

Topic Agreement in Jarawara

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Abstract. In Jarawara (Arawá, Brazil), both heads C and T show ϕ -agreement with the topic of the clause. Under certain circumstances, however, C and T allow for agreement to be controlled by different arguments. Showing that agreement in Jarawara involves an interaction of ϕ -features and δ (topic)-features, I argue against the concept of feature inheritance (Chomsky, 2008; Miyagawa, 2010) by demonstrating that the typology that arises from feature inheritance does not include the topic agreement pattern in Jarawara. Instead, I propose that C and T bear distinct ϕ -probes in Jarawara, and that on C, ϕ -features and δ -features are fused into one complex probe, triggering A'-movement of and agreement with the topic argument.

1 Introduction

Jarawara belongs to a small language family known as Arauan or Arawá and is spoken in Brazil's Amazonas state by 170 speakers (as of 2004) living fairly isolated several villages along the Purus River. The language exhibits a fairly complex agreement system involving an interaction of ϕ -features and δ -features. The verbal complex in Jarawara has three agreement slots which can be controlled by different arguments depending on a number of factors. TAM suffixes as well as the declarative marker express gender agreement by vowel alternations. Additionally, the declarative marker is inflected for person and number.

In transitive clauses, agreement of the TAM marker and the declarative is controlled by the topic argument in the clause, referred to as 'discourse pivot' in (Dixon, 2004), which also tends to appear in clause-initial position. There is, however one exception to this generalization: in one particular scenario, TAM marker and the declarative agree with distinct arguments. This agreement split is observed only in contexts where the subject DP is 3SG masculine and the object DP is first or second person singular or plural and is topicalized.

In the following, I aim to provide a theoretical account of the agreement pattern observed in Jarawara. I argue that the Jarawara data can be accounted for by assuming that ϕ -features and δ -features are bundled together on C, fused into one probe, triggering A'-movement of the topic

argument as well as ϕ -agreement on C. Additionally, T bears an additional probe for gender which can be independently valued, giving rise to the split agreement in one specific configuration.

Based on this proposal, I challenge the idea of universal feature inheritance from C to T, pointing out a number of problems for feature inheritance that arise from the agreement patterns in Jarawara. More specifically, I argue that the current typology of feature inheritance types proposed in Miyagawa (2017) needs to be expanded in order to account for the agreement pattern observed in Jarawara.

The rest of this paper is structured as follows: section 2 describes the agreement system in intransitive and transitive clauses and presents the puzzle of split agreement in 3SGM \rightarrow 1/2 SG/PL context. I provide a theoretical account of the data in section 3. In section 4 I discuss implications of the Jarawara data and the proposed analysis for the concept of feature inheritance (Chomsky, 2000; Miyagawa, 2010, 2017). Section 5 concludes.

2 Agreement in Jarawara

The agreement system in Jarawara exhibits a complex interaction of gender, number and person. Jarawara is head-marking and agglutinative with complex verbal morphology. The word order is verb-final with relatively free word order of subject and object. Subject pronouns are usually dropped. Jarawara has three agreement slots in the verbal complex that can agree with different arguments. Two examples of clauses with all three markers agreeing with the subject are shown in (1). Not all verb roots can be inflected by prefixes and suffixes. Non-inflecting verbs must be followed by an auxiliary root which takes the prefixes and suffixes, as in (1-b).

- (1) a. Mee o-wakatoma-ra o-ke.
 3PL.O $\underbrace{1\text{SG.A-stare.at-IP.E}}_{\text{Prefix } f}$ $\underbrace{1\text{SG-DECL}}_{\text{Suffix } f}$ $\underbrace{f}_{\text{Declarative}}$
 'I stared at them.' (Dixon, 2004, p.421)
- b. Aba ka.kaba o-hi-ne o-ke.
 fish(m) RED.eat $\underbrace{1\text{SG.A-AUX-CONT}}_{\text{Prefix } f}$ $\underbrace{f}_{\text{Suffix}}$ $\underbrace{1\text{SG-DECL}}_{\text{Declarative } f}$
 'I eat lots of fish.' (Dixon, 2004, p.270)

The first agreement slot is a verbal prefix expressing person and number agreement. The second

slot is a TAM suffix agreeing in gender, and the third one is a declarative marker which also agrees in gender and is additionally marked for person and number. The three agreement slots differ with respect to which argument can control agreement. This is dealt with in section 2.2. I will start by first describing agreement in intransitive clauses, in which there is only one potential agreement controller available, to present the complex ϕ -agreement system in which person, number and gender features interact.

2.1 Agreement in intransitive clauses

In intransitive clauses, all three agreement slots are controlled by the subject. (2) contains a prefix 'o-' marking person, number and gender, a temporal suffix that is inflected for gender, as well as a declarative that is marked for gender and carries a person/number prefix.

- (2) Kasiro ori o-na-hara o-ke.
 a.lot paddle 1SG.A-AUX-IP.Ef 1SG-DECLf
 'I paddled a lot.' (Dixon, 2004, p. 392)

The prefix set only consists of two exponents for person/number 1SG and 2SG. All other arguments are \emptyset -marked. Additionally, there is a third prefix which can occur in this slot, namely the object topic marker *hi-/jo-* (subject to a vowel assimilation processes in some contexts). The use of this marker depends on a number of factors and is described in the section about transitive clauses, 2.2.

- (3) Verbal Prefixes
o- 1SG
ti- 2SG
hi-/jo- Object Topic marker

The second agreement slot is filled by a TAM-marker which agrees in gender with the subject. Gender agreement is indicated by vowel alternations in all TAM suffixes in Jarawara. All verbal tense, modal, aspectual and mood suffixes have distinct feminine and masculine forms with different vowels. According to (Dixon, 2004, p. 100), there is no principled basis to vowel alternations, depending on where a suffix comes within the predicate.

