Closest Conjunct Agreement

Andrew Nevins,[1] Philipp Weisser,[2]

[1]Department of Linguistics/Division of Psychology and Language Sciences, University College London, London, UK, WC1N 1PF; email: a.nevins@ucl.ac.uk
[2]Institut für Linguistik, Universität Leipzig, Leipzig, Germany; email: philipp.weisser@uni-leipzig.de

Annual Review of Linguistics 2018. AA:1–25

https://doi.org/10.1146/((please add article doi))

Keywords

Conjunction, gender agreement, resolution, ellipsis, coordination, complementizer agreement

Abstract

Closest conjunct agreement is of great theoretical interest in terms of what it reveals about the structure of coordination, the locality of agreement relations, and the interaction between syntax, semantics, and morphology in the expression of agreement. We highlight recent approaches to the phenomenon, including typologically diverse case studies and experimentally-elicited results, and point out crystallized generalizations as well as directions for future research, including the absence of last conjunct agreement, the absence of closest conjunct case, differences between conjunction and disjunction, and the role of linear adjacency in morphological realization.

Contents

1. Introduction 2
2. The Structure of Conjunction 4
   2.1. Against an ellipsis account of CCA 4
   2.2. Structural relations inside the conjunction phrase 5
   2.3. Featural Make-up of the Conjunction Phrase 8
3. Resolution and Defaults 10
4. Theories of Agreement 11
   4.1. Recurring Assumptions in Analyses of CCA 11
   4.2. Theoretical Approaches 12
5. Non-Verbal CCA 17
6. Experimental Approaches 19
7. Two Theoretical Issues for further research 20
   7.1. The Role of Linear Adjacency 20
   7.2. Closest Disjunct Agreement 21

1. Introduction

Half a century ago, Koutsoudas (1968) pointed out that in some of the world's languages, there are cases in which only *one* of two or more conjoined arguments is the target of agreement on another element in the clause. As it is typically the linearly closest of the conjuncts whose features are agreed with, this phenomenon is referred to as *Closest Conjunct Agreement* (CCA). A postverbal example comes from Welsh in (1).

(1) Gwelais [ti a Megan] ein hunain
see.PAST.2SG you.SG and Megan 2PL SELF
'You and Megan saw yourselves.'
(Welsh; Borsley (2009))

In (1), the clause-initial verb shows agreement with a second person singular. If the verb had agreed with the features of the whole conjunction, one would expect second person plural agreement (as with the reflexive). Thus, it seems that the verb has agreed with the first conjunct exclusively. In (2), we see an example from the head-final language Hindi, where the agreeing verb is located to the right of the conjoined arguments. Again, we find agreement only with the linearly closest of the conjoined arguments, which is, in this case, the last one. In (2), both the number and the gender feature of only the last conjunct are reflected on the verb.

(2) maiN-ne [ek chaataa aur ek saaRii] khariid-ii
I-ERG an umbrella.ABS.MASC.SG and a saaree.ABS.FEM.SG buy-PERF.FEM.SG
'I bought an umbrella and a saaree.'
(Hindi; Benmamoun et al. (2009))

One can even find cases of conjoined arguments which are 'sandwiched' in between two verbal elements. In these cases, we can often observe mismatches between the targets of agreement. In (3), an example from Slovenian, the auxiliary preceding the conjoined subjects agrees in gender (FEM) with the first conjunct, whereas the participle following the

conjoined subject agrees with the last conjunct in gender (NEUT).

(3) Včeraj so bile [krave in teleta] prodana.
yesterday AUX.PL been.FEM.PL cow.FEM.PL and calf.NEUT.PL sold.NEUT.PL
'Yesterday cows and calves were sold.'
(Slovenian; Marušič et al. (2015))

CCA is often not the only option in a language,, but alternates with resolved agreement or default agreement (cf. Section 3). In example (3) above, the CCA on the clause-final participle can alternate with a masculine plural default marker *prodani*. The same holds for many other languages. In English or Finnish, CCA is optional with postverbal subjects, but excluded with preverbal ones:

(4a) There is / are a book and a pen on the desk.
(4b) A book and a pen *is / are on the desk.
(English; Morgan (1972); Schütze (1999))

(5a) Silloin tul-imme /tul-in minä ja rumpali-mme
Then come.PAST.1PL /come-PAST.1SG I and drummer-1PL.POSS
'Then came our drummer and I.'
(5b) Minä ja rumpali-mme tul-imme /*tul-in silloin
I and drummer-1PL.POSS come-PAST.1PL /come-PAST.1SG then
'Our drummer and I came then.'
(Finnish; Crone (2016))

It is generally a challenge, both experimentally and theoretically, to cover the varying degrees of acceptance of CCA patterns in different syntactic contexts.

One final configuration that deserves mentioning are cases of first conjunct agreement where the conjoined arguments both precede the agreeing element. In (6) we see conjunction of two nouns from mismatching noun classes in the Bantu language Zulu. Here, one can observe that one possibility (apart from default agreement; see Voeltz (1971); Moosally (1998) for a variety of other patterns in Bantu) is noun class agreement with the first of two conjuncts.

(6) [utshwala ne=wayin] bu-tholakele.
14.beer and=5.wine 14-were.found
'Beer and wine were found.'
(Zulu; Walkow (2013))

Even though cases of first and last conjunct agreement have been reported for some time (e.g. Corbett (1983)), it is only recently that their relevance for linguistic theorizing has been explored in greater detail. In this paper, we aim to provide a concise summary of the theoretical consequences that have been drawn from configurations like the ones in (1)-(6). In Section 2, we will discuss the consequences of CCA for the syntactic modelling of coordination structures. In Section 3, we will discuss the phenomena of default agreement and resolution rules in conjunct agreement, which often alternate with CCA. Section 4 summarizes some of what we believe to be the most influential theoretical approaches to CCA, and discusses the implications of CCA for the theory of agreement. Section 5 turns to non-verbal cases of CCA. In Section 6, we elaborate on what insights can be gained

from experimental approaches to CCA. Section 7 wraps up by outlining open issues and directions for further research.

2. The Structure of Conjunction

In this section, we discuss the implications of CCA for the syntactic modelling of coordination structures. Section 2.1 summarizes accounts in which CCA arises as the result of conjunction of larger categories, with subsequent application of ellipsis operations, and concludes this cannot be the only source of CCA crosslinguistically. In Section 2.2, we discuss what cases of CCA tell us about hierarchical relations inside the coordination phrase. In Section 2.3, we discuss the features involved in coordination structures and their respective loci.

2.1. Against an ellipsis account of CCA

One of the first approaches to CCA that dealt with the topic from a theoretical perspective was Aoun et al. (1994), who discussed first conjunct agreement in three dialects of Arabic. According to their analysis, First Conjunct Agreement (FCA) examples such as the one in (7) derive not from coordination of NPs, but rather from coordination of a larger constituent followed by Right Node Raising and/or ellipsis.

(7) Qaraʔat ʕaliyaaʔ wa ʕumar l-qiṣṣa
read.3.FEM.SG Alia and Omar the-story
'Alia and Omar read the story.'
(Standard Arabic; Aoun et al. (1994))

The gist of their analysis assumes an underlying structure like (8). Under this analysis, the verb agrees only with the adjacent NP because it has asymmetrically moved out of the first conjunct.

(8) [read$_i$ [$_{IP}$ Alia t$_i$ ...] and [$_{IP}$ Omar ...] the-story]

The main arguments for an ellipsis account come from the fact that some elements which require plural subjects cannot be licensed in FCA configurations. However, as Munn (1999) shows, Aoun et al. (1994) do not distinguish between semantic and syntactic plurality, and such structures are thus also compatible with a proper FCA analysis:

(9) mšite ntuma w ana məžmuʕin
left.2PL you.PL and I together
'You and I left together.' (Moroccan Arabic; Munn (1999))

The element *məžmuʕin* (together) is not licensed in configurations like (7) which Aoun et al. (1994) take as evidence that the subject in (7) is not plural. It is, however, licensed in (9) which shows that it can cooccur with FCA if the verb is plural. This is a strong argument against a clausal analysis of FCA in Arabic.

Johannessen (1996) shows that FCA can occur in Czech and German, even in cases that do not allow clausal coordination at all.

Considering arguments from a crosslinguistic perspective, cases of sandwiched agreement are hard to derive with a clausal coordination analysis. Consider the following example

from Finnish:

(10) ... ennakkopäätö-ksiä ol-et sinä ja Kristi anta-neet
... precedent-PART.PL be-2SG you and Kristi give-PTCP.PL
'You and Kristi have given precedents.' (Finnish; Crone (2016))

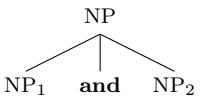
In (10), the second position auxiliary shows FCA, but the participle that follows the conjoined subject shows plural agreement, thereby indicating that it computes the features of both conjuncts. Under a clausal coordination approach, it is unclear where the plural feature on the participle comes from, given that there are no plural noun phrases in the clause.

