

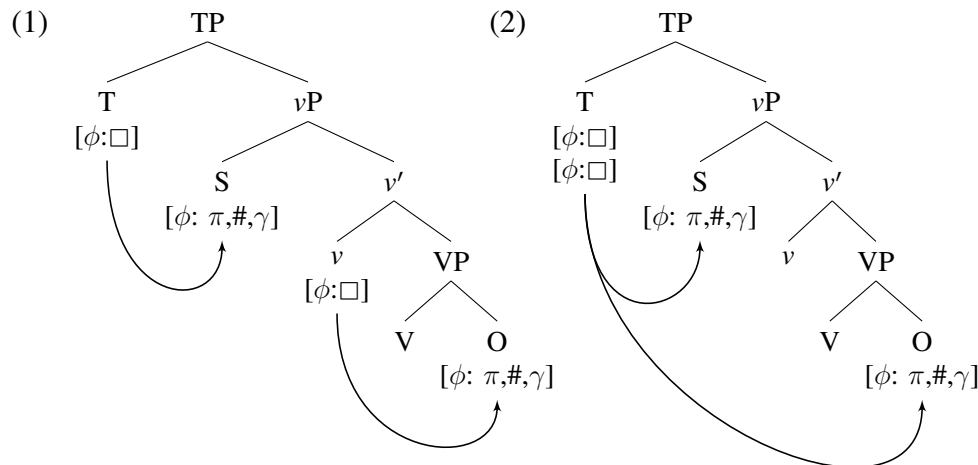
Multiple challenges of multiple agreement

Zorica Puškar-Gallien (Leibniz-ZAS)
puskar@leibniz-zas.de

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1 Introduction

- In some languages finite verbs show morphological reflexes of subject (S) and object (O) agreement.
- For many languages such patterns can be analysed as resulting from the *v* agreeing with the O and T agreeing with the S argument (1).
- However in some languages both S and O agreement are argued to be initiated by T or a head above T (2).



Goals of the talk:

- Provide an overview of the challenges of configurations such as (2) to 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.

2 Theoretical challenges in a nutshell

- The operation Agree (Chomsky 2000, 2001): holds between a Probe (lacks features and wants to have them valued) and a Goal (inherently carries the features that the Probe needs). The Probe is usually higher in the syntactic structure; it 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).
- Languages involving multiple agreement from the T head below will be problematic for at least one of the core properties of Agree:
 - Matching(+Valuation): Two Goals; can be *partial* (not necessary to include 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 *vP* domain, S is at the edge);
 - Activity: Agreement across an active S should be impossible.

3 Empirical focus

3.1 Languages with a high object probe

Languages claimed to have S and O agreement conducted by high probes (hitherto found in the literature):

Uralic: Hungarian, Khanty, Mansi, Nenets, Mordvin (É. Kiss Submitted); **Algonquian:** Proto-Algonquian (Oxford 2014), Passamaquoddy (Bruening 2009), Cheyenne (Despić, Hamilton and Murray 2019); **Quechuan:** Cuzco, Huallaga, Ancash, Ayacucho, San Martin, Cajamarca, Potosi and Santiago del Estero Quechua (Myler 2017); **Guiaacuran:** Kadiwéu (Nevins and Sandalo 2011); **Chukotko-Kamchatkan:** Itelmen, Chukchi (Bobaljik and Wurmbrand 2002); **Sahaptian:** Nez Perce (Deal 2017), Sahaptin (Georgi 2013); **Inuit:** Greenlandic, Inuktitut (Yuan 2018); **Basque** (Arregi and Nevins 2012).

3.2 Diagnosing a high object agreement head

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

(3) *Khanty object agreement* (Dalrymple and 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.'

- **Morphological processes:** S+O agreement affixes can (i) show allomorphy/suppletion for tense, mood and/or Neg, (ii) fuse with TAM morphemes (4), or (iii) form a portmanteau (5)-(6).

(4) *Innu tense allomorphy* (Oxford 2014:209)

- a. *n- wa-pam -a- -na-n -at*
1- see -3.O/DIR -PRES.1 -3
'we see them'
- b. *n- wa-pam -a- -ta-n -at*
1- see -3.O/DIR -PAST.1 -3
'we saw them'

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

- a. mənçoraə-dəm
work-1.SG.S
'I work.'
- b. mənçoraə-nə
work-2.SG.S
'You work.'
- c. mənçoraə
work-3.SG.S
'He/she works.'

