Phase impenetrability and mixed chains in Dinka
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1. Summary. Much work on resumption argues that it is a last resort strategy (e.g. Shlonsky 1992; Pesetsky 1998; Salzmann 2009; Sichel 2014). One issue in this type of approach is that many languages permit resumptives in non-island contexts (e.g. objects and embedded subjects). This paper first presents novel evidence from the Nilotic language Dinka (South Sudan) for the existence of *mixed chains* of movement and resumption (McCloskey 2002), revealing that both C and *v* may initiate resumption. Such chains are then shown to display positional restrictions sensitive to *phase impenetrability*: a resumptive pronoun may only appear if separated by (at least) one phase boundary from the antecedent. I argue that this restriction, and the exception that arises with *v*P, follows from a last resort account if Dinka resumptives occur in phases that lack a featural trigger for movement. If all movement is feature-driven (Chomsky 1995), phase impenetrability creates an island in which resumption is a last resort.

2. Two reflexes of successive cyclicity in Dinka. Van Urk and Richards (2015) show that long-distance movement in Dinka displays two reflexes of successive cyclicity. First, the moving phrase satisfies the V2 property of intervening CPs and *v*Ps. This is evident in (1a): clauses introduced by *kè* must be followed by V2, satisfied by the bolded copy. Second, plural phrases trigger *ké-copying*, the appearance of a plural marker *ké* at each *v*P edge (1b).

(1) a. Àyén à-cíi   Bôl   yôo̱k [_CP kè̱ **<Àyén>** nhiɛ́ɛr kɔ̂ɔc-kè̱   <*Àyén*>].
      Ayen 3S-PRF.OV Bol.GEN find.NF   C   love.OV people-these
      'Ayen, Bol has found out that these people love.'

   b. Yè kɔ̂ɔc-kò   yí̱i   Bôl   [_vP **ké** luêeel è̱ cí̱i   Áyèn   [_vP **ké** tî̱i̱ŋ]]?
      be people-DEM HAB.OV Bol.GEN   **3PL** say.NF C PF.OV Ayen.GEN **3PL** see.NF
      'Which people does Bol say Ayen has seen?'

(V2 at the clause edge is assumed to involve a lower C head, see [*omitted*] for discussion.)

3. Resumption in Dinka is not movement. Dinka also employs resumption in all Ā-constructions. Resumption differs from movement in two ways. First, it is island-insensitive (2).

(2) Yè kɔ̂ɔc-kò_i   cí̱i Bôl   ké [ráan cé̱ (*ké) cuî̱in câam kè̱nè̱ **kêek_i**] tî̱i̱ŋ?
    be people-which PRF Bol.GN 3PL person PRF 3PL food eat.NF with **3PL**   see.NF
    '(lit.) Which people has Bol seen someone who has eaten food with them?'

Second, reflexes of successive cyclicity become *optional* in resumptive contexts. *Ké*-copying is no longer obligatory (3a). Similarly a different XP may occupy intervening V2 positions (3b).

(3) a. Wɔ̂ɔk_i cí̱i   Bôl   [_vP **(ké)** cuî̱in câam kè̱nè̱ **wɔ̂ɔk_i**].
      1PL   PRF.OV Bol.GEN   **3PL** food eat.NF with **1PL**
      'Us, Bol has eaten food with us.'

   b. Yè kɔ̂ɔc-kó_i   yù̱u̱kù̱ ké tàak [_CP kè̱ **Àyén** cé̱ (*ké) cuî̱in câam kè̱nè̱ **kêek_i**]?
      be people-which HAB.1P 3PL think   C **Ayen** PRF 3PL food eat.NF with **3PL**
      'Which people do we think Ayen has eaten food with?'

4. Mixed chains in Dinka. The fact that reflexes of successive cyclicity are optional rather than absent provides evidence that long-distance dependencies in Dinka may be *mixed chains*, employing a resumptive relation plus movement of the antecedent, as McCloskey (2002) also documents in Irish. Supporting evidence for this comes from the observation that reflexes of successive cyclicity are ungrammatical inside islands: In (2), we see that *ké*-copying is impossible *inside* the island, but fine *outside* of it. Similarly, once reflexes of successive cyclicity are evident at an edge, they become obligatory at higher edges. For instance, for *ké*-copying to be possible in an embedded clause with a resumptive pronoun in it, the antecedent must also satisfy V2 at the edge of that clause (compare (3b) with (4)).

(4) Yè kɔ̂ɔc-kó_i   yù̱u̱kù̱ ké tàak [_CP kè̱ *t_i* cí̱i Áyèn   **(ké)** càm kè̱nè̱ kêek_i]?
    be people-which HAB.1P 3PL think.NF C   PRF Ayen.GEN **3PL** eat.NF with 3PL

'Which people do we think Ayen has eaten with?'