Finally, experimental evidence that shows that a clausal coordination approach is not the only possible source for CCA. Theories that derive CCA by means of phrasal (i.e. NP-)coordination make the prediction that a given example can have a one-event reading where the two subjects perform the action together as well as a two-event reading where the two subjects perform the action independently of each other. Theories that derive CCA by means of clausal coordination make the prediction that a two-event reading is strongly preferred. These predictions were tested in two experiments for Slovenian and Bosnian/Serbian/Croatian (henceforth BCS) by Arsenijević et al. (2017). They used a sentence-picture match design where participants were asked to judge the compatibility of a CCA example with a given picture that disambiguates between a one-event and a two-event reading. Their findings were that conjoined NPs were matched to the pictures with similar acceptance rates as non-conjoined plural NPs. Furthermore, when CCA examples were contrasted with (overtly) biclausal examples, a strong difference in interpretation arose: overtly biclausal interpretations were consistently matched with pictures showing two distinct events, whereas CCA examples were not. These findings can be taken as strong evidence that CCA can arise with cases of NP-coordination.

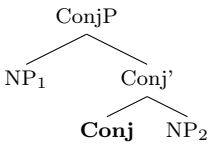
2.2. Structural relations inside the conjunction phrase

In this subsection, we discuss what CCA can tell us about the syntactic structure of the coordination itself. In order to do this, consider three prominent proposals for the syntactic structure of coordination, where NP_1 and NP_2 are conjuncts and the conjunction head is in bold:

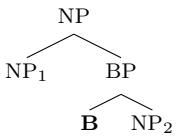
(11) Flat Structure:



(12) ConjP-structure:



(13) Adjunction:



A ternary structure of coordination is represented in (11), in which the conjuncts have all been merged as multiple sisters with the conjunction head. In these structures, the label of the whole phrase is typically provided by all conjuncts simultaneously. This structure is used in Chomsky (1965); Dik (1968); Wurmbrand (2008); Nonato (2013) and explicitly argued for in Dik (1968) and Nonato (2013). The second proposal in (12) also assumes that both conjuncts are merged as arguments of the conjunction. In this proposal, the

conjuncts are in an asymmetric relation as the NP_2 is merged as the complement of the conjunction and NP_1 as its specifier.[1] The structure like (12) has been argued for by Yngve (1960); Zoerner (1995); Johannessen (1998); Zhang (2010); Weisser (2015). In the proposed structure in (13), we also see an asymmetric structure, but in this case, NP_2 is merged with a BP (for Boolean Phrase) and then the BP is adjoined to NP_1. This structure was argued for by Munn (1993, 1999); Bošković & Franks (2000).[2]

Zhang (2010) states that agreement asymmetries cannot be used to argue for specific structure of coordination, as one can find both first and last conjunct agreement, sometimes within the same language. However, we contend that agreement with coordinate arguments *can* tell us something about the underlying syntactic structure of coordination if one looks beyond the existence of first and last conjunct agreement in the world's languages.

First, we would like to argue that the phenomenon of first conjunct agreement in preverbal position provides a straightforward argument against a flat n-ary structure of coordination. Recall from Section 1, example (6), that a number of languages allow for agreement with the first conjunct even when the verb follows the conjunction phrase. In these configurations, agreement with the farthest conjunct applies. Crucially, the opposite configuration, i.e. last conjunct agreement in postverbal position is completely unattested.

(14a) [[NP_1 and NP_2] V] ✔

(14b) [V [NP_1 and NP_2]] ✘

This striking asymmetry remains mysterious under a flat structure account as in (11). With a flat structure, we have no idea why agreement should target the first conjunct. With asymmetric structures as in (12) and (13), we can simply say that agreement in some languages targets the closest conjunct and in others it targets the highest conjunct. This simple assumption also rules out the unattested mirror image: When the conjunction phrase is postverbal, the first conjunct is both the highest and the closest conjunct. As a result, there is simply no way for the agreeing element to pick out the second conjunct as an agreement target.

A second argument against the flat structure in (11) comes from the frequencies of FCA as opposed to cases of Last Conjunct Agreement (LCA). Willer-Gold et al. (2018) have shown experimentally that FCA in postverbal position is much more frequent than LCA in preverbal position. Again, this would remain largely mysterious under a flat approach to coordination. Under a hierarchical approach however, it can be argued that the first

[1] Johannessen (1998) also adopts this structure, but argues on the basis of morphological asymmetries that in head-final languages NP_1 is merged as a complement and NP_2 as a rightward specifier. However, see Benmamoun et al. (2009) for a number of arguments against this view from the head-final languages Hindi and Tsez.

[2] It should be mentioned that these structures do not exhaust all the logical possibilities to treat coordination in the syntax and that several other proposals have been made. The reader is referred to Progovac (1998a,b) for discussion of possible alternatives. We focus on the structures in (11)-(13) as the alternatives do not provide analytical perspectives specifically relevant for CCA. A more recent novel approach to coordination is provided in Mitrović & Sauerland (2016), who argue that each conjunct is merged as a complement to its own head μ, and only then are the two μPs merged as the complement and the specifier of a coordination phrase. It remains to be seen whether this approach is compatible with existing analyses of CCA, or potentially inspires new ones.

conjunct in postverbal contexts is an ideal target for agreement as it is both the structurally highest conjunct as well as the linearly closest one.

Moving on to other proposals, we submit that cases of last conjunct agreement in head-final languages provide an argument against an adjunction structure for coordination as the one in (13). Consider the following examples from Tsez:

(15) kid-no uži-n ∅-ik'is
girl.ABS.II-and boy.ABS.I-and I.SG-went
'A girl and a boy went.'
(Tsez; Benmamoun et al. (2009))

Under the structure in (13), agreement in (15) is triggered not by a subject, but by an adjunct to the subject. This renders the examples of LCA similar to cases of agreement attraction (as in *The key to the cabinets are missing*, Bock & Miller (1991)). Crucially, however, as Benmamoun et al. (2009) show, cases of agreement attraction are consistently judged ungrammatical in Tsez. It is not possible to agree with a constituent embedded inside an argument, even if it linearly intervenes between the verb and its agreement target. Under an adjunction approach, this is a problematic finding. Under a (12) approach, however, there is a clear difference between adjuncts and second conjuncts. Even though the second conjunct of a coordinate phrase is structurally lower than the first one, it is still a proper argument of the clause, and thus a possible agreement target. Similar results have been found in an experiment by Marušič et al. (2015), who clearly show that last conjunct agreement is different from cases of agreement attraction in Slovenian.

These arguments from CCA for an asymmetric ConjP-structure converge with similar findings in other areas of syntax. After reviewing arguments for all the structures discussed above, Zhang (2010) argues – on the basis of data from binding, extraposition, possessee pronominalization and the phenomenon of conjunction float – that a hierarchical structure of coordination is empirically more adequate. Furthermore, she provides an argument for the ConjP-structure and against the adjunction structure based on the inability to strand external conjuncts. Thus, it is not surprising that virtually all theoretical approaches to CCA are based on this syntactic structure (see Section 4). One of the few exceptions to this is Munn (1999), where only cases of FCA in Arabic and English are considered.

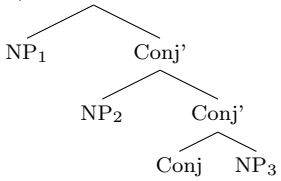
Crucially, these tests from other areas of syntax also immediately refute an approach to LCA where structures that are the mirror images of (12) or (13) are proposed. In her survey, Johannessen (1998) found that it is almost exclusively head-final languages which exhibit LCA patterns. She then proposed that head-final languages have a mirrored structure of (12) with the first conjunct being the complement and the second one being a rightward specifier. However, as Benmamoun et al. (2009) have shown, coordination in the head-final languages seems to pattern just like the English in terms of binding and extraposition. In (16), it can be seen that the first conjunct can bind the second one and not vice versa. If the second conjunct were actually the specifier, and the first one the complement, then binding should show the exact opposite pattern.

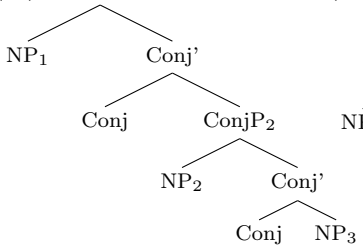
(16a) kid-bā ħalmaɣ-no nesā nesis eniw-no b-ayersi
girl-ERG friend.ABS-and self.GEN mother.ABS-and IPL-brought
'The girl brought her male friend and his mother.'

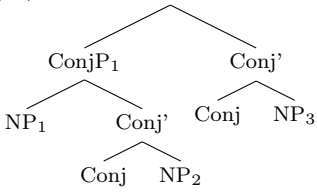
(16b) *kid-bā nesā nesis eniw-no ħalmaɣ-no b-ayersi
girl-ERG self.GEN mother.ABS-and friend.ABS-and IPL-brought

(Tsez; Benmamoun et al. (2009))

As a final remark, it should be mentioned that every theory of coordination must provide for structures of three or more conjuncts. In the case of an asymmetric ConjP-structure, it has been proposed that more conjuncts can either be accomodated with multiple specifiers of the same ConjP, or by means of recursive embedding of multiple ConjPs as in (18) and (19). The difference between the latter of these three is whether the complement or the specifier of the highest ConjP embeds its own ConjP.