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

- a. meə-wə
take/do-1.SG.S>SG.O
'I take/do it.'
- b. meə-rə
take/do-2.SG.S>SG.O
'You take/do it.'
- c. meə-də
take/do-3.SG.S>SG.O
'He/she takes/does it.'

- Lack of O-agreement in **non-finite contexts:**

(7) *Khanty non-finite contexts* (Nikolaeva 1999a:46)

- a. jo:ntəs-l [Ø pasan e:liti o:məs-man]
sew-NPST.3.SG table to sit-CONV
'She is sewing sitting by the table.'
- b. luw xaś-ə-s [Ø naŋ-e:n wa:n-tiji]
he stay-EP-PST.3.SG you-ACC see-INF
'He stayed to see you.'

- In periphrastic verbal constructions, **object agreement is on Aux:**

- (8) a. Lát-om ó-t / ók-et.
see-1.SG.S>3.O s/he-ACC / they-ACC
'I see him/her/them.' (Bárány 2015b:209)
- b. Látni fog-om.
see-INF will-1.SG.S>3.O
'I will see him/her/them.' (Rounds 2002:50)

4 Common properties of the languages under study

4.1 Some general parameters

4.1.1 Object agreement obligatory?

- yes \Rightarrow overt O-agreement marker¹ always present: Algonquian, Itelmen, Chukchi, Inuit
- no \Rightarrow sensitivity to an O-feature (Differential Object Agreement):
 - \rightarrow case: Nez Perce, Sahaptin (ACC/OBJ), Basque (ABS/DAT);
 - \rightarrow topicality: Khanty, Mansi, Tundra Nenets, Itelmen (ditrans.);
 - \rightarrow definiteness: Hungarian, Erzya Mordvin;
 - \rightarrow person: see below.

4.1.2 Object Person agreement:

- all persons: (Northern) Khanty, Mansi, Algonquian, Basque, Chukchi, Sahaptin, Inuit
- only 3π : (Eastern) Khanty, Tundra Nenets, Nez Perce
- only [Participant]: Mordvin, Quechuan, Kadiwéu, Itelmen

4.1.3 Object Number agreement:

- If they agree, objects in all languages show ([-sg]) number agreement.

4.1.4 Case/agreement alignment:

- Case alignment is different (WALS classification): NOM/ACC (Hungarian, Khanty, Mansi, Nenets, Mordvin, Quechuan), ERG/ABS (Inuit, Chukchi), NEUTRAL (Algonquian, Itelmen), TRIPARTITE (Nez Perce, Sahaptin?), ACTIVE (Basque).
- Agreement alignment is overwhelmingly NOM/ACC (i.e. S/O).
- The exceptions are Algonquian, Sahaptin (hierarchical), Kadiwéu, Basque (ergative, active), Nez Perce (treated as tripartite by WALS, but judging by the agreement markers and the work of Deal, it can be said to agree with S and O).

✿ True ERG agreement alignment incompatible with a high object probe?

¹I have not differentiated between cliticization and agreement, all exponents of S/O features are considered agreement markers in a broad sense (clitics exist in Inuit, Quechuan, Basque, Sahaptin).

4.1.5 Do S and O interact?

- no: Inuit, (Northern) Khanty, Mansi, Nenets,
- yes:
 - Omnivorous agreement: Mordvin, Quechuan, Itelmen, Nez Perce
 - Hierarchical agreement: Hungarian, Eastern Khanty, Algonquian, Kadiwéu, Sahaptin

4.2 Types of S-O agreement interactions

4.2.1 Feature competition (Omnivorous agreement)

Features of S or O can bleed agreement with the other argument.

- Mordvin: [Prtcpt] O is the preferred Goal for person agreement, [pl] S is the preferred Goal for number agreement (9c).

