COPYING AND RESOLUTION IN SOUTH SLAVIC AND SOUTH BANTU CONJUNCT AGREEMENT

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1. Conjunct Agreement: *Four* Strategies

The purpose of this paper is to develop a theory of resolution of gender values in conjunct agreement, ultimately couched in a theory of copying and nondistinctness. Ideally, as the resolution mechanism is implemented in terms of an agreement mechanism initiated within the &P, it should draw on tools of feature-based computation found elsewhere in the grammar. However, &P-internal agreement is unique within the grammar in that the two participating goals (namely, each conjunct) are equidistant from the &P head in question (assuming it is specified as needing to probe twice). As a result, existing mechanisms such as Multiple Agree (Hiraiwa, 2001, Anagnostopoulou, 2005), which are based on one goal being hierarchically higher than the other, and employed in accounts such as the Person-Case Constraint, are inapplicable. Instead, the closest grammatical parallels to an agreement mechanism with equidistant goals are found in phonology, and it will be proposed that precisely such a mechanism is shared in these two domains, even though they instantiate distinct modules of the grammar. As such, the analysis offered in this paper instantiates a case of Crossmodular Structural Parallelism, a hypothesis about the reuse of operations such as featural agreement, featural deletion, and feature co-occurrence constraints across domains of morphosyntactic and phonological features, and one that has been a fruitful part of linguistic theory throughout the work of Andrea Calabrese (e.g. Calabrese 1998) and many works inspired by it.

Resolution is the terminology employed in works such as Corbett (1991) to refer to how verbal or other agreement is computed for a subject noun phrase that has a mixed gender, such as in French below:

(1) *Resolution of mixed genders to masculine in French*:

a. [Le garçon et la fille] sont compétents / *compétentes
[The boy and the girl] aux.PL competent.M.PL / *competent.F.PL
'The boy and girl are competent'

In languages such as French, with two genders, a conjunction of masculine and feminine, when employing resolution for agreement, chooses masculine. In fact, in such cases, there is no way to tell apart what might be called 'resolution agreement' (a function that chooses a particular gender value given a set of two non-identical ones) from 'default agreement' – which simply chooses a single gender value as the default when ordinary agreement 'fails'.

This is what seems to happen in Icelandic, which has three genders. Mixed-gender combinations of masculine (M) + feminine (F) result in a resolution value with *neither* of these, but instead neuter.

(2) *Resolution of mixed genders to neuter in Icelandic*:

a. Drengurinn og telpan eru dhreytt
boy.def.M. and girl.def.F are tired.N.PL
'The boy and the girl are tired'

The neuter value here presumably reflects the *default* value that any conjunction has. Formally speaking, we could localize the [neuter] feature on the &P that heads the entire conjunction, assuming a structure like (3) as representing the language-specific nature of &P in Icelandic as lexically neuter.

(3) *Representation of the gender value on &P in Icelandic*:

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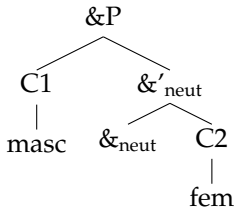

As such, the default gender – that which is lexically specified on the conjunction head – in French is masculine, and in Icelandic, it is neuter, and these are the result of agreement when the conjunction head itself is chosen as the controller. Icelandic does allow resolution: when both conjuncts are masculine, masculine is possible, and when both conjuncts are feminine, feminine is possible. But mixed conjunction requires the neuter.

Matters are even more complex, however, in South Slavic (Bosnian/Croatian/Serbian, Slovenian), where there are three genders, and there is the possibility of closest-conjunct agreement – namely agreement with one of the individual conjuncts, instead of resolution or default agreement. For South Slavic, conjunct agreement has been argued to show three distinct strategies: Highest Conjunct Agreement (HCA), Closest Conjunct Agreement (CCA) and Default Agreement. In the present paper, we put aside the first two completely (see Marušič et al. (2015), Murphy and Puškar (2017) inter alia for accounts of HCA and CCA), and focus on Default Agreement, arguing that in fact it should be cleft into *two distinct* agreement strategies, namely Default vs Resolution (see Willer-Gold et al. (2016) for a prior development of this claim).