(17)


(18)


(19)


Even though it has occasionally been argued on the basis of prosody (Wagner 2005) or morphological cues such as switch-reference marking (Weisser 2015) that both types of structures are in fact attested, few works have actually explored the consequences of these different structures for phenomena such as agreement. It thus remains an open question whether cases of CCA can help to distinguish between these different structures. The tentative generalization (see Marušič et al. 2015) that non-peripheral conjuncts never seem to be the sole target for agreement provides a starting point for future investigation of these matters.

2.3. Featural Make-up of the Conjunction Phrase

In this subsection, we briefly discuss the syntactic representation of various features of the coordination phrase and its conjuncts. In the preceding sections, we have seen various examples of CCA for number (see examples in (1),(2),(7),(10)), for gender (ex. (2),(3),(7),(15)), person (ex. (9)) and noun class (ex. (6)). However, despite the first impression that all kinds of features can participate in CCA, it is clear that there are strong asymmetries in that some, such as gender, are much more likely to trigger CCA than person. It can be taken as a general consensus (see Section 4 below) that this asymmetry follows from the fact that the coordination head has ways of computing the resolution of person mismatches between the conjuncts, but no means of computing the resolution of gender mismatches.[3]

As for number, we find that in some languages such as BCS, Slovenian or isiXhosa, instances of CCA are only possible if the conjuncts are plural or non-singular themselves. In (20), we see that in isiXhosa conjuncts mismatching in noun class take the default class marker (8/10) when they are singular, but display CCA when plural.

[3]Another reason that there seem to be very few genuine cases of CCA for person is that many languages have strong restrictions on the order of pronouns in conjunction. Thus, if a language requires second person pronouns to be the first conjunct of coordination, then we cannot be sure whether patterns of FCA are actually due to resolved agreement for person (as in the case of (10).)

(20a) Um-nqathe ne-qanda zi-se tafile-ni
3-carrot and.5-egg 8/10-LOC table-LOC
'The carrot and the egg are on the table.'

(20b) Ama-doda nemi-nqathe i-se gadi-ni
6-man and.4-carrot 4-LOC garden-LOC
'The men and the carrots are in the garden.'
(isiXhosa; Mitchley (2015))

Marušič et al. (2015) posit a *Consistency Principle* that allows for CCA only when the number feature of one conjunct matches the number feature of the whole conjunction phrase (see Section 4 for discussion of their approach). Since it is assumed that the conjunction phrase in Slavic inherently bears a [–SG]-feature, the Consistency Principle accounts for the fact that CCA is only found with plural conjuncts. In general, it can be said that it is a widespread assumption that the conjunction phrase comes with inherent features such as [–SG] (see e.g. Dalrymple & Kaplan (2000),Wechsler & Zlatić (2003), King & Dalrymple (2004), Badecker (2007), Demonte & Pérez-Jiménez (2012)). A potentially related question is whether the coordination head can compute number features to begin with. Kiss (2012) argues that the coordination head in Hungarian cannot compute number features, which is why the conjunction of two singular NPs triggers singular agreement in Hungarian. As such, (21a) is not an instance of number CCA since a plural feature on any conjunct will percolate up triggering plural agreement (21b).

(21a) Össze veszett János és Mari.
PRT quarrelled.3SG John and Mary.
'John and Mary quarrelled.'

(21b) Végre meg egyeztek Emil és a detektívek
At.last PRT agreed-3PL Emil and the detectives
'Emil and the detectives agreed at last.' (Hungarian; Kiss (2012))

However, as some of the examples above have shown, we do also find cases of singular CCA (see e.g. (2) above). In addition, we find languages where person, number and gender all participate in CCA, such as varieties of Arabic discussed above. We leave this question open for further research. It remains to be seen whether one should posit other features, such as humanness or specificity features, on the coordination head. It can be observed that a number of languages disallow conjunction of NPs mismatching in these respects. Mitchley (2015) reports cases in a number of Bantu languages where conjuncts must match in humanness. In Xitsonga (22), it is impossible to conjoin a human and a non-human subject even though both match in noun class. The ungrammaticality cannot plausibly be due to agreement, since the example is grammatical neither with the human default, nor the non-human default, nor the actual class marker that fits both nouns.

(22) A tin-anga na tim-byana *va/*swa/*ta famba.
The 10-doctor and 10-dog SM2/8/10 walk
Intended: 'The doctors and the dogs walk.'
(Xitsonga; Mitchley (2015))

Similarly, Kalin & Weisser (2017) note that Hindi disallows conjuncts mismatching in specificity. It is another open question whether these requirements should be derived by positing

the respective features on the coordination head.

Finally, we can ask what kind of features other than ϕ-agreement features can participate in clausal processes without being mediated by the coordination head. Weisser (2017) claims that once one controls for processes such as allomorphy and ellipsis, we find that case marking is always symmetric on all of the conjuncts in coordination. This is somewhat surprising given that ϕ-agreement probes in the clause can target specific conjuncts. If ϕ-agreement and case marking were two sides of the same coin, then we would possibly expect instances of closest conjunct case. But crucially, this does not seem to occur. CCA examples from case languages like Finnish (10) or Tsez (15) show that case is symmetric even when ϕ-agreement is not.

3. Resolution and Defaults

As mentioned in the introduction, CCA often alternates with resolution rules and default rules in a given language. For this reason, it is important to carefully study the nature of those rules before studying the actual CCA patterns. It might be the case that what looks like CCA in a given language is actually the result of default morphology or resolution rules. *Default* agreement is generally conceived of as some kind of morphological last resort used when regular grammatical processes (including resolution) fail to provide a feature value. In the context of conjunction agreement, this is typically the case when features of the individual conjuncts are incompatible (i.e. cannot be unified by means of resolution). *Resolution* rules are generally viewed as a process that compares the feature sets of each of the conjuncts and, on the basis of these sets, computes the new feature set of the complex phrase. In many cases, these two processes lead to the same result and might be difficult to tease apart, but at the same time, we find examples where the two strategies sometimes even compete. Consider the following pattern from German in (23) discussed in Corbett (1983); Timmermans et al. (2004); Fuß (2014); Driemel (2018):

(23) Du und dein Freund wusstet /wussten alle Antworten.
You and your friend know.PAST.2PL /know.PAST.1/3.PL all answers
'You and your friend knew all the answers.'
(German; Driemel (2018))

Resolution of the conjoined NPs results in the feature set [2ND PLURAL], which is one possible agreement morpheme showing up on the verb. Crucially however, Germanic exhibits an unusual 1st/3rd person syncretism, pointing towards this form actually being the default plural in German. This suggests that the alternation in (23) is explained in terms of competing strategies: speakers of German can either resolve the person mismatch or use the default plural marker.

As for resolution rules, it has been noticed that they often interact with semantics. Wechsler (2008) provides an example from French showing that the noun *sentinelle* 'sentry', which is formally feminine but semantically masculine, can trigger masculine agreement on the verb when conjoined with another feminine noun. Having *sentinelle* as the only subject of the clause yields obligatory feminine agreement regardless of the sex of the referent.

(24a) La sentinelle a été prise /*pris en otage.
the sentry.FEM has been taken.FEM /taken.MASC hostage
'The sentry were taken hostage.'

(24b) La sentinelle et sa femme ont été pris /*prises en otage.
the sentry.FEM and his wife have been taken.MASC /taken.FEM hostage
'The sentry and his wife were taken hostage.'
(French; Wechsler (2008))

This pattern of facts indicates that in a coordination structure, resolution rules kick in that are able to refer to the semantic gender feature of the first conjunct. Since in French resolution of masculine and feminine results in masculine gender, the whole conjunction phrase then triggers masculine agreement. In the non-conjoined case in (24a), no resolution mechanism is at play and therefore the formal features are responsible for agreement.

Finally, Willer-Gold et al. (2016) have argued that we can distinguish default and resolution empirically when we consider relative frequencies of agreement mismatches across experimentally-elicited configurations. They claim that in South Slavic languages, masculine is the default gender, while resolution computes a neuter value. This accounts for the significantly higher frequency of neuters as opposed to feminines across all combinations.

It is clear that more work is required to figure out the specifics of both mechanisms and how they interact but for the purposes at hand,they must be controlled for in order to make reliable statements about CCA patterns. The easiest way to control for these factors is by testing all possible orders of conjuncts with all possible feature combinations, since we expect neither default agreement nor resolution rules to give rise to ordering effects. Furthermore, it is often helpful to test inanimate nouns, since they do not display effects of semantic vs morphosyntactic gender.

4. Theories of Agreement

We now turn to an overview of some of the theoretical approaches to the phenomenon of CCA. In Section 4.1, we will highlight some of the recurring assumptions found in several approaches and discuss them in more detail. In Section 4.2, we then go through some of the most influential approaches one by one, and briefly summarize the agreement model they adopt.

4.1. Recurring Assumptions in Analyses of CCA

In this section, we will see that some of the approaches proposed in the literature share several assumptions about how cases of CCA are to be modelled.