- (9) a. soda-s-y-ńek
know-TNS-PL-1
'We know him.' $1_{\text{PL}} > 3_{\text{SG}}$
- b. soda-s-y-ń
know-TNS-PL-1
'I know them.' $1_{\text{SG}} > 3_{\text{PL}}$
- c. soda-s-am-iź
know-TNS-1-PL
'They know me.' $3_{\text{PL}} > 1_{\text{SG}}$
- d. soda-s-am-iź
know-TNS-1-PL
'He knows us.' $3_{\text{SG}} > 1_{\text{PL}}$
(Béjar 2008:131)

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

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

- a. maylla-wa-rqa-n
wash-1.O-PST-3.S
'S/he washed me.' $3_{\text{SBJ}} > 1_{\text{OBJ}} = 3$
- b. maylla-∅-rqa-nchis
wash-3.O-PST-1INCL.S
'We (incl.) washed him/her.' $1_{\text{INCL.SBJ}} > 3_{\text{OBJ}} = 1_{\text{INCL}}$
- c. maylla-wa-rqa-nki
wash-1.O-PST-2.S
'You washed me' $2_{\text{SBJ}} > 1_{\text{OBJ}} = 2$
- d. maylla-∅-rqa-ni
wash-3.O-PST-1.S
'I washed him/her.' $1_{\text{SBJ}} > 3_{\text{OBJ}} = 1$

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

- a. maylla-rqa-su-**nki**
wash-PST-2.O-**2.S**
'S/he washed you.' $3_{\text{SBJ}} > 2_{\text{OBJ}} = 2$
- b. maylla-wa-rqa-**nchis**
wash-1.O-PST-**1INCL.S**
'S/he washed us (incl.)' $3_{\text{SBJ}} > 1_{\text{INCL.OBJ}} = 1 \text{ INCL}$
- c. maylla-rqa- \emptyset -**yki**
wash-PST-2.O-**2.S**
'I washed you.' $1_{\text{SBJ}} > 2_{\text{OBJ}} = 2$

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

4.2.2 Hierarchy effects

Inverse agreement: If O is lower than S on a language-specific person scale, special morphological marking appears:

- Hungarian: 1>2>3 scale; 3 π O always agrees, [Prtcptnt] O only agrees if lower than S resulting in a 1>2 portmanteau.
- Eastern Khanty: 1,2>3 scale; [Prtcptnt] 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.

✳ S-agreement and O-agreement can interact with one another and their features sometimes compete for realisation.

✳ Problematic for Match+Valuation: conditions on determining which Goal may value the Probe.

✳ Additionally, since the patterns are so diverse across languages – are the hierarchy effects a syntactic or a postsyntactic phenomenon?

5 Generalisations and open questions

1. If the O agrees, #-agreement is in principle always possible.²
2. Person agreement is not always possible with O (DOA); it may depend on case, definiteness, or the type of π involved.
3. ϕ -features can, but do not have to agree together \rightarrow Match+Value do not require ϕ -completeness;
4. O-agreement and S-agreement interact with each other, resulting in feature competition or hierarchical agreement.
5. The division of work between syntax and postsyntax.
 - Agree operations target both the S and the O in the syntax, feature conflicts resolved in morphology? (Bárány 2015c; Oxford 2014; Myler 2017; Nevins and Sandalo 2011; Bobaljik and Wurmbrand 2002).
 - Surface feature conflicts are the result of entirely syntactic Match+Value processes?

6 Towards an account

Ingredients for an account:

Probe/Goal Configuration:

- Object movement;
- Number of probing heads: Does v probe or just T? (*Cyclic expansion*, e.g. Béjar and Řezáč 2009; Bárány 2015c vs. probing from a single high head, e.g. Baker 2008; Georgi 2013);

The mechanics of Agree:

- Making agreement sensitive to information structure, case and person.
- Accounting for hierarchy effects/omnivorous agreement: Split or ϕ -Probes?
- Encoding and deriving language-specific feature preferences.

²Except in Hungarian which shows no overt number agreement.

6.1 Object movement

- An observation: Many of the languages under survey realise O-agreement markers closer to the stem than S-agreement markers:
 - Hungarian (Trommer 2003; É. Kiss Submitted), Tundra Nenets (Nikolaeva 2014), Khanty (3), Erzya Mordvin (9), Quechuan (10)–(11), Mansi (12), Nez Perce (13).

