Pronoun copying in Dinka and the Copy Theory of Movement*

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Abstract
This paper argues that some pronouns are the result of partial deletion of a DP copy. In a range of environments, it has been shown that pronouns appear to mark a position in a movement chain (e.g. Zaenen et al. 1981; Koopman 1982, 1984; Sells 1984; Engdahl 1985; Pesetsky 1998; Kandybowicz 2007; Holmberg and Nikanne 2008; Harizanov 2014; Sichel 2014). I propose that this is possible because DP copies undergo *partial deletion* in the context of multiple copy spell-out. An influential approach to pronouns treats them as DPs with an absent or elided NP complement (Postal 1969; Elbourne 2001, 2005). Under this view, one way to create a pronoun is by means of NP deletion in a DP copy. As evidence for this approach, I demonstrate that there are a variety of ways in which copied pronouns differ from 'trueborn' pronouns. Specifically, copied pronouns may be imperfect copies, and display both featural mismatches and gaps (patterns in which only a subset of possible DPs are doubled by a pronoun). Both of these patterns follow from the way partial deletion applies inside DP copies.

1 Introduction

It is well-known that languages may sometimes spell out multiple copies of a verb when the verb undergoes movement to the left periphery. Some examples from Hebrew, Nupe, and Russian are given in (1a–c).

(1) *Verb copying in Hebrew, Russian, and Nupe:*

a. **lirkod**, Gil lo **yirkod** ba-xayim.
dance.INF Gil not **will-dance** in-the-life
'As for dancing, Gil will never dance.'
(Hebrew; Landau 2006:32)

b. **Citat'** Ivan eë **citaet**, no nicego ne ponimaet.
read.INF Ivan 3FS.ACC **reads** but nothing not understands
'Ivan DOES read it, but he doesn't understand a thing.'
(Russian; Abels 2001:1)

c. **Bi-ba** Musa à **ba** nakàn sasi èsun làzi yin o
RED-cut Musa FUT **cut** meat some tomorrow morning PRT FOC
'It is CUTTING that Musa will do to some meat tomorrow morning.'
(Nupe; Kandybowicz 2007:83)

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These constructions are found in a wide variety of languages (for an overview, see Kandybowicz 2007:80, for example). As pointed out by a number of authors (e.g. Landau 2006; Kandybowicz 2007), the productivity of verb copying provides evidence that syntactic movement involves literal copies of the moved element.

We might wonder then why we do not similarly find widespread *noun* copying constructions for movement of DPs. After all, the syntax of phrasal movement provided most of the motivation for the Copy Theory of Movement in the first place (Chomsky 1995:ch. 3, sec. 3.5). There is one type of multiple copy spell-out, however, that is consistently found with movement of DPs. In a wide range of constructions, including resumption, *wh*-copying, clitic doubling, and subject doubling, pronouns appear to act as spell-outs of a full DP. For example, it has long been acknowledged that there are resumptive pronouns whose behavior is indistinguishable from a gap (e.g. Zaenen et al. 1981; Engdahl 1982, 1985; Demirdache 1991; McCloskey 2006; Kandybowicz 2007; Sichel 2014; Harizanov 2014; *cf.* Asudeh 2012). *Wh*-copying constructions in German and Passamaquoddy have the profile of movement (e.g. Fanselow and Mahajan 2000; Felser 2004; Bruening 2006; Pankau 2013). Similarly, work on the syntax of clitic doubling languages like Greek and Bulgarian has come to the conclusion that doubled clitics act at LF like full copies rather than pronominals (e.g. Anagnostopoulou 2003; Harizanov 2014; Kramer 2014; *cf.* Cuervo 2003). In addition to this, a number of languages have constructions with multiple subject positions, in which the subject is doubled by a pronoun (e.g. Van Craenenbroeck and Van Koppen 2002; Holmberg and Nikanne 2008).

In this paper, I identify another configuration in which pronouns are indistinguishable from gaps. Specifically, I show that in the Nilotic language Dinka (South Sudan), intermediate copies left by successive-cyclic movement can be realized as pronouns. On the basis of this pattern and the patterns summarized above, I argue that pronouns may realize full copies of DP, which I refer to as *pronoun copying*. To be precise, I suggest that pronoun copying is the counterpart to verb copying with phrasal movement of DPs. In other words, I defend the claim in (2), that a full copy of a DP like *the book*, in a context that requires multiple copy spell-out, must be spelled out at PF as a pronoun (3).

(2) Multiple copy spell-out of a DP yields a pronoun.

If correct, (2) means that there is multiple copy spell-out of DPs also, but that it results in a pronoun.

We expect then to find at least three configurations in which multiple copy spell-out causes one copy in a movement chain to be realized as a pronoun. The pronoun could be the realization of a lower copy of the DP (3a), the pronoun could mark the highest position (3b), or a pronoun could spell out a copy in some intermediate position (3c).

(3) *Three configurations of pronoun spell-out:*

a. Lowest copy: [… *the book* … *it* …]
b. Highest copy: [… *it* … *the book* …]
c. Intermediate copy: [… *the book* … *it* … <~~*the book*~~> …]

As pointed out above, previous work has suggested that (3a) and (3b) correspond to some cases of resumption and clitic doubling, respectively. In addition to this, a number of languages, including dialects of Dutch, Finnish, and Tunisian Arabic, have been argued to have constructions in which

a pronoun spells out a copy of the subject, either as the higher copy (3b) or as the lower copy (3a) (Van Craenenbroeck and Van Koppen 2002; Holmberg and Nikanne 2008; Jlassi 2013). *Wh*-copying has been put forward as a possible instantiation of either (3b) and (3c), but there are conflicting views about which copy the pronoun spells out (e.g. Fanselow and Mahajan 2000; Fanselow and Ćavar 2001; Felser 2004; Pankau 2013).

This paper presents a novel instance of (3c), from the Nilotic language Dinka. In Dinka, long-distance movement requires multiple spell-out of copies at the *v*P edge. Intermediate copies of plural nominals are always spelled out as the third person plural pronoun *ké(ek)* (4a–b), so that movement of such phrases effectively leaves a trail of copied pronouns.

(4) *Plural pronoun copying at Dinka verb phrase:*

a. **Ké(ek)** áa-cíi Áyèn [$_{vP}$ **ké(ek)** tîiŋ].
3PL 3P-PRF.OV Ayen.GEN **3PL** see.NF
'Them, Ayen has seen.'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ yíi Bôl [$_{vP}$ **ké(ek)** luêeel [$_{CP}$ è cíi Áyèn [$_{vP}$
be **people-which** be.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN
ké(ek) tîiŋ]]]]?
3PL see.NF
'Which people does Bol say Ayen has seen?'

I will argue that, in an example such as (4b), the pronoun *ké* is the spell-out of a full copy of the *wh*-phrase *kɔ̂ɔc-kò* ('which people') in intermediate Spec-*v*P position. The motivation for this analysis comes from the observation that dependencies with *ké*-copying are indistinguishable from other movement dependencies in Dinka. In addition, copied instances of *ké* may appear where no lexical DP or pronoun may ever appear. Copied pronouns can violate the V2 property of the verb phrase, unlike non-copied nominals, but like other intermediate copies.

On the basis of these facts, I conclude that all the configurations in (3a–c) are in fact attested. In this view, there is no asymmetry between movement of noun phrases and movement of verbs. For both, we can find a range of copying constructions.[1] The only difference lies in the form of the copied element. The question that arises then is why multiple copy spell-out should necessarily yield a pronoun. Particularly within the Copy Theory of Movement, this is unexpected, because it seems to suggest that DP copies are reduced in some form, possibly like traces (see, for example, Van Koppen 2005 for such a suggestion). I will show, however, that the correct analysis of pronoun copying nonetheless requires that DP copies have articulated internal structure.

As McCloskey (2006) observes, one way of viewing the claim that pronouns may realize gaps is as a consequence of two ideas. One influential view of pronouns is that they are the realization of a DP without an NP,[2] or the realization of the functional layer of a DP (e.g. Postal 1969; Elbourne 2001, 2005). In this theory of pronouns, a pronoun like *it* is effectively an intransitive version of the definite determiner *the*. In unrelated work, various authors working on the realization of copies have suggested that copies may undergo distributed or scattered deletion, so that subparts of some copies may be deleted if PF or LF considerations force it (e.g. Chomsky 1995; Bobaljik 2002;

[1] Although it is interesting to note that there does not appear to be an instance of verb copying like (3c), in which verbs mark an intermediate position. I will leave open the question of whether this is a real gap and, if so, what is responsible for it.

[2] Or a DP with elision of the NP as in Elbourne's (2001) treatment of E-type pronouns.

Landau 2006).

McCloskey points out that putting these two ideas together might yield resumptive pronouns that act like gaps. In particular, suppose that partial deletion removes the NP part of a copy. The structure that results from this would be a pronoun, if pronouns represent the functional layer of the DP (5a–b).

(5) *Partial spell-out of a copy yields a pronoun:*

a. $[_{DP}$ the $]$ $\rightarrow$ *it*

b. $[_{DP}$ the ~~$[_{NP}$ book $]$~~$]$ $\rightarrow$ *it*

I call this the *partial spell-out* view of pronoun copying. I will propose that this mechanism lies behind all of the instances of pronoun copying discussed above. The advantage of this approach is that it allows us to maintain a uniform view of copies left by movement: both movement of verbs and of DPs leaves full copies, but partial deletion applies to a DP copy for independent reasons.

The idea that pronouns may sometimes realize a copy or a trace has a long history. A novel contribution of this paper, however, is to identify two types of effects in pronoun copying constructions that provide specific evidence for a partial deletion view, both evident in Dinka. First of all, I show that copied pronouns vary across languages in whether they display a *feature mismatch* when the antecedent is another pronoun. In Dinka, the copied pronoun is necessarily third person and only matches pronominals in number. As (6a–b) illustrate, 1st and 2nd person pronouns must be copied by the 3rd person plural pronoun instead of an identical pronoun.

(6) *Copied pronouns in Dinka only match in number:*

a. **Wɔ̂ɔk** cíi̤ Bôl **kêek/*wɔ̂ɔk** tî̤iŋ.
1PL PRF.OV Bol.GEN **3PL/1PL** see.NF
'Us, Bol has seen.'

b. **Wêek** cíi̤ Bôl **kêek/*wêek** tî̤iŋ.
2PL PRF.OV Bol.GEN **3PL/2PL** see.NF
'You all, Bol has seen.'

Facts similar to those in (6a–b) are found in resumptive constructions in Nupe (Kandybowicz 2007), and in subject doubling in Finnish and Tunisian Arabic (Holmberg and Nikanne 2008; Jlassi 2013). At the same time, in other pronoun copying constructions, the copied pronoun matches pronouns fully, both in person and in number features, such as in Yoruba or Seereer (Adesola 2010; Baier 2014), as well as in clitic doubling constructions. The examples in (7a–b) illustrate for Yoruba, in which subject extraction is accompanied by pronoun copying.

(7) *Yoruba resumptive subjects match in φ-features:*

a. **Èmi** ni $[_{CP}$ **mo** ra àpò].
1SG be **1SG** buy bag
'I was the one who bought a bag.'

b. **Eyin** ni $[_{CP}$ **e** ra àpò].
2PL be **2PL** buy bag
'You are the people who bought a bag.'
(Yoruba; Adesola 2010:82)

Languages vary then in whether copied pronouns match pronominal antecedents in number or in both person and number. Not only does this provide evidence that person and number may be encoded separately in the DP, I suggest that it is revealing of the mechanism behind pronoun copying. To be precise, I propose that we can understand this asymmetry if languages may vary with regards to whether person is introduced in the part of the DP copy that undergoes deletion. As a result, some languages delete person in pronoun copying, yielding pronouns that only match in number, and some do not, yielding fully matching pronoun copies instead.

In addition to this, evidence for partial spell-out comes from *gaps* in pronoun copying, or cases when some antecedents fail to trigger pronoun copying. In Dinka, only plural DPs trigger copying. Similarly, Van Craenenbroeck and Van Koppen (2002) observe that subject doubling in Brabant Dutch is only possible with pronouns (8a), and not with lexical DPs (8b).

(8) *Subject doubling only with pronominal subjects in Brabant Dutch:*

a. **Zij** komt **zij**.
she comes **she**
'She will come.'

b. ***Die vrau** komt **zij**.
that woman comes **she**
'That woman will come.'
(Brabant Dutch; Van Craenenbroeck and Van Koppen 2002:56)

I argue that gaps in pronoun copying arise when the structure deleted as a result of partial spell-out does not necessarily leave behind enough structure to create a pronoun. As a result, pronoun copying occurs only with a restricted set of antecedents. For Dinka, I show that this ultimately derives from a fundamental asymmetry in how singular and plural is treated.

The paper is organized as follows. Section 2 reviews previous work on cases of pronoun copying and argues that resumption, clitic doubling, subject doubling, and *wh*-copying all represent constructions in which pronouns realize more articulated DP copies. In section 3, I turn to the phenomenon of *ké*-copying in Dinka and show that this pattern comes about because an intermediate copy of successive-cyclic movement through *v*P is realized as a pronoun. Section 4 starts with the observation that pronoun copying in Dinka tolerates a person mismatch and goes on to show that this is a systematic point of variation across pronoun copying constructions. In section 5, I develop the partial spell-out view and demonstrate how it captures the key properties of Dinka pronoun copying. I generalize this model to all instances of pronoun copying, drawing on Landau's (2006) treatment of copy deletion, and present an account of both the person-number asymmetry as well as the presence of gaps in pronoun copying. Finally, I briefly discuss the issue of why no language appears to display multiple copy spell-out at the CP and *v*P edge simultaneously.

Aside from its possible consequences for the treatment of pronouns and pronoun copying constructions, this paper functions as an additional argument for successive-cyclic derivations and for the Copy Theory of Movement (Chomsky 1995 et seq.). Because it relies on the idea that movement involves copies with an articulated internal structure, the proposal I outline favors a movement with copies analysis over other ways of modeling long-distance dependencies, such as feature percolation (e.g. Gazdar 1981; Bouma, Malouf, and Sag 2001; Neeleman and Van de Koot 2010), or movement with traces (Chomsky 1981). My treatment of pronoun copying also provides

evidence that features like person and number are hosted on separate projections in the nominal domain and offers insight into how these are organized relative to each other.

2 Resumption and argument doubling as pronoun copying

I will start this paper by reviewing some previous work that has come to the conclusion that pronouns may sometimes mark positions in a movement chain and behave like copies left by movement. We will see evidence that some instances of resumption, as well as clitic doubling, subject doubling, and *wh*-copying represent spell-out of a copy as a pronoun (e.g. Zaenen et al. 1981; Engdahl 1985; Harizanov 2014; Sichel 2014). From these patterns, I conclude that pronouns may act as realizations of both the lowest and the highest copy of a chain. Spell-out of the lowest copy is instantiated by some cases of resumption, while spell-out of the highest copy is found in clitic doubling, some instances of subject doubling, and *wh*-copying.

2.1 Movement-derived instances of resumption

It is well-known that there are resumptive constructions that pattern like movement dependencies (e.g. Zaenen et al. 1981; Koopman 1982, 1984; Sells 1984; Engdahl 1985). McCloskey (2006) and Asudeh (2012), for example, explicitly recognize a distinction between two types of resumptive pronouns: ones whose syntactic behavior is essentially that of a bound pronoun and those whose syntactic distribution is that of a gap or trace.[3]

A classic example of a language with the first type of resumptive structure is Irish (McCloskey 1979, 1990, 2002, 2006). Irish resumption can be distinguished from movement, because it is insensitive to islands and fails movement diagnostics. The examples in (9a–c) demonstrate, for example, that Irish resumptive pronouns can occur inside islands. Resumptive pronouns can be used in a *wh*-island (9a), a relative clause island (9b), and an adjunct island (9c).

(9) *Resumptive pronouns in Irish are not sensitive to islands:*

a. **teach** nach n-aithneochthá [$_{CP}$ cá rabh **se**]
house NEG.C recognize.COND where was **it**
'a house that you wouldn't recognize where it was'

b. **seanchasóg** ar dócha go bhfuil [$_{DP}$ an táilliúir [$_{CP}$ a dhein **í**]] sa chré
old-jacket C probable C is the tailor C made **it** in-the earth
fadó
long-ago
'an old jacket that the tailor who made it has probably been in the grave for ages'

c. **Nérée Caron**, nach bhfuil ann ach tamall beag [$_{CP}$ ó bhí **sí** dóigheamhail
Nérée Caron NEG.C is in-it but time small since was **she** beautiful
feiceálach]
attractive
'Nérée Caron, who it is only a short time since she was beautiful and attractive'
(Irish; McCloskey 2006:99,100)

In addition, Irish resumption does not trigger Weak Crossover effects, unlike movement in the

[3] Asudeh refers to these as "syntactically active resumptives" and "syntactically inactive resumptives," respectively.

same environment (10a–b).

(10) *Irish resumption does not show WCO:*

a. ***an fear$_i$** a d'fhág a$_i$ bhean ___
the man C left his wife
'the man$_i$ that his$_i$ wife left'

b. **an fear$_i$** ar fhág a$_i$ bhean **é**
the man C left his wife **him**
'the man$_i$ that his$_i$ wife left'
(Irish; McCloskey 1990:236,237)

However, not all resumptive pronouns can be sharply distinguished from movement in this way. Koopman (1982, 1984) observes that resumptive pronouns in Vata act like gaps. In Vata, movement of subjects must be accompanied by a resumptive in subject position, both when the local subject is extracted (11a–b), and with movement of an embedded subject (11c–d).

(11) *Vata subject extraction requires resumptive pronoun:*

a. **àlɔ́ ɔ̀** lē sàká là?
who he eat rice WH
'Who is eating rice?'

b. ***àlɔ́** ___ lē sàká là?
who eat rice WH
'Who is eating rice?'

c. **àlɔ́** ǹ gùgù [$_{CP}$ nā **ɔ̀** yì] là?
who you think that **he** arrive WH
'Who do you think arrived?'

d. ***àlɔ́** ǹ gùgù [$_{CP}$ nā ___ yì] là?
who you think that arrive WH
'Who do you think arrived?'
(Vata; Koopman 1982:128)

Unlike in Irish, resumption in Vata obeys islands. A Vata resumptive pronoun cannot be found in a Complex NP island (12a) or a *wh*-island (12b), for example.