(4) Masculine and feminine forms of tense/modal suffixes (Dixon, 2004, p. 97)

	feminine	masculine
immediate past eyewitness (IP.E)	-(ha)ra	-(ha)re
recent past eyewitness (RP.E)	-(ha)ro	-(ha)ri
far past eyewitness (FP.E)	-(ha)maro	(hi)mari
immediate past non-eyewitness (IP.NE)	-(ha)ni	-(hi)no
recent past non-eyewitness (RP.NE)	-(he)te	-(hi)ta
far past non-eyewitness (FP.NE)	-(he)mete	-(hi)mata
intention (INT)	-(ha)bone	-(hi)bona
future (FUT)	-(ha)ba(na)	-(hi)ba(na)
irrealis (IRR)	-(he)ne	-(hi)na
hypothetical (HYPOTH)	-(he)mene	-(hi)mana
reported (REP)	-(ha)mone(he)	(hi)mona(ha)

Gender agreement in Jarawara is special in the fact that feminine is the default gender. All first and second person arguments always trigger f-agreement, independent of the gender of the cross-referenced DP. Furthermore, all plural DPs trigger f-agreement as well. Thus, m-agreement is only ever visible with masculine 3SG DPs. The examples given below illustrate this.

- (5) a. O-noko-(w)ara o-ke mata.
 1SG-be.awake-PSTf 1SG-DECLf short.time
 'I(f) lay awake for a while.' (Dixon, 2004, p. 51)
- b. Mee ∅-tafa-hemete-mone ∅-ke.
 3PL.S 3PL-eat-FP.Nf-REPF 3PL-DECLf
 'They ate.' (Dixon, 2004, p. ?)
- c. Fahas kowi-hara ∅-ke.
 water(f) be.deep-IP.Ef 3SG-DECLf
 'The water was deep.' (Dixon, 2004, p. 73)
- d. Motos ∅-hiri na-me-hibona ∅-ka.
 motor(m) 3SG-make AUX-BACK-INTm 3SG-DECLm
 'The motor needs to be mended.' (Dixon, 2004, p. 90)

In (5-a), the first person singular subject, which is pro-dropped, triggers feminine agreement on the past marker and the declarative. The declarative is also inflected for first person singular. In

(5-b), the subject is third person plural, triggering f-marking on the TAM-suffixes as well as on the declarative. The contrast between m and f 3SG DPs becomes visible if you compare (5-c) and (5-d): the feminine noun *water* is cross-referenced by feminine agreement on the TAM-suffix and the declarative in (5-c), whereas in (5-d), the masculine noun *motor* triggers masculine marking on the suffixes. With animate DPs, the agreement tracks the sex of the referent, as the contrast in (6) :

- (6) a. Jane Ø-jaka na-ra Ø-ke.
 Jane(f) 3SG-walk AUX-PSTf 3SG-DECLf
 'Jane walked.' (Dixon, 2004, p. 81)
- b. Okomobi Ø-tafi-hiri Ø-ka.
 Okomobi(m) 3SG-wake-PSTm 3SG-DECLm
 'Okomobi woke up.' (Dixon, 2004, p. 51)

The fact that f-agreement is a default form rather than real agreement with a feminine feature is also supported by the agreement in interrogatives, where there is no information about the gender of the wh-moved argument. In these cases, the interrogative suffix is marked for feminine:

- (7) Himata Ø-ama Ø-ri(ha)?
 what 3SG-be 3SG-INTf
 'What is it?' (Dixon, 2004, p. 286)

2.2 Transitive Clauses: Topic Agreement

In transitive clauses, when there are two DPs that could potentially be cross-referenced, the agreement controller is determined by topicality and prominence in the discourse. Agreement with the TAM-markers in gender and the declarative in person, number and gender cross-references the topic argument. This argument is usually fronted, though there is some variability in word order. Dixon (2004) refers to this alternation as *A-constructions* (subject = topic) and *O-constructions* (object = topic) and describes their properties as summarized in (8):

(8) A-Constructions and O-Constructions (Dixon, 2004, p. 87)

A-Construction	O-Construction
- Agent is topicalized	- Patient is topicalized
- Agent is fronted (SOV)	- Patient is fronted (OSV)
- Agreement with Agent	- Agreement with Patient
	- OT-marker in 3→3 scenarios

If the agent/subject is topicalized, it tends to appear in clause-initial position preceding the object¹, and controls agreement of the TAM-marker and the declarative. In a clause with a topicalized patient/object, agreement of the postverbal agreement slots is controlled by the patient, which then appears clause-initially. The minimal pair in (9) illustrates this contrast. The clause has two 3SG DPs with different gender specifications. In (9-a), the agent subject *Okomobi* is fronted and topicalized, cross-referenced by the TAM-suffix and the declarative, which appear in the masculine form. In contrast, in (9-b), the patient object DP *my cangati* appears in clause-initial position and triggers feminine agreement on the suffixes. The declarative does not show overt agreement in person and number in both examples because third person is \emptyset -marked.

- (9) a. Okomobi [oko siraba] \emptyset -kaba-hino \emptyset -ka.
 Okomobi(m) 1SG.POSS cangati(f) 3SG-eat-PSTm 3SG-DECLm
 'Okomobi_{Topic} ate my cangati.'
- b. [Oko siraba] Okomobi jo-kaba-ni \emptyset -ke.
 1SG.POSS cangati(f) Okomobi(m) OT-eat-PSTf 3SG-DECLf
 Okomobi ate my cangati_{Topic}. (Dixon, 2004, p. 439)

(Dixon, 2004, p. 423) exemplifies the role of the discourse topic of the *A-construction* and *O-construction* in sixteen short passages, for which he demonstrates how agreement of the suffixes tracks the pivot of the discourse.

The verbal prefix, however, differs from the suffixes in that it does not track topicality. Instead, it always agrees with the subject of the clause, independent of its topicality. This is shown in the minimal pair in (10):

¹The word order properties are tendencies. A topic agent appears in fronted position in 85% of cases, a topic patient is fronted 73% of the time (Dixon, 2004, p. 388).

