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Two Components of Long-Distance Extraction: Successive Cyclicity in Dinka

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This article presents novel data from the Nilotic language Dinka, in which the syntax of successive-cyclic movement is remarkably transparent. We show that Dinka provides strong support for the view that long-distance extraction proceeds through the edge of every verb phrase and every clause on the path of movement (Chomsky 1986, 2000, 2001, 2008). In addition, long-distance dependencies in Dinka offer evidence that extraction from a CP requires agreement between *v* and the CP that is extracted from (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b). The claim that both of these components constrain long-distance movement is important, as much contemporary work on extraction incorporates only one of them. To accommodate this conclusion, we propose a modification of Rackowski and Richards 2005, in which both intermediate movement and Agree relations between phase heads are necessary steps in establishing a long-distance dependency.

Keywords: successive cyclicity, long-distance dependencies, phase theory, intermediate movement, Dinka

1 Introduction

The idea that long-distance dependencies involve successive-cyclic movement through the edges of CP and *vP/VP* goes back to Chomsky 1986 and is one of the core assumptions of phase theory (Chomsky 2000, 2001, 2008). In this article, we show that the Nilotic language Dinka provides remarkably strong and straightforward evidence for this claim. Dinka's phase edge positions,

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This article uses a modified version of Dinka orthography. In particular, we mark tone (high = á, low = à, falling = â) and voice (creaky/modal = a, breathy = ʔ). For typographical reasons, we omit the diacritic for breathy voice on the second vowel of long or extralong *i*. In addition, we use the following abbreviations: 1/2/3 = 1st/2nd/3rd person, ACC = accusative, ANG = *ang* morpheme, ASP = aspectual marker, AUX = auxiliary, C = complementizer, COP = copula, CS = case marker, DTR = ditransitive, FOC = focus particle, FUT = future, GEN = genitive case, HAB = habitual, IMPF = imperfective, INF = infinitive, LOC = locative case, M = masculine, NEG = negation, NOM = nominative, NS = nonsubject voice, OBL = oblique voice, PERF = perfective, PL = plural, PRES = present tense, PRF = perfect, PROG = progressive, Q = question particle, SG = singular, TR = transitive.

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Spec,CP and Spec,vP, have the EPP property, so that ordinarily they must be occupied by some XP. Because these positions are also edge positions, long-distance movement can satisfy these EPP requirements on the way, allowing us to trace the path of movement straightforwardly. This pattern then provides evidence for the claim that long-distance dependencies involve a sequence of movement steps of the extracted XP from edge to edge, as assumed in phase theory.¹

Dinka also provides insight into the limitations of successive-cyclic movement, however. We will show that, in cases of long-distance extraction through Spec,vP, it is not actually the *wh*-phrase that satisfies the EPP property of *v*; rather, it is the finite CP from which the *wh*-phrase is extracted. In particular, we will argue that not only does the *wh*-phrase move through the edge of every phase—a CP from which extraction takes place must move to Spec,vP as well. However, because CPs are always linearized to the right in Dinka, this mimics the effects of long-distance movement. In this way, Dinka offers evidence that, in order to attract an XP from an embedded CP, *v* must stand in a *syntactic* relation with that CP. This conclusion is also reached in work on Tagalog, Hungarian, and Zulu (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b, Halpert 2012).

That both of these components constrain successive-cyclic movement is an important conclusion, as many contemporary proposals only incorporate one of them. Much work takes phase impenetrability to be the primary constraint on long-distance dependencies (e.g., Bošković 2002, 2007, Chomsky 2008, 2013), leaving a minimal role for Agree and featural triggers. Conversely, Rackowski and Richards (2005) and Den Dikken (2009b, 2012a,b) argue that agreement between *v* and CP allows *v* to ignore the CP phase as a locality boundary, thereby doing away with the need for intermediate movement to Spec,CP.

To reconcile these conclusions, we propose a modification of Rackowski and Richards 2005, in which the need for a syntactic relation between *v* and the CP from which extraction takes place is independent of phase impenetrability. This allows us to preserve the insight behind Rackowski and Richards's proposal without jettisoning the traditional view of successive cyclicity, for which Dinka offers such striking evidence.

The article is structured as follows. In section 2, we introduce the two positions in the Dinka clause that must be occupied by an XP in declaratives, which we identify as Spec,CP and Spec,vP. In section 3, we demonstrate that the EPP property of these positions can be satisfied by *wh*-movement, providing strong evidence for the claim that long-distance dependencies involve intermediate movement steps. In section 4, we then document a restriction on Spec,vP, which we attribute to *v*'s role as a Case assigner; and we present an argument for our approach to Dinka based on how this affects extraction of DPs and PPs. In section 5, we look more closely at

¹ This article then joins much work in providing evidence for the idea that Spec,vP is an intermediate landing site in addition to Spec,CP. Many other works make crucial use of this idea, among them Fox 1999, Nissenbaum 2000, Barbiers 2002, Aldridge 2005, and Cozier 2006.

long-distance extraction through Spec,vP and argue that it is the finite CP, not the *wh*-phrase, that satisfies *v*'s EPP property. We propose that this is an instantiation of the idea that agreement between *v* and an embedded CP is required for extraction to take place from that CP. In section 6, we present a theory of long-distance extraction, based on Rackowski and Richards 2005, which attempts to reconcile this finding with the notion of phase impenetrability. In section 7, we consider the Dinka facts in a crosslinguistic perspective. Finally, in section 8 we offer brief conclusions.

2 Two EPP Positions in Dinka

Dinka is a Nilotic language, spoken in South Sudan by at least 3 million people. There are many different varieties of Dinka, and they can be divided into five distinct dialect groups. This article presents data from Dinka Nyarweng, which is part of the southeastern Bor dialect group. No detailed syntactic work has been done on any Dinka Bor dialect, though we draw on work by Torben Andersen (1991, 2002, 2007, 2012) on the syntax of the Agar dialect and a short grammar (Nebel 1948) that describes some of the properties of the Rek dialect. All examples presented here are drawn from our own fieldwork.

Most Dinka words are monosyllabic, and most grammatical distinctions are made by means of tone, vowel length, or vowel quality (see, e.g., Andersen 1987, 1993, Malou 1988, Remijsen and Gilley 2008). In addition, Dinka is a verb-second (V2) language with a fairly rigid word order (Andersen 1991, 2002). Two aspects of Dinka word order will be particularly important here. There are two positions, which we identify as Spec,CP and Spec,vP, which must be occupied. We will start by outlining the properties of these two positions in declarative clauses.

2.1 *Spec,CP as an EPP Position*

Let us first introduce the properties of the position we will take to be Spec,CP in Dinka. We will show that, in finite clauses, this is an EPP position, in that it must be occupied by some XP. We then present several arguments that the position in question is Spec,CP, although it exhibits “mixed” properties, behaving both like an A-position and like an \bar{A} -position.

To begin with, Dinka is a V2 language (Andersen 1991, 2002). In a declarative clause, the highest verb or auxiliary raises to C and must be preceded by one and only one XP.² As in other V2 languages, different types of XPs can appear in Spec,CP. In (1a–c), Spec,CP hosts a subject, an object, and a locative, respectively. (We have boxed the XP that appears in the Spec,CP position. Where relevant, we will box both Spec,CP and Spec,vP, to make it easy to see how these positions interact with extraction.)

² There are systematic exceptions to this with adjuncts, which may precede Spec,CP, creating a V3 structure. In this, Dinka contrasts with other V2 languages, like Dutch and German, in which this is not possible. We will not try to account for this variation here.

(1) *Matrix clauses are V2*

- a. Cân à-bế Bòl yốc ảlèth rốk.
 Can 3SG-FUT Bol buy.DTR clothes town.LOC
 ‘Can will buy Bol clothes at the town.’
- b. Ảlèth áa-bự Cận ké yốc Bòl rốk.
 clothes 3PL-FUT.NS Can.GEN PL buy.DTR Bol town.LOC
 ‘Can will buy Bol clothes at the town.’
- c. Rốk à-bự Cận ảlèth yốc Bòl.
 town 3SG-FUT.NS Can.GEN clothes buy.DTR Bol
 ‘Can will buy Bol clothes at the town.’

Dinka is V2 in finite embedded clauses as well, a property that will be important throughout this article. In an embedded declarative, for example, the highest verb or auxiliary is again in second position and must be preceded by an XP from the same range of phrases.³

(2) *Embedded clauses are V2*

- a. À-cự Majốk yốk [ké Cận bệ Bòl yốc ảlèth rốk].
 3SG-PRF.NS Majok.GEN find.out c Can FUT Bol buy.DTR clothes town.LOC
 ‘Majok found out that Can will buy Bol clothes at the town.’
- b. À-cự Majốk yốk [ké ảlèth bự Cận ké yốc Bòl rốk].
 3SG-PRF.NS Majok.GEN find.out c clothes FUT.NS Can.GEN PL buy.DTR Bol town.LOC
 ‘Majok found out that Can will buy Bol clothes at the town.’
- c. À-cự Majốk yốk [ké rốk bựnự Cận ảlèth yốc Bòl thịn].
 3SG-PRF.NS Majok.GEN find.out c town FUT.OBL Can.GEN clothes buy.DTR Bol in.it
 ‘Majok found out that Can will buy Bol clothes at the town.’

As in other V2 languages, Spec,CP is generally not allowed to be empty. In a matrix clause like (3a), the only grammatical interpretation that is possible if the verb is initial is that of a *yes/no* question. In an embedded clause, as in (3b), ungrammaticality results (embedded *yes/no* questions require an overt complementizer, as in English).

(3) *Spec,CP cannot be empty*

- a. * cệ Bòl kựrả càk.
 PRF Bol.GEN bowl make
 ‘Bol made a bowl.’
 (OK as *yes/no* question: ‘Did Bol make a bowl?’)

³ These examples illustrate another interesting property of Spec,CP. As is evident in (2a–c), a verb-initial order is exceptionally possible in the matrix clause if a complement clause is present. This is discussed at length in section 5, where we will propose that this happens because complement CPs may move to Spec,CP and extrapose.

- b. *À-yé Bòl ták, [cé Áyèn kítáp yòc].
 3SG-HAB.NS Bol.GEN think PRF Ayen.GEN book buy.TR
 ‘Bol thinks that Ayen bought a book.’

There are three arguments for analyzing this position as Spec,CP. First, it is the landing site of *wh*-movement. When *wh*-words are merged with the focus particle *ye-*, they obligatorily front to first position, to form matrix and embedded questions.⁴

(4) *Wh-phrases target Spec,CP*

- a. Yéèn cé gáái [ye-ḡó cǐ Bòl tǐ].
 I PRF wonder.NF Q-what PRF.NS Bol.GEN see
 ‘I have wondered what Bol has seen.’
- b. Ye-ḡó cǐ ḡór kuèen?
 Q-what PRF.NS NgoF.GEN read
 ‘What has Ngor read?’

Second, as we will discuss further in section 3.1, the first position is also the landing site of successive-cyclic movement; if any phrase is extracted from an embedded clause, the initial position of that clause may not be filled.

(5) *Extraction blocks occupation of intermediate initial position*

- a. Yenà cǐkkù luéel, [cǐ kítáp yòc]?
 who PRF.1PL say PRF.NS book buy.TR
 ‘Who did we say bought a book?’

⁴ In the examples in (4), we have decomposed the *wh*-phrase into its two component morphemes, the *wh*-phrase and the particle *ye-*. We will follow Dinka orthography otherwise in how we transcribe *ye-*.

The particle *ye-* appears to derive from the inverted form of the copula, from a cleft construction. Note, however, that *wh*-questions with the *ye-* particle are not synchronically clefts. Clefts have a different syntax. They make use of an overt pronoun that occupies Spec,CP of the embedded clause and agrees with the declarative particle, as (ia–b) illustrate.

(i) *Clefts require overt pronoun and topic agreement*

- a. É Bòl [yéen à-cé lè Boston].
 3SG.COP Bol 3SG 3SG-PRF go Boston
 ‘It is Bol that went to Boston.’
- b. *É Bòl cé lè Boston.
 3SG.COP Bol PRF go Boston
 ‘It is Bol that went to Boston.’

In addition to this, questions with *ye-* do not have the semantics of clefts. In particular, such questions do not induce a uniqueness presupposition, so that ‘mention-some’ questions are felicitous. For example, the question-answer pair in (iia–b) does not imply that only sweet potatoes are tasty with meat.