There is a long tradition of study of conjunct agreement in South Slavic. Only recently, however, have new experimental results come to light that may cause re-evaluation of the empirical picture previously established in the literature. For example, (Corbett and Mtenje, 1987, 25), comparing Chichewa and Serbo-Croat (which was what they called then what is now B/C/S) contend that "a difference between the two languages is that in the cases of plural conjuncts requiring the same agreement form, resolution is excluded in Serbo-Croat", by which they mean Neuter & Neuter (N&N) in particular. What Corbett & Mtenje were referring to was the claim, repeated in Wechsler (2009, 569) that while N&M or F&M can yield M, and even F&N can yield M, N&N should yield only M – with no possibility of resolved neuter agreement, as claimed below:

(4) *Claimed lack of neuter resolution in B/C/S:*

a. Ogledalo i nalivpero su bili / *bila na stolu
Mirror.N.SG and fountain.pen.N.SG aux.PL were.M.PL / *were.N.PL on table
'The mirror and fountain pen were on the table'

However, as it turns out, when one turns to judgements of the cases in which both neuter conjuncts *plural*, and once large-scale elicitation patterns are carried out across a range of South Slavic sites with native speakers who are not linguists and whose task is free production, rather than prescriptively-influenced judgements, NPl &NPl conjunctions can yield *either* N or M as agreement patterns. In Willer-Gold et al. (2016), we experimentally elicited these patterns across 6 sites where South Slavic languages are spoken, and Figure 1 shows the overall averages for conjunctions of inanimate plurals. In the discussion that follows, we restrict our attention to cases in which both conjuncts are plural, until Section 5.

Of even greater interest, visible in the graph, is the fact that N agreement is consistently stronger than F. In Willer-Gold et al. (2016), it was proposed that the source of this neuter agreement is an additional *fourth* agreement strategy, specifically Resolution.

(5) *Default vs Resolution in South Slavic conjunct agreement:*

a. Default &P agreement: a fixed value of masculine plural, independent of the values of either conjunct
b. Resolution &P agreement: a computation that depends on the feature values of each conjunct and their relation to each other

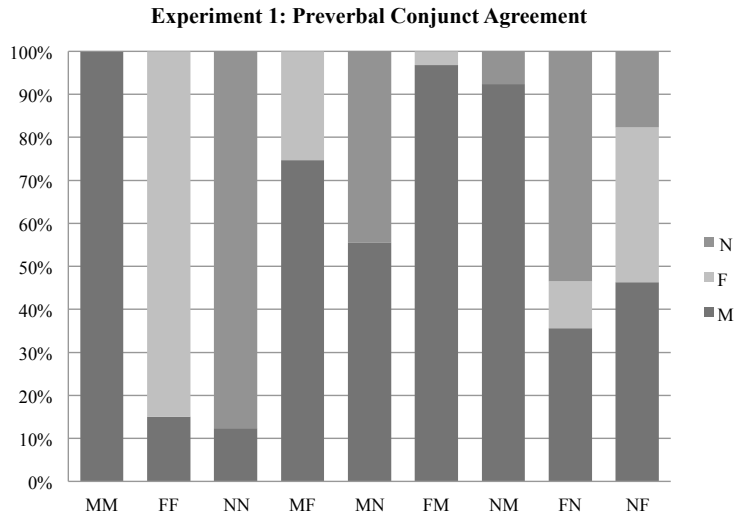

Figure 1: Conjunct Agreement (pl&pl) production (n=180), results from Willer-Gold et al (2016). Compare N and F in columns 2 vs 3, 4 vs 5, 6 vs 7, and 8 vs 9.

The extra 'edge', therefore, found for Neuter agreement across all 8 conditions of interest comes from this fourth mechanism. How? In Willer-Gold et al. (2016), we proposed the following input-output functions for South Slavic. As shown in Figure 1, anytime there is an N present, the function outputs an N. Otherwise anytime there is an M present, the function outputs an M. Otherwise, it outputs an F (only, specifically, in the case where two Fs are present).

(6) *Gender Resolution outcomes for 9 possible gender combinations (only when both are plural):*

Uniform-gender conjuncts:	F&F	→ F
Uniform-gender conjuncts:	M&M	→ M
Uniform-gender conjuncts:	N&N	→ N
Presence of Masculine:	M&F, F&M	→ M
Presence of Neuter:	M&N, N&M	→ N
Presence of Neuter:	F&N, N&F	→ N

Moreover, Willer-Gold et al. (2016) claimed that default agreement, as found in (5), reflects what is called *index* agreement of the &P (a prespecified masculine value), whereas resolution in (5) is *concord* agreement of the &P, and results from the computation specified in (6). Importantly, our focus is on inanimate nouns, so semantic agreement is not at stake (though cf. Wechsler 2009 for highly pertinent discussion of what can go on with animates, where semantic agreement affects the purely grammatical computation based on the gender features of each conjunct). For agreement, either index or concord agreement values are in principle available.

