

# Extraction from Conjuncts in Khoekhoe: An Argument for Cyclic Linearization

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# 1 Introduction

The motivation behind the work of theoretical syntax can be traced back, in substantial measure, to the following two questions: (i) what are the fundamental syntactic operations provided by the human language faculty?; and (ii) what constraints are they subject to, and why? If, as has been argued in much recent Minimalist (Chomsky 1995) work, one of the most fundamental syntactic operations is Merge—and this operation has two subcases, namely External Merge and Internal Merge (Chomsky 2004), the latter often being referred to as “movement”—then a crucial question that arises is: what are the constraints on these two subcases of Merge cross-linguistically, and why do they exist?

Specifically with relation to movement, why is it that certain constructions restrict or prohibit movement out of them (so-called “islands”—Ross 1967 and much subsequent work), while others do not? Or, to approach the issue from a somewhat different perspective, why should locality conditions (of the sort that give rise to island effects) constrain the movement of syntactic constituents? As a subcase of this general question, we can ask: what are the constraints with respect to coordinate structures that yield the observed patterns of licit and illicit extractions from these structures cross-linguistically—patterns which, at present, do not have a unified account? One type of apparent violation of the otherwise highly robust Coordinate Structure Constraint (Ross 1967), according to which extraction of and out of conjuncts is disallowed—so-called “SLF-coordination”—has yet to be fully understood and will be the primary empirical focus of the present investigation. In this thesis, I will argue that SLF-coordination can be accounted for in a principled way that reconciles the existence of this seemingly exceptional phenomenon with the observation that the Coordinate Structure Constraint is otherwise highly robust cross-linguistically.

In what follows, I will argue that the *cyclic linearization* approach to the locality of movement (Fox & Pesetsky 2005a, a.o.) makes it possible to account in a principled way for the otherwise puzzling phenomenon of SLF-coordination as it manifests in the Khoisan language Khoekhoe. (SLF-coordination, also referred to as SGF-coordination or asymmetric coordination, is most familiar from Germanic languages.) The success of cyclic linearization in enabling us to account

for this phenomenon, contrasted with the difficulties that (as I will show) phase theory faces in doing so, will lead me to theorize that cyclic linearization may in fact be a more accurate framework than phase theory with which to understand the locality constraints on movement.

The thesis is organized as follows. §2 provides an overview of the Khoekhoe language, placing particular emphasis on its syntax. §3 introduces the phenomenon of SLF-coordination. §3.1 lays out a previous analysis of the phenomenon as it occurs in Khoekhoe (Kusmer 2018), noting both its strengths and the ways in which it falls short. §3.2 develops an alternative to Kusmer's (2018) analysis based on the cyclic linearization approach to the locality of movement—an analysis which is able to account for both the availability of SLF-coordination in Khoekhoe and its unavailability in English. §3.3 considers several possible alternative analyses of SLF-coordination based not on cyclic linearization but on phase theory, and shows that none of these are successful—an outcome that provides an argument for cyclic linearization and against phase theory. §4, the conclusion, discusses how the results of the investigation bring us closer to answering some of the larger theoretical questions with which we began—in particular, how the locality constraints on the ubiquitous syntactic operation known as movement are to be understood.

## **2 Syntactic Overview of Khoekhoe**

Khoekhoe (sometimes also referred to as Nama) is a member of the Khoisan language family and is one of the national languages of Namibia. With slightly over 200,000 speakers (Brenzinger 2013), the language is also spoken in some parts of Botswana and South Africa. Khoekhoe is the most widely spoken Khoisan language. Along with the rest of the language family, it is well-known for phonemically employing click consonants.

Despite having quite free variation in word order, Khoekhoe sentences are SOV (Subject-Object-Verb) in information-structurally neutral contexts. The examples in (1) illustrate the generally S(O)V character of the language using an intransitive, transitive, and ditransitive construc-

tion<sup>1,2</sup>:

- (1) a. Tita ge ra †nā.  
1.SG DECL PRES dance  
'I am dancing.'
- b. Joni ge ||ipa ra mû.  
John DECL 3.SG PRES see  
'John sees him.'
- c. Axab ge |gôasa †khanisa go mâ.  
boy DECL girl book RCT.PST give  
'The boy gave the girl the book.'

Even a cursory glance reveals some interesting properties that should be taken note of. One of the most obvious is the presence of independent lexical items representing the clause's mood and tense/aspect features. In all three sentences above, *ge* marks the declarative mood and is in complementary distribution with a number of other mood markers (e.g., *kha* 'INTERROGATIVE', *a/hā* 'OBLIGATIVE', etc.: Haacke 2013: 355). In Khoekhoe, tense and aspect are realized as a portmanteau morpheme. This is exemplified in (1a) and (1b) by *ra*, which simultaneously realizes progressive aspect and present tense. In (1c) *go* is used; this particle expones both punctual aspect and recent past tense. These two markers are interchangeable with a significantly greater number of other tense/aspect markers than there are mood markers (e.g., *nî* 'PUNCTUAL FUTURE', *hâ* 'PERFECTIVE PRESENT', etc.: Haacke 2013: 336).

The distribution of the mood and tense/aspect markers seems to be mostly regular. In an information-structurally neutral context, the mood marker, which is always overt, is consistently in second position (it is the linearly second lexical item in the clause, not counting a clitic about which more will be said below). As for the tense/aspect marker, its position seems to be less strictly regulated than that of the mood marker, and it is not always overt. For example, imperative constructions lack an overt tense/aspect morpheme:

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<sup>1</sup>Unless noted otherwise, all examples shown here were gathered by me in the context of a Field Methods class held at NYU over the course of the 2017/2018 academic year. I am very grateful indeed to our consultant for sharing with us her knowledge of and insights into her language.

<sup>2</sup>The following abbreviations are used throughout the glosses and in the text: ACC 'accusative', AUX 'auxiliary', COM 'comitative', DAT 'dative', DECL 'declarative', IMP 'imperative', NOM 'nominative', PART 'participle', PRES 'present', RCT.PST 'recent past', RMT.PST 'remote past', SG 'singular', 1 'first person', 3 'third person'.

- (2) †Nā re!  
 dance IMP  
 ‘Dance!’

Haacke (2013: 336) suggests that clauses with punctual aspect and present tense simply do not contain a morpheme expounding these categories; however, it is also possible that the punctual present is marked by a null morpheme.

As mentioned above, word order in Khoekhoe can vary greatly. Not only does the language allow SOV (the canonical order) but also both direct and indirect objects may be fronted (giving an OSV order), as well as the verb (giving a VSO order). Fronting of any of these three constituents yields a focused reading of that item. This is highlighted by capitalizing the focused constituent in the translation of each example below<sup>3</sup>.

- (3) *Canonical Word Order (S-IO-DO-V)*

Aob ge tarasa xūba ge mâ.  
 man DECL woman object RMT.PST give

‘The man gave the woman the object.’

(Washburn 2001: 36)

- (4) *Fronted Indirect Object (IO-S-DO-V)*

Tarasab ge aoba xūba ge mâ.  
 woman DECL man object RMT.PST give

‘The man gave THE WOMAN the object.’

