

Closest Conjunct Agreement is an Illusion^{*}

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1 Introduction

Problem: Closest Conjunct Agreement seems to be sensitive to linear proximity instead of hierarchical structure and c-command. To deal with this, recent approaches either have to complicate the Agree mechanism to circumvent Minimality violations, or to make reference to linearity, and very often to assume different mechanisms for Resolved Agreement and Closest Conjunct Agreement.

Claim: We argue that all patterns of conjunct agreement in Serbo-Croatian result from the interaction of syntactic operations, which shows that the linear ‘closeness’ aspect of the so-called *Closest Conjunct Agreement* is in fact an illusion.

- All patterns of conjunct agreement are derived in narrow syntax, from the order in which the basic operations Agree, Merge and Move apply at &P, and subsequently, TP.
- Depending on the order of the operations, the &P can inherit and project the features of both, one, or none of its arguments.
- Result: the impression of agreement with a single conjunct is in fact agreement with a whole conjunct phrase which has inherited the features of only one of its conjuncts.
- Repeating a given order of operations applied inside the &P at later cycles of the derivation makes correct predictions about the possibility for each pattern to occur either pre- or postverbally.
- Thus, we arrive at a principled analysis of conjunct agreement, which predicts the attested patterns and rules out the unattested ones, avoiding many of the problems associated with recent analyses.

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2 Outline

- ① Patterns of conjunct agreement in Serbo-Croatian
- ② A note on the theory so far
- ③ Main assumptions required for our analysis (cf. Puškar & Murphy 2014)
- ④ Deriving the patterns of conjunct agreement, focusing on Closest Conjunct Agreement
- ⑤ Conclusions

3 Patterns of conjunct agreement in Serbo-Croatian

3.1 Resolved Agreement

Resolved Agreement (RA) manifests itself either as agreement with the same gender values when conjuncts match in gender, or as default agreement (masculine plural for Serbo-Croatian) when gender features on conjuncts do not match. It occurs both when the subject is pre- and postverbal.

- (1) [_{&P} Otac i sin] su gledali utakmicu.
father.MSG and son.MSG are watch.PRT.MPL game
'Father and son watched the game.' (M+M=M)
- (2) [_{&P} Sve majke i kćerke] su išle po prodavnicama.
all mother.FPL and daughter.FPL are go.PRT.FPL in shops
'All mothers and daughters went to the shops.' (F+F=F)
- (3) [_{&P} Okolnosti i vremena] su bili teški za sve stanovnike.
circumstance.FPL and time.NPL are be.PRT.MPL difficult.MPL for all inhabitants
'The circumstances and times were hard for all the inhabitants.' (F+N=M)
- (4) Priredbi su prisustvovali [_{&P} deca i učiteljice].
play are attend.MPL child.NPL and teacher.F.PL
'Children and teachers attended the play.' (M=N+F)

3.2 Last Conjunct Agreement

Last Conjunct Agreement (LCA) is the pattern of Closest Conjunct Agreement in which the verb agrees with the second/last conjunct in a preverbal subject.

- (5) [_{&P} Sva odela i sve haljine] su juče prodate.
all suit.NPL and all dress.FPL are yesterday sell.PRT.FPL
'All suits and all dresses were sold yesterday.' (N+F=F)
- (6) [_{&P} Okolnosti i vremena] su bila teška za sve stanovnike.
circumstance.FPL and time.NPL are be.PRT.NPL difficult.NPL for all inhabitants
'The circumstances and times were hard for all the inhabitants.' (F+N=N)

However, there are no attested examples of postverbal Last Conjunct Agreement or *Lowest Conjunct Agreement*:

- (7) *Juče su prodate [_{&P} sva odela i sve haljine].
yesterday are sell.PRT.FPL all suits.NPL and all dresses.FPL
'All suits and all dresses were sold yesterday.' (F=N+F)

3.3 First Conjunct Agreement

First Conjunct Agreement (FCA) is the pattern of Closest Conjunct Agreement in which the verb agrees with the first conjunct in a postverbal subject conjunct phrase.

- (8) Po dvorištu su razdragano ključale [_{&P} kokoške i pilići].
 across yard are cheerfully peck.PRT.FPL hen.FPL and chicken.MPL
 'Hens and chicken pecked cheerfully in the yard.' (F=F+M)

One marginal but attested pattern that was recorded in a small number in the survey is the pattern of preverbal FCA (i.e. *Highest Conjunct Agreement*). In this case, the verb agrees with the highest conjunct, i.e. with the first conjunct in a preverbal &P (cf. patterns in Slovenian reported by Marušič, Nevins & Badecker 2015).

- (9) [_{&P} Krave i telad] su mirno pasle po polju.
 cow.FPL and calf.N are peacefully graze.PRT.FPL across field
 'Cows and calves grazed peacefully in the field.' (F+N=F)

- (10) *Patterns of conjunct agreement in Serbo-Croatian:*

	preverbal	postverbal
Resolved Agreement	✓	✓
First Conjunct Agreement	✓	✓
Last Conjunct Agreement	✓	✗

4 Previous Accounts

Accounts so far:

- Head-initial languages: Arabic (Aoun, Benmamoun & Sportiche 1994, 1999), Polish (Citko 2004), Dutch (Koppen 2005, 2008), Slovenian (Marušič, Nevins & Saksida 2007; Marušič et al. 2015), Russian and (Serbo-) Croatian (Bošković 2009, 2010; Franks & Willer-Gold 2014).
- Head-final languages: Hindi and Tsez Benmamoun, Bhatia & Polinsky (2010) and Hindi-Urdu Bhatt & Walkow (2013).

Approaches to conjunct agreement and some problematic issues:

- All patterns are derived in narrow syntax (cf. Bošković (2009))
 - Deriving the fact that Agree in LCA targets the structurally lower conjunct without violating Minimality requires splitting Agree into subparts and invoking a repair mechanism.
 - An optional EPP feature determines the pre-/postverbal position of the &P.
 - Bošković (2009) cannot derive all the patterns attested empirically for Serbo-Croatian (and Slovenian).
- CCA is derived post-syntactically (cf. Bhatt & Walkow (2013), Marušič et al. (2015))
 - Probe-goal matching is established in syntax, but valuation is carried out post-syntactically, after linearisation.
 - In CCA, the probe receives the value of the linearly closer conjunct.
 - These accounts still face the challenge of timing of feature transfer – forcing it to happen before linearisation with RA, and after linearisation with CCA.