Following McCloskey, I propose that Dinka C and *v* can initiate movement or resumption, so that an antecedent DP may be first merged in ***any Spec-CP or Spec-vP position***.

5. Restrictions on resumption. Resumption in Dinka displays several restrictions that are absent in movement. As in many languages, resumption obeys the Highest Subject Restriction (5): Only subjects of embedded clauses can be resumptive pronouns.

(5) Yè kôɔc-kò$_i$ yíi   Bôl   ké luêeel [$_{CP}$ ȅ **lɛ̀ɛtkȅ$_i$ Àyén**]?
    be people-which HAB.OV Bol.GEN 3PL say.NF   C **insult.3PL** Ayen
    'Which people does Bol say is insulting Ayen?'

As in Irish, what is banned is a local relationship between resumptive subject and antecedent. If the resumptive antecedent is first merged in the embedded Spec-CP, resumption is again out:

(6)*Yè kôɔc-kò$_i$ yừừkừ ké tàak   [$_{CP}$ kȅ <*kôɔc-kò$_i$*> **càmkȅ$_i$** cuɨ̂in]?
    be people-which HAB.1P 3PL think.NF   C   **eat.3PL** food
    'Which people do we think have eaten food?'

(The difference between (5) and (6) is because the complementizer ȅ may be followed by V1.)

6. Restrictions in the *v*P. In the *v*P, resumptives in a PP or DP are always permitted (7a–b):

(7)a. Yè ŋà$_i$ cɛ́ɛmȅ Bôl   cuɨ̂in-dè$_i$?   b. Yè ŋó$_i$ cɛ́ɛmȅ Bôl   cuɨ̂in nè **yèen$_i$**?
    be who eat.OBLV Bol.GN food-SG.**3SG**   be what eat.OBV Bol.GN food P **3SG**
    'Whose food is Bol eating?'   'What is Bol eating with?'

Embedded objects can be resumptive pronouns (8a), but local objects are restricted (8b–c):

(8)a. Wêek$_i$ yíi   Bôl   ké luêeel [$_{CP}$ ȅ cȅ   **wêek$_i$** tɨ̂iŋ].
    2PL   HAB.OV Bol.GEN 3PL say.NF   C PRF.3SG **2PL**   see.NF
    'You all, Bol has said that he has seen.'

b. *Yè ŋó$_i$ cɨ́i rɔ́ɔɔr [$_{vP}$ **yèen$_i$** tɨ̂iŋ]?   c. *Yè ŋà$_i$ cɨ́i Bôl [$_{vP}$ **yèen$_i$** yiɛ̂ɛn   cà]?
    be what PRF men.GN **3SG**   see.NF   be who PRF Bol.GN **3SG**   give.NF milk
    'What have the men seen?'   'Who has Bol given milk to?'

Local object resumptives are sensitive to phase boundaries. They are not permitted in the phase edge position (8b–c), but *are* permitted as indirect objects if more deeply embedded (9a–b):

(9)a. Yè ŋà cừừkừ [$_{vP}$ cà yiɛ̂ɛn **yèen**]?   b. *Yè ŋó   cừừkừ [$_{vP}$ Àyén yiɛ̂ɛn **yèen**]?
    be who PRF.1PL   milk give.NF **3SG**   be what PRF.1PL   Ayen give.NF **3SG**
    'Who have we given milk to?'   'What have we given Ayen?'

The generalization that emerges is that a resumptive antecedent may be merged only if separated from the resumptive pronoun at least by one CP, PP, or DP boundary. Importantly, a *v*P boundary is insufficient, as in (9b), in which an object resumptive is banned even though embedded in the *v*P. (For (9a), I posit silent PP structure that introduces the low indirect object, as in Bruening 2001.) This asymmetry is surprising if CP, *v*P, PP, and DP all constitute phases.

7. Why phase boundaries? To explain the CP-*v*P asymmetry, I propose that C (and not *v*) may lack a **featural trigger** to initiate movement, resulting in V1. If the same is true of P and D, a resumptive pronoun is licit only in positions from which movement to the phase edge is impossible. That is, resumptives only appear embedded in CPs, PPs, and DPs that lack a trigger for movement. ***Phase impenetrability*** creates an island for movement, if the resumptive is not on the phase edge. Resumption is then available as a last resort strategy (for possible implementations: Pesetsky 1998, Salzmann 2009, Sichel 2014 a.o.).

8. Crosslinguistic view. This approach explains the Highest Subject Restriction because a featural trigger is obligatory on the highest C. If *v*P lacks a trigger, other positions permit resumption (e.g. Irish, Palestinian Arabic). If intermediate CPs act as a boundary, the Dinka pattern is found. If neither CP or *v*P do, only non-subjects and non-objects permit resumption (Welsh). Other patterns in Klein's (2013, 2016) typology of resumption have unexpected subject resumptives, which I attribute to issues with subject extraction.