(ibid.)

- (5) *Fronted Direct Object (DO-S-IO-V)*

Xūbab ge aoba tarasa ge mâ.  
 object DECL man woman RMT.PST give

‘The man gave the woman THE OBJECT.’

(ibid.: 37)

- (6) *Fronted Verb (V-S-IO-DO)*

Mâb ge ge aoba tarasa xūba.  
 give DECL RMT.PST man woman object

‘The man GAVE the woman the object.’

(ibid.)

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<sup>3</sup>The final =b on *ao* ‘man’, *tarasa* ‘woman’, *xūba* ‘object’, and *mâ* ‘give’ in (3)-(6), respectively, is a clitic that is linked to the subject of each sentence. This will be discussed in further detail in §2.1 and §2.2 below.

The first thing that should be noted from the examples with a non-canonical constituent order listed above is that the declarative mood marker *ge* does not move from the second position. The punctual remote past tense marker *ge*<sup>4</sup> remains in the same position for sentences (3)-(5), but in (6) it apparently crosses all of the arguments and surfaces next to the declarative marker.

The position and form of the arguments in these sentences are also of interest. There seem to be argument “slots” within the structure: one to the left of *=b*<sup>5</sup>; two between the mood and tense/aspect markers; and three after the tense/aspect marker. In each of the sentences exhibiting fronting, the fronted element occupies the same position as the subject in (3) (a sentence with neutral constituent order) and the subject, descriptively speaking, is “pushed down” lower into the sentence. Washburn (2001) assumes that subjects in SOV sentences, like *ao* in (3), are also focused, which would lend plausibility to the hypothesis that they occupy the same position as the focused elements in (4)-(6). Based on my data, however, this does not seem to be the case, as reflected in my translation of (3). Thus, there is something still to be said regarding the position of the first constituent of the Khoekhoe clause, and consequently something to be said about the position of mood markers.

As a final interesting note regarding the positions of arguments, in ditransitive constructions, the direct object and indirect object may surface in either order with no shift in meaning, shown in (7). One might expect that a shift in position would create a difference in interpretation of an argument; however, this is not borne out in these cases, as far as is currently known.

- (7) a. Joni ge tita †khanisa go mâ.  
 John DECL 1.SG book RCT.PST give  
 ‘John gave me the book.’  
 b. Joni ge †khanisa tita go mâ.  
 John DECL book 1.SG RCT.PST give  
 ‘John gave me the book.’

Turning now briefly to the form of the arguments, in (3)-(6) every argument except the subject in (3) has at the very least an *-a* suffix. This is most likely some sort of case morphology with no

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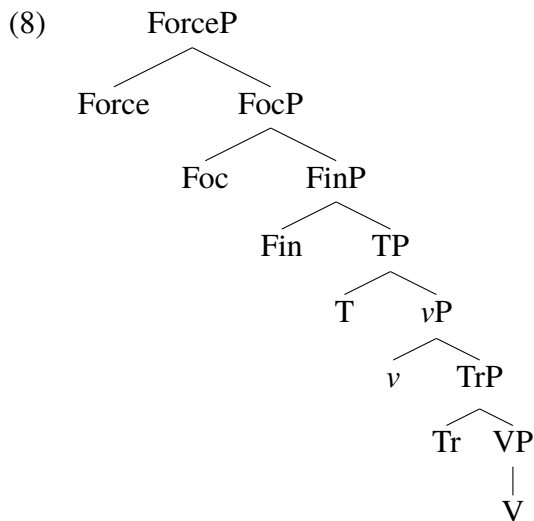
<sup>4</sup>The declarative marker and the punctual remote past tense marker share the same orthographic form *ge*, but differ in tone.

<sup>5</sup>Though, as seen in (6), this particular “slot” may be occupied by verbs as well as arguments.

allomorphy (i.e., it is always *-a*); however, its distribution is not known in detail, although further investigation of it may well deepen our understanding of the underlying syntactic structure of the language. Finally, the *=b* on the focused elements in (4)-(6), as mentioned in fn. 3 above, is a clitic that is linked to the subject of the sentence.

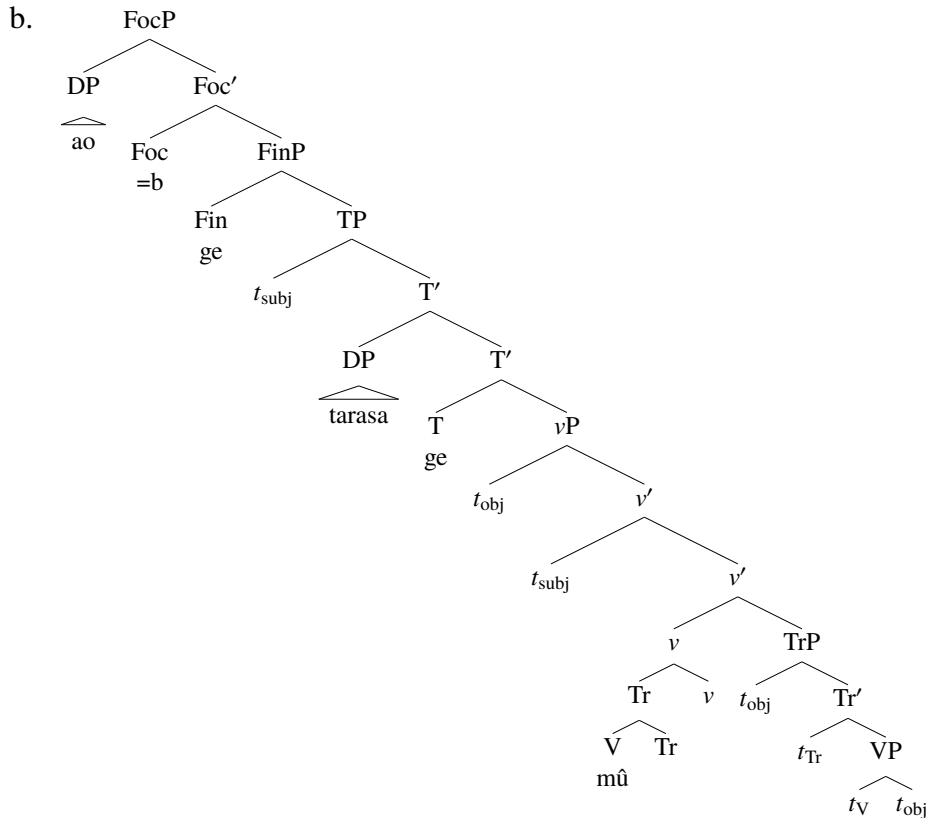
## 2.1 Khoekhoe Clause Structure: Our Current Understanding

There exist in the literature two notable accounts of Khoekhoe syntax, namely Washburn (2001) and Haacke (2013) (though see also Hagman 1977 and Hahn 2013). Despite its in-depth account of the typological characteristics of Khoekhoe syntax, Haacke (2013) contains limited structural analysis, and what it does contain is couched in a theoretical framework different enough from the one assumed here that a detailed discussion of it would lead us too far astray. Washburn (2001), on the other hand, does analyze Khoekhoe syntax within a Minimalist framework. Using Rizzi’s (1997) articulated left periphery and Kayne’s (1994) proposal of Antisymmetry, and after introducing a “Transitivity” Phrase (labeled TrP), which is the locus for object agreement, Washburn proposes the structure in (8).