(12) *Mansi present tense object agreement* (Riese 2001:41)

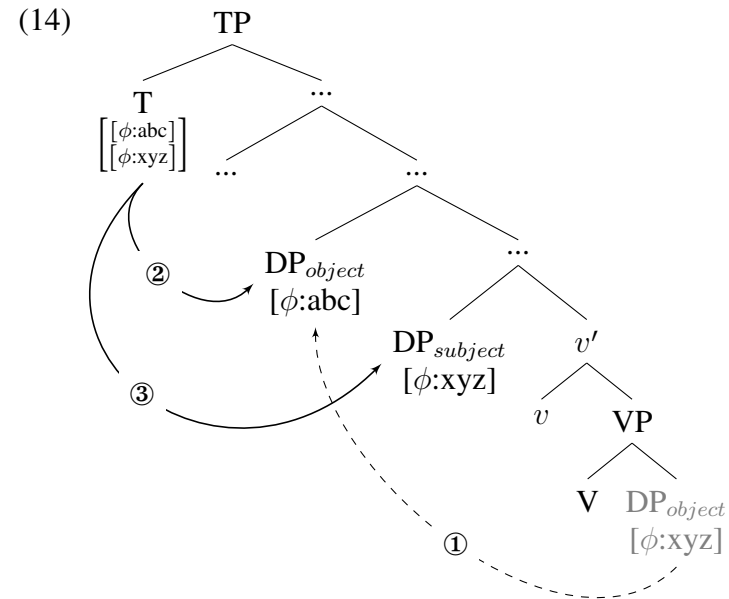
- a. am piyriśəm χańiśti-l-əm
1.SG son.1.SG teach-SG.O-1.SG.S
'I teach my son.'
- b. am piyriśayəm χańiśti-jay-əm
1.SG son.1.SG.POSS.DU teach-DU.O-1.SG.S
'I teach my two sons.'
- c. am piyriśanəm χańiśti-jan-əm
1.SG son.1.SG.POSS.PL teach-PL.O-1.SG.S
'I teach my sons.'

(13) Beth-nim **hi-neec-**'ni-∅-ye lepit picaloo-na hipt.³
Beth-ERG **3.S-PL.O-give-REM.PAST** two kitten-ACC food.NOM
'Beth gave the two kittens food.' [Nez Perce] (Deal 2017)

- ✳ Mirror-Principle-interpretation: O-agreement precedes S-agreement.
- ✳ Problematic for Minimality: the Probe can skip a higher (S) Goal and agree with the lower (O) Goal first.
- ✳ Problematic for Locality: the lower (O) Goal belongs to the domain of a different (vP) phase.
- ✳ Potentially also problematic for Activity.

- Colley (2018): The only all-encompassing proposal I have hitherto found applied to the same set of data; argues that all of the languages above can be accounted for under the assumption that O moves out of the VP above the S, becoming the closest Goal for T.
- Indeed, O-movement does feature in most of the accounts of the languages above (Inuit: Yuan 2020, Khanty: Nikolaeva 1999b, Mansi: É. Kiss Submitted, Tundra Nenets: Nikolaeva 2014, Erzya Mordvin: Colley 2018, Algonquian: Bruening 2001; Oxford 2014, Quechuan: Myler 2017, Kadiwéu: Nevins and Sandalo 2011, Chukchi: Bobaljik

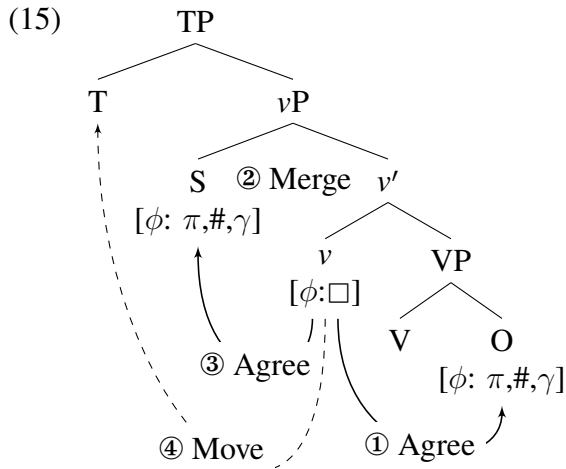
and Branigan 2006, Nez Perce: Deal (2017)).