In the remainder of this paper, we will focus on the mechanisms responsible for index agreement (default, prespecified masculine) and concord agreement (a resolution-based computation specified in (6)).

These mechanisms are distinct, but only visible as such under the right conditions and with the right combinations. Thus, when conjoined Nsg&Nsg yield Ndual in languages such as Slovenian, this is resolution — as only resolution has the potential to inspect the two conjuncts for their number and gender values and compute that the result should be neuter when there are two neuters, and dual when there are two singulars. On the other hand, when a combination of Nsg&Nsg yields MPl in Slovenian, this must be prespecified default agreement, which has a fixed value of masculine and a fixed value of plural, regardless of the values of the individual conjuncts. Such a distinction is implicitly acknowledged in Corbett (1991, 302), where the masculine plural default is found even when conjuncts "consist entirely of feminine nouns"

(alongside expected FPl). The need for a distinction between resolution, therefore, which looks at the individual values of the conjuncts and chooses a number and gender output on that basis, versus a fixed, prespecified default, is empirically necessary even outside the context of neuters, as can be seen in column 2 of Figure 1.

Further evidence for the proposed distinction comes from the fact, presented in Willer-Gold et al. (2016), that &P default agreement disappears postverbally, while resolution remains as a possibility. In other words, conjunct agreement can take place when the coordination itself is postverbal, but the results are not symmetric with what happens when the coordination is preverbal. In particular, in postverbal position, masculine agreement (reflecting prespecification with the features of &P) is greatly reduced in availability for all coordinations besides M&F, M&N, and M&M. These results parallel what is found with the absence of index agreement elsewhere, as argued by Smith (2017b), on the basis of British English patterns like **There are a committee in the room*, index agreement requires that the controller surface c-command the target.

In what follows, we assume that default agreement is index agreement, reflecting agreement with the prespecified features on the &P head, following work by Arsenijević and Mitić (2016). The &P head bears both index and concord features, where the former are inherently specified as masculine plural, and the latter are the result of a computation. Following Marušič et al (2015), agreement with an &P can choose among Highest Conjunct Agreement, Closest Conjunct Agreement, or &P agreement. When &P agreement is chosen, however, either index or concord agreement can be chosen (assuming that Smith's condition on c-command is met for index agreement, otherwise it is unavailable). In the remainder of this paper, therefore, our focus is on the computation of concord agreement, and a formal means for providing the function specified in (6).

2. Failure of Set-Theoretic Tools

An intriguing paper by Dalrymple and Kaplan (2000) proposes a set-theoretic union operation to derive resolution rules, whereby for two-gender languages, Fem is represented as an empty set ={ }. This therefore leads to the following resolution rule for languages like French, as was illustrated in (1) above:

(7) *Gender Resolution through Set-Theoretic Union:*
Set-union for M&F = M: {M} ∪ { } = {M}
Set-union for M&M = M: {M} ∪ {M} = {M}
Set-union for F&F = F: {} ∪ { } = { }

According to this formalism, masculine is the resolution value because it is formally present, whereas feminine is formally absent. Set-union thus provides tools for *deriving* why the function is what it is, based on existing operations that we already presume might exist in computing the logical basis for combinations like conjunction. This representation, however, does not square with the markedness relations in South Slavic. For three-gender languages with the resolution pattern of Icelandic, they propose that Neuter is composed of a set {M,F}, which predicts that Masc+Fem (i.e. {M} ∪ {F} = {M,F}), will yield Neuter. Thus, any mixed gender combinations (or N+N combinations) will yield Neuter, as a resolution rule.

However, as we have seen, unlike in Icelandic, in South Slavic, M&F yields M as a resolution value. On a more general level, this problem arises because there is no way to achieve a multi-level theory of resolution (like the one in (6), where M&F = M but M & N = N) with privative features and set-theoretic union. While this mechanism could perhaps be made to work if, say, feminine were maximally unmarked/underspecified in South Slavic, this would seem at odds with the general properties of markedness found in the language.