(12) *Vata resumptives are island-sensitive:*

a. ***àlɔ́** ǹ ni [$_{DP}$ zɛ̄ mɛ̄mɛ̄ gbʊ̀ **ɔ̀** dɪ̀-bɔ̀ mɛ́] yì là?
who you NEG-A reason it-it for **he** cut-REL it know WH
'Who don't you know why he cut it?'

b. ***àlɔ́** ǹ nylà nyni [$_{CP}$ nā **ɔ̀** dɪ mɛ́] là?
who you wonder that **he** cut it WH
'Who do you wonder whether he cut it?'
(Vata; Koopman and Sportiche 1986:369,370)

Vata resumptives also show Weak Crossover effects, so that a pronoun contained in the matrix subject in (13) cannot be bound by the resumed *wh*-phrase.

(13) *Vata resumption shows WCO:*

*__àlɔ́__$_{i}$ ɔ$_{i}$ nɔ́ gùgù [$_{CP}$ nā __ɔ̀__ mlì] là?
who his mother think that **he** left WH
'Who did his mother think left?'
(Vata; Koopman and Sportiche 1982:143)

Similar facts have been noted for Swedish (Zaenen et al. 1981; Engdahl 1982, 1985). In Swedish, a resumptive pronoun is employed to rescue certain *that*-trace violations, as Engdahl (1982, 1985) shows. The example in (14) demonstrates.

(14) *Resumption in Swedish:*
Vilket ord visste ingen [$_{CP}$ hur **det** stavas]?
which word knew no.one how **it** is.spelled
'Which word did no one know how it is spelled?'
(Swedish; Engdahl 1985:8)

As in Vata, these resumptives pattern like gaps. We can see this in a number of ways. First of all, resumption in Swedish is island-sensitive and cannot cross a relative clause island (15a). In addition, resumption is able to license parasitic gaps (15b). Finally, Swedish ATB extraction may involve a TP with a resumptive pronoun in it coordinated with a TP containing a gap (15c), suggesting the two are alike.

(15) *Swedish resumptives pattern like gaps:*
a. *__Vilken bil__ åt du lunch med [$_{DP}$ någon [$_{CP}$ som körde **den**]]?
which car ate you lunch with someone that drove **it**
'Which car did you have lunch with someone who drove it?'
b. Det var **den fången** som läkarna inte kunde avgöra [$_{CP}$ om **han** verkligen var
this is **the prisoner** that the-doctors not could decide if **he** really was
sjuk] [$_{CP}$ utan att tala med ___ personligen].
ill without to talk with in person
'This is the prisoner that the doctors couldn't determine if he was ill without talking to ___ in person.'
c. Det finns **vissa ord** som [$_{TP}$ jag ofta träffar på ___] men [$_{TP}$ inte minns
there are **certain words** that I often meet but not remember
hur **de** stavas]
how **they** are-spelled
'There are certain words that I often come across but never remember how they are spelled.'
(Swedish; Engdahl 1985:7,8,10)

On the basis of these facts, a number of authors, including Koopman (1982, 1984), Zaenen et al. (1981), and Engdahl (1982, 1985), conclude that a resumptive pronoun may sometimes have the status of a phonetically realized trace.

Another reason why some instances of resumption have been analyzed as movement is that resumptive pronouns may show reconstruction effects. Work by Aoun et al. (2001) and Sichel (2014) on resumptive pronouns in Lebanese Arabic and Hebrew uses such facts to argue for a movement derivation of resumption. Aoun et al. (2001) are concerned with resumption of weak

pronouns in Lebanese Arabic. At first glance, these resumptive pronouns seem to pattern like the Irish ones. They can occur inside a variety of islands, including adjunct islands (16a), *wh*-islands (16b), and Complex NP islands (16c).

(16) *Lebanese Arabic resumptive weak pronouns are island-insensitive:*

a. **kəll muttahame** tfeeʒaʔto [$_{CP}$ lamma ħabasuw-**a**]
each suspect surprised.2PL when imprisoned.3PL-**her**
'Each suspect, you were surprised when they imprisoned her.'

b. **kəll muttahame** badkun taʕrfo [$_{CP}$ miin ħabas-**a**]
each suspect want.2PL know.2PL who imprisoned.3SM-**her**
'Each suspect, you want to know who imprisoned her.'

c. **kəll muttahame** btaʕfo [$_{DP}$ l-muħaame [$_{CP}$ yalli raħ ydeefiʕ ʕann-**a**]]
each suspect know.2PL the-attorney that FUT defend.3SM of-**her**
'Each suspect, you know the attorney that will defend her.'
(Lebanese Arabic; Aoun et al. 2001:390,391)

However, Aoun et al. point out that these resumptive pronouns may nonetheless show the hallmarks of movement. In particular, resumption in Lebanese Arabic allows reconstruction for variable binding. In the examples in (17a–b), the antecedent DP *təlmiiz-a l-kəs-leen* ('her bad student') contains a pronoun which may be bound by a quantificational DP that only c-commands the resumptive pronoun.

(17) *Lebanese Arabic resumptives reconstruct for variable binding:*

a. **təlmiiz-a$_i$ l-kəs-leen** ma baddna nχabbir [$_{DP}$ wala mʕallme$_i$] [$_{CP}$ ʔənno
student-her the-bad NEG want.1PL tell.1PL no teacher that
l-mudiira ʃaħaṭət-**o** mn l-madrase]
the-principal.SF expelled.3SF-**him** from the-school
'Her$_i$ bad student, we don't want to tell any teacher$_i$ that the principal expelled him from school.'

b. **təlmiiz-a$_i$ l-kəs-leen** ma baddna nχabbir [$_{DP}$ wala mʕallme$_i$] [$_{CP}$ ʔənno
student-her the-bad NEG want.1PL tell.1PL no teacher that
l-mudiir baddo yʔeebl-**o** baʕd l-frṣa]
the-principal.SF want.3SM meet.3SM-**him** after the break
'Her$_i$ bad student, we don't want to tell any teacher$_i$ that the principal wants to meet him after the break.'
(Lebanese Arabic; Aoun et al. 2001:392)

These facts are surprising if the resumptive pronoun is just a pronoun, but we can make sense of them if the pronoun spells out a lower copy, containing the bound pronoun also. That these reconstruction effects are indeed achieved by movement is supported by the observation that reconstruction becomes impossible when the resumptive pronoun is located inside of an island, as the examples in (18a–b) illustrate for a *wh*-island and an adjunct island, respectively.

(18) *Lebanese Arabic resumptives do not reconstruct into islands:*

a. ***təlmiiz-a$_i$ l-kəs-leen** ma badda taʕrif [$_{DP}$ wala mʕallme$_i$] [$_{CP}$ lee
student-her the-bad NEG want.3SF know.3SF no teacher why

l-mudiira ʃaħaṭət-**o** mn l-madrase]
the-principal expelled.3SF-**him** from the-school
'Her$_i$ bad student, no teacher$_i$ wants to know why the principal expelled him from school.'

b. *__təlmiiz-a$_i$__ **l-kəs-leen** ma zəʕlit [$_{DP}$ wala mʕallme$_i$] [$_{CP}$ laʔanno
student-her the-bad NEG upset.3SF no teacher because
l-mudiira ʃaħaṭət-**o** mn l-madrase
the-principal expelled.3SF-**him** from the-school
'Her$_i$ bad student, no teacher$_i$ was upset because the principal expelled him from school.'
(Lebanese Arabic; Aoun et al. 2001:393)

McCloskey (2006) and Asudeh (2012) note that this pattern suggests that Lebanese Arabic allows both types of resumption discussed above. In this view, reconstruction effects are obtained by a movement derivation in which the resumptive pronoun spells out a lower copy of the antecedent DP. Island-insensitivity instead comes from a base-generated structure in which the resumptive is a true pronoun, bound from outside the island by the antecedent DP.

Similar conclusions are argued for in Sichel's (2014) discussion of resumptive pronouns in Hebrew. Sichel observes that obligatory resumptive pronouns in Hebrew allow reconstruction for a variety of effects, including anaphor binding (19a), idiom interpretation (19b), and variable binding (19c).[4]

(19) *Reconstruction of obligatory resumptives in Hebrew:*

a. **ha-šmu'a al acmo$_i$** [$_{CP}$ še-dani$_i$ xašaš mimen**a**] hufca al yedey rani.
the-rumor about himself C-dani feared from.**it** was.spread by Rani
'The rumour about himself$_i$ that Dani$_i$ feared was spread by Rani.'

b. **ha-ec** [$_{CP}$ še-hu tipes al**av**]
the-tree that-he climbed on.**it**
'the high position that he took'

c. **ha-šmu'a al acmo$_i$** [$_{CP}$ še-[$_{DP}$ kol more$_i$] xašaš mimen**a**] hufca
the-rumor about himself that- every teacher feared of.**it** was.spread
al yedey ha-axot.
by the-nurse
'The rumor about himself$_i$ that every teacher$_i$ feared was spread by the nurse.'
(Hebrew; Sichel 2014:661)

As Sichel argues, this provides evidence that some resumptive pronouns in fact mask the presence of a more articulated copy of the antecedent DP.

I conclude then that there is a type of movement-derived resumption that has the structure in (20). What resumption teaches us then is pronouns may under certain conditions realize the lowest copy in an Ā-movement chain (Zaenen et al. 1981; Koopman 1982, 1984; Engdahl 1982, 1985; Sells 1984; McCloskey 2006; Sichel 2014; see also Salzmann 2006 and Georgi and Salzmann

[4]Much of the discussion in Sichel 2014 centers on the observation that *optional* resumptive pronouns show a different pattern of behavior: they do not tolerate reconstruction. See Sichel 2014 for reasons why competition between derivations may yield this result.

2016 on Swiss German and Kandybowicz 2007 on Nupe).

(20) *Representation of movement-derived resumption:*
[… *the book* … (<~~*the book*~~>) … ***it*** …]

One question that arises is what precisely drives multiple copy spell-out in the various constructions discussed here. It seems clear that various factors are at play. In Vata and Swedish, as well as Nupe or Yoruba, resumptive pronouns are inserted to remedy *that*-trace violations. In Swiss German, Salzmann (2006; see also Georgi and Salzmann 2016) shows that resumptives serve to realize oblique case morphology. The need to express case has also been held response for movement-like resumption in Slavic (e.g. Pesetsky 1998; Gračanin-Yuksek 2010; Hladnik 2015). In Hebrew, movement-derived resumptives are also clitics (Sichel 2014:665), suggesting that multiple copy spell-out may be driven by the need of some functional heads to host a clitic. What they all have in common is the repair: spelling out a copy as a pronoun.

2.2 Clitic doubling, subject doubling, and wh-copying

In this section, I discuss a variety of constructions in which a pronoun acts like a copy of a DP it c-commands. I first examine clitic doubling, which a number of authors have shown behaves like an A-movement chain (e.g. Anagnostopoulou 2003; Harizanov 2014). I also discuss patterns of subject doubling in Finnish (Holmberg and Nikanne 2008), which I compare to subject doubling in dialects of Dutch (e.g. Van Craenenbroeck and Van Koppen 2002; Holmberg and Nikanne 2008). Finally, I examine *wh*-copying, which has also been claimed to instantiate this configuration (e.g. Fanselow and Mahajan 2000; Fanselow and Ćavar 2001; Felser 2004; Bruening 2006).

In work on clitic doubling in Greek, Alexiadou and Anagnostopoulou (1997, 2000) show that clitic doubling has an effect on binding relations that is unexpected if clitics are just pronouns. A systematic property of clitic doubling, for example, is that it alleviates Weak Crossover. In Greek, as in many languages, subjects can bind into objects, but objects cannot bind into a subject (21a–b).

(21) *Greek objects cannot bind into subjects:*

a. [$_{DP}$ **Kathe mitera$_i$**] sinodhepse [$_{DP}$ to pehdi **tis$_i$**].
every mother accompanied the child **hers**
'Every mother$_i$ accompanied her$_i$ child.'

b. *[$_{DP}$ I mitera **tu$_i$**] sinodhepse [$_{DP}$ **to kathe pedhi$_i$**].
the mother **his** accompanied **the every child**
'His$_i$ mother accompanied every child$_i$.'
(Greek; Anagnostopoulou 2003:207)

However, Alexiadou and Anagnostopoulou observe that clitic doubling of the object allows the object to bind into the subject. When an accusative clitic doubles the object (otherwise an optional operation), both binding configurations in (21a–b) are permitted (22a–b).

(22) *Clitic doubling allows an object to bind into a subject:*

a. [$_{DP}$ Kathe mitera$_i$] **to** sinodhepse [$_{DP}$ to pehdi tis$_i$].
every mother **3MS.ACC** accompanied the child hers
'Every mother$_i$ accompanied her$_i$ child.'

b. [$_{DP}$ I mitera tu$_i$] **to** sinodhepse [$_{DP}$ to kathe pedhi$_i$].
the mother his **3MS.ACC** accompanied the every child
'His$_i$ mother accompanied every child$_i$.'
(Greek; Anagnostopoulou 2003:207)

As Alexiadou and Anagnostopoulou point out, we can make sense of these facts if doubling clitics act as full copies of their associate. If subjects are first merged in a position below the position targeted by the clitic, then the c-command relation between the clitic position and the base position of the subject is sufficient for a binding relation to be possible. If a clitic is just a pronoun, it is not so clear why it should extend the binding domain of its associate.

Harizanov (2014) documents similar data in Bulgarian and also argues that clitic doubling results from A-movement with conversion of the top copy to a clitic. In Bulgarian, both accusative and dative objects may be clitic-doubled (23a–b).

(23) *Bulgarian allows clitic doubling of direct and indirect objects:*

a. Decata **ja** običat **neja**.
the.kids **3FS.ACC** love **her**
'The kids love her.'

b. Marija **mu** izprati pismo **na rabotnika**.
Maria **3MS.DAT** sent letter **to the.worker**
'Maria sent a letter to the worker.'
(Bulgarian; Harizanov 2014:1036)

Harizanov demonstrates that Bulgarian doubling clitics, as in Greek, act like full copies of the associate they double. Bulgarian ditransitives permit both a ACC-DAT and a DAT-ACC order (24a–b). In both orders, the first object can bind into the second one (24a–b), but the second object cannot bind into the first one (24c–d).

(24) *First object of a ditransitive can bind into second one:*

a. Petăr vărna **vsjaka kola$_i$** [$_{PP}$ na sobstvenika **i$_i$**] včera.
Peter returned **every car** to the.owner **its** yesterday
'Peter returned every car to its owner yesterday.'

b. Ivan izprati **na vsjaka žena$_i$** [$_{DP}$ **nejnija$_i$** ček] včera.
Ivan sent **to every woman her** check yesterday
'Ivan sent every woman her check yesterday.'

c. *Petăr vărna [$_{PP}$ na sobstvenika **i$_i$**] **vsjaka kola$_i$** včera.
Peter returned to the.owner **its every car** yesterday
'Peter returned every car$_i$ to its$_i$ owner yesterday.'

d. *Ivan izprati [$_{DP}$ **nejnija$_i$** ček] **na vsjaka žena$_i$** včera.
Ivan sent **her** check **to every woman** yesterday
'Ivan sent every woman her check yesterday.'
(Bulgarian; Harizanov 2014:1054)

As Harizanov observes, however, clitic doubling of the lower object allows it to bind into the higher one. In (25a), clitic doubling of the direct object allows it to bind into the indirect object (compare 24c). In (25b), clitic doubling of the indirect object lets it bind a pronoun in the direct

object (compare 24d).

(25) *Variable binding is possible from the clitic site in Bulgarian:*

a. Petăr **ja** vărna [$_{PP}$ na sobstvenika i_i] vsjaka kola$_i$ včera.
Peter **3FS.ACC** returned to the.owner its every car yesterday
'Peter returned every car$_i$ to its$_i$ owner yesterday.'

b. Ivan **i** izprati [$_{DP}$ nejnija$_i$ ček] na vsjaka žena$_i$ včera.
Ivan **3FS.DAT** sent her check to every woman yesterday
'Ivan sent every woman$_i$ her check$_i$ yesterday.'
(Bulgarian; Harizanov 2014:1055)

This suggests that the doubled clitic is actually a full copy of the associate in an A-movement chain, because then the quantifiers in (25a–b) simply c-command the higher object from the position of the clitic.[5]

Cuervo (2003) describes a similar constellation of facts in Spanish. In Spanish ditransitives, the dative indirect object always follows the accusative direct object. In addition, the indirect object may optionally be clitic-doubled. Only when it is clitic-doubled may the dative bind into the accusative (26a–b).[6]

(26) *Variable binding is possible from the clitic site in Spanish:*

a. *Valeria presentó [$_{DP}$ **su$_i$** respectivo paciente] **a cada cirujano$_i$**.
Valeria introduced **his** respective patient **to each surgeon**
'Valeria introduced his$_i$ respective patient to each surgeon$_i$.'

b. ?Valeria **le** presentó [$_{DP}$ su$_i$ respectivo paciente] a cada cirujano$_i$.
Valeria **3MS.DAT** introduced his respective patient to each surgeon
'Valeria introduced his$_i$ respective patient to each surgeon$_i$.'
(Spanish; Cuervo 2003:131)

See Cuervo 2003 for similar contrasts relating to other c-command diagnostics, such as anaphor binding and scope.[7]

On the basis of these facts, I adopt the view that clitic doubling is A-movement with spell-out of the highest copy as a clitic (Anagnostopoulou 2003; Harizanov 2014; *cf.* Sportiche 1996). In Harizanov's proposal, this is achieved by the obligatory application of morphological merger (Marantz 1988), which converts the label of a full copy into a clitic. I will develop a different approach to pronoun copying, based on the asymmetries and gaps I discuss in section 4, but my account will preserve the intuition that, in constructions like clitic doubling, it is the desire of a functional head to merge with a clitic that drives clitic doubling.

Pronominal spell-out of the highest copy is not limited to clitics. Another construction that can

[5]See Harizanov 2014 for additional arguments that the relation between the clitic and the associate is one of A-movement.

[6]Cuervo (2003) analyzes this as a dative alternation, in which the clitic is the spell-out of an agreeing Appl head. A disadvantage of this account, however, is that it has to posit an obligatory leftward movement step for the direct object in examples like (26b), which necessarily reconstructs. It is not clear what would motivate this.