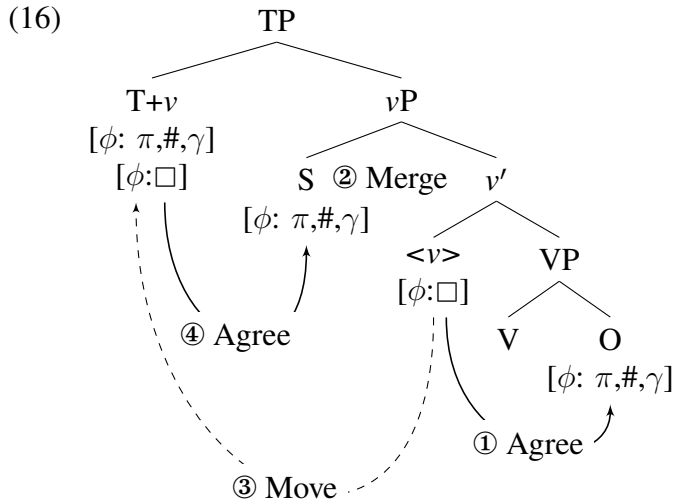
- This circumvents the Minimality issue and accounts for object preference, not just here, but also in languages in which it seems that the features of the objects are considered for agreement first (e.g. Mordvin).
- Open questions:
 - In Hungarian evidence is not clear that O-movement feeds O-agreement (É. Kiss Submitted).
 - Missing data from Itelmen and Basque (although Bobaljik and Wurmbrand 2002 and Arregi and Nevins 2012, respectively, do not invoke O-movement to analyse O-agreement).
 - Perhaps O movement is parametrised?
 - 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. (14)?

6.2 Number of probing heads

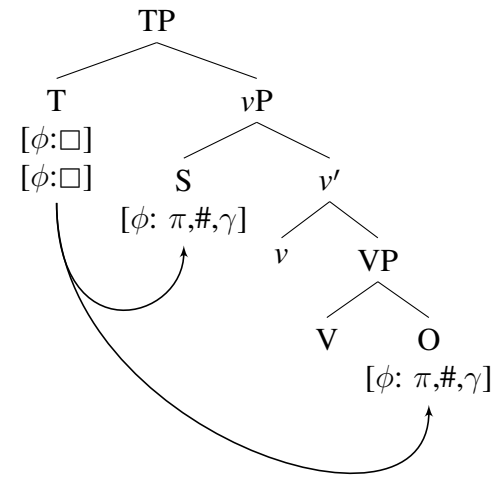
Cyclic Expansion I (e.g. Béjar and Āezáč 2009 for Algonquian, Basque, Mordvin): (15)



Cyclic Expansion II (e.g. Bárány 2015a,c for Hungarian): (16)



A high Probe for O-agreement:



- The morphology on the verb in most of the languages under discussion does not really help distinguish between the options above.
- Basque is the only language that shows agreement exclusively on Aux; Arregi and Nevins (2012) 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. Even though the participle and the Aux are usually adjacent (18), some material may intervene (19).

(18) *Participle+Aux in Basque* (Arregi and Nevins 2012:29)

- Lau aste-an ego-n n -as geixorik.
four week-IN be-PRF CL.ABS.1.SG -PRS.1.SG sick
'I've been sick for four weeks.'
- Su-k ni-∅ ikus-i n -a
you(Sg)-ERG me-ABS see-PRF CL.ABS.1.SG -PRS.1.SG
-su.
-CL.ERG.2.SG
'You(Sg) have seen me.'
- Liburu-a emo-n d-o -tz -t.
book-ABS.SG give-PRF L-PRS.3.SG -CL.DAT.3.SG -CL.ERG.1.SG
'I've given the book to my friend.'

(19) Iñor-∅ es **d-a** eskola-∅ **ju-n.**
 anybody-ABS not **L-PRS.3** school-ALL.SG **go-PRF**
 ‘Nobody has gone to school.’ (Arregi and Nevins 2012:33)

- 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?
- In Hungarian future tense, agreement is realised on Aux *fog-* (20b). The order of Aux and the lexical verb be changed (21a), and adverbs can intervene between them (21)⁴
- In Tundra Nenets negative sentences (22), some elements can intervene between the two, e.g. objects (20a) and adverbs (20b), but not subjects (20c) or clausal adverbs (20d).⁵⁶

