

**AN OPTIMAL APPROACH TO PARTIAL
AGREEMENT IN KAQCHIKEL**

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Abstract: Kaqchikel is a Mayan language spoken in Guatemala, with both full and partial agreement for core grammatical functions. The word order of Kaqchikel is very free, and the possibilities for partial agreement differ according to whether the source is adjacent to the target or not. We argue for an OT-LFG approach in which constraints on agreement are sensitive to both c-structural and f-structural information

1 Introduction

Within LFG, agreement is normally handled within f-structure, but languages which have partial agreement in coordinate structures show us that c-structure may also play a role in such agreement systems. Solutions to this problem vary, but include special annotations on PS-rules (Sadler 1996, 2003) and direct or indirect reference to f-precedence (Sadler 1999, Falk 2006, Kuhn and Sadler 2007, Dalrymple and Hristov 2010). Kaqchikel, a Mayan language of Guatemala, shows both full and partial agreement with conjoined subjects. Full agreement is largely unproblematic, and operates via an INDEX feature that is resolved in familiar ways (Dalrymple and Kaplan 2000). Partial agreement, however shows surprising complexity, which we argue shows a sensitivity to c-structure that goes beyond f-precedence to include *adjacency* of target and controller.

2 Background on Kaqchikel¹

2.1 Word order

Kaqchikel is a Mayan language spoken in highland Guatemala. As shown in Broadwell (2000), most Kaqchikel sentences show the possibility of two word orders; one in which the subject is initial, and another in which the verb is initial:²

- 1) X-u-b'a **ri tz'i'** ri me's.
com-3sErg-bite the dog the cat

'The dog bit the cat.'

¹ The paper largely uses the conventions of the standardized national orthography for Kaqchikel, in which <x> = a voiceless alveopalatal sibilant (English *sh*), <tz> = a voiceless dental affricate, <ä> = schwa, <q> is a uvular stop and apostrophe = glottal stop (following a vowel) or glottalization (following a consonant). Kaqchikel dialects differ in the number of phonemic vowels. Although the national orthography represents ten distinct vowels, the dialects represented here have six (*a, ä, e, i, o, u*) and we write only those vowels here.

Glosses use the following abbreviations: abs = absolutive, cl = personal classifier (markers of the age and sex of human referents), com = completive aspect, dir = directional, erg = ergative, inc = incompletive aspect, p = plural, s = singular.

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² In the following examples, we will bold-face the noun phrase with which the verb agrees.

- 2) **Ri tz'i'** x-u-b'a ri me's.
 the dog com-3sErg-bite the cat

'The dog bit the cat.'

2.2 V-initial and SVO orders

The unmarked order for a Kaqchikel sentence is verb-initial, but the ordering principles for the noun phrases that follow are somewhat surprising. If a transitive verb is followed by two NPs with equal degrees of definiteness, then either order is grammatical and the sentence is ambiguous.

- 3) X-r-oqotaj ri tz'i' ri me's.
 com-3sErg-chase the dog the cat

'The dog chased the cat.'

'The cat chased the dog.'

- 4) X-r-oqotaj ri me's ri tz'i'.
 com-3sErg-chase the cat the dog

'The dog chased the cat.'

'The cat chased the dog.'

There is no special discourse function associated with either of the postverbal NP positions, so far as we can tell. There are several preverbal positions for topical, contrastive, and interrogative elements, but we do not believe that the two postverbal positions show any difference in c-structure realization, or in the grammatical or discourse functions assigned to these positions.

If one of the NPs is definite and the other is indefinite, then a.) the definite NP must follow the indefinite (a strong preference) and b.) the definite is interpreted as the subject (an inviolable rule).

- 5) X-r-oqotaj jun me's **ri tz'i'**.
 com-3sErg-chase a cat the dog

'The dog chased a cat.'

* 'A cat chased the dog.'

- 6) ?*X-r-oqotaj ri tz'i' jun me's.
 com-3sErg-chase the dog a cat

?*'The dog chased a cat.'

* 'A cat chased the dog.'