[7]Cuervo's main reason for analyzing (26a–b) as a dative alternation is that clitic doubling of the dative makes binding from the accusative into the dative degraded. See Harizanov 2014 for discussion of similar facts in Bulgarian and how an A-movement account of clitic doubling handles these contrasts.

involve this configuration is subject doubling. In a number of languages, subjects may be doubled by a pronoun, with a variety of information-structural consequences (e.g. Van Craenenbroeck and Van Koppen 2002; Poletto 2008; Vangsnes 2008; see Barbiers 2008:10–11). In colloquial Finnish (Holmberg and Nikanne 2008), subject doubling involves a clause-initial pronoun and a low subject, as in the examples in (27a–b).

(27) *Initial pronoun may double subject in Finnish:*

a. **Se** on **Jari** lopettanut tupakoinnin.
3SG has **Jari** quit smoking
'Jari has quit smoking.'

b. **Ne** sai **kaikki lapset** samat oireet.
3PL got **all** **children** same symptoms
'All the children got the same symptoms.'

c. **Me** ollaan **me-kin** lopettanut tupakoinnin.
1PL are-1PL **1PL-too** quit smoking
'We have quit smoking, too.'
(Finnish; Holmberg and Nikanne 2008:326)

Holmberg and Nikanne note that this doubling "is typically used to express an all-new sentence about a familiar subject" (325). The doubled pronoun occupies a left-peripheral position that must otherwise be occupied by an overt XP in Finnish (Holmberg and Nikanne 2002, 2008). In other words, the pronoun has exactly the distribution of other phrasal constituents in Finnish and so is not a doubling clitic.[8]

It is harder to use diagnostics from binding or reconstruction to argue that these constructions too involve spell-out of a full copy.[9] However, the fact that these pronouns are phrasal and do not trigger Principle C effects is already an indication that these are not ordinary pronouns. In addition, Holmberg and Nikanne show that doubling pronouns have access to the features of the lower subject. Finnish has a number of quirky cases for subjects, including the adessive and the genitive. When a doubling pronoun is used with such a subject, it may match it in case (28a–b).

(28) *Finnish subject doubling shows case matching:*

a. **Niilä** on **kaikilla lapsilla** samat oireet.
3PL.ADE has **all-ADE** **children-ADE** same symptoms
'All the children have the same symptoms.'

b. **Se-n** pitäisi **Marja-n** lopettaa tupakointi.
3SG-GEN should **Marja-GEN** quit smoking
'Marja should quit smoking.'
(Holmberg and Nikanne 2008:330)

This makes sense if the pronoun is the realization of a copy of the subject, because then it would

[8] For example, Holmberg and Nikanne (2002) show that Finnish has two left-peripheral phrasal positions, Spec-FP and Spec-CP. Spec-FP is always occupied, either by the subject, an expletive, a doubling pronoun, or a topicalized constituent. The constituent in Spec-FP may be preceded by an XP in Spec-CP, such as a *wh*-phrase. Doubling pronouns obey these generalizations exactly. In fact, Finnish even allows subject trebling, in which a doubling pronoun also appears in Spec-CP (but this is precisely impossible if another XP appears in Spec-CP).

[9] Although we might expect to find a similar facilitation effect for variable binding into intervening adverbials.

have access to the same Case features that the subject does. Following Holmberg and Nikanne, I take these constructions to involve pronominal spell-out of a copy, like clitic doubling, but targeting a subject occupying multiple subject positions.[10]

A third construction that may involve top copy spell-out as a pronoun is *wh*-copying. It is well-known that, in a number of languages, *wh*-movement can be accompanied by *wh*-copying, so that a copy of the *wh*-phrase appears in all Spec-CP positions on the path of movement. Such constructions are found in German, Frisian, and Passamaquoddy, for example (29a–b).

(29) *Examples of wh-copying:*

a. **Wen** glaubst du [$_{CP}$ **wen** sie getroffen hat]?
who believe you **who** she met has
'Who do you believe she has met?'
(German; Felser 2004)

b. **Wêr** tinke jo [$_{CP}$ **wêr**'t Jan wennet]?
where think you **where**-C Jan lives
'Where do you think that Jan lives?'
(Frisian; Hiemstra 1986:99)

c. **Tayuwe** kt-itom-ups [$_{CP}$ **tayuwe** apc kt-ol-i malsanikuwam-ok]?
when 2-say-DUB **when** again 2-thus-go store-LOC
'When did you say you're going to go to the store?'
(Passamaquoddy; Bruening 2006:26)

Following Fanselow and Mahajan (2000), Fanselow and Ćavar (2001), Felser (2004), and Bruening (2006), I take such constructions to be derived by long-distance *wh*-movement, with pronunciation of multiple copies.[11,12] In accordance with this, the *wh*-phrases typically match in form, as shown for German in (30a–b) and Passamaquoddy in (30c–d).

(30) *Copied wh-phrases match:*

a. **Warum** glaubst du [$_{CP}$ **warum** sie das getan hat]?
why believe you **why** she that done has
'Why do you believe she has done this?'

b. **Wovon** glaubst du [$_{CP}$ **wovon** sie träumt]?
of.what believe you **of.what** she dreams
'What do you believe that she dreams of?'

c. %**An wen** glaubst du [$_{CP}$ **an wen** sie denkt]?
of whom believe you **of whom** she thinks
'Who do you believe that she thinks of?'

[10]This pattern is only found with subjects, although a variety of elements can move to clause-initial positions (Holmberg and Nikanne 2002). This is presumably because both the clause-initial position and the lower subject position are positions that must be overtly occupied. As a result, multiple copy spell-out is only necessary when the subject is in both positions.

[11]As Felser (2004) and Bruening (2006) show, *wh*-copying of the kind discussed here should be distinguished from what is sometimes called *partial wh-copying*. Partial *wh*-copying typically involves an invariant *wh*-word in the matrix phrase, like *was* ('what') in German and *keq* ('what') in Passamaquoddy. Following these authors, I take partial *wh*-copying to reflect an indirect dependency, as in Dayal 1994.

[12]Though see Murphy (2016) for some recent critical discussion of a treatment of *wh*-copying as movement.

(German; Felser 2004)

d. **Wen** Mali wewitaham-a-c-il [$_{CP}$ **wen** kisi-niskam-uk]?
who Mary (3)-remember-DIR-3CONJ-POBV **who** PERF-dance.with-1CONJ
'Who does Mary remember that I danced with?'

e. **Wen-il** Mali wewitaham-a-c-il [$_{CP}$ **wen-il**
who-OBV Mary (3)-remember-DIR-3CONJ-POBV **who-OBV**
kisi-niskam-uk]?
PERF-dance.with-1CONJ
'Who does Mary remember I danced with?'
(Passamaquoddy; Bruening 2006:36,38)

The most productive *wh*-copying pattern involves only pronominal *wh*-phrases, though sometimes copying of a preposition is tolerated (30c) (Fanselow and Ćavar 2001; Felser 2004). This restriction will become important later on, in the discussion of gaps in pronoun copying. As a result of this, however, the data shown so far is ambiguous as to which copy is the result of multiple copy spell-out. We can find cases in which one of the the *wh*-phrases can be complex, though there is some disagreement about which copy can be the complex one. All authors agree that it is not admissible for both *wh*-phrases to be complex (31a–b).

(31) *Both wh-phrases cannot be complex:*

a. ***Wessen Studenten** denkst du [$_{CP}$ **wessen Studenten** wir kennen]?
whose students think you **whose students** we know
'Whose students do you think that we know?'

b. ***Wieviel Studenten** denkst du [$_{CP}$ **wieviel Studenten** wir kennen]?
how.many students think you **how.many students** we know
'How many students do you think that we know?'
(German; Fanselow and Ćavar 2001)

Fanselow and Ćavar (2001) offer several examples in which the lower *wh*-phrase is complex (32a–b), and Bruening (2006) suggests that the same is possible in Passamaquoddy.

(32) *Lower wh-phrase may be complex:*

a. **Wen** denkst du [$_{CP}$ **wen von den Studenten** man einladen sollte]?
who think you **who of the students** one invite should
'Which of the students do you think that one should invite?'

b. **Wieviel** sagst du [$_{CP}$ **wieviel Schweine** ihr habt]?
how.many say you **how.many pigs** you have
'How many pigs do you say that you have?'
(German; Fanselow and Ćavar 2001)

If this is the correct description, then *wh*-copying can also be thought of as the realization of a higher copy in a movement dependency as a pronoun, in this case as a *wh*-pronominal. Pankau (2013) argues instead, however, that it is actually only the higher *wh*-phrase that may be complex (I will discuss some examples like this shortly) and suggests that German examples like (32a–b) involve subextraction out of a scrambled DP in the lower clause.[13] However, Koster (2009)

[13] In other words, an example like (32b) would have a structure like [$_{CP}$ ***wieviel***$_{\mathbf{i}}$ … [$_{CP}$ ***wieviel***$_{\mathbf{i}}$ … [$_{DP}$ $t_{\mathbf{i}}$ *Schweine*]

and Boef (2013) cite similar examples for *wh*-copying speakers of Dutch, which does not allow scrambling over the subject of the revelant type (33).

(33) *Complex lower wh-phrase in Dutch wh-copying:*

a. **Hóéveel** zeg je [$_{CP}$ **hoeveel** **varkens** je gezien hebt]?
how.many say you **how.many pigs** you seen have
'How many pigs are you saying that you have seen?'
(Dutch; Koster 2009:11)

b. **Wie** denk je [$_{CP}$ **welke man** ik gisteren gezien heb]?
who think you **which man** I yesterday seen have
'Which man do you think I saw yesterday?'
(Dutch; Boef 2013:34)

It seems likely then that at least some instances of *wh*-copying do involve a higher *wh*-pronominal doubling a lower complex *wh*-phrase. I will assume from now on that this is true at least for some *wh*-copying cases, but that there is speaker variation in this regard, though it is worth noting that nothing hinges on this for the purposes of the overall conclusions defended here.

In this section so far, I have discussed three different constructions, clitic doubling, subject doubling, and *wh*-copying, that can all be thought of instances of movement in which the highest copy is spelled out as a pronoun. Schematically, the movement chains discussed here all have the representation in (34).

(34) *Representation of clitic doubling, subject doubling, and wh-copying:*
[… ***it*** … (<~~*the book*~~>) … *the book* …]

All of these constructions involve a pronoun spelling out a higher copy, sometimes with deleted intermediate copies (this is plausibly the case in *wh*-copying, if we assume intermediate copies at the *v*P edge). As in the previous section, various factors appear to be responsible for multiple copy spell-out. In instances of clitic doubling, a copy is realized as a pronoun in order for a functional head to host a clitic. In subject doubling, what appears to be responsible for multiple copy spell-out is the requirement that some functional heads have an overt specifier. Doubling pronouns in Finnish, for instance, occupy a position that must generally contain an overt XP. Similar pressure may be at work in *wh*-copying, though an alternative could be to think of *wh*-copying as reflecting a need to realize *wh*-morphology in intermediate C positions.

I have argued so far that pronouns may realize both the top and the bottom copy in a movement chain. We might wonder at this point to what extent these options are symmetrical. Although it should be clear that A- and Ā-movement chains can both involve pronoun copying (for example, clitic doubling and resumption), not all possible configurations of pronoun copying are attested. For instance, there is no true counterpart to movement-derived resumption that looks like (34) (in which the full DP appears in the base position and the pronoun in the highest position). Similarly, we could wonder whether there is a variant of clitic doubling in which the lowest copy is the clitic.[14] On the other hand, some of the other copying configurations I describe here do display symmetry. Anyadi and Tamrazian (1993) observe, for instance, that there are speakers of German

…]].

[14]Clitic doubling of subjects potentially represent this configuration (for example, subject clitics in Fiorentino and Trentino, as in Brandi and Cordin (1989), though I do not know of an analogous case with objects.

who, in *wh*-copying constructions, allow for the higher *wh*-phrase to be the complex one (35a–b).

(35) *Some German speakers allow for highest wh-phrase to be complex:*

a. **Welchem Mann** glaubst du [$_{CP}$ **wem** sie das Buch gegeben hat]?
which.DAT man believe you **who.DAT** she the book given has
'Which man do you think that she has given the book to?'

b. **Mit welchem Werkzeug** glaubst du [$_{CP}$ **womit** Ede das Auto repariert hat]?
with which.DAT tool think you **what-with** Ede the car repaired has
'With which tool do you think that Ede has repaired the car?'
(German; Anyadi and Tamrazian 1993:4)

A wide range of such examples are found in Pankau 2013 as well, who claims that these configurations are productive for a range of speakers.

We can also find subject doubling languages in which the doubling pronoun occupies the lower subject position. Van Craenenbroeck and Van Koppen (2002) describe such a pattern in Wambeek Dutch. In Wambeek Dutch, a subject topic is accompanied by a doubling pronoun in a lower subject position, as the examples in (36a–b) attest.[15] This pattern is restricted to matrix clauses in which no other XP appears in Spec-CP.

(36) *Subject doubling in Wambeek Dutch:*

a. **Dei vrou** gui **zij** nuir ojsh.
that woman go **she** to home
'That woman is going home.'

b. **Alle manne** meege **zaailn** ie binn.
all men may **they** here inside
'All men come in.'
(Wambeek Dutch; Van Craenenbroeck and Van Koppen 2002:56,64)

We can view this as the mirror image of the Finnish facts described by Holmberg and Nikanne (2008). In both cases, there are two subject positions (Spec-TP and a higher Spec position) and, in one, the DP is realized as a pronoun.

The symmetry evident in these constructions as well as the wide range of examples in which a pronoun appears to act as a copy of a lexical DP suggests that pronoun copying should not be viewed as marginal or restricted to a particular syntactic context. Rather, the picture that emerges is one in which spelling out a copy as a pronoun is a legitimate option in many languages to solve syntactic problems created by the need for a head to attract a clitic or to have an overt specifier or the need to realize specific morphology. In accordance with this, any complete theory of phrasal movement and how it treats copies should be able to accommodate these patterns.

In the next section, I present more evidence for the view that pronouns may realize DP copies, drawn from a novel pattern of pronoun copying in Dinka. We will see that, like the German facts in (35a–b), the Dinka pattern involves pronominal spell-out of *intermediate* copies, rather than the highest or lowest copy. This will provide further support for my claim that pronouns

[15] See also Jlassi 2013 for a pattern of subject doubling in Tunisian Arabic.

may in principle realize any of the copies that make up a movement chain, and that all types of phrasal movement are established by the same mechanisms. In addition, the discussion of Dinka will highlight two important properties of pronoun copying constructions: the existence of mismatches, in which the pronoun does not fully match the full copy, and of gaps, in which a subset of antecedents fails to trigger copying. I will later argue that these properties of pronoun copying provide crucial evidence for a partial spell-out proposal.

3 Pronoun copying in Dinka

This section argues that pronouns may also realize copies in intermediate positions, based on a pronoun copying pattern at the edge of the Dinka verb phrase. In Dinka, long-distance movement of a plural noun phrase is always accompanied by the appearance of the 3rd person plural pronoun *ké(ek)* at the edge of each verb phrase on the path of movement, a process I refer to as ***ké-copying***. In this section, I discuss the properties of this phenomenon and present evidence that it results from the spell-out of an intermediate copy. Not only does this effect provide additional evidence for the claim that copies may be realized as pronouns, it provides evidence for the idea that successive-cyclic movement stops off at every *v*P edge (Chomsky 1986 et seq.), as also noted by Van Urk and Richards (2015).

3.1 Ké-copying

This section introduces the phenomenon of *ké*-copying in Dinka. As described also in Van Urk and Richards (2015), movement of a plural DP in triggers the appearance of the 3rd person plural pronoun *ké(ek)* at the edge of each *v*P on the path of movement. This happens with all instances of long-distance movement, regardless of whether it is topicalization, as in (37a), or relativization, as in (37b) or the *wh*-cleft in (37c).[16]

(37) *Movement of plural nominal triggers pronoun copying:*

a. **Kêek** áa-cɟ̈i Áyèn [$_{vP}$ **ké** tɟ̈iŋ].
3PL 3P-PRF.OV Ayen.GEN **3PL** see.NF
'Them, Ayen has seen.'

b. Bòl à-cɛ̈ **rɔ̀ɔ̈ɔ̈ɔ̈r** [$_{CP}$ cɛ̀ [$_{vP}$ **ké** lâat]] tɟ̈iŋ.
Bol 3S-PRF **men** PRF.3SG **3PL** insult.NF see.NF
'Bol has seen the men he has insulted.'

c. Yè **kɔ̂ɔc-kɔ̀** [$_{CP}$ cɟ̈i Bôl [$_{vP}$ **ké** tɟ̈iŋ]]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

Note that long-distance movement is generally limited to DPs in Dinka. Much like in Austronesian languages, movement triggers changes in case relations and is tracked by a voice system. For extensive discussion, see [omitted] (2015).

The copied plural pronoun appears just before the Dinka verb cluster (i.e. before *tɟ̈iŋ* and *lâat* in (37a–c)). The verb cluster is where verbs and auxiliaries appear when they are not the highest such element in the clause (the perfect auxiliary *cɛ̀/cɟ̈i* in (37a–c)). The position before the verb cluster is identified as Spec-*v*P in Van Urk and Richards (2015) and [omitted] (2015) because one

[16] See [omitted] (2015)for a description of the various types of long-distance movement in Dinka.

object in each clause moves to occupy it (creating a V2 effect of sorts). This is also where the copied pronoun *ké(ek)* appears.

This pronoun copying effect displays a number asymmetry, because it is strictly limited to plural nominals. Movement of a singular DP is not accompanied by a copied pronoun in the same position (38a). In fact, adding a singular pronoun at the *v*P edge just leads to ungrammaticality (38b).[17]

(38) *No pronoun copying with movement of a singular noun:*

a. Yè **ŋà** [$_{CP}$ cíi Bôl [$_{vP}$ tîiŋ]]?
be **who** PRF.OV Bol.GEN see.NF
'Who has Bol seen?'

b. *Yè **ŋà** [$_{CP}$ cíi Bôl [$_{vP}$ **yé(en)** tîiŋ]]?
be **who** PRF.OV Bol.GEN **3SG** see.NF
'Who has Bol seen?'

Pronoun copying is not restricted to the local *v*P, but happens successively in cases of long-distance extraction. A copied 3rd person plural pronoun appears at every *v*P edge on the path of movement, as the examples in (39a–b) demonstrate.

(39) *Kê-copying targets each verb phrase edge:*

a. Yè **ŋà** [$_{CP}$ yíi Bôl [$_{vP}$ luêeel [$_{CP}$ è cíi Áyèn [$_{vP}$ tîiŋ]]]]?
be **who** HAB.OV Bol.GEN say.NF C PRF.OV Ayen.GEN see.NF
'Who does Bol say Ayen has seen?'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ yíi Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ è cíi Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN
ké tîiŋ]]]]?
3PL see.NF
'Which people does Bol say Ayen has seen?'