Challenges for the theory:

- Derive both Resolved Agreement and Closest Conjunct Agreement by the same mechanism.
- Capture the fact that Resolved Agreement seems to target both conjuncts as goals, i.e. &P as a whole, unlike Closest Conjunct Agreement.
- Explain how with Closest Conjunct Agreement, Agree seems to be sensitive to linearity rather than c-command.
- Derive the fact that the verb targets the structurally lower conjunct in Last Conjunct Agreement, without violating Minimality (by probing past the closer NP).

5 Analysis

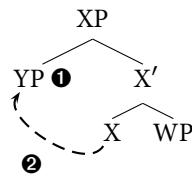
5.1 Theoretical Assumptions

5.1.1 Architecture of the System

- We assume a local, derivational model of syntax, driven by four obligatory syntactic operations (in the sense of Preminger (2014)): *External Merge* (MERGE), *Internal Merge* (MOVE), *Downward Agree* ($\downarrow\text{AGR}\downarrow$) (c-command) and *Upward Agree* ($\uparrow\text{AGR}\uparrow$) (m-command) (cf. Abels 2012).
- These operations can apply in any order. However, they will interact in different ways (e.g. *feeding*, *counterfeeding*, etc.) (Müller 2009; Georgi 2014).

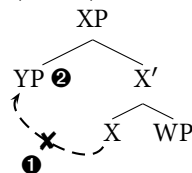
- A head X can only agree with a phrase YP in its specifier if MERGE applies before $\uparrow\text{AGR}\uparrow$ (*feeding*).

(11) MERGE \gg $\uparrow\text{AGR}\uparrow$:



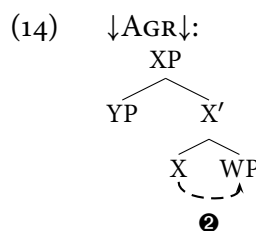
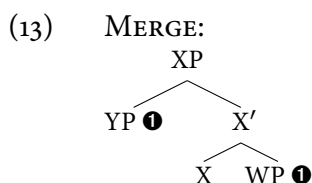
- If the reverse order were to apply, then $\uparrow\text{AGR}\uparrow$ would not find a goal since there is no YP in the specifier yet. This would therefore be an instance of *counterfeeding* of $\uparrow\text{AGR}\uparrow$ as it would have applied if the order had been the reverse.

(12) $\uparrow\text{AGR}\uparrow$ \gg MERGE:



- The operation MERGE will introduce both arguments of a head *simultaneously*, discharging all c-selectional features at once.¹
- This has the following consequences for our system: if the order of operations is MERGE \gg $\downarrow\text{AGR}\downarrow$, both arguments are first merged (13), and then $\downarrow\text{AGR}\downarrow$ applies (14).

¹Note, we do not assume that the functional sequence (C-T-v-V) is derived by c-selection. Thus Merge of T with its complement, for example, is triggered independently as assumed by Adger (2003).



5.1.2 Uniform Order of Operations

- The order of application of operations is maintained for every cycle (XP) level (cf. Assmann, Georgi, Heck, Müller & Weisser to appear):

(15) *Uniform Order of Operations:*

If the order of operations $\alpha \gg \beta \gg \gamma$ holds at a given stage of the derivation s_n , then there can be no stage of the derivation s_{n+1} which does not conform to this order.

- This means that the order of operations that applies at &P must be maintained at TP.

5.1.3 Move over Merge

(16) *Move over Merge:*

In any given order of operations, the following must hold: MOVE \gg MERGE.

- Also suggested by Chomsky (2013) appealing to Minimal Search (Chomsky 2008) and the idea that more basic operations precede more complex ones (Sanders 1974; Koutsoudas, Sanders & Noll 1974).²
- Move should be preferred over Merge as ‘it is more economical to look only at an already formed structure than to look at, not only an existing structure, but also lexical items in the numeration, or at an independent syntactic object’ (Shima 2000:376).
- The following condition on Move also holds:

(17) *Earliness Condition on Move:*

MOVE applies as early as possible and only if it has a (positive) effect on outcome (assuming (16) also holds) (cf. Chomsky 2000:294).

5.1.4 (In)Fallibility of Agree

(18) *Fallibility of ϕ -agreement:*

The derivation crashes as soon as T cannot find a goal for ϕ -agreement. (contra Preminger 2014)

- This is not necessarily the case for agreement outside of T (e.g. participle agreement in French can fail, without resulting in a derivation crash):

(19) *Participle Agreement in French* (Kayne 1989):

- a. Paul a repaint / *repaint-es les chaises
 Paul has repainted repainted-FEM.PL the chairs.FEM.PL
 ‘Paul has repainted the chairs.’ (failed v agreement)

²Internal Merge (Move) ‘is simpler, since it requires vastly less search than EM (which must access the workspace of already generated objects and the lexicon)’ (Chomsky 2013:41).

- b. Je me demande [_{CP} [combien de tables]_k Paul a *repeint /
 I me ask how.many of tables.FEM.PL Paul has repainted
 repaint-es t_k]
 repainted-FEM.PL
 'I wonder how many tables Paul has repainted.' (successful ν agreement)

- Unlike with T, the failure of the gender probe on & to find a goal does not lead to a crash.
- Agree operations on & such as $\uparrow\text{AGR}\uparrow$ and $\downarrow\text{AGR}\downarrow$ can fail to apply in certain cases (i.e. they can be *counterfed* by MERGE).
- & merges two arguments and it can afford the agreement with one of them to fail, since there is still a chance that the gender probe will receive its value from another conjunct.
- As T can only ever Merge one argument (either externally or internally), ϕ -agreement can be considered a 'one chance operation'.

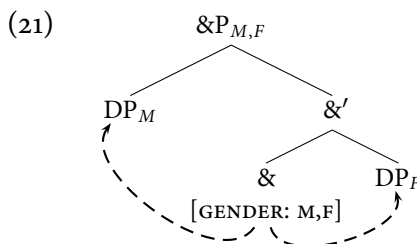
5.2 Deriving Conjunct Agreement

Recall that the patterns that we want to derive are the following:

(20) *Patterns of conjunct agreement in Serbo-Croatian:*

	preverbal	postverbal
Resolved Agreement	✓	✓
First Conjunct Agreement	✓	✓
Last Conjunct Agreement	✓	✗

We assume that the &-head bears a separate probe for gender and number (cf. Bejar 2003; Preminger 2014). Furthermore, it is possible for the gender probe on &P [$*\text{gender}:\square *$] to multiple values, which are projected to the root node as in (21):



Recall from 5.1.1 that we assumed that the order of operations is in principle free. Assuming also that MOVE applies first (or not at all), we arrive at the following possible factorial typology of operations. Each order leads to an attested pattern:

(22) *Possible orderings of operations for conjunct agreement:*

- (MOVE) >> MERGE >> $\uparrow\text{AGR}\uparrow$ >> $\downarrow\text{AGR}\downarrow$ → Resolved Agreement (preverbal)
 (MOVE) >> MERGE >> $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$ → Resolved Agreement (postverbal)
 (MOVE) >> $\uparrow\text{AGR}\uparrow$ >> MERGE >> $\downarrow\text{AGR}\downarrow$ → LCA (preverbal)
 (MOVE) >> $\downarrow\text{AGR}\downarrow$ >> MERGE >> $\uparrow\text{AGR}\uparrow$ → FCA (postverbal)
 (MOVE) >> $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$ >> MERGE → FCA (postverbal)
 (MOVE) >> $\uparrow\text{AGR}\uparrow$ >> $\downarrow\text{AGR}\downarrow$ >> MERGE → FCA (preverbal)

In the following sections, we will demonstrate the main patterns of conjunct agreement (RA, LCA, FCA) on the basis of the example (5) repeated below. The patterns we will analyse are the following:

- (23) [_{&P} Sve haljine i sva odela] su juče prodata / prodati / ?prodate.
 all dress.FPL and all suit.NPL are yesterday sell.PRT.NPL sell.PRT.MPL sell.PRT.FPL
 ‘All dresses and all suits were sold yesterday.’
- (24) Juče su prodate / prodati / *prodata [_{&P} sve haljine i sva odela].
 yesterday are sell.PRT.FPL sell.PRT.MPL sell.PRT.NPL all dress.FPL and all suit.NPL
 ‘All dresses and all suits were sold yesterday.’

Note that the same patterns were recorded in Slovenian (Marušič et al. 2015), which our account will also be able to derive.

5.2.1 Resolved Agreement

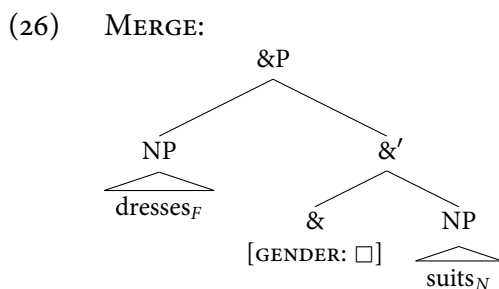
In (23) and (24), we can see that RA manifests itself as masculine plural agreement, and it can appear both pre- and postverbally. Therefore, we want to derive the fact that the values of both conjuncts are computed (in order to ‘resolve’ them with default agreement) and that movement to Spec-TP appears to be optional. Both conditions are captured by the following orders:

- (25) *Orders for Resolved Agreement:*
- (MOVE) >> MERGE >> ↑AGR↑ >> ↓AGR↓ → Preverbal RA
 - (MOVE) >> MERGE >> ↓AGR↓ >> ↑AGR↑ → Postverbal RA

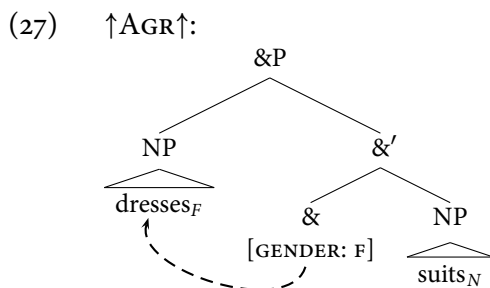
5.3 RA with (MOVE) >> MERGE >> ↑AGR↑ >> ↓AGR↓

Operations at the &P level:

- MOVE applies vacuously at the &P (no effect on outcome).
- MERGE applies, where the &-head merges its two argument NPs (26).

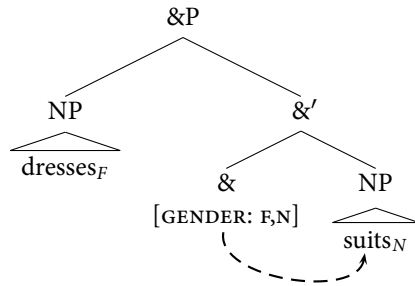


- ↑AGR↑ applies and the & head copies the gender value from the higher NP (27).



- ↓AGR↓ applies (28) and the & head copies the value from the lower NP.

(28) ↓AGR↓:



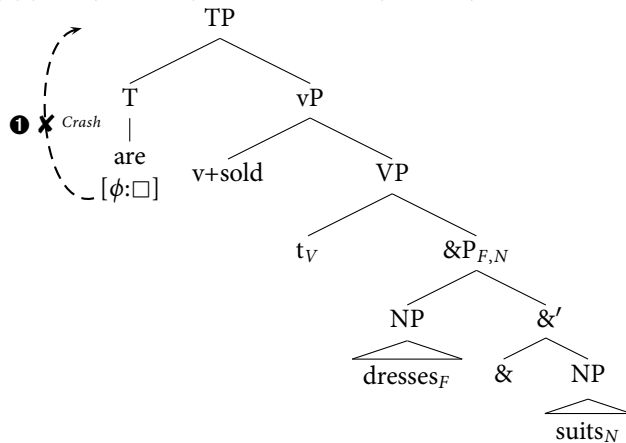
After Agree has taken place, the features of the conjuncts are present at &P and available for agreement with T. Since the values (N+F) do not match, they are resolved to masculine. We assume this is done in the post-syntactic component, via Impoverishment before Vocabulary Insertion, but leave this issue for further research.

Operations at the TP level:

Recall that MOVE will apply only if it has an effect on outcome, i.e. it can avoid a crash. MERGE applies vacuously at TP (since there is nothing in the numeration left to merge). This gives two possibilities:

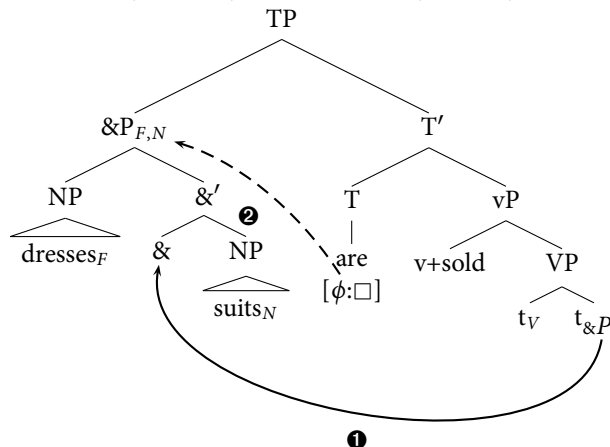
1. If MOVE does not apply, then ↑AGR↑ will probe upwards and not find a goal (since nothing has been merged in Spec-TP). This will lead to a crash, as φ-Agree on T is infallible:

(29) (MERGE) >> ↑AGR↑ >> (↓AGR↓):