On Washburn’s analysis, then, the transitive clause in (9a) has the structure in (9b):

- (9) a. Aob ge tarasa ge mû.  
 man DECL woman RMT.PST see  
 ‘The man saw the woman.’



There are a few aspects of this analysis that I will not be adopting. First, Washburn adopts Kayne's (1994) Antisymmetry framework, meaning that he assumes that every language, including Khoekhoe, is underlyingly head initial (as regards head-complement order). In the past I have been partial to such an analysis, but I am now less convinced that Antisymmetry is on the right track, and consequently will not be adopting it here. In addition to this, Washburn adopts TrP as a functional layer above VP. The syntactic functions of TrP appear to be very similar to those of vP. Below I will argue that these two projections are, in fact, the same, thereby eliminating the need for TrP.

All that aside, there are some aspects of Washburn's analysis that are very much worth retaining. The first is that Washburn argues that the tense/aspect marker is always in  $T^0$  (the Tense head)<sup>6</sup>. Second, the idea of multiple specifiers, which Washburn employs in moving multiple arguments up the tree structure (and into multiple specifiers of T), is empirically useful, robustly backed cross-linguistically, and in line with theoretical expectation, given the logic of Bare Phrase Structure. I believe, however, that there are some adjustments that could be profitably made to

<sup>6</sup>If we were to call this head  $Asp^0$ , the analysis would not be affected in any substantial way.

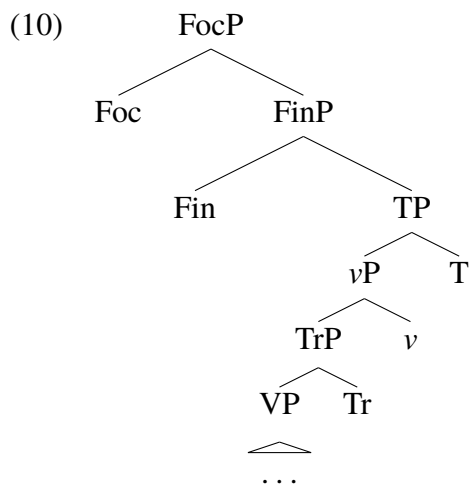


Washburn’s analysis.

## 2.2 An Alternative to Washburn’s (2001) Analysis

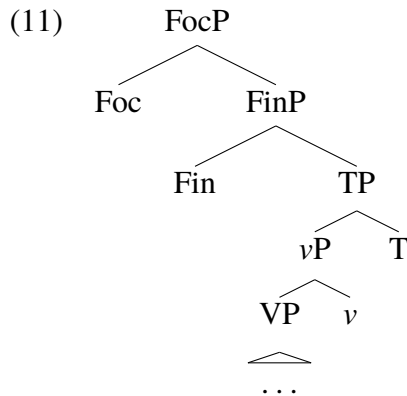
Given the considerations mentioned in the previous subsection, let us consider an alternative to Washburn’s (2001) analysis. The first matter to take into account is Antisymmetry. According to Kayne’s (1994) Antisymmetry hypothesis, hierarchical structure—more specifically, asymmetric c-command—completely determines linear order. In particular, a head is always linearized to the left of its complement, and a specifier is always linearized to the left of its sister as well—as is standardly assumed for most phrases in SVO languages. Constituent orders that are not SVO (SOV, VSO, etc.) are derived by movement operations affecting particular subtrees; we can see this exemplified in (9b).

If, however, we analyze Khoekhoe’s underlying structure without assuming Antisymmetry, and instead simply rely on word order, we can assume the following: VP, TrP, vP, and TP are head-final and spec-initial; all phrases in Rizzi’s (1997) left periphery are head- and spec-initial. This would give us the clausal spine in (10) (cf. (8)).



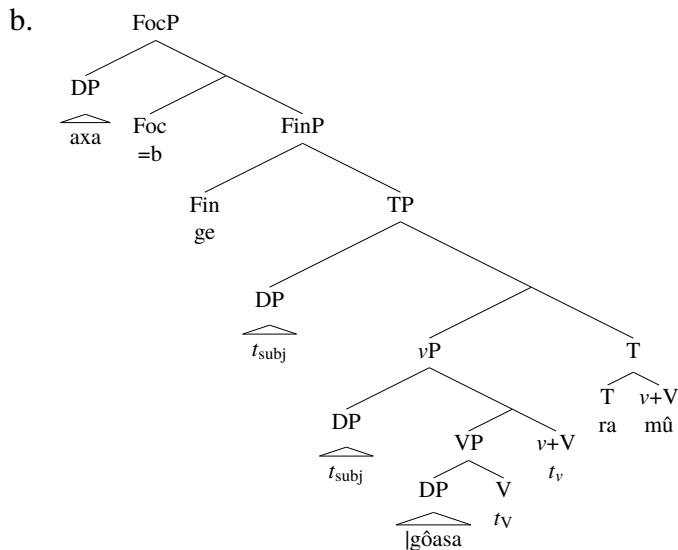
The second issue mentioned above was related to Washburn’s assumption of a ‘Transitivity’ head (Tr). Tr was first introduced in Collins (1997), which was published only one year after Kratzer’s (1996) argument for VoiceP (often alternatively referred to as vP, as I do in this paper). The two proposals are, in fact, quite similar, both imposing additional functional structure above

VP, thereby allowing all arguments to merge low (i.e., relatively locally to the verb). Washburn’s analysis adopts both Tr and *v*, but it is not clear that both of these functional categories are needed. Following what seems to have emerged as the general consensus in the field, I will adopt *v*P and leave out TrP. Thus, a slight adjustment must be made to the structure in (10), giving us:



On the analysis laid out in (11), sentence (12a) has the structure in (12b)<sup>7</sup>:

- (12) a. Axab ge |gôasa ra mû.  
 boy DECL girl PRES see  
 ‘The boy sees the girl.’



The analysis exemplified in (12b) is similar to Washburn’s in that the subject in apparently information-structurally neutral clauses occupies [Spec, FocP], having moved there from [Spec, *v*P] via [Spec, TP]. (Admittedly, having an unfocused subject in [Spec, FocP] is not fully satisfying,

<sup>7</sup>The structure in (12b) presupposes V-to-T movement in Khoekhoe, which should be justified in future research.

but nothing in the analysis below will hinge on it.) If we consider case, it is possible to hypothesize at this stage that an object is *a*-marked (i.e., assigned overt (ACC?) case) by  $V^0$ , and the subject gets null-NOM-marked by  $T^{08}$ . A problem arises in relation to case, however, with respect to sentences in which a non-subject moves to [Spec, FocP]. As we saw from the examples in (4)–(6), when a non-subject is focused, the subject is *a*-marked. The only difference in movement between such cases and sentences with a neutral word order is that the subject does not raise to [Spec, FocP], but remains in [Spec, TP]; this should not affect case assignment if what we said above is correct. So how then does the object (and, in certain cases, the subject) get this puzzling *-a*? The answer is beyond the scope of the present study, but is crucial for a complete account of Khoekhoe clause structure, and should be considered in future research. (For a first look into Khoekhoe *-a* marking, see Shushurin 2017.)