A way out for South Slavic could arise if it were the case that the resolution value were always M. In fact, for Slovene, Dalrymple and Kaplan (2000) argue, based on Corbett (1983, 186), that N&N = M. However, as Figure 1 shows, our results show little support for this, as N&N also yields N (and much more so than M); see also Marušič et al. (2015) for Slovenian. Given these same features, set-intersection (instead of union) would also founder, as N&N would yield *only* N, and not allow M. Recall that under our model, the latter pattern is actually *not* resolution, but default. What is needed, therefore, is a model in which the resolution

function, as specified in (6), delivers N for these cases, alongside a distinct grammatical option of index agreement (always yielding prespecified M).

Dalrymple and Kaplan (2000) in fact suggest that default values in addition to resolution may be necessary. They note, on the basis of parallel patterns with noun class resolution in Lama (Yu, 1988), that the coordination head itself can provide an additional gender value. Lama is a Gur language with default noun classes used in cases of coordination, and as Yu (1988) points out, highly similar to Bantu languauges in this respect. In Section 4, where we discuss Bantu conjunct agreement strategies, we will return to the kind of data that motivated this conclusion.

Returning to the issue of set-theoretic tools to derive resolution, Ingria (1990) recognized the generalized problem of resolution patterns of this sort for unification-based approaches. He proposed, instead of union or intersection as a means for determining the output function based on the feature-values of the conjuncts, a mechanism of *nondistinctness*, which we take up here.

3. Nondistinctness

We now provide a resolution function that will yield (6). Recall that masculine plural is a fixed &P default value. However, in South Slavic overall, neuter is the least specified. Evidence for this claim comes from a wide range of sources, especially the fact that clauses with no nominative subject, or with 5&Up quantified noun phrases (which cause failure of agreement), consistenly yield *neuter* on the verb. Outside of &P, there is no debate that neuter is the least marked gender: it is what is chosen alongside singular for numerally-quantified noun phrases, which otherwise lack agreement features. We thus take neuter as the absence of gender specification in South Slavic; see Kramer (2015) and Willer-Gold et al. (2016) for additional discussion. Let us suppose a Germanic-type system in which Feminine and Masculine are grouped by a feature [+common] (crucially, for inanimates as well), as Dutch has a system with 'common gender' vs 'neuter gender'. Extending this grouping of M and F to the exclusion of N via the feature [± common], we may propose the following system, where only positive feature-values are shown.

(8) *Proposed Feature-System for South Slavic Gender*:
F = [+common, +fem]
M = [+common]
N = [ ]

Let us turn to nondistinctness as the implementation of resolution. In order to provide a computation underlying the the function in (6), the resolution procedure on &P (eventually yielding the concord value) inspects the features of the two conjuncts, and only keeps the least-specified feature(s) in the pair (again, only when both are plural).

(9)

M&M: [+common] & [+common]:	&-head: [+common] (M)
F&F: [+comm, +fem] & [+common, +fem]:	&-head: [+common, +fem] (F)
M&F: [+comm, +fem] & [+common]:	&-head: [+common] (M)
M&N: [+common] & [ ]:	&-head: [ ] (N)
F&N:[+common, +fem] & [ ]:	&-head: [ ] (N)

The notion of nondistinctness therefore correctly yields the empirically-attested pattern. But how is nondistinctness achieved within a grammatical model? There are no other phenomena that look quite like this within agreement systems, and ideally the grammar would employ (or reuse) some existing machinery.

Murphy and Puškar (2017) in their work on &P-agreement, speculate that resolution is achieved by impoverishment on &P feeding agreement with an external conjunct, a view we are sympathetic towards in spirit. However, the implementation of impoverishment rules that would underly nondistinctness-based concord of the precise type specified above would require overly powerful statements:

(10) *An Attempt at Implementing Nondistinctness via Impoverishment:*
a. Impoverish [+common] on an NP-daughter of &P if it is the only NP in &P with this feature

b. Impoverish [+fem] on an NP-daughter of &P if it is the only NP in &P with this feature

Impoverishment rules generally do not require this kind of quantification in their statements of context, and we therefore contend that it is not the right mechanism to provide nondistinctness. Instead, we localize the nondistinctness mechanism in an agreement mechanism driven by &P itself, to which we turn.