2. If MOVE does apply, it will *feed* ↑AGR↑ and thereby avoid a crash:

(30) MOVE >> (MERGE) >> ↑AGR↑ >> (↓AGR↓):

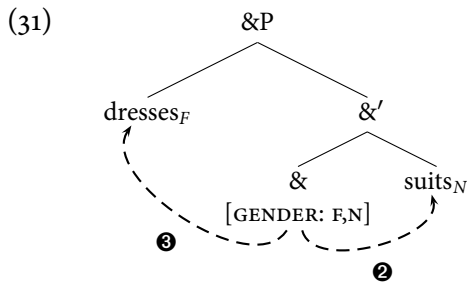


Application of MOVE is thus obligatory with this order of operations since it has to feed $\uparrow\text{AGR}\uparrow$ (that applies early). Additionally, at TP level, only one Agree operation applies, because, as mentioned before in section 5.1.4, T can only Merge (and Agree) with a single argument. As soon as the ϕ -probe finds a goal, there is no trigger for further Agree operations. The application of the other Agree is vacuous at this point.

5.4 RA with (MOVE) >> MERGE >> $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$

Operations at the &P level:

As above, MERGE feeds both Agree operations, however, both Agree operations apply in different orders. This does not have an effect at the &P level.

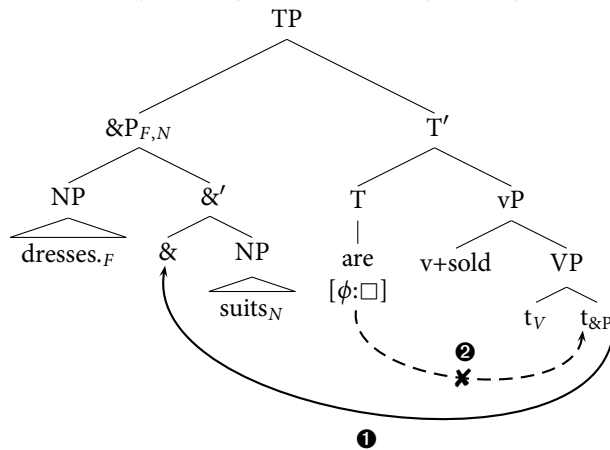


Operations at the TP level:

There are again two possibilities with respect to MOVE:

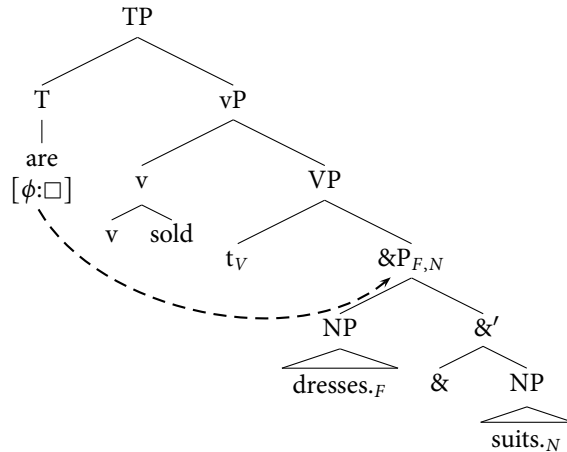
1. If MOVE applies before the vacuous application of MERGE, this would bleed $\downarrow\text{AGR}\downarrow$, as the next operation in the order of application. The derivation crashes due to failed Agree on T.

(32) MOVE >> (MERGE) >> $\downarrow\text{AGR}\downarrow$ >> ($\uparrow\text{AGR}\uparrow$):



2. If MOVE does not apply, the conjunct phrase stays *in situ* and T agrees with &P via $\downarrow\text{AGR}\downarrow$ in this position:

(33) (MERGE) >> ↓AGR↓ >> (↑AGR↑):



The application of MOVE is thus blocked with this order, as it would bleed the subsequent ↓AGR↓ operation, which would result in a crash (i.e. MOVE must have a *positive* effect on outcome).

5.4.1 Last Conjunct Agreement

We argue that the notion of linear ‘closeness’ in Closest Conjunct Agreement is illusory. What we have in Last Conjunct Agreement is agreement of T with the entire &P, which has inherited only the features of the lower NP.

Recall that LCA is only acceptable when the conjunct phrase is in preverbal position (34). It is entirely ungrammatical if the &P is postverbal (35).

(34) [_{&P} Sve haljine i sva **odela**] su juče **prodata** / prodati / ?prodate.
 all dress.FPL and all suit.NPL are yesterday sell.PRT.NPL sell.PRT.MPL sell.PRT.FPL
 ‘All dresses and all suits were sold yesterday.’

(35) Juče su prodate / prodati / ***prodata** [_{&P} sve haljine i sva **odela**].
 yesterday are sell.PRT.FPL sell.PRT.MPL sell.PRT.NPL all dress.FPL and all suit.NPL
 ‘All dresses and all suits were sold yesterday.’

The order of operations that applies in this case is:

(36) (MOVE) >> ↑AGR↑ >> MERGE >> ↓AGR↓

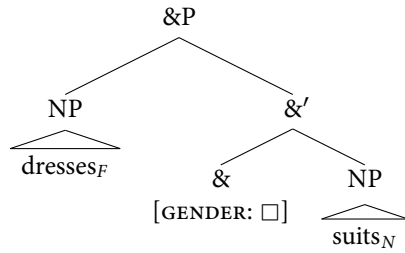
Operations at &P level:

1. MOVE does not apply at &P (no effect on outcome).
2. ↑AGR↑ applies, and since there is still no goal that this operation can target, it does not find a value.

(37) ↑AGR↑:

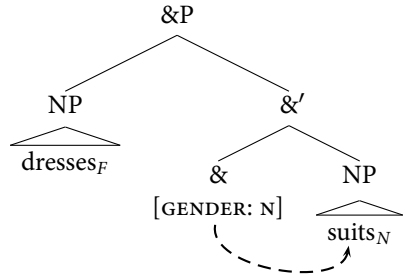
3. MERGE applies and the &-head merges its two arguments (38).

(38) MERGE:



4. ↓AGR↓ applies and the &-head receives the gender value of only the lowest conjunct (39).