(ii) *Questions with ye- lack uniqueness presupposition*

- a. Ye-ḡó mǐt kèṅṅé rǐṅ?
 FOC-what tasty with meat
 ‘What is tasty with meat?’
- b. Bàmbè a-mǐt kèṅṅé rǐṅ.
 sweet.potato 3SG-tasty with meat
 ‘Sweet potato is tasty with meat.’

We conclude then that *ye-* is a focus particle associated with *wh*-movement, or a Q particle in the sense of Hagstrom 1998 and Cable 2007, 2010.

- b. *Yeṇà cǔkkù luéel, [**kitáp**] (à-)cǔí yòoc]?
 who PRF.1PL say book 3SG-PRF.NS buy.TR
 ‘Who did we say bought a book?’

A third reason for thinking that V2 is established in the C domain in Dinka comes from the fact that the V2 position hosts a clause-type particle, *a-*. In particular, 3rd person XPs that occur in first position trigger the appearance of this morpheme on the highest verb or auxiliary (boldfaced in (6b)).

(6) *3rd person XPs in first position trigger agreement*

- a. Yéen cǔ mǐir tǔṅ.
 I PRF giraffe see
 ‘I saw a giraffe.’
- b. Bòl à-cǔ wèu kwàl.
 Bol **3SG-PRF** money steal
 ‘Bol stole some money.’

This particle only appears in declaratives, however. When a *wh*-phrase moves to Spec,CP, *a-* is absent.

(7) *First position agreement disappears under wh-fronting*

- a. Yeṇó cǔí Bòl tǔṅ?
 what PRF.NS Bol.GEN see
 ‘What has Bol seen?’
- b. Yéen cǔ gǎai [yeṇó cǔí Bòl tǔṅ].
 I PRF wonder what PRF.NS Bol.GEN see
 ‘I have wondered what Bol has seen.’

The particle also goes missing in questions in which there is no *wh*-word before the verb, such as in-situ questions or *yes/no* questions.

(8) *First position agreement is absent in questions without wh-fronting*⁵

- a. Ǫór cǔ ṅó kuèen?
 Ngor PRF what read
 ‘What has Ngor read?’
- b. Cǔ Bòl kǔrà càk?
 PRF Bol.GEN bowl make
 ‘Has Bol made a bowl?’

⁵ In-situ questions productively alternate with *wh*-questions and are fine even in out-of-the-blue contexts (see Cable 2012 for similar facts in Dholuo, a language in the same family). The fronting *wh*-words are formed by adding the particle *ye-* to them.

We can explain these facts by saying that the first position is a specifier of a C head. We can then say that there are two kinds of C heads, a declarative one (marked by the appearance of *a*- with 3rd person agreement) and an interrogative one. In contrast, if the first position is lower (say, Spec,TP), we have no reason to expect it to be morphologically sensitive to clause type.⁶

We have now shown three reasons to think of the first position in the Dinka clause as Spec,CP. It participates in V2 and in *wh*-movement, both terminal and successive-cyclic, and these are all phenomena standardly associated with Spec,CP. Moreover, the putative Spec,CP position is marked by morphology that is sensitive to clause type, again showing sensitivity to a property expected to be marked in the CP domain.

The phrase *CP domain* will be important, since the Spec,CP position under discussion here can be preceded by overt complementizers in embedded clauses (see also the examples in (2a–c)).

(9) *Complementizers cooccur with V2*

- a. À-cà tâak, [ké Cậ bệ wít tíám].
 3SG-PRF.1SG think C Can FUT wrestling win.TR
 ‘I thought that Can will win the wrestling.’
- b. À-cà luéel, [yè Cậ à-bệ wít tíám].
 3SG-PRF.1SG say C Can 3SG-FUT wrestling win.TR
 ‘I said that Can will win the wrestling.’

In fact, embedded V2 interacts in different ways with different complementizers. Under *ke*, for example, V2 is obligatory, while it is optional under *ye*. Other complementizers, such as the interrogative complementizers *mèn* ‘whether’ and *ná* ‘if’, only tolerate verb-initial order.

(10) *Embedded V2 is impossible with interrogative complementizers*

- a. Majók à-gặi [mèn/ná cệ Dêη lò bàai].
 Majok 3SG-wonder whether/if PRF Deng.GEN go home
 ‘Majok wonders whether/if Deng went home.’
- b. *Majók à-gặi [mèn/ná Dêη (à-)cệ lò bàai].
 Majok 3SG-wonder whether/if Deng 3SG-PRF go home
 ‘Majok wonders whether/if Deng went home.’

We will therefore think of Spec,CP as part of an extended left periphery (Rizzi 1997), including at least two projections, one for Spec,CP and another for preceding overt complementizers in examples like (9a–b).⁷

⁶ The picture is actually not quite this simple. Topic agreement also disappears in CPs headed by the complementizer *ke*. It is still clear, however, that the distribution of this agreement is conditioned by properties of the C domain.

⁷ Another option is to treat those complementizers that cooccur with V2 as adjoined particles of some sort. The difference between these complementizers and the ones that block V2, such as the interrogative ones, could be captured by saying that only those complementizers that block V2 are *true* C heads.

One of the reasons why Dinka offers such a diversity of evidence for successive cyclicity is that long-distance dependencies go hand in hand with changes in case and agreement. As a result, the position we will call Spec,CP has some mixed properties, behaving both like an A-position and like an \bar{A} -position. One such property has already been mentioned: the DP in Spec,CP, in declarative clauses, controls ϕ -feature agreement on a following morpheme.

(11) *XPs in first position trigger agreement*

- a. Yêen cê miir tîŋ.
I PRF giraffe see
'I saw a giraffe.'
- b. Bòl à-cé wèu kwàl.
Bol 3SG-PRF money steal
'Bol stole some money.'
- c. Álèth áa-bjí Càn ké yǝǝc Bòl róok.
clothes 3PL-FUT.NS Can.GEN PL buy.DTR Bol town.LOC
'Can bought Bol clothes at the town.'

Perhaps relatedly, the phrase in Spec,CP occurs in the unmarked case form.

(12) *XP in first position is in unmarked case*

- a. Ayén à-bé Bòl yǝǝc álèth róok.
Ayen 3SG-FUT Bol buy.DTR clothes town.LOC
'Ayen will buy Bol clothes at the town.'
- b. Álèth áa-bjí Áyèn ké yǝǝc Bòl róok.
clothes 3PL-FUT.NS Ayen.GEN PL buy.DTR Bol town.LOC
'Ayen will buy Bol clothes at the town.'
- c. Rók à-bjí Áyèn álèth yǝǝc Bòl.
town 3SG-FUT.NS Ayen.GEN clothes buy.DTR Bol
'Ayen will buy Bol clothes at the town.'

Note that *Ayén* 'Ayen' is in the genitive case in (12b–c), but in the unmarked case when fronted, as in (12a).⁸ Similarly, *róok* 'town' is in the locative case in (12a–b), but fronting converts it to the unmarked case in (12c). In general, the genitive case form is reserved for noninitial subjects and possessors, and the locative case appears on postverbal locatives (Andersen 1991, 2002); the cases are typically signaled, as in these examples, by alternations in tone and vowel length.

⁸ We call this the unmarked case because it is the citation form and because it is the most general in its distribution. On morphological grounds, it is hard to determine which case form is the least marked, as they are mostly distinguished by differences in tone and vowel quality.

Not only is Spec,CP associated with case and agreement, but it also appears to behave like an A-position with respect to conditions on binding. A fronted object, for example, may bind into the subject (13a–b), in addition to being able to contain a bound variable (13c).

(13) *Movement to Spec,CP has no Weak Crossover effects*

- a. Thɔ̀k-dè à-cɛ́ dhùk ɛ̀bɛ́n kâac.
goat-SG.his 3SG-PRF boy every bite
'His_j/_{*i} goat bit every boy_i.'
- b. Dhùk ɛ̀bɛ́n à-cíí thɔ̀k-dè kâac.
boy every 3SG-PRF.NS goat-SG.his bite
'Every boy_i, his_i goat bit.'
- c. Kitèɛp-kè àa-nhiéer dhùk ɛ̀bɛ́n ké.
books-PL.3SG 3PL-love.NS boy.GEN every PL
'His_i books, every boy_i loves.'

The properties of Spec,CP, then, are apparently quite mixed; it participates in various movement operations like an \bar{A} -position, hosting V2 phenomena and *wh*-movement, but it behaves for purposes of case, agreement, and binding theory like an A-position.

It appears, then, that the properties of the CP and TP domains are not segregated in Dinka as they are in English (a fact that we might try to account for in terms of Chomsky's (2001, 2008) idea that the features responsible for making Spec,TP an A-position are in fact inherited from C).⁹ See Van Urk, in preparation, for extensive discussion of the mixed properties of Spec,CP in Dinka, and a proposal for how these case alternations come about that is fully compatible with our claims here.

2.2 *Spec,vP as an EPP Position*

There is a position in the verbal domain that is similar to Spec,CP, in that it also has the EPP property, creating a V2-like effect in the vP. We identify this position as Spec,vP. The Spec,vP position immediately precedes the Dinka verb cluster (i.e., where verbs appear if they are not the highest verb or auxiliary in the clause) and must be occupied by a nominal object.

We can examine this position in clauses that contain an auxiliary (if no auxiliary is present, the main verb raises to C and there is no verb cluster). For example, in (14a–b), the perfective auxiliary *cɛ́* occupies the V2 position. As a result, the main verb *tíí* 'see' does not raise to C. Observe now that the position before the main verb must be occupied by the direct object.

⁹ As an anonymous reviewer points out, there is an alternative analysis, according to which V2 is established at Spec,TP in Dinka and all the C-properties it seems to have, including phasehood, are inherited from the left periphery (e.g., by means of selection or feature inheritance). We think this analysis is significantly less straightforward, but it is worth noting that adopting it would not affect the overall conclusions of the article, though it would have consequences for phase theory. See Diesing 1990 for a related proposal about the V2 position in Yiddish.

(14) *Position before verb cluster must be occupied*

- a. Yêen cẹ̀ [mìir] t̩ŋ.
 I PRF giraffe see
 ‘I saw a giraffe.’
- b. *Yêen cẹ̀ [] t̩ŋ mìir.
 I PRF see giraffe
 ‘I saw a giraffe.’

Similarly, in ditransitives, one object must always surface before the verb, as first noted by Creider (1989). The other object occurs postverbally. This alternation is free.¹⁰

(15) *One object is preverbal and one postverbal*

- a. Yêen cẹ̀ [Ayén] yiŋen kitáp.
 I PRF Ayen give book
 ‘I gave Ayen a book.’
- b. Yêen cẹ̀ [kitáp] yiŋen Ayén.
 I PRF book give Ayen
 ‘I gave a book to Ayen.’

It is never possible for the Spec,vP position to be empty.¹¹

(16) *Position before verb cluster cannot be empty*

- a. *Yêen cẹ̀ [] yiŋen kitáp Ayén.
 I PRF give book Ayen
 ‘I gave Ayen a book.’

¹⁰ We will ascribe this freedom to a *v* probe that is in an Agree relation (hereafter, Agrees) with both objects, rendering it capable of triggering movement of either one to its specifier. It will thus be important for our proposal that locality conditions that require probes to Agree with the closest possible goal do not similarly constrain the choice of possible Move operations. A class of imaginable alternative proposals might posit derivations with different starting points for the two options in (19a–b); for example, we might suppose that the two objects may be base-generated in either order and that it is always the higher of the two objects that moves. We will not pursue this kind of proposal, in part because we cannot find support for it; we have been unable to discover in Dinka, for example, any semantic distinctions like those discussed by Oehrle (1976) between double object and prepositional-dative constructions. Such a proposal would also be inconsistent with our theory, developed below, of how *wh*-movement interacts with movement to the edge of vP. See footnote 26 for further discussion.

¹¹ It is also not possible for both objects to occur before the verb cluster.

(i) *Only one object can occur before verb cluster*

- a. *Yêen cẹ̀ kitáp Ayén yiŋen.
 I PRF book Ayen give
 ‘I gave Ayen a book.’
- b. *Yêen cẹ̀ Ayén kitáp yiŋen.
 I PRF Ayen book give
 ‘I gave a book to Ayen.’

- b. *Yêen cê yiên Ayén kitáp.
 I PRF give Ayen book
 ‘I gave a book to Ayen.’

There is a key difference between Spec,vP and Spec,CP, however, which will be particularly important later in the article. Unlike Spec,CP, Spec,vP does not host adjuncts. In intransitives, for example, PP adjuncts may not occur before the verb.¹²

(17) *Adjuncts cannot occupy Spec,vP*

- a. Wók cê kêet dòm-íc.
 we PRF sing garden-in
 ‘We sang in the garden.’
- b. *Wók cê dòm-íc kêet.
 we PRF garden-in sing
 ‘We sang in the garden.’

