# Two components of long-distance extraction: Successive cyclicity in Dinka[*][†]

Coppe van Urk and Norvin Richards, MIT

*Abstract*

This paper presents novel data from the Nilo-Saharan language Dinka, a language 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 to this, 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 2009a, 2012a,b). The claim that both of these components constrain long-distance movement is an important one, as much work on extraction has argued that one of these requirements can subsume the other. To accommodate it, 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 $v$P/VP goes back to Chomsky (1986) and is one of the core assumptions of phase theory (Chomsky 2000, 2001, 2008). In this paper, we show that the Nilo-Saharan language Dinka provides remarkably strong and straightforward evidence for this claim. Dinka's phase edge positions, Spec-CP and Spec-$v$P, 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.

Dinka also provides insight into the limitations of successive-cyclic movement, however. We will show that, in cases of long-distance extraction through Spec-$v$P, it is *not* actually the *wh*-phrase that satisfies the EPP property of $v$, but rather the finite CP from which the *wh*-phrase is extracted. In particular, we will argue that, in Dinka, a CP from which extraction takes place must move to Spec-$v$P and subsequently extrapose, mimicking 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 an *syntactic* relation with that CP. This conclusion is also reached in recent work on Tagalog, Hungarian, and Zulu (Rackowski and Richards 2005; Den Dikken 2009aa, 2012a,b; Halpert 2012).

That both of these components constrain successive-cyclic movement is an important conclusion, as many contemporary proposals either completely or partially do away with one of these two processes. A number of authors, for example, have proposed getting rid of Agree or featural triggers as a component in initiating successive-cyclic movement (e.g. Bošković 2002, 2007; Chomsky 2008, 2012). Conversely, Rackowski and Richards (2005)

and Den Dikken (2009, 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 to Agree with phases that are extracted from is independent of phase impenetrability. This allows us to preserve the insight behind Rackowski and Richards' proposal without jettisoning the traditional view of successive cyclicity, for which Dinka offers such striking evidence.

The paper is structured as follows. Section 2 introduces the two positions in the Dinka clause that must be occupied by an XP in declaratives, which we identify as Spec-CP and Spec-*v*P. 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. Section 4 then documents a restriction on Spec-*v*P, which we attribute to *v*'s role as a case assigner, and presents an argument for our approach to Dinka based on how this restriction affects extraction of DPs and PPs. In section 5, we look more closely at long-distance extraction through Spec-*v*P and argue that it is the finite CP, and 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 to extract from that CP. Section 6 then presents a theory of long-distance extraction, based on Rackowski and Richards (2005), which attempts to reconcile this finding with the notion of phase impenetrability. Finally, section 7 considers the Dinka facts in a cross-linguistic perspective.

## 2 Two EPP positions in Dinka

Dinka is a Nilo-Saharan language, spoken in South Sudan by the Dinka people, who number at least 3 million. There are many different varieties of Dinka, usually divided up into five distinct dialect groups. This paper 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 on the syntax of the Agar dialect (1991, 2002, 2007, 2012) and a short grammar (Nebel 1948) that describes some of the properties of the Rek dialect.

Most Dinka words are monosyllabic and most grammatical distinctions are made by means of tone, vowel length or vowel quality (see, for example, Andersen 1987, 1993; Malou 1988; Remijsen and Gilley 2008). Dinka is a V2 language with a fairly rigid word order (Andersen 1991). Two aspects of Dinka word order will be particularly important to us. There are two positions, which we identify as Spec-CP and Spec-$v$P, which must be occupied if possible. 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 for the claim that the position in question is Spec-CP.

As previously mentioned, Dinka is a V2 language (Andersen 1991). In a declarative clause, the highest verb or auxiliary raises to C and must be preceded by one and only one XP.[1] As in other V2 languages, different types of XPs can appear in Spec-CP. In the

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[1]There are systematic exceptions to this with adjuncts, which may precede Spec-CP, creating a V3 structure. This constrasts with other V2 languages, like Dutch and German, in which this is not possible. We will

examples 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. We will box both Spec-CP and Spec-*v*P throughout, as this will make it easy to show how these positions interact with extraction.)

(1)   *Matrix clauses are V2:*

    a.   $\boxed{\text{C\`{a}n}}$ a-bí     B\`{o}l ɣɔ̀c     aléth   rɔ̀ɔk.

       Can   3SG-FUT Bol buy.DTR clothes town.LOC

       'Can will buy Bol clothes at the town.'

    b.   $\boxed{\text{Aléth}}$ aa-bíi      Cán     ké ɣɔ̀c     B\`{o}l rɔ̀ɔk.

       clothes 3PL-FUT.NS Can.GEN PL buy.DTR Bol town.LOC

       'Can will buy Bol clothes at the town.'

    c.   $\boxed{\text{Rɔ́k}}$ a-bíi     Cán     aléth   ɣɔ̀c     B\`{o}l.

       town  3SG-FUT.NS Can.GEN clothes buy.DTR Bol

       'Can will buy Bol clothes at the town.'

Note that the choice of which XP sits in Spec-CP has a few syntactic (and semantic) consequences (Andersen 1991). The XP in Spec-CP agrees with a declarative particle for $\varphi$-features (a process we will shortly discuss in more detail). In addition, the XP that occupies Spec-CP occurs in the unmarked case form.[2] In these examples, this contrasts with what we will refer to as the genitive case form, which is reserved for non-initial subjects and possessors (Andersen 1991), and the locative case, in which postverbal locatives appear. We will not need to be too concerned with this case and agreement system here, but see Van Urk (in prep.) for extensive discussion and a proposal for how these case alternations

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not try to account for this variation here.

   [2]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.

come about that is fully compatible with our claims here.[3]

Dinka is V2 in all finite embedded clauses as well. In an embedded declarative, for example, the highest verb or auxiliary is again in second position and has to be preceded by an XP from the same range of phrases (2a–c).[4]

(2)  *Embedded clauses are V2:*

    a.   A-cíi     Majók    yǫ̈k    [ké ⌐Cä̈n¬ bí   Bǫ̱l ɣɔ̀c   aléth

        3SG-PRF.NS Majok.GEN find.out  C   Can  FUT Bol buy.DTR clothes

        rɔ̱̀ɔk].

        town.LOC

        'Majok found out that Can will buy Bol clothes at the town.'

    b.   A-cíi     Majók    yǫ̈k    [ké ⌐aléth¬ bíi   Cä̱n   ké ɣɔ̀c

        3SG-PRF.NS Majok.GEN find.out  C   clothes FUT.NS Can.GEN PL buy.DTR

        Bǫ̱l rɔ̱̀ɔk].

        Bol town.LOC

        'Majok found out that Can will buy Bol clothes at the town.'

    c.   A-cíi     Majók    yǫ̈k    [ké ⌐rɔ́k¬ bínné  Cä̱n   aléth

        3SG-PRF.NS Majok.GEN find.out  C   town FUT.OBL Can.GEN clothes

        ɣɔ̀c    Bǫ̱l thín].

        buy.DTR Bol in.it

        'Majok found out that Can will buy Bol clothes in the town.'

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[3]In short, Van Urk argues that Dinka only allows $\varphi$-agreement with XPs in the unmarked case. As a result, movement to Spec-CP, because it is accompanied by agreement, requires the *undoing* of previous instances of case assignment. Van Urk proposes that this is achieved in two ways: for locatives, by incorporation of P into the verb, and, for subjects, by a bleeding interaction with a phase-level case assignment rule. Both of these processes lead to the appearance of a case alternation.

[4]These examples illustrate another interesting property of Spec-CP. As 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.

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

(3)     *Spec-CP cannot be empty:*

    a.   \*[ ____ ] cí   Bô̲l    kurá cák.

              PRF Bol.GEN bowl make

      'Bol made a bowl.'

      (OK as *yes-no* question: 'Did Bol make a bowl?')

    b.  \*A-yé     Bô̲l    tàa̲k, [[ ____ ] cí   Áyèn     kità̲p ɣòo̲c].

        3SG-IMPF Bol.GEN think       PRF Ayen.GEN book buy.TR

      'Bol thinks that Ayen bought a book.'

It is not immediately obvious that this position should be Spec-CP, particularly given the fact that embedded clauses are V2 also. In addition, embedded V2 may co-occur with overt complementizers, as in (2a–c) and (4a–b).

(4)     *Complementizers co-occur with V2:*

    a.  A-cá̲       tàa̲k, [ke Cà̲n bí   wít      tiá̲am].

        3SG-PRF.1SG think  C  Can FUT wrestling win.TR

      'I think that Can will win the wrestling.'

    b.  A-cá̲       luéel, [ye Cà̲n a-bí      wít      tiá̲am].