### 3 SLF-Coordination in Khoekhoe

As discovered by Kusmer (2018), Khoekhoe exhibits so-called *SLF-coordination*, which stands for *Subjektlücken in finiten Sätzen* ‘subject gaps in finite clauses’ (therefore also sometimes referred to as *SGF-coordination*), first termed by Höhle (1983) (see also Schwarz 1998, Kathol 1999, Johnson 2002, Barnickel 2017, Kusmer 2018, a.o.).

SLF-coordination constructions have two conjuncts that are finite clauses and share one subject. The subject only appears in the first conjunct and not the second. Additionally, an XP may be fronted out of the first conjunct, but not the second. This is strange because a) it violates the Coordinate Structure Constraint (Ross 1967), which has the consequence that an XP should not be able to move out of either conjunct in a coordinate structure, and b) there is an asymmetry between the two conjuncts whose etiology is not obvious (for this reason, SLF-coordination is sometimes referred to as *asymmetric coordination*).

Apart from Khoekhoe, this variety of coordination has only been studied in Germanic

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<sup>8</sup>Alternatively, one could hypothesize that the subject in [Spec, TP] receives no case (see Kornfilt & Preminger 2015).

languages like German and Dutch<sup>9</sup>. A simple example from German as presented in Kathol (1999) is given in (13) below.

- (13) [In den Wald]<sub>i</sub> [ ging der Jäger *t<sub>i</sub>* ] und [ fing einen Hasen ].  
 into the forest went the hunter and caught a rabbit  
 ‘The hunter went into the forest and caught a rabbit.’ (Kathol 1999: 305)

The data in (14) and (15) gives a more in-depth look at SLF-coordination in Khoekhoe, showing that extraction is possible from the first conjunct but not from the second<sup>10</sup>:

- (14) Dandagob ge [ amsa ||nae ] tsi [ †naba ra †na ].  
 Dandago DECL song sing and dance IMPV dance  
 ‘Dandago is singing a song and dancing a dance.’
- (15) a. Amsa<sub>i</sub>=b ge Dandagoba [ *t<sub>i</sub>* ||nae ] tsi [ †naba ra †na ].  
 song=3.SG.M DECL Dandago sing and dance IMPV dance  
 ‘As for a song, Dandago is singing it and dancing a dance.’
- b. \* †Naba<sub>i</sub>=b ge Dandagoba [ amsa ||nae ] tsi [ *t<sub>i</sub>* ra †na ].  
 dance=3.SG.M DECL Dandago song sing and IMPV dance  
 (Kusmer 2018: 1)

The relevant questions derived from the puzzle above are: What allows for the violation of the Coordinate Structure Constraint? And why is only one conjunct able to be extracted from—namely, the first—and not the other?

### 3.1 Kusmer’s (2018) Analysis

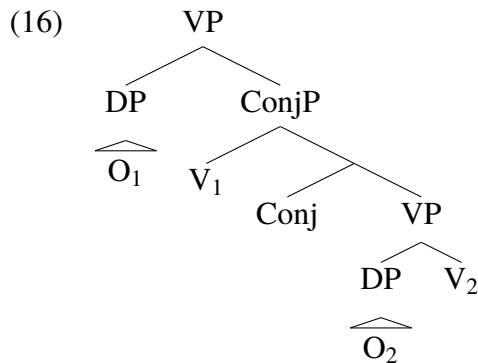
Kusmer (2018) was the first to notice that SLF-coordination exists in Khoekhoe. This is most notable for the fact that it is the first time this type of coordination has been found outside of the Germanic family (and quite distantly so). Some aspects of his analysis seem to be clearly correct, while others I find to be problematic.

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<sup>9</sup>Interestingly, Bjorkman (2014, citing personal communication from David Pesetsky) and Kusmer (2018) point out that this type of coordination can be found in an archaic form of English. Compare (13)-(15) with the following sentence from the commonly-known English nursery rhyme “The Itsy-Bitsy Spider”: *Down came the rain and washed the spider out.*

<sup>10</sup>Unexpectedly enough, it seems as though T were surfacing “inside” the second conjunct (and the second conjunct only). At present, I will set aside this issue for future research.

In similar fashion to Johnson (2002), Kusmer takes a small conjuncts approach to SLF-coordination. That is, he argues that the conjuncts in these constructions are VPs (as opposed to CPs). This seems justified in that tense is realized only once in the entire sentence (see (14)). If the conjuncts were CPs (or, more generally, full finite clauses, independently of their precise categorial label) then we would expect to see tense—and presumably a  $\text{Fin}^0$  that marks mood—realized in both conjuncts. Kusmer proposes that SLF-coordination in Khoekhoe has the structure in (16). (The subscripts in (16) are provided purely for ease of exposition.)



In a way, this analysis is aimed at capturing the asymmetry between conjuncts as the indirect result of two unlike objects being coordinated: a phrase and a head. In (16),  $O_1$  originates outside the coordinate structure (ConjP), and is therefore in a position to move to a higher position in the tree without violating the Coordinate Structure Constraint, causing SLF-effects to surface.

Unfortunately, Kusmer’s analysis posits a structural anomaly, specifically raising the question: where does the highest VP project from and attain the label of “VP”? A second, perhaps related problem is that the relationship between  $V_1$  and  $O_1$  (i.e., that  $O_1$  is the object of  $V_1$ ) requires that  $V_1$  selects  $O_1$ , which in turn requires that  $O_1$  merge with  $V_1$  or with a projection of  $V_1$  (Merchant to appear). If that occurs, then  $V_1$  should indeed be able to project a VP layer. However, based on the tree in (16), there is no way for  $V_1$  to select or have selected  $O_1$ . This is the critical problem for Kusmer’s analysis, as it is incompatible with the standard assumptions of selection and its relationship to Merge (see Merchant to appear for a definition of Merge).

### 3.1.1 Kusmer's (2018) Cross-Linguistic Results

Kusmer (2018) also begins to explore why is it that SLF-coordination is possible in Khoekhoe and Germanic, but not in many other languages. This is another aspect of his investigation that I think helps deepen our understanding of what might be happening here.

His first hypothesis questions whether the availability for SLF-coordination is correlated with verb-finality, as the latter is a property both of (information-structurally neutral) Khoekhoe clauses and of Germanic clauses (modulo verb-second [V2], PP-extraposition, etc.). However, Kusmer points out that Hindi-Urdu is a verb-final language that allows for scrambling for information structure, but doesn't permit SLF-coordination. This is shown in (27).