We have shown, then, that there is a position in the verbal domain that also has an EPP property. We will take this to be Spec,vP, because it appears to be an object position and because, as we will shortly show, it functions as an edge position, both properties generally ascribed to Spec,vP (e.g., Chomsky 1995, 2000, 2001, Wurmbrand 2001). It is important to note, at this point, that there is one complication with identifying this position as Spec,vP. In particular, when there are multiple auxiliaries in a clause, every auxiliary but the highest one appears in the verb cluster, following the object. In (18), for example, the future auxiliary *bé* is not the highest auxiliary and so appears in the verb cluster, *after* the object.¹³

(18) *Auxiliary may precede Spec,vP*

- Yin à-cÿi miiir bé tÿÿ.
 you 3SG-NEG giraffe FUT see
 ‘You will not see a giraffe.’

To account for this, we propose that Dinka auxiliaries are restructuring verbs in the sense of Wurmbrand 2001, which combine with a VP, so Spec,vP is in all instances introduced by the highest predicate. This explains why a variety of auxiliaries can appear after objects, and it fits well with the fact that Dinka has a wealth of auxiliaries, including ones that express various

¹² This means that there are instances in which Spec,vP can remain unoccupied, unlike Spec,CP. We will explain this by saying that the EPP property of *v* is tied up with its function as a Case assigner (to be more precise, we treat the EPP as a subfeature of the Case feature on *v*), as we discuss in section 4. As a result, assuming that intransitive *v* heads do not assign Case, the intransitive *v*, like the one in (17a–b), will end up not having the EPP property.

¹³ It may be relevant for this particular problem that *bé* may actually not be best analyzed as marking future tense; it also functions as a marker of nonfinite clauses, for example.

adverbial meanings, with no apparent limit on how many can appear in one clausal domain (see Andersen 2007 for extensive discussion).¹⁴

To sum up: we have shown that Spec,CP and Spec,vP function as EPP positions in Dinka, in that they must be occupied if possible. We now turn to their behavior in the context of long-distance extraction. As we will show, Dinka provides abundant evidence that these positions are used as intermediate landing sites in long-distance extraction.

3 The Signature of Successive Cyclicity

With this much understanding of the structure of the Dinka clause in place, we can turn to the evidence that Dinka offers for the nature of successive-cyclic movement. We will show that extraction exhibits two kinds of interactions with the positions we identified as Spec,CP and Spec,vP. First, movement across Spec,CP and Spec,vP typically requires that these positions not be overtly filled. Our hypothesis will be that extraction must take place successive-cyclically, occupying the edge positions on its way up the tree. Second, extraction of plural *wh*-phrases leaves behind a plural clitic *ke* in Spec,vP, again suggesting that *wh*-phrases must land in this position. Note that, although we will restrict discussion to *wh*-questions, the same facts obtain for other kinds of movement, like topicalization and relativization.

3.1 EPP Effects and Long-Distance Extraction

In section 2, we demonstrated that Spec,CP and Spec,vP must be filled in Dinka whenever possible, a fact that we described as an EPP effect. We will now show that long-distance extraction across these positions makes the EPP effects appear on the surface to be absent, requiring positions to be empty that are typically obligatorily occupied.¹⁵ We propose that the EPP requirements are satisfied, in this case, by the moved phrases themselves, which occupy Spec,CP and Spec,vP as they move past.

As noted earlier, in ditransitives one object must occupy Spec,vP.

(19) *One object is preverbal and one postverbal*

- a. Yêɛn cé Ayén yiɛ̃n kitáp.
 I PRF Ayen give book
 ‘I gave Ayen a book.’

¹⁴ There is an imaginable alternative view according to which Spec,vP is actually a specifier of a higher projection, like an aspectual or modal projection. A problem for this view is that it is unclear why the position before the verb cluster does not seem to be sensitive to the presence or absence of the subject. If we are dealing with the specifier of a projection above vP, the subject could in principle move there and should intervene for attraction of the object. In contrast, under our restructuring proposal, the fact that the position before the verb cluster cannot be occupied by the subject follows from the same factor that prevents *v* from assigning accusative Case to the subject in languages like English: when *v* is probing for a DP to satisfy its EPP feature, it c-commands only the object, not the subject.

¹⁵ Part of this observation goes back to Andersen (1991), who noted that local relativization requires Spec,CP to be empty.

- b. Yêen cê [kítáp] yiên Ayén.
 I PRF book give Ayen
 ‘I gave a book to Ayen.’

Now observe that, when either object is extracted, it is not possible for the other, noninterrogative object to appear in Spec,vP.¹⁶

(20) *Object extraction requires empty Spec,vP*

- a. Yeṅà cǐ́ mōc [] yiên kítáp?
 who PRF.NS man.GEN give book
 ‘Who did the man give the book to?’
- b. *Yeṅà cǐ́ mōc [kítáp] yiên?
 who PRF.NS man.GEN book give
 ‘Who did the man give book to?’
- c. Yeṅó cǐ́ mōc [] yiên Ayén?
 what PRF.NS man.GEN give Ayen
 ‘What did the man give Ayen?’
- d. *Yeṅó cǐ́ mōc [Ayén] yiên?
 what PRF.NS man.GEN Ayen give
 ‘What did the man give Ayen?’

Extraction must then apparently take place via Spec,vP, leaving it empty. This is in clear contrast with declaratives, in which leaving Spec,vP empty is ungrammatical (see (16a–b)).

A similar effect is found with Spec,CP. If an XP is extracted from an embedded clause, the Spec,CP position of that clause may not be filled (21a–d), even though, as shown in section 2, it must be filled in declaratives (e.g., (3a–b)).

(21) *Extraction blocks occupation of Spec,CP*

- a. Yeṅà cǐ́kkù luéel, [] cê kítáp ḡòc?
 who PRF.1PL say PRF book buy.TR
 ‘Who did we say bought a book?’
- b. *Yeṅà cǐ́kkù luéel, [kítáp] (à-)cǐ́ ḡòc?
 who PRF.1PL say book 3SG-PRF.NS buy.TR
 ‘Who did we say bought a book?’
- c. Yétenô cǐ́kkù luéel, [] cǐ́ wòok kítáp ḡòc?
 where PRF.1PL say PRF.NS we.GEN book buy.TR
 ‘Where did we say that we bought a book?’

¹⁶ See Cognola 2014 for discussion of somewhat similar facts in the Tyrolean dialect Mòcheno, a language that also allows both VO and OV word orders. The Mòcheno facts differ from the Dinka ones in a number of potentially illuminating ways; for one thing, Mòcheno word order appears to be sensitive to information structure in a way that Dinka word order is not.

- d. *Yétenô cǔkkù luéel, [kítáp] (à-)cǔ wòok yòoc]?
 where PRF.1PL say book 3SG-PRF.NS we.GEN buy.TR
 ‘Where did we say that we bought a book?’

This effect extends to every Spec,CP position on the path of movement. Movement of an XP across multiple clauses causes every Spec,CP along the way to appear empty. For example, when extraction crosses two clause boundaries, both the Spec,CP of the intermediate clause and the Spec,CP of the most deeply embedded clause must be empty at the surface (22a). If either position is occupied, the sentence is ungrammatical (22b–d).

(22) *Extraction affects intermediate Spec,CP*

- a. Yenà yé Yâar tâak, [ké cǔ Bôl luéel, [yè
 who HAB.NS Yaar.GEN think C PRF.NS Bol.GEN say C
 cǔkkù tǔn]]?
 PRF.1PL see
 ‘Who does Yaar think that Bol said that we saw?’
- b. *Yenà yé Yâar tâak, [ké Bôl] (à-)cé luéel, [yè cǔkkù tǔn]]?
 who HAB.NS Yaar.GEN think C Bol 3SG-PRF say C PRF.1PL see
 ‘Who does Yaar think that Bol said that we saw?’
- c. *Yenà yé Yâar tâak, [ké cǔ Bôl luéel, [yè wòok
 who HAB.NS Yaar.GEN think C PRF.NS Bol.GEN say C we
 cé tǔn]]?
 PRF see
 ‘Who does Yaar think that Bol said that we saw?’
- d. *Yenà yé Yâar tâak, [ké Bôl] (à-)cé luéel, [yè wòok cé tǔn]]?
 who HAB.NS Yaar.GEN think C Bol 3SG-PRF say C we PRF see
 ‘Who does Yaar think that Bol said that we saw?’

Thus, Spec,CP and Spec,vP positions on the path of movement appear empty at the surface.

The picture gets more complicated when we turn to long-distance extraction through Spec,vP, but we defer a complete discussion of this until section 5. In section 5, we show that, although the *wh*-phrase does move through the edge of every Spec,vP on the path of movement, the phrase responsible for satisfying *v*'s EPP requirement in long-distance extraction is actually the finite CP from which extraction takes place. However, finite CPs undergo obligatory extraposition, by being linearized to the right, thereby making Spec,vP appear empty. This will form the basis for our argument that long-distance extraction requires a syntactic relation between *v* and the CP from which the *wh*-phrase is extracted (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b, Halpert 2012).

Setting this complication aside for the moment, we propose that the pattern described in this section obtains because, in addition to being EPP positions, Spec,CP and Spec,vP are on the edge of a locality domain (e.g., a phase), so that extraction must proceed through them. We then

maintain the generalization that, at the relevant stage of the derivation, Spec,CP and Spec,vP in Dinka are always occupied. Apparent exceptions only appear because the XP that fulfils this function may subsequently undergo movement.¹⁷

3.2 Ke-Stranding

There is a second way in which the effects of successive cyclicity surface in Dinka, by means of a process we will refer to as *ke*-stranding. This process provides support for the picture sketched above and will function as a useful diagnostic throughout the article.

In Dinka, plural DPs strand a plural morpheme *ke* in each Spec,vP along the path of movement.¹⁸ The paradigm in (23a–b) illustrates. When a singular object is extracted, as in all the examples we have presented so far, the Spec,vP position appears empty (23a). When a plural object is the target of movement, however, it strands a plural morpheme *ke* in Spec,vP (23b).

(23) *Extraction of plural XP strands plural morpheme in Spec,vP*

- a. Yeyà c̣í Ból ṭṭ?
 who PRF.NS Bol.GEN see
 ‘Who did Bol see?’
- b. Yeyíṅà c̣í Ból ḳé ṭṭ?
 who.PL PRF.NS Bol.GEN PL see
 ‘Who all did Bol see?’

This process is obligatory. Omitting the *ke* morpheme is ungrammatical.

(24) *Ke-stranding is obligatory*

- *Yeyíṅà c̣í Ból ṭṭ?
 who.PL PRF.NS Bol.GEN see
 ‘Who all did Bol see?’

This happens in long-distance extraction also. When a plural DP is moved across a clause boundary, every Spec,vP position along the path of movement contains *ke* (25b).

¹⁷ One interesting aspect of these facts is that we could potentially derive from them a parsimony argument for models of long-distance dependencies that use movement, as EPP satisfaction is uniquely a property of movement. As a result, a movement approach can straightforwardly encode the generalization that underlies this pattern: Spec,CP and Spec,vP must contain an XP. In contrast, in theories that model long-distance dependencies without movement (e.g., Gazdar et al. 1984, Steedman 1987, Kaplan and Zaenen 1989, Sag and Fodor 1994, Bouma, Malouf, and Sag 2001, Goldberg 2006), one would have to resort to a more abstract analysis (e.g., a chain must terminate or cross C). It seems to us that a movement approach provides a simpler explanation in this case.

¹⁸ *Ke*-stranding is thus reminiscent of the floating quantifier facts in West Ulster English discussed by McCloskey (2000).

(25) *Plural morpheme occurs in every Spec,vP*

- a. Yenà yé tâak, [cǝi Bôl tǝŋ]?
 who HAB.2SG think PRF.NS Bol.GEN see
 ‘Who do you think Bol saw?’
- b. Yeyǝnà yé tâak, [cǝi Bôl tǝŋ]?
 who.PL HAB.2SG PL think PRF.NS Bol.GEN PL see
 ‘Who all do you think Bol saw?’

Note that *ke*-stranding never happens in Spec,CP. It only ever affects Spec,vP positions.

As in cases of local extraction, *ke*-stranding is obligatory in long-distance extraction. Omitting *ke* in any Spec,vP results in ungrammaticality.