(39) ↓AGR↓:



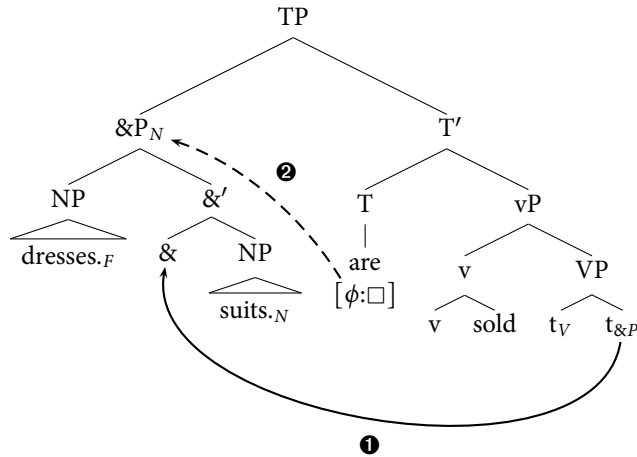
As a result, the &P node bears the features of only the second conjunct.

Operations at the TP level:

There are again two possibilities with respect to MOVE:

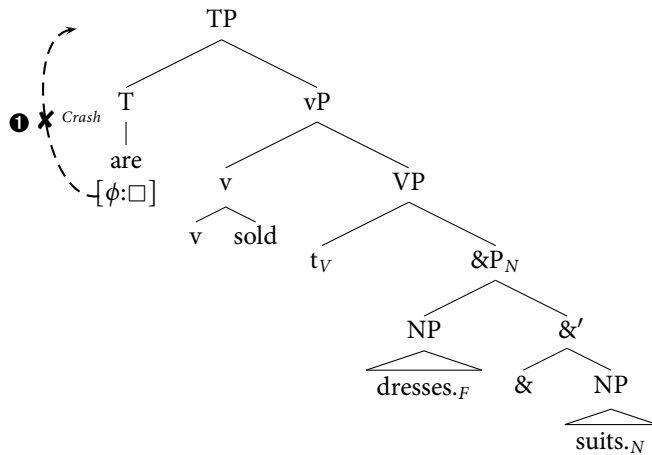
1. If MOVE takes place, it will feed the next operation ↑AGR↑ and Agree will apply:

(40) MOVE >> ↑AGR↑ >> (MERGE) >> (↓AGR↓):



2. If MOVE does not apply thereby leaving the &P in its postverbal base position, then ↑AGR↑ will probe upwards but not find a goal (i.e. it will be counterfed by MOVE).

(41) ↑AGR↑ >> (MERGE) >> (↓AGR↓):



This means that MOVE *has* to apply at the TP level with the order deriving LCA inside the &P (36), there is no optionality. This rules out agreement with the furthest conjunct.

5.4.2 First Conjunct Agreement

There are a number of possible orders that can derive FCA. The first order involves counterfeeding of $\downarrow\text{AGR}\downarrow$ in (42). This order derives the fact that the &P inherits the features of only the higher NP, and that it needs to stay in the postverbal position.

(42) (MOVE) \gg $\downarrow\text{AGR}\downarrow$ \gg MERGE \gg $\uparrow\text{AGR}\uparrow$

Operations at &P level:

1. MOVE does not apply (no effect on outcome).
2. $\downarrow\text{AGR}\downarrow$ applies vacuously, as it is counterfed by MERGE (43).

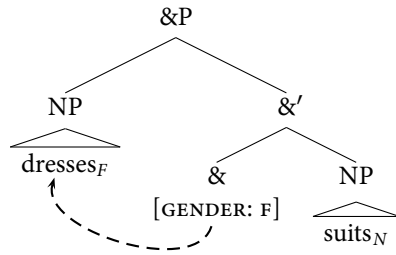
(43) $\downarrow\text{AGR}\downarrow$:

3. MERGE introduces the two NP arguments (44).

(44) MERGE:

4. $\uparrow\text{AGR}\uparrow$ applies agreeing with the higher NP in its specifier, (45).

(45) $\uparrow\text{AGR}\uparrow$:



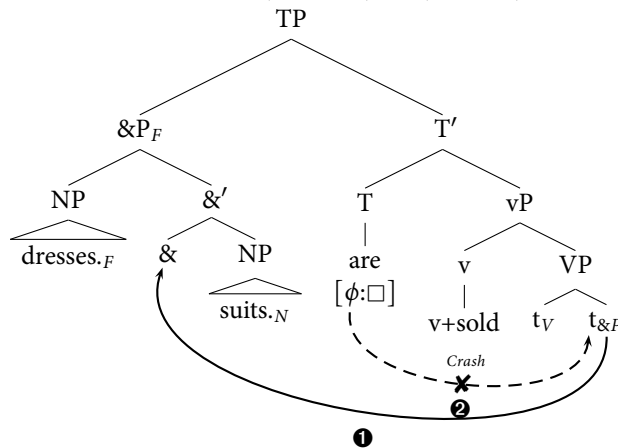
As a result, only the features of the higher NP are projected to the $\&P$.

Operations at the TP level:

There are again two possibilities with respect to whether MOVE applies:

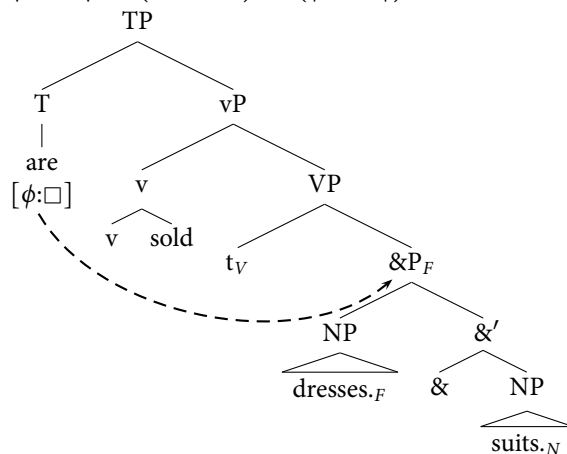
1. MOVE applying before $\downarrow\text{AGR}\downarrow$ will result in bleeding of $\downarrow\text{AGR}\downarrow$. The derivation crashes due to the failure of agreement on T.

(46) MOVE \gg $\downarrow\text{AGR}\downarrow$ \gg (MERGE) \gg ($\uparrow\text{AGR}\uparrow$):



2. MOVE does not apply, in which case the derivation will converge as $\downarrow\text{AGR}\downarrow$ is not bled by MOVE.

(47) $\downarrow\text{AGR}\downarrow$ \gg (MERGE) \gg ($\uparrow\text{AGR}\uparrow$):



MOVE is thus blocked with this order, forcing the $\&P$ to stay in postverbal position, and resulting in apparent agreement with the closest conjunct.