- (17) a. Raam kuttoN-ko pasand kartaa hai aur billiyoN-se nafrat kartaa hai.  
Raam dogs-DAT liking do PRES and cats-COM hatred do PRES  
'Raam likes dogs and hates cats.'
- b. \* KuttoN-ko Raam pasand kartaa hai aur billiyoN-se nafrat kartaa hai.  
dogs-DAT Raam liking do PRES and cats-COM hatred do PRES  
Int: 'As for dogs, Raam likes them and hates cats.'

(adapted from Kusmer 2018: 9)

The second hypothesis is what if the construction's availability is due to 2nd-position phenomena found in both Germanic and Khoekhoe? Again, however, evidence from another language—this time Kashmiri—goes against the hypothesis. Kashmiri has V2 word order with topicalization, but does not allow SLF-coordination, as shown in (28).

- (18) a. Mohan chu film vuch-aan ta chu su boz-aan.  
Mohan AUX film see-PART and AUX it hear-PART  
'Mohan is seeing the film and hearing it.'
- b. \* Film chu Mohan vuch-aan ta chu su boz-aan.  
Film AUX Mohan see-PART and AUX it hear-PART  
Int: 'As for the film, Mohan is seeing it and hearing it.'

(adapted from Kusmer 2018: 9)

With the above discussion of Kusmer's (2018) analysis as background, I will now develop a different analysis of the availability of SLF-coordination in Khoekhoe (and its unavailability in languages such as English)—one that retains the strong points of Kusmer's (2018) analysis but avoids its

shortcomings.

### 3.2 A Cyclic Linearization Analysis of SLF-Coordination

Taking an approach very different from Kusmer's, I propose that SLF-coordination can be straightforwardly accounted for if we adopt the cyclic linearization approach to the locality of movement, as first put forth by Fox and Pesetsky (2005a) (see also Bobaljik 2005, Fox & Pesetsky 2005b, Diesing 2005, Ko 2007, 2014, Davis 2018, 2019, a.o.). On the cyclic linearization approach, the constituents analyzed as phases in standard phase theory constitute Spell-out domains in their entirety (i.e., for each of these constituents, the relevant Spell-out domain contains not only the complement of its head but also the head itself and its edge). At each application of Spell-out, the linearization information of the spelled-out domain is established for the remainder of the derivation. Fox and Pesetsky (2005a) refer to this notion as "Order Preservation". For example, consider the instance of *wh*-movement in (19), originally provided in the aforementioned article.

- (19) ***Wh*-movement skipping [Spec,  $\nu$ P], yielding an ordering contradiction**<sup>11</sup>  
[To whom will he [\_\_\_ say [CP \_\_\_ that Mary [ $\nu$ P gave the book \_\_\_]]]]?

This example considers a hypothetical non-successive-cyclic derivation in which *to whom* moves from within the  $\nu$ P directly to the embedded [Spec, CP] without stopping off at the left edge of  $\nu$ P. Under cyclic linearization, Spell-out will apply to  $\nu$ P while *to whom* is still embedded within it, giving us the linearization in (20). "A < B" is to be read as "A precedes B".

- (20) **Spell-out applies to  $\nu$ P (non-successive-cyclic)**  
*gave < the book < to whom*

Once *to whom* is in [Spec, CP], however, Spell-out applies to CP, establishing the linearization statement shown in (21). This yields a clear contradiction. In (20), after Spell-out of the  $\nu$ P, *to whom* follows *gave the book*, while in (21), after Spell-out of the CP, *to whom* precedes the  $\nu$ P, and hence precedes *gave the book*.

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<sup>11</sup>Throughout such derivations we will abstract away from subject movement. Although Fox and Pesetsky (2005a) set  $\nu$ P aside for most of their discussion and speak only of "VP", I have adapted their derivations to the standard assumption that the clause-internal locality domain is  $\nu$ P, not VP.

- (21) **Spell-out applies to CP (non-successive-cyclic)**  
*to whom < that < vP*

This ordering contradiction can be averted if the derivation proceeds successive-cyclically instead. If *to whom* moves first to [Spec, vP], as shown in (22), when Spell-out is applied to vP, *to whom* will be linearized to the left of *gave the book*, as shown in (23).

- (22) **Wh-movement stopping in [Spec, vP], avoiding an ordering contradiction**  
[To whom will he [\_\_\_ say [CP \_\_\_ that Mary [vP \_\_\_ gave the book \_\_\_]]]]?  
(23) **Spell-out applies to vP (successive-cyclic)**  
*to whom < gave < the book*

From here, once *to whom* moves to [Spec, CP], and Spell-out applies to CP, the linearization established at the Spell-out of vP is not contradicted, as *to whom* still precedes the verb and direct object of the vP *gave the book*, as shown in (24).

- (24) **Spell-out applies to CP (successive-cyclic)**  
*to whom < that < vP*

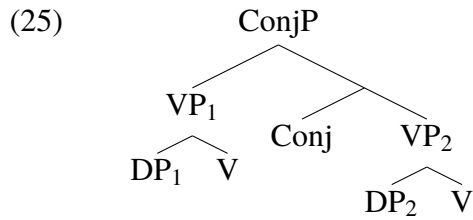
In the framework of cyclic linearization, movement out of a locality domain does not necessarily *have* to stop off at the edge of that domain—i.e., proceed successive-cyclically: instead, it can proceed non-successive-cyclically, so long as Order Preservation is obeyed. Differently put, the cyclic linearization framework has no exact counterpart to the notion “edge of a phase” (or, more informally, “escape hatch”) familiar from standard phase theory and its predecessors. Instead, what fundamentally determines the locality of movement is Order Preservation.

### 3.2.1 SLF Effects as a Product of Cyclic Linearization

In line with Kusmer’s (2018) analysis, I adopt the view that SLF-coordination involves the conjunction of two VPs for the same reason stated above, namely that tense and mood are realized only once in the sentence yet are able to scope over the entire sentence (cf. (14)). Diverging here, I assume that the two VPs in SLF constructions are coordinated in a ConjP (see Progovac 1998 for numerous references). VP<sub>2</sub> merges as the complement of Conj<sup>0</sup>, while VP<sub>1</sub> merges as its specifier.



This is shown in (25). Along with this, I assume that ConjP is a Spell-out domain (i.e., a locality domain; see Oda 2017 and Bošković 2018, a.o., for independent evidence of this).



Assuming this, along with cyclic linearization, is the framework of standard contemporary syntactic theory able to account for SLF-coordination in Khoekhoe? Based on what follows, along with supporting evidence from English, I will show that the answer to this question is: yes.

In what follows, for both Khoekhoe and English, I will attempt to move each XP selected by each V within a ConjP both successive-cyclically and non-successive-cyclically. These derivations will make it clear as to how SLF-coordination can be accounted for under cyclic linearization. Let us begin with VP<sub>1</sub> in Khoekhoe. Because DPs merge to the left of V in Khoekhoe, and VP<sub>1</sub> is already in the specifier position of ConjP, it will not make a difference whether the DP moves successive-cyclically out of ConjP or not. DP<sub>1</sub> is already leftmost in the ConjP; therefore, moving further left in the ConjP (i.e., successive-cyclic movement) will not change the ordering between DP<sub>1</sub> and the rest of the ConjP.