4.1.1. ϕ-Deficiency of the Coordination Head. The first recurring motif found in several approaches is that the coordination phrase is somehow ϕ-deficient. In other words, it does not have the full set of ϕ-features compared to regular NPs. Thus, Doron (2000) argues for Hebrew and Kiss (2012) argues for Hungarian that the coordination phrase has no number specification. Bošković (2009) and Marušič et al. (2015) argue that the coordination phrase has a prespecified non-singular feature which can either result in plural agreement in BCS, or in dual or plural agreement in Slovenian. Even though the coordination head has a number feature, it is still deficient as it does not have a gender feature and is furthermore not able to compute a resolved gender feature on the basis of the respective gender features of its conjuncts (see also Bhatt & Walkow (2013)). This type of ϕ-deficiency typically leads to problems, as the agreeing head cannot collect all the features it is looking for. As

a result, various sorts of repair strategies kick in, such as default valuation (in Bhatt & Walkow (2013); Marušič et al. (2015)), a second agreement cycle (in Bošković (2009)) or last-resort valuation at PF (in Marušič et al. (2015)). The assumption that coordination heads are ϕ-deficient, and thus not ideal agreement targets, captures the observation that agreement with coordinate noun phrases often leads to various processes typically viewed as *repair* strategies (e.g. default valuation).

4.1.2. Distributed Agree. Another assumption shared by several approaches to CCA is that the valuation of features on agreeing heads can take place in steps across the syntax or the postsyntactic component. This assumption has been called Distributed Agree. In order to keep the syntax exclusively operating on the basis of hierarchical structure, these approaches (e.g. Benmamoun et al. (2009), Bhatt & Walkow (2013), Marušič et al. (2015)) assume that linearity effects arise if agreement takes place in the postsyntactic component after linearization has taken place. In these approaches, it is typically assumed that syntactic AGREE is a two-step process: During the syntactic derivation, an agreeing syntactic head can establish a relation with a syntactic object, a process sometimes referred to as MATCH (or AGREE-LINK in Arregi & Nevins (2012)). The actual transferral of ϕ-features from the argument to the agreeing head, a process referred to as VALUE (or AGREE-COPY in Arregi & Nevins (2012)), takes place in a second step. In some cases, a situation can arise where MATCH applies in the syntax and VALUE applies at PF, after linearization of constituents has taken place. This assumption straightforwardly models the intuition that it is the linear order that is responsible for CCA. In approaches that resort exclusively to syntactic hierarchical structure to derive agreement variation (e.g. Bošković (2009); Murphy & Puškar (2017)), this does not hold so straightforwardly. Instead, the variation between FCA and LCA is correlated with the presence or absence of syntactic movement, but not with word order per se.

4.1.3. Equidistance. Finally, the third assumption shared by various approaches is that the specifier of a coordination phrase and the projection of its head, the ConjP, are equidistant. If c-commanded by an agreeing head, both the specifier and the head are equally accessible and thus equally suitable targets for agreement. It is argued that since there is no asymmetric c-command relation between the whole conjunction phrase and its specifier, none of them block agreement of a higher head with the other. This assumption is found in van Koppen (2006), Bošković (2009), Crone (2016) and is predominantly used to account for cases of FCA (although see Bošković (2009) who uses equidistance to feed LCA). Furthermore, accounts along those lines can straightforwardly explain word order asymmetries in languages where SV-orders trigger resolved agreement but VS-orders trigger FCA (such as Arabic). The reason is that the specifier competes with the conjunction phrase as an agreement target only when they are both c-commanded by the agreeing head. When the agreeing head is c-commanded by the conjunction phrase, no competition arises.

4.2. Theoretical Approaches

In this section, we will discuss three classes of proposals as to how model instances of CCA, with two examples in each. As space is limited, we cannot do justice to all the proposals in the literature. We have chosen these five analyses trying to strike a balance between a relatively wide coverage of attested CCA patterns while at the same time showing that even

for related or identical languages, some fundamentally different approaches are possible. All of the approaches are theoretically explicit and as such, make testable predictions when encountering new empirical patterns.

4.2.1. Equidistance and Locality of Agreement. The first class of proposals view FCA (and CCA) as the result of the interaction of agreement relations under which the first conjunct and the ConjP are equidistant from the probe, and the optionality of CCA (as opposed to resolution) is governed by mechanisms regulating the optionality of equidistance.

4.2.1.1. van Koppen (2005, 2006). This approach is developed for cases of FCA of complementizers and verbs in Dutch, and subsequently extended to other languages showing an FCA pattern, such as Arabic and Irish. The configurations that are considered in this approach all have in common that abstractly, a functional head immediately precedes the noun phrase it agrees with. When the target position of agreement is filled with a conjoined noun phrase, a potential configuration of FCA arises. An example of first conjunct complementizer agreement is shown in (25):

(25) Ich dink de-s doow an ich ôs kenne treffe.
I think that-2SG [you.SG en I]$_{1pl}$ us.1PL can.PL meet
'I think that you and I can meet.' (Tegelen Dutch; van Koppen (2006))

Here, the complementizer *de* probes for ϕ-features and hits the conjoined subject located in SpecTP. The head of the ConjP and its specifier are equidistant from C and thus equally accessible.

(26) 

This equidistance does not cause a problem. The complementizer simply collects the ϕ-features of both targets, and it is only later in the morphological component that the choice of agreement marker is made based on specificity of morphological exponents, according to the Subset Principle (Halle (1997)). Since the complementizer in Tegelen Dutch only shows agreement in the second person singular, this form counts as more specific and is thus chosen. On an abstract level, this analysis transfers to languages like Irish and Arabic, in which clause-initial verbs show FCA with conjoined subjects. In both languages, it is usually assumed that the verb moves to a clause-initial functional head while the subject stays low. As a consequence, again, SpecConjP and ConjP are equidistant under van Koppen's definition. It must be noted, nonetheless, that in a few languages, it is hard to motivate the claim that FCA always follows from morphological specificity considerations. FCA in Arabic, for example, can show up as various morphemes, not all of which are more specific than the corresponding morphemes for resolved agreement. However, as mentioned in the previous section, due to its invoking the concept of equidistance, the approach nicely derives asymmetries between SV-orders and VS-orders – only the latter of which triggers FCA in languages like Arabic.

4.2.1.2. Bošković (2009). The approach developed by Bošković (2009) discusses cases of closest conjunct agreement in BCS in both preverbal and postverbal position. The underlying configuration of cases of FCA in postverbal position is very similar to the approach

by van Koppen (2006). Here, the agreeing head probes for ϕ-features inside its complement and hits the lower subject, which has not moved out of its base position. Since the probe on the verbal head in the respective constructions in BCS also searches for a gender feature, agreement with the coordination phrase does not suffice. Since ConjPs are ϕ-deficient, ConjP can only value the number feature on the probe, and the gender feature remains unvalued. Fortunately, the first conjunct which — due to equidistance – is equally accessible, has a gender feature and can value the features on the probe. As a consequence, FCA arises in postverbal position.

If however, the head that probes for ϕ-features also induces movement of the subject into a preverbal position, a different situation arises. As in cases of FCA, the probe finds both the whole ConjP *and* the first conjunct. Crucially, a problem arises since now the probing head does not know which of its agreement targets to pied-pipe into its specifier. In BCS, the first conjunct can be moved out of the conjunction phrase, in violation of the Coordinate Structure Constraint. Hence, both the first conjunct as well as the whole coordination could undergo movement. As a result of this *lethal ambiguity* (McGinnis 1998), the probe enters into a second cycle of Agree and finds the lower conjunct. This time, no ambiguity arises, as non-initial conjuncts cannot be extracted from the coordination phrase in BCS. The probe can pied-pipe the whole ConjP and agree with the last conjunct.

In this approach, the probe does not see whether the element it agrees with linearly precedes or follows it. Agreement only correlates with whether an element has undergone movement or not. In general, it can be said that the approach draws on a number of of specific properties of BCS, such as the violability of the CSC for first but not second conjuncts, as well as the correlation between movement and LCA. Thus, while the approach makes the right predictions for the pattern it discusses, it does not straightforwardly transfer to other languages.

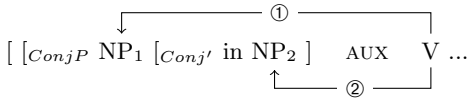
4.2.2. Two-Step Agree. The second class of proposals allow for linear-order effects in agreement by situating part of the agreement process itself in PF, a point at which linear order becomes available to morphosyntax.

4.2.2.1. Marušič et al. (2007, 2015). This approach discusses similar configurations as the one above in the related South Slavic language Slovenian. Using a series of experiments, the authors describe the variation of agreement patterns in different syntactic configurations. Marušič et al. (2007, 2015) share with Bošković's account the assumption that the ConjP is ϕ-deficient, as it cannot compute gender features on the basis of the respective features of its arguments. A probe that finds a ConjP will be able to value its number features but not its gender features. The probe thus remains partly unvalued, and speakers of Slovenian have a number of different repair mechanisms available to solve this problem. The first solution is the insertion of default gender features. The second solution is provided by the assumption that syntactic Agree applies in two steps, the latter of which can apply at PF (see the Section 4.1). Thus, the missing gender features can also be obtained by postponing the actual valuation of the probe to PF, at which point the probe has access to elements inside the ConjP. Since, by assumption, there is a certain flexibility with respect to the order of operations at PF, the valuation of the probe can apply either before or after linearization. If it applies before linearization, then the structurally highest (i.e. the first) conjunct provides the missing gender features. When valuation applies after linearization, therefore, the linearly closest conjunct (i.e. the first or the last depending on the position

of the ConjP relative to the probe) provides features.