5.4.3 Counterfeeding of Agree – Two Additional Patterns of First Conjunct Agreement

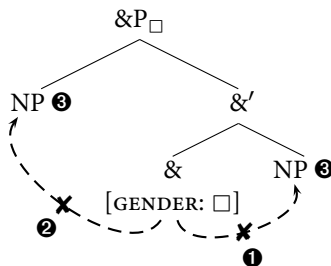
There are two possible orderings of operations in which both operations $\uparrow\text{AGR}\uparrow$ and $\downarrow\text{AGR}\downarrow$ are counterfed by MERGE, repeated here in (48). As a result, the &P will not receive a value and thus &P will remain underspecified for gender features. We argue that they both result in FCA, the first in postverbal FCA, and the second in preverbal FCA.

- (48) a. (MOVE) \gg $\downarrow\text{AGR}\downarrow$ \gg $\uparrow\text{AGR}\uparrow$ \gg MERGE
- b. (MOVE) \gg $\uparrow\text{AGR}\uparrow$ \gg $\downarrow\text{AGR}\downarrow$ \gg MERGE

Operations at the &P level:

Both Agree operations will be counterfed since they both apply before MERGE.

(49)

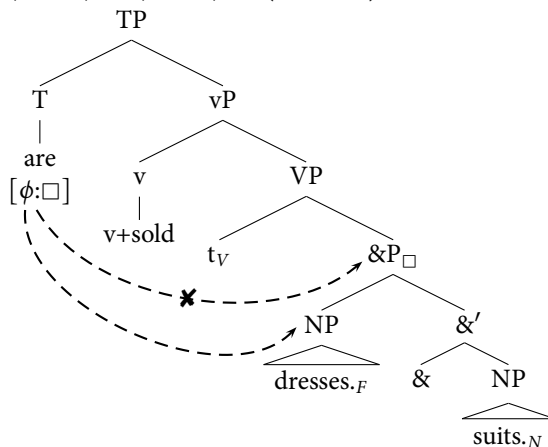


Operations at the TP level:

The order of operations in (48a) will again result in postverbal FCA.

1. If MOVE applies, it will bleed $\downarrow\text{AGR}\downarrow$, as T will not find a goal, leading to a crash.
2. If MOVE does not apply, then the next operation $\downarrow\text{AGR}\downarrow$ finds the &P. The closest goal with gender features for T is the structurally higher first conjunct in Spec-&P:

(50) $\downarrow\text{AGR}\downarrow$ \gg $\uparrow\text{AGR}\uparrow$ \gg (MERGE):



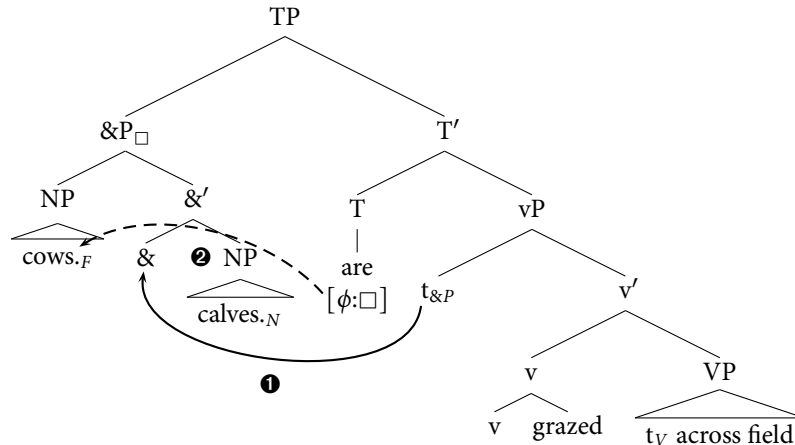
The order of operations in (48b) will result in the rare pattern of preverbal FCA, repeated in (51).

- (51) [_{&P} Krave i telad] su mirno pasle po polju.
 cows.FPL and calves.N.MASS are peacefully graze.PRT.FPL across field
 ‘Cows and calves grazed peacefully in the field.’

1. If MOVE does not apply, $\uparrow\text{AGR}\uparrow$ is counterfed, as T will not find a goal.

2. MOVE thus has to apply. Since the &P is underspecified for gender, T has to look inside the &P and target the structurally higher NP.

(52) MOVE \gg \uparrow AGR \uparrow \gg \downarrow AGR \downarrow \gg (MERGE):



- Since Spec-Head Agree is defined via m-command, probing inside the preverbal conjunct phrase is unproblematic.

6 Summary and Conclusions

- We have argued that the notion of ‘closest’ in Closest Conjunct Agreement is illusory: There is no need to make reference to linear order.
- All patterns of conjunct agreement can be captured with a relatively standard approach to Agree. What we then need to derive the various patterns of conjunct agreement is to assume variability in the order of application of basic syntactic operations.
- The assumption that a certain order of operations is repeated on later cycles makes correct predictions about availability of movement. If an operation applies early at &P and is thus counterfered (e.g. \uparrow AGR \uparrow in the case of LCA), then this operation will also apply early at TP requiring MOVE to apply before it and thus move the &P to Spec-TP and avoid a crash.

Main benefits of the current approach:

- It is possible to derive all the patterns in question from the factorial typology of four basic syntactic operations.
- There is no order which does not lead to an attested pattern.
- The assumption of *Uniform Order of Operations* 5.1.2 leads to correctly ruling out LCA postverbally in Serbo-Croatian.
- We arrive at a unified analysis of RA and CCA.
- The EPP property is derived and does not have to be stipulated (i.e. by an EPP feature).
- It is not necessary to radically complicate the Agree mechanism (i.e. to make reference to linearity) – the patterns follow from hierarchical relations and the interaction of operations inside &P.

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Appendix

Agreement with three conjuncts

- When it comes to agreement with three conjuncts, speakers of Serbo-Croatian also employ the strategies of Resolved Agreement and Closest Conjunct Agreement described above. What is not available, however, is agreement with the medial conjunct:

(53) [_{&P} Haljine, odela i suknje] su juče prodate / prodati / *prodata.
 dress.FPL suit.NPL and skirt.FPL are yesterday sell.PRT.FPL sell.PRT.MPL sell.PRT.NPL
 ‘Dresses, suits and skirts were sold yesterday.’

(54) Juče su prodate / prodati / *prodata [_{&P} haljine, odela i suknje].
 yesterday are sell.PRT.FPL sell.PRT.MPL sell.PRT.NPL dress.FPL suit.NPL and skirt.FPL
 ‘Dresses, suits and skirts were sold yesterday.’

- Instances of feminine agreement in (53) and (54) reflect the Closest Conjunct Agreement strategies (First and Last Conjunct Agreement), while masculine reflects Resolved Agreement. Neuter agreement (agreement with the medial conjunct) is ungrammatical in both cases.
- The same patterns were recorded in Slovenian (Marušič et al. 2015).
- These agreement patterns fall out naturally from our system.