- (26) **Movement of DP<sub>1</sub> from VP<sub>1</sub> in Khoekhoe (successive-/non-successive-cyclic)**  
 [<sub>FocP</sub> *Amsa*=b ge [<sub>TP</sub> Dandagoba [<sub>vP</sub> [<sub>ConjP</sub> (\_\_\_\_) [<sub>VP1</sub> \_\_\_\_ ||ae] tsi [<sub>VP2</sub> †naba ra †na]]]]].

In (26), *amsa* ‘song’ has moved from within VP<sub>1</sub> to [Spec, FocP]. Whether this movement is successive-cyclic (as indicated by the underscore in parentheses in [Spec, ConjP]) or not, when ConjP undergoes Spell-out, the ordering between DP<sub>1</sub> and the rest of ConjP will be as follows:

- (27) **Spell-out applies to ConjP (successive-/non-successive-cyclic)**  
*amsa* < ||ae < tsi < VP<sub>2</sub>

Assuming that FocP is also a Spell-out domain, when it undergoes Spell-out, the order of constituents is preserved and there is no contradiction, as shown in (28).

(28) **Spell-out applies to FocP (successive-/non-successive-cyclic)**

*amsa < =b < . . . < ||ae < tsi < VP<sub>2</sub>*

Though we are easily able to account for the availability of DP<sub>1</sub> to move out of a ConjP in Khoekhoe (cf. (25)) under cyclic linearization, we must also consider whether—and if so, how—this approach is able to disallow movement of DP<sub>2</sub> from VP<sub>2</sub> in order to account for the observed SLF asymmetry in (15). Because DP<sub>2</sub>, unlike DP<sub>1</sub>, is not already at the linear left edge of the ConjP Spell-out domain, there will be a difference between whether its movement out of the ConjP is successive-cyclic or not. Let us start by attempting to move DP<sub>2</sub> from ConjP successive-cyclically.

(29) **Movement of DP<sub>2</sub> from VP<sub>2</sub> in Khoekhoe (successive-cyclic)**

[<sub>FocP</sub> †Naba=b ge [<sub>TP</sub> Dandagoba [<sub>vP</sub> [<sub>ConjP</sub> \_\_\_\_ [<sub>VP<sub>1</sub></sub> amsa ||ae] tsi [<sub>VP<sub>2</sub></sub> \_\_\_\_ ra †na]]]]].

In (29), †naba ‘dance’ has moved from within VP<sub>2</sub> to [Spec, FocP] by undergoing successive-cyclic movement through [Spec, ConjP]. When ConjP is spelled out, the ordering between DP<sub>2</sub> and the rest of the ConjP is as follows:

(30) **Spell-out applies to ConjP (successive-cyclic)**

*†naba < VP<sub>1</sub> < tsi < . . .*

Now, when Spell-out applies to FocP, there is no ordering contradiction, as shown in (31).

(31) **Spell-out applies to FocP (successive-cyclic)**

*†naba < =b < . . . < VP<sub>1</sub> < tsi < . . .*

If this derivation were actually available in Khoekhoe, then DP<sub>2</sub> would also be able to undergo fronting in SLF-coordinations, which is not the case, as shown in (15b). Turning now to a non-successive-cyclic derivation using the cyclic linearization approach, we see a different outcome.

(32) **Movement of DP<sub>2</sub> from VP<sub>2</sub> in Khoekhoe (non-successive-cyclic)**

[<sub>FocP</sub> †Naba=b ge [<sub>TP</sub> Dandagoba [<sub>vP</sub> [<sub>ConjP</sub> [<sub>VP<sub>1</sub></sub> amsa ||ae] tsi [<sub>VP<sub>2</sub></sub> \_\_\_\_ ra †na]]]]].

In (32), †naba ‘dance’ moves from within VP<sub>2</sub> to [Spec, FocP], but does not move successive-cyclically through [Spec, ConjP]. Therefore, when ConjP is spelled out, we get the following linearization:

- (33) **Spell-out of ConjP (non-successive-cyclic)**  
 $VP_1 < tsi < \dagger naba < \dots$

From here, once FocP undergoes Spell-out, the following constituent order is established, raising a contradiction.

- (34) **Spell-out of FocP (non-successive-cyclic)**  
 $\dagger naba < =b < \dots < VP_1 < \dots$

Because of the ordering contradiction between (33) and (34), the derivation will crash. We see, then, that given cyclic linearization, if movement out of ConjP in Khoekhoe belongs to the class of movements which are not successive-cyclic, DP<sub>2</sub> is correctly predicted to be unextractable from ConjP in Khoekhoe (cf. (15b)). (If this approach to movement out of ConjP in Khoekhoe is on the right track, then movement of DP<sub>1</sub> out of ConjP must be non-successive-cyclic just as (attempted) movement of DP<sub>2</sub> out of ConjP is, even though this was initially anything but obvious, as discussed above.)

It should be noted that, as stated by Fox and Pesetsky (2005a), the cyclic linearization framework makes predictions about whether particular types of movement should be licit or illicit *given* an additional statement about whether the movements in question are successive-cyclic or non-successive-cyclic, but cyclic linearization itself is not a theory of which movements are which, and that ultimately has to follow from some other theory. The present analysis depends on the assumption that movement out of ConjP in Khoekhoe is non-successive-cyclic. Currently, this assumption does not follow from anything, but that in itself is not a serious problem for the cyclic linearization framework or for the analysis developed here.

### 3.2.2 The Absence of SLF Effects in English as a Product of Cyclic Linearization

Having argued that SLF-coordination effects in Khoekhoe are a product of cyclic linearization, in this section I will extend my analysis to argue that cyclic linearization also accounts for the lack of availability of SLF-coordination in English. Contrary to Khoekhoe, I assume that, in English, there exists a VoiceP above vP (Harley 2013, Merchant 2013), and that this phrase is the Spell-out

domain of the verbal complex, as opposed to  $vP$ . Because  $V$  moves (at least) to  $v$  in English, the coordinations of verbal phrases that will be considered here are  $vP$ -coordinations. It is also important to note that because a complement of  $V$  in English is linearized to the right of  $V$ , we must consider both a derivation in which movement out of  $\text{ConjP}$  is successive-cyclic and one in which movement out of  $\text{ConjP}$  is non-successive-cyclic, as neither complement  $XP$  will be the leftmost member of the  $\text{ConjP}$  upon its projection, unlike in Khoekhoe. In similar fashion to the section above, I will consider movement of an  $XP$  out of each  $vP$  in a  $\text{ConjP}$  in English. Let's start then with  $vP_1$  and assess whether or not Order Preservation can be obeyed if we assume that movement out of  $\text{ConjP}$  in English is successive-cyclic.