- (10) a. Afiao ati o-mita-ra o-ke.
 plane(m) noise [1SG]-hear-PSTf 1SG-DECLf
 I_{Topic} heard the plane's noise (I was listening for it)
- b. Afiao ati o-mite-no Ø-ka.
 plane(m) noise [1SG]-hear-PSTm 3SG-DECLm
 I heard the plane's noise_{Topic} (unexpectedly) (Dixon, 2004, p. 206)

Both clauses contain a first person subject and a third person singular masculine object. In (10-a), the subject is the topic of the clause, cross-referenced by the prefix as well as the suffixes. In (10-b), the object topic triggers m-agreement on the suffixes and the declarative. However, the prefix still cross-references the non-topic subject here, just as it does in (10-a) as well as in intransitive clauses. In other words, the agreement controller of the verbal prefix is the same in both transitive and intransitive clauses and is not sensitive to topicality, as opposed to the suffixes and the declarative.

Additionally, there is a prefix *hi-/jo-* that is only used in transitive clauses with two third person singular arguments and when the object is topicalized. The prefix occupies the same slot as the agreement prefixes and can be observed in (9-b). Dixon (2004) calls this prefix *object construction marker*; I will refer to it as *object topic marker*. This marker occurs in contexts in which both arguments are third person and the object is the topic. This makes it reminiscent of an inverse marker in languages with hierarchy-based agreement systems. It is, however, only used in 3 → 3 scenarios and plays no role in scenarios with local (1/2 PERSON) arguments involved.

It is important to note that both scenarios (subject topic and object topic, or *A-construction* and *O-construction* in (Dixon, 2004) are in fact fully transitive. (Dixon, 2004, p. 421) himself argues against a 'passive analysis' in which subject clauses are taken as the canonical 'active' construction, and the object topic clauses as a derived passive. In contrast, in the 'antipassive analysis' the object topic clauses could be analysed as the canonical 'active' construction, and object topic clauses as a derived antipassive. The main argument against these kind of approaches is that neither of the constructions involves demotion of a core argument DP, as well as no morphological reflex of passivisation/antipassivisation (with the exception of the OT-marker in the passive analysis).

Haude and Zuniga (2016) compare Jarawara to other languages that possess more than one transitive construction involving an actor and an undergoer argument, namely direct-inverse systems, on the one hand, and symmetrical-voice (or Philippine-type voice) systems, on the other. They catego-

alize it as a 'hybrid type', fitting not all properties of either option. Inverse systems are based on a hierarchy involving factors such as person (*SAP* > 3), animacy (*human* > *nonhumananimate* > *inanimate*), or grammatical features (*possessed* > *unpossessed*). When direction of action goes from a participant that ranks higher in such a hierarchy towards a lower-ranking one, the direct construction is chosen (with an unmarked or direct-marked verb). When the action goes in the opposite direction, the inverse construction is chosen (with inverse marking on the verb). Farrell (2005) first proposed this idea for Jarawara based on the prominence hierarchy proximate > obviative. However, the author himself notes some problems for this account, for example that the first agreement slot is reserved for the agent, independent of topicality features of the arguments. Also, the inverse marker under this approach is restricted to 3 → 3 contexts. Thus, inverse voice would in some cases be indicated by the gender agreement on the TAM suffixes only. (Dixon, 2004, p. 422) himself actually compares the Jarawara agreement pattern to symmetrical voice systems observed in many Austronesian languages, in which the topic or focus argument is cross-referenced by voice morphology on the verb. However, as opposed to Jarawara, those languages do not show ϕ -agreement. Also, Austronesian-type voice system usually involve a distinction between more than two voices.

2.3 The Puzzle: Split Agreement

As shown above, verbal suffixes agree with the topic DP in transitive clauses, whereas the verbal prefix agrees with the subject. There is, however, one constellation in which the agreement of the TAM-suffixes and the declarative can be split between subject and object. This is the case in scenarios where the subject is 3SG masculine and the object is first or second person singular or plural (triggering f-agreement), and the object is the topic of the clause. In this case, the declarative agrees in person, number and gender with the object topic, as expected for transitive clauses with an object topic. The TAM marker, however, exceptionally agrees with the 3SG masculine subject. Examples are given in (11) below.

- (11) a. Owa [jomee habo ni] \emptyset -tafi-are o-ke.
 1SG.O dog(m) bark AUX.COMP 3SG-waken-PST**m** 1SG-DECL**f**
 'The dog's barking woke me_{Topic} up' (Dixon, 2004, p. 51)
- b. Owa inohowe fito \emptyset -ka-ne-hina o-ke.
 1SG.O alligator(m) grab 3SG-APPL-AUX-IRR**m** 1SG-DECL**f**
 'The alligator might have grabbed me_{Topic} (if it had been alive).' (Dixon, 2004, p.

441)

- c. Owa Ø-iti-ma-re o-ke.
1SG.O 3SG-take-BACK-PST2m 1SG-DECLf
'He took me_{Topic} back.'

(Dixon, 2004, p. 108)

In (11-a), the object is a 1SG pronoun; the head of the subject DP is a masculine 3SG noun. The verbal prefix agrees with the 3SG subject (being Ø-marked). The declarative agrees with the object topic and is marked for 1SG and feminine gender, since first person triggers the unmarked f-agreement. The past marker, however, is marked for masculine gender, cross-referencing the masculine subject. This agreement split between the TAM marker and the declarative only arises in 3SG.m → 1/2 SG/PL topic scenarios. In the reverse scenario with an 1/2 SG/PL subject and a 3SGm topic object, both TAM marker and declarative transparently agree with the topic object, being marked for masculine gender and Ø-marked for third person:

- (12) Otaa Ø-awa-re-ta Ø-ka.
1PL.A 1PL-see-NEG-PST3m 3SG-DECLm
'We didn't see him_{Topic}.'