Patterns of Conjunct Agreement

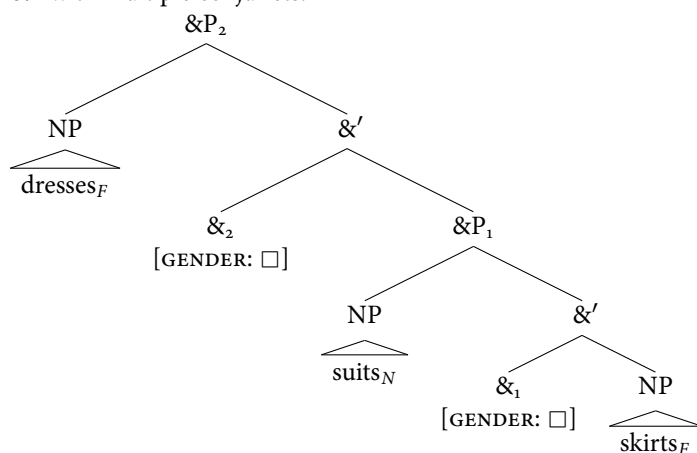
- Two kinds of structures for &P’s with multiple conjuncts have been proposed in the literature so far (see Weisser 2015 and references therein):

(55) One conjunction head with multiple specifiers:
 [_{&P} dresses [_{&’} suits [_{&’} & skirts]]]

(56) Multiple conjunction heads:
 [_{&P} dresses [_{&’} & [_{&P} suits [_{&’} & skirts]]]]]

- Following Johannessen (1998); Munn (1987); Zoerner (1995); Progovac (1998a,b); Weisser (2015), we adopt the structure in (56) for the &P with multiple conjuncts (see Progovac (1998a,b) for an overview of the literature and Weisser (2015) for compelling evidence in favour of the structure with multiple & heads based on the studies of derived clausal coordination).
- Thus, for the &P in (53) and (54) we assume the following structure:

(57) &P with multiple conjuncts:



- Both &-heads function as probes. Operations on both &P’s are regulated by the orders in (22), and subject to the *Uniform Order of Operations* (15), i.e. whatever order of operations applies at the &P₁, the same order needs to be repeated at &P₂, as well as in the rest of the derivation.

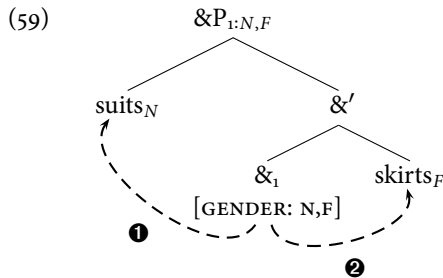
Resolved Agreement:

- Recall that Resolved Agreement is derived by the first two orders in (22), where MERGE always feeds both Agree operations.

(58) (MOVE) >> MERGE >> $\uparrow\text{AGR}\uparrow$ >> $\downarrow\text{AGR}\downarrow$ → Resolved Agreement (preverbal)
 (MOVE) >> MERGE >> $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$ → Resolved Agreement (postverbal)

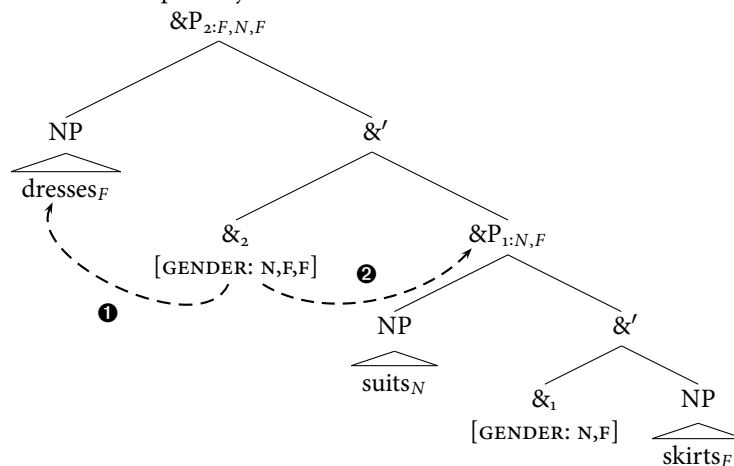
- Under the first order, where $\uparrow\text{AGR}\uparrow$ >> $\downarrow\text{AGR}\downarrow$, the derivation at the &P level looks as follows:

- The $\&_1$ -head merges both of its arguments together, and agrees with both of them first via $\uparrow\text{AGR}\uparrow$, and then via $\downarrow\text{AGR}\downarrow$, projecting both features at the $\&P_1$.



- The $\&_2$ -head first merges its two arguments, $\&P_1$ and the higher NP, agreeing first with the NP via $\uparrow\text{AGR}\uparrow$ and then with $\&P_1$ via $\downarrow\text{AGR}\downarrow$, projecting all three features.

(60) &P with multiple conjuncts:



- Crucially, the other order deriving Resolved Agreement, where $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$, gives the same result at the &P level, as both &-heads agree with both of their arguments, so the features of all three conjuncts are projected at $\&P_2$.
- Operations on T** have to be repeated in the same order as the one that applies at the &P.
 - With MOVE >> (MERGE) >> $\uparrow\text{AGR}\uparrow$ >> $\downarrow\text{AGR}\downarrow$:
MOVE has to apply in order to feed $\uparrow\text{AGR}\uparrow$, yielding preverbal RA.
 - With MOVE >> (MERGE) >> $\downarrow\text{AGR}\downarrow$ >> $\uparrow\text{AGR}\uparrow$:
MOVE cannot apply, otherwise it will counterfeed $\downarrow\text{AGR}\downarrow$. The &P thus stays *in situ*, yielding postverbal RA.