(35) **Movement of PP from  $vP_1$  in English (successive-cyclic)**

[ $CP$  Into the forest [ $TP$  a hunter [ $VoiceP$  [ $\text{ConjP}$  \_\_\_\_ [ $vP_1$  went \_\_\_\_] and [ $vP_2$  caught a rabbit]]]]].

In (35) the PP *into the forest* has moved from the complement position of  $V$  to  $\text{Spec,CP}$  by successive-cyclically moving through [ $\text{Spec, ConjP}$ ]. In this derivation, when  $\text{ConjP}$  is spelled out, the following linearization is established.

(36) **Spell-out applies to  $\text{ConjP}$  (successive-cyclic)**

*into the forest* < *went* < *and* <  $vP_2$

From here, the PP moves to  $\text{Spec,CP}$ <sup>12</sup>. When  $CP$  undergoes Spell-out the linearization in (37) is established and no contradiction arises between this and (36).

(37) **Spell-out applies to  $CP$  (successive-cyclic)**

*into the forest* < *a hunter* <  $\text{ConjP}$

If we operate under the assumption that movement out of  $\text{ConjP}$  in English is successive-cyclic, then based on the derivation in (35)-(37), cyclic linearization would predict that SLF-coordination of the Germanic/Khoekhoe type should be available. This is certainly not the case, as shown in (38) (though see footnote 6 for an archaic example).

(38) \* Into the forest the hunter went and caught a rabbit.

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<sup>12</sup>Given that I am abstracting away from subject movement, I will also abstract away from the derivational effects of the  $\text{VoiceP}$  Spell-out domain; I believe this simplification shouldn't affect the analysis in any significant way.

Still focusing on  $vP_1$ , what if we assume that movement out of ConjP in English is not successive-cyclic? Consider (39).

- (39) **Movement of PP from  $vP_1$  in English (non-successive-cyclic)**  
 [<sub>CP</sub> Into the forest [<sub>TP</sub> a hunter [<sub>VoiceP</sub> [<sub>ConjP</sub> [ <sub>$vP_1$</sub>  went \_\_\_\_] and [ <sub>$vP_2$</sub>  caught a rabbit]]]]].

Here, contrary to (35), the PP *into the forest* moves directly out of  $vP_1$  (and ConjP) into [Spec, CP]. In this derivation, once ConjP undergoes Spell-out, the word order in (40) is established.

- (40) **Spell-out applies to ConjP (non-successive-cyclic)**  
*went < into the forest < and <  $vP_2$*

After this, once the PP moves to [Spec, CP] and CP is spelled out, the same linearization as (37) is established, shown in (41), creating a contradiction between the constituent order here and (40).

- (41) **Spell-out applies to CP (non-successive-cyclic)**  
*into the forest < a hunter < ConjP*

Given this derivation, English should not allow SLF-coordination, which is empirically borne out as shown in (38). Therefore, based solely on the above analysis of the (attempted) movement of  $DP_1$  out of  $vP_1$ , our cyclic linearization approach to the locality of movement has led us to the interim conclusion that movement out of ConjP is not successive-cyclic in English, *exactly the same as Khoekhoe*. In order to test this prediction, let us now examine how cyclic linearization handles movement of an XP from  $vP_2$ , considering both the possibility that movement out of ConjP is successive-cyclic and the possibility that it is not. Like with  $vP_1$  in English, I will begin with the possibility that movement out of ConjP is successive-cyclic.

- (42) **Movement of  $DP_2$  from  $vP_2$  in English (successive-cyclic)**  
 [<sub>CP</sub> A rabbit [<sub>TP</sub> a hunter [<sub>VoiceP</sub> [<sub>ConjP</sub> \_\_\_\_ [ <sub>$vP_1$</sub>  went into the forest] and [ <sub>$vP_2$</sub>  caught \_\_\_\_]]]]].

In (42), the DP *a rabbit* moves from within  $vP_2$ , successive-cyclically through [Spec, ConjP], and lands in [Spec, CP]. After the first movement, ConjP undergoes Spell-out and the following linearization is produced:

- (43) **Spell-out applies to ConjP (successive-cyclic)**  
*a rabbit <  $vP_1$  < and <  $vP_2$*

After movement of *a rabbit* to [Spec, CP] and the Spell-out of CP, the order of constituents is that of (44), incurring no contradiction between it and (43).

- (44) **Spell-out applies to CP (successive-cyclic)**  
*a rabbit < a hunter < ConjP*

In similar fashion to the derivation of movement of an XP from  $\nu P_1$  laid out above, where we assumed that movement out of ConjP was successive-cyclic, the derivation in (42)-(44) makes the prediction that English should allow SLF-coordination in which  $DP_2$  moves from within the ConjP to [Spec, CP]. In fact, considering the derivation in (35)-(37), the hypothesis that movement out of ConjP in English is successive-cyclic would predict that *both* complement XPs in coordinated  $\nu P$ s in English would be able to escape the ConjP, differing significantly from Khoekhoe/non-English Germanic-type SLF-coordination. This is not empirically borne out, as demonstrated in (45) below.

- (45) \* A rabbit a hunter went into the forest and caught.<sup>13</sup>

Again, just like with  $\nu P_1$ , let us now assume that movement out of ConjP is not successive-cyclic in English. The relevant derivation is laid out in (46).

- (46) **Movement of  $DP_2$  from  $\nu P_2$  in English (non-successive-cyclic)**  
 [<sub>CP</sub> A rabbit [<sub>TP</sub> a hunter [<sub>VoiceP</sub> [<sub>ConjP</sub> [ <sub>$\nu P_1$</sub>  went into the forest] and [ <sub>$\nu P_2$</sub>  caught \_\_\_\_]]]]].

This time, the DP *a rabbit* undergoes long-distance movement directly from within  $\nu P_2$  to [Spec, CP]. When ConjP is spelled out, the following constituent order is produced:

- (47) **Spell-out of ConjP (non-successive-cyclic)**  
 $\nu P_1 < and < caught < a rabbit$

After the movement of *a rabbit* to [Spec, CP], CP is spelled out, and the following linearization is produced, creating a contradiction.

- (48) **Spell-out of CP (non-successive-cyclic)**  
*a rabbit < a hunter < ConjP*

---

<sup>13</sup>This is perhaps not the best example, due to its marginal acceptability with a certain topic-focus structure: (*...but a rabbit, a hunter went into the forest and caught*). Fortunately, this falls under the rubric of one of the known classes of apparent counterexamples to the Coordinate Structure Constraint, in which the two  $\nu P$  conjuncts have a “natural course of events” relationship (Goldsmith 1985, Lakoff 1986). If we control for this confound, the facts are exactly as predicted: *\*(...but) beer, Katie ate pizza and drank*.

Once more, like with  $vP_1$ , this derivation predicts that English should not allow extraction from the second of two coordinated  $vPs$  that share a subject. Thanks to the uniformity between the availability of extraction of XPs from coordinated  $vPs$  in English, it is now possible, in the context of the cyclic linearization framework adopted here, to make the statement that movement out of ConjP in English is *not* successive-cyclic.