        3SG-PRF.1SG say    C  Can 3SG-FUT wrestling win.TR

      'I said that Can will win the wrestling.'

However, there are a number of good reasons to think that this EPP position is nonetheless in the (extended) left periphery, a couple of which we will now discuss. A first piece of evidence that V2 is C-level in Dinka comes from the fact that V2 is restricted to finite

clauses, which are also the clauses that can contain a complementizer. Non-finite clauses are uniformly verb-initial (5a–b).

(5)     *Non-finite clauses are verb-initial:*

    a.    B<u>ò</u>l a-cí      Ayén lô̰ŋ        [bí  Adít     jà̰l].

        Bol 3SG-PRF Ayen encourage.TR  FUT Adit.GEN leave

        '(lit.) Bol encouraged Ayen for Adit to leave.'

    b.    *B<u>ò</u>l a-cí      Ayén lô̰ŋ        [Adít bí  jà̰l].

        Bol 3SG-PRF Ayen encourage.TR  Adit FUT leave

        '(lit.) Bol encouraged Ayen for Adit to leave.'

These clauses cannot be headed by complementizers, but do contain tense material, the future auxiliary *bi*. If V2 is established above T, it follows that V2 should be absent in these clauses. Non-finite clauses simply lack an active C layer.

That V2 is linked to the left periphery is also suggested by the fact that some complementizer *do* in fact interfere with embedded V2. The interrogative complementizers *men* ('whether') and *na* ('if') block V2, so that only the verb-initial order is grammatical (6a–b). In addition to this, the declarative complementizer *ye* allows V2 not to be satisfied (6c).

(6)     *No embedded V2 with some complementizers:*

    a.    Majók a-gà̰i      [mèn/ná    cí  Dḛ̂ŋ      lɔ̀ bâ<u>ai</u>].

        Majok 3SG-wonder  whether/if PRF Deng.GEN go home

        'Majok wonders whether Deng went home.'

    b.    *Majók a-gà̰i     [mèn/ná    Dɛ̀ŋ  (a-)cí    lɔ̀ bâ<u>ai</u>].

        Majok 3SG-wonder  whether/if Deng 3SG-PRF go home

        'Majok wonders if Deng went home.'

c. A-cá luéel, [ye bí Cán wít tiáam].

3SG-PRF.1SG say C FUT Can.GEN wrestling win.TR

'I said that Can will win the wrestling.'

Another reason for thinking that V2 is established in the C domain in Dinka comes from the fact that the V2 position hosts agreement that is sensitive to clause type. In particular, 3rd person XPs that occur in first position trigger the appearance of the agreement prefix *a(a)-* on the highest verb or auxiliary (7a–b).

(7) *3rd person XPs in first position trigger agreement:*

a. ɣèn cí mîir tíŋ.

I PRF giraffe see

'I saw a giraffe.'

b. Bòl **a**-cí wèu kwàl.

Bol **3SG**-PRF money steal

'Bol stole some money.'

This agreement disappears in questions, however. When a *wh*-phrase moves to Spec-CP, the agreement prefix is absent (8a–b).

(8) *First position agreement disappears under wh-fronting:*

a. Yeŋó cíi Bôl tíŋ?

what PRF.NS Bol.GEN see

'What did Bol see?'

b. ɣèn cí gài [yeŋó cíi Bôl tíŋ].

I PRF wonder what PRF.NS Bol.GEN see

'I wonder what Bol saw.'

This agreement also goes missing in questions in which there is no *wh*-word before the

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verb, such as in situ questions or *yes-no* questions (9a–b).[5]

(9)  *First position agreement is absent in questions without wh-fronting:*[6]

    a.   ŋɔ́r  cí  ŋọ́  kuɛ̱̀ɛn?

        Ngor PRF what read

        'What did Ngor read?'

    b.   Cí  Bộl    kurá cák?

        PRF Bol.GEN bowl make

        'Did Bol make a bowl?'

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 with unvalued $\varphi$-features and an interrogative one that lacks these features. In contrast, if the first position is lower, say Spec-TP, we have no reason to expect agreement with it to be sensitive to clause type.[7]

    A final argument for the claim that the first position is Spec-CP is the fact that it is the landing site for *wh*-movement. When *wh*-words are merged with the focus particle *ye-*, they obligatorily front to first position, to form matrix and embedded questions (10a–b).[8]

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[5]The facts are actually slightly more complicated here, in that the disappearance of first position agreement is optional in in situ questions. The point still stands, however, as this optionality is never found in declaratives.

[6]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.

[7]The picture is actually not quite this simple. Topic agreement also disappears in CPs headed by the complementizer *ke* and CPs that have been extracted from. It is still clear, however, that the distribution of this agreement is conditioned by properties of the C domain.

[8]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 sits in 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      Bɔ̱̀l [yèen a-cí    lɔ̀ Boston].

        3SG.COP Bol  3SG  3SG-PRF go Boston

        'It is Bol that went to Boston.'

(10)     *Wh-phrases target Spec-CP:*

    a.  ɣèn cí  gài    [yeŋó cíi   Bôl    tíŋ].

        I    PRF wonder  what PRF.NS Bol.GEN see

        'I wonder what Bol saw.'

    b.  Yeŋó cíi    ŋór     kuɛ̀ɛn?

        what PRF.NS Ngor.GEN read

        'What did Ngor read?'

We conclude then that the first position is a specifier of the C domain and that V2 is established at the C level in Dinka. To capture the fact that complementizers co-exist with V2, we propose an extended left periphery (Rizzi 1997), with at least two C heads, of which the lower one triggers V2 and acts as a phase head (as we will shortly show).[9] Note that, for the rest of the paper, we abstract away from this more complex picture and continue to describe the first position just as Spec-CP.

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    b.  *é       Bòl cí   lɔ̀ 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)     *No uniqueness presupposition with ye-:*

    a.  Ye-ŋó    mít kene rìŋ?
        FOC-what tasty with meat
        'What is tasty with meat?'

    b.  Bàmbé     a-mít   kene rìŋ.
        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).

   [9]Another option is to treat those complementizers that co-occur with V2 as adjoined particles of some sort. This has the advantage of allowing us to capture the difference between these complementizers and the ones that block V2, such as the interrogative ones, which we could then analyze as *true* C heads.

## 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 *v*P. We identify this position as Spec-*v*P. The Spec-*v*P position immediately precedes the Dinka verb cluster (i.e. where verbs sit if they are not the highest verb or auxiliary in the clause) and must be occupied by a nominal object if possible.

For example, in (11a–b), the perfective auxiliary *ci* occupies the V2 position. As a result, the main verb *tíŋ* ('see') does not raise to C. Observe now that the position before the main verb must be occupied by the direct object (11a–b).

(11)    *Postion before verb cluster must be occupied:*

    a.   ɣèn cí   ☐mî̤ir  tíŋ.

           I    PRF   giraffe  see

           'I saw a giraffe.'

    b.  *ɣèn cí   ☐____  tíŋ mî̤ir.

           I    PRF        see giraffe

           'I saw a giraffe.'

Similarly, in ditransitives, one object must always surface before the verb (12a–b). The other object occurs postverbally. This alternation is free.

(12)    *One object is preverbal and one postverbal:*

    a.   ɣèn cí   ☐Ayén yiẹ́n kità̤p.

           I    PRF   Ayen  give book

           'I gave Ayen a book.'

    b.   ɣèn cí   ☐kità̤p yiẹ́n Ayén.

           I    PRF   book  give Ayen

'I gave a book to Ayen.'

It is never possible for the Spec-*v*P position to be empty (13a–b).[10]

(13)    *Position before verb cluster cannot be empty:*

    a.  *ɣèn cí  ( ___ ) yiɛ̤n kitǎ̤p Ayén.

        I   PRF        give book Ayen

        'I gave Ayen a book.'

    b.  *ɣèn cí  ( ___ ) yiɛ̤n Ayén kitǎ̤p.

        I   PRF        give Ayen book

        'I gave a book to Ayen.'

There is a key difference between Spec-*v*P and Spec-CP, however, which we will be particularly important later in the paper. Unlike Spec-CP, Spec-*v*P only hosts nominals. In intransitives, for example, PP adjuncts may not occur before the verb (14a–b).

(14)    *Adjuncts cannot occupy Spec-vP:*

    a.  Wɔ̀ cí  ( ___ ) kɛ́t  dòm-íc.

        we PRF       sing garden-in

        'We sang in the garden.'

    b.  *Wɔ̀ cí  ( dòm-íc )  kɛ́t.

        we PRF  garden-in sing

        'We sang in the garden.'

We have seen then that there is a position in the verbal domain that also has an EPP property. We will take this to be Spec-*v*P, 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-*v*P (e.g. Chomsky 1995, 2000, 2001; Wurmbrand 2001).