Although *Multiple Agree* with various feature-compatibility conditions has been proposed (e.g. for PCC effects; Nevins 2007), it was for cases where one goal was necessarily more local (and hence imposed conditions of priority, which has thus far proven to be irrelevant in resolution). Thus within the &P this is not applicable, and a bidirectional version of Multiple Agree is required, although bidirectional (e.g. equally local) goals have no precursors in syntax. There *is*, however, an extant such copying mechanism from a case of bidirectional vowel harmony in Woleaian, as analyzed in Nevins (2010). In this language, a thematic vowel occurring between the stem and an inflectional suffix shows bidirectional height harmony. Specifically, the underlying vowel /a/ will raise to [e] only if the closest vowels *on both sides* are [−low]:

(11) *Bidirectional [−low] VH of theme vowel in Woleaian*:
   a. /ülüm-a-mu/ → {ülüm-e-m^{w}} 'cup-2sg'
   b. /ülüm-a-la/ → {ülüm-a-l} 'cup-3sg'
   c. /mat-a-mu/ → {mat-a-m^{w}} 'eye-2sg'

As (11) shows, only in the (a) case, where both flanking vowels are [−low], can harmony occur. This phonological configuration instantiates a case where goals are equally local, and copying of [−low] only succeeds if found on both goals. The same condition, imported to copying the features [+comm] and [+fem] with South Slavic &P, yields (6).

Specifically, assume that within the syntax, the &-head probes upwards and downwards simultaneously. Given a two-step Agree (with Agree-Link in the syntax, and Agree-Copy in PF; cf. Arregi and Nevins 2012, Bhatt and Walkow 2013), in PF, the &P upon beginning copying will inspect the features of both conjuncts, copying from them only after it has found a certain feature on both of them. This yields the resolution value on &P (available alongside its prespecified M.PL index feature). Thus, only when the feature [+comm] is found on both conjuncts can it be copied to &P's concord feature, and thus only combinations of M&F or M&M can yield [+comm] on &P. The same holds for [+fem], and thus only combinations of F&F can yield [+fem] on &P. Otherwise, no values are copied, as cases of F&N or F&M do not find the relevant features on both goals. As a result, the resolution value in such cases will be empty, yielding neuter, and providing the function in (6).

The application of Crossmodular Structural Parallelism in this case goes in a less usual direction: much previous work, for example, has examined the extent to which principles of syntax apply to phonological representations, while the application of phonological principles to syntactic phenomena is less commonly explored. However, given that equidistant goals in a search arguably arise much less often in syntax (given hierarchical structure), this is a domain in which the flat structures of phonological search domains prove helpful in understanding a syntactic configuration. The ConjP assumed here is not flat, but is lexically specified as needing to probe twice, and thereby must agree with both the element in its complement and in its specifier.

4. Default Agreement, Humanness, and Ineffability in Southern Bantu

As mentioned above, three-gender languages such as Icelandic and South Slavic provide evidence for a default value of &P, distinct from the result that occurs as the output of resolution, a conclusion already anticipated in Dalrymple and Kaplan's (2000) reference to the Lama data in Yu (1988). The evidence for a default value on &P arises particularly clearly in Bantu noun class systems, which we can essentially consider as gender systems here, where the even numbers refer to plural number cases. Consider Southern Bantu, on the basis of data reported in Mitchley (2015). Xitsonga conjunct agreement shows clear evidence for default &P, with class 2 as the default for [+human], and class 8 for [−human]. Thus, when two class 6 humans are conjoined, verbal agreement (notated below as SM for 'subject marker' is class 2, which by

hypothesis reflects the prespecified gender on a [+human] &P.[2]

(12) *Default [+human] agreement in Xitsonga:*

a. A ma-hahla ni ma-jaha vo tira
the 6-twin and 6-young.man SM2 work

In parallel, when two class 10 non-humans are conjoined, verbal agreement is class 8, which by hypothesis reflects the prespecified gender on a [−human] &P.

(13) *Default [−human] agreement in Xitsonga:*

a. A tim-fenhe ni tim-byana swa lwa
the 10-baboon and 10-dog SM8 fight

This pattern of default prespecification in Xitsonga is distinct from that found in Sesotho, as discussed by Mitchley, which by contrast has resolution for cases parallel to (12) and hence does allow agreement to resolve to the value shared by each conjunct. Compare Sesotho's resolution for the equivalent of (12):

(14) *Resolved [+human] agreement in Sesotho:*

a. ma-shodu le ma-polesa a lwana
6-thief and 6-policeman SM6 fight

Thus, it seems that Xitsonga differs from Sesotho in only allowing the default, prespecified version of &P, and indeed, that there are two versions of &P, depending on their value for for [± human]. Confirmation of the fact that the class 2 and class 8 values, respectively, are defaults for (12) and (13), comes from the fact that it is ineffable to combine a [+human] and [−human] NP within a &P. Strikingly, this ineffability, as found in (15), with two idiosyncratically class 10 nouns, one [+human] and [−human], disallows the default [+human] gender value, the default [−human] gender value, *and* the gender value for which both nouns are accidentally syncretic!