(20) *Hungarian Aux+inf*

- a. Lát-om ő-t / ők-et.
 see-1.SG.S>3.O s/he-ACC / they-ACC
 ‘I see him/her / them.’ (Bárány 2015b:209)
- b. Látni fog-om.
 see.INF will-1.SG.S>3.O
 ‘I will see him/her/them.’ (Rounds 2002:50)

⁴Mansi has one periphrastic verbal construction (i); like in Khanty (ii), future tense can be expressed by the infinitive form of the lexical verb and an auxiliary *pat-* ‘to fall, to begin’. The agreement markers appear on the auxiliary. I could not find any data on whether anything can intervene between the lexical verb and the auxiliary nor data with object agreement.

(i) ɔluŋk^we pateɣəm
 live.INF begin.PRES.1.SG.S
 ‘I will live.’ Mansi future (Riese 2001:45)

(ii) man-ti pit-l-ə-m
 go-INF start-npst-EP-1.sg.S
 ‘I will go.’ Khanty future (Nikolaeva 1999a:26)

⁵The auxiliary precedes the connegative verb, the reverse is impossible (Nikolaeva 2014:217).

⁶Similarly, in Khanty Stative construction, the converb (a nonfinite verbal modifier) *-man* is attached to the lexical verb and the auxiliary *u:(l)-* carries the agreement suffixes. Adding *-man* changes valency, the verb is detransitivised, so the auxiliary can only carry subject agreement, i.e. agreement with the only (theme-like) argument of the verb. This aspect-like element seems to break the bond between *v* and T.

- (i) a. Non-Past: we:r-man u:l ‘is done’
 b. Past: kawe:r-man u:-s ‘was cooked’
 c. Future: we:r-man u:l-ti pit-l ‘will be done’

- (21) 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
 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.’
 (András Bárány, pers.comm.)

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

- a. pet'a n̄(-da) ti-m xada-q
 Petya NEG-3.SG.S>SG.O reindeer-ACC kill-CONNeg
 ‘Petya didn’t kill the reindeer.’
- b. ŋəc'ekio-m n̄-wo m'ero-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 n̄-da wera xada-q
 reindeer-ACC NEG-3.SG.S>SG.O Wera kill-CONNeg
 (‘Wera didn’t kill the reindeer.’)
- d. *wera n̄-c'ə t'en'ana xonara-q
 Wera NEG-REFL.3.SG yesterday get.to.sleep-CONNeg
 (‘Wera didn’t get to sleep yesterday.’)

- If agreement is present only on the Aux and absent on the lexical verb, it may be assumed that *v* lacks an agreement probe and that both S- and O-agreement are conducted by the T head.
- Future direction: Another potential way to distinguish between these two approaches is to relate them to object movement. A low Probe would not necessarily require O-movement to feed O-agreement (movement would not be completely excluded, it only should not interact with agreement). In contrast, Agree from T may be sensitive to movement.

6.3 The mechanics of Agree

6.3.1 Sensitivity of Agree to case/IS/ π

- Any successful theory should be able to incorporate case/IS/definiteness/ π -features as preconditions for Agree.
- There was some overlap between these conditions (e.g. definiteness and π in Hungarian and Mansi, topicality and π in Itelmen, case and π in Nez Perce).
- It may be possible to analyse definiteness as a part of the specification of Person (together with animacy) (Richards 2008). A similar unification may be applied to IS features, see Van der Wal (2015).
- Alternatively, case or IS features may be something that makes a DP opaque, or something that make it stand out and attract the Probe.
- Necessary ingredients: Some version of Relativized Probing + a precise specification of the DP structure of the Goal and its feature inventory and distribution.

6.3.2 Probe/Match/Value

- The remaining question is whether the agreement from a high head is simultaneous or sequential, performed in one or multiple cycles, from one Probe or multiple Probes.
- Most of the options have been proposed for most of the languages under discussion, including:
 - Simultaneous Multiple Agree (Hiraiwa 2005) for Algonquian (Oxford 2014; Despić et al. 2019), Quechuan (Myler 2017);
 - Sequential agreement from T: Mordvin (Georgi 2013; Colley 2018), Nez Perce (Baker 2008);
 - Separate AgrS and AgrO probing heads above the TP: Uralic (É. Kiss Submitted), Inuit (Yuan 2018), Itelmen and Chukchi (Bobaljik and Wurmbrand 2002).
- Number agreement is always present, so all of the languages must have a number Probe at least.
- Split or fused ϕ -Probe and number of ϕ -Probes? → Here perhaps the π / $\#$ conspiracies might be useful: where both π and $\#$ influence the result of Agree, the Probe is probably fused; where they can act independently, the Probes are independent.