There is also a clear but violable preference for proper nouns to follow common nouns, even if the nouns are definite:

- 7) X-u-loq' ri wä'y **ri xta Maria.**
 com-3sErg-buy the tortilla the cl Maria

'Maria bought the tortillas.'

- ? X-u-loq' **ri xta Maria** ri wä'y.
 com-3sErg-buy the cl Maria the tortilla

If two proper nouns follow the verb, the sentence is ambiguous:

- 8) X-r-oqotaj ri xta Maria ri a Juan
 com-3sErg-chase the cl Maria the cl Juan

'Maria chased Juan.'

'Juan chased Maria.'

SVO is freely available as an alternative order. As Broadwell (2000) shows, SVO is obligatory for indefinite transitive subjects.

2.3 S and IP in Kaqchikel

Broadwell (2000) argues that the verb-initial and SVO orders in Kaqchikel correspond to syntactic structures like the ones shown in figures (1) and (2). (1) shows a flat, non-endocentric S, while (2) shows a phrase headed by Infl.

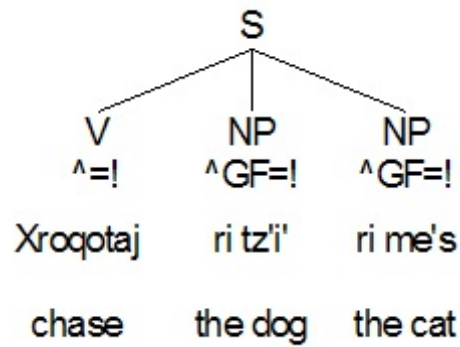


Figure 1 Non-endocentric structure

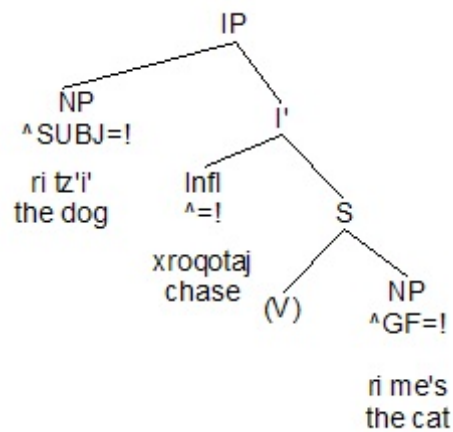


Figure 2 Endocentric structure

The difference between these two structures is supported by data from adverb placement.

For the verb-initial structure, a temporal adverb like *iwir* 'yesterday' may appear at the beginning or end of the S, but not in other places:³

- 9) *Iwir x-r-oqotaj ri tz'i' ri me's.* ✓Adv V S O
 yesterday com-3sErg-chase the dog the cat

'Yesterday the dog chased the cat/Yesterday the cat chased the dog.'⁴

- *X-r-oqotaj *iwir* ri tz'i' ri me's. *V Adv S O
 *X-r-oqotaj ri tz'i' *iwir* ri me's. *V S Adv O
 ?X-r-oqotaj ri tz'i' ri me's *iwir* ?V S O Adv

However, possibilities for adverb placement are notably different in the SVO order:

³Alberto Esquit-Choy finds final adverbs to be somewhat odd, but possibly acceptable in some contexts.

⁴ The same adverb placement facts obtain, regardless of the interpretation.

- 10) Iwir ri tz'i' x-r-oqotaj ri me's. ✓Adv S V O
 yesterday the dog com-3sErg-chase the cat
- ✓Ri tz'i' iwir x-r-oqotaj ri me's. ✓S Adv V O
 ✓Ri tz'i' x-r-oqotaj iwir ri me's. ✓S V Adv O
 ? Ri tz'i' x-r-oqotaj ri me's iwir. ? S V O Adv

We can account for the distribution of temporal adverbs with the following statement:

- 11) Temporal adverbs are (left-)adjoined to S or an extended projection of S.

Thus Kaqchikel has two options for the syntactic structure of a clause: it may project a minimal, non-endocentric S or a more elaborated, endocentric IP.