(Dixon, 2004, p. 426)

(13) summarizes the agreement controllers of the postverbal elements (TAM marker and declarative). If the subject is the topic, all agreement is controlled by subject. In clauses with an object topic, the object controls agreement of both elements, except in the split agreement pattern (shaded in grey). Here, we exceptionally get agreement of the TAM-marker with the subject.

(13) Agreement patterns in transitive clauses

Topic	Scenario	Agreement controller on	
		TAM	DECL
	Subj → Obj		
Subj	1/2→3	Subj	Subj
Subj	3 →1/2	Subj	Subj
Subj	3 →3	Subj	Subj
Obj	1/2→3	Obj	Obj
Obj	3→1/2	Subj	Obj
Obj	3 →3	Obj	Obj

3 Analysis

Agreement systems involving an interaction of topic features and ϕ -features have been described for other languages. First of all, in many Austronesian languages, e.g. Tagalog (Richards, 2000); the discourse-prominent topic argument is fronted and cross-referenced on the verb by voice morphology. In Dinka (van Urk, 2015), the complementizer ϕ -agrees with whatever argument is target of A'-movement. The Italian dialect Ripano (D'Allessandro, 2020) also shows an interaction of ϕ -features and discourse features, with verbs, adverbs, and postpositions agreeing in ϕ -features with the topic DP of the clause.

However, none of the existing accounts that have been proposed for the languages mentioned above can be directly applied to Jarawara. Jarawara is different from Dinka and Ripano in that it has more than one verbal agreement slot, and the agreement on the complementizer and T-level affixes can be controlled by different arguments. The analysis I will introduce in this section is based on the idea of *Strong Uniformity* (Miyagawa, 2010), according to which every language contains the same set of grammatical features, including ϕ -features and the discourse features of topic and focus, which start out on C and then may or may not be inherited by T (cf. section 4 on feature inheritance). I propose that the C head is equipped with a complex joint probe consisting of information structural features and ϕ -features, which must be valued by features by one and the same argument. Additionally, T bears an independent gender probe which can be valued independently of C.

I will start by laying out my assumptions about the mechanism of *Agree*, feature specifications and probes in 3.1 and then go through the derivation for each agreement scenario in 3.2.

3.1 Setting up the system

I assume that all arguments are specified for a 1, 2 or 3 person feature. That is, I assume a featural representation for 3rd person (as opposed to the assumption that 3rd person is just 'the lack of features'). The number features [SG] and [PL] mark singular and plural arguments respectively. As for gender, I assume a [m] feature for masculine which can only appear on 3SG arguments. All other arguments do not have a gender specification, giving rise to default f-agreement with non-3SGm arguments. I assume the A'-feature [Top] to be located on topic arguments.

- (14)
- a. Person Features
 - [1] 1st Person
 - [2] 2nd Person
 - [3] 3rd Person
 - b. Gender Features
 - [m] masculine (only appears on 3SG arguments)
 - feminine
 - c. Number features
 - [SG] singular
 - [PL] plural
 - d. Topic feature
 - [Top] topic (on topic argument)

I adopt a probe-goal approach of Agree (Chomsky, 2000; ?), where unvalued phi-features on a functional head ('probes') search the tree downward or upward for a matching goal (valued phi-features). Matching of features triggers the operation Agree, a standard version of which is given below in (15) and (16):

- (15) **Downward Agree** (Chomsky, 2001) α can agree with β iff:
- a. α carries at least one unvalued and uninterpretable feature and β carries a matching interpretable and valued feature.
 - b. α c-commands β .
 - c. β is the closest goal to α .
- (16) **Upward Agree** (Zeijlstra, 2012) α can agree with β iff:
- a. α carries at least one unvalued and uninterpretable feature and β carries a matching interpretable and valued feature.
 - b. β c-commands α .
 - c. β is the closest goal to α .

Agree can be bidirectional (Baker, 2008) and the direction depends on the configuration.. In Jarawara, I assume the directionality of Agree to be a head-specific property, meaning that every head is specified for agreeing either upwards or downwards. Further restrictions on *Agree* are (i) the *Phase Impenetrability Condition* (cf. (17)) requiring all syntactic operations to apply strictly local, and (ii) the idea that agreement is fallible, proposing that when an unvalued probe fails to find a suitable goal, values are simply filled in by default in the morphology.

(17) **Phase Impenetrability Condition** (Chomsky, 2004)

Only the edge of a phase (ν P, CP) is accessible to operations.

(18) **Failed Agree** (Preminger, 2014)

Agreement is fallible. If a probe cannot be valued by any corresponding feature, a default value is inserted.

Turning to the location of the three agreement slots in clause structure, I assume the agreeing TAM markers to be located on T in form of a gender probe searching downwards. Since the verbal prefix is not sensitive to topicality but always agrees with the subject, I assume this agreement to be ν P-internal, located on ν , agreeing upwards with the subject in its specifier. C is the locus of the declarative which always shows agreement with the topic argument in person, number and gender. The fact that agreement on C is always with the topic argument in person, number and gender suggests the existence of probes for exactly those features on C that can only be valued by the topic argument, which then undergoes A'-movement to SpecC, yielding the word order with the topicalized argument in clause-initial position. In order to capture this restriction, I adopt the concept of a *fused probe* (Coon & Bale 2014) on C that comprises of phi-features as well as the A'-feature [Top]. Coon and Bale (2014) argue that for agreement systems showing complex interactions of different features, probes can be fused on one head. In their analysis of Mi'gmaq (Algonquian) they posit a person (π) probe, person features, and a number (#) probe, searching for [pl] features; however, these probes are fused on one syntactic head. Fused probes search simultaneously, and they jointly determine the result for the search of the whole complex probe. Valuation of the sub-probes by different arguments is ruled out. Thus, in Jarawara, C bears a fused probe [uTop, u π , u#, uG] that searches for topic, person, number and gender simultaneously. It agrees with the argument that can value as many of the sub-probes as possible; if two arguments are able to value the

same amount of probes, the closest goal is agreed with. The formal implementation of this is given in (19): each potential agreement goal is assigned a potential match of rank n from 0 to 1, based on its ability to satisfy the components of the fused probe, 1 is a perfect match with the features in the probe and 0 is a complete lack of a match. Numbers in between mark partial matches. The highest ranked constituent is ultimately targeted for agreement. If there are no arguments of the highest rank, the probes do not fail. Rather, they target the closest argument that has the features of the next highest rank.