7 Summary and future directions

- This talk has presented a review of some recent proposals that have argued for a high O-agreement Probe.
- Languages that can be argued to have a high O-Probe share some common properties: O-agreement may be obligatory or conditioned by case, information structure, definiteness or person values; number agreement is always present (with agreeing objects), and the typical agreement alignment is S/O, i.e. NOM/ACC.
- Many languages show interactions between S- and O- agreement in the form of bleeding relations or hierarchy effects, which indicates that operations responsible for establishing agreement must interact with both arguments.
- A formal analysis of these patterns would have to take into consideration O-movement, the number and position of probing heads (i.e. whether both v and T or just T), and a mechanism of agreement that allows interaction with both arguments and encodes the sensitivity to case/IS/ π -values.
- Next steps towards extending the sample: See Appendix.

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Appendix 1: Next steps

- Table 1 below shows a cross-classification between the type of case alignment and the position of subject and object person agreement markers. Almost all of the combinations mentioned above exist in all types of alignments.
- Languages in the grey-coloured cells are the interesting cases to explore.
- The first row includes the languages in which the subject prefix precedes the object prefix.
- The sixth row includes languages with the opposite structure, object suffix preceding the subject suffix.
- Both of these combinations could indicate that the object was the first argument that was targeted for agreement.

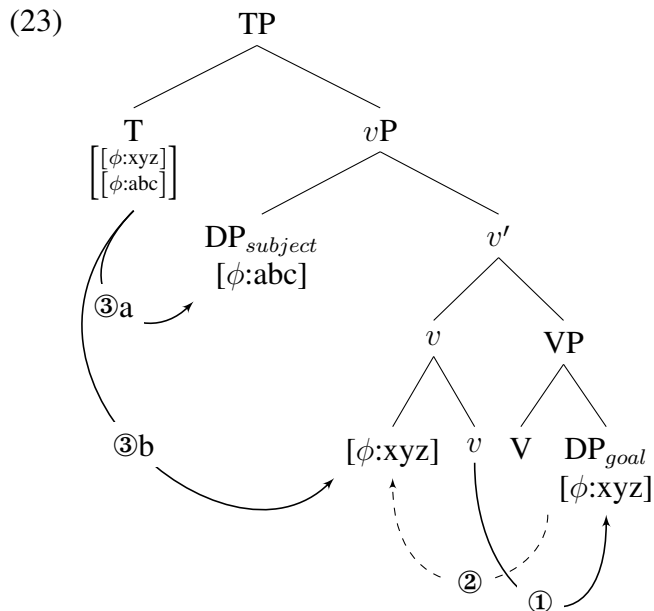
	Ergative	Accusative	Active	Split	Hierarchical	
A > P	pref.		Bororo, Cora, Hamtai, Nahuatl (Tetelcingo), Pipil, Swahili, Zulu	Ika, Oneida, Ket	Ainu, Chinook (Upper), Hixkaryana, Mizo, Nez Perce, Wambaya	
	suff.	Kapampangan	Amharic, Arabic (Egyptian), Beja, Chácobo, Greenlandic (West), Ossetic, Kurdish (Central), Kutenai, Persian Sentani, Wari'	Amuesha	Chukchi, Kashmiri	
	A pref, P suff.	Konjo	Chumash (Barbareño), Erromangan, Ewe, Fijian, Gumawana, Kilivila, Kiribati, Lango, Mbay, Muna, Otomí (Mezquital), Palauan, Tukang Besi	Acehnese, Apurinã, Arawak, Arapesh (Mountain), Campa (Axininca)		
	?	Uma	!! Abipón, Alablak, Anêm, Au, Bagirmi, Bawm, Berber (Middle Atlas), Berta, Bilin, Diola-Fogny, Doyayo, Ekari, Katla, Komo, Kongo, Koromfe, Kosraean, Lusi, Luvale, Malakmalak, Mono-Alu, Maisin, Maranungku, Marind, Murle, Nandi, Ndonga, Ngankikurungkurr, Nkore-Kiga, Nyulnyul, Paamese, Pirahã, Sahu, Tawala, Ura, Wichí, Zande, Zapotec	Larike, Wichita, Warekena, Yagua	Cayuvava, Popoloca	Mapudungun
P > A	pref.	Abkhaz, Tzutujil	Comanche, Lavukaleve, Navajo, NambikuĀřara (Southern), Slave	Tlingit	Ungarinjin, Washo	
	suff.	Basque, Jakaltek	Albanian, Amele, Asmat, Comox, Daga, Kwaza, Mundari, Purépecha, Quileute, Salinan, Takelma		Burushaski, Halkomelem (Upriver), Tsimshian (Coast)	
	P pref. A suff.	Macushi, Pãri	Georgian, Fula (Cameroonian), Tepehuan (Northern)	Dani, Koasati, Tonkawa, Tunica	Atakapa	
	?		Barai, Cahuilla, Greek (Modern), Hua, Masalit, Ngiti, Pech, Retuarã, Quechua (Imbabura), Selepet, Spanish, Squamish, Tauya, Tol, Una, Usan	Nasioi	Taiap, Turkana, Yelf Dnye	Plains Cree
Both orders		Totonac (Misantla), Lele, Siuslaw, Pitjantjatjara, Miwok (Southern Sierra), Maung, Mangarrayi, Tiwi, Kanuri	Mohawk, Yuchi, Lakota	Yukulta, Ngalakan, Yimas, Ngiyambaa	Kawaiisu, Limbu, Passamaquoddy-Maliseet	
A & P fused	Yup'ik (Central), Carib	Achumawi, Tiipay (Jamul), Jaqaru, Maba, Makah, Wardaman, Yurok, Kunama, Zoque (Copainalá), Coos (Hanis), Maricopa, Gooniyandi, Hungarian	Acoma, Guaraní		Aymara (Central), Karok, Nungubuyu	