3 Agreement in Kaqchikel

Agreement in Kaqchikel works on an ergative-absolutive basis. Various Kaqchikel dialects have slightly divergent paradigms, but the following are the most common:

	Ergative		Absolutive
	Preconsonantal	Prevocalic	
1 sg	nu- ~ in-	w-	in-
2 sg	a-	aw-	at-
3 sg	r(u)- ~ Ø	r-	Ø
1 pl	qa-	q-	oj-
2 pl	i-	iw-	ix-
3 pl	ki-	k-	e- ~ Ø

The following examples illustrate the agreement system in simple examples.

- 12) X-in-ki-k'utuj.
 com-1sAbs-3pErg-ask
 'They asked me.'
- 13) X-e-wär.
 com-3pArg-sleep
 'They slept.'
- 14) Y-e-ru-näq kan ri alab'om.
 inc-3pAbs-3sErg-bother dir the children
 'She was bothering the children.'

The general pattern for a Kaqchikel verb is (Aspect Marker)-(Absolute Agreement)-(Ergative Agreement)-Verb Root. The two aspects that show up in this paper are /x-/ ‘completive aspect’ and /y- ~ n-/ ‘incompletive aspect’. The allomorphy of the incomplete is conditioned by the following agreement marker; it is /y-/ before an overt absolutive prefix or the 1sgErg /-in-/ and /n-/ elsewhere.

4 First conjunct subject agreement

4.1 V[SS]O Word Order

V[SS]O is the unmarked word order in Kaqchikel. In this format, the preferable verbal agreement pattern with the conjunct subjects is partial agreement with the first conjunct (FC).

- 15) N-ki-tz’ibaj **riye’** i riyin jun wuj V_{3p}[S_{3p}S_{1s}]O
 inc-3pErg-write they and I a letter
They and I write a letter.

- 16) Y-in-tz’ibaj **riyin** i riye’ ri wuj V_{1s}S_{1s}S_{3p}O
 inc-1sgErg-write I and they the letter
I and they write the letter.

Full agreement with the index (semantic) values of the conjunct set of subjects is also possible, but this pattern was infrequently volunteered by our consultant, and it seems less common than partial agreement with the FC.

- 17) N-i-taj **riyet** i **riya’** wäj V_{2p}[S_{2s}S_{3s}]O
 Inc-2pErg-eat you(sg) and he tortilla
He and you eat tortillas

- 18) N-qa-tz’ibaj **riyin** i **rix** jun wuj V_{1p}S_{1[SS]2p}O
 inc-1pErg-write I and you(pl) a letter
You all and I write a letter.

The set (x+y) of the index values of the conjunct subjects follows the familiar pattern below:

(x+y) Values		
x	y	(x+y)
1	1;2;3	1p
2	2;3	2p
3	3	3p

4.2 The order of the conjuncts

We also found that the order of the conjuncts matters. Conjunct order in VSO preferentially shows the highest-ranking conjunct first, where local persons outrank non-local persons and plurals outrank singulars. Agreement must be with the adjacent, higher-ranking conjunct.

19) *? N-tz'ibaj **riya'** i riyin ri wuj *?V_{3s}S_{3s}S_{1s}O

inc-write s/he and I def letter

S/he and I write the letter.

20) Y-in-tz'ibaj **riyin** i riya' ri wuj V_{1s}S_{1s}S_{3s}O

inc-1sgErg-write I and s/he def letter

I and s/he write the letter.

4.2.1 SSVO Word Order

The SVO word order in Kaqchikel emphasizes the subject of the phrase and is therefore marked in comparison to the VSO word order. In the SSVO word order, only full agreement with the index values of the conjunct set of subjects is grammatical.

21) **Riyin i riya'** n-qa-tz'ibaj jun wuj S_{1s}S_{3s}V_{1p}O

I and he inc-1pErg-write a letter

He and I write a letter.

22) **Rix i riyin** x-qa-taj [S_{2p}S_{1s}]V_{1p}

you(pl) and I com-1pErg-com-ate

You all and I ate it.

It is interesting to note that partial agreement with the FC subject is ungrammatical.