(26) *Ke-stranding is obligatory in every Spec,vP*

- a. *Yeyǝnà yé tâak, [cǝi Bôl tǝŋ]?
 who.PL HAB.2SG think PRF.NS Bol.GEN see
 ‘Who all do you think Bol saw?’
- b. *Yeyǝnà yé tâak, [cǝi Bôl tǝŋ]?
 who.PL HAB.2SG think PRF.NS Bol.GEN PL see
 ‘Who all do you think Bol saw?’
- c. *Yeyǝnà yé tâak, [cǝi Bôl tǝŋ]?
 who.PL HAB.2SG PL think PRF.NS Bol.GEN see
 ‘Who all do you think Bol saw?’

The process of *ke*-stranding offers additional evidence for successive cyclicity, at least in the vP domain, as features associated with the *wh*-phrase end up in Spec,vP positions along the path of movement.¹⁹ It thus provides support for the idea that long-distance extraction of an XP touches down in every Spec,vP on the path of movement.

Taken together, these two phenomena—EPP satisfaction as a result of movement and *ke*-stranding—constitute evidence for the idea that long-distance dependencies involve a sequence of movement steps through the edge of each verb phrase and the edge of each clause (Chomsky 1986, 2000, 2001, 2008).

¹⁹ Although we call this phenomenon *ke*-stranding, it is not like familiar instances of stranding, in that it is obligatory and can happen multiple times. In addition, *ke* is never pied-piped along with the *wh*-phrase or found on an in-situ DP. The latter fact we attribute to the facts that the spell-out of plural is highly idiosyncratic within the Dinka DP (as Andersen (2002:4) notes, ‘the number of a given noun cannot be determined from its phonological form’) and that *ke* is not typically used to mark plurality on nouns.

Instead, we take *ke* to be an elsewhere plural morpheme that surfaces when a Number head is not spelled out inside a nominal. This proposal is supported by the fact that *ke* is otherwise used to mark plural in a wide variety of constructions (e.g., plural subject clitics, topic agreement in the past tense, plural possessum agreement). We posit that Dinka has a rule that cliticizes a plural Number head at the vP edge onto the vP, leading to the *ke*-stranding effect. Although this is an unusual proposal, alternative analyses of *ke*-stranding are implausible. *Ke*-stranding is not a type of *wh*-agreement, as the *ke* morpheme can stand on its own (see (30a–b)). Similarly, *ke*-stranding is not a type of resumption, as the distribution of resumptive pronouns is very different (resumptive pronouns are not limited to plural and are not allowed in Spec,vP).

4 PP-Extraction and a Case Restriction on Spec,vP

Our discussion thus far has concentrated on the extraction of DPs. We now turn to PP-extraction, which differs from DP-extraction in illuminating ways. In particular, we will demonstrate that the facts of PP-extraction offer independent support for the view of Dinka we have just developed. In addition, this discussion will allow us to set the stage for section 5, in which we argue that long-distance extraction in Dinka also requires a syntactic relation between *v* and the CP from which extraction takes place.

We start with the observation, made in section 2, that low PP adjuncts, such as locatives and instrumentals, cannot appear in Spec,vP, not even in an intransitive.

(27) *Adjuncts cannot occupy Spec,vP*

- a. Wóok cę́ k̄êet dòm-íc.
 we PRF sing garden-in
 ‘We sang in the garden.’
- b. *Wóok cę́ dòm-íc k̄êet.
 we PRF garden-in sing
 ‘We sang in the garden.’

The same is true for PP arguments, such as the locative argument of *tuðoc* ‘send’.

(28) *PP argument cannot appear in Spec,vP*

- a. Bòl à-cę́ Dèŋ tuðoc wúút.
 Bol 3SG-PRF Deng send cattle.camp.LOC
 ‘Bol sent Deng to the cattle camp.’
- b. *Bòl à-cę́ wúút tuðoc Dèŋ.
 Bol 3SG-PRF cattle.camp.LOC send Deng
 ‘Bol sent Deng to the cattle camp.’

The facts in (28a–b) appear to rule out an approach in which the PPs in question are unable to move to Spec,vP because they are generated outside vP. It is hard to see how conditions on selection would allow locative arguments to be generated outside vP. We propose, then, that the EPP property of *v* is associated with its role as a Case assigner, so that only phrases that are assigned Case by *v* may satisfy its EPP requirement.²⁰ PPs lack a Case requirement and therefore cannot move to the Spec,vP for EPP reasons.

Now observe that this restriction on the EPP property of *v* also shows up under extraction. Extraction of argument or adjunct PPs fails to empty Spec,vP.

²⁰ This amounts to saying that *v*’s Case feature is a *strong* feature (Chomsky 1995) or, equivalently, that it has the EPP subproperty (Pesetsky and Torrego 2001).

(29) *Locative and instrumental extraction does not block movement to Spec,vP*

- a. Yétenô cǐ yǐn [thòk] yòoc?
 where PRF.NS you goat buy.TR
 ‘Where did you buy a goat?’
- b. Yenǒ cǐ yǐn [kòor] nòok?
 what PRF.NS you lion kill
 ‘What did you kill a lion with?’
- c. Yétenô cénnè Ból [Dèŋ] tuòoc?
 where PRF.OBL Bol.GEN Deng send
 ‘Where did Bol send Deng?’

The Spec,vP positions in these examples are obligatorily filled by objects, just as if extraction had not occurred.

Does the failure to satisfy *v*’s EPP requirement indicate that these *wh*-phrases do not exit vP via its edge? That would be surprising, given current understanding of phase impenetrability. In addition, this suggestion would be inconsistent with data from Dinka’s other diagnostic for successive-cyclic movement, *ke*-stranding. Although they do not cause Spec,vP to appear empty, extracted locatives and instrumentals, when plural, *do* strand the plural morpheme *ke* on the edge of vP, just as plural DPs do. This is illustrated for *wh*-movement in (30a–b). The same point is made by the topicalization example in (30c), taken from a Dinka Christmas hymn.

(30) *Plural instrumentals and locatives strand a ke in Spec,vP*

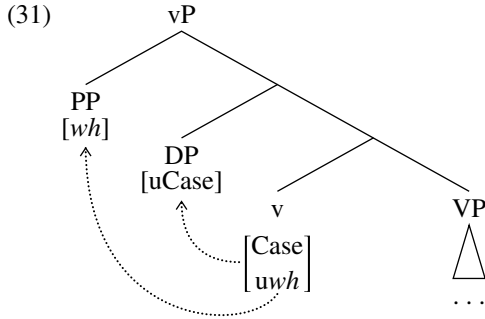
- a. Ye bèǝi kô cénnè nyǎnkǎi [ké wǎnmáth] tuòoc?
 Q villages which PRF.OBL sister PL brother send
 ‘Which villages did my sister send my brother to?’
- b. Ye piǔ kê-dí cǐ Ból [ké bǎmbèe] thàal]?²¹
 Q water much-how PRF.NS Bol.GEN PL sweet.potatoes cook.TR
 ‘With how much water did Bol cook sweet potatoes?’
- c. Wòok bínnè [ké Yécǔ] dhièth].²²
 we FUT.OBL PL Jesus be.born
 ‘Jesus will be born for us.’
 (Dinka Christmas hymn)

Thus, we have evidence that these XPs *do* exit via the edge of vP; their movement simply fails to empty the vP edge. We formalize this observation by positing two movement-driving features on *v*: one specifically associated with Case and another that triggers *wh*-movement. As we will

²¹ Mass nouns like *piǔ* ‘water’ are formally plural in Dinka.

²² *Yécǔ* ‘Jesus’ is still in an object position, because there is no promotion to subject in a Dinka passive. An object of a passive cannot become genitive and can only appear where the object of an active sentence may appear. If we topicalize the object of a passive, for example, it must empty Spec,vP (as can be demonstrated with passives of ditransitives).

discuss more extensively later, we take movement to always be feature-driven (e.g., Chomsky 1995, McCloskey 2002).²³ In examples like (30a), these two movement-driving features must be satisfied by different phrases; *ye b̥ɛ̃ɛi kô* ‘to which villages’ is a *wh*-phrase but is inactive for Case, while *w̥ánmáth* ‘brother’ is active for Case but is not a *wh*-phrase (in (31) we have omitted the subject, for ease of exposition).



Thus, in (31), movement of the locative *wh*-phrase *ye b̥ɛ̃ɛi kô* ‘to which villages’ is driven only by the *wh*-feature of *v*, while movement of *w̥ánmáth* ‘brother’ is driven only by the Case feature of *v*. Further *wh*-movement of the PP will strand *ke* in the position the PP currently occupies, yielding the word order in (30a).²⁴

By contrast, in examples like (20c–d), repeated here as (32a–b), both features of *v* may be satisfied by a single phrase; *yeŋó* ‘what’ is both a *wh*-phrase and a DP with an active Case feature.

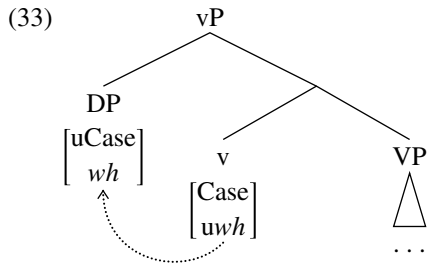
(32) *Object extraction requires empty Spec, vP*

- a. Yeŋó c̣í ṃôc yịɛ̃n Ayén?
 what PRF.NS man.GEN give Ayen
 ‘What did the man give Ayen?’
- b. *Yeŋó c̣í ṃôc Ayén yịɛ̃n?
 what PRF.NS man.GEN Ayen give
 ‘What did the man give Ayen?’

For example, in the derivation of (32a), all of *v*’s features are checked just by moving the interrogative DP (33).

²³ This means that we are adopting a *featural* view of intermediate movement. To be precise, we adopt the model of *wh*-movement suggested by Preminger (2011). A crucial component of this approach is the idea that a failure of Agree does not induce ungrammaticality. As a result, an unvalued *wh*-feature can be present on all phase heads. If a *wh*-phrase is present, this results in intermediate movement to the phase edge. If a *wh*-phrase is absent, then probing fails, but, since failures of Agree do not induce a crash, this is harmless. Similarly, we could assume that *v* always carries a Case feature, but that probing fails when a suitable object is not present, such as in an intransitive.

²⁴ The relative positions of the two specifiers appear to be fixed. The *ke* morpheme cannot appear after *w̥ánmáth* ‘brother’ in (30a–b). Perhaps this ordering restriction reflects conditions on the placement of the *ke* clitic. We could imagine, for example, that *ke* must be initial within the *vP* phase.



On this account, examples such as (32b) must be ruled out by means of an economy condition like the one in (34) (see Pesetsky and Torrego 2001 and Richards 2012 for a similar proposal).²⁵

(34) *Multitasking*

At every step in a derivation, if a probe can trigger two operations A and B, and the features checked by A are a superset of those checked by B, the grammar prefers A.

Multitasking rules out (32b), since this example involves checking the Case and *wh*-features of *v* with separate phrases, when only one would do, as in (32a).²⁶ This makes (32b) uneconomical, as it requires an extra movement step not necessary in (32a). The representation in (31), by contrast, does not run afoul of Multitasking, since the two movement operations to the edge of *vP* are triggered by different features, and neither phrase can satisfy both features.

We have shown, then, that the EPP property of *v* has the same nature in extraction and nonextraction contexts: a PP cannot satisfy the EPP property of *v*, regardless of whether or not the PP is a *wh*-phrase.

PP-extraction through Spec,CP provides support for this view. We have already shown that Spec,CP is less discriminating than the edge of *vP*. As is standard in V2 languages, Spec,CP in Dinka may seemingly be occupied by any phrase at all.

(35) *Adjuncts can occupy Spec,CP*

[Rók] à-bíi Càn álèth yóꝛc Bòl.
 town 3SG-FUT.NS Can.GEN clothes buy.DTR Bol
 ‘Can bought Bol clothes at the town.’

Since PPs can occupy Spec,CP, PP-extraction from CP then *should* empty the edge of CP, just as DP-extraction does. And indeed, extraction of a PP from an embedded clause blocks movement to Spec,CP of that clause.

²⁵ The reference set for Multitasking is the set of possible operations one head can trigger, so that it is evaluated locally, without the need to compare derivations. Multitasking could also be stated as a transderivational constraint, however. This would make equivalent predictions for the data we discuss here, as far as we can tell.