This derivation yields the following patterns: If the agreeing head precedes the ConjP then it will either insert default gender features or find the features of the first conjunct. Since the first conjunct is both the structurally highest and linearly closest conjunct, this is the only option. If the agreeing head however follows the ConjP, the speaker will either insert default features, chose the structurally highest conjunct (i.e. the first one - see ① below) or the linearly closest conjunct (i.e. the second one - see ② below).

(27a) [Teleta in krave] so odšle / odšla / odšli na pašo.
cow.F.PL and calf.N.PL AUX.PL went.F.PL went.N.PL went.M.PL on graze
'Calves and cows went grazing.'
(Slovenian; Marušič et al. (2015))

(27b) 

This approach is suited to derive the variable pattern found in Slovenian and, moreover, tries to cover the relative frequencies of the respective patterns in various syntactic configurations. It remains to be seen whether approaches along those lines can be transferred to languages which have more restrictive patterns, such as word order restrictions or subject-object asymmetries.

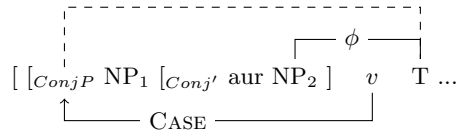
4.2.2.2. Bhatt & Walkow (2013). This approach sets out to cover a complex pattern in Hindi-Urdu where the availability of resolved agreement or CCA patterns along with the grammatical function of the agreement trigger. Depending on the aspect of the clause, either subjects or objects agree with the verb, and it can be observed that subjects trigger resolved agreement (28a) whereas objects trigger CCA (28b).

(28a) Ram aur Sita gaa rahe hãĩ
Ram.M and Sita.F sing PROG.M.PL BE.PRES.PL
'Ram and Sita are singing.'

(28b) Ram-ne ek thailaa aur ek peṭii aaj uṭhaa-yii
Ram-ERG a bag.M and a box.F today lift-PFV.F.SG
'Ram lifted a bag and a box.'
(Hindi; Bhatt & Walkow (2013))

The starting point of the analysis by Bhatt & Walkow (2013) is Bhatt's (2005) assumption that case assignment works differently in the two aspects. In non-perfective clauses, the nominative on the subject comes from T, whereas the nominative on the objects in perfective clauses comes from the lower head v. The second assumption is that ϕ-agreement is dissociated from case assignment: ϕ-agreement is always located on T. This creates a situation where, in perfective clauses, the ϕ-probe on T targets a head that has already been assigned case by v. This case assignment relation with v has however deactivated the ConjP, and now it is no longer a proper target for AGREE. In Bhatt & Walkow's terminology, T can only MATCH the features on the ConjP but not be valued by them (dashed line in (29)). In the Distributed Agree Model (see Section 4.1), this deactivation is not fatal, since actual feature valuation can be postponed until after linearization. After linearization, the closest conjunct can value the ϕ-features on T.

(29)



This approach manages to derive the basic subject and object asymmetry as well as additional patterns involving CCA in Right Node Raising patterns. It will be interesting to see whether this subject-object asymmetry is also found in other split alignment languages, or in languages showing both subject and object agreement. Furthermore, one might also wonder whether syntactic agreement relations other than Case-agreement can deactivate the ConjP and thus bleed resolved agreement.

4.2.3. Ordering of Primitive Operations. The next class of proposals to be discussed view CCA as the result of the sequencing of very basic syntactic operations that allow optionality in the order in which they apply. They do not refer to linearity within the syntax per se, but rather through an intricate derivational process enable the features of one of the conjuncts to be available before later operations potentially make them opaque.

4.2.3.1. Larson (2013). The account in Larson (2013) deals with the above-mentioned cases of CCA in Arabic varieties previously discussed in Aoun et al. (1994) and Munn (1999). Preverbal subjects in these Arabic dialects almost always trigger resolved agreement while postverbal subjects trigger resolved agreement or FCA:

(30a) Karim w Marwan mšaw
Karim and Marwan left.PL
'Karim and Marwan left.'

(30b) ža /žaw Karim w Marwan
came.SG /came.PL Karim and Marwan.
'Karim and Marwan came.'
(Moroccan Arabic; Larson (2013))

Unlike all of the other approaches discussed in this section, Larson (2013) uses an adjunction structure of coordination discussed for (13). The underlying idea of this approach is that the basic MERGE operation is divided into two steps CONCATENATE and LABEL.[4] Usually these operations follow each other immediately but with adjuncts, a concatenated structure can remain temporarily unlabeled, thereby accounting for processes for which adjuncts seem to be invisible. Since coordination is assumed to be adjunction, the concatenation of the first conjunct and conjunction plus the second conjunct can optionally be labelled. If it is labelled, it will count as a proper coordination, and if it is not, then it will essentially count as an adjunction structure triggering singular agreement. Preverbal subjects crucially must be labelled in order to undergo movement. Hence, preverbal subjects always trigger plural agreement.

[4] MERGE is generally taken to be the operation involved in syntactic structure building. It takes two syntactic objects as an input and combines them creating one complex object that can itself serve as input to MERGE. Larson's appraoch decomposes MERGE into two operations: CONCATENATE takes two syntactic objects and combines them into a complex of objects, whereas LABEL makes that complex of objects atomic itself by choosing a syntactic label for the complex.

The approach derives the well-known SV/VS asymmetry with a minimum of machinery and elegantly extends it to additional facts involving binding and asymmetries between distributive and collective readings of the coordination. However, it is clear that it cannot be extended to cases of last conjunct agreement, let alone sandwiched agreement. Since it is always the second conjunct which can optionally be made invisible for the purposes of agreement (by not labelling it), we can only derive alternations between resolved agreement and FCA. Furthermore, it makes the likely unwelcome prediction that arguments which stay in situ can always optionally trigger FCA.

4.2.3.2. Murphy & Puškar (2017). The model proposed in Murphy & Puškar (2017) sets out to cover a similar data set from BCS as Bošković's approach, with some additional data points. Similar to Bošković (2009), it derives CCA patterns without actually referring to linear representations. However, it approaches these patterns from a very different angle than all the accounts above. The main idea is this: Contrary to what the data initially might suggest, agreeing elements actually never target single conjuncts. Agreement always targets the conjunction phrase. Apparent CCA patterns arise as a result of asymmetric feature percolation (modelled as AGREE-relations) inside the conjunction phrase. Since the direction of agreement inside of the coordination phrase correlates with the direction of agreement in the clause, one has the surface impression of linearly-conditioned agreement.

The main ingredient of the approach is the direction of AGREE interleaved with the cyclic merge of the conjunction and its arguments. If MERGE precedes AGREE, then the features of both arguments end up on the conjunction. If AGREE precedes MERGE, no features will end up on the conjunction as the arguments are not yet part of the structure when agreement applies. Crucially, AGREE can apply in two directions (upward and downward) and both sorts of AGREE can be interleaved with the application of MERGE individually. If MERGE follows DOWNWARD AGREE but precedes UPWARD AGREE, then only the features of the higher (i.e. the first) conjunct will end up on the conjunction phrase.

Importantly, this relative order of MERGE, UPWARD AGREE and DOWNWARD AGREE must be kept constant in one derivation, and this results in the correlation between first conjunct agreement and the absence of movement as well as movement and first or last conjunct agreement. This proposal derives similar data patterns as the ones discussed above, but does so within a radically different approach. Specifically, it manages to derive these patterns without recourse to linear order, by means of ordering of operations. While some of the machinery invoked might be considered non-standard, it makes the interesting prediction that a certain order of operations in a given derivation should surface in all sorts of places in clause-level syntactic phenomena. This means that patterns of CCA potentially should correlate with properties elsewhere in a syntactic derivation. It remains to be seen whether such phenomena can be found.

