318.

Richards, Marc (2008): Defective Agree, case alternations, and the prominence of person. *In:* M. Richards & A. L. Malchukov, eds, *Scales*. University of Leipzig, Leipzig, pp. 137–161.

Riese, Timothy (2001): *Vogul*. Lincom Europa, München.

Roberts, Ian (2010): *Agreement and head movement: Clitics, incorporation, and defective goals*. MIT Press, Cambridge, MA.

Rounds, Carol (2002): *Hungarian: An essential grammar*. Routledge, London and New York.

Silverstein, Michael (1976): Hierarchy of Features and Ergativity. *In:* R. Dixon, ed., *Grammatical categories in Australian languages*. Australian Institute of Aboriginal Studies, Canberra, pp. 112–171.

Trommer, Jochen (2003): Hungarian has no portmanteau agreement. *In:* C. Piñón & P. Siptár, eds, *Approaches to Hungarian 9*. Akadémiai Kiadó, Budapest.

van Alem, Astrid (2022): Complementizer agreement is clitic doubling: Evidence from intervention effects in Frisian and Limburgian. Ms, University of Potsdam.

References

van der Wal, Jenneke (2022): *A featural typology of Bantu agreement*. Oxford University Press, O.

van Urk, Coppe (2018): 'Pronoun copying in Dinka and the Copy Theory of Movement', *Natural Language and Linguistic Theory* **36**(3), 937–990.

Volkova, Anna & Eric Reuland (2014): 'Reflexivity without reflexives?', *The Linguistic Review* **31**(3-4), 587–633.

Řezáč, Milan (2008): Phi-Agree and theta-related case. *In:* D. Adger, D. Harbour & S. Bejár, eds, *Phi-Theory*. Oxford University Press, Oxford, pp. 83–129.

Yuan, Michelle (2018): Dimensions of Ergativity in Inuit: Theory and Microvariation. PhD thesis, MIT.

Yuan, Michelle (2020): Ergativity and object shift across Inuit. Unpublished manuscript, University of California San Diego.
URL: *https://ling.auf.net/lingbuzz/004942*

Appendix: An example derivation of Erzya Mordvin

- Let us take Erzya Mordvin as an illustration.
- Recall that [Participant] O is the preferred Goal for person agreement, [pl] S is the preferred Goal for number agreement (33).

(33) a. soda-s-y-ńek
know-TNS-PL-1
'We know him.' $\boxed{1\text{PL}} \succ 3\text{SG}$

b. soda-s-y-ń
know-TNS-PL-1
'I know them.' $\boxed{1}\text{SG} \succ 3\boxed{\text{PL}}$

c. soda-s-am-iź
know-TNS-1-PL
'They know me.' $3\boxed{\text{PL}} \succ \boxed{1}\text{SG}$

d. soda-s-am-iź
know-TNS-1-PL
'He knows us.' $3\text{SG} \succ \boxed{1\text{PL}}$
(Béjar 2008:131)

Appendix: An example derivation of Erzya Mordvin

- Let us assume Bejar's geometry for person and number features:

(34) $\begin{bmatrix} \pi \\ \text{Prtcpnt} \\ \text{Spkr} \end{bmatrix} \begin{bmatrix} \pi \\ \text{Prtcpnt} \end{bmatrix} [\ \pi\ ]$

(35) $\begin{bmatrix} \# \\ \text{pl} \end{bmatrix} [\#]$

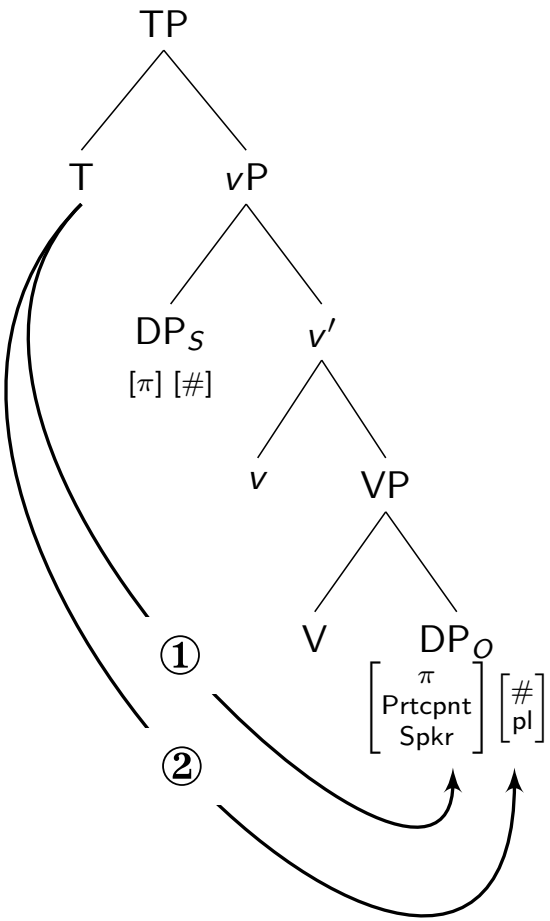
- Let us also follow Bejar in assuming that person agreement is performed before number agreement in this language.
- I will depart from Bejar and assume that both probes are located on T.
- Additionally, I will assume that the first person probe tries to agree with the definite [Participant] object first; if that operation fails, T will agree with the other available argument with a [Participant] feature.
- The number probe scans the structure for [plural] features.
- T will thus always target the features of the object first (to be investigated shortly).
- If the O has the [Participant] and [pl] features, it will value both of those features on T. The order of morphemes at T will reflect the order of probing.