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[10]It is also not possible for both objects to occur before the verb.

To sum up briefly, we have seen that Spec-CP and Spec-*v*P 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. We will see that 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 see that Ā-extraction exhibits two kinds of interactions with the positions we identified as Spec-CP and Spec-*v*P. First, extraction across Spec-CP and Spec-*v*P typically requires them to 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 the specifier of *v*P, again suggesting that *wh*-phrases must land in this position. Note that, although we will largely 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*

Section 2 demonstrated that the specifiers of CP and *v*P must be filled in Dinka whenever possible, a fact that we described as an EPP effect. We will now see that Ā-extraction across these positions makes the EPP effects appear on the surface to be absent, requiring positions to be empty which are typically obligatorily occupied.[11] We propose that the EPP requirements are satisfied, in this case, by the Ā-moved phrases themselves, which occupy Spec-CP and Spec-*v*P as they move past.

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

We saw previously that, in ditransitives, one object must occupy Spec-*v*P (15a–b).

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

    a.  ɣèn cí   [Ayén] yiɛ̬́n kità̬p.

        I   PRF  Ayen  give book

        'I gave Ayen a book.'

    b.  ɣèn cí   [kità̬p] yiɛ̬́n 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, non-interrogative object to appear in the Spec-*v*P position (16a–d).

(16)  *Object extraction requires empty Spec-*v*P:*

    a.  Yeŋà cíi    mòc [____] yiɛ̬́n kità̬p?

        who  PRF.NS man     give book

        'Who did the man give the book to?'

    b.  *Yeŋà cíi    mòc [kità̬p] yiɛ̬́n?

        who  PRF.NS man  book  give

        'Who did the man give book to?'

    c.  Yeŋɔ̬́ cíi    mòc [____] yiɛ̬́n Ayén?

        what  PRF.NS man     give Ayen

        'What did the man give Ayen?'

    d.  *Yeŋɔ̬́ cíi    mòc [Ayén] yiɛ̬́n?

        what  PRF.NS man  Ayen  give

        'What did the man give Ayen?'

Extraction must then apparently take place via the specifier of *v*P, leaving it empty. This is

in clear contrast with declaratives, in which leaving Spec-*v*P empty is ungrammatical (see 13a–b).

We see a similar effect with Spec-CP. If an XP is extracted from an embedded clause, the Spec-CP position of that clause may not be filled (17a–d), even though, as we saw in section 1, this is ungrammatical in declaratives (e.g. 3a–b).

(17)     *Extraction blocks occupation of Spec-CP:*

    a.   Yeŋà cúkkú   luéel, [ ____ ] cíi    kità̲p ɣò̲oc]?
         who  PRF.1PL say         PRF.NS book buy.TR
         'Who did we say bought a book?'

    b.  *Yeŋà cúkkú   luéel, [ kità̲p ] (a-)cíi    ɣò̲oc]?
         who  PRF.1PL say    book  3SG-PRF.NS buy.TR
         'Who did we say bought a book?'

    c.   Yétenô cúkkú   luéel, [ ____ ] cíi    wò̲ok   kità̲p ɣò̲oc]?
         where  PRF.1PL say         PRF.NS we.GEN book buy.TR
         'Where did we say that we bought a book?'

    d.  *Yétenô cúkkú   luéel, [ kità̲p ] (a-)cíi    wò̲ok   ɣò̲oc]?
         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 have to be empty at the surface (18a). If either position is occupied, the sentence is ungrammatical (18b–d).

(18)    *Extraction affects intermediate Spec-CP:*

a.    Yeŋà yé    Yâ̰ar tàak, [ké ⬚ cíi    Bôl    luéel, [yé ⬚

who  IMPF Yaar think  C        PRF.NS Bol.GEN say    C

cúkkú    tíŋ]]?

PRF.1PL see

'Who does Yaar think that Bol said that we saw?'

b.    *Yeŋà yé    Yâ̰ar tàak, [ké Bò̰l (a-)cí    luéel, [ye ⬚ cúkkú    tíŋ]]?

who  IMPF Yaar think  C   Bol  3SG-PRF say    C        PRF.1PL see

'Who does Yaar think that Bol said that we saw?'

c.    *Yeŋà yé    Yâ̰ar tàak, [ké ⬚ cíi    Bôl    luéel, [ye wɔ̀ cí

who  IMPF Yaar think  C        PRF.NS Bol.GEN say    C   we   PRF

tíŋ]]?

see

'Who does Yaar think that Bol said that we saw?'

d.    *Yeŋà yé    Yâ̰ar tàak, [ké Bò̰l (a-)cí    luéel, [ye wɔ̀ cí    tíŋ]]?

who  IMPF Yaar 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 it may seem at first glance that long-distance extraction also empties Spec-vP, it is *not* actually the *wh*-phrase that is responsible for this. Instead, we will argue that it is actually the finite CP from which takes place that moves to Spec-vP. However, finite CPs undergo obligatory extraposition, so that this imitates the effects of long-distance extraction. This will form the basis for our argument that long-distance extraction requires a

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syntactic relation between *v* and the CP from which the *wh*-phrase is extracted (Rackowski and Richards 2005; Den Dikken 2009a, 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-*v*P 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-*v*P in Dinka are always occupied. Apparent exceptions only appear because the XP that fulfils this function may subsequently undergo movement.[12]

### 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 a useful diagnostic throughout this paper.

In Dinka, plural DPs strand a plural morpheme *ke* in each Spec-*v*P along the path of movement (*cf.* McCloskey 2000). The paradigm in (19a–b) illustrates. When a singular object is extracted, as in all the examples we have seen so far, the Spec-*v*P position appears empty (19a). When a plural object is the target of movement, however, it strands a plural morpheme *ke* in Spec-*v*P (19b).

(19)    *Extraction of plural XP strands plural morpheme in Spec-vP:*

    a.    Yeŋà cíi    Bôl    ⌐‾‾‾¬ tíŋ?
              who  PRF.NS Bol.GEN       see
              'Who did Bol see?'

---

[12]One striking thing about these facts is that they appear to strongly implicate movement, as EPP satisfaction is singularly a property of movement. In a movement approach, we can straightforwardly encode the generalization that underlies this pattern: Spec-CP and Spec-*v*P 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 1987; Sag and Fodor 1994; Bouma, Malouf, and Sag 2001; Goldberg 2006), we have to say that Spec-CP and Spec-*v*P require one of two apparently disparate requirements to hold: either they must either be occupied by an XP or they must be crossed by a long-distance dependency.

b.  Yèyîŋa cíi    Bộl    ⎡ké⎤ tíŋ?

    who.PL PRF.NS Bol.GEN  PL  see

    'Who all did Bol see?'

This process is obligatory. Omitting the *ke* morpheme is ungrammatical (20).

(20)  *Ke-stranding is obligatory:*

    *Yèyîŋa cíi    Bộl    ⎡___⎤ tíŋ?

    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-*v*P position along the path of movement contains *ke* (21b).

(21)  *Plural morpheme in every Spec-vP:*

    a.  Yeŋà yẹ    ⎡___⎤ tàak, [⎡___⎤ cíi    Bộl    ⎡___⎤ tíŋ]?

        who IMPF.2SG    think     PRF.NS Bol.GEN    see

        'Who do you think Bol saw?'

    b.  Yèyíŋà yẹ   ⎡ké⎤ tàak, [⎡___⎤ cíi    Bộl    ⎡ké⎤ tíŋ]?

        who.PL IMPF.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-*v*P positions.

    As in cases of local extraction, *ke*-stranding is obligatory in long-distance extraction. Omitting *ke* in any Spec-*v*P results in ungrammaticality (22a–c).

(22)  *Ke-stranding is obligatory in every Spec-vP:*

    a.  *Yèyîŋà yẹ    ⎡___⎤ tàak, [⎡___⎤ cíi    Bộl    ⎡___⎤ tíŋ]?

        who.PL IMPF.2SG    think     PRF.NS Bol.GEN    see

'Who all do you think Bol saw?'

b. *Yèyîŋà yé̤    [___] tàak, [[___] cíi    Bô̤l    [ké] tíṇ]?

who.PL IMPF.2SG    think    PRF.NS Bol.GEN PL see

'Who all do you think Bol saw?'

c. *Yèyîŋà yé̤    [ké] tàak, [[___] cíi    Bô̤l    [___] tíṇ]?

who.PL IMPF.2SG PL think    PRF.NS Bol.GEN    see

'Who all do you think Bol saw?'

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

Taken together, these two phenonema — 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).

## 4   PP extraction and a case restriction on Spec-*v*P

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 or instrumentals, cannot appear in Spec-*v*P, not even in an intransitive (23a–b).