5. Non-Verbal CCA

While the discussion throughout has largely been on closest conjunct agreement as found with verbal elements such as auxiliaries, participles, and predicate adjectives, CCA can be found in at least two other domains, both of which invite interesting comparison as to the extent of their differences with verbal CCA. The first of these is complementizer agreement, as already introduced above in (25), and widely found in West Germanic languages. Such cases all involve the agreeing element preceding and c-commanding the conjunction, and

largely involve CCA with the highest conjunct. Observation of these cases is often limited to the agreement paradigm available for complementizer agreement, which usually retains the most overt distinctions in categories such as 2sg. In Polish, the conditional complementizer *zeby* can also exhibit CCA, yielding sandwiched patterns (Citko (2018)):

(31) Maria chce, zebym ja i mój sąsiad wyszed
Maria wants that.COND.1SG I and my neighbor.M.SG left.M.SG
'Maria wants me and my neighbor to leave.'
(Polish; Citko (2018))

A second domain in which CCA is found is the noun phrase itself, as shown in the following examples from Spanish (Demonte & Pérez-Jiménez (2012)), where the possessive adjective agrees with the first conjunct (while the postnominal verb phrase is entirely plural, again instantiating a sandwiched configuration):

(32) Aquellos cuya madre y padre están casados entre sí
those whose.f.sg mother.f.sg and father.m.sg are.pl married.m.pl to.each other
'Those whose mother and father are married to each other.'
(Spanish; Demonte & Pérez-Jiménez (2012))

Prenominal adjectival gender and number agreement with only the first conjunct of this sort is widespread in Spanish, Italian, and French, and although such cases are occasionally treated as the result of ellipsis (Camacho (2003); Cinque (2010)), Demonte & Pérez-Jiménez (2012) provide convincing arguments on the basis of plural predicates (as in (32)) and quantificational readings that such cases cannot be reduced to ellipsis. Instead Demonte & Pérez-Jiménez (2012) argue that either the first conjunct or the ConjP head itself can be agreed with (somewhat like the approaches in Section 4.2.1), and that the ConjP head itself bears plural features (index-features in the sense of King & Dalrymple (2004), or perhaps equivalent to the plural *pro* atop the ConjP assumed by Citko (2004)). Interestingly, postnominal agreement in Spanish is more variable, and subject to linear adjacency effects, and thus interrupted by the adverb *recientemente* in (33):

(33a) *La radio y television recientemente publica han
the.f.sg radio.f.sg and television.f.sg recently public.f.sg have.prs.3pl
renovado su programacion.
renewed their programming

(33b) La radio y television recientemente publicas han
the.f.sg radio.f.sg and television.f.sg recently public.f.pl have.prs.3pl
renovado su programacion.
renewed their programming
'The recently gone-public radio and television have renewed their programming'
(Spanish; Demonte & Pérez-Jiménez (2012))

A number of approaches to DP-internal conjunct agreement look at the effect of mismatches on overall ineffability, where resolution seems impossible. Thus, Shen (2015) points out the patterns of determiner-sharing in (34):

(34a) This boy and girl arrived on time
(34b) *This boy and girls arrived on time

(34c) *These girls and boy arrived on time
(34d) The boy and girls arrived on time
(34e) The girls and boy arrived on time

A mismatch is impossible, unless the definite article (which makes no singular/plural distinction) is employed. Similarly, Aljović & Begović (2016) point out that prenominal adjectival agreement in BCS is disallowed when the two conjoined nouns would require different agreement endings, leading to ineffability, but actually saved when the two are morphosyntactically distinct but accidentally syncretic. Why DP-internal agreement of this sort cannot tolerate mismatches, and opt for either CCA or default agreement, as opposed to verbal agreement (which happily does so in BCS) is an open research question. One possibility is that structures such as (34) involve multidominance with each conjunct, rather than agreement with the coordination as a whole, but why such a structure is forced for DP-internal cases as opposed to verbal cases would remain unanswered at present.

6. Experimental Approaches

Experimental work on CCA can be employed in a variety of methods, including elicited production (Tantalou & Badecker (2005); Harrison (2009); Marušič et al. (2015)), ERP (Palmović & Willer-Gold (2016)), and eyetracking (Keung & Staub (2018)), and ideally future work will continue to apply experimental work to lesser-accessible language varieties, for which experimental verification of grammatical descriptions is particularly helpful. Closest conjunct agreement patterns of the type reported in this paper constitute a phenomenon ideal for experimental syntax, for a number of reasons. First and foremost, linguistic theories are ideally built on robust empirical foundations, and since closest conjunct agreement is potentially indicative of the availability of linear-order effects in syntax (otherwise thought to be largely absent from syntactic generalizations), it merits very rigorous verification. Second, since closest conjunct agreement can often be subject to prescriptive influence, the simple 'Hey Sally' /ask-a-native-speaker methodology may often be subject to metalinguistic influence, particularly with participants who have explicitly studied the prescriptive option. Third, in part related to the prior point, is the fact that conjunct agreement phenomena even when not affected by prescriptive influence, very often exhibit a great deal of interspeaker variation, particularly when there are tradeoffs between hierarchical and linear (e.g. FCA and CCA) options, sometimes subject to featural, lexical, and pragmatic influences – and sometimes even intraspeaker variation, in which a single individual will accept multiple options. In order to address these issues, the methods of experimental syntax are particularly helpful (cf. Schütze (1996); Cowart (1997); Featherston (2007); Goodall (2011)), ideally when including nonlinguist study participants, a clearly defined task, a factorial design for the construction of stimuli, and quantitative results.

Quantitative results of this sort can be useful for a number of theoretical reasons beyond establishing the robustness and the validity of the phenomenon alone and a scale of acceptability or naturalness in production for options such as FCA vs CCA, or CCA with neuter vs CCA with feminine, or CCA with plural vs singular conjuncts. They can allow one to provide a firm comparison between CCA itself as a phenomenon to be accounted for within grammar-based theories of agreement and other, apparently similar agreement-related phenomena that are sometimes accounted for grammar-externally. One such phenomenon, about which dozens of papers (far more than there are on conjunct agreement) have been

written is agreement attraction (Bock & Miller (1991)). A variety of models have been developed to account for the plural agreement found in such cases, which does not agree with the head of the noun phrase as a whole, and in recent years, memory-based models in terms of cue-retrieval have been increasingly popular. Should CCA turn out to be a similar phenomenon to agreement attraction, this would suggest it might also be handled or explored in terms of such models (see Haskell & MacDonald (2005) who suggest a unification between agreement attraction and disjunction agreement in English). However, experimental results have the potential to point in a different direction. First, a meta-study of the rates of attraction (Eberhard et al. (2005)) point to about 16% in production, whereas Willer-Gold et al. (2018) found rates of 40% and up of CCA in South Slavic (and rates of attraction lower than 10%). The stark difference in the quantitative rates of CCA vs attraction in these languages point to distinct mechanisms underlying the two. Secondly, work such as Franck et al. (2002) has found that attraction can actually agree with a medial modifier (e.g. *The key to the cabinets in the office are missing*), which they treat in terms of hierarchical dominance of the second over third modifier. No such hierarchical sensitivity seems to step in when CCA arises, as medial conjunct agreement is unattested in Slovenian (Marušič et al. (2015),Exp 2b). Finally, a markedness asymmetry between plural vs singular is the hallmark of agreement attraction, and work such as Wagers et al. (2009) has focused on an 'early illusion of ungrammaticality and a late illusion of grammaticality' for singular attraction (e.g. *The keys to the cabinet is missing*). In work on singular CCA in English, Keung & Staub (2018) found neither such effect. Experimental approaches therefore have enabled, through a variety of dependent measures, the ability to dissociate CCA from attraction. Future experimental work may further reveal the extent to which mechanisms of CCA are employed in agreement found with quantified noun phrases, which also show patterns of variability and tradeoffs between hierarchical and linear order (e.g. Stojković & Driemel (2018)).

7. Two Theoretical Issues for further research

7.1. The Role of Linear Adjacency

As mentioned in Section 5, adverb intervention can disrupt the possibility of CCA in some cases. While work on verbal CCA often points out the irrelevance of intervening material on CCA (e.g. Marušič et al. (2007)), it may have an additive, gradient effect in the amount of CCA elicited (as found for BCS by Peti-Stantić & Tušek (2016)), and indeed leads to impossibility of CCA in Spanish (Demonte & Pérez-Jiménez (2012)) and complementizer agreement in West Germanic (Fuß (2014)). Finally, Benmamoun et al. (2009) has documented that in Tsez, linear adjacency is a prerequisite for CCA whereas in Hindi it is not.

(35) y-ik'is (*iduɣor) kid-no užu-n
II-went home girlABS.II-and boy.ABS.I-and
'A girl and a boy went (home).'
(Tsez; Benmamoun et al. (2009))

(36) raam-ne khariid-ii (us dukaan-se) ek saRii aur kuch
Ram-ERG buy-PERF.FEM.SG that shop-from a saree.ABS.FEM.SG and kuch
kurte
kurte. ABS.MASC.PL
'Ram bought (from that shop) a saree and a few kurtas.'
(Hindi; Benmamoun et al. (2009))

While some of these cases may be amenable to the possibility of agreement realization fed/bled by prosodic phrasing (see Ackema & Neeleman (2003)), in Tsez, agreement is a prefix and thus not strictly adjacent to the conjunction phrase. The same holds in the Spanish cases. Furthermore, the issue of linear contiguity ties back into Closest Conjunct Case, since some alleged instances of Closest Conjunct Case (e.g. *Peter and I/us will go to the movies*, see e.g. Sobin (1997); Parrott (2009)) have been reanalyzed as involving cases of allomorphy triggered only under linear adjacency. It is still unclear whether all of these adjacency effects can or should receive a uniform explanation. Therefore, the role of linear adjacency in the availability of CCA is an issue that requires further research.