(15) *Ineffable mixed [±human] agreement in Xitsonga:*

a. A tin-anga na tim-byana *va/*swa/*ta famba
the 10-doctor and 10-dog SM2/8/10 walk

This ineffability occurs, by hypothesis, because no &P can fit two such conflicting conjuncts: in Xitsonga, an &P must be either [+human] or [−human], and its individual conjuncts must both match this choice.[3] The cases of ineffable mixed [+human] and [−human] cases suggest that in languages such as Xitsonga, unlike with gender specification in South Slavic, *both* values of [± human] are visible. No 'default default' is available; only a [+human] default and a [−human] default. Interestingly enough, a similar phenomenon is actually found to a certain extent even in English, as pointed out by Ad Neeleman (pers. comm.):

(16) *Ungrammatical mixed [±animate] agreement in English:*

a. Where is the boy scout and his pet dog? They're in the waiting room.
(i) Where is boy scout manual and the compass ? They're in the waiting room.
(ii) Where is the boy scout and his merit badge sash? %They're in the waiting room.

These facts are all the more striking because they suggest that English plural *they* does correspond to two underlying syntactic versions, a [+animate] one (they plural of *he/she*), and a [−animate] one, the plural of *it*. Surprisingly, the impossibility of mixing these two for downstream agreement is visible even in pronominal anaphora in (16). Similar, mixed animacy coordinations are disallowed in Mi'gmaq (Gordon, 2016):

(17) *Ungrammatical mixed [±animate] agreement in Mi'gmaq:*

[2]See also Smith (2017a) for the proposal that default gender, as found in Chichewa, is semantic/index agreement.

[3]It may also be possible to assume a more refined, hierarchical or multi-feature system, whereby class 6 nouns bear features for class 6 as well as a subset that match class 2, and that class 10 nouns bear features for class 10 as well as a subset that match class 8.

a. *nemi'-gig epit aq pata'uti
see-1>3.PL.AN woman.AN and table.IN
(Intended) 'I see the women and the table.'

Although the discussion of Southern Bantu here is largely included in order to demonstrate the distinction of default agreement versus resolution in the Xitsonga vs Sesotho contrast discussed in Mitchley's (2015) data, it is worth mentioning that CCA and HCA strategies parallel to those found within South Slavic occur in the third language she studied, namely isiXhosa, which allows CCA:[4]

(18) *Closest conjunct agreement in isiXhosa:*

a. Ama-doda nemi-nqathe i-se gadi-ni
6-man and.4-carrot SM4.loc garden.loc
'The men and the carrots are in the garden'

This closest conjunct agreement, by hypothesis, results from the hypothesis in Marušič et al. (2015) that languages differ in whether they allow agreement with &P itself (and subsequently, a distinction between index and concord features of &P, yielding default vs resolution, respectively) or allow partial agreement, namely with a single individual conjunct. Now ordinarily when a language allows partial agreement, it will allow either CCA or HCA preverbally (these two strategies converging of course in postverbal contexts, where the highest conjunct *is* the closest), although naturally with preferences based on whether the locality principle at stake is hierarchical or linear. Perhaps, therefore, we would expect that HCA should be possible in some cases in isiXhosa, even if ordinarily dispreferred. In fact, HCA can be found in a specific configuration: when the closest conjunct is singular (as in the odd-numbered second conjunct below):

(19) *Highest conjunct agreement in isiXhosa:*

a. Ama-hashe nen-komo a-tya ingca
6-horse and.9-cow 6-eat grass
'The horses and the cow are eating grass'

This pattern instantiates the Consistency Principle that Marušič et al. (2015) found for Slovenian: in order for gender agreement to occur with potential &P controller C, C must bear the value of *number* agreement already chosen (thus, fem.pl & neut.sg will not yield neut.sg agreement). In Slovenian and in isiXhosa, therefore, it seems that number resolution happens first, before any kind of gender agreement – be it resolution or otherwise. Once number resolution has taken place, however, the choice of a gender controller, if based on CCA/HCA, must respect the number decision already recorded on the agreement target (see also Bošković 2009, Sec 3.4). Thus, in (19), assuming number resolution occurs first, the second conjunct becomes ineligible as a controller for partial agreement. Put differently, number resolution seems to happen first, and restricts the space of possible gender controllers. In the last section of this paper, we suggest an answer for why number resolution may come earlier in the derivation.