- (19) a. **Match of Rank n** (Coon and Bale, 2014, p.99)
 A syntactic object σ with the features $[f_1 \dots f_i]$ constitutes a match of rank n for a probe ρ with features $[g_1 \dots g_j]$, where $n = |\{f_1 \dots f_i\} \cap \{g_1 \dots g_j\}| / |\{f_1 \dots f_i\}|$
- b. **EPP Best Match** (Coon and Bale, 2014, p.99)
 A probe σ with an EPP feature and a search domain D moves the closest syntactic object in D with a match of the highest rank n

The positions of all probes is summarized in (20): the verbal prefix is located on v and bears two independent probes for the features person and number. T bears a gender probe, and C bears a fused probe consisting of subprobes for the features topic, gender, number and person:

(20) Probes

v	T	C
$[u\pi], [u\#]$	$[uG]$	$\left[\begin{array}{c} uTop \\ u\pi \\ u\# \\ uG \end{array} \right]$

Regarding the directionality of probing, I assume that v is the only head that is parametrized for upward agree, in order to account for the agreement of the verbal prefix with the subject. The probes on C and T both probe downwards.

- (21) Directionality of Agree in Jarawara
- a. *v* agrees *upwards*
 - b. T agrees *downwards*
 - c. C agrees *downwards*

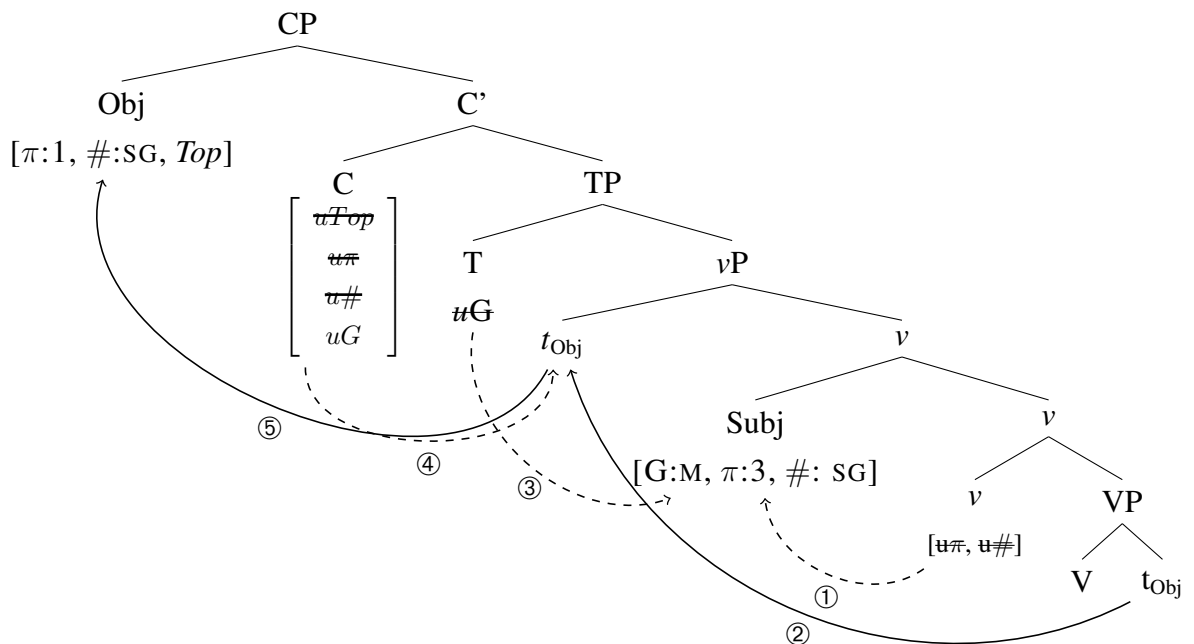
3.2 Derivations

In what follows, I will provide a step-by-step derivation of the agreement patterns that are observed with subject topics, object topics as well as the unexpected split agreement pattern. I will start with the split agreement pattern, showing the derivation of (11-c), repeated in (22):

- (22) owa iti-ma-re o-ke
 1SG.O take-BACK-PST2m 1SG-DECLf
 'He took me_{Topic} back.'

In this example, the declarative agrees in person, number and gender with the topic object, as expected for transitive clauses, however, the past marker agrees in gender with the subject.

- (23) 3SGm → 1/2 SG/PL topic



As a first step, *v* probes upwards for person and is valued by the person feature on the subject. The