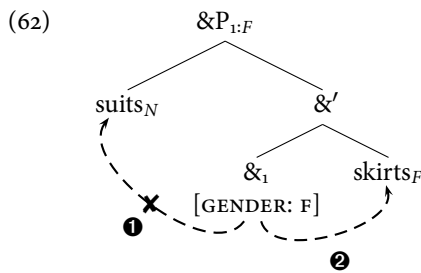
Last Conjunct Agreement:

- Recall that LCA is the result of counterfeeding of $\uparrow\text{AGR}\uparrow$. The order of operations that derives LCA is:

(61) (MOVE) >> $\uparrow\text{AGR}\uparrow$ >> MERGE >> $\downarrow\text{AGR}\downarrow$ → Last Conjunct Agreement

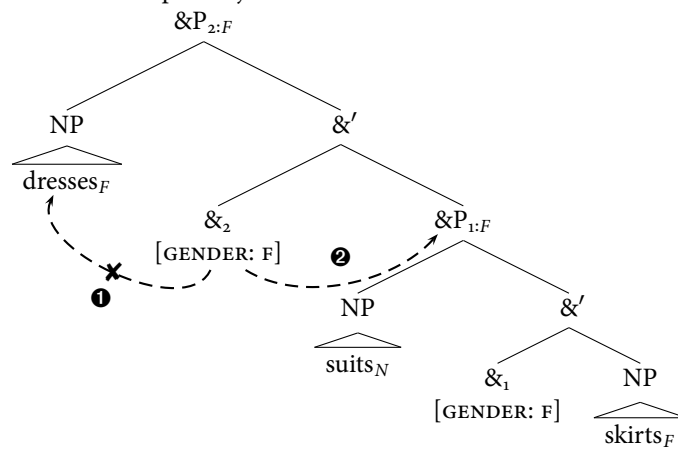
- In the case of three conjuncts, this order again yields the desired result, as agreement with the highest argument always applies too early, before any element is merged. Every &-head therefore only agrees with its lower conjunct.
- Operations at the &P level proceed as follows:

1. $\uparrow\text{AGR}\uparrow$ applies first and it applies vacuously, since nothing is yet merged as $\&_1$'s specifier. MERGE introduces both NP arguments together. $\downarrow\text{AGR}\downarrow$ then applies and $\&P_1$ projects only the features of the lower argument:



2. The $\&_2$ -head, maintaining the same order, first carries out unsuccessful $\uparrow\text{AGR}\uparrow$, after which both the higher NP and $\&P_1$ are merged. $\&_2$ now agrees with the lower argument, $\&P_1$, via $\downarrow\text{AGR}\downarrow$ and projects the feature of the lowest conjunct.

(63) &P with multiple conjuncts:



- **Operations on T** have to be repeated in the same order as the one that applies at the &P. In the case of LCA, since $\uparrow\text{AGR}\uparrow$ applies very early, MOVE needs to apply to feed it, yielding movement of the subject &P to preverbal position.

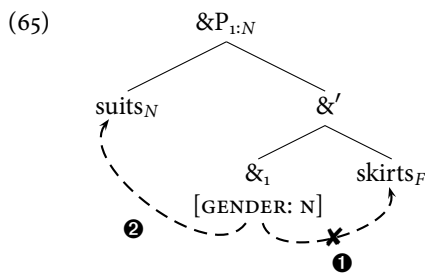
First Conjunct Agreement:

- Recall that FCA is the result of counterfeeding of $\downarrow\text{AGR}\downarrow$ by MERGE at &P. The order of operations that derives FCA:

(64) (MOVE) \gg $\downarrow\text{AGR}\downarrow$ \gg MERGE \gg $\uparrow\text{AGR}\uparrow$ \rightarrow First Conjunct Agreement

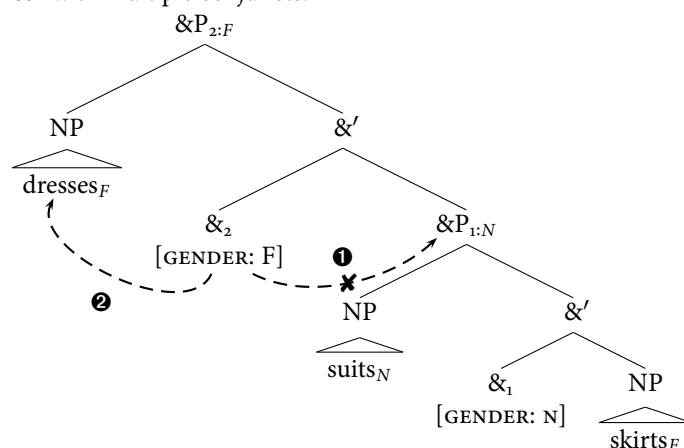
- In the case of three conjuncts, this order yields FCA, as $\downarrow\text{AGR}\downarrow$ applies too early, before arguments are merged, so the &-head only agrees with the highest conjunct, projecting its features.
- Operations at the &P level proceed as follows:

1. $\downarrow\text{AGR}\downarrow$ applies first and it applies vacuously, since nothing is yet merged as $\&_1$'s complement. MERGE introduces both NP arguments together. $\uparrow\text{AGR}\uparrow$ then applies and $\&P_1$ projects only the features of the higher argument:



2. Note that now the features of the middle conjunct are present at $\&P_1$ and could potentially serve as the goal for Agree. Yet, since the same order needs to be repeated at $\&P_2$, $\downarrow\text{AGR}\downarrow$ is again counterfed by MERGE, so $\&_2$ only agrees with the highest conjunct, and the features of the middle conjunct never reach $\&P_2$ level.

(66) &P with multiple conjuncts:



- **Operations on T** have to be repeated in the same order. In the case of FCA, the early application of $\downarrow\text{AGR}\downarrow$ requires the &P not to move, otherwise its movement would result in a crash caused by counterfeeding $\downarrow\text{AGR}\downarrow$.
- The only way to get the features of the middle conjunct projected to $\&P_2$ would have to be that after the derivational step described in (65), when the features of the middle conjunct are present and available on the lower &P, $\downarrow\text{AGR}\downarrow$ applies first and collects the features from $\&P_1$ (while agreement with the highest NP would have to be prevented previously). This would require changing the order of operations at the higher $\&P_2$ into $\uparrow\text{AGR}\uparrow \gg \text{MERGE} \gg \downarrow\text{AGR}\downarrow$. Since changing the order in the course of the derivation is disallowed by the *Uniform Order of Operations* (15), such derivation would be illicit.

Counterfeeding of both Agree operations:

- The final two orders (section 5.4.3), in which both Agree operations are counterfered by MERGE, result in FCA.

(67) (MOVE) $\gg \downarrow\text{AGR}\downarrow \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}$
 (MOVE) $\gg \uparrow\text{AGR}\uparrow \gg \downarrow\text{AGR}\downarrow \gg \text{MERGE}$

- As neither of the Agree operations at the &P level ever targets any of the NPs, none of the NP's features are projected at the &P's.
- Consequently, at TP level, T needs to look inside the &P to find a goal to value its gender feature. Since the first conjunct of the higher $\&P_2$ is the hierarchically highest ant thus most available one, it will always be targeted by Agree.
- Finally, since $\uparrow\text{AGR}\uparrow$ functions via m-command, even if we were to adopt the structure of multiple conjunctions with multiple specifiers of a single & head (suggested in (55)), the system developed here predicts that only the highest NP will be targeted by $\uparrow\text{AGR}\uparrow$. This excludes the possibility of ever agreeing with the middle conjunct, regardless of the exact analysis of multiple coordination which one wishes to adopt.