5. Why the Number Dependency?

In fact, everything discussed above for B/C/S looked at plural conjuncts. But when both conjuncts are singular, gender resolution doesn't happen at all. In particular, when there is N.SG & N.SG, only M.PL (default) is possible, and resolution is not an option.[5] This instantiates the Consistency Principle, as mentioned above, in the sense that in order for resolution to even be possible (as opposed to simply default), the conjuncts must bear the appropriate number. An individual conjunct can only be looked at for gender agreement (whether for CCA, HCA, or the computation of resolution) if it already bears the 'right' value for number. This depends, of course, on number agreement being computed first.

[4] Though see Voeltz (1971, footnote 3) for discussion of a Xhosa pattern that looks like the one described for Xitsonga in the text.

[5] See Arsenijević (2016) for discussion of this fact, and for a different view from the present one, developing the interesting proposal that neuter plurals are collectives, not formed from neuter singulars.

In this section we suggest a tentative explanation for why number resolution comes first – that is, why gender agreement depends on prior number agreement. While one can clearly always simply state that gender is dependent on number in a feature-geometric sense, our goal here is to see whether this potentially can be related to a difference in the nature of number resolution versus gender resolution themselves. Thinking about the resolution function for number, recall from the generalization for gender resolution is that in cases of nonidentical specifications, the least marked gender is the one that survives. This is clearly not the operative principle for number in Slovenian:

(20) *Number Resolution outcomes for 6 possible number combinations:*

sg & sg	→ dual
sg & dual	→ plural
sg & pl	→ plural
dual & dual	→ dual or plural
dual & plural	→ plural
plural & plural	→ plural

Neither bidirectional agreement nor impoverishment nor set union suffice to derive number resolution. Number resolution in &P takes place in apparently a wholly different manner, not necessarily one that works based on the feature values of [±singular], [±augmented], as there is no way to take the two [−augmented] features in dual & dual and end up with [+augmented] plural resolution.[6] Number resolution simply does not involve preservation, nondistinctness, union, or intersection of the participating features, but rather the construction of a potentially new value based on the inputs.

This construction of a new value in cases of coordination may be akin to cases of the Multiple Agree mechanisms proposed by Trommer (2006) and Gluckman (2016), who analyze 'constructed plural': in languages like Nocte and Tupi-Guaraní where the subject and object can jointly contribute in a transitive verb.

(21) *Constructed Plural in Nocte:*

a. Ni roantang rang-ka-e
   1pl always asp-go-1pl
   'We always go'

b. nga-ma nang hetho-e
   1sg-nom 2sg teach-1pl
   'I shall teach you'

Thus, the 1pl ending *-e* is found both for true 1pl subjects and for 'summative' cases of a 1sg subject and a 2sg object. A similar phenomenon, although interacting with the inclusive/exclusive distinction, is found in Tupi-Guaraní with the prefix *oro-*. In these cases, the number features of the object make their way to the subject – though not necessarily as a portmanteau a la Georgi (2012), but in a conceptually similar manner. The function specified in (21) involves construction of a new value rather than nondistinctness-based selection. We suggest that this is why it necessarily comes earlier in the derivation.

While one can appeal to the nature of features where gender is dependent on number in a general sense to understand the consistency principle effect, we suggest this results from a more general property, whereby constructive resolution necessarily precedes selective resolution (this seems clearly operative for person resolution as well), and await its verification with other features (e.g. humanness/animacy). Selective resolution and nondistinctness based on morphosyntactic features, as developed here, have a 'later' character, potentially related to the more morphophonological factors explored in Pullum and Zwicky (1986). In other words, number resolution is part of an earlier submodule than gender resolution, and the latter is not even broached if the individual conjuncts do not bear the requisite number features established earlier. This architectural move of distinct timing of operation types with different natures in their sequencing at PF, in the spirit of Arregi and Nevins (2012), potentially obviates the need to extrinsically order these two resolution types.

[6] See, however, Šuligoj (2017) for a discussion of how dual & dual may yield dual, as potentially a kind of CCA for number.

References

Anagnostopoulou, E. (2005). Strong and Weak Person Restrictions: A Feature Checking Analysis. In L. Heggie and F. Ordonez, editor, *Clitics and Affixation*, pages 199–235. Amsterdam: John Benjamins.