7.2. Closest Disjunct Agreement

As *and* and *or* are seemingly parallel logical operators with similar syntax, accounts of conjunct agreement should ideally extend to disjunct agreement as well. Disjunct agreement has been discussed by Morgan (1972), and experimentally studied by Peterson (1986) and Haskell & MacDonald (2005), who find that closest disjunct is agreed with in elicited production such as *Do you know if the tiger or the lions was/were roaring louder?* and found also in subject-auxiliary inversion cases such as *Why is neither ESOL nor routes into employment on the agenda?*

One difference with conjunct agreement that, as Smith et al. (2018) discuss, resolution is often not possible with disjunctions, e.g. in Dutch (37):

(37a) Óf de jongens óf het meisje is naar de bioscoop geweest.
either the boys or the girl is to the cinema been

(37b) *Óf de jongens óf het meisje zijn naar de bioscoop geweest.
either the boys or the girl are to the cinema been
'Either the boys or the girl has been to the cinema.' (Dutch; Smith et al. (2018))

One possibility is to assume an identical structure for ConjP and for DisjP, under a single Boolean head (BoolP), with the difference being that DisjP never initiates resolution (perhaps because it lacks an inherent plural feature, unlike what is often proposed for Conj). Indeed, Smith et al find that when resolution is found with disjunctions, such as in Darghi (van den Berg (2004)) and Passamaquoddy (Bruening (2002)), it is in *neither ... nor* contexts, which, given DeMorgan's law in logic, might be analyzed as coming from an underlying syntax of ¬ x & ¬ y.

It is important to consider the potential role of ellipsis as an underlying clausal source for disjunction agreement. Smith et al. (2018) provide some interesting arguments that this cannot be the sole source. Thus, in Guébie, a Niger-Congo language (Sande (2017)), the pronoun corresponding to the words 'spider' and 'basket' is *a*, while the one for the word for 'bee' is ɛ. While the disjunction of 'spider' and 'basket' can be replaced with the pronoun *a*, none of the pronouns can be used to replace to the disjunction of 'spider' and 'bee' since

they each require different pronouns. Smith et al. (2018) take this as an argument that the disjunction head must see both disjuncts, and hence that disjunction agreement is not the result of ellipsis. Interestingly, they note that in Iraqw (Cushitic), according to Mous (2004), subject agreement is with the highest disjunct, while object agreement is with the closest disjunct (an asymmetry that recalls Hindi, above), and again point to the difficulties in explaining this under an ellipsis account.

Finally, looking at disjunction might be particularly promising since, in many languages, disjunction is expressed by multiple disjunction elements before each disjunct. Such cases, however, are not limited to disjunction. As seen with the examples from Tsez above, conjunction can be expressed by having coordination markers on each conjunct. Mitrović & Sauerland (2016) posit additional syntactic structure inside each of conjunct to accomodate for these markers, it could prove highly interesting to see how this additional structure interferes with conjunction agreement. One might expect that it would hinder feature resolution of the conjunction phrase, favoring CCA, or that it destroys the context for FCA, as the ConjP and the first conjunct are no longer equidistant in such a structure.

Crosslinguistic experimental work on closest disjunct agreement, particularly controlling for negative vs positive versions of it and ellipsis, along with the potential similarities with three-conjunct coordinations, has been looked at very little, and therefore offer fecund territories for further research.

ACKNOWLEDGMENTS

We thank Boban Arsenijević, Anke Himmelreich, Lanko Marušič, and Jana Willer-Gold for very helpful comments on an earlier draft.

LITERATURE CITED

Ackema, Peter & Ad Neeleman (2003): Context-sensitive Spell-out, *Natural Language and Linguistic Theory* 21(2), 225–265.

Aljović, Nadira & Muamera Begović (2016): Morphosyntactic aspects of adjectival and verbal first-conjunct agreement, *Journal of Slavic Linguistics* 24, 7–39.

Aoun, Joseph, Elabbas Benmamoun & Dominique Sportiche (1994): Agreement, word order and conjunction in some varieties of Arabic, *Linguistic Inquiry* 25(2), 195–220.

Arregi, Karlos & Andew Nevins (2012): *Morphotactics: Basque Auxiliaries and the Structure of Spellout*. Springer, Dordrecht.

Arsenijević, Boban, Jana Willer-Gold, Nadira Aljović, Nermina Čordalija, Marijana Kresić, Nedad Leko, Frane Malenica, Franc Lanko Marušič, Tanja Milićev, Nataša Milićević, Petra Mišmaš, Ivana Mitić, Anita Peti-Stantić, Branimir Stanković, Jelena Tušek & Andrew Nevins (2017): When Elided Clausal Conjunction is not the Only Source of Closest Conjunct Agreement, *submitted* .

Badecker, William (2007): A feature principle for partial agreement, *Lingua* 117, 1541–1565.

Benmamoun, Elabbas, Archna Bhatia & Maria Polinsky (2009): Closest Conjunct Agreement in Head Final Languages, *Linguistic Variation Yearbook* 9(1), 67–88.

Bhatt, Rajesh (2005): Long distance agreement in Hindi-Urdu, *Natural Language and Linguistic Theory* 23(4), 757–807.

Bhatt, Rajesh & Martin Walkow (2013): Locating agreement in grammar: An argument from agreement in conjunctions, *Natural Language and Linguistic Theory* 31, 951–1013.

Bock, K. & Carol Miller (1991): Broken Agreement, *Cognitive Psychology* 23, 45–93.

Borsley, Robert (2009): On the Superficiality of Welsh Agreement, *Natural Language and Linguistic Theory* 27(2), 225–265.

Bošković (2009): Unifying first and last conjunct agreement, *Natural Language and Linguistic Theory* 27(3), 455–496.

Bošković, Željko & Steven Franks (2000): Across-the-board movement and LF, *Syntax* 3, 107–128.

Bruening, Benjamin (2002): Raising to object and proper movement. Ms.

Camacho, José (2003): *The structure of coordination. Conjunction and agreement phenomena in Spanish and other languages*. Dordrecht: Kluwer.

Chomsky, Noam (1965): *Aspects of the Theory of Syntax*. MIT Press.

Cinque, Guglielmo (2010): *The syntax of adjectives: A comparative study*. MIT Press.

Citko, Barbara (2004): Agreement asymmetries in coordinate structures. In: *Formal Approaches to Slavic Linguistics 12, (The Ottawa Meeting)*. Michigan Slavic Publications, Ann Arbor, Mich.

Citko, Barbara (2018): Complementizer Agreement with Coordinated Subjects in Polish, *submitted* .

Corbett, Greville G. (1983): *Hierarchies, Targets and Controllers: Agreement patterns in Slavic*. London: Croom Helm.

Cowart, Wayne (1997): *Experimental Syntax: Applying Objective Methods to Sentence Judgements*. Sage, Thousand Oaks, California.

Crone, Phil (2016): Finnish first conjunct agreement & the direction of Agree, *Finno-Ugric Language and Linguistics* 5(2), 2–45.

Dalrymple, Mary & Ronald M. Kaplan (2000): Feature Indeterminacy and Feature Resolution, *Language* 76, 759–798.

Demonte, Violeta & Isabel Pérez-Jiménez (2012): Closest conjunct agreement in Spanish DPs: Syntax and beyond, *Folia Linguistica* 46.1, 21–73.

Dik, Simon (1968): *Coordination: Its Implications for the Theory of General Linguistics*. North Holland.

Doron, Edit (2000): Word Order in Hebrew. In: J. Lecarme, J. Lowenstamm & U. Shlonsky, eds., *Research in Afroasiatic Grammar: Papers from the Third conference on Afroasiatic Languages, Sophia Antipolis, 1996*. Vol. 202 of *Current Issues in Linguistic Theory*, John Benjamins, pp. 41–56.

Driemel, Imke (2018): Person Mismatch Resolution An Argument for Privative Features, *submitted* .

Eberhard, K.M., J. C. Cutting, & K Bock (2005): Making syntax of sense: Number agreement in sentence production, *Psychological Review* 112.3, 531–559.

Featherston, S. (2007): Data in generative grammar: The stick and the carrot, *Theoretical Linguistics* 33, 269–318.

Franck, Julie, Gabriella Vigliocco & Janet Nicol (2002): Subject-verb agreement errors in French and English: The role of syntactic hierarchy, *Lanugage and Cognitive Processes* 17, 371–404.

Fuß, Eric (2014): Complementizer agreement (in Bavarian): Feature inheritance or feature insertion?. In: G. Grewendorf & H. Weiß, eds., *Bavarian Syntax: Contributions to the theory of syntax*. John Benjamins, Amsterdam/Philadelphia.

Goodall, Grant (2011): Syntactic Satiation and the Inversion Effect in English and Spanish Wh-Questions., *Syntax* 14, 29–47.

Halle, Morris (1997): Impoverishment and Fission. In: B. Bruening, Y. Kang & M. McGinnis, eds., *PF: Papers at the Interface*. Vol. 30 of *MIT Working Papers in Linguistics*, MITWPL, MIT, Cambridge, Mass., pp. 425–450.

Harrison, Annabel Jane (2009): The Production of Subject-Verb Agreement in Slovene and English. PhD thesis, University of Edinburgh.