Table 1: A cross-classification of the alignment of person marking on the verb (Siewierska 2013a) and the order of S and O affixes on the verb (Siewierska 2013b).

Appendix 2: Possible technical implementations

Some version of Interaction/Satisfaction (Deal 2015a, 2017)

- Sequential agreement with partial valuation of the Probe by the higher Goal (*Interaction*) and the continuation of the search for the rest of the unvalued features on the lower Goal (*Satisfaction*) (Deal 2015a, 2017).
- Indirect agreement: First v agrees with the closest O, moving its features to v . T searches for its unvalued ϕ -features, crucially allowing *partial valuation*. The T head interacts with the first available Goal, the S, performing Match+Copy. If this does not provide values to all the unvalued features, T can continue the search within the available phase, which will result in locating the features of the object on v , which will in turn bring Satisfaction to the Probe.
- The Interaction/Satisfaction conditions would have to be determined on a language-specific basis (e.g. case, or [Addr]). E.g. if ACC is the satisfaction condition on the Probe, it will interact with all DPs in its search domain until it hits an ACC DP, which will halt the Probe. Or a Probe specified as [INT: ϕ , SAT: Addr] will interact and pick up features from all available arguments until it hits an [Addr].
- This relies heavily on morphological processes to get the rest of the morphology right, but the syntax stays relatively unique.



Dynamic Agree domains

- ① **Multiple agreement:** multiple probes (multiple sets of unvalued features) on a single head (e.g. Georgi 2013) which initiate multiple Agree operations.
 - Such probes would have to be ordered in a particular way, but this would be an empirical issue.
 - ② **Matching + Minimality:** Fine-tuning Agree to make it sensitive to Goals of particular specification (case, definiteness, ϕ -features, c.f. Relativized Probing, Béjar 2003; Béjar and Řezáč 2009).
 - ③ **Locality:** Defining locality derivationally, in terms of *agreement paths*, not *phases*.
 - An constraint that looks promising given the patterns seen until now: Once the first Agree operation has targeted the preferred Goal, the following one can only search within the domain created by the first one (*Condition on Agree Domains*).
- A solution a that places most of the work in the syntax and requires a more restrictive mechanism of Agree.