Arregi, K. and Nevins, A. (2012). *Morphotactics: Basque Auxiliaries and the Structure of Spellout*. Springer, Dordrecht.

Arsenijević, B. (2016). Gender, like classifiers, specifies the type of partition: evidence from Serbo-Croatian. Paper presented at Chicago Linguistic Society 52.

Arsenijević, B. and Mitić, I. (2016). On the number-gender (in)dependence in agreement with coordinated subjects. *Journal of Slavic Linguistics*, 24:41–69.

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

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

Calabrese, A. (1998). Some remarks on the Latin case system and its development in Romance. In Lema, J. and Trevino, E., editors, *Theoretical Advances on Romance Languages*, pages 71–126. Amsterdam: John Benjamins.

Corbett, G. and Mtenje, A. D. (1987). Gender agreement in Chichewa. *Studies in African Linguistics*, 18:1–38.

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

Corbett, G. G. (1991). *Gender*. Cambridge University Press, Cambridge.

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

Georgi, D. (2012). A relativized probing approach to person encoding in local scenarios. *Linguistic Variation*, 12:153–210.

Gluckman, J. (2016). Decomposing Morphological Number in Local Contexts. In min Kim, K., Umbal, P., Block, T., Chan, Q., Cheng, T., Finney, K., Katz, M., Nickel-Thompson, S., and Shorten, L., editors, *Proceedings of the 33rd West Coast Conference of Formal Linguistics*. Somerville, MA: Cascadilla Proceedings Project.

Gordon, D. (2016). Animate-inanimate Coordination in Migmaq: Consequences for Conjunction Reduction. McGill Canadian Conference for Linguistics Undergraduates.

Hiraiwa, K. (2001). Multiple Agree and the defective intervention constraint in Japanese. In Matushansky, O., editor, *Proceedings of the 1st HUMIT Student Conference in Language Research (HUMIT 2000)*, volume 40 of *MIT Working Papers in Linguistics*, pages 67–80. MITWPL, MIT, Cambridge, Mass.

Ingria, R. (1990). The limits of unification. *Proceedings of the 28th Annual meeting of the ACL,Pittsburgh*, pages 194–204.

Kramer, R. (2015). *The Morphosyntax of Gender*. Oxford University Press.

Marušič, F., Nevins, A., and Badecker, B. (2015). The grammars of conjunction agreement in Slovenian. *Syntax*, 18(1):39–77.

Mitchley, H. (2015). Agreement and coordination in Xitsonga, Sesotho and isiXhosa: An Optimality Theoretic perspective. Master's thesis, Rhodes University.

Murphy, A. and Puškar, Z. (2017). Closest conjunct agreement is an illusion. *Natural Language and Linguistic Theory*, page (to appear).

Nevins, A. (2007). The representation of third person and its consequences for person-case effects. *Natural Language and Linguistic Theory*, 25(2):273–313.

Nevins, A. (2010). *Locality in Vowel Harmony*. MIT Press, Cambridge, Mass.

Pullum, G. K. and Zwicky, A. M. (1986). Phonological resolution of syntactic feature conflict. *Language*, 62:751–773.

Smith, P. W. (2017a). Possible and Impossible Agreement Mismatches. Ms., Univ. Frankfurt.

Smith, P. W. (2017b). The syntax of semantic agreement in english. *Journal of Linguistics*, page (to appear).

Trommer, J. (2006). Plural insertion is constructed plural. *Linguistische Arbeits Berichte*, 84:197–228.

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

Šuligoj, T. (2017). Categorizing Number: Agreement in the Case of Coordination. Paper presented at Resolving Conflicts Across Borders, Dubrovnik.

Wechsler, S. (2009). Elsewhere in Gender Resolution. In Hanson, K. and Inkelas, S., editors, *The Nature of the Word: Essays in Honor of Paul Kiparsky*, pages 567–586. MIT Press.

Willer-Gold, J., Arsenijević, B., Batinić, M., Čordalija, N., Kresić, M., Leko, N., Marušič, F. L., Milićev, T., Milićević, N., Mitić, I., Nevins, A., Peti-Stantić, A., Stanković, B., Šuligoj, T., and Tušek, J. (2016). Conjunct agreement and gender in South Slavic: From theory to experiments to theory. *Journal of Slavic Linguistics*, 24:187–224.

Yu, E. O. (1988). Agreement in left dislocation of coordinate structures. *Chicago Linguistic Society*, 24.2:322–336.