Haskell, Todd & M. MacDonald (2005): Constituent structure and linear order in language production: Evidence from subject-verb agreement, *Journal of Experimental Psychology: Learning, Memory and Cognition* 31, 891–904.

Johannessen, Janne Bondi (1996): Partial agreement and coordination. Remarks and Replies, *Linguistic Inquiry* pp. 661–676.

Johannessen, Janne Bondi (1998): *Coordination*. Oxford University Press, USA.

Kalin, Laura & Philipp Weisser (2017): Asymmetric DOM in coordination and its implications for movement-based approaches, *Linguistic Inquiry* . to appear.

Keung, Lap-Ching & Adrian Staub (2018): Variable agreement with coordinate subjects is not a form of agreement attraction, *submitted* .

King, Tracy H. & Mary Dalrymple (2004): Determiner agreement and noun conjunction., *Journal of Linguistics* 40(1), 69–104.

Kiss, Katalin É. (2012): Patterns of agreement with coordinate noun phrases in Hungarian, *Natural Language & Linguistic Theory* 30(4), 1027–1060.

Koutsoudas, Andreas (1968): The A over A convention, *Linguistics* 46, 11–20.

Larson, Bradley (2013): Arabic Conjunct-Sensitive Agreement and Primitive Operations, *Linguistic Inquiry* 44(4), 611–631.

Marušič, Franc, Andrew Nevins & Amanda Saksida (2007): Last-conjunct agreement in Slovenian. In: R. Compton, M. Goledzinowska & U. Savchenko, eds., *Formal Approaches to Slavic Linguistics 15, (The Toronto Meeting)*. Michigan Slavic Publications, Ann Arbor, Mich., pp. 210–227.

Marušič, Franc, Andrew Nevins & Bill Badecker (2015): The Grammars of Conjunction Agreement in Slovenian, *Syntax* 18(1), 39–77.

McGinnis, Martha (1998): Locality in A-movement. PhD thesis, MIT.

Mitchley, Hazel (2015): Agreement and Coordination in Xitsonga, Sesotho and IshiXhosa: An Optimality Theoretic Perspective. Master's thesis, Rhodes University.

Mitrović, Moreno & Uli Sauerland (2016): Two conjunctions are better than one, *Acta Linguistica Hungarica* 63(4), 471–494.

Moosally, Michelle (1998): Noun Phrase Coordination: Ndebele agreement patterns and crosslinguistic variation. PhD thesis, University of Texas.

Morgan, Jerry L. (1972): Verb agreement as a rule of English. In: *Proceedings of the 8th Regional Meeting of the Chicago Linguistic Society*. CLS, pp. 278–286.

Mous, Maarten (2004): The grammar of conjunctive and disjunctive coordination in Iraqw. In: *Coordinating constructions: An overviewy*. Amsterdam and Philadelphia: John Benjamins Publishing Company, pp. 109–122.

Munn, Alan (1993): Topics in the Syntax and Semantics of Coordinate Structures. PhD thesis, University of Maryland.

Munn, Alan (1999): First Conjunct Agreement: Against a Clausal Analysis, *Linguistic Inquiry* 30, 643–668.

Murphy, Andrew & Zorica Puškar (2017): Closest Conjunct Agreement is an Illusion, *Natural Language and Linguistic Theory* p. (to appear).

Nonato, Rafael (2013): Clause-chaining, switch-reference and coordination. PhD thesis, MIT.

Palmović, Marijan & Jana Willer-Gold (2016): Croatian Mixed-Gender Conjunct Agreement: an ERP Study, *Journal of Slavic Linguistics* 24, 137–160.

Parrott, Jeffrey (2009): Danish Vestigial Case and the Acquisition of Vocabulary in Distributed Morphology, *Biolinguistics* 3.2(3), 270–302.

Peterson, P. G (1986): Establishing verb agreement with disjunctively conjoined subjects: Strategies vs. principles, *Australian Journal of Linguistics* 6, 231–249.

Peti-Stantić, Anita & Jelena Tušek (2016): First comes first or proximity for all in Croatian: Gender agreement. Presented at the 20th Biennial Conference on Balkan and South Slavic Linguistics, Literature and Folklore, University of Utah.

Progovac, Ljiljana (1998a): Structure for Coordination (Part I), *GLOT International* 3(7).

Progovac, Ljiljana (1998b): Structure for Coordination (Part II), *GLOT International* 3(8).

Sande, Hannah (2017): Distributing morphologically conditioned phonology: Three cases studies from Guébie. PhD thesis, University of California, Berkeley.

Schütze, Carson (1996): *The empirical base of linguistics: Grammaticality judgments and linguistic methodology*. University of Chicago Press.

Schütze, Carson (1999): English Expletive Constructions Are Not Infected, *Linguistic Inquiry* 30(3), 467–484.

Shen, Zheng (2015): No Clash Constraint in Nominal RNR Number Agreement. In: *Proceedings of the 39th Annual Penn Linguistics Colloquium*. Vol. 22.1 of *University of Pennsylvania Working Papers in Linguistics*, Department of Linguistics, University of Pennsylvania, Philadelphia.

Smith, Peter W., Beata Moskal, Katharina Hartmann & Zheng Shen (2018): Feature Conflicts, Feature Resolution and the Structure of either. . .or. Ms., Univ Frankfurt.

Sobin, Nicholas (1997): Agreement, Default Rules, and Grammatical Viruses, *Linguistic Inquiry* 28, 318–343.

Stojković, Jelena & Imke Driemel (2018): How to agree with a QNP, *submitted* .

Tantalou, Niki & William Badecker (2005): Experimental studies of agreement in Modern Greek and their consequences for grammatical theory. Poster presented at the 18th Annual Meeting of the CUNY Human Sentence Processing Conference (University of Arizona).

Timmermans, M, H Schriefers, T. Dijkstra & M. Haverkort (2004): Disagreement on agreement: person agreement between coordinated subjects and verbs in Dutch and German., *Linguistics* 42, 905–929.

van den Berg, Helma (2004): The grammar of conjunctive and disjunctive coordination in Iraqw. In: *Coordinating constructions: An overview*. Amsterdam and Philadelphia: John Benjamins Publishing Company, pp. 197–226.

van Koppen, Marjo (2005): One Probe - Two Goals: Aspects of Agreement in Dutch Dialects. PhD thesis, Leiden University, Leiden.

van Koppen, Marjo (2006): One Probe, Multiple Goals: the case of First Conjunct Agreement. In: M. van Koppen, ed., *Special Issue of Leiden Papers in Linguistics 3.2*. .

Voeltz, Erhard (1971): Surface constraints and agreement resolution: some evidence from Xhosa, *Studies in African Linguistics* 2, 37–60.

Wagers, M. W., E. F. Lau & C. Philips (2009): Agreement attraction in comprehension: Representations and processes, *Journal of Memory and Language* 61.2, 206–237.

Wagner, Michael (2005): Prosody and Recursion. PhD thesis, MIT.

Walkow, Martin (2013): When can you agree with a closest conjunct?. In: *Proceedings of the 31st West Coast Conference on Formal Linguistics*. Cascadilla Press.

Wechsler, Stephen (2008): Elsewhere in Gender Resolution. In: *The Nature of the Word: Studies in Honor of Paul Kiparsky*. MIT Press.

Wechsler, Stephen & Larisa Zlatić (2003): *The Many Faces of Agreement*. CSLI, Stanford.

Weisser, Philipp (2015): *Derived Coordination: A Minimalist Perspective on Clause Chains, Converbs and Asymmetric Coordination*. Berlin: Mouton de Gruyter.

Weisser, Philipp (2017): On the Symmetry of Case in Conjunction, *submitted* .

Willer-Gold, Jana, Boban Arsenijević, Mia Batinić, Michael Becker, Nermina Čordalija, Marijana Kresić, Nedžad Leko, Franc Lanko Marušič, Tanja Milićev, Nataša Milićević, Ivana Mitić, Anita Peti-Stantić, Branimir Stanković, Tina Šuligoj, Jelena Tušek & Andrew Nevins (2018): When Linearity Prevails over Hierarchy in Syntax, *Proceedings of the National Academy of Sciences* 115.3, 495–500.

Willer-Gold, Jana, Boban Arsenijević, Mia Batinić, Nermina Čordalija, Marijana Kresić, Nedžad Leko, Franc Lanko Marušič, Tanja Milićev, Nataša Milićević, Ivana Mitić, Andrew Nevins, Anita Peti-Stantić, Branimir Stanković, Tina Šuligoj & Jelena Tušek (2016): Conjunct Agreement and Gender in South Slavic: From Theory to Experiments to Theory, *Journal of Slavic Linguistics* 24, 187–224.

Wurmbrand, Susi (2008): Nor: Neither disjunction nor paradox, *Linguistic Inquiry* 39(511-522).

Yngve, Victor (1960): A model and a hypothesis for language structure. In: *Proceedings of the American Philosophical Society 104*. .

Zhang, Niina (2010): *Coordination in Syntax*. Cambridge University Press.
Zoerner, Ed (1995): Coordination: The Syntax of &P. PhD thesis, University of California, Irvine.