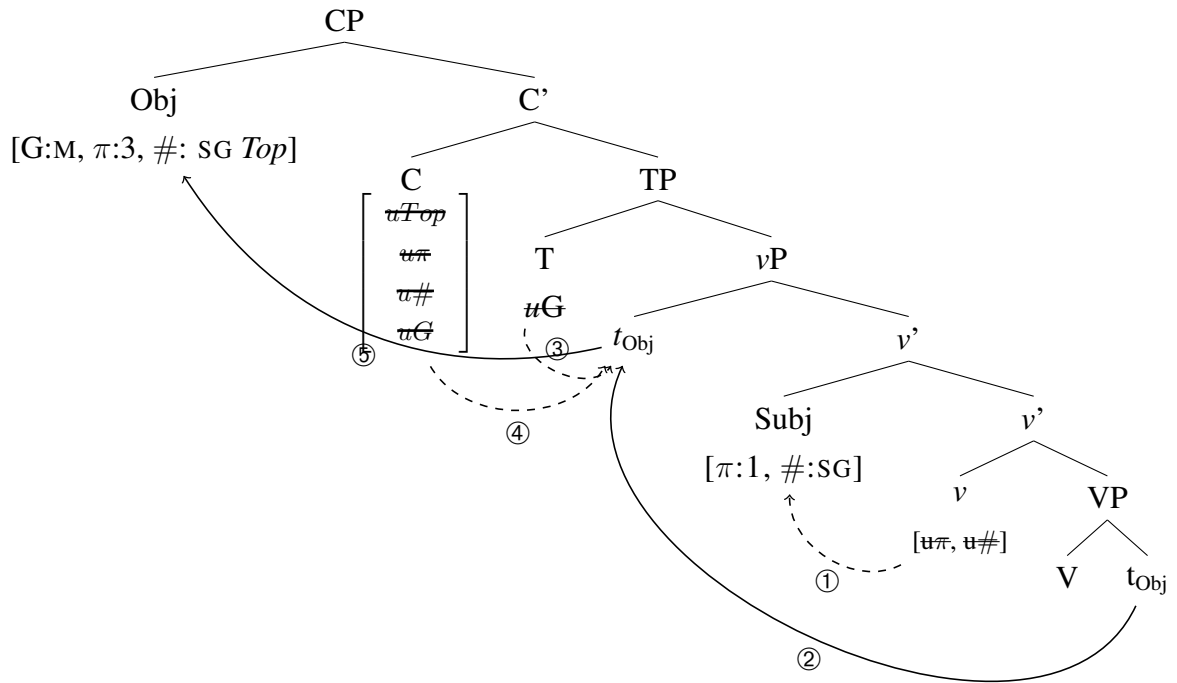
object, bearing the A'-feature [Top], then raises over the subject to an outer ν P specifier by means of an edge feature on ν , as an intermediate movement step for successive-cyclic A'-movement. Subsequently T is merged and probes for gender. Since the object does not bear a gender feature, the [m] feature on the subject is the closest goal for the probe on T to agree with. After the probe on T has been valued, C is merged and the fused probe starts search. Both arguments can value an equal amount of subprobes, and are thus assigned the same match of rank according to (19-a). The agreement goal is now determined by closeness: since the object is the closer to C, it is chosen as the agreement target. The object values [$uTop$], [$u\#$] and [$u\pi$], leaving the gender probe unvalued. Since the probe is fused, uG cannot agree with the lower subject bearing an m feature. This failure to agree leads to default feminine insertion. The agreement split thus arises from the fact that when T is merged, the masculine gender feature is available for agreement on the subject, at the edge of ν P. This is unique to the scenario $3m \rightarrow 1$ Topic since in all other scenarios, the argument bearing the gender feature is either the topic itself, or too low embedded in the ν P phase for the T-head to carry out agreement.

I will now turn to the reverse scenario, where the subject is first (or second) person, and the object is 3SGm and serves as the topic argument. The corresponding example is (12), repeated in (24):

- (24) Otaa \emptyset -awa-re-ta \emptyset ka.
 1PL.A 1PL-see-NEG-PST3m 3SG-DECLm
 'We didn't see him_{Topic}.' (Dixon, 2004, p. 426)

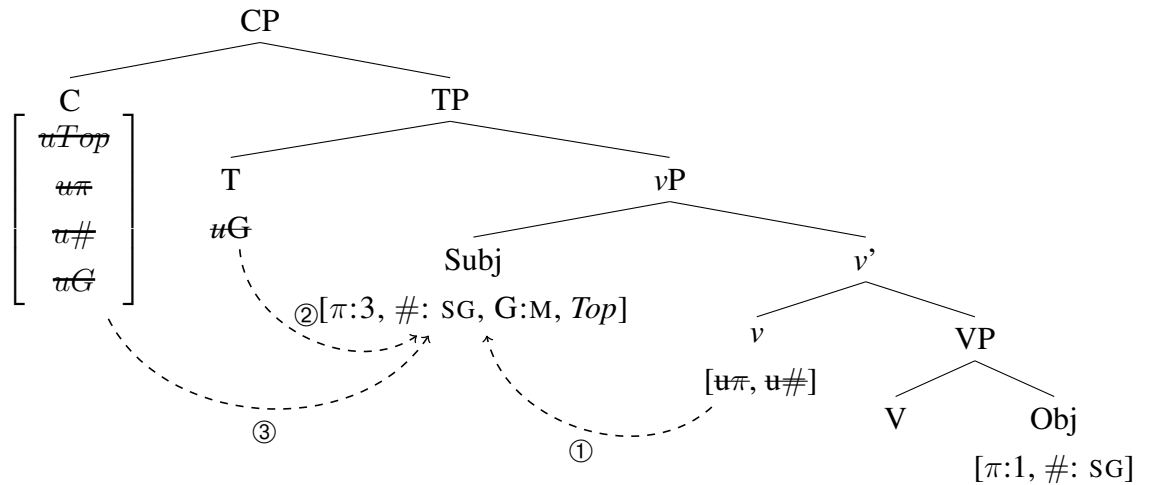
The derivation is parallel to (23) until the point where C is merged: just as in (23), the person probe on ν probes upwards and is valued by the subject. Again, the object, bearing a topic feature, moves above the subject to a outer specifier of ν . T probes for gender and is valued by the closest goal bearing an [m] feature, which is the object. When C is merged the fused probe starts search. Now a situation arises in which, as opposed to (23), the object can value all probes on the fused probe on C, resulting in agreement of C with the object.