23) *Riyin i **riyet** n-a-tz'ibaj jun wuj *S_{1s}S_{2s}V_{2s}O

I and you(sg) inc-2sErg-write a letter

I and you write a letter.

24) ***Riyin** i riyet n-i-tz'ibaj jun wuj *S_{1s}S_{2s}V_{2s}O

I and you(sg) inc-1sErg-write a letter

I and you write a letter.

4.2.2 VOSS Word Order

In VOSS word order, full agreement on the verb with the index values of the conjunct set of subjects is grammatical and preferred.

- 25) N-qa-tz'ät ri achi'a **riyin i riyet** V_{1p}OS_{1s}S_{2s}
 inc-1pErg-see the boys I and you(sg)
You and I see the boys.

Partial verbal agreement is also possible. But surprisingly, the partial agreement is not with the closest subject, but for local persons (1st and 2nd person), whether these are the closest or not.

- 26) Y-in-tz'ät ri achi'a **riyin i riya'** V_{1s}OS_{1s}S_{3s}
 inc-1sErg-see the boys I and he
He and I see the boys.

- 27) Y-in-tz'ät ri achi'a riya' i **riyin** V_{1s}OS_{3s}S_{1s}
 inc-1sErg-see the boys he and I
He and I see the boys.

Summary of patterns with subject agreement

	closest conjunct	full agreement	highest-ranking conjunct
VSSO	yes, preferred; higher ranked first	yes, possible	no
SSVO	no	yes	no
VOSS	no	yes, preferred	yes, possible

5 Conjunct Object Agreement in Verbs

5.1 SVOO Word Order

In SVOO word order, verbal absolutive agreement with the first conjunct is grammatical and preferred.

28) Ri achi'a y-in-ki-tz'ät **riyin** i rix SV_{1s}O_{1s}O_{2p}
 the boys inc-1sAbs-2pErg_{2p}-see I and you(pl)
The boys see me and you.

29) Ri achi'a y-at-ki-tz'ät **riyet** i riya' SV_{2s}O_{2s}O_{3s}
 the boys inc-2sAbs-3pErg-see you(sg) and he
The boys see you and him.

Full agreement is also grammatical in SVOO word order. Our native speaker said that full agreement is a “quicker” or more “informal” way of saying the phrase, while partial agreement is the “more correct” way.

30) Ri achi'a y-oj-ki-tz'ät **riyin** i **riye'** SV_{1p}O_{1s}O_{3p}
 the boys inc-1pAbs-3pErg-see I and they
The boys see me and them.

31) Ri achi'a y-ix-ki-tz'ät **riye'** i **riyet** SV_{2p}O_{3p}O_{2s}
 the boys inc-2pAbs-3pErg-see they and you(sg)
The boys see you all and them.

5.2 VSOO Word Order

Full agreement is grammatical and preferred in VSOO word order:

32) Y-oj-ki-tz'ät ri achi'a **riyin** i **riyet** V_{1p}SO_{1s}O_{3s}
 inc-1pAbs-3pErg-see the boys I and you(sg)
The boys see you and me.

33) Y-ix-ki-tz'ät ri achi'a **riya'** i **rix** V_{2p}SO_{3s}O_{2p}
 inc-2pAbs-3pErg-see the boys he and you all
The boys see you all and him.

As was the case for the subjects in VOSS word order, the objects in VSOO are not adjacent to

the verb. Partial agreement is possible, but agreement is with the higher ranking conjunct, not the closest conjunct.

34) Y-ät-ki-tz'ät ri achi'a **riyet** i riya' V_{2s}SO_{2s}O_{3s}
 inc-2sAbs-2pErg-see the boys you(sg) and he
The boys see him and you.

35) Y-in-ki-tz'ät ri achi'a riya' i **riyin** V_{1s}SO_{3s}O_{1s}
 inc-1sAbs-3pErg-see_{1s} the boys he and I
The boys see me and him.

36) *Y-Ø-ki-tz'ät ri achi'a riya' i **riyin** V_{1s}SO_{3s}O_{1s}
 inc-3sAbs-3pErg-see_{1s} the boys he and I
The boys see me and him.