We see, then, that cyclic linearization is able to account quite straightforwardly for asymmetric coordination in Khoekhoe, as well as the absence thereof in English, given the assumption that movement out of ConjP belongs to the class of *non*-successive-cyclic movements in both of the languages analyzed here. Returning to the landscape of cross-linguistic variation in this domain, it is worth noting that the prospects of extending this analysis to German and Dutch (both OV languages like Khoekhoe) seem promising, but it currently remains an open and important question how the illicitness of SLF-coordination in Hindi-Urdu is to be understood.

### 3.3 Against a Phase-Theoretic Alternative

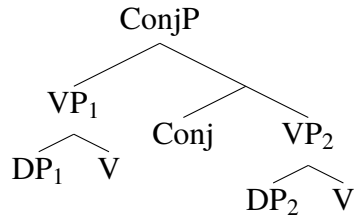
The previous section argued that the cyclic linearization approach to the locality of movement makes possible an explanation for the availability of SLF-coordination in Khoekhoe and its unavailability in English. At this point, though, a natural question that arises is whether the same empirical observations can be accounted for under the more commonly-adopted phase theory framework (Chomsky 2000, 2001, 2008, Citko 2014, a.o.). In this section, comparing again Khoekhoe and English, I will argue that phase theory is not able to account for the availability of SLF-coordination in the former language but not in the latter without highly ad hoc stipulations.

I will begin this investigation of a possible phase-theoretic analysis with similar assumptions to those that were made when analyzing SLF-coordination under a cyclic linearization approach, namely that (i) in Khoekhoe the verbal conjuncts are VPs and in English they are  $vPs$ , (ii) the conjuncts are coordinated by a Conj<sup>0</sup> in both languages, and (iii) ConjP is a locality domain in both languages. This leads to the structures in (49) on the following page for ConjP in both languages.

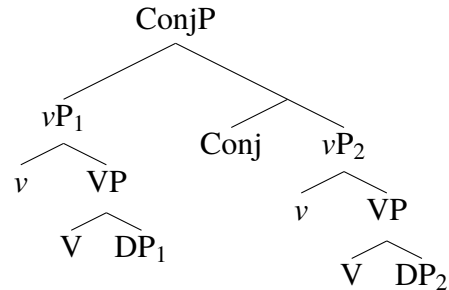
If ConjP is a locality domain—i.e., under phase theory, a phase—in both Khoekhoe and

English, one should, all else being equal, be able to derive SLF-effects in both languages under phase theory. Consider why.

(49) a. *Khoekhoe ConjP*



b. *English ConjP*



In both (49a) and (49b),  $DP_1$  is already at the phase edge (it is within [Spec, ConjP]), while  $DP_2$  is not, allowing for  $DP_1$  to move out of the ConjP in both languages. If we assume that (phrasal) movement is driven by a feature of a higher, c-commanding head (Chomsky 1995: 297, 2000, 2001, 2004, 2008, McCloskey 2001, Cable 2012, a.m.o.), but  $Conj^0$  does not bear such a movement-driving feature (henceforth “an EPP feature”), then  $DP_2$  is unable to move out of the ConjP in both languages, since there is no mechanism allowing it to move to the edge of the ConjP phase first. To recapitulate,  $DP_1$  but not  $DP_2$  should be able to move out of the ConjP in both languages. This initial analysis correctly predicts the availability of SLF-coordination in Khoekhoe, but incorrectly does so for English.

Given the structures in (49), there appears to be no way of arguing that  $DP_1$  in English is not already at the phase edge without incorrectly ruling out extraction of  $DP_1$  in Khoekhoe as well. To attempt to ameliorate this issue while still adhering to a phase-theoretic framework, I will consider the possibility that, in English, there exists a functional head above ConjP that selects for ConjP—call it  $conj^0$ . (On this analysis, coordinate structures in English involve both a ConjP and a  $conjP$  “shell”, analogous to the VP and  $vP$  shells [Larson 1988, 1990, Kratzer 1996, a.o.].) With its presence, I assume under a dynamic phasehood approach (Bobaljik & Wurmbrand 2005, Bošković 2013, a.o.) that the phase of the coordinate structure in English is not ConjP but  $conjP$ . Assuming that  $conj^0$  does not bear an EPP feature (just as  $Conj^0$  does not in Khoekhoe), the right predictions are made for both languages. Neither  $DP_1$  nor  $DP_2$  may move out of the coordinate structure in



English (as neither are able to reach the edge of the *conjP* phase), and only DP<sub>1</sub> may licitly move out of the coordinate structure in Khoekhoe.

While this analysis is able to account for the observed differences between the availability of SLF-coordination in Khoekhoe and English, the proposal for the existence of a functional layer (*conjP*) above ConjP in one language but not the other is worryingly stipulative, in the absence of independent evidence for such a difference. Why should there be a functional shell for English coordinate structures but not in Khoekhoe? If we discard this stipulation and propose that *conj*<sup>0</sup> is present universally (or at least in Khoekhoe as well as in English), then it must be the case that, in Khoekhoe, *conj*<sup>0</sup> can bear an EPP feature, as this would be required for DP<sub>1</sub> to be able to reach the phase edge (i.e., [Spec, *conjP*]) and subsequently move out of the coordinate structure. However, such a proposal also wrongly predicts that DP<sub>2</sub> should be able to move out of the coordinate structure in Khoekhoe. This is because neither DP asymmetrically c-commands the other (or, in fact, c-commands the other at all), and therefore the two DPs should be equally close to *conj*<sup>0</sup> and hence equally able to satisfy its putative EPP feature, on the standard and well-motivated assumption that the fundamental measure of locality in syntax is asymmetric c-command.

Based on the reasoning provided above, a phase-theoretic framework seems to have difficulty with accounting for the difference in availability of SLF-coordination in Khoekhoe and English without making highly stipulative assumptions, like the existence of *conj*<sup>0</sup> in English but not Khoekhoe. In contrast, the cyclic linearization approach discussed earlier in §3.2 does not require such questionable measures. This leads me to conclude that, based on current understanding of syntactic structures (at least, those of Khoekhoe and English), such a framework may well be more accurate in providing an explanation for the phenomenon under discussion here, and perhaps quite generally.

## 4 Conclusion

In this thesis, I have argued that the cyclic linearization approach to the locality of movement makes

it possible to explain the licitness of SLF-coordination in Khoekhoe, as well as its illicitness in English. In this, cyclic linearization stands in contrast to phase theory, which I have argued is unable to account for this phenomenon (and the cross-linguistic variation it is subject to) without highly ad hoc stipulations.

If the analysis developed here is on the right track, it provides insight into the nature and source of the constraints on movement out of coordinate structures. In particular, it yields an explanation for an apparent exception to the otherwise highly robust Coordinate Structure Constraint. More generally, it pushes forward our understanding of the nature and etiology of the locality constraints imposed by the human language faculty on the ubiquitous syntactic operation known as movement, bringing us one step closer to a full understanding of the syntactic operations made available by the language faculty, and the constraints thereon.

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