- (25) 1/2 SG/PL \rightarrow 3SG topic



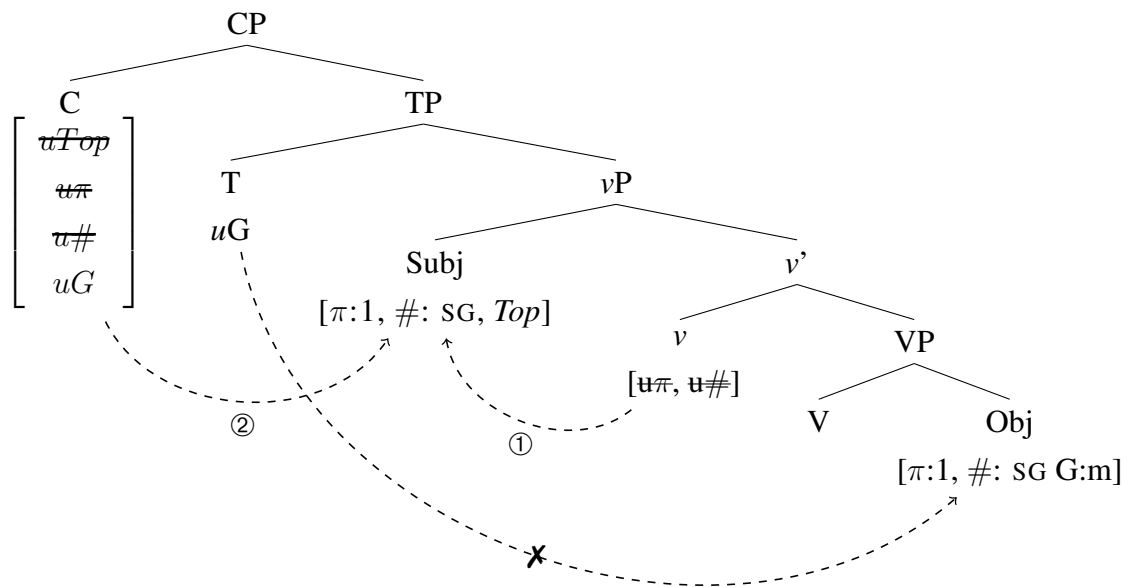
Let us now look at what happens if the topic feature is located on the subject. In this case, agreement of all three slots is with the topic subject. This follows straightforwardly from the fact that the object stays in its base position inside the vP phase and does not move above the subject. Therefore it is not accessible for agreement with C and T. If the subject is 3SG masculine, the probe on T can be valued by the masculine feature on the subject, and the fused probe on C is totally matched by features of the subject. This derivation is shown in (26).

(26) 3SGm topic → 1/2 SG/PL



If the subject topic is 1/2 SG/PL and the object is 3SGm, both arguments carry an equal amount of probes which could potentially value the fused probe, but since the subject is closer, it is chosen as the agreement goal for C. The topic probe and the person probe are valued by the subject, while the gender probe remains unvalued and thus receives the feminine default. The gender probe on T cannot find a gender feature on the subject, and the object is too deeply embedded in the vP phase for the probe on T to carry out agreement with it. Therefore, this gender probe also remains unvalued, leading to default f insertion.

(27) 1/2 SG/PL topic → 3SGm



4 Implications for Feature Inheritance

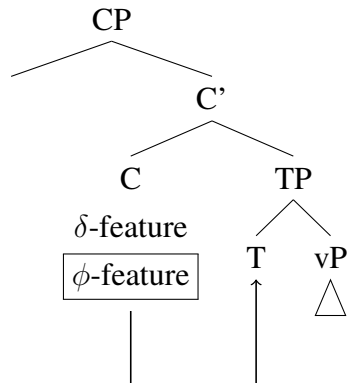
The relationship between the heads C and T has been analysed by means of the concept of *feature inheritance*, according to which features of T originate on the phase head C and are passed down to T (Chomsky (2000, 2001), Richards (2007), Miyagawa (2017)). This idea assumes that T inherently lacks probing features and cannot initiate operations directly or independently of C. Consequently, T cannot operate as a probe until C is introduced into the derivation.

The particular type of feature inheritance is assumed to be a language specific property and Miyagawa (2010, 2017) assumes this to be the factor that conditions whether a language is agreement driven or discourse configurational. He classifies languages into four different types, depending on which feature set (ϕ or δ) is inherited by T, giving rise to the typology in (28):

- (28) Types of feature inheritance Miyagawa (2017)
- | | | | | |
|----|--------------------|-------------------|----------|----------------------------------|
| a. | $C_\phi,$ | T_δ | Japanese | inheritance of δ |
| b. | $C_\delta,$ | T_ϕ | English | inheritance of ϕ |
| c. | C, | $T_{\phi/\delta}$ | Spanish | inheritance of ϕ & δ |
| d. | $C_{\phi/\delta},$ | T | Dinka | no feature inheritance |

The type of feature inheritance makes predictions about the agreement system of a language. If a language is agreement prominent, as type (28-a), ϕ -features are inherited by T from C, but discourse features will remain on C. As a consequence, the language will have ϕ -agreement with the verb triggering movement to SpecTP. This is the case in most indoeuropean languages, including English:

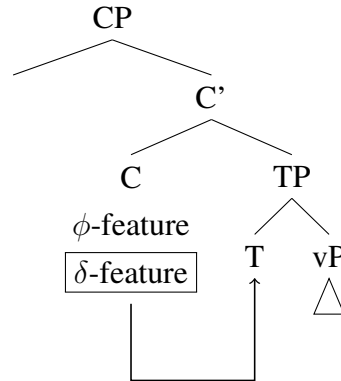
- (29) Agreement-based language (English, (Miyagawa, 2017, p. 4))



If a language is discourse prominent, like Japanese, the discourse probe under C will be inherited

by T and in trigger movement of a constituent with the same discourse feature to SpecTP:

(30) Discourse-configurational language (Japanese, (Miyagawa, 2017, p. 4))



Categories (28-c) and (28-d) do not select for one feature set to be inherited. Instead, in Spanish, all features perlocate down to C. It is thus both agreement and discourse prominent, meaning that it shows ϕ -agreement of the verb, but also discourse-driven movement to SpecT (Miyagawa, 2017; ?). In Dinka, both feature sets remain on C, yielding overt ϕ -agreement on the complementizer and discourse-driven movement to SpecCP.