(23)    *Adjuncts cannot occupy Spec-vP:*

a.  Wɔ̀ cí  [___]  kɛ́t  dòm-íc.

we  PRF      sing garden-in

'We sang in the garden.'

b.  *Wɔ̀ cí  [dòm-íc]  kɛ́t.

we  PRF  garden-in sing

'We sang in the garden.'

The same is true for PP arguments, such as the locative argument of *tuɔɔc* ('send') (24a–b).

(24)    *PP argument cannot appear in Spec-vP:*

a.  Bɔ̰̀l a-cí  [Dɛ̀ŋ]  tuɔ̀ɔc wṵ́ṵt.

Bol 3SG-PRF  Deng send  cattle.camp.LOC

'Bol sent Deng to the cattle camp.'

b.  *Bɔ̰̀l a-cí  [wṵ́ṵt]      tuɔ̀ɔc Dɛ̀ŋ.

Bol 3SG-PRF  cattle.camp.LOC send  Deng

'Bol sent Deng to the cattle camp.'

The facts in (24a–b) appear to rule out an approach in which the PPs in question are unable to move to the specifier of *v*P because they are generated outside *v*P. It is hard to see how conditions on selection would allow locative arguments to be generated outside *v*P. We propose then that the EPP property of *v* is associated with its role as a case assigner, so that only phrases which are assigned Case by *v* may satisfy its EPP requirement.[13] PPs lack a Case requirement and therefore cannot move to the specifier of *v*P for EPP.

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 the specifier of *v*P (25a–b).

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[13]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).

(25)     *Locative and instrumental extraction does not block movement to Spec-vP:*

    a.   Yétenô cíi    yín  ⟨thɔ̀k⟩ ɣɔ̀o̱c?

        where  PRF.NS you  goat  buy.TR

        'Where did you buy a goat?'

    b.   Yeŋɔ́ cíi    yín  ⟨kɔ̀o̱r⟩ nɔ̱̀k?

        what  PRF.NS you  lion   kill

        'What did you kill a lion with?'

    c.   Yétenô cénné   Bɵ̱l    ⟨Dɛ̀ŋ⟩ tuɔ̱̀ɔc?

        where  PRF.OBL Bol.GEN  Deng send

        'Where did Bol send Deng?'

The Spec-*v*P 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 *v*P via its edge? That would be surprising, given our 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-*v*P to appear empty, extracted locatives and instrumentals, when plural, *do* strand the plural morpheme *ke* on the edge of *v*P, just as plural DPs do. This is illustrated for *wh*-movement in (26a–b). The same point is made by the topicalization example in (26c), taken from a Dinka Christmas hymn.

(26)     *Plural instrumentals and locatives strand a ke in Spec-vP:*

    a.   Ye bɛ̱̀ɛ̱i   kɔ́   cénné   nyankái [**ké** ⟨wanmáth⟩ tuɔ̱̀ɔc]?

        Q  villages which PRF.OBL sister    PL  brother     send

        'Which villages did my sister send my brother to?'

b.   Ye piú   kê-dì    cíi    Bôl    [**ké** ⌐bàmbée⌐   thàal]?[14]

    Q  water much-how PRF.NS Bol.GEN  PL  sweet.potatoes cook.TR

    'With how much water did Bol cook sweet potatoes?'

c.   Wɔ̀ bínnę́    [**ké** ⌐Yécu⌐ dhièth].[15]

    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 *v*P; their movement simply fails to empty the *v*P edge. We formalize this observation by positing two movement-driving features on *v*: one specifically associated with Case and another which triggers *wh*-movement.[16] In examples like (26a), these two features must be satisfied by different phrases; *ye bɛ̀ɛi kɔ́* ('to which villages') is a *wh*-phrase but is inactive for Case, while *wanmáth* ('brother') is active for Case but is not a *wh*-phrase (here we have omitted the subject, for ease of exposition):

(27)
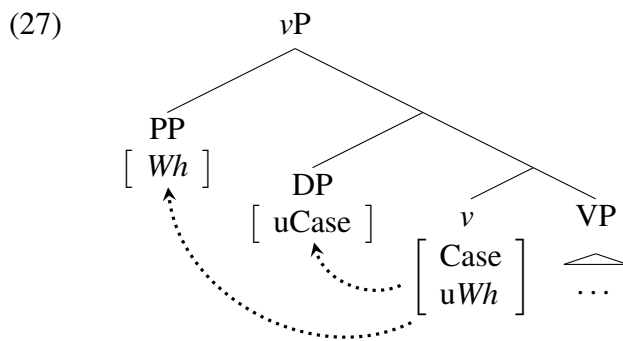


Thus, in (27), movement of the locative *wh*-phrase *ye bɛ̀ɛi kɔ́* ('to which villages') is driven

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[15]Mass nouns like *píu* ('water') are formally plural in Dinka.

[15]There is no promotion to subject in the Dinka passive, so that *Yecu* is still in an object position.

[16]This means that we are adopting a *featural* view of intermediate movement (Chomsky 1995; Preminger 2011). To be precise, we adopt the model of *wh*-movement suggested by Preminger (2011). A crucial component in 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.

only by the *wh*-feature of *v*, while movement of *wanmáth* ('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 (26a).[17] By contrast, in examples like (16c–d), repeated here as (28a–b), both features of *v* may be satisfied by a single phrase; *yeŋǫ́* ('what') is both a *wh*-phrase and a DP with an active Case feature:

(28)    *Object extraction requires empty Spec-vP:*

    a.   Yeŋǫ́ cíi      mòc      ⟨＿＿＿⟩ yiɛ́n Ayén?

         what PRF.NS man.GEN       give Ayen

         'What did the man give Ayen?'

    b.  *Yeŋǫ́ cíi     mòc      ⟨Ayén⟩ yiɛ́n?

         what PRF.NS man.GEN  Ayen  give

         'What did the man give Ayen?'

Examples such as (28b), on this account, have to be ruled out by means of an Economy condition like the one in (29) (see Pesetsky and Torrego 2001 and Richards 2012 for a similar proposal):

(29)    **Multitasking:**

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

Multitasking rules out (28b), since this example involves checking the Case and *wh*-features of *v* with separate phrases, when only one would do, as in (28a).[18] This makes (28b) uneco-

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[17]The relative positions of the two specifiers appear to be fixed. The *ke* morpheme cannot appear after *wanmáth* ('brother') in (26a–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 *v*P phase.

[18]It is important for us that these two possible derivations are fed by the same underlying structure. We then posit that *v* licenses both DPs in a ditransitive, by means of a Multiple Agree relation. This also explains why both objects show up in the unmarked case.

nomical, as it requires an extra movement step not necessary in (28a). The representation in (27), by contrast, does not run afoul of Multitasking, since the two movement operations to the edge of *v*P are triggered by different features, and neither phrase can satisfy both features.

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

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

(30)    *Adjuncts can occupy Spec-CP:*

            Rɔ́k  a-bíi      Cán    aléth  ɣɔ̀c   Bɔ̀l.

            town  3SG-FUT.NS Can.GEN clothes buy.DTR Bol

            'Can bought Bol clothes at the town.'

Since PPs can occupy the specifier of 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 the specifier of CP for that clause:

(31)    *Extraction of an adverbial phrase blocks movement to Spec-CP:*

    a.   Yétenô cúkkú   luéel, [ \_\_\_\_ ] cíi     wɔ̀ɔk  kitàp ɣòoc]?

           where  PRF.1PL say       PRF.NS we.GEN book buy.TR

           'Where did we say that we bought a book?'

    b.  *Yétenô cúkkú   luéel, [ kitàp ] (a-)cíi     wɔ̀ɔk  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-*v*P may be satisfied by successive-cyclic movement.

We are now ready to turn to the profile of long-distance extraction through Spec-*v*P. 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 (2009, 2012a,b), and Halpert (2012).

## 5   The role of complement clauses in extraction

In section 3, we saw that *wh*-movement satisfies the EPP property of intervening Spec-CP and Spec-*v*P positions. We showed that this true for monoclausal extraction through Spec-*v*P 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-*v*P. Extraction from a finite clause embedded by a ditransitive verb requires that the *v*P immediately dominating that clause have an empty specifier:

(32)   *Argument extraction requires empty higher Spec-vP:*

a.   Yàar a-cí   [Dèŋ] lɛ́k, [yè Bɔ̀l a-cí   [Ayén] tuɔ̀ɔc 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 cíi   Yâar   [____] lɛ́k Dèŋ, [yè [____] cíi   Bôl
     who PRF.NS Yaar.GEN   tell Deng C   PRF.NS Bol.GEN

[____] tu‌ɔ̀‌ɔc wúu̱t]?

        send  cattle.camp.LOC

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

c.  \*Yeŋà cíi    Yâ̱a̱r   [Dɛ̀ŋ] lɛ́k, [yè [____] cíi    Bô̱l    [____]

    who  PRF.NS Yaar.GEN  Deng tell  C       PRF.NS Bol.GEN

    tu‌ɔ̀‌ɔc wúu̱t]?

    send  cattle.camp.LOC

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

Example (32a) demonstrates that Spec-*v*P can be filled by the nominal object of ditransitives like *lɛ́k* ('tell'), as we would expect. In (32b–c), we see that this position is obligatorily emptied by long-distance extraction.