²⁶ It is important for our account, then, that (32a–b) are fed by the same underlying structure. We then posit that Dinka *v* assigns Case to both DPs in a ditransitive, by means of a Multiple Agree relation, and may, in principle, attract either one to satisfy the EPP property associated with the Case feature. This move ensures that (32a) and (32b) count as being in competition with each other for Multitasking. It also explains why both objects show up in the unmarked case.

- (36) *Extraction of adverbial phrase blocks movement to Spec,CP*
- a. Yétenô cǔkkù luéel, [cǔi wòok kitáp ɣòoc]?
 where PRF.1PL say PRF.NS we.GEN book buy.TR
 ‘Where did we say that we bought a book?’
- b. *Yétenô cǔkkù luéel, [kitáp] (à-)cǔi wòok ɣòoc]?
 where PRF.1PL say book 3SG-PRF.NS we.GEN buy.TR
 ‘Where did we say that we bought a book?’

Thus, the distribution of EPP satisfaction under *wh*-movement is the same as in declaratives: DPs, but not PPs, may satisfy the EPP property of *v*, and any phrase may satisfy the EPP property of *C*. These conditions hold both for *wh*-phrases and for non-*wh*-phrases, providing additional support for our proposal that the EPP property of Dinka Spec,CP and Spec,vP may be satisfied by successive-cyclic movement.

We are now ready to turn to the profile of long-distance extraction through Spec,vP. We will show that, in addition to providing strong evidence for successive-cyclic movement, Dinka offers support for the idea that extraction must be accompanied by an Agree relation between *v* and the CP from which extraction takes place, as proposed by Rackowski and Richards (2005), Den Dikken (2009b, 2012a,b), and Halpert (2012).

5 The Role of Complement Clauses in Extraction

In section 3, we showed that *wh*-movement satisfies the EPP property of intervening Spec,CP and Spec,vP positions. We also showed that this is true for monoclausal extraction through Spec,vP and for all Spec,CP positions that lie on the path of movement.

At first glance, this pattern appears to extend to long-distance extraction through Spec,vP. Extraction from a finite clause embedded by a ditransitive verb requires that the ditransitive verb not be preceded by an XP in Spec,vP.

- (37) *Argument extraction appears to require empty higher Spec,vP*
- a. Yâar à-cé [Dèŋ] lɛk, [yè Bòl à-cé [Ayén] tuòc wúut].
 Yaar 3SG-PRF Deng tell C Bol 3SG-PRF Ayen send cattle.camp.LOC
 ‘Yaar told Deng that Bol sent Ayen to the cattle camp.’
- b. Yeŋà cǔi Yâar [] lɛk Dèŋ, [yè [] cǔi Ból [] tuòc
 who PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN send
 wúut]?
 cattle.camp.LOC
 ‘Who did Yaar tell Deng that Bol sent to the cattle camp?’
- c. *Yeŋà cǔi Yâar [Dèŋ] lɛk, [yè [] cǔi Ból [] tuòc
 who PRF.NS Yaar.GEN Deng tell C PRF.NS Bol.GEN send
 wúut]?
 cattle.camp.LOC
 ‘Who did Yaar tell Deng that Bol sent to the cattle camp?’

Example (37a) demonstrates that Spec,vP can be filled by the nominal object of ditransitives like *lɛ̀k* ‘tell’, as we would expect. In (37b–c), this position is obligatorily not occupied in long-distance extraction.

Although (37a–c) seem to accord with what is known about Spec,CP, these facts are surprising from the perspective of the PP-extraction data just discussed. We proposed that only phrases that bear an active Case feature can satisfy the EPP property of *v*; this was our way of distinguishing between DP arguments, which can appear in Spec,vP, and PPs, which cannot. Examples like (37b) are problematic for this proposal, however. The *wh*-phrase *yɛ̀nà* ‘who’ presumably lacks an active Case feature by the time it has been extracted from the embedded clause into the matrix clause, and it otherwise cannot undergo movement to that position. Why should it be able to satisfy the EPP requirement on the *v* of the higher clause?

We will argue that, in fact, it does not. Instead, we propose that in (37b), it is actually *the complement CP itself* that satisfies the EPP requirement on *v*. However, when this CP moves to Spec,vP, the CP is extraposed (by being linearized to the right), making it seem as if Spec,vP is empty. Importantly, this means that we will posit that CPs in Dinka check Case, or at least have the ability to do so.

Evidence for this proposal comes from independently observable properties of finite CPs in Dinka, which demonstrate that CPs can occupy all the same positions that nominal objects can and that, when they do, they must concomitantly undergo extraposition. In particular, finite CPs generally have the option of moving to Spec,CP and Spec,vP in Dinka, as long as they appear to the right. We can illustrate this with ditransitives. In a clause containing a ditransitive verb that takes two DP objects, one of the objects must occupy Spec,vP, and Spec,CP must, as usual, be filled.

(38) *Spec,CP and Spec,vP must be occupied*

- a. Bòl à-cɛ́ Dɛ̀ŋ lɛ̀k ákèkòŋl.
 Bol 3SG-PRF Deng tell story
 ‘Bol told Deng a story.’
- b. Bòl à-cɛ́ ákèkòŋl lɛ̀k Dɛ̀ŋ.
 Bol 3SG-PRF story tell Deng
 ‘Bol told Deng a story.’
- c. *Bòl à-cɛ́ lɛ̀k Dɛ̀ŋ ákèkòŋl.
 Bol 3SG-PRF told Deng story
 ‘Bol told Deng a story.’
- d. * à-cɛ́ Bòl lɛ̀k Dɛ̀ŋ ákèkòŋl.
 3SG-PRF Bol.GEN tell Deng story
 ‘Bol told Deng a story.’

However, when one of these objects is a finite CP, the edge positions in the matrix clause can be empty.

(39) *Spec,CP and Spec,vP can be empty if there is a CP complement*

- a. Bòl à-cé [Dèŋ] lɛ́k [Ayén à-cé kítáp ɣòɔc].
 Bol 3SG-PRF Deng tell Ayen 3SG-PRF book buy
 ‘Bol told Deng [that Ayen bought a book].’
- b. Bòl à-cé [] lɛ́k Dèŋ [Ayén à-cé kítáp ɣòɔc].
 Bol 3SG-PRF tell Deng Ayen 3SG-PRF book buy
 ‘Bol told Deng [that Ayen bought a book].’
- c. [] à-cíì Ból [] lɛ́k Dèŋ [Ayén à-cé kítáp ɣòɔc].
 3SG-PRF.NS Bol.GEN tell Deng Ayen 3SG-PRF book buy
 ‘Bol told Deng [that Ayen bought a book].’

The same is true for transitive verbs. *Spec,vP* is always empty (the CP cannot appear there) (40a–b), and *Spec,CP* can be empty also (40b).

(40) *Spec,CP and Spec,vP can be empty also in transitive with CP complement*

- a. Yàar à-cé [] luéel, [à-cíì nìin].
 Yaar 3SG-PRF say 3SG-NEG sleep
 ‘Yaar said that he isn’t sleeping.’
- b. [] à-cíì Yàar [] luéel, [à-cíì nìin].
 3SG-PRF.NS Yaar.GEN say 3SG-NEG sleep
 ‘Yaar said that he isn’t sleeping.’

To account for this pattern, we propose that complement CPs in Dinka, like nominal objects, may check Case in *Spec,vP* and move to *Spec,CP*. In this way, we capture the observation that CPs pattern with DPs and not with PPs.²⁷ However, unlike objects, Dinka complement CPs are subject to an independent constraint, which forces them to appear sentence-finally. To reflect this, we posit a Dinka-specific rule that linearizes CPs to the right (41).

(41) *Dinka extraposition rule*

When a CP has undergone Merge with a head H, the CP is linearized to the right of H.

In other words, CPs move to rightward specifiers. As a result, when a complement CP moves to an EPP position, it appears to the right, and not to the left. This is why *Spec,CP* and *Spec,vP*

²⁷ This observation means that there needs to be a feature on independent grounds that picks out Dinka DPs and CPs, but not PPs. We take this feature to be Case here, but, if its identity were different, we could substitute it for Case throughout without affecting the overall proposal.

can be empty when a complement clause appears in the clause. The CP can move to these positions, but it is linearized to the right.²⁸

Support for this way of viewing the facts in (39a–c) and (40a–b) comes from an implicational relationship between Spec,CP and Spec,vP in such constructions. If Spec,CP is empty, then Spec,vP must also be empty (42).

- (42) *Emptying of Spec,CP by complement CP blocks movement to Spec,vP*
 * [] à-cí Ból [Dèŋ] lɛ́k [Ayén à-cé kitáp ỳ̀ɔ̀ɔ̀].
 3SG-PRF.NS Bol.GEN Deng tell Ayen 3SG-PRF book buy
 ‘Bol told Deng [that Ayen bought a book].’

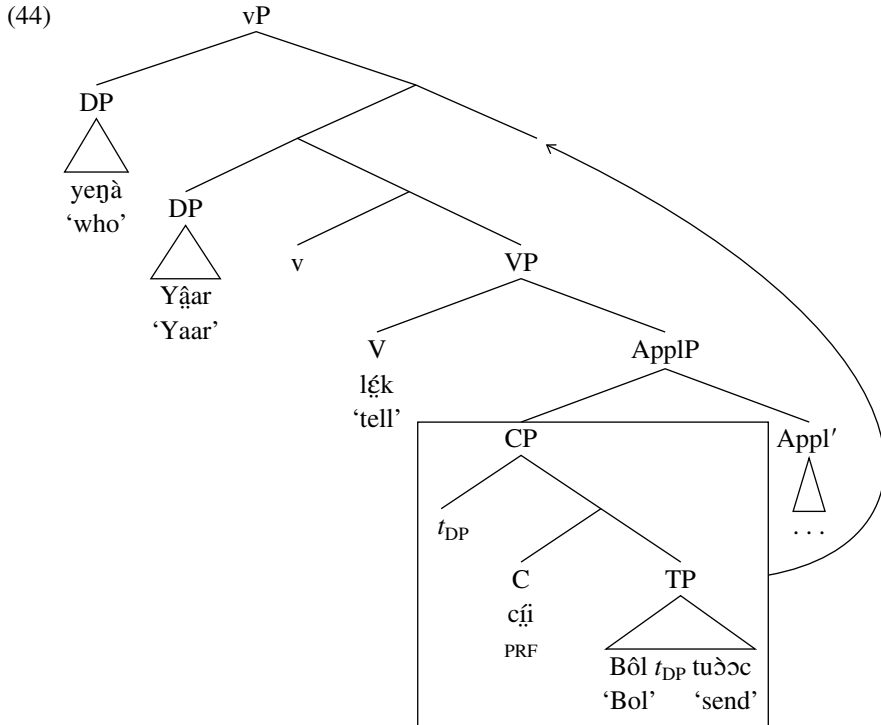
This follows if the empty edge positions in clauses containing CP complements are the result of movement and rightward linearization of the CP. For the CP to reach the edge of the matrix CP, it must pass through the edge of the matrix vP, and examples like (42) are therefore impossible.

This behavior of finite CPs raises another possible analysis for the empty specifier of matrix vP that we observed in cases of long-distance extraction such as (37b), repeated here as (43).

- (43) *Long-distance extraction through Spec,vP leaves it empty*
 Yenà cí Yáar [] lɛ́k Dèŋ, [yè [] cí Ból [] tùɔ̀ɔ̀
 who PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN send
 wú̀t̩t̩]?
 cattle.camp.LOC
 ‘Who did Yaar tell Deng that Bol sent to the cattle camp?’

Matrix v in (43) might, in this case, actually have its specifier overtly occupied, but by a CP that is still linearized to the right. Under this proposal, an example like (43) really involves the structure in (44).

²⁸ Note that there are several other ways of modeling CP-extrapolation that would do equally well for our purposes. For example, we could propose that leftward movement to Spec,vP is followed by an independent step of rightward movement. Another option, which avoids movement of the CP altogether, is to posit a covert clausal expletive, which moves on the CP’s behalf. We will stick with the rule in (41) for simplicity here, though nothing really hinges on this choice.



On this account, then, Spec,vP in (43) is not emptied by the moved *wh*-phrase, but occupied by the embedded CP, which linearizes to the right.

Moreover, extraction from CP apparently *requires* that the CP undergo this movement. As illustrated in (39a–b), repeated in (45), movement of CP to Spec,vP is ordinarily optional.

(45) *Spec,vP can be empty if there is a CP complement*

a. Bòl à-cɛ́ [Dɛ̀ŋ] lɛ́k [Ayén à-cɛ́ kítáp ỳðɔc].