In addition, pronoun copying is obligatory, so that omitting either instance of *ké(ek)* in an example like (39b) is ungrammatical (40a–c).[18]

(40) *Omitting ké(ek) is ungrammatical:*

a. *Yè **kɔ̂ɔc-kò** [$_{CP}$ yíi Bôl [$_{vP}$ luêeel [$_{CP}$ è cíi Áyèn [$_{vP}$ **ké**
be **people-which** HAB.OV Bol.GEN say.NF C PRF.OV Ayen.GEN **3PL**
tîiŋ]]]]?
see.NF
'Which people does Bol say Ayen has seen?'

b. *Yè **kɔ̂ɔc-kò** [$_{CP}$ yíi Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ è cíi Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN

[17]This pattern cares about whether the noun is formally plural. Coordinated DPs, for example, participate in *ké*-copying.

[18]There appears to be some variation between speakers in this regard. The two Dinka speakers I worked with consistently require it, but *ké*-copying is described as optional for Andersen (1991:276–277). This could reflect dialectal variation.

tɟ̈iŋ]]]]?
see.NF
'Which people does Bol say Ayen has seen?'

c. *Yè **kɔ̂ɔc-kò** [$_{CP}$ yɟ̈i Bôl [$_{vP}$ luêeel [$_{CP}$ è̤ cɟ̈i Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN say.NF C PRF.OV Ayen.GEN
tɟ̈iŋ]]]]?
see.NF
'Which people does Bol say Ayen has seen?'

I refer to this phenomenon as *ké-copying* and I will argue that it reflects the realization of intermediate copies left by successive-cyclic movement. This is thus a pronoun copying configuration, just like the constructions discussed in section 2. The rest of this section motivates the different aspects of this analysis, starting with the proposal that *ké*-copying involves copying of a pronoun.

3.2 Copied ké is a pronoun

Like all Dinka pronouns, the third person pronoun has a full version (*kêek*) and a phonologically reduced form (*ké*), with a short vowel and no coda consonant (41a–b).

(41) *Pronouns have full and reduced forms:*

a. Rɔ̤̤ɔ̤̤r áa-cɟ̈ **ké** tɟ̈iŋ.
men 3P-PRF **3PL** see.NF
'The men have seen them.'

b. Rɔ̤̤ɔ̤̤r áa-cɟ̈ **kêek** tɟ̈iŋ.
men 3P-PRF **3PL** see.NF
'The men have seen them.'

Although the full form is said to convey some emphasis, these pronouns can be used interchangeably in most instances. Both can be coordinated, for instance (42a–b) (*cf.* Cardinaletti and Starke 1999; Déchaine and Wiltschko 2002).

(42) *Full and reduced pronouns can both be coordinated:*

a. Bòl à-cɟ̈ Àyén kṳ̀ **kêek** tɟ̈iŋ.
Bol 3S-PRF Ayen and **3PL** see.NF
'Bol has seen Ayen and them.'

b. Bòl à-cɟ̈ Àyén kṳ̀ **ké** tɟ̈iŋ.
Bol 3S-PRF Ayen and **3PL** see.NF
'Bol has seen Ayen and them.'

We see the same variation in pronoun copying, so that both the reduced and full form may accompany any particular instance of movement (43a–d), without any apparent difference in interpretation.

(43) *Kê-copying may involve full or reduced form:*

a. Yè **kɔ̂ɔc-kò** [$_{CP}$ cɟ̈i Bôl **ké** tɟ̈iŋ]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ cɪ̈́i Bôl **kêek** tɪ̈iŋ]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

c. **Kêek** áa-cɪ̈́i Áyèn **ké** tɪ̈iŋ.
3PL 3P-PRF.OV Ayen.GEN **3PL** see.NF
'Them, Ayen has seen.'

d. **Kêek** áa-cɪ̈́i Áyèn **kêek** tɪ̈iŋ.
3PL 3P-PRF.OV Ayen.GEN **3PL** see.NF
'Them, Ayen has seen.'

This variation extends to long-distance movement. If we have multiple instances of *ké*-copying, any number of them may appear as the full form of the pronoun, apparently without constraints (44a–c).

(44) *No constraints on full/reduced forms in ké-copying:*

a. Yè **kɔ̂ɔc-kò** [$_{CP}$ yɪ̈́i Bôl [$_{vP}$ **kêek** luêeel [$_{CP}$ ɛ̈ cɪ̈́i Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN
kêek tɪ̈iŋ]]]]?
3PL see.NF
'Which people does Bol say Ayen has seen?'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ yɪ̈́i Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ ɛ̈ cɪ̈́i Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN
kêek tɪ̈iŋ]]]]?
3PL see.NF
'Which people does Bol say Ayen has seen?'

c. Yè **kɔ̂ɔc-kò** [$_{CP}$ yɪ̈́i Bôl [$_{vP}$ **kêek** luêeel [$_{CP}$ ɛ̈ cɪ̈́i Áyèn [$_{vP}$
be **people-which** HAB.OV Bol.GEN **3PL** say.NF C PRF.OV Ayen.GEN
ké tɪ̈iŋ]]]]?
3PL see.NF
'Which people does Bol say Ayen has seen?'

This similarity in form suggests that copied *ké(ek)* is an instance of the 3rd person plural pronoun and is not a clitic. The possibility of having a stop consonant in the coda is particularly telling in Dinka, which seems to impose a variety of minimal word requirements (verb and noun roots are overwhelmingly monosyllabic, for example). All affixes and clitics in Dinka otherwise obey a (C)(G)V(V)N template,[19] in which only a coda nasal is permitted (see, for example, the paradigms given in section 5.1). Another piece of evidence for the same conclusion is that we can show that copied *ké* is a free-standing element, like regular pronouns, and not the realization of object agreement. Copied *ké* often immediately precedes a verb at the start of the verb cluster, as in (45a). This does not have to be the case, however. Copied *ké* can surface also before an object in Spec-*v*P when a plural adjunct moves out of the *v*P (45b). In fact, copied *ké* can be followed by nothing at all, when the verb moves up to second position (45c).

(45) *Copied pronoun is free-standing:*

[19] Where G = glide and N = nasal.

a. Yè **kɔ̂ɔc-kò** [$_{CP}$ cɻ̈i Bôl [$_{vP}$ **ké(ek)** tɻ̂iŋ]]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

b. Yè **ɣa̱a̱n-kò** [$_{CP}$ cɻ̈i Bôl [$_{vP}$ **ké(ek)** Àyén tuɔ̀ɔc]?
be **places-which** PRF.OV Bol.GEN **3PL** Ayen send.NF
'Which places has Bol sent Ayen to?'

c. Yè **kɔ́ɔc-kò** [$_{CP}$ nhiɛ́ɛr Bôl [$_{vP}$ **ké(ek)**]]?
be **people-which** love.OV Bol.GEN **3PL**
'Which people does Bol love?'

These facts demonstrate that *ké* is not object agreement on the verb, since it does not have to appear before the verb. *Ké* also is not the realization of a functional head in the extended projection of the verb, and is not cliticized onto one, because then it should move along with the verb when the verb moves into the left periphery.

3.3 Ké-copying tracks intermediate movement

Having established then that *ké*-copying signals the presence of a true pronoun, let me show that it tracks intermediate movement. *Ké*-copying reliably appears with movement of any plural noun phrase that undergoes intermediate successive-cyclic movement to the verb phrase edge, regardless of grammatical function. For example, plural VP-modifiers trigger *ké*-copying, just like objects (46a–b).

(46) *Ké-copying with plural modifiers:*

a. Yè **ɣa̱a̱n-kò** [$_{CP}$ cɻ̈i Bôl [$_{vP}$ **ké** Àyén tuòoɔc]]?
be **places-which** PRF.OV Bol.GEN **3PL** Ayen send.NF
'Which places has Bol sent Ayen to?'

b. Yè **tǫ́o̱o̱ny kê** **díi** [$_{CP}$ cɻ̈i Bôl [$_{vP}$ **ké** cuɻ̂in thâal]]?
be **pots** **QUANT.PL how** PRF.OV Bol.GEN **3PL** food cook.NF
'How many pots has Bol cooked food with?'

Like objects, such modifiers trigger successive *ké*-copying when undergoing long-distance movement, as the examples in (47a–b) attest.

(47) *Successive ké-copying with plural modifiers:*

a. Yè **ɣa̱a̱n-kò** [$_{CP}$ yá [$_{vP}$ **ké** luêeel [$_{CP}$ ɛ̀ cɻ̈i Bôl [$_{vP}$ **ké** Àyén tuòoɔc]]]]?
be **places-which** HAB.2SG **3PL** say.NF C PRF.OV Bol.GEN **3PL** Ayen send.NF
'Which places do you say that Bol has sent Ayen to?'

b. Yè **tǫ́o̱o̱ny ké** **díi** [$_{CP}$ yá [$_{vP}$ **ké** luêeel [$_{CP}$ ɛ̀ cɻ̈i Bôl [$_{vP}$ **kê** cuɻ̂in thâal]]]?
be **pots** **QUANT.PL how** HAB.2SG **3PL** say.NF C PRF.OV Bol.GEN **3PL** food cook.NF
'How many pots do you say that Bol has cooked food with?'

All plural modifiers trigger *ké*-copying in this fashion. A plural temporal adjunct, for instance, also requires a copied *ké* (48a), as does a plural instrumental (48b).[20]

(48) *Ké-copying with plural modifiers:*

a. Yè **thɛ̀ɛk-kò** [$_{CP}$ cíi Bôl [$_{vP}$ **ké** bɔ̀ jàal]]?
be **times-which** PRF.OV Bol.GEN **3PL** go.NF leave.NF
'At which times has Bol left?'

b. Yè **kàŋó** [$_{CP}$ cíi Bôl [$_{vP}$ **ké** bɔ̀ jàal]]]?
be **what.things** PRF.OV Bol.GEN **3PL** go.NF leave.NF
'What has Bol used to leave with?'

Importantly, the only plural phrases that do not trigger *ké*-copying with Ā-movement within a clause are subjects. A plural subject in Spec-CP, for example, cannot be doubled by a copied *ké* (49a). Similarly, relativization of a subject may not be accompanied by *ké*-copying (49b).

(49) *Subjects are not doubled by a plural ké locally:*

a. **Rɔ̀ɔɔr** áa-cé **(*ké)** yîin tîiŋ.
men 3P-PRF **3PL** you see.NF
'The men have seen you.'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ cé **(*ké)** cuîin câam]?
be **people-which** PRF **3PL** food eat.NF
'Which people have eaten food?'

These facts make sense if subjects are generated in Spec-*v*P (or higher). Since they are generated at the *v*P edge, there is no need for them to undergo intermediate movement to escape the *v*P domain. This fits well with the observation that subjects do not count for *v*P-level V2 in Dinka generally (see [omitted] 2015).

In support of this, we see that subjects *do* trigger *ké*-copying when they are undergoing long-distance movement. When a subject moves long-distance, a copied *ké* is still banned at the *v*P edge the subject is generated at, but *ké*-copying is obligatory at every subsequent verb phrase (50a–b).

(50) *Plural subjects are doubled by ké in higher clauses:*

a. **Rɔ̀ɔɔr** áa-yùukù [$_{vP}$ **ké** tàak [$_{CP}$ cé [$_{vP}$ **(*ké)** yîin tîiŋ]]].
men 3P-HAB.1PL **3PL** think.NF PRF **3PL** you see.NF
'The men, we think have seen you.'

b. Yè **kɔ̂ɔc-kò** [$_{CP}$ yùukù [$_{vP}$ **ké** tàak [$_{CP}$ càm [$_{vP}$ **(*ké)** cuîin]]]]?
be **people-which** HAB.1PL **3PL** think.NF eat **3PL** food
'Which people do we think are eating food?'

A particularly nice piece of evidence for the structural sensitivity of *ké*-copying comes from extraction out of clausal subjects. The verb *nhóm mâar* ('to forget') takes a clausal subject which can be extracted out of when extraposed. In a reversal of the pattern in (50a–b), long-distance movement from an extraposed clausal subject requires *ké*-copying in the lower clause, but the

[20]This could suggest that a full temporal PP is generated lower than *wh*-words like *when*, which are usually taken to be generated outside of the verb phrase. There is certainly a clear difference in Dinka between *why* and its plural counterpart *for which reasons*. The latter can be only expressed periphrastically (e.g. *What things made Bol leave?)*.

absence of *ké*-copying in the higher clause (51).

(51) *No ké-copying in higher clause with extraction out of clausal subject:*

Yè **kɔ̂ɔc-kò** [$_{CP}$ cɛ̰́ [$_{vP}$ **(*ké)** wɔ̂ɔk muɔ̰̂ɔ̰r nhɪ̰̂im [$_{CP}$ ɛ̰́-kè-cùʊ̰kù **ké**
be **people-which** PRF **3PL** 1PL lose.NF heads PST-PL-PRF.1PL **3PL**
tɪ̰̂iŋ]]]?
see.NF
'Which people have we forgotten that we had seen?'

This contrast follows if *ké*-copying reflects intermediate movement to Spec-*v*P. Subjects are outside the domain of verb phrase V2 and so movement out of a clausal subject should not require stopping off at the *v*P edge (as long as phase edges are recursively accessible).

We can conclude from these facts that *ké*-copying is a consequence of intermediate movement to the edge of the verb phrase. As noted also by Van Urk and Richards (2015), *ké*-copying then functions as additional evidence for successive-cyclic derivations through *v*P edges (Chomsky 1986 et seq.).

3.4 Ké-copying is spell-out of a copy

Let me now provide arguments for the claim that *ké*-copying is not just a reflex of successive cyclicity but comes about specifically by means of the realization of an intermediate copy. It is important to show, first of all, that dependencies with *ké*-copying behave like all other instances of movement in Dinka. Because *ké*-copying is limited to plurals, we can compare movement with *ké*-copying to movement without it, by comparing movement of a plural to a movement of a singular. First of all, as shown by Van Urk and Richards (2015), all movement, accompanied by *ké*-copying or not, may satisfy the V2 property of intervening CP and *v*P edges, providing evidence for a successive-cyclic derivation. In addition, as the examples in (52a–b) demonstrate, these types of movement are equally sensitive to islands.

(52) *Ké-copying is island-sensitive:*

a. *Yè **ŋó̰** [$_{CP}$ cɪ̰́i Áyèn [$_{DP}$ ràaan [$_{CP}$ mɛ̰̀r ___]] tɪ̰̂iŋ]?
be **what** PRF.OV Ayen.GEN person.CS1 decorate see.NF
'What has Ayen seen someone [who is decorating it]?'

b. *Yè **kɔ̂ɔc-kò** [$_{CP}$ cɪ̰́i Bôl (ké) [$_{DP}$ ràaan [$_{CP}$ cɛ̰́ **ké** cuɪ̰̂in
be **people-which** PRF.OV Bol.GEN (3PL) person.CS1 PRF **3PL** food
câam]] tɪ̰̂iŋ]?
eat.NF see.NF
'Which people has Bol seen someone who has eaten food with them?'

Neither extraction with pronoun copying or without it can escape a relative clause island, or any other island.

In further support of the idea that the syntax of movement is the same regardless of whether *ké*-copying takes place, observe that whether movement reconstructs is independent of *ké*-copying. Using Dinka's Condition A anaphor, movement can be shown to reconstruct for local (53a), long-distance (53b), and intermediate binding (53c).

(53) *Movement reconstructs for anaphor binding:*

a. **Rɔ̀t-dé$_{i}$** à-cɛ̈̀$_{i}$ nhiâar.
self-SG.3SG 3S-PRF.3SG love.NF
'Herself/himself, she/he has loved.'

b. **Rɔ̀t-dé$_{i}$** à-yʉ̈ʉ̈kʉ̈ tàak [$_{CP}$ ɛ̈̀ cɛ̈̀$_{i}$ nhiâar].
self-SG.3SG 3S-HAB.1PL think.NF C PRF.3SG love.NF
'Herself/himself, we say that she/he has loved.'

c. **Rɔ̀t-dé$_{i}$** à-cɛ̈̀$_{i}$ tàak [$_{CP}$ ɛ̈̀ cʉ̈ʉ̈kʉ̈ nhiâar].
self-SG.3SG 3S-PRF.3SG think.NF C PRF.1PL love.NF
'Herself/himself, she/he has thought that we have loved.'

We find the same facts with *ké*-copying. When *ròth* ('self.PL'), the plural version of the anaphor, topicalizes, it is accompanied by *ké*-copying just like other plural DPs. In such constructions, the anaphor can still reconstruct to the same positions, as the examples in (54a–c) attest.

(54) *Ké-copying allows reconstruction:*

a. **Ròth-kén$_{i}$** áa-nhiárkɛ̈̀$_{i}$ **kêek**.
self-PL.3PL 3P-love.3PL **3PL**
'Themselves, they love.'

b. **Ròth-kén$_{i}$** áa-yʉ̈ʉ̈kʉ̈ **ké** luêeel [$_{CP}$ ɛ̈̀ nhiárkɛ̈̀$_{i}$ **kêek**].
self-PL.3PL 3P-be.1PL **3PL** say.NF C love.3PL **3PL**
'Themselves, we say that they love.'

c. **Ròth-kén$_{i}$** áa-yɪ̈ɪ̈kɛ̈̀$_{i}$ **ké** luêeel [$_{CP}$ ɛ̈̀ nhiɛ́ɛr Bôl **kêek**].
self-PL.1PL 3P-be.3PL **3PL** say.NF C love.OV Bol.GEN **3PL**
'Themselves, they say that Bol loves.'

There is no discernible effect of *ké*-copying then on the interpretation of long-distance movement. This follows if copied *ké* simply diagnoses the location of an intermediate copy of successive-cyclic movement.

There is another piece of evidence that suggests that *ké* should be treated as the result of multiple copy spell-out. This argument comes from the observation that copied *ké(ek)* violates an otherwise strict V2 requirement on the verb phrase. As described by [omitted] (2015), only one DP may overtly appear at the left edge of the Dinka verb phrase. The sole exception to this in Dinka is the process of *ké*-copying. As we have already seen, when a copied *ké* is left by adjunct extraction, it precedes a nominal object that occupies Spec-*v*P (55a–b).