Although the examples in (32a–c) seem to accord what we know 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-*v*P, and PPs, which cannot. Examples like (32b) above are problematic for this proposal, however. The *wh*-phrase *yeŋà* ('who') presumably lacks an active Case feature by the time it has been extracted from the embedded clause into the matrix clause. 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 (32b), it is actually *the complement CP itself* that satisfies the EPP requirement on *v*. However, after movement of this CP to the specifier of *v*P, the CP undergoes obligatory extraposition, leaving the specifier of *v*P empty at the surface.[19]

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[19]Another possible analysis of these facts is that a CP can be doubled by covert expletive, which may move to Spec-*v*P and Spec-CP. We choose to develop the extraposition analysis here, though this option would also be compatible with everything else we say.

Evidence for this proposal comes from independently observable properties of finite CPs in Dinka. In particular, finite CPs generally have the option of moving to Spec-CP and Spec-*v*P in Dinka, as long as they subsequently extrapose. We can illustrate this with ditransitives. In a clause containing a ditransitive verb which takes two DP objects, one of the two objects must occupy the specifier of *v*P, and the specifier of CP must, as usual, be filled:

(33)  *Spec-CP and Spec-vP must be occupied:*

   a.  Bɔ�range l a-cí  ⌐Dèŋ⌐ lɛ́k akókôl.

       Bol 3SG-PRF  Deng tell story

       'Bol told Deng a story.'

   b.  Bɔrange l a-cí  ⌐akókôl⌐ lɛ́k Dèŋ.

       Bol 3SG-PRF  story    tell Deng

       'Bol told Deng a story.'

   c.  *Bɔrange l a-cí  ⌐____⌐ lɛ́k  Dèŋ  akókôl.

       Bol 3SG-PRF         told Deng story

       'Bol told Deng a story.'

   d.  *⌐____⌐ a-cíi    Bôl    lɛ́k Dèŋ  akókôl.

           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 appear empty:

(34)  *Spec-CP and Spec-vP can be empty if there is a CP complement:*

   a.  Bɔrange l a-cí  ⌐Dèŋ⌐ lɛ́k [Ayén a-cí    kitàp ɣɔrange oc].

       Bol 3SG-PRF  Deng tell  Ayen 3SG-PRF book buy

       'Bol told Deng [that Ayen bought a book].'

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b. Bòl a-cí     [____] lɛ́k Dɛ̀ŋ [Ayén a-cí     kitàp ɣɔ̀ɔc].

Bol 3SG-PRF     tell Deng Ayen 3SG-PRF book buy

'Bol told Deng [that Ayen bought a book].'

c. [____] a-cíi     Bôl     [____] lɛ́k Dɛ̀ŋ [Ayén a-cí     kitàp

    3SG-PRF.NS Bol.GEN     tell Deng Ayen 3SG-PRF book

ɣɔ̀ɔc].

buy

'Bol told Deng [that Ayen bought a book].'

We see the same with transitive verbs. Spec-*v*P is always empty (the CP cannot appear there) (35a–b), and Spec-CP may appear empty also (35b).

(35)     *Spec-CP and Spec-vP can be empty also in transitive with CP complement:*

a. Yàạr a-cí     [____] luéél, [a-cíi     nín].

Yaar 3SG-PRF     say     3SG-NEG sleep

'Yaar said that he isn't sleeping.'

b. [____] a-cíi     Yâạr     [____] luéél, [a-cíi     nín].

    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, like other XPs, may move to Spec-*v*P and Spec-CP. However, unlike other XPs, Dinka complement CPs are subject to an independent constraint, which forces them to appear sentence-finally. As a result, when a complement CP moves to an EPP position, it must subsequently undergo extraposition. This is then why Spec-CP and Spec-*v*P can appear empty when a complement clause appears in the clause.

Support for this way of viewing the facts in (34a–c) and (35a–b) comes from an implica-

tional relationship between the specifier of CP and the specifier of *v*P in such constructions. If the specifier of CP is empty, then the specifier of *v*P must also be empty, as we see in (36):

(36)     *Emptying of Spec-CP by complement CP blocks movement to Spec-vP:*

*[____] a-cíi          Bôl          [Dὲŋ] lɛ́k [Ayén a-cí          kitὰp ɣòoc].
               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 extraposition of the CP. For the CP to reach the edge of the matrix CP, it must pass through the edge of the matrix *v*P, and examples like (36) are therefore impossible.

   This behavior of finite CPs raises another possible analysis for the empty specifier of matrix *v*P that we observed in cases of long-distance extraction such as (37).

(37)     *Long-distance extraction through Spec-vP leaves it empty:*

Yeŋà cíi     Yâar     [____] lɛ́k Dὲŋ, [yè [____] cíi     Bôl     [____]
who  PRF.NS Yaar.GEN        tell Deng  C          PRF.NS Bol.GEN
tuòɔc wúut]?
send  cattle.camp.LOC
'Who did Yaar tell Deng that Bol sent to the cattle camp?'

Matrix Spec-*v*P in (37) might be empty, not because of the *wh*-phrase, but because of the same properties of tensed complement clauses which are responsible for emptying the edge positions in (36b–c) and (37a–b): the fact that CPs may move to an EPP position and subsequently extrapose.

   Under this proposal, an example like (37) really involves the structure in (38):

(38)

vP

DP  
*yéŋà*  
what

DP  
Yâar  

v

VP

V  
*lɛ́k*  
tell

ApplP

CP  
*t*DP

C  
*cíi*  
PRF

TP  
*Bôl t*DP *tuɔ̀ɔc*  
Bol    send

Appl    DP  
Dɛ̀ŋ

We suggest then that this is actually what is going on in cases of long-distance extraction from finite clauses. The CP from which extraction takes place moves to the specifier of *v*P and undergoes extraposition. On this account, then, Spec-*v*P in (37) is emptied, not by the moved *wh*-phrase, but by the embedded CP itself. Moreover, extraction from CP apparently requires that the CP undergoes these movements. As we saw, movement of CP to the specifier of *v*P, which is ordinarily optional (*cf.* examples 34a–c and 35a–b), becomes *obligatory* when Ā-extraction exits the CP. We then arrive at the descriptive generalization that a clause from which extraction takes place must move to the specifier of *v*P if it can.

We return to this generalization shortly, but, first, we will offer two pieces of evidence in support of our way of viewing long-distance extraction through Spec-*v*P is correct. Our first argument involves the behavior of nonfinite clauses in Dinka. As we can see with an object control verb like *lɔ̂ŋ* ('encourage'), which takes a DP and a non-finite clause as its

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objects, such clauses cannot move to Spec-*v*P or Spec-CP:

(39)    *Non-finite clauses cannot move to Spec-vP or Spec-CP:*

    a.    [Càn] a-cí    [Adít] lô̰ŋ    [bí  jàl].

        Can  3SG-PRF  Adit  encourage  FUT  leave

        'Can encouraged Adit to leave.'

    b.  *[Càn] a-cí    [____] lô̰ŋ    Adít [bí  jàl].

        Can  3SG-PRF    encourage  Adit  FUT  leave

        'Can encouraged Adit to leave.'

    c.  *[____] a-cíi    Cán    [____] lô̰ŋ    Adít [bí  jàl].

        3SG-PRF.NS Can.GEN    encourage  Adit  FUT  leave

        'Can encouraged Adit to leave.'

In addition, in clear contrast to extraction from finite clauses, extraction from non-finite clauses fails to empty the matrix specifier of *v*P:[20]

(40)    *Extraction out of non-finite clause never empties higher Spec-vP:*

    a.    Yekà̰ŋú    cíi Adít [**ké** [Càn] lô̰ŋ    [bí  **ké** ɣòo̰c]]?

        what.things PRF Adit  PL  Can  encourage  FUT PL buy

        'What things did Adit encourage Can [to buy *t*]?'

    b.    Yétenô cíi  Adít [[Càn] lô̰ŋ    [bén    Bòl tṳɔ̀ɔc]]?

        where  PRF Adit  Can  encourage  FUT.LOC Bol send

        'Where did Adit encourage Can [to send Bol *t*]?'