Bol 3SG-PRF Deng tell Ayen 3SG-PRF book buy
‘Bol told Deng [that Ayen bought a book].’

b. Bòl à-cɛ́ [] lɛ́k Dɛ̀ŋ [Ayén à-cɛ́ kítáp ỳðɔc].

Bol 3SG-PRF tell Deng Ayen 3SG-PRF book buy
‘Bol told Deng [that Ayen bought a book].’

However, when long-distance extraction exits the CP, the CP must occupy Spec,vP.

(46) *Matrix Spec,vP must be empty in long-distance dependency*

a. Yeŋà cɪ́ Yâar [] lɛ́k Dɛ̀ŋ, [yè [] cɪ́ Ból [] tuðɔc
who PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN send
wúɸt]?

cattle.camp.LOC

‘Who did Yaar tell Deng that Bol sent to the cattle camp?’

- b. *Yeṇà c̣í Ỵaar [Dèṅ] ḷék, [yè c̣í Ból tuòc
 who PRF.NS Yaar.GEN Deng tell C PRF.NS Bol.GEN send
 wúút]?
 cattle.camp.LOC
 ‘Who did Yaar tell Deng that Bol sent to the cattle camp?’

We thus arrive at the descriptive generalization that a clause from which extraction takes place must move to Spec,vP if it can. On the assumption that movement operations are always parasitic on Agree relations, we could restate this generalization as a requirement that if *v* is to Agree with a *wh*-phrase in an embedded clause, it must also Agree with the embedded clause itself.

We will return to this generalization shortly, but first we offer two pieces of evidence in support of our way of viewing long-distance extraction through Spec,vP. Our first argument involves the behavior of nonfinite clauses in Dinka. As we illustrate in (47) with an object control verb, *ḷḡḡḡ* ‘encourage’, which takes a DP and a nonfinite clause as its objects, such clauses cannot move to Spec,vP or Spec,CP.

(47) *Nonfinite clauses cannot move to Spec,vP or Spec,CP*

- a. [C̣an] à-cé [Àdít] ḷḡḡḡ [bé j̣àal].
 Can 3SG-PRF Adit encourage FUT leave
 ‘Can encouraged Adit to leave.’
- b. * [C̣an] à-cé ḷḡḡḡ Àdít [bé j̣àal].
 Can 3SG-PRF encourage Adit FUT leave
 ‘Can encouraged Adit to leave.’
- c. * à-c̣í C̣an ḷḡḡḡ Àdít [bé j̣àal].
 3SG-PRF.NS Can.GEN encourage Adit FUT leave
 ‘Can encouraged Adit to leave.’

We propose, then, that nonfinite clauses, unlike finite CPs, cannot check Case in Dinka (we will return to the reason for this). With this in mind, observe that, in clear contrast to extraction from finite clauses, in extraction from nonfinite clauses an overt DP must appear before the verb cluster, in Spec,vP.²⁹

(48) *Extraction out of nonfinite clause never empties higher Spec,vP*

- a. Yeḳáṅò c̣í Àdít [ké [C̣an] ḷḡḡḡ [bé ké ṽòc]]?
 what.things PRF.NS Adit PL Can encourage FUT PL buy.TR
 ‘What things did Adit encourage Can [to buy *t*]?’
- b. Yétenô c̣í Àdít [[C̣an] ḷḡḡḡ [bén Ból tuòc]]?
 where PRF.NS Adit Can encourage FUT.OBL Bol send
 ‘Where did Adit encourage Can [to send Bol *t*]?’

²⁹ Note that the *ke*-stranding example in (48a) verifies that the Spec,vP position of the object control verb *ḷḡḡḡ* ‘encourage’ is nonetheless used as an intermediate landing site.

Our second argument involves long-distance extraction of PPs. We have shown that local extraction of PPs does not empty Spec,vP.

(49) *PP-extraction does not block movement to Spec,vP*

Yétenô cǐí Ból Dèŋ tuðɔc?
 where PRF.OBL Bol.GEN Deng send
 ‘Where did Bol send Deng?’

However, long-distance extraction of PPs *does* appear to empty Spec,vP in the matrix clause, just when extraction takes place from a finite clause.

(50) *PP-extraction out of finite clause causes higher Spec,vPs to be empty*

- a. Yétenô cǐí Yâar lɛ́k Dèŋ, [yè cǐí Ból Ayén tuðɔc]?
 where PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN Ayen send
 ‘Where did Yaar tell Deng [that Bol sent Ayen *t*]?’
- b. *Yétenô cǐí Yâar Dèŋ lɛ́k, [yè cǐí Ból Ayén tuðɔc]?
 where PRF.NS Yaar.GEN Deng tell C PRF.NS Bol.GEN Ayen send
 ‘Where did Yaar tell Deng [that Bol sent Ayen *t*]?’

These facts demonstrate that whether the Spec,vP position of the matrix clause in a long-distance question appears empty or not is determined, not by properties of the moved *wh*-phrase, but by properties of the embedded clause. The Spec,vP position in question is empty just if the embedded clause is of the type that is capable of emptying it (i.e., if the clause is finite), regardless of the properties of the moved *wh*-phrase. In other words, in long-distance extraction through Spec,vP, it is irrelevant whether the *wh*-phrase is a DP or not, in strong contrast to the behavior of monoclausal *wh*-extraction through the same position. We take these facts as evidence that it is the embedded clause itself that empties Spec,vP.

Now that we have outlined this proposal, let us turn briefly to the *obligatory* aspect of it. Recall that when extraction takes place from a finite clause, the finite clause *must* move to Spec,vP (51a–b), even though this is optional when no extraction takes place.

(51) *Finite CPs from which extraction takes place cause Spec,vP to be empty*

- a. Yeqà cǐí Yâar lɛ́k Dèŋ, [yè cǐí Ból tuðɔc wúɸt]?
 who PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN send cattle.camp.LOC
 ‘Who did Yaar tell Deng [that Bol sent *t* to the cattle camp]?’
- b. Yétenô cǐí Yâar lɛ́k Dèŋ, [yè cǐí Ból Ayén tuðɔc]?
 where PRF.NS Yaar.GEN tell Deng C PRF.NS Bol.GEN Ayen send
 ‘Where did Yaar tell Deng [that Bol sent Ayen *t*]?’

We interpret this obligatoriness as evidence that, in the context of a long-distance dependency, there *must* be a syntactic relation between *v* and the finite CP that contains the phrase that is to be extracted.

This accords with work by Rackowski and Richards (2005) and Den Dikken (2009b, 2012a,b), who argue that extraction from a CP in Tagalog and Hungarian requires an Agree

relation between *v* and CP. In Tagalog and Hungarian, this Agree relation is signaled via agreement morphology. In Dinka, the Agree relation has syntactic consequences, as we have shown.

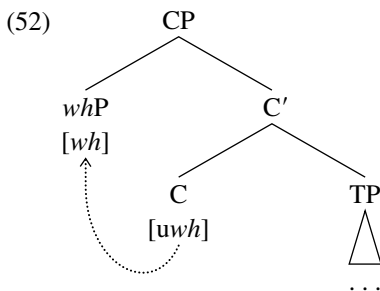
Dinka thus provides evidence that the syntax of long-distance extraction involves *at least two components*: intermediate movement steps and an Agree relation between the embedding *v* and the CP to be extracted from. This is an important conclusion, as many models of successive cyclicity involve one but not the other. Rackowski and Richards (2005) and Den Dikken (2009b, 2012a,b) argue that agreement circumvents phase boundaries, obviating the need for intermediate movement either in some or in all cases. Similarly, a number of proposals take phase impenetrability to be the main constraint on long-distance dependencies (e.g., Bošković 2002, 2007, Chomsky 2008). The facts of Dinka \bar{A} -movement demonstrate that an approach to long-distance movement is needed that links these two types of models. In the next section, we develop a theory of locality and extraction that captures the Dinka facts.

6 Phases as Interveners for *Wh*-Probing

We have shown that Dinka leads to the conclusion that the syntax of long-distance extraction involves two components: intermediate successive-cyclic movement and agreement between phase heads. In this section, we develop a modified version of Rackowski and Richards's (2005) proposal, which incorporates both of these components.

The starting point for Rackowski and Richards's (2005) proposal is the idea that if a CP (for example) contains a *wh*-phrase, then both the *wh*-phrase and the CP itself are possible goals for a higher probe that seeks *wh*-phrases. In fact, it will be important to develop a theory of locality in which the dominating CP is actually a *closer* potential goal for higher probes; this will be the key to forcing higher probes to Agree with the dominating CP before they can Agree with the *wh*-phrase.

We might formalize the idea that a CP dominating a *wh*-phrase is a potential goal for *wh*-probes in a number of ways. For present purposes, we will assume, as we also did in footnote 23, that a phase head with a *wh*-phrase in its specifier must have a feature that is responsible for driving this *wh*-movement, even if the CP is declarative (Chomsky 1995, McCloskey 2002, Preminger 2011). On the proposal that all movement is feature-driven, these features must be present to allow the *wh*-phrase to escape the effects of phase impenetrability. On this view, a declarative CP from which *wh*-extraction takes place successive-cyclically has, at one point in the derivation, the partial structure in (52).



The CP node, because it is a projection of C, has the same featural content as the C head. Because C must carry a *wh*-probe (otherwise, the *wh*-phrase cannot escape its Spell-Out domain), this means that CP is necessarily a node with a *wh*-feature as well. As a result, CP and the *wh*-phrase are both potential goals for higher probes seeking *wh*-features. We can now ensure that CP will be the closer of the two goals for higher probes by defining the notion of *closeness* along the following lines:³⁰

(53) *Definition of closeness*

A goal A is a *closer goal* for an Agree relation with a probe P than a goal B if A is distinct from B and every node that dominates A also dominates B.

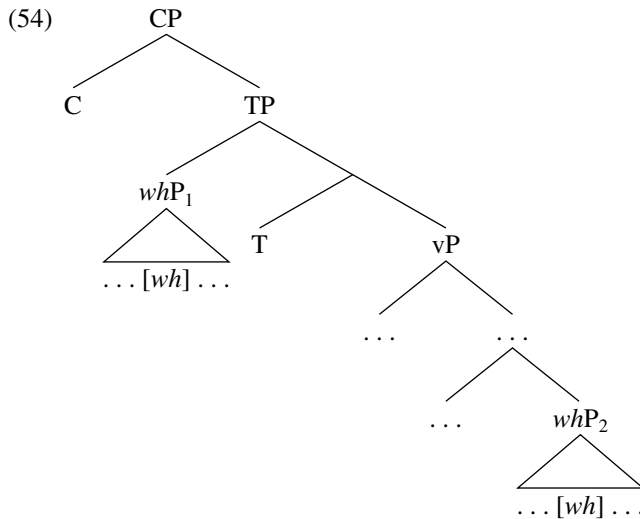
Assuming that Agree must target the closest goal, the condition in (53) guarantees that a goal A is more accessible to higher probes than a distinct goal B if A either c-commands or dominates B. By this definition, the CP in (52) is a more accessible goal for higher *wh*-probes than the *wh*-phrase itself, since the CP dominates the *wh*-phrase.

The conceptual basis behind (53) can be traced back to Chomsky's (1964) A-over-A Principle. The main difference is that the mechanism of probing is *featurally sensitive*, so that we express the intuition behind the A-over-A Principle more precisely and restrict its application to cases in which the goals involved carry the same feature (thus avoiding problems of the sort noted by Ross (1967)). See also Takano 1994, Müller 1996, 1998, and Kitahara 1997 for arguments from constraints on remnant movement that this is a desirable move.

A note is in order about the objects that compete for "closeness" in the sense of (53). In principle, one might have expected the relevant objects to be the features that participate in Agree, on the theory that it is the "length" of Agree relations that is to be made as short as possible. In a tree like (52), however, this cannot be right; the computation must consider the "closeness" of the CP and *whP* nodes, if CP is to be a closer goal than *whP*. CP and *whP* should not be the positions in which *wh*-features are initially merged, on standard assumptions: these features should appear on heads dominated by these phrases.

We are driven to a similar conclusion for classic Superiority contexts like (54).

³⁰ Rackowski and Richards (2005) offer a more complex definition of locality, which is intended not only to force Agree between phase heads but also to derive phase impenetrability. Their definition has the consequence that successive-cyclic movement must move through the edges of intervening vPs, but may freely skip intervening CPs. The Dinka facts seem to demonstrate that this is untenable, at least for Dinka; successive-cyclic movement does indeed stop at the edge of every phase. We will therefore make use of the locality condition in (53), assuming that phase impenetrability is a separately enforced condition.