The agreement pattern in Jarawara presents a challenge for the existing typology of feature inheritance since it does not fit into any of the categories proposed by Miyagawa (2010). Jarawara does not fit into this typology for several reasons. First of all, it shows ϕ -agreement on both heads C and T, suggesting that two sets of ϕ -features on C and on T are involved, which are are completely independently valued. This seems contadictory to the idea that ϕ -features either stay on C or are passed down to T (and as a consequence, are not present on C anymore). Secondly, only a subset of the ϕ feature set that is present on C is also present on T. T only bears a probe for gender, whereas C is equipped with a full ϕ -probe consisting of person, number and gender. As a consequence, a feature inheritance approach to the relationship between C and T can unly be upheld for Jarawara under the following conditions:

- (31)
- 1.Feature inheritance of T does not necessarily lead to the deletion of the inherited features on C
 - 2.Inheritance of subprobes out of fused probes is possible
 - 3.Inheritance of ϕ -features can be partial

First of all, it is not well-defined whether features disappear from C after they are discharged to T

or they remain active on C. The typology proposed in Miyagawa (2010) seems to be based on the assumption that probes that are inherited by T consequentially disappear on C and are thus only once represented in the structure, namely on the recipient of inheritance. The fact that Jarawara has two overt loci of agreement on C and T, which can actually be controlled by distinct DPs (ruling out the possibility of pure morphological copying), is problematic for a model of feature inheritance that works with the assumption that features which are inherited by T are subsequentially deleted on C.

The second problem concerns the nature of the 'fused probe' on C, and its properties in terms of being able to pass on only selected subprobes to T. Fused probes are based on the idea that they consist of unvalued features that are linked together, not being able to probe independently. Instead, they are only able to be valued jointly as one, agreeing with the same goal, the subprobes being part of an algorithm that selects the optimal agreement goal. This fused nature of the probe on C, the subprobes of which can only carry out syntactic operations as one joint unit, seems counter-intuitive to the idea that selected subprobes can be inherited by T. This raises questions about the properties of a 'fused probe' and how much independence their subprobes have for syntactic operations such as feature inheritance, but also about the exact mechanism that transfers single probes down to T, and the question how the system determines the exact features that are inherited by T.

Problem number 3 is closely related to problem number 2: The typology proposed by Miyagawa (2010) relies on a formal distinction between ϕ -features and δ -features, assuming that either the ϕ -set or the δ -set (or both sets simultaneously) may be inherited by T, but not only parts of those feature sets. Jarawara poses a challenge to this binary division of features into ϕ and δ feature sets because on C, ϕ -features and δ -features act as one fused probe on C, and only a gender probe is present on T. The concrete mechanism that selects the exact probes that are inherited by T is not defined at this point. and the typology in (24) does not specify how the system chooses which probe (or even subprobe of a fused probe) is passed on to T.

The problems presented above clearly show that agreement in Jarawara is difficult to account for within the current model of feature inheritance. In order to account for the Jarawara data, the properties of feature inheritance need be parametrised further, giving rise to a broader typology of languages. I therefore propose that Jarawara constitutes a fifth type, in which no features are inherited, analogous to Type (27-d), with the difference that T is equipped with an independent gender probe:

(32) e. $C_{\delta/\phi}$, T_G Jarawara no feature inheritance

In order to argue that the gender probe on T has actually been inherited from C, the model of FI needs to make more specific assumptions about the mechanism that selects the probes to be inherited by T and/or deleted on C. Additionally, the issue of fused probes on C and their ability to pass on subprobes to T needs to be investigated further.

5 Conclusion

I have shown that in Jarawara transitive clauses, agreement of both heads C and T in person, number and/or gender is controlled by the topic argument, which appears in clause-initial position. In one person constellation, however, the T head exceptionally agrees with the non-topic subject of the clause, whereas C transparently agrees with the topic object. I propose an probe-goal based account of these data, arguing that C bears a fused probe (Coon and Bale, 2014) that comprises of ϕ -features as well as δ -features, probing jointly for the topic argument and leading to ϕ -agreement on the complementizer. Additionally, T bears its own gender probe independent from C. This system is able to derive topic agreement in transitive clauses as well as the agreement split between C and T in 3SG \rightarrow 1/2 SG/ scenarios.

This proposal imposes a challenge for the concept of *feature inheritance* (Miyagawa, 2010, 2017), according to which probes originate on C and may or may not be inherited by T. Contrary to languages like Spanish or English (Miyagawa, 2017), the T head in Jarawara does not seem to inherit the full set ϕ -features, which is then deleted on C. Instead, there are two independent gender probes on C and T which can be valued by different arguments, the gender probe on T being a subset of the ϕ -feature bundle on C. Thus, Jarawara does not fit into the existing typology of languages proposed by Miyagawa 2017, in which languages are parametrised to either having ϕ or δ features inherited by T. I therefore propose that in Jarawara, no features are inherited by T; instead, it bears its own independent gender probe.

One issue that remains open is the status of the object topic marker *hi-/jo-*, which is prefixed to the verb in 3 \rightarrow 3 scenarios if the object is topicalized. This affix seems to mark a specific type of relationship between arguments similar to inverse marking in other languages. I have no solution for how to account for this affix, but interestingly, Coon and Bale (2014) in their analysis of Mig'maq have a similar affix that is reminiscent of an inverse marker that they cannot account

for. This suggests that there might be an underlying common ground for this problem that still needs to be identified.

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Abbreviations

1	first person
2	second person
3	third person
A	agent
AUX	auxiliar
COMP	complement clause
CONT	continuative
DECL	declarative
E	eyewitnessed
HYPOTH	hypothetical
INT	interrogative
IRR	irrealis
NEG	negation
POSS	possessive
RED	reduplication
REP	reportative
SG	singular
IP	immediate past
FP	far past
NE	non-eyewitnessed
RP	recent past
PST	past
O	object
OT	object topic marker
f	feminine
m	masculine