Our second argument involves long-distance extraction of PPs. We have seen that local extraction of PPs does not empty Spec-*v*P:

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[20]Note that we can verify from the *ke*-stranding example in (40a) that the Spec-*v*P position of the object control verb *lô̰ŋ* ('encourage') is nonetheless used as an intermediate landing site.

(41)    *PP extraction does not block movement to Spec-vP:*

Yétenô cénné    Bôl    [Dèŋ] tuɔ̀ɔc?

where   PRF.OBL Bol.GEN   Deng send

'Where did Bol send Deng?'

However, long-distance extraction of PPs *does* empty Spec-*v*P in the matrix clause, just when extraction is from a finite clause:

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

a.    Yétenô cíi    Yâar    [____] lɛ́k Dèŋ, [yè ____ cíi    Bôl

where   PRF.NS Yaar.GEN    tell Deng  C    PRF.NS Bol.GEN

[Ayén] tuɔ̀ɔc]?

Ayen   send

'Where did Yaar tell Deng [that Bol sent Ayen *t*]?'

b.    *Yétenô cíi    Yâar    [Dèŋ] lɛ́k, [yè ____ cíi    Bôl    [Ayén]

where   PRF.NS Yaar.GEN Deng tell  C    PRF.NS Bol.GEN   Ayen

tuɔ̀ɔc]?

send

'Where did Yaar tell Deng [that Bol sent Ayen *t*]?'

These facts demonstrate that whether the Spec-*v*P position of the matrix clause in a long-distance question is empty or not is determined, not by properties of the moved *wh*-phrase, but by properties of the embedded clause. The Spec-*v*P position in question is empty just if the embedded clause is of the type which is capable of emptying it (that is, if the clause is finite), regardless of the properties of the moved *wh*-phrase. In other words, in long-distance extraction through Spec-*v*P, 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 which empties Spec-*v*P.

Now that we have outlined this proposal, let us turn briefly to the *obligatory* aspect of it. Recall that when extraction is from a finite clause, the finite clause *must* empty Spec-*v*P (43a–b), even though this is optional when no extraction takes place.

(43)    *Finite CPs from which extraction takes place cause Spec-vP to be empty:*

   a.   Yeŋà cíi     Yâ̤ar     ⬚⬚⬚    lɛ́k Dɛ̀ŋ, [yè ___ cíi     Bôl     ___
        who  PRF.NS Yaar.GEN          tell Deng  C    PRF.NS Bol.GEN

        tṳɔ̀ɔc wúṳt]?
        send  cattle.camp.LOC

        'Who did Yaar tell Deng [that Bol sent *t* to the cattle camp]?'

   b.   Yétenô cíi     Yâ̤ar     ⬚⬚⬚    lɛ́k Dɛ̀ŋ, [yè ___ cíi     Bôl     Ayén
        where  PRF.NS Yaar.GEN          tell Deng  C    PRF.NS Bol.GEN Ayen

        tṳɔ̀ɔc]?
        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 (2009, 2012a,b), who argue that extraction from a CP in Tagalog and Hungarian requires Agree between *v* and CP. In Tagalog and Hungarian, this Agree relation is signalled via agreement morphology. In Dinka, the Agree relation has syntactic consequences, as we have seen. As Rackowski and Richards note, the account might also provide an explanation of Huang's (1982) CED, which effectively states that the phrases which are transparent for extraction

are just those which should be in an Agree relation with *v* (that is, complements of the verb); extraction from phrases which do not Agree with *v* (subjects and adjuncts) is blocked.

Dinka thus provides evidence that the syntax of long-distance extraction involves *at least two components*: intermediate movement steps and an Agree relations between embedding *v* and the CP to be extacted from. This is an important conclusion, as many models of successive cyclicity assume one but not the other. A number of proposals either do away with Agree or featural triggers as a component in initiating intermediate movement (e.g. Bošković 2002, 2007; Chomsky 2008). Conversely, Rackowski and Richards (2005) and den Dikken (2009, 2012a,b) argue that agreement circumvents phase boundaries, obviating the need for intermediate movement either in some or in all cases.

In the next section, we turn to the question of why both of these components — phase impenetrability and successive Agree relations — should be necessary parts of the syntax of long-distance dependencies. We propose a modification of Rackowski and Richards (2005), according to which Agree with a CP allows the higher *v* to access the CP edge.

## 6   Phases as interveners for *wh*-probing

We have seen that Dinka leads us 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 (2005), which incorporates these both of these components.

The starting point for the theory of Rackowski and Richards (2005) 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 which 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

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to 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 section 4 (see fn. 16), that a phase head with a *wh*-phrase in its specifier must have a feature which is responsible for driving this *wh*-movement, even if the CP is declarative (Chomsky 1995, Preminger 2011). 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 (44):

(44)
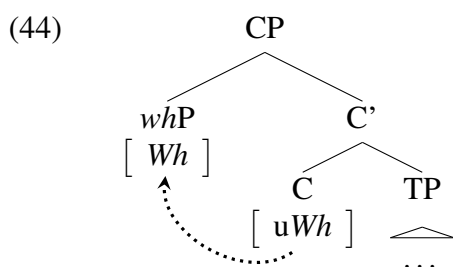


Since CP and the *wh*-phrase both carry *wh*-features, we propose that they are both potential Goals for higher probes seeking *wh*-features. We can now ensure that CP will be the closer of the two Goals for higher probes by defining the notion of *closeness* along the following lines:[21]

(45)   **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 (45) guarantees that a

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[21]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 *v*Ps, 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 (45), assuming that phase impenetrability is a separately enforced condition.

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 (44) is a more accessible Goal for higher *wh*-probes than the *wh*-phrase itself, since the CP dominates the *wh*-phrase. This effectively incorporates Chomsky's (1964) A-over-A principle into the definition of intervention. See also Kitahara (1997) and Müller (1998) for arguments from constraints on remnant movement that this is a desirable move.

Adopting this view, we must now ask how the *wh*-phrase is to be extracted. Here we follow much work on multiple *wh*-constructions (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' (1998) Principle of Minimal Compliance:

(46)     Once a probe P Agrees with a Goal G, P can ignore G for the rest of the derivation.

         (Richards 1998; Hiraiwa 2001; Rackowski and Richards 2005)

Whether the precise formulation in (46) is the correct one or not is not very important for our account; some version of (46) must presumably be true for multiple *wh*-questions to exist at all.

The locality condition in (45), paired with the condition on multiple Probing in (46), will guarantee that in a configuration like the one in (44), higher Probes seeking to extract the *wh*-phrase must Agree both with the *wh*-phrase and with the CP dominating it. As we saw 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 the specifier of *v*P (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 (47).

(47)  Yeŋà yé   [___] tàak, [[___] cíi   Bôl   [___] tíŋ]?
     who IMPF.2SG    think     PRF.NS Bol.GEN    see
     'Who do you think Bol saw?'

The lower C is endowed with a *wh*-feature (as all C heads are), which attracts the *wh*-phrase to Spec-CP:

(48)
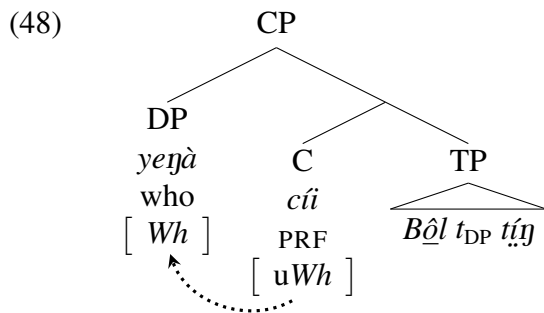


Matrix *v* is also endowed with a *wh*-feature. It probes and tries to access the *wh*-phrase in the lower Spec-CP. However, because the embedded CP also carries a *wh*-feature, it acts as an intervener for the Agree relation between *v* and the *wh*-phrase by the logic in (45). As a result, an independent Agree relation between *v* and the CP is necessary for the derivation to converge.[22] We posit that this Agree relation involves the same Case checking operation that attracts DPs to Spec-*v*P.[23] This is accompanied by movement of the CP to Spec-*v*P:

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[22]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 achieved by stipulating that *wh*-probing must target the *interpretable* instance of the *wh*-feature, which is only found on the *wh*-phrase. We could allow for variation in this restriction, since there are languages in which clausal pied-piping can be used in long-distance dependencies, such as Basque (e.g. Arregi 2003).

[23]We posit then that CPs can check Case in Dinka. Indeed, if our extraposition analysis is on the right track, there are no distributional differences between DPs and CPs in Dinka, like there are in English. The only difference between them is that CPs obligatorily extrapose, causing them to appear sentence-finally.