The *wh*-features dominated by *whP*₁ and *whP*₂ are not in a c-command relation. As in (52), then, closeness must apparently be sensitive to relations, not between features themselves, but between certain phrases that dominate the features. The question of how to determine which phrases are relevant for closeness is essentially the question of how to account for pied-piping, and we will not address it here. What will be relevant for us, however, is that locality conditions constrain relations, not between the features that participate in Agree, but between certain syntactic nodes that dominate those features.

In the tree in (52), then, CP is a closer goal than *whP*. We must now ask how the *wh*-phrase is to be extracted. Here we follow much work on multiple *wh*-constructions (e.g., Richards 1998, Hiraiwa 2001) in claiming that a probe may Agree with multiple distinct goals, as long as it does not ‘skip’ the highest potential goal in favor of more deeply embedded goals. For example, a probe may Agree with two goals, one structurally higher than the other, as long as they are the highest goals in the search space; the fact that one of the goals is higher than the other does not disqualify the lower goal from being Agreed with. Rackowski and Richards (2005) present this idea via a version of Richards’s (1998) Principle of Minimal Compliance.

(55) *Principle of Minimal Compliance*

Once a probe P Agrees with a goal G, P can ignore G for the rest of the derivation.

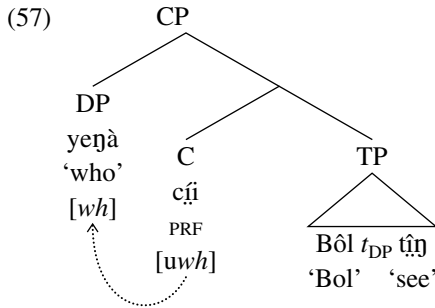
We revisit the precise formulation of (55) below.

The locality condition in (53), paired with the condition on multiple probing in (55), will guarantee that in a configuration like the one in (52), higher probes seeking to extract the *wh*-phrase must Agree both with the *wh*-phrase and with the CP dominating it. As we showed in the last section, the facts of Dinka support this conclusion; extraction from a tensed CP requires that v Agree with the CP, moving it to Spec,vP (after which the clause will extrapose, leaving the specifier position empty).

Let us illustrate this system with an explicit derivation along these lines. We focus on the example in (56).

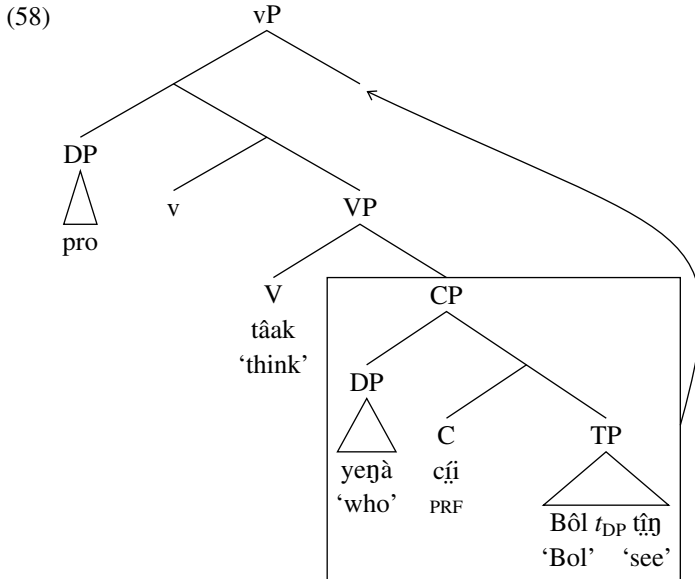
- (56) Yeŋà yé tâak, [cǐi Ból tǐŋ]?
 who HAB.2SG think PRF.NS Bol.GEN see
 ‘Who do you think Bol saw?’

The lower C is endowed with a *wh*-feature, which attracts the *wh*-phrase to Spec,CP (57).



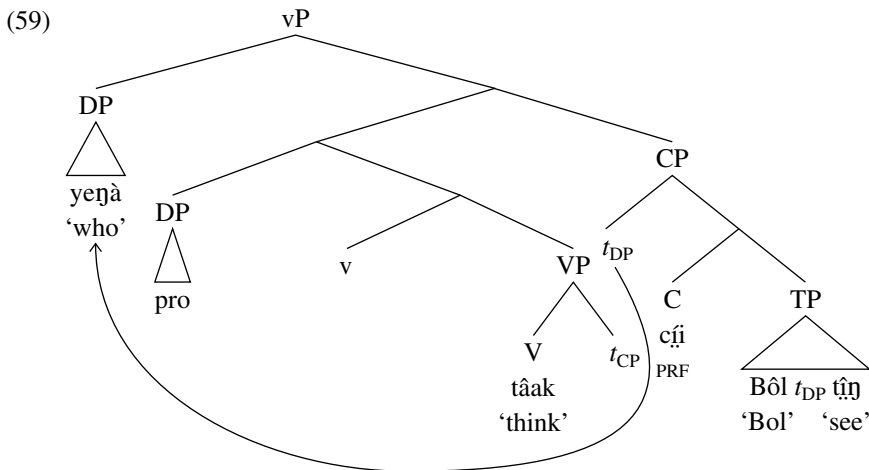
The matrix *v* is also endowed with a *wh*-feature. It probes and tries to access the *wh*-phrase in the lower Spec,CP. However, because the embedded CP also carries a *wh*-feature, it acts as an intervener for the Agree relation between *v* and the *wh*-phrase by the logic in (53). As a result, an independent Agree relation between *v* and the CP is necessary for the derivation to converge.³¹ As mentioned previously, we posit that this Agree relation involves the same Case-checking operation that attracts DPs to Spec,vP. This is accompanied by movement of the CP to Spec,vP (58).

³¹ It is crucial here that the CP is a *defective* intervener, so that, although it acts as an intervener for *wh*-probing, it would not be a suitable goal. This could be ensured by stipulating that *wh*-probing is *category-discriminating*, in that a *wh*-probe will only initiate a successful Agree relation with a goal if the goal is of a specific syntactic category, such as DP or PP. This is analogous to Preminger’s (2011) proposal that ϕ -probing is *case-discriminating* (causing defective intervention with obliques in some languages, for example). For Dinka, we would then say that *wh*-probing can only successfully result in an Agree relation if the goal is a DP or a PP. We could allow for variation in this restriction, just as Preminger does for the property of case discrimination, since there are languages in which clausal pied-piping can be used in long-distance dependencies, such as Basque (e.g., Arregi 2003).



The CP moves to a rightward specifier—a movement we assume is driven by independent constraints on the linearization of CPs in Dinka, as previously discussed.

Because this Agree relation between *v* and CP allows *v* to ignore CP as a goal, *v* can now access the *wh*-phrase in Spec,CP. The *wh*-phrase can then be attracted to Spec,vP, from which it later undergoes movement to the matrix Spec,CP (59).³²



³² Note that this derivation requires that *v* be able to probe into its specifier, to access the *wh*-phrase. There are two alternatives that would also do the job. One would be to say that *v* can access material in the lower copy of the CP. Another would be to treat our constraints on intervention as representational (e.g., by saying that Agree relations must end up creating a contiguous span of probes and goals, so that a potential intervener just has to be agreed with *at some point*). This change of perspective would allow the *wh*-phrase to exit before the CP moves as long as movement of CP subsequently takes place.

As a result, no XP appears before the verb cluster in the matrix clause. Neither XP that satisfies *v*'s feature appears there: the CP because Dinka requires CPs to linearize to the right, and the *wh*-phrase because it must move to the matrix Spec,CP to be interpreted.

In the preceding discussion, it has been crucial that the condition in (55), which allows goals in an Agree relation to be ignored, applies not to features in a well-formed probe-goal relation but to heads dominating those features. The account just outlined involves the *wh*-feature on a *v* head being able to agree into a CP, because the same *v* head houses a Case feature that needs to Agree with CP on independent grounds. As Rackowski and Richards (2005) note, the account might also provide an explanation of Huang's (1982) Condition on Extraction Domain (CED), which effectively states that the phrases that are transparent for extraction are just those that should be in an Agree relation with *v* (i.e., complements of the verb); extraction from phrases that do not Agree with *v* (subjects and adjuncts) is blocked.

An imaginable alternative version of the account would avoid reference to heads, restricting the condition in (55) so that it only applies to the particular features that participate in a Multiple Agree relation, rather than to all the probing features on a particular head. On this account, we would have to say that both the complement CP and the *wh*-phrase are goals of the *wh*-feature on *v*, rather than being goals of two separate probes on *v*. The alternative would lose the account of the CED just sketched; it also makes the derivation just described the only Dinka case in which multiple instances of movement are triggered by a single *wh*-feature (Dinka lacks, for example, multiple overt *wh*-movement). On the other hand, the idea of referring only to the probes that participate in Agree, rather than to the heads dominating those probes, has a certain conceptual appeal. We will have to leave the matter unresolved for now.

One final remaining question is why long-distance extraction from nonfinite clauses does not trigger movement of the clause to Spec,vP. We propose that such clauses lack a phasal C head, so that extraction may proceed from it without Agree. We tie the idea that nonfinite clauses cannot check Case to this property also. As extensively discussed by Hartman (2012), one of the ways in which a clause may come to act like a nominal is by the addition of D-like material to a full CP. We posit that, in Dinka, this material only attaches to phasal C heads, thus deriving the distribution of finite and nonfinite clauses.³³

7 Beyond Dinka

In developing our account of the syntax of long-distance extraction in Dinka, we have made three claims that need to be evaluated in a larger linguistic context. First, we have argued that extraction from a CP requires an Agree relation between the embedding *v* and the CP. In section 7.1, we show that Dinka is part of a growing set of languages in which such effects have been documented (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b, Halpert 2012). Second, our deriva-

³³ Hartman (2012) specifically proposes that CPs that move to argument positions are contained in a *DP shell*. We could adopt this proposal here and say that, in Dinka, this D head comes with a restriction that it only combines with finite CPs. This would be compatible with our account, regardless of whether we take this DP shell to be phasal or not.

tion of long-distance dependencies in Dinka involves movement from an extraposed clause. In section 7.2, we provide evidence that this is possible and that extraposed CPs are not barriers to extraction. Third, our theory predicts that, alongside an Agree relation between *v* and CP, we should see effects of an Agree relation between *v*P and the next phase head above it. We discuss this prediction in section 7.3.

7.1 *The Role of Agreement across Languages*

There are other languages besides Dinka for which it has been argued that agreement plays a role in facilitating extraction (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b, Halpert 2012). In this section, we review some of these patterns and demonstrate that Dinka is part of a typologically diverse set of languages.

In Tagalog, extraction affects agreement morphology on the verb (Rackowski and Richards 2005). The Tagalog verb can enter into agreement with various arguments in the clause (Rackowski and Richards analyze this as case agreement, but nothing hinges on this for our purposes). In (60a), for example, the verb agrees with the subject; in (60b), it agrees with the clause.

(60) *Verb agrees for case in Tagalog*

- a. **M**-agsa-sabi ang kalabaw [na masarap ang bulaklak].
 NOM-ASP-say ANG water.buffalo that delicious ANG flower
 ‘The water buffalo will say that the flower is delicious.’
- b. Sa-sabih-**in** ng kalabaw [na masarap ang bulaklak].
 ASP-say-ACC CS water.buffalo that delicious ANG flower
 ‘The water buffalo will say that the flower is delicious.’
 (Rackowski and Richards 2005:586)

Now, the important observation is that the verb must agree with an embedded clause if an XP is extracted from within that clause.

(61) *Extraction requires agreement with embedded clause in Tagalog*

- a. Kailan sa-sabih-**in** ng sundalo [na u-uwi ang pangulo]?
 when ASP-say-ACC CS soldier that NOM.ASP-go.home ANG president
 ‘When will the soldier say [that the president will go home ____]?’
- b. *Kailan **m**-agsa-sabi ang sundalo [na u-uwi ang pangulo]?
 when NOM-ASP-say ANG soldier that NOM.ASP-go.home ANG president
 ‘When will the soldier say [that the president will go home ____]?’
 (Rackowski and Richards 2005:586)

A similar pattern exists in Chamorro (Chung 1998, Den Dikken 2009a). In this way, Tagalog and Chamorro, just like Dinka, require a syntactic relation between the embedding *v* and the CP from which extraction takes place. In Tagalog and Chamorro, the reflex of this relation is agreement morphology on the verb. In Dinka, this relation manifests itself as movement to Spec,*v*P.