(55) *Ké may appear before object in violation of V2:*

a. Yè **ɣä̤ä̤n-kò** [$_{CP}$ cɪ̈́ɪ Bôl [$_{vP}$ **ké** Àyén tuɔ̀ɔc]]?
be **places-which** PRF.OV Bol.GEN **3PL** Ayen send.NF
'Which places has Bol sent Ayen to?'

b. Yè **tó̤̈ö̤ny kê** **díi** [$_{CP}$ cɪ̈́ɪ Bôl [$_{vP}$ **ké** cuɪ̈̂in thâal]]?
be **pots** **QUANT.PL** **how** PRF.OV Bol.GEN **3PL** food cook.NF
'How many pots has Bol cooked food with?'

This is the only instance in which two DPs appear at the left edge of the verb phrase in Dinka (recall that the subject does not count for the calculus of V2). This clearly suggests that copied *ké* is the result of a special mechanism, because no other phrase can ever appear in this position. Dinka

does not allow other nominals, adjuncts, or adverbs to surface in between an in situ subject and an object in Spec-*v*P. As a result of this, there is a clear contrast between copied and independent instances of *ké(ek)*. Independent uses of the third person plural pronoun obey the V2 restriction: they may only appear at the *v*P edge by themselves (56a), and not alongside another object (56b).

(56) *Independent ké(ek) cannot occur between subject and object:*

a. Bòl à-cɛ̰ [$_{vP}$ **ké(ek)** yiɛ̰̰n kìtáap].
Bol 3S-PRF **3PL** give.NF book
'Bol has given them a book.'

b. *Bòl à-cɛ̰ [$_{vP}$ **ké(ek)** kìtáap yiɛ̰̰n].
Bol 3S-PRF **3PL** book give.NF
'Bol has given them a book.'

We can make sense of this if copied *ké* is the realization of an intermediate copy, because intermediate successive-cyclic movement allows for the creation of an additional specifier at the *v*P edge.

3.5 Pronoun copying in Seereer

I have shown so far that *ké*-copying in Dinka is the realization of a copy left by intermediate successive-cyclic movement to the *v*P edge. This provides evidence that pronouns may spell out full copies in intermediate positions and hence for the hypothesis that pronouns represent one of the ways in which a DP may surface.

A strikingly similar pattern to the Dinka one is described by Baier (2014) for the Senegalese language Seereer (Atlantic). In Seereer, copied pronouns accompany movement across a clause boundary. These copied pronouns appear just after the complementizer (57a–b).

(57) *Pronoun copying in Seereer:*

a. **Xar** foog-o [$_{CP}$ yee **ten** Yande a-lay-u [$_{CP}$ yee **ten** Jegaan a-ga'-u]]?
what think-2SG.EXT C **3SG** Yande 3-say-EXT C **3SG** Jegaan 3-see-EXT
'What do you think Yande said Jegaan saw?'

b. **Aniin** foog-o [$_{CP}$ yee **den** Yande a-lay-u [$_{CP}$ yee **den** Jegaan
who.PL think-2SG.EXT C **3PL** Yande 3-say-EXT C **3PL** Jegaan
a-ga'-u]]?
3-see-EXT
'Who all do you think Yande said Jegaan saw?'
(Seereer; Baier 2014)

Pronoun copying in Seereer targets a different domain edge (the edge of CP) and does not show a number asymmetry, as the examples above attest. Seereer pronoun copying is similar to *ké*-copying in many respects, however. Like *ké*-copying, it is an obligatory reflex of long-distance movement. In addition, as Baier shows, Seereer pronoun copying is movement-derived. Movement with copied pronouns is island-sensitive and so cannot cross a *wh*-island, for example (58).

(58) *Seereer pronoun copying is island-sensitive:*

*__Xar__ and-o [$_{CP}$ ndax **ten** Ami a-ga'-u ___]
what know-2SG.FOC C.INT **3SG** Ami 3-see-FOC

'What do you know whether Ami saw ___?'
(Seereer: Baier 2014)

As in Dinka, movement with pronoun copying may reconstruct. The examples in (59a–b) illustrate that these dependencies may reconstruct for long-distance (59a), and intermediate binding (59b).

(59) *Seereer pronoun copying shows reconstruction:*

a. [$_{DP}$ **xoox um$_i$**] *pro* a-nqalaat-u [$_{CP}$ yee **ten** Yande$_i$ a-ga'-u ___]
REFL 3SG 3PL 3-think.PL-FOC C **3SG** Yande 3-see-FOC
'It's herself$_i$ that they think Yande$_i$ saw ___.'

b. [$_{DP}$ **xoox den$_i$**] *pro*$_i$ a-nqalaat-u [$_{CP}$ yee **ten** Yande a-ga'-u ___]
REFL 3PL 3PL 3-think.PL-FOC C **3SG** Yande 3-see-FOC
'It's themselves$_i$ that they$_i$ think Yande saw ___.'
(Seereer: Baier 2014)

These Seereer facts then provide another configuration in which pronouns are used to realize a DP copy in an intermediate position and so lend further weight to the claim that this is one way in which intermediate copies may be treated. In addition, the comparison between Dinka and Seereer will prove fruitful in developing a theory of why pronouns may come to realize more articulated copies. In particular, we will see in section 4 that the two languages differ in how closely copied pronouns match their antecedent DP. This variation is mirrored by variation in other environments that I have argued involve pronominal spell-out, such as resumption and subject doubling.

A question raised by the comparison of Dinka and Seereer, however, is whether there are languages that spell out a copy at both the CP and *v*P edge. I am not aware of such a system. For Seereer, this is probably due to the fact that only the CP edge behaves like it has an EPP property. Plausibly then, the trigger for multiple spell-out is absent in the Seereer *v*P. In Dinka, however, the two domains are highly parallel and both have the V2 property (see Van Urk and Richards 2015). I return to this issue in section 5.4.

The patterns described in this section provide additional evidence for the claim at the heart of this chapter: that pronouns may realize full copies of lexical DPs. The Dinka and Seereer facts discussed here mean that all three patterns of pronoun copying that are logically possible are attested. Pronominal spell-out of a lower copy is found in resumption in many languages and subject doubling in Wambeek Dutch (Van Craenenbroeck and Van Koppen 2002). Pronominal realization of the highest copy is the source of clitic doubling, subject doubling in Finnish (Holmberg and Nikanne 2008), as well as some types of *wh*-copying in Dutch, German, and Passamaquoddy (Fanselow and Čavar 2001; Felser 2004; Bruening 2006; Boef 2013). Finally, spell-out of an intermediate copy as a pronoun happens in Dinka and Seereer as well as in German *wh*-copying, as described by Anyadi and Tamrazian (1993) and Pankau (2013). This is summarized in (60).

(60) *Three configurations of pronoun spell-out:*

a. **Lowest copy:** Resumption, subject doubling (Wambeek Dutch)
b. **Highest copy:** Clitic doubling, subject doubling (Finnish), *wh*-copying
c. **Intermediate copy:** *Kê*-copying, *wh*-copying (German), Seereer pronoun copying

In addition, pronoun copying is possible with all types of phrasal movement: it can be the result of Ā-movement, A-movement, and intermediate movement.

Having established that pronoun copying is a phenomenon found in many languages which manifests itself in a wide variety of environments, we are ready to turn to the question of how copy deletion converts a fully articulated DP into a pronoun. I will argue that pronouns represent the most minimal form a DP can take, under the view that pronouns represent the functional layer of a DP (Postal 1969; Elbourne 2001, 2005). If the aim of copy deletion is to delete as much material as possible, this forces DP copies to spell out as pronouns in contexts of multiple copy spell-out.

Before developing this proposal, I outline the empirical motivation for a partial spell-out approach. In particular, I demonstrate that there is variation across pronoun copying constructions when spelling out a copy of another pronoun. In pronoun copying constructions of all three types listed in (60), in Dinka, but also Nupe, Finnish, and Tunisian Arabic, the copied pronoun only *partially* matches pronominal antecedents. In all these languages, copied pronouns only match in number, not in person. Alongside this, we find languages with identical copying constructions in which the copied pronoun always shows *full* matching, for both person and number. I will argue later in this chapter that this is reflective of an asymmetry between person and number, namely that number is introduced above person in pronouns as well as variation in the structure of pronouns across languages. In addition to this, I show that some pronoun copying patterns have *gaps*, in that not all antecedents are capable of triggering copying. This is true of singulars in Dinka, but also found in other pronoun copying patterns, like German *wh*-copying (Pankau 2013). I will suggest that these are situations in which the DP structure left by deletion is not enough to spell out as a pronoun, either because a pronoun expressing those features is absent or because all the available pronouns spell out more structure.

4 Asymmetries and gaps in pronoun copying

In this section, I first show that pronoun copying constructions vary in their behavior when realizing a copy of a pronoun. In Dinka and a number of other languages, the copied pronoun does not express person and surfaces with default third person always. In other pronoun copying constructions, however, copied pronouns always fully match their antecedents, including in person features. In addition, I will show that some pronoun copying constructions display gaps, so that some antecedents fail to trigger pronoun copying. In section 5, I trace both of these effects to partial spell-out. The asymmetry between person and number I will propose derives from the idea that person merges below number in pronouns, and may be merged in the part of the copy that undergoes deletion. The existence of gaps I will attribute to the notion that deletion need not leave a structure that can be spelled out as a pronoun, sometimes resulting in a failure of pronoun copying.

4.1 A person-number asymmetry

In this section, I argue for the generalization that copied pronouns always match in number, but not necessarily in person. We will see that, alongside this pattern, we can find languages in which copied pronouns always match in all features, including person. Importantly, however, a third logically possible type of copied pronoun, sensitive to person only, appears to be unattested.

One of the surprising aspects of Dinka *ké*-copying is that it displays an asymmetry between person and number features. In particular, when we examine instances in which pronouns undergo

pronoun copying, we find that *ké*-copying is insensitive to person. When a 1st or 2nd person plural pronoun is topicalized across the *v*P edge, it triggers pronoun copying, but of the third person plural pronoun *ké(ek)* (61a–b), like 3rd person DPs.

(61) *Kê-copying does not match person:*

a. **Wɔ̂ɔk** cɻ̈i Áyèn [$_{vP}$ **ké(ek)** tɻ̈iŋ].
1PL PRF.OV Ayen.GEN **3PL** see.NF
'Us, Ayen has seen.'

b. **Wêek** cɻ̈i Áyèn [$_{vP}$ **ké(ek)** tɻ̈iŋ].
2PL PRF.OV Ayen.GEN **3PL** see.NF
'You all, Ayen has seen.'

c. **Kêek** áa-cɻ̈i Áyèn [$_{vP}$ **ké(ek)** tɻ̈iŋ].
3PL 3P-PRF.OV Ayen.GEN **3PL** see.NF
'Them, Ayen has seen.'

Using a copied pronoun with matching person features is in fact impossible (62a–b).

(62) *Copied pronouns cannot be 1st or 2nd person:*

a. ***Wɔ̂ɔk** cɻ̈i Áyèn [$_{vP}$ **wɔ́(ɔk)** tɻ̈iŋ].
1PL PRF.OV Ayen.GEN **1PL** see.NF
'Us, Ayen has seen.'

b. ***Wêek** cɻ̈i Áyèn [$_{vP}$ **wé(ek)** tɻ̈iŋ].
2PL PRF.OV Ayen.GEN **2PL** see.NF
'You all, Ayen has seen.'

1st and 2nd person plural pronouns pattern like 3rd person plural nominals in every respect for *ké*-copying. As a further illustration of this, we see that long-distance movement of these pronouns triggers pronoun copying at each edge (63a–b).

(63) *1st/2nd person pronouns can trigger successive ké-copying:*

a. **Wɔ̂ɔk** yíi Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ ɛ̈ cɛ̈ [$_{vP}$ **ké** tɻ̈iŋ]]].
1PL HAB.OV Bol.GEN **3PL** say.NF C PRF.3SG **3PL** see.NF
'Us, Bol says that he has seen.'

b. **Wêek** yíi Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ ɛ̈ cɛ̈ [$_{vP}$ **ké** tɻ̈iŋ]]].
2PL HAB.OV Bol.GEN **3PL** say.NF C PRF.3SG **3PL** see.NF
'You all, Bol says that he has seen.'

If we take third person to be the default value of person, we can describe this pattern as matching in number only.

This pattern is not limited to Dinka, but is in fact commonly found in pronoun copying constructions. The other two logically possible configurations of pronoun copying can also display this insensitivity to person. Kandybowicz (2007) documents a similar effect in Nupe resumption. In Nupe, long-distance subject extraction must leave behind a resumptive pronoun in the lower subject position (64).

(64) *Nupe long-distance subject extraction requires resumptive with long-distance:*

Bagi-zi Musa gàn [$_{CP}$ gànán ***(a:)** nì enyà] o.
man-PL Musa say C **3PL** beat drum FOC
'Musa said that THE MEN beat a drum.'
(Nupe; Kandybowicz 2007:124)

As in Vata, this type of resumption patterns like movement. It is island-sensitive, for example, and so is impossible out of a *wh*-island (65a), or a subject island (65b).

(65) *Nupe resumption is island-sensitive:*

a. ***Zě** Musa kpe [$_{CP}$ ké **u:** si] o.
who Musa know what **3SG** buy FOC
'Who does Musa know what bought?'

b. ***Etsu** [$_{CP}$ gànán **u:** doko] tán Musa o.
chief C **3SG** buy horse pain Musa FOC
'That THE CHIEF bought a horse pained Musa.'
(Nupe; Kandybowicz 2007:132)

Importantly, as Kandybowicz points out, the Nupe resumptive pronoun is also insensitive to the person features of pronominal antecedents. Movement of a 1st or 2nd person singular pronominal subject must use the 3rd person singular resumptive (66a–b):

(66) *1st/2nd person singular subjects resumed by 3rd person singular:*

a. **Mi** Musa gàn [$_{CP}$ gànán **u:/*mi:** pa eci] o.
1SG Musa say C **3SG/1SG** pound yam FOC
'Musa said that I pounded a yam.'

b. **Wo:** Musa gàn [$_{CP}$ gànán **u:/*wo:** pa eci] o.
2SG Musa say C **3SG/2SG** pound yam FOC
'Musa said that YOU pounded a yam.'
(Nupe; Kandybowicz 2007:134)

Similarly, 1st and 2nd person plural pronouns are necessarily resumed by the 3rd person plural (67a–b).

(67) *1st/2nd person plural subjects resumed by 3rd person plural:*

a. **Yi:** Musa gàn [$_{CP}$ gànán **a:/*yi:/*u:** pa eci] o.
1PL Musa say C **3PL/1PL/3SG** pound yam FOC
'Musa said that WE pounded a yam.'

b. **Ye:** Musa gàn [$_{CP}$ gànán **a:/*wo:/*u:** pa eci] o.
2PL Musa say C **3PL/2PL/3SG** pound yam FOC
'Musa said that YOU ALL pounded a yam.'
(Nupe; Kandybowicz 2007:134)

As in Dinka then, the copied pronoun has to match the antecedent DP in number features, but surfaces with a default person value when realizing a copy of a pronoun. We also see in the comparison between Dinka and Nupe that the absence of pronoun copying with singular is a fact specific to Dinka. In Nupe, singular number is still matched on a 3rd person singular pronoun.

The facts from Nupe demonstrate that the number matching pattern is not limited to interme-

diate copying, but is also found when the copied pronoun spells out the lowest copy. We also find the number-matching pattern in the third pronoun copying configuration, in which the pronoun is the realization of the highest copy. Recall that colloquial Finnish allows a subject to be doubled by a clause-initial pronoun (Holmberg and Nikanne 2008). Some examples are repeated in (68a–b).

(68) *Initial pronoun may double subject in Finnish:*

a. **Se** on **Jari** lopettanut tupakoinnin.
3SG has **Jari** quit smoking
'Jari has quit smoking.'

b. **Ne** sai **kaikki lapset** samat oireet.
3PL got **all** **children** same symptoms
'All the children got the same symptoms.'
(Finnish; Holmberg and Nikanne 2008:326)

As Holmberg and Nikanne point out, the doubled subject need not match in person. Instead, the 3rd person singular may be used to double 1st and 2nd person singular pronouns (69a–b), and, for some speakers, the 3rd person plural pronoun can be used to double 1st and 2nd person plural pronouns (69c–d).

(69) *Finnish subject doubling can be person-insensitive:*

a. **Se** ole-n **minä-kin** lopettanut tupakoinnin.
3SG are-1SG **1SG-too** quit smoking
'I have quit smoking, too.'

b. **Se** ole-t **sinä-kin** lopettanut tupakoinnin.
3SG are-2SG **2SG-too** quit smoking
'You have quit smoking, too.'

c. **Ne** ollaan **me-kin** lopettanut tupakoinnin.
3PL are.1PL **1PL-too** quit smoking
'We have quit smoking, too.'

d. **Ne** ollette **te-kin** lopettanut tupakoinnin.
3PL are.2PL **2PL-too** quit smoking
'You all have quit smoking, too.'
(Finnish; Holmberg and Nikanne 2008:327,328)

Unlike in Dinka or Nupe, this is not obligatory. For all speakers, 1st and 2nd person pronouns may be doubled by an identical initial pronoun as well, as the examples in (70a–b) evidence.

(70) *Finnish subject doubling may match in person:*

a. **Me** ollaan **me-kin** lopettanut tupakoinnin.
1PL are.1PL **1PL-too** quit smoking
'We have quit smoking, too.'

b. **Te** ollette **te-kin** lopettanut tupakoinnin.
2PL are.2PL **2PL-too** quit smoking
'You all have quit smoking, too.'
(Finnish; Holmberg and Nikanne 2008:328)

Finnish subject doubling then allows at least two levels of matching: number only and both person

and number. Importantly, there is an asymmetry here between person and number. Although mismatches in person are tolerated, matching in number is *obligatory*. The third person singular, for instance, cannot be used to double any of the plurals, as the examples in (71a–c) show. Similarly, the 1st and 2nd person singular pronouns cannot double their respective plurals (71d–e).

(71) *Finnish subject doubling is never number-insensitive:*

a. *__Se__ ollaan __me-kin__ lopettanut tupakoinnin.
__3SG__ are.1PL __1PL-too__ quit smoking
'We have quit smoking, too.'

b. *__Se__ ollette __te-kin__ lopettanut tupakoinnin.
__3SG__ are.2PL __2PL-too__ quit smoking
'You all have quit smoking, too.'

c. *__Se__ on __ne-kin__ lopettanut tupakoinnin.
__3SG__ be.3PL __3PL-too__ quit smoking
'They have quit smoking, too.'
(Finnish; Holmberg and Nikanne 2008:328)

d. *__Minä__ ollaan __me-kin__ lopettanut tupakoinnin.
__1SG__ are.1PL __1PL-too__ quit smoking
'We have quit smoking too.'

e. *__Sinä__ ollette __te-kin__ lopettanut tupakoinnin.
__2SG__ are.2PL __2PL-too__ quit smoking
'We have quit smoking too.'
(Finnish; Urpo Nikanne, p.c.)