Appendix: An example derivation of Erzya Mordvin

(36) soda-s-am-iź
know-TNS-1-PL
'He knows us.'

$3\text{SG} \succ \boxed{1\text{PL}}$

(37)



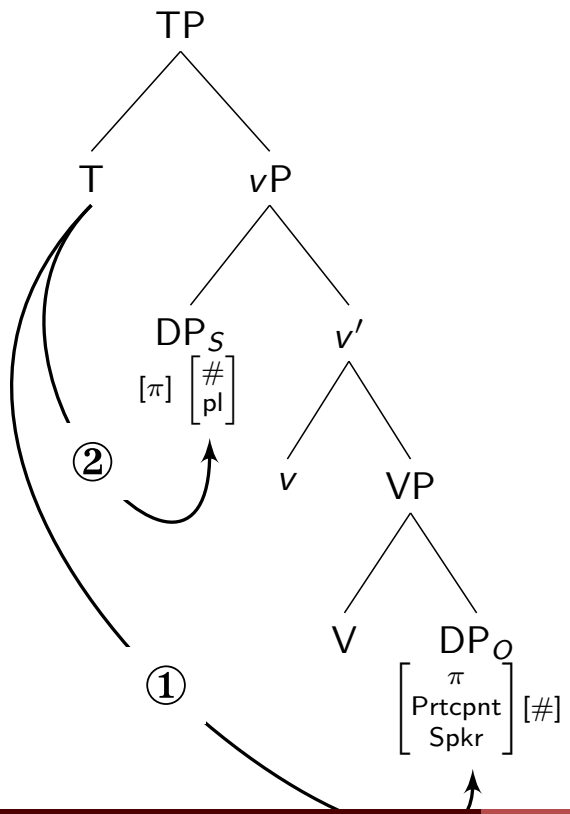
Appendix: An example derivation of Erzya Mordvin

- If the O is a [Participant] and [pl] is on the higher S, π-Agree will go for the O, while #-Agree will target the S.

(38) soda-s-am-iź
know-TNS-1-PL
'They know me.'

$3\boxed{\text{PL}} \succ \boxed{1}\text{SG}$

(39)



Appendix: An example derivation of Erzya Mordvin

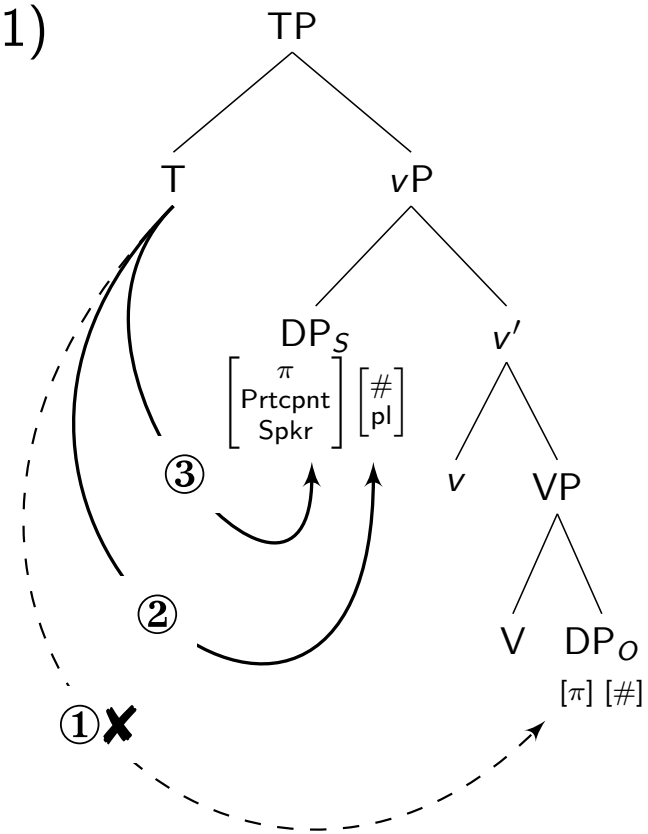
- In the cases where the closest argument has both [Participant] and [pl] features, agreement will be just with the closest argument.
- However, T will nevertheless first attempt to agree with the O in person. When this operation fails due to the lack of a [Participant] feature on the O, #-Agree will target the S. The second cycle of π-Agree can now apply, copying the features of the closest argument.

Appendix: An example derivation of Erzya Mordvinv

(40) soda-s-y-ńek
know-TNS-PL-1
'We know him.'

$\boxed{1\text{PL}} \succ 3\text{SG}$

(41)



Appendix: An example derivation of Erzya Mordvin

- The features of the verb also reflect this order of Agree operations and Bejar argues extensively that Mordvinian have the whole set of affixes that are inserted as a result of 2nd-cycle Agree.
- What needs to be ensured is that O is still the preferred Goal even though the higher Goal has the person features.