Welsh also shows agreement under extraction that appears to instantiate this logic. As described by Willis (2008), Welsh has an object agreement clitic that optionally appears when an aspectual particle is present.³⁴

(62) *Object agreement optionally appears with aspectual auxiliaries in Welsh*

- a. Mae Megan wedi **ei** ddwyn e.
 be.PRES.3SG Megan PERF **3M.SG** steal.INF it.M.SG
 ‘Megan has stolen it.’
- b. Mae Megan wedi dwyn e.
 be.PRES.3SG Megan PERF steal.INF it.M.SG
 ‘Megan has stolen it.’
 (Willis 2008:196)

Willis (2008) shows that this object agreement may exceptionally appear on intermediate verbs in the context of a long-distance dependency.³⁵

(63) *Object agreement may appear on intermediate verbs in Welsh*

- Beth wyt ti 'n **ei** feddwl [bod hyn yn **ei** olygu]?
 what be.PRES.2SG you PROG **3M.SG** think.INF be.INF this PROG **3M.SG** mean.INF
 ‘What do you think this means?’
 (Willis 2008:197)

As Willis observes, however, this intermediate agreement does not reflect the ϕ -features of the *wh*-phrase. Rather, it always surfaces as 3rd person masculine singular (64a). In addition, it may appear even with extraction of adjuncts (64b), which otherwise never trigger object agreement.

(64) *Intermediate object agreement does not reference wh-phrase in Welsh*

- a. Pa lyfrau wyt ti 'n **ei** feddwl [oedd Megan yn
 which books be.PRES.2SG you PROG **3M.SG** think.INF be.IMPF.3SG Megan PROG
eu darllen]?
3PL read.INF
 ‘Which books do you think Megan was reading?’
- b. Ble wyt ti 'n **ei** feddwl [mae e 'n mynd]?
 where be.PRES.2SG you PROG **3M.SG** think.INF be.PRES.3SG he PROG go.INF
 ‘Where do you think he’s going?’
 (Willis 2008:197–198)

³⁴ As is evident in (62a–b), the clitic also triggers a soft mutation on the following infinitival verb.

³⁵ We follow Willis (2008) in taking the Welsh object gaps under discussion to be formed by movement and not resumption (contra Rouveret 2008). See Willis 2008 for arguments.

We propose that this object agreement clitic reflects an Agree relation between the verb and the clause that it is extracted from. This explains why it is invariantly 3rd person singular, as clauses do not vary in ϕ -features.

Den Dikken (2009b, 2012a) argues for the existence of another pattern along these lines for Hungarian. Finally, in the realm of A-movement, Halpert (2012) argues that raising out of a finite clause in Zulu is made possible by agreement between the raising verb and the complement CP (see also Thoms 2013 for a proposal that agreement plays a crucial role in patterns of A-reconstruction).³⁶

In all of these cases, then, extraction is accompanied by an Agree relation between the verb and the embedded CP, though this may manifest itself syntactically in a variety of ways. As a result, evidence for the role of Agree in facilitating long-distance extraction manifests itself in a typologically diverse set of languages, including Chamorro, Dinka, Hungarian, Tagalog, Welsh, and Zulu.

We have argued, however, that this aspect of the syntax of long-distance extraction must exist side by side with the notion of phase impenetrability and successive-cyclic movement, contra Rackowski and Richards 2005 and Den Dikken 2009b, 2012a,b, since Dinka offers such striking evidence for the successive-cyclic nature of long-distance movement.

7.2 *On Extraction from an Extraposed CP*

In the derivation we proposed for Dinka long-distance extraction in sections 5 and 6, extraction takes place from a CP that undergoes movement. At first glance, this may seem at odds with cases in which movement of CP seems to create freezing effects. This is evident, for example, in English pairs like (65a–b).

(65) *Movement of CP blocks extraction in English*

- a. What is it unlikely [that John said *t*]?
- b. *What is [that John said *t*] unlikely?

The same effect is found with CP objects. For example, Vicente (2005) shows that movement of CP renders extraction impossible in Basque. CPs can surface both to the right and to the left of the verb.

(66) *CPs occur on both sides of verb in Basque*

- a. Jonek ez du uste [Mirenek liburua irakurri duenik].
 Jon no AUX think Miren book read AUX.C
 ‘Jon doesn’t think that Miren read a book.’

³⁶ An anonymous reviewer points out that long-distance agreement in Hindi might also be a relevant case (Bhatt 2005, Keine 2013). In Hindi, long-distance agreement into a nonfinite clause is obligatory when A-scrambling takes place out of that clause. This may be another instance in which agreement enables extraction. However, Keine (2013) argues that, when scrambling takes place, the result is actually a restructuring context, so that there are no phasal boundaries that would block agreement. On this account, Agree would not play a special role in facilitating extraction in Hindi.

- b. Jonek ez du [Mirenek liburua irakurri duenik] uste.
 Jon no AUX Miren book read AUX.C think
 ‘Jon doesn’t think that Miren read a book.’
 (Vicente 2005:366)

However, when a CP surfaces to the left of the verb (in what Vicente argues is an A-position), extraction of a *wh*-phrase from within that CP is blocked.

- (67) *Extraction from moved CP is impossible in Basque*
 a. Zer ez du Jonek uste [Mirenek *t* irakurri duenik]?
 what no AUX Jon think Miren read AUX.C
 ‘What doesn’t Jon think Miren has read?’
 b. *Zer ez du Jonek [Mirenek *t* irakurri duenik] uste?
 what no AUX Jon Miren read AUX.C think
 ‘What doesn’t Jon think Miren has read?’
 (Vicente 2005:366)

A similar pattern obtains in Dutch.³⁷ CPs can undergo scrambling and appear to the left of the verb (68a), though they normally surface to the right (68b).

- (68) *CPs may undergo scrambling in Dutch*
 a. Ik had [dat hij dat zou zeggen] niet verwacht.
 I had that he that would say.INF not expected
 ‘I had not expected that he would say that.’
 b. Ik had niet verwacht [dat hij dat zou zeggen].
 I had not expected that he that would say.INF
 ‘I had not expected that he would say that.’

Extraction from within the scrambled CP is completely blocked.

- (69) *Extraction from scrambled CP is impossible in Dutch*
 a. Wat had je niet verwacht [dat hij *t* zou zeggen]?
 what had you not expected that he would say.INF
 ‘What had you not expected that he would say?’
 b. *Wat had je [dat hij *t* zou zeggen] niet verwacht?
 what had you that he would say.INF not expected
 ‘What had you not expected that he would say?’

Such facts seem to suggest that movement of a CP is not compatible with extraction, which may be problematic for the current account.

³⁷ Our thanks to an anonymous NELS conference reviewer for pointing out the relevance of these facts, which formed the impetus for this part of the article.

However, extraposed clauses do not appear to pattern like other moved CPs. This is already evident in the Dutch examples given above. DP objects ordinarily appear preverbally in Dutch. We could then take the peripheral position of CPs to be the result of extraposition. As (69a) shows, extraction from a final CP is grammatical.

Similarly, in English, extraposition of CP does not block *wh*-movement.

(70) *Extraposition of CP does not block extraction in English*

What did you say yesterday [that she wants to do *t*]?

In fact, there is some evidence that CP-extraposition may even feed extraction. Taraldsen (1981) observes that relative clauses in Norwegian can be extracted from, but only if they are extraposed.³⁸

(71) *Relative clause extraposition feeds extraction in Norwegian*

- a. *Her er en bok som [ingen [_{CP} som leser]] blir lykkelig.
 here is a book that nobody that reads becomes happy
 ‘Here is a book that nobody who reads it becomes happy.’
- b. Her er en bok som [ingen] blir lykkelig [_{CP} som leser].
 here is a book that nobody becomes happy that reads
 ‘Here is a book that nobody becomes happy who reads it.’
- c. Per slipper jeg ikke inn [noen [_{CP} som liker]].
 Per let I not in anybody that likes
 ‘Peter, I didn’t let in anybody who likes him.’
- d. Per slipper jeg ikke [noen] inn [_{CP} som liker].
 Per let I not anybody in that likes
 ‘Peter, I didn’t let anybody in who likes him.’
- e. *Per slipper jeg ikke [noen [_{CP} som liker]] inn.
 Per let I not anybody that likes in
 ‘Peter, I didn’t let anybody who likes him in.’
 (Taraldsen 1981:486)

Although we will not offer a theory of why extraposition differs from other types of movement in terms of freezing effects, it should be clear that the Dinka facts accord with those in other languages. Extraposition of CP is compatible with *wh*-movement of a phrase within it.

7.3 *On Movement from Spec,vP*

Another aspect of our proposal that deserves further discussion is the implication that reflexes of *wh*-agreement may also be expected between phase heads with regard to movement from

³⁸ Norwegian appears not to obey *wh*-islands, the presence of which presumably blocks such derivations in English.

Spec,vP. In particular, *wh*-movement from Spec,vP should also require an Agree relation between vP and the next phase head up.

In Dinka, this is not a problem, because, in the syntax we propose, the highest verb or auxiliary moves to C in every clause. If head movement is mediated by Agree, then, by transitivity, there is plausibly already an Agree relation between vP and every head up to C, as long as *v* is part of the complex head that moves to C. But we expect to find languages in which long-distance extraction requires a syntactic relation between heads in the same extended verbal projection. This could be C or T, and a vP from which extraction takes place.

Inversion in the context of *wh*-movement—in the Romance languages, for example (Torrego 1984, Rizzi 1991)—may be an effect of this type. There appear to be a number of languages in which the verb undergoes additional movement in the context of extraction. In the Romance languages, for example, many researchers have observed that a fronted *wh*-argument must be followed by the verb, so that the subject can no longer appear before the verb. This is true in Spanish (72a–b) and Italian (72c–d), for example.

(72) *Verb raises to C in extraction context in Spanish and Italian*

- a. *Qué María **lee** siempre?
 what María **reads** always
 ‘What does Maria always read?’
- b. Qué **lee** María siempre?
 what **reads** María always
 ‘What does Maria always read?’
 (Torrego 1984:104)
- c. *Che cosa Maria **ha detto**?
 what María **has said**
 ‘What has Maria said?’
- d. Che cosa **ha detto** Maria?
 what **has said** María
 ‘What has Maria said?’
 (Rizzi 1996:63)

As Torrego (1984) shows for Spanish, the same effects are seen in embedded clauses when they are on the path of movement. In these clauses also, the subject must follow the verb.

(73) *Verb also moves in embedded clauses in Spanish and Italian*

- a. Juan pensaba [que Pedro **le había dicho** [que la revista **había publicado** Juan thought that Pedro **him had told** that the journal **had published** ya el artículo]].
 already the article
 ‘Juan thought that Pedro had told him that the journal had already published the article.’

- b. Qué pensaba Juan [que **le había dicho** Pedro [que **había publicado**
 what thought Juan that **him had told** Pedro that **had published**
 la revista *t*]]?
 the journal
 ‘What did Juan think that Pedro had told him that the journal had published?’
 (Torrego 1984:109)

On the assumption that Agree is a prerequisite for head movement, such patterns may reflect an Agree relation between vP and a higher phase head, such as T or C—that is, the parallel of the Agree relation between v and CP that we posited for Dinka.³⁹

Alternatively, we may imagine that all heads in an extended projection share features, like a categorial feature or inflectional features. If so, we would not expect to see similar effects between C and vP, as they would already stand in the requisite Agree relation. We leave this as a question for future research.

8 Conclusion

In this article, we have shown that the Nilotic language Dinka offers particularly compelling evidence for the idea that long-distance dependencies involve intermediate movement steps through the edge of every verb phrase and every clause (Chomsky 1986, 2000, 2001, 2008). In addition, Dinka provides support for the idea that long-distance dependencies require agreement between all phase heads on the path of movement (Rackowski and Richards 2005, Den Dikken 2009b, 2012a,b, Halpert 2012). The syntax of long-distance extraction then appears to involve both of these effects: phase impenetrability *and* successive Agree relations between phase heads. On the basis of this conclusion, we have proposed a modification of Rackowski and Richards’s (2005) proposal, in which both of these components constrain long-distance dependencies and the role of agreement is not to void phasehood, but to allow a probe to access the phase edge.

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³⁹ Another type of inversion that could possibly be analyzed this way is T-to-C movement, as in English, if T were taken to be a phase head also (perhaps assuming, following Pesetsky and Torrego (2001), that the complementizer *that* is the spell-out of T-to-C movement in embedded clauses).

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