That this pattern of person-insensitivity shows up in a wide range of pronoun copying constructions provides evidence that these constructions should be given a unified treatment. The similarities between Finnish, Nupe, and Dinka are striking, given the very different functions that pronoun copying fulfils in all of these languages.

These facts also provide an important insight into the mechanism behind spelling out a pronoun as a copy. The number-matching patterns point to a crosslinguistic asymmetry between person and number in pronoun copying. In the Finnish facts, we see that, even though Finnish allows different levels of matching, the doubling pronoun can be person-insensitive, but never number-insensitive. This is revealing of a larger generalization, that copied pronouns cannot match in person without matching in number. As further support for this, we will see that, in some languages, copied pronouns must match in person always. In each case, the copied pronoun has to match in number as well.

As already noted, for all of the configurations described above, we can find instances of the same construction in other languages in which the copied pronoun must match in person. We saw this already within one language, in Finnish subject doubling, but we find this variation across languages too. In Finnish, a pronoun spelling out a higher copy may optionally match in person. But we also find pronoun copying that must always display full matching.

In particular, full matching for all features of the antecedent DP is typical of clitic doubling.[21] I will demonstrate first for Greek clitic doubling. In Greek, genitive and accusative arguments may

[21] An interesting question is whether there are clitic doubling languages in which the clitic does not match pronominal associates in person. I do not know of such a case, but my approach predicts that this pattern could exist.

undergo clitic doubling (see Anagnostopoulou 2003 for an overview), as in (72).

(72) *Greek clitic doubling with genitives and accusatives:*

(tu) **(to)** edhosa tu Jani to vivlio.
3MS.GEN **3NS.ACC** gave.1SG the.GEN Janis.GEN the.ACC book.ACC
'I gave John the book.'
(Greek; Anagnostopoulou 2006:43)

As already evident in (72), Greek doubling clitics match their associate DP in case, person, number, and gender. This is obligatory, as the examples below show for case (73a),[22] person (73b), gender (73c), and number (73d). In these examples, an emphatic pronoun is used, in order to make clitic doubling natural with a pronominal associate.

(73) *Greek clitic doubling does not tolerate mismatches:*

a. **ton/*tu** ksero **afton**.
3MS.ACC/3MS.GEN know.1SG.PR **3MS.ACC**
'I know HIM.'

b. **me/*ton** kseris **emena**.
1SG.ACC/3MS.ACC know.2SG.PR **1SG.ACC**
'You know ME.'

c. **tin/*ton** ksero **aftin**.
3FS.ACC/3MS.ACC know.1SG.PR **3FS.ACC**
'I know HER.'

d. **tis/*tin** ksero **aftes**.
3FP.ACC/3FS.ACC know.1SG.PR **3FP.ACC**
'I know THEM (fem.).'
(Greek; Sabine Iatridou, p.c.)

The same conclusion is illustrated for Bulgarian clitic doubling in (74a–d).

(74) *Bulgarian clitic doubling does not tolerate mismatches:*

a. Az **go/*mu** poznavam **nego**.
1SG **3MS.ACC/3MS.DAT** know.1SG **3MS.ACC**
'I know HIM.'

b. Ti **me/*go** poznavash **mene**.
2SG **1SG.ACC/3MS.ACC** know.2SG **1SG.ACC**
'You know ME.'

c. Az **ja/*go** poznavam **neja**.
1SG **3FS.ACC/3MS.ACC** know.1SG **3FS.ACC**
'I know HER.'

d. Az **gi/*go** poznavam **tjax**.
1SG **3PL.ACC/3MS.ACC** know.1SG **3PL.ACC**
'I know THEM.'

[22] I compare accusative with genitive, the other possible clitic, though a mismatch would likely be expressed with a default case (i.e. nominative). Nominative clitics are absent, perhaps already illustrating the impossibility of this mismatch.

(Bulgarian; Snejana Iovtcheva, p.c.)

These examples are representative for clitic doubling, which does not generally tolerate mismatches.[23]

Recall that in Nupe, long-distance subject movement requires a number-matching resumptive pronoun in subject position (Kandybowicz 2007). A similar resumptive pattern is found in Yoruba (Adesola 2010). In Yoruba, movement of a subject also requires a resumptive pronoun (75a–b).

(75) *Yoruba subject extraction requires resumptive pronoun:*

a. **Ta** ni [$_{CP}$ ***(ó)** ra àga]?
who be **3SG** buy chair
'Who bought a chair?'

b. **Olú ati Adé** ni [$_{CP}$ Òjó sọ [$_{CP}$ pé ***(wọ́n)** ra iṣu]].
Olu and Ade be Ojo say that **3PL** buy yams
'It was Olu and Ade that Ojo said ___ bought some yams.'
(Yoruba; Adesola 2010:68,81)

Unlike in Nupe, this resumptive pronoun must spell out all of the features of a pronoun it is copying. As (76a–d) demonstrate, the resumptive pronoun matches in both person and number.[24]

(76) *Yoruba resumptive subjects match in φ-features:*

a. **Èmi** ni [$_{CP}$ **mo** ra àpò].
1SG be **1SG** buy bag
'I was the one who bought a bag.'

b. **Àwa** ni [$_{CP}$ **a** ra àpò].
1PL be **1PL** buy bag
'We were the people who bought a bag.'

c. **Ìwo** ni [$_{CP}$ **o** ra àpò].
2SG be **2SG** buy bag
'You were the one who bought a bag.'

d. **Eyin** ni [$_{CP}$ **e** ra àpò].
2PL be **2PL** buy bag
'You are the people who bought a bag.'
(Yoruba; Adesola 2010:82)

This pattern is then minimally different from the Nupe one, but with matching in person also.

We can find similar variation in pronoun spell-out of intermediate copies. We saw above that *ké*-copying only matches pronouns in number. We can compare Dinka to Seereer, which displays a pronoun copying pattern at the CP edge. Unlike in Dinka, these copied pronouns match fully, so that 1st and 2nd person pronouns are doubled by identical pronouns, as in (77), for example.

[23] One interesting question is whether there is a featural mismatch in languages in which clitic doubling is subject to Kayne's Generalization, so that the associate DP is followed by a special preposition (e.g. *a* in dialects of Spanish, *pe* in Romanian, and *šel* in Hebrew; Steriade 1980; Jaeggli 1982, 1986; Borer 1984). Depending on how the preposition is analyzed (i.e. as a case marker or as a preposition, *cf.* Jaeggli 1982, 1986), this could be seen as a case mismatch.

[24] Adesola observes that it is also possible to leave an expletive in the subject position, which, in Yoruba, is the 3rd person singular pronoun. This could also be analyzed as a "bare resumptive" in the sense of Adger (2011).

(77) *Pronoun copying matches in person in Seereer:*

Mi foog-o [$_{CP}$ yee **mi/*ten** ret-u Dakar]?
1SG think-2SG.EXT C **1SG/3SG** go-FOC Dakar
'It's me who you think went to Dakar.'
(Seereer; Baier 2014)

Two options then emerge for copied pronouns with pronominal antecedents, regardless of configuration: matching in number only, or matching in both person and number. I summarize these results in the table below (78).

(78)

	Number	*Person*	*Person+number*
Lowest copy (resumption)	Nupe	*	Yoruba
Highest copy (subject doubling)	Finnish	*	Finnish
Intermediate copy	Dinka	∗	Seereer

Importantly, there appear to be no pronoun copying patterns in which the copied pronoun only matches in person. As a result, we can restate this table as a generalization about pronoun copying, as in (79).

(79) *Generalization about person and number in pronoun copying:*
If a copied pronoun matches in person, it matches in number.

This is one of the asymmetries that will motivate my treatment of pronoun copying as partial spell-out, which I argue is directly reflective of partial spell-out. In particular, I propose that this asymmetry follows from the fact that person represents the root of a pronoun, with number merged higher. As a result, partial deletion may remove person features without affecting number, but not the other way around. This is evidence that pronoun copying comes about by means of partial spell-out, and also for the notion that person and number are introduced separately in DPs.

4.2 Gaps in pronoun copying

Having established that there is a person-number asymmetry in the behavior of pronoun copying across languages, I now turn to a different type of asymmetry evident in pronoun copying in Dinka and a number of other copying constructions. Pronoun copying sometimes displays *gaps*, in that some antecedent DPs fail to trigger pronoun copying. I will argue that the existence of gaps also follows naturally from the mechanism of partial spell-out. Specifically, I will suggest that partial deletion may delete too much of a DP copy, so that no copied pronoun can be created.

As mentioned previously, one surprising property of Dinka pronoun copying is the fact that it is limited to plurals (80a). There is no pronoun copying with movement of singular DPs (80b).

(80) *Dinka pronoun copying is limited to plurals:*

a. Yè **kɔ̂ɔc-kó** [$_{CP}$ cïi Bôl [$_{vP}$ **ké** tîiŋ]]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

b. Yè **ŋà** [$_{CP}$ cïi Bôl [$_{vP}$ **(*yé)** tîiŋ]]?
be **who** PRF.OV Bol.GEN **3SG** see.NF
'Who has Bol seen?'

This asymmetry extends to pronouns as well. Although plural pronouns of all persons participate in *ké*-copying, there is no pronoun copying with singular pronouns (81a–b).

(81) *No pronoun copying with singular pronouns:*

a. **ɣɛ̂ɛn** cíi môc [$_{vP}$ **(*à)** tîiŋ].
1SG PRF.OV man.GEN **1SG** see.NF
'Me, the man has seen.'

b. **Yîin** cíi môc [$_{vP}$ **(*yì)** tîiŋ].
2SG PRF.OV man.GEN **2SG** see.NF
'You, the man has seen.'

I suggest that this gap arises because of the mechanism of partial spell-out. In particular, as discussed in more detail in section 5, I will propose that the 3rd person singular pronoun in Dinka spells out both person and number, while the 3rd person plural spells out only plural. Because pronoun copying in Dinka deletes the part of the DP that encodes person, no suitable pronoun can spell out the remaining DP structure.

That pronoun copying may display gaps of this sort is also suggested by data from German *wh*-copying, as described by Pankau (2013). Pankau (2013:ch. 3) argues at length that *wh*-copying in German requires matching both in case and φ-features. As noted previously, copied *wh*-phrases carry the same case as the full DP (82a–c).

(82) *Wh-copying involves case matching:*

a. **Wem** glaubst du [$_{CP}$ **wem** deine Eltern ___ vertrauen]?
who.DAT believe you **who.DAT** your parents trust
'Who do you think your parents trust?'

b. **Wen** glaubst du [$_{CP}$ **wen** deine Eltern ___ gesehen haben]?
who.ACC believe you **who.ACC** your parents seen have
'Who do you think your parents saw?'

c. **Wer** glaubst du [$_{CP}$ **wer** ihn ___ getötet hat]?
who.NOM believe you **who.NOM** him killed has
'Who do you think killed him?'
(German; Pankau 2013:177)

That this case matching follows from copy spell-out is particularly clear when we look at verbs that can show variation in what case they assign, like the verb *lehren* ('to learn/teach'), which may assign both accusative and dative to its indirect object (83a–b).

(83) *'Lehren' takes dative or accusative object:*

a. Er lehrt **ihm** die lateinische Sprache.
he teaches **him.DAT** the Latin language
'He teaches him the Latin language.'

b. Er lehrt **ihn** die lateinische Sprache.
he teaches **him.ACC** the Latin language
'He teaches him the Latin language.'
(German; Pankau 2013:66)

As Pankau notes, extraction of such an indirect object with *wh*-copying still requires the same case on both *wh*-phrases (84a–d).

(84) *Wh-copying must involve case matching:*

a. **Wen** glaubst du [$_{CP}$ **wen** er ___ die lateinische Sprache lehren wird]?
who.ACC believe you **who.ACC** he the Latin language teach will
'Who do you believe he teaches the Latin language?'

b. **Wem** glaubst du [$_{CP}$ **wem** er ___ die lateinische Sprache lehren wird]?
who.DAT believe you **who.DAT** he the Latin language teach will
'Who do you believe he teaches the Latin language?'

c. *__Wen__ glaubst du [$_{CP}$ **wem** er ___ die lateinische Sprache lehren wird]?
who.ACC believe you **who.DAT** he the Latin language teach will
'Who do you believe he teaches the Latin language?'

d. *__Wem__ glaubst du [$_{CP}$ **wen** er ___ die lateinische Sprache lehren wird]?
who.DAT believe you **who.ACC** he the Latin language teach will
'Who do you believe he teaches the Latin language?'
(German; Pankau 2013:66)

Whether *wh*-copying involves matching in φ-features also is harder to investigate, because *wh*-pronominals are necessarily 3rd person and, as Pankau points out, only have a masculine and a neuter form in German. The paradigm for German *wh*-pronouns is given in (85).

(85) *German wh-pronouns (Pankau 2013:60):*

	SG			PL
	MASC	FEM	NEUT	
NOM	*wer*	-	*was*	-
ACC	*wen*	-	*was*	-
DAT	*wem*	-	*was*	-

Using this paradigm, all we appear to be able to determine is that a copied *wh*-pronoun must match a higher masculine *wh*-phrase in gender, as in (86).

(86) *Copied wh-pronoun matches in gender:*

a. *__Wen__ glaubst du [$_{CP}$ **was** sie ___ gesehen hat]?
who believe you **what** she seen has
'Who do you think she has seen?'

b. **Wen** glaubst du [$_{CP}$ **wen** sie ___ gesehen hat]?
who believe you **who** she seen has
'Who do you think she has seen?'
(German; Pankau 2013:59)

However, as Pankau shows, an interesting pattern emerges with complex *wh*-phrases. First of all, masculine and neuter complex *wh*-phrases must still agree in gender (87a–b).

(87) *Copied wh-pronoun matches complex wh-phrase in gender:*

a. *__Welchen__ Mann glaubst du [$_{CP}$ __was__ sie ___ gesehen hat]?
__which__ __man__ believe you __what__ she seen has
'Which man do you think she has seen?'

b. __Welchen Mann__ glaubst du [$_{CP}$ __wen__ sie ___ gesehen hat]?
__which__ __man__ believe you __who__ she seen has
'Which man do you think she has seen?'
(German; Pankau 2013:59)

The key observation is now that a conflict arises with complex *wh*-phrases that are overtly marked for feminine or plural. The copied *wh*-pronoun should agree in gender and number, but there is no agreeing pronoun in the paradigm in (85). The result is that *wh*-copying is obligatorily absent, as the examples in (88a–b) attest for extraction of a singular feminine.

(88) *Feminine complex wh-phrase prohibits wh-copying:*

a. *__Welche Frau__ glaubst du [$_{CP}$ __wen__ er ___ eingeladen hat]?
__which__ __woman__ believe you __who.MASC.ACC__ he invited has
'Which woman do you think he has invited?'

b. *__Welche Frau__ glaubst du [$_{CP}$ __was__ er ___ eingeladen hat]?
__which__ __woman__ believe you __who.NEUT.ACC__ he invited has
'Which woman do you think he has invited?'
(German; Pankau 2013:63)

Instead, only regular long *wh*-movement is possible. These facts suggest that *wh*-copying must involve matching in gender and plural, in addition to case, and that a gap arises as a result, just as in Dinka *ké*-copying. We can understand this gap if *wer* and *was* are not default forms, but are specified for masculine and neuter, respectively.[25] If correct, there would be no *wh*-pronominal that can spell out the *wh*-phrases in (88a–b) without a mismatch in gender features, leading to an absence of *wh*-copying.

We can find more evidence for the view that the ungrammaticality of (88a–b) follows from the requirement that copied *wh*-pronouns match in number and gender. Pankau observes that speakers who allow relative pronouns in *wh*-copying may employ these instead in these configurations (89a–b). Importantly, relative pronouns *do* come in feminine and plural forms, unlike the *wh*-pronouns.

(89) *Copied relative pronouns alleviate gender mismatch:*

[25]Importantly, this means that a form like *wer* carries a [+masculine] feature that is not interpreted (because *wh*-questions using *wer* are not restricted to men). This idea receives independent support from the fact that pronouns bound by a *wh*-phrase must also be masculine in form, as Fanselow, Kliegl, and Schlesewsky (2005) point out, even though no semantic restriction to men is present (ia). Conversely, grammatically feminine pronouns cannot be bound by a *wh*-phrase (ib).

(i) a. Wer$_i$ hat seinen$_i$ Mantel verloren?
who has his coat lost
'Who has lost his coat?'

b. Wer$_i$ hat ihren$_{k/*i}$ Mantel verloren?
who has her coat lost
'Who has lost her coat?'
(German; Fanselow, Kliegl, and Schlesewsky 2005:42)

a. **Welche Frau** glaubst du [$_{CP}$ **die** er ___ eingeladen hat]?
which woman believe you **who.FEM.SG** he invited has
'Which woman do you think he has invited?'

b. **Welche Frauen** glaubst du [$_{CP}$ **die** er ___ eingeladen hat]?
which women believe you **who.PL** he invited has
'Which women do you think he has invited?'
(German; Pankau 2013:62)

In these contexts then, the gap disappears, because there are pronouns available that can express the number and gender of the relevant *wh*-copies.

There is a third gap that appears with pronoun copying, in fact commonly found in *wh*-copying. Many researchers working on *wh*-copying have noted that, for many speakers, *wh*-copying is limited to *wh*-pronominals (e.g. Fanselow and Mahajan 2000:220–221; Felser 2004:550; Pankau 2013:46–47). Such speakers allow (90a), but disallow copying with complex *wh*-phrases (90b–c).

(90) *Some speakers only tolerate copying with pronouns:*

a. **Wen** glaubst du [$_{CP}$ **wen** sie ___ liebt]?
who believe.2SG you **who** she loves
'Which man do you think she loves?'

b. ***Welchen Mann** glaubst du [$_{CP}$ **wen** sie ___ eingeladen hat]?
which man believe.2SG you **who** man she invited had
'Which man do you think she has invited?'

c. **Welchen Mann** glaubst du [$_{CP}$ dass sie ___ eingeladen hat]?
which man believe.2SG you that man she invited had
'Which man do you think she has invited?'
(German; Pankau 2013:1,47)

Van Craenenbroeck and Van Koppen (2002) show that similar variation exists across dialects of Dutch with regard to subject doubling constructions. In the Wambeek variety discussed in 2.2, both complex and pronominal subjects can be doubled by a pronoun (91a–b).