5.3 VOOS Word Order

Full agreement is grammatical in the VOOS word order:

37) Y-ix-ki-tz'ät **riyet** i **riya'** ri achi'a V_{2p}O_{2s}O_{3s}S
 inc-2pAbs-3pErg-see you(sg) and he the boys
The boys see you and him.

Although sentences like this are accepted, our speaker tends to prefer and volunteer the partial agreement instead

The partial agreement pattern in VOOS phrases is similar to other word orders in which conjunct object or subject is adjacent to the inflected verb: partial agreement with the FC is grammatical in most situations.

38) Y-in-ki-tz'ät **riyin** i riya' ri achi'a V_{1s}O_{1s}O_{2p}S
 inc-1sAbs-3pErg-see I and he the boys
The boys see me and him.

As with partial agreement with the subject, our speaker strongly prefers to order the higher ranking conjunct so that it is adjacent to the verb:

- 39) Y-at-ki-tz'ät **riyet** i riya' ri achi'a V_{2s}O_{2s}O_{3s}S
 inc-2sAbs-3pErg-see you(sg) and he the boys
The boys see you and him.
- 40) *?N-ki-tz'ät **riya'** i riyet ri achi'a V_{3s}O_{3s}O_{2s}S
 inc-3pErg-see he and you the boys
The boys see him and you.

Summary of patterns with object agreement

	closest conjunct	full agreement	highest-ranking conjunct
VOOS	yes, preferred; higher ranked first	yes, possible	no
SVOO	yes, preferred; higher ranked first	yes, possible	no
VSOO	no	yes, preferred	yes, possible

Notice that the VOOS and SVOO patterns are the same; the important thing for the agreement is the adjacency or non-adjacency of target and source.

6 Comparing the subject and object agreement properties

Summary of patterns with subject agreement

	closest conjunct	full agreement	highest-ranking conjunct
VSSO	yes, preferred; higher ranked first	yes, possible	no
SSVO	no	yes	no
VOSS	no	yes, preferred	yes, possible

Summary of patterns with object agreement

	closest conjunct	full agreement	highest-ranking conjunct
VOOS or SVOO	yes, preferred; higher ranked first	yes, possible	no
VSOO	no	yes, preferred	yes, possible

Comparing these, we see that SSVO is really the special case; it has obligatory full agreement and neither of the partial agreement patterns. There is not a directly comparable OOVS, since OVS order is marginal in Kaqchikel.

If we focus on agreement with post-verbal arguments, however, we arrive at the following combined table:

	closest conjunct	full agreement	highest-ranking conjunct
V and NP adjacent	yes, preferred; higher ranked first	yes, possible	no
V and NP not adjacent	no	yes, preferred	yes, possible

7 Problems and desiderata

There are several aspects of this pattern that are difficult for current LFG approaches.

- a.) An approach in terms of f-precedence fails to capture the importance of adjacency. Consider subject agreement. In the VSSO and VOSS patterns, the precedence relations between the verb and the subject are the same.
- b.) The pattern of agreement with the highest conjunct is novel. Person/number hierarchies have been observed in other aspects of morphology, but I am not aware of other examples where it interacts in this way with coordination.
- c.) We do not think that LFG has a good solution to the problem of preferred conjunct order at c-structure.

Note that there may be a preference like this for agreement with the postverbal NP in the English *there* sentences. Our own intuitions, and those of the speakers we consulted, are approximately as follows:

- 41) ??There is a man and two women at the door.
 * There is two women and a man at the door.
 *? There are a man and two women at the door.
 There are two women and a man at the door.

Thus it seems to us that other languages also have preferences for certain orders of conjuncts at c-structure, where the order preference is tied to an agreement preference.

8 Toward a solution

8.1 A first attempt

We propose an Optimality Theoretic solution, where constraints can refer to both f-structural and c-structural conditions.