(49)

*v*P

DP
*pro*

*v*

VP

V
*tàak*
think

CP

DP
*yeŋà*
who

C
*cíi*
PRF

TP
*Bôl t_{DP} tíŋ*
Bol    see
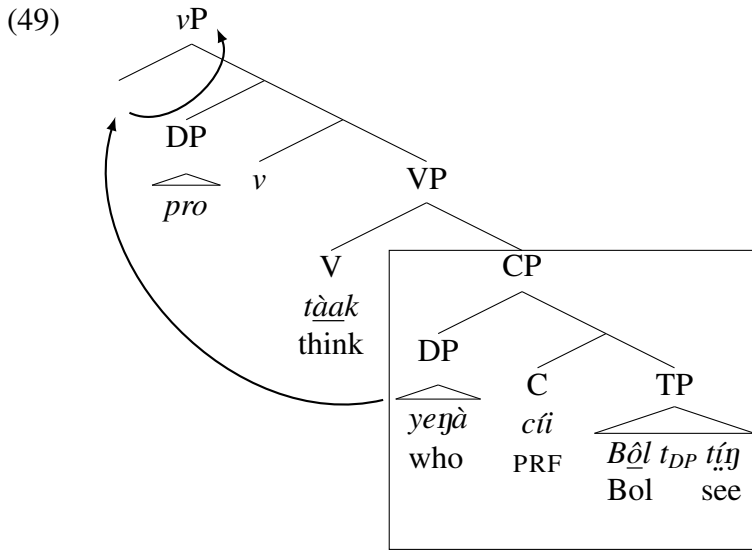

The CP subsequently undergoes extraposition, which, as previously discussed, we assume is driven by independent constraints on CPs in Dinka. We will represent extraposition as rightward adjunction to *v*.

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-*v*P, from which it later undergoes movement to matrix Spec-CP:

(50)

*v*P

DP
*yeŋà*
who

$t_{CP}$

DP
*pro*

*v*

VP

V
*tàak*
think

$t_{CP}$

$t_{DP}$

C
*cíi*
PRF

TP
*Bôl t_{DP} tíŋ*
Bol    see

39
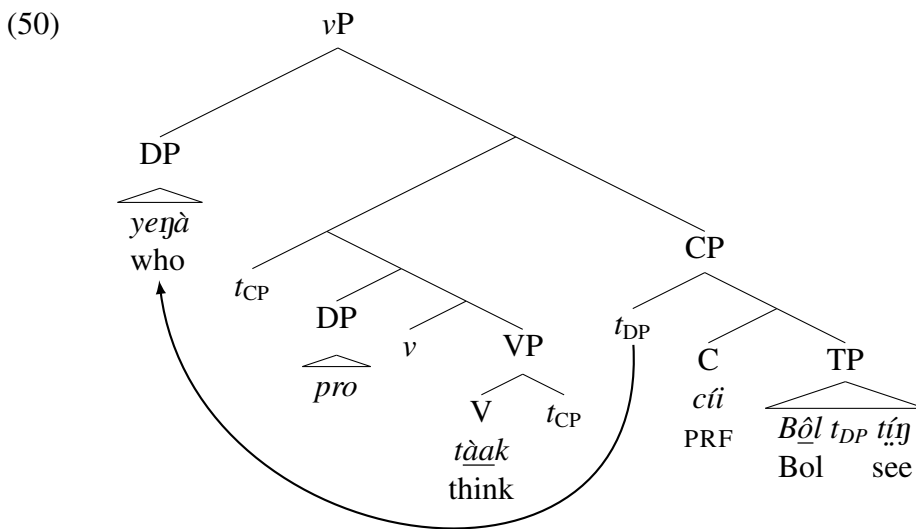
As a result, matrix Spec-*v*P is obligatorily empty. Both XPs that satisfy *v*'s features must undergo subsequent movement: the CP because Dinka requires CPs to extrapose, and the *wh*-phrase because it must move to matrix Spec-CP to be interpreted.[24]

## 7 Beyond Dinka

In the course of developing our account of the syntax of long-distance extraction in Dinka, we have made a number of 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 2009a, 2012a,b; Halpert 2012). Second, our derivation 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, the theory presented here makes the prediction that, alongside an Agree relation between *v* and CP, we should effects of an Agree relation between C and *v*P. Section 7.3 discusses this prediction.

### 7.1 The role of agreement across languages

There are other languages in which it has been argued that agreement plays a role in facilitating extraction (Rackowski and Richards 2005; Den Dikken 2009a, 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, this pattern shows up with agreement morphology on the verb (Rackowski

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[24]We propose that non-finite clauses are not phases, as they appear to lack a C layer in Dinka. As a result, there is no need for agreement with them as they will never act as interveners.

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 (51a), for example, the verb agrees with the subject, while, in (51b), the verb agrees with the clause.

(51)    *Tagalog verb agrees for case:*

    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 & Richards 2005:586)

The important observation is now that the verb must agree with an embedded clause if an XP is extracted from within that clause (52a–d).

(52)    *Extraction requires agreement with embedded clause:*

    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

          when   NOM-ASP-say ANG soldier  that NOM.ASP-go.home ANG

          pangulo]]?

          president

          'When will the soldier say that the president will go home?'

          (Rackowski & Richards 2005:586)

A similar pattern exists in Chamorro (Chung 1998; Den Dikken 2009b). 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 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 (53a–b).[25]

(53)     *Object agreement optionally appears with aspectual auxiliaries:*

    a.   Mae       Megan wedi **ei**   ddwyn  e.

        be.PRES.3SG Megan PERF 3MS steal.INF it.MS

        'Megan has stolen it.'

    b.   Mae       Megan wedi dwyn    e.

        be.PRES.3SG Megan PERF steal.INF it.MS

        'Megan has stolen it.'

Willis (2008) shows that this object agreement may exceptionally appear on intermediate verbs in the context of a long-distance dependency (54).[26]

(54)     *Object agreement may appear on intermediate verbs:*

    Beth wyt      ti  'n  **ei**  feddwl  [bod  hyn yn  **ei**  olygu]?

    what be.PRES.2SG you PROG 3MS think.INF  be.INF this PROG 3MS mean.INF

    'What do you think this means?'

As Willis observes, however, this intermediate agreement does not reflect the $\varphi$-features of

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[25] As evident in (53a–b), the clitic also triggers a soft mutation on the following infinitival verb.

[26] 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.

the *wh*-phrase. Rather, it always surfaces as 3rd person masculine singular (55a). In addition, it may appear even with extraction of adjuncts (55b), which otherwise never trigger object agreement.

(55)     *Intermediate object agreement does not reference wh-phrase:*

    a.   Pa    lyfrau wyt       ti   'n  **ei**  feddwl  [oedd       Megan

        which books be.PRES.2SG you PROG 3MS think.INF  be.IMPF.3S Megan

        yn   **eu**  darllen]?

        PROG 3PL read.INF

        'Which books do you think Megan was reading?'

    b.   Ble   wyt       ti   'n  **ei**  feddwl  [mae       e  'n

        where be.PRES.2SG you PROG 3MS think.INF  be.PRES.3SG he PROG

        mynd]?

        go.INF

        'Where do you think he's going?'

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

Den Dikken (2009, 2012b) argues for the existence of another pattern along these lines for Hungarian. Finally, in the realm of A-movement, Halpert (2012) argues that raising of a finite clause in Zulu is made possible by agreement between the raising verb and the complement CP.

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.

One of the contributions of this paper is to show 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 (2009, 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. This may at first glance seem at odds with some data about extraction from CPs in other languages. In this section, we review these facts and argue that extraposed CPs never induce such effects.

As noted above, movement of CP seem to create freezing effects in a number of languages. We see this, for example, in English pairs like (56a–b).

(56)     *Movement of CP blocks extraction in English:*

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

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

But we find the same effect with CP objects. Vicente (2005), for example, shows that, in Basque, movement of CP renders extraction impossible. CPs can surface both to the right and to the left of the verb (57a–b).

(57)     *CPs occur on both sides of the 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.'

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.'

(Basque; 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 (58a–b).

(58)  *Extraction from moved CP 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?'

(Basque; Vicente 2005:366)

A similar pattern obtains in Dutch.[27] CPs can undergo scrambling and appear left of the verb (59a), though they normally surface to the right (59b).

(59)  *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.'

When this happens, however, extraction from within the scrambled CP is completely blocked (60a–b).

(60)    *Extraction from scrambled CP 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.

However, extraposed clauses do not appear to pattern like other moved CPs. We see this already 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 (60a) shows, extraction from a final CP is grammatical.

Similarly, in English, extraposition of CP does not block *wh*-movement (61).

(61)    *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 (62a–e).[28]

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

(62)     *Relative clause extraposition feeds extraction in Norwegian:*

a.   *Her er en bok   som [ingen     [<sub>CP</sub> 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 [<sub>CP</sub> 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       [<sub>CP</sub> 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 [<sub>CP</sub> 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       [<sub>CP</sub> som liker]] inn.