(91) *Subject doubling with complex and pronominal subjects in Wambeek Dutch:*

a. **Dei vrou** gui **zij**.
that woman go **she**
'That woman is going.'

b. **Zij** gui **zij**.
she go **she**
'She is going.'
(Wambeek Dutch; Van Craenenbroeck and Van Koppen 2002:56)

But in other Dutch dialects, such as the Lapscheure or Brabant dialect, only pronouns participate in copying and never complex DPs. Examples from the Brabant dialect in (92a–b) demonstrate.[26]

[26] As Van Craenenbroeck and Van Koppen note, interesting differences emerge between the strong and weak pronouns in pronoun copying too. The copied pronoun is always strong, while dialects vary as to whether the antecedent can be. I hope that this variation could be made to follow from a partial spell-out approach like the one I outline in the rest of this chapter.

(92) *Subject doubling only with pronominal subjects in Brabant Dutch:*

a. ***Die vrau** komt **zij**.
that woman comes **she**
'That woman will come.'

b. **Zij** komt **zij**.
she comes **she**
'She will come.'
(Brabant Dutch; Van Craenenbroeck and Van Koppen 2002:56)

In these pronoun copying constructions then, a gap arises with complex *wh*-phrases. Multiple copy spell-out is only possible if both DPs are pronouns.

To sum up this section briefly, I discussed three cases of pronoun copying in which not all antecedents are able to trigger copying. In the next section, I use these effects and the person-number asymmetry highlighted in section 4.1 to argue for a partial spell-out view.

5 Pronoun copying as partial spell-out

In this section, I develop a partial spell-out approach to pronoun copying, which I will argue is capable of deriving pronoun copying and the asymmetries documented in section 4. My point of departure for this account is Dinka *ké*-copying, and the asymmetries and gaps associated with it. I start by investigating the expression of number across Dinka, which will motivate the idea that there is an asymmetry between the 3rd person singular and plural pronoun. This asymmetry will turn out to be responsible for most of the unusual properties associated with *ké*-copying. I then propose a model of copy deletion, adopting ideas by Landau (2006), that renders NP deletion obligatory in the context of multiple copy spell-out, forcing DPs to copy as pronouns. This partial deletion view can derive the asymmetries and gaps associated with pronoun copying. Finally, I provide some discussion of why *ké*-copying should be absent from the CP edge.

5.1 Plural marking in Dinka

A crucial claim of this paper is that the asymmetries and gaps associated with pronoun copying in Dinka provide direct insight into the mechanisms behind pronoun copying. As demonstrated in section 3 and 4, unlike in many other languages, pronoun copying in Dinka has a special relationship with plurality. Only plural noun phrases trigger a copied pronoun, never singular DPs (93a–b).

(93) *Kê-copying is limited to plurals:*

a. Yè **kɔ̂ɔc-kó** [$_{CP}$ cɪ̈i Bôl [$_{vP}$ **ké** tɪ̈iŋ]]?
be **people-which** PRF.OV Bol.GEN **3PL** see.NF
'Which people has Bol seen?'

b. Yè **ŋà** [$_{CP}$ cɪ̈i Bôl [$_{vP}$ **(*yé)** tɪ̈iŋ]]?
be **who** PRF.OV Bol.GEN **3SG** see.NF
'Who has Bol seen?'

In addition, when the antecedent is a pronoun, only the plurality of the pronoun is expressed on the copied pronoun.

Because it manifests both a feature asymmetry and a gap, this pattern is a good test case for a theory of pronoun copying. In this section, I draw a parallel between the sensitivity of pronoun copying to number and the way plural is marked across paradigms in Dinka. In particular, I show that the same morpheme, *k(e)*, functions as plural inflection in a range of morphosyntactic environments. In contrast, although some paradigms have a regular way of marking singular, none of these have cross-paradigmatic uses. I argue that this provides insight into what is special about the 3rd person plural pronoun. To be precise, I propose that *k(e)* is a general spell-out of plural, unspecified for morphosyntactic context, so that we can maintain a view in which the 3rd person plural pronoun spells out only plural. Singular lacks such a morpheme and so I suggest that the insertion rules for the 3rd person singular pronoun all make reference to person. If partial spell-out removes all but the part of the copy that encodes number (i.e. the Num(ber) head), this view explains why only the third person plural pronoun can appear in copying configurations.

Let me first motivate the idea that *k(e)* is a general plural marker in Dinka, employed in a variety of paradigms. The first of these paradigms concerns an agreement prefix on the second position verb/auxiliary called the declarative or interrogative particle, which expresses φ-agreement with the nominal in Spec-CP, tense, and clause type. The paradigms of this particle are repeated in (94) and (95).

(94) *Declarative particle:*

PRES	SG	PL
1st/2nd	∅-	∅-
3rd	à-	áa-

PAST	SG	PL
1st/2nd	é̤-	é̤-**kè**-
3rd	é̤-	áa-**kè**-

(95) *Interrogative particle:*

PRES	SG	PL
1st/2nd	∅-	∅-
3rd	∅-	∅-

PAST	SG	PL
1st/2nd	é̤-	é̤-**kè**-
3rd	é̤-	é̤-**kè**-

One of the regularities in this paradigm is that, in the past tense, plural is always expressed by the prefix *kè*, which comes after the past tense prefix. This is the only regular process of inflection marking number, though there are some irregular ways of distinguishing singular and plural, such as the contrast between *à-* and *áa-* in the declarative present.

The pronominal paradigms also provide evidence that *k(e)* is associated with plural in Dinka. In independent pronominals, plural is marked with a final *-k*, as highlighted in the paradigm for pronouns in the absolutive case in (96). This final consonant stands in opposition to the final *-n* found with singular pronouns.

(96) *Dinka pronouns (absolutive case):*

	SG	PL
1st	ɣêɛn	wɔ̂ɔ**k**
2nd	yî̤in	wêe**k**
3rd	yêen	kêe**k**

Although there is regular marking for singulars here also, this final *-n* does not show up as singular marking in any other paradigm.

A similar pattern is found with pronominal possessors. These attach as enclitics to nouns. Although they do not regularly form singular and plural pronominals, they use *k(e)* as a regular

spell-out for number agreement. Some examples of number agreement are given in (97a–b), where we see that these possessor enclitics have a different initial consonant depending on the number of the possessum.

(97) *Possessor clitics agree in number with possessum:*

a. kìtâam-**d**ù̈
book.CS-**SG**.2SG
'your book'

b. kìtɛ̀ɛp-**k**ù̈
books.CS-**PL**.2SG
'your books'

This number inflection is regular. Possessor clitics take the prefix *d-* for singular nouns and *k-* for plural nouns. The full paradigm appears in (98).

(98) *Pronominal possessor paradigm:*

	SG	PL
1SG	-diè̤	-**c**iè̤
2SG	-dù̈	-**k**ù̈
3SG	-dè	-**k**è
1PL	-dà	-**k**uà
2PL	-duǫ́n	-**k**uǫ́n
3PL	-dén	-**k**én

Again, we see that *k(e)* does work as a regular plural morpheme. The only apparent exception, the 1st person singular enclitic with plural agreement, *ciè̤*, is the result of a palatalization rule targeting *ki* sequences that is specific to the Bor dialect (in other dialects, such as Nyaarweng, this rule is not found and the enclitic is *-kiè̤*).

Dinka has a third pronominal paradigm, for subject clitics that attach to the second position verb or auxiliary. These pronominal clitics are used whenever a pronominal subject is not in clause-initial position (99a–b).

(99) *Pronominal non-initial subjects are expressed by clitics:*

a. Wɔ̂ɔk nhìar pêen.
we love town
'We love the town.'

b. Pêen à-nhiɛ́ɛr Bôl.
town 3S-love.OV Bol.GEN
'The town, Bol loves.'

c. Pêen à-**nhiárkù̈**.
town 3S-love.1PL
The town, we love.'

As evident in the examples above, these clitics affect the second position verb/auxiliary in a number of ways (Andersen 1993). Subject clitics trigger allomorphy in the verb or auxiliary they attach to. The verb *nhiɛ́ɛr* in (99b), for example, becomes *nhíar* in (99c) when followed by the 1st person

plural enclitic *-kù̈*. Singular clitics are even more complicated and marked solely by changes to the root. I will not cover this system in detail in here, but see Andersen (1993) for an extensive overview. Suffice it to say that there are number of phonological changes that create the resulting paradigms, but we can set aside most of these here. What it is important for our purposes is that all the plural forms involve an enclitic with an initial *k-*. Several example paradigms of verbs in Dinka Bor illustrating this are given below.

(100) *Subject clitic paradigm for câam ('eat'):*

	SG	PL
1st	càam	cám-**k̲**ù̈
2nd	càm	cám-**k̲**è̈
3rd	cɛ̀ɛm	cám-**k̲**è̈

(101) *Subject clitic paradigm for kuêen ('read'):*

	SG	PL
1st	kuɛ́ɛn	kuèn-**k̲**ù̈
2nd	kuén	kuèn-**k̲**è̈
3rd	kuéen	kuèn-**k̲**è̈

(102) *Subject clitic paradigm for gə̂ə̈r ('write'):*

	SG	PL
1st	gə̀ə̈ar	gɛ́̈t-**k̲**ù̈
2nd	gə̀ə̈r	gɛ́̈t-**k̲**è̈
3rd	gɛ́̈ɛ̈r	gɛ́̈t-**k̲**è̈

(103) *Subject clitic paradigm for pîiŋ ('hear/listen'):*

	SG	PL
1st	piɛ̀ɛŋ	píŋ-**k̲**ù̈
2nd	pìŋ	piéŋ-**k̲**è̈
3rd	pìiŋ	píŋ-**k̲**è̈

In these paradigms, we can see that, as mentioned above, the singular forms are marked only by changes in the verb root, either in tone, vowel length, or vowel quality. The plural forms may also be marked by such alternations (see Andersen 1993), but also always involve a regular process of plural marking using an enclitic starting with a *k-*.

Another set of items with plural and singular inflection are Dinka's enclitic demonstratives. Dinka has distal, promixal, and *wh*-demonstratives. Like the possessors, these inflect for the number of the noun. There is no consistent way of marking singular across these forms, but the plural is always formed by adding an initial *k-* to the singular base (104).

(104) *Dinka demonstratives:*

	SG	PL
WH	-ò	-**k̲**ò
PROX	-è̈	-**k̲**è̈
DIST	-tì̈	-**k̲**uì̈

There is good evidence then that *k(e)* functions as a general spell-out of plural in Dinka. None of the five paradigms described here mark singular in the same way. Not all of them even have regular singular inflection. In contrast, plural consistently uses the same inflection. There is no regular marking for plural in any of these paradigms that does not involve *k(e)*.

It is important to note that, outside of these paradigms, there are instances in which plural is not marked by *k(e)*. In the examples presented above, we can already see this in the present tense paradigm of the declarative particle and in the possessor clitics. The present tense declarative paradigm, for instance, marks the opposition between 3rd person singular and plural by a change in vowel length and in tone (*à* vs. *áa*). A much bigger pool of variation is found with Dinka nouns, which have been claimed to only have irregular plural marking (Ladd et al. 2009; Andersen 2014). Almost all Dinka nouns pluralize by changes to the root, either in tone, length, voice, or vowel quality. Some example pairs for a number of nouns are given in (105).

(105) *Dinka noun pairs:*

SG	PL	Meaning
nhòm	nhî̤im	'head'
kìtáap	kìtɛ́ɛp	'book'
păal	pɛ̆ɛɛl	'knife'
rĭ̤ɔu	rì̤p	'nail'
c̆i̤in	cìn	'hand'
kè̤r	ké̤e̤t	'shoulder'
nyáaŋ	nyi̤ɛ̆e̤ŋ	'crocodile'

As these pairs show, plural is marked in a large variety of ways. In detailed studies of Dinka plurals, Ladd et al. (2009) and Andersen (2014) conclude that the number of a noun cannot be deduced from its phonological form. Whether this conclusion is right does not matter for our purposes, but it is worth noting that it could mean that *k(e)* represents the only regular form of plural inflection in Dinka.

We have seen so far then that *k(e)* is used in a number of different paradigms to encode plural. On the basis of this, I propose that *k(e)* is the default spell-out of the feature [plural] in Dinka, unspecified for morphosyntactic context (106).

(106) *A spell-out rule for plural in Dinka:*
[plural] → *k(e)*

In contrast, singular does not have any overt cross-paradigmatic marking. I propose that this is because it lacks an elsewhere form.[27]

With this understanding of number in place, we can link the asymmetry between singular and plural evident to the asymmetry in *ké*-copying. Consider again the inventory of Dinka pronouns (107).

(107) *Dinka pronouns (unmarked case):*

[27] An alternative would be to say that there is a null elsewhere form for singular. This would also work for the proposal that I will develop.

	SG	PL
1st	ɣêɛn	wɔ̂ɔk
2nd	yï̱in	wêek
3rd	yêen	kêek

What sets apart the 3rd person plural pronoun is that it is the only pronoun that consists of morphemes that appear in other paradigms as well, namely as the expression of plural. On this basis, I propose that the 3rd person plural pronoun *ké(ek)* is the realization of the feature [plural] and so expresses only a number feature.[28] In contrast, I suggest that all other pronoun contain both an expression of person (the initial CV(V)) and an expression of plural (the final C). This results in an asymmetry in the pronoun inventory that mirrors the asymmetry between singular and plural across the language.

A set of spell-out rules compatible with the idea outlined above is given in (108).[29]

(108) *Suggested spell-out rules for Dinka pronouns:*
[1] → *ɣɛ*
[1] → *wɔ* / ___ [plural]
[2] → *yï̱*
[2] → *we* / ___ [plural]
[3] → *ye* / ___ [singular]
[3] → ∅

[plural] → *ke*
[singular] → *-n* / [person] ___

These rules capture the asymmetry I posit between the 3rd person plural pronoun and the 3rd person singular. The pronoun *ké(ek)* is the only one in the paradigm that spells out number in isolation (its person component is null). In contrast, all the other pronouns consist of an overt person and number affix, where the person morphemes in isolation may also serve as the reduced pronouns. The singular component of pronouns always references person (and has no elsewhere form), where the 3rd person plural pronoun represents the elsewhere form for plural.

Another way of encoding this asymmetry between the 3rd person singular and the 3rd person plural pronoun is to make use of the nanosyntactic notion that morphemes may spell out phrases (e.g. Starke 2010). Under such a view, we could take the 3rd person plural pronoun to realize just a Number phrase, while other pronouns realize a larger structure, including person information. This yields equivalent results, as far as I can tell.

This view of Dinka pronouns derives the properties of *ké*-copying if we assume that pronoun copying in Dinka realizes only number. Because only *ké(ek)* spells out number alone, it is the only pronoun capable of surfacing in copying constructions. This creates the gap with singular DPs and

[28]There are at least two ways of deriving the variation between the short form *ké* and the full form *kêek* that are compatible with this. The simplest way is probably to say that both are allomorphs of [plural]. An alternative is to take seriously the apparent doubling of plural marking and propose that the full form of a pronoun obeys a CVVC template, which triggers copy epenthesis. As Andersen (1993) shows, Dinka does place restrictions of this type on some lexical categories. Lexical verbs, for example, must have a coda and their base form (the non-finite form) cannot have a short vowel.

[29]The tones represent case and I assume come from the spell-out rules for case morphology. It is also possible that the absolutive contour is underlying or default, particularly if unmarked case is taken to reflect the absence of case.

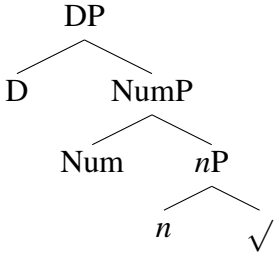
leads to a feature mismatch with 1st and 2nd person pronouns. In the next section, I turn to the question of what forces partial deletion and what is responsible for the fact that Dinka deletes all but the part of the DP that encodes number in intermediate copies.

5.2 A model of copy deletion

In this section, I suggest a constraint on copy deletion (that deletion is limited to phases), which I argue results in partial deletion with DP movement. In particular, I suggest that there are two phasal domains in the DP, DP and *n*P, and that an economy constraint which enforces as much copy deletion as possible leads to deletion of *n*P in the context of multiple copy spell-out.

Much recent work proposes that number is encoded by a dedicated Num(ber) head in the extended nominal projection (e.g. Abney 1987; Carstens 1991; Ritter 1991; Déchaine and Wiltschko 2002; Kramer 2009, and many others). In addition, I adopt the idea that there is a *n* head which combines with the root and categorizes it. In this view, DPs consist at least of the structure in (109).[30]

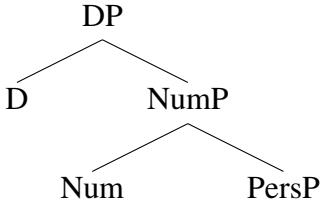
(109) *Structure of DPs:*



I posit that both D and *n* are phase heads, so that there are two phases in a lexical DP. This will become important for deriving partial deletion.

Following Moskal (2015), I adopt an analogous structure for pronouns, replacing the *n*P with a (functional) head that encodes person. In this view, the core of a pronoun is a phrase that encodes person, which I call PersP.[31] PersP merges with the same extended projection (110).

(110) *Structure of pronouns:*



Importantly, this structure puts the locus of number above person. This is motivated by the observation that, when pronouns can be decomposed into person and number, number affixes appear to come between person and case affixes.[32] In Turkish, for instance, the plural suffix *-lar*/*-ler* is used to form the 3rd person plural pronoun and comes between the suppletive 3rd person form *on* and

[30] We may additionally posit a K head above D (e.g. Lamontagne and Travis 1987; Bittner 1994; Bittner and Hale 1996a,b; Levin 2015).

[31] See Gruber 2013 for an explicit proposal of what the internal structure and semantic content of such a PersP might be.

[32] This is reminiscent of Greenberg's (1963:95) Universal 39:

case suffixes (111a). A similar pattern is found in Kayardild (111b).