- a.) a constraint which penalizes target (here a verb) which fails to agree with a SUBJ/OBJ which has a [PER 1] feature in its set of features, *Target [PER \neg 1], Source { [PER 1]}
- b.) an equally ranked constraint which penalizes a target which fails to agree with a source (here a SUBJ or OBJ) which has a [NUM PL] feature in its set of features, *Target [NUM SG], Source { [NUM PL]}⁵
- c.) a constraint which penalizes adjacency between a target and source if the two have different values for INDEX, *Adjacent(Target [INDEX: α], Source [INDEX: β]), where $\alpha \neq \beta$, abbreviated here as

⁵ Kaqchikel only has a singular/plural contrast in its number system, but to handle languages with a more complex system, we might restate this constraint as *Target [NUM \neg PL], Source { [NUM PL]}

*Adjacent ($T\alpha$, $S\beta$). The intuition here is that speakers try to avoid a perceived feature clash between adjacent elements.

Tableau 1 shows two high-ranked conjuncts. The top portion of the tableau shows VSO order; the bottom portion shows VOS.

42) Tableau 1

$[\text{PRED 'write < SUBJ, OBJ >}]$ $SUBJ \left\{ \begin{array}{l} \text{PER 1} \\ \text{[NUM SG]} \\ \text{PER 3} \\ \text{[NUM PL]} \\ \dots \end{array} \right\}$	*Adjacent ($T\alpha$, $S\beta$)	*Target [PER -1], Source { [PER 1] }	*Target [NUM SG], Source { [NUM PL] }
V _{1sg} [they and I]...	*!		*
☞ V _{1sg} [I and they] ...			*
☞ V _{3pl} [they and I]...		*	
V _{3pl} [I and they] ...	*!	*	
☞ V _{1sg} ... [they and I]			*
☞ V _{1sg} ... [I and they]			*
☞ V _{3pl} ... [they and I]		*	
☞ V _{3pl} ... [I and they]		*	

In a case like this, the verb can either show plurality or 1st person, both of which are favored by the constraints. The *Adjacent ($T\alpha$, $S\beta$) penalizes candidates where the verb has an agreement feature which is different from its adjacent target.

Tableau 2 shows the various options when there is one high-ranked conjunct and one low-ranked conjunct. The top portion of the tableau shows VSO order and the bottom portion shows VOS order.

43) Tableau 2

$\left[\begin{array}{l} \text{PRED 'write < SUBJ, OBJ >} \\ \text{SUBJ } \left\{ \begin{array}{l} \text{PER 1} \\ \text{NUM SG} \\ \text{PER 3} \\ \text{NUMSG} \\ \dots \end{array} \right\} \end{array} \right]$	*Adjacent (T α , S β)	*Target [PER -1], Source { [PER 1]}	*Target [NUM SG], Source { [NUM PL]}
V _{1sg} [s/he and I] ...	*!		
☞ V _{1sg} [I and s/he] ...			
V _{3sg} [s/he and I] ...		*!	
V _{3sg} [I and s/he] ...	*!	*	
☞ V _{1sg} ... [s/he and I]			
☞ V _{1sg} ... [I and s/he]			
V _{3sg} ... [s/he and I]		*!	
V _{3sg} ... [I and s/he]		*!	

This analysis is subject to some provisos and cautions:

- The tableaux so far do not include whatever factors of definiteness/giveness determine the VSO/VOS alternation, so all are presented in the same candidate set. However, since both VSO and VOS are possible, we think that they must involve somewhat different inputs, possibly with additional features not shown in this input.
- We propose that the SVO structure involves a covert pronoun in its f-structure representation, and that the INDEX value of the pronoun is equal to the INDEX value of the entire coordinate structure.
- The constraint *Target [PER -1], Source { [PER 1]} only handles failure to agree with a first person source; we would also need a constraint *Target [PER -2], Source { [PER 2]} . It might seem possible to formulate a constraint *Target [PER -1|2], Source { [PER 1|2]} , but this would fail to make the right prediction in a tableau like the following where one candidate has a verb which is 2nd person plural:

44) Tableau 3

$\left[\begin{array}{l} \text{PRED 'write < SUBJ, OBJ >} \\ \text{SUBJ } \left\{ \begin{array}{l} \text{PER 1} \\ \text{NUM SG} \\ \text{PER 3} \\ \text{NUM PL} \\ \dots \end{array} \right\} \end{array} \right]$	*Adjacent (T α , S β)	*Target [PER -1 2], Source { [PER 1 2]}	*Target [NUM SG], Source { [NUM PL]}
V _{1sg} [they and I]...	*!		*
V _{1sg} [I and they] ...			*
V _{3pl} [they and I]...		*	
V _{3pl} [I and they] ...	*!	*	
V _{1sg} ... [they and I]			*
V _{1sg} ... [I and they]			*
V _{3pl} ... [they and I]		*	
V _{3pl} ... [I and they]		*	
⊕ V _{2pl} ... [I and they]			

8.2 Some corrections and elaborations

The constraints and tableaux given so far only deal with partial agreement with post-verbal arguments. Recall, however, that full agreement is also possible. To handle this possibility, we need to add another constraint along the lines of our *Adjacent (T α , S β) constraint. In the previous tableau we assumed that the first conjunct is adjacent to the target, but there is also adjacency between the target and the entire conjoined structure. We hypothesize that languages may also try to avoid feature clash between the verb and this larger structure. We can use the abbreviation Source^{MAX} for the coordinate structure and Source^{MIN} for the individual conjuncts, we can posit the following constraints:

*Adjacent(Target [INDEX: α], Source^{MAX} [INDEX: β]) – Penalize a candidate if an agreement target bears an INDEX feature α and the maximal constituent of the agreement source bears an INDEX feature β .

*Adjacent(Target [INDEX: α], Source^{MIN} [INDEX: β]) – Penalize a candidate an agreement target bears an INDEX feature α and a conjunct of the agreement source bears an INDEX feature β .

In Kaqchikel, these two constraints must be equally ranked, since both full and partial agreement are possible. Using these assumptions, the following tableau shows the outcome when candidates with full agreement are added.

45) Tableau 4

$\left[\begin{array}{l} \text{PRED 'write < SUBJ, OBJ >} \\ \text{SUBJ } \left\{ \begin{array}{l} \text{PER 1} \\ \text{NUM SG} \\ \text{PER 3} \\ \text{NUMSG} \\ \dots \end{array} \right\} \end{array} \right]$	*Adjacent ($T\alpha$, $S^{\text{MIN}} \beta$)	*Adjacent ($T\alpha$, $S^{\text{MAX}} \beta$)	*Target [PER -1], Source { [PER 1]}	*Target [NUM SG], Source { [NUM PL]}
$V_{1\text{sg}}$ [s/he and I] ...	*!	*		
$V_{1\text{sg}}$ [I and s/he] ...		*		
$V_{3\text{sg}}$ [s/he and I] ...		*	*!	
$V_{3\text{sg}}$ [I and s/he] ...	*!	*	*	
$V_{1\text{pl}}$ [I and s/he] ...	*			
$V_{1\text{pl}}$ [s/he and I] ...	*			
$V_{1\text{sg}}$... [s/he and I]				
$V_{1\text{sg}}$... [I and s/he]				
$V_{3\text{sg}}$... [s/he and I]			*!	
$V_{3\text{sg}}$... [I and s/he]			*!	
$V_{1\text{pl}}$... [s/he and I]				
$V_{1\text{pl}}$... [I and s/he]				

This almost gives the correct results, but the problem is that every VSO candidate violates one of the adjacency constraints, since it is not possible to avoid a clash with the entire coordinate structure and the first conjunct at the same time unless both conjuncts are 3pl.

If we return, however, to the idea that VSO and VOS structures represent different candidate sets, then we arrive at the following two tableaux. The first is for the VSO order, and the second is for the VOS order.