   Per let       I   not   anybody       that likes   in

   'Peter, I didn't let anybody who likes him in.

   (Norwegian; Taraldsen 1981:486)

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


## 7.3   The relation between C and vP

Another aspect of our proposal that deserves further discussion is the implication that we may also expect to see reflexes of *wh*-agreement between phase heads with regard to move-

ment from Spec-*v*P to Spec-CP. In particular, *wh*-movement to Spec-CP should also require an Agree relation between C and *v*P.

In Dinka, this is not a problem, because the highest verb or auxiliary moves to C is every clause. If head movement is mediated by Agree, then, by transitivity, there is plausibly already an Agree relation between C and *v*P, 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 an intermediate C and a *v*P 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 a question. In the Romance languages, for example, many researchers have observed that fronted *wh*-arguments must be followed by the verb, so that subjects can no longer appear before the verb (e.g. Torrego 1984; Rizzi 1991). This is true in Spanish and Italian, for example (63a–d).

(63)     *Spanish and Italian verb raises to C in the context of extraction:*

    a.  *Qué  María lee    siempre?

       what Maria reads always

       'What does Maria always read?'

    b.  Qué  lee    María siempre?

       what reads Maria always

       'What does Maria always read?'

       (Spanish; Torrego 1984:104)

    c.  *Che cosa Maria ha   detto?

       what     Maria has said

       'What has Maria said?'

d.   Che cosa ha  detto Maria?

what      has said  Maria

'What has Maria said?'

(Italian; Rizzi 1991)

As Torrego (1984) shows for Spanish, the same effects are seen in embedded clause when they are on the path of movement. In these clauses also, the subject must follow the verb (64a–b).

(64)   *Verb also moves in embedded clauses:*

a.   Juan pensaba [que Pedro **le había dicho** [que la    revista **había publicado**

Juan thought   that Pedro him           had  told  that   the

ya     el   artículo]].
journal had published  already the article
'Juan thought that Pedro had told him that the journal had already published the article.'

b.   Qué  pensabe Juan [que **le había dicho** Pedro [que **había publicado** la

what thought  Juan  that him          had   told  Pedro             that

revista *t*]]?

had      published the journal
'What did Juan think that Pedro had told him that the journal had published?'

 (Spanish; Torrego 1984:109)

Such patterns may reflect the Agree relation between C and *v*P that we posit, if we assume that Agree is a prerequisite for head movement.

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 *v*P, as they would already stand in the requisite Agree relation. We leave this as a question for future research.

## Conclusion

In this paper, we have shown that 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 2009a, 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 proposed a modification of Rackowski and Richards (2005), 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.

# References

Andersen, Torben. 1987. The phonemic system of Agar Dinka. *Journal of African Languages and Linguistics* 9: 1–27.

Andersen, Torben. 1991. Subject and topic in Dinka. *Studies in Language* 15: 265–294.

Andersen, Torben. 1993. Vowel quality alternation in Dinka verb inflection. *Phonology* 10: 1–42.

Andersen, Torben. 2002. Case inflection and nominal head marking in Dinka. *Journal of African Languages and Linguistics* 23: 1–30.

Andersen, Torben. 2007. Auxiliary verbs in Dinka. *Studies in Language* 31: 89–116.

Andersen, Torben. 2012. Spatial roles and verbal directionality in Dinka. *Journal of African Languages and Linguistics* 33: 143–179.

Arregi, Karlos. 2003. Clausal pied-piping. *Natural Language Semantics* 11: 115–143.

Bošković, Željko. 2002. A-movement and the EPP. *Syntax* 5: 167–218.

Bošković, Željko. 2007. On the locality and motivation of Move and Agree: An even more minimal theory. *Linguistic Inquiry* 38: 589–644.

Bouma, Gosse, Robert Malouf, and Ivan Sag. 2001. Satisfying constraints on extraction and adjunction. *Natural Language & Linguistic Theory* 19: 1–65.

Cable, Seth. 2007. *The grammar of Q: Q-particles and the nature of wh-fronting, as revealed by the wh-questions of Tlingit*. Doctoral dissertation, MIT.

Cable, Seth. 2010. *The grammar of Q: Q-particles, wh-movement, and pied-piping*. Oxford, UK: Oxford University Press.

Cable, Seth. 2012. The optionality of movement and EPP in Dholuo. *Natural Language & Linguistic Theory* 30: 651–697.

Chomsky, Noam. 1964. *Current issues in linguistic theory*. The Hague, Netherlands:

Mouton.

Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, ed. by Robert Freidin, David Michaels, Carlos P. Otero, and Maria Luisa Zubizaretta, 133-166. Cambridge, MA: MIT Press.

Chung, Sandra. 1998. *The design of agreement*. Chicago: University of Chicago Press.

den Dikken, Marcel. 2009a. On the nature and distribution of successive cyclicity. Paper presented at NELS 40, MIT.

den Dikken, Marcel. 2009b. Arguments for successive-cyclic movement through Spec-CP: A critical review. *Linguistic Variation Yearbook* 9:89–126.

den Dikken, Marcel. 2012a. The Phase Impenetrability Condition and successive cyclicity: A reconsideration. Paper presented at CLS 48, University of Chicago.

den Dikken, Marcel. 2012b. On the strategies for forming long A'-dependencies: Evidence from Hungarian. CUNY, Ms.

Gazdar, Gerald, Ewan Klein, Geoffrey Pullum, and Ivan Sag. 1984. Foot features and parasitic gaps. In *Sentential complementation*, ed. by W. Geest and Y. Putseys, 83–94. Dordrecht: Foris.

Goldberg, Adele. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.

Hagstrom, Paul. 1998. *Decomposing questions*. Doctoral dissertation, MIT.

Halpert, Claire. 2012. *Argument licensing and agreement in Zulu*. Doctoral dissertation, MIT.

Hiraiwa, Ken. 2001. Multiple Agree and the Defective Intervention Constraint in Japanese. In *Proceedings of HUMIT 2000*, 67–80. Cambridge, MA: MITWPL.

Kaplan, Ronald, and Annie Zaenen. 1987. Long-distance dependencies, constituent structure, and functional uncertainty. In *Alternative conceptions of phrase structure*, ed. by Mark Baltin and Anthony Kroch. Chicago: University of Chicago Press.

Kitahara, Hisatsugu. 1997. *Elementary operations and optimal derivations*. Doctoral dissertation.

Malou, Job. 1988. *Dinka vowel system*. University of Texas at Arlington, Summer Institute of Linguistics.

Müller, Gereon. 1998. *Incomplete category fronting: A derivational approach to remnant movement in German*. Dordrecht, Netherlands: Kluwer.

McCloskey, James. 2000. Quantifier float and *wh*-movement in an Irish English. *Linguistic Inquiry* 31: 57–84.

Nebel, Arthur. 1948. *Dinka grammar (Rek-Malual Dialect) with texts and vocabulary*. Verona: Missioni Africane.

Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 355–426. Cambridge, MA: MIT Press.

Preminger, Omer. 2011. *Agreement as a fallible operation*. Doctoral dissertation, MIT.

Rackowski, Andrea, and Norvin Richards. 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry* 36: 565–599.

Remijsen, Bert, and Leoma Gilley. 2008. Why are three-level vowel length systems rare? Insights from Dinka (Luanyjang dialect). *Journal of Phonetics* 36: 318–344.

Richards, Norvin. 1998. The Principle of Minimal Compliance. *Linguistic Inquiry* 29:

599–629.

Richards, Norvin. 2012. *Uttering theory*. Manuscript, MIT.

Rizzi, Luigi. 1991.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of grammar: Handbook of generative syntax*, ed. by Liliane Haegeman, 281–337. Dordrecht, Netherlands: Kluwer.

Rouveret, Alain. 2008. Phasal agreement and reconstruction. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, ed. by Robert Freidin, Carlos Otero and Maria Luisa Zubizarreta, 167–195. Cambridge, MA: MIT Press.

Sag, Ivan, and Janet Dean Fodor. 1994. Extraction without traces. In *Proceedings of WCCFL 13*, 365–384. Stanford, CA: CSLI Publications.

Steedman, Mark. 1987. Combinatory grammars and parasitic gaps. *Natural Language & Linguistic Theory* 5: 403–439.

Torrego, Esther. 1984. On inversion in Spanish and some of its effects. *Linguistic Inquiry* 15: 103–129.

van Urk, Coppe. In preparation. *How to get a case alternation: Voice in Dinka*. MIT.

Willis, David. 2008. The limits of resumption in Welsh *wh*-dependencies. In *Resumptive pronouns at the interfaces*, ed. by Alain Rouveret, 189–222. Amsterdam: John Benjamins.

Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin: Mouton de Gruyter.