(111) *Number suffixes on pronouns come before case and after person:*

a. on-lar-ɪ
3PL-PL-ACC
'them'
(Turkish)

b. ŋa-l-da
1-PL-NOM
'we'
(Kayardild; Evans 1995:202)

With these structures in place, we need a theory of copy deletion and multiple copy spell-out. For this, I will make use of Landau's (2006) treatment of verb copying in Hebrew, which provides an explicit set of constraints on copy deletion that can deliver multiple spell-out. Landau is concerned with cases such as (112), in which fronting of the verb requires two instances of the verb be spelled out.

(112) *Verb copying in Hebrew:*

lirkod, Gil lo **yirkod** ba-xayim.
dance.INF Gil not **will-dance** in-the-life
'As for dancing, Gil will never dance.'
(Hebrew; Landau 2006:1)

As mentioned in the introduction and above, such verb copying constructions are commonly found with instances of verb fronting. To derive the existence of such patterns, Landau proposes the principles of P-recoverability and Economy of Pronunciation, defined in in (113) and (114), to constrain pronunciation of copies.

(113) *P-Recoverability:*
In a chain $<X_1, \ldots X_i, \ldots X_n>$, where some X_k is associated with phonetic content, X_k must be pronounced.
(Landau 2006:31)

(114) *Economy of Pronunciation:*
Delete all chain copies at PF up to P-recoverability.
(Landau 2006:30)

Taken together, these two principles force deletion of all copies except for one in most instances. P-Recoverability is satisfied once one copy is fully spelled out. At that point, Economy of Pronunciation will force deletion of all other copies. However, P-Recoverability allows for situations of multiple copy spell-out by means of the notion of "association with phonetic content", Landau's definition of which is given in (115).

(i) *Greenberg's Universal 39:*
Where morphemes of both number and case are present and both follow or both precede the noun base, the expression of number always comes between the noun base and the expression of case.

(115) X is *associated with phonetic content* iff:

a. X has phonetic content, or
b. X is in a position specified with some phonological requirement (Landau 2006:31)

The clause in (115b) allows for copies that reside in particular syntactic positions to resist deletion even when they have no unique phonetic content, if that position comes with a unique phonological requirement. In the case of verb copying, Landau suggests that the lowest copy of the verb must be realized to satisfy the phonological requirement that tense morphology needs to be hosted on the verb. He proposes that one of the copies of the verb is in T and is subject to the Stray Affix Filter. As a result, P-Recoverability is only satisfied if this copy is spelled out rather than deleted.[33]

This approach assumes that copy deletion is driven by economy, rather than by the need to avoid linearization conflicts, as in Nunes's (2004) Chain Reduction approach. This is necessary to capture instances of multiple spell-out that do not seem to involve clitics, such as Hebrew verb copying, or the Dinka pronoun copying pattern described in this paper.

I adopt Landau's principles here and suggest that the various factors driving pronoun copying can be thought of phonological requirements in the sense of (115). We can think of pronoun copying driven by cliticization, as in clitic doubling constructions or some cases of resumption, in this way, for example. In particular, I posit that cliticization reflects the need of a functional head to undergo morphological merger with a clitic (as in Harizanov 2014, Kramer 2014). In addition, I propose that the EPP property of Spec-TP as well as the V2 property of *v*/C in V2 languages may function as a phonological requirement in the sense of (115).[34] These properties can then yield multiple copy spell-out under Landau's P-Recoverability principle.

Multiple copy spell-out of DPs diverges from verb copying in an important respect, however. In the case of verb copying, the copies under consideration are heads, if potentially complex ones, and not phrases. As a result, in order to satisfy a phonological requirement in the sense of (115), multiple copy spell-out needs to involve all of the relevant copies (assuming that complex heads act as a unit for spell-out). An interesting possibility emerges when multiple copy spell-out targets a multi-word phrase, such as a complex DP. In principle, Economy of Pronunciation should be able to delete some of the material in a phrasal copy, as long as it leaves a prosodic unit capable of satisfying the phonological requirement driving multiple copy spell-out. In fact, Economy of Pronuncation should render this obligatory, because it deletes as much material as possible, and so should limit multiple copy spell-out of a phrasal constituent to a "minimal" one, or a single prosodic word.[35] It is this difference between heads and phrases that I will hold responsible for the asymmetry between nouns and verbs that is apparent when we compare verb copying and pronoun copying: verbs copy as verbs, but DPs copy as pronouns. I suggest that what unifies these is that they represent the most minimal form a verb or DP can take in compliance with Economy of

[33]It is also necessary for there to be a phonological requirement associated with the higher copy, because otherwise Economy of Pronunciation will deliver covert movement.

[34]One way to make this more concrete could be to adopt a phonological view of the EPP (Richards 2001; Boeckx 2003; Richards 2015). Richards (2015), for instance, argues that the EPP reduces to something like the Stray Affix Filter.

[35]The proposal that copy deletion aims to delete as much as possible seems similar to the idea that ellipsis is constrained by MaxElide (Takahashi and Fox 2005; Merchant 2008; Hartman 2011). If constraints on ellipsis correspond closely to constraints on deletion, as Landau (2006) suggests, Economy of Pronunciation and MaxElide could perhaps be viewed as the same constraint, modulo the role of Parallelism domains.

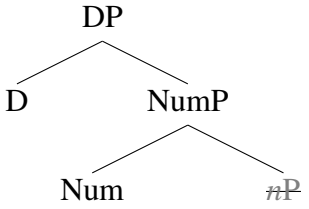
Pronunciation.

A problem is that there are many possible patterns of subdeletion that can arise in copies of DPs and pronouns. A key claim of my account is that subdeletion is actually highly constrained. In particular, I propose the constraint on copy deletion in (116).[36]

(116) **A constraint on copy deletion:**
Only phases may undergo copy deletion.

The constraint in (116) amounts to the claim that only phasal units are transferred to PF.[37] In addition to this, I propose that the highest head in an extended projection is always a phase head, as in a dynamic conception of phases (e.g. Bobaljik and Wurmbrand 2005; Bošković 2014). In cases of phrasal movement with a spell-out of a single copy, this effectively means that the effects of (116) are indistinguishable from full copy deletion, because a full copy corresponds to a phase. However, (116) also allows a partial copy deletion option that I propose is behind pronoun copying patterns. In particular, (116) predicts that one option of partial deletion is possible in a DP, namely deletion of *n*P. In a copy of a lexical DP, the structure that is left behind consists of D, and Num (117).

(117) *Structure of DPs with partial deletion:*



Because these heads are all present in pronouns also, the resulting structure can be spelled out as a pronoun. This yields pronoun copying, as long as there are pronouns that are capable of spelling out just D and Num, as I will claim.

Before going into more detail about how (117) works as a model of pronoun copying, let me briefly discuss one potentially problematic consequence of (116). Importantly, (116) is incompatible with traditional head movement, because the copy left by head movement is not a phase. As a result, all head movement should result in copying constructions. One aspect of this that is encouraging is that Ā-movement of heads does very frequently lead to multiple copy spell-out. This observation led Trinh (2011) to posit a constraint on copy deletion with Ā-movement of heads that is very similar to (116).[38] Something then must exempt traditional head movement from the effects of (116). One possibility, which I will adopt here for the sake of clarity, is that such head

[36]This is reminiscent of the idea that ellipsis domains correspond to phasal domains, although it is important here that the phase head is deleted along with the rest of the phase.

[37]This fits best with the linearization-based view of successive cyclicity in Fox and Pesetsky (2005). Fox and Pesetsky propose that all of a phase undergoes Transfer and is fed into a linearization algorithm. The escape hatch function of the phase edge derives from the fact that the leftmost phrase in a phase can move to a higher position without creating linearization conflicts.

[38]In particular, Trinh proposes that copies left by head movement can only be deleted in they are final in a phrase (i.e. not followed by an object), based on contrasts between VO/OV languages and differences between transitives and intransitives. For the cases he discusses, we can effectively re-interpret this as the idea that copies of heads can only delete if they are the only element in a phase.

movement effects are not achieved by syntactic movement but rather reflect morphophonological operations (e.g. Brody 2000; Hale and Keyser 2002; Harley 2004; Adger 2013; Hall 2015).

Support for this view of the difference between verb copying and pronoun copying comes from the prediction that we should see noun copying if it is possible to move a noun out of a more complex DP by itself. Trinh (2011) argues that this happens in Vietnamese. To be precise, Trinh shows that, in Vietnamese, a noun can be topicalized while stranding the rest of the DP, including numerals and classifiers. In such instances, the lower copy of the noun may undergo multiple copy spell-out (118a–b).

(118) *Noun copying in Vietnamese:*

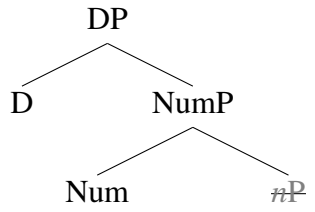
a. **ban** thi no se gap [$_{DP}$ hai nguoi **ban** cua John]
friend TOP he will meet two CLASS **friend** of John
'Friend, he will meet two friends of John.'

b. **vo** thi no se gap [$_{DP}$ hai nguoi **vo** cua John]
wife TOP he will meet two CLASS **wife** of John
'Wife, he will meet two wives of John.'
(Vietnamese; Trinh 2011:80)

This is evidence that nothing in principle rules out noun copying and further support for the idea that pronoun copying occurs specifically with phrasal movement.[39]

Given the constraint on copy deletion I proposed above, we can see why a pronoun would be the most minimal form of a DP. There are essentially two deletion options in a DP copy, deletion of DP or deletion of *n*P. Since DP deletion requires deleting the *n*P as well, DP deletion is not an option, because it would leave unsatisfied the phonological requirement responsible for multiple spell-out. Unlike with verbs, however, there is a permissible operation of subdeletion, *n*P deletion. The application of *n*P deletion is forced by Economy of Pronunciation, since the resulting phrase is still capable of satisfying P-Recoverability. As a result, multiple copy spell-out in the context of DP movement necessarily yield (119).

(119) *Structure of DPs with partial deletion:*



[39]Similarly, multiple copy spell-out in the context of movement of a verb phrase should result in subdeletion of one of the copies. This configuration could be represented by instances of *v*P-movement that involve verb copying, like the Polish example in (i):

(i) *Polish vP-fronting accompanied by verb copying:*
Kupić kwiaty (to) Maria kupila, ale nie kupila prezentu.
to.buy flowers PRT Mary bought but not she.bought present
'As for buying flowers, Mary bought them, but she didn't buy a present.'
(Polish: Bondaruk 2009:65)

As mentioned above, because the remaining structure is shared with pronouns, this may yield a pronoun. Note that Economy of Pronunciation will also force deletion of any phrasal dependents of the extended nominal projection as well. If the highest head of an extended projection is always a phase, deletion of adjectives and phrasal quantifiers is always possible and therefore required. This explains then why no lexical material surfaces with a copied pronoun.

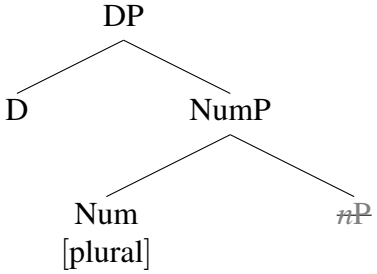
Assuming this general model of pronoun copying, I now turn to the question of how to account for the properties of pronoun copying that I described in section 4. I will start by demonstrating how it accounts for the gaps and asymmetries found with *ké*-copying in Dinka and then turn to how it captures variation in pronoun copying across languages.

5.3 Partial spell-out, asymmetries, and gaps

The previous section motivated the idea that DPs that undergo multiple copy spell-out must undergo *n*P deletion. I will now argue that this view is able to derive all the key properties of pronoun copying. I start by showing how *n*P deletion derives the existence of gaps. If partial spell-out involves *n*P deletion in the structures outlined above, we expect to find gaps in those cases where there is no relevant pronoun that only spells out number (Dinka *ké*-copying) and when there is no suitable pronoun that can match the features of the structure left by deletion (German *wh*-copying and pronoun-only copying). I extend this approach to the person-number asymmetry documented in section 4.1 by claiming that languages may vary as to whether Person introduces a second phasal domain. In such languages, pronouns too would trigger partial deletion, leaving only number information and deleting person. As a result, copied pronouns always match in number.

I demonstrate the basics of a partial spell-out approach by showing how *n*P deletion explains the gap found with *ké*-copying. I posit that a plural DP copy left by movement to the *v*P edge is associated with a phonological requirement that something be spelled out (courtesy of the V2 property of *v*, described in detail in [omitted] (2015). [40] Because of Economy of Pronunciation, *n*P deletion obligatorily applies (120).

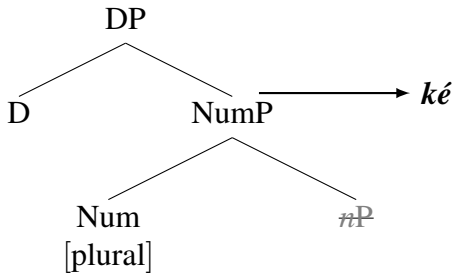
(120) *Structure of plural DP copy with NP deletion:*



The remaining structure is shared with pronouns, with the exception of the PersP at the core of a pronoun. As a result, the structure in (120) can be spelled out as a pronoun as long as there are pronouns that only realize D+Num structure. Because the Dinka insertion rules for the 3rd person plural pronoun *ké* reference only a plural Number head, this condition is met and (120) can be spelled out as *ké(ek)* (121).

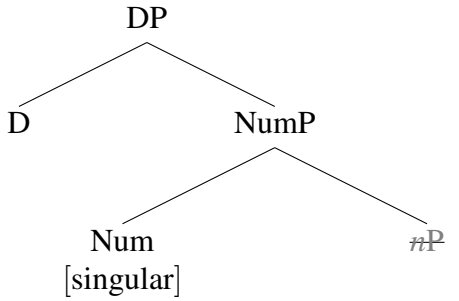
(121) *Structure of plural DP copy with nP deletion:*

[40] One tricky question is why this V2 property forces spell-out when a copied *ké* accompanies an overt DP object, as in cases of adjunct extraction. I leave this issue open here.



We can also understand why *ké*-copying does not care about the complexity of the DP antecedent. One of the properties of *ké*-copying is that it behaves the same way regardless of whether the antecedent is itself of a pronoun or a complex DP. Recall that I proposed that phrasal dependents of the noun are always phasal and so may be deleted in accordance with Economy of Pronunciation. In addition, this proposal explains the absence of pronoun copying with singular DPs. *n*P deletion applies to a singular copy as well, leaving D and a singular Num, as represented in (122).

(122) *Structure of singular DP copy with nP deletion:*



The insertion rules I posited for Dinka pronouns, however, cannot create a pronoun from this structure. The relevant rules are repeated in (123).

(123) *Revelant spell-out rules for 3rd person singular pronoun:*
[3] → *ye* / ___ [singular]
[singular] → *-n* / [person] ___

Both insertion rules that create the 3rd person singular pronoun *yêen* make explicit reference to person. Because there is no projection that encodes person in (122), no pronoun can be created from this structure. There is no general (overt) spell-out for singular in Dinka in the way that there is for plural and so the structure in (122) can only receive a null spell-out. Alternatively, if we adopt a phrasal spell-out view, a 3rd person singular pronoun cannot be inserted because it realizes a larger structure, one that includes a PersP node.

It is important here that copy deletion rules are myopic in a specific way. In order for gaps in pronoun copying to be admissible, it is crucial that the attempt to spell out the structure in (122) still satisfies the phonological requirement imposed by V2, even though no overt form results. Note, however, that this conclusion is presumably generally necessary for V2 in Dinka, given that V2 can be satisfied by *pro*-drop (specifically, by *pro*-drop of 3rd person pronouns in Spec-CP). See

Richards (2015) for a similar kind of blindness in the mapping from syntax-to-PF.

Although not necessarily as morphologically obvious as in Dinka, I propose that, in languages that lack the singular gap, all 3rd person pronouns spell out only the Number head. This is what differentiates a language like Nupe or Finnish from Dinka. I posit that Nupe *u:* and Finnish *se*, for instance, come about by means of an insertion rule of the form in (124).[41]

(124) *Spell-out rules for 3rd person singular pronouns in Nupe and Finnish:*
[singular] → *u:*
[singular] → *se*

As a result, pronoun copying is possible with singular as well as with plural DP copies and no gap is found.[42]

This approach can be extended to the gap found with feminine and plural *wh*-phrases in German *wh*-copying. In this case, *n*P deletion leaves behind Num and D, as well as projections encoding *Wh* and gender. Because there is no suitable *wh*-pronoun that matches all of these features, no pronoun can be created from the resulting structure and a null spell-out results.[43] In addition to this, we can derive the fact that pronoun copying may sometimes only be possible when realizing a copy of another pronoun, as for some speakers of languages with *wh*-copying and subject doubling in dialects of Dutch. For these grammars, I propose that the spell-out rules for all pronouns require reference to the PersP at the core of pronouns but absent in DPs. As a result, a copied pronoun can never be created out of copies of lexical DPs, but only out of copies of pronouns. This gap then reflects the fact that the structure I have posited departs slightly from the idea that pronouns realize the functional layer of a DP (e.g. Postal 1969; Elbourne 2001, 2005). This is almost true in my treatment of pronouns, except they realize one additional projection, PersP. It is this difference that can prevent pronoun copying with lexical DPs.

Now I turn to the issue of how this approach to pronoun copying captures the asymmetry between person and number evident in Dinka *ké*-copying and in a number of other languages. Recall that languages vary in whether copied pronouns match pronouns in person as well as number, but or just in number. We can capture this by allowing the core of a pronoun, PersP, to be deleted optionally as well.

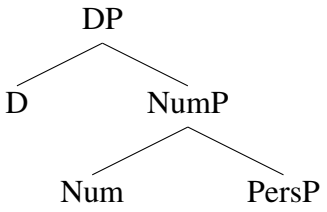
In the structure of pronouns defended above, pronouns consist at their core of a phrase that encodes person (Moskal 2015), as in (125).

(125) *Structure of pronouns:*

[41] We can capture the variation for speakers of Finnish when it comes to plural pronouns by allowing variation in whether the 3rd person plural pronoun spells out only number or both person and number.

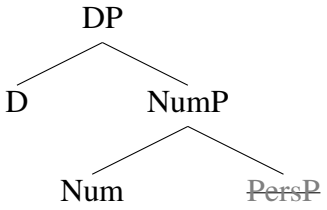
[42] Another option for treating the difference between Dinka and other pronoun copying languages is to allow for 3rd person to reside in D. Dinka lacks indefinite and definite determiners and so could be viewed as