46) Tableau 5

$\left[\begin{array}{l} \text{PRED 'write < SUBJ, OBJ >'} \\ \text{SUBJ } \left\{ \begin{array}{l} \text{[PER 1]} \\ \text{[NUM SG]} \\ \text{[PER 3]} \\ \text{[NUM SG]} \\ \dots \end{array} \right\} \end{array} \right]$	*Adjacent (T α , S ^{MIN} β)	*Adjacent (T α , S ^{MAX} β)	*Target [PER -1], Source { [PER 1]}	*Target [NUM SG], Source { [NUM PL]}
V _{1sg} [s/he and I] ...	*!	*		
☞ V _{1sg} [I and s/he] ...		*		
V _{3sg} [s/he and I] ...		*	*!	
V _{3sg} [I and s/he] ...	*!	*	*	
☞ V _{1pl} [I and s/he] ...	*			
☞ V _{1pl} [s/he and I] ...	*			

Tableau 6

$[\text{PRED 'write < SUBJ, OBJ > }]$ $SUBJ \left\{ \begin{array}{l} \text{PER 1} \\ \text{NUM SG} \\ \text{PER 3} \\ \text{NUMSG} \\ \dots \end{array} \right\}$	$*\text{Adjacent } (T\alpha, S^{\text{MIN}} \beta)$	$*\text{Adjacent } (T\alpha, S^{\text{MAX}} \beta)$	$*\text{Target [PER } \neg 1],$ $\text{Source } \{ [\text{PER } 1] \}$	$*\text{Target [NUM SG],}$ $\text{Source } \{ [\text{NUM PL}] \}$
$\text{V}_{1\text{sg}} \dots [\text{s/he and I}]$				
$\text{V}_{1\text{sg}} \dots [\text{I and s/he}]$				
$\text{V}_{3\text{sg}} \dots [\text{s/he and I}]$			*!	
$\text{V}_{3\text{sg}} \dots [\text{I and s/he}]$			*!	
$\text{V}_{1\text{pl}} \dots [\text{s/he and I}]$				
$\text{V}_{1\text{pl}} \dots [\text{I and s/he}]$				

8.3 Extensions and speculations

We ranked $*\text{Adjacent } (T\alpha, S^{\text{MIN}} \beta)$ and $*\text{Adjacent } (T\alpha, S^{\text{MAX}} \beta)$ equally in Kaqchikel, because both full and partial agreement are found in this language. However, if we give the ranking $*\text{Adjacent } (T\alpha, S^{\text{MIN}} \beta) \gg * \text{Adjacent } (T\alpha, S^{\text{MAX}} \beta)$, then we predict a language with only partial agreement, like Welsh. If we use the ranking $*\text{Adjacent } (T\alpha, S^{\text{MAX}} \beta) \gg * \text{Adjacent } (T\alpha, S^{\text{MIN}} \beta)$, then we get a language with only full agreement, like Spanish.

Comparing our approach with the system of INDEX features proposed in Dalrymple and Hristov (2010), our equally ranked $\{*\text{Adjacent } (T\alpha, S^{\text{MIN}} \beta), * \text{Adjacent } (T\alpha, S^{\text{MAX}} \beta)\}$ corresponds to their functional metavariable $(f_{(L)} \text{ INDEX})$ or $(f_{(R)} \text{ INDEX})$. This would be the parameter setting for a language with optional partial agreement. Our ranking $\{*\text{Adjacent } (T\alpha, S^{\text{MIN}} \beta) \gg * \text{Adjacent } (T\alpha, S^{\text{MAX}} \beta)\}$ corresponds to their $(f_L \text{ INDEX})$ or $(f_R \text{ INDEX})$, which is the parameter specification for a language with only partial agreement. Finally, our ranking $\{*\text{Adjacent } (T\alpha, S^{\text{MAX}} \beta) \gg * \text{Adjacent } (T\alpha, S^{\text{MIN}} \beta)\}$ corresponds to their $(f \text{ INDEX})$.

While both systems describe a full range of systems, we note that the Dalrymple and Hristov approach builds the notions of left and right into their functional metavariables, and that as a consequence the partial agreement must be specified in terms of direction. Since the information about the left and right order is present in the c-structure, we would prefer to minimize the amount of c-structural information referred to by f-structure metavariables. In contrast, our constraints are able to evaluate candidates based on both their c-structural and f-structural properties. Constraints are purposely designed to evaluate correspondences between different structures, and to our mind they are an optimal mechanism for the description of linguistic phenomena that involve the interaction of linear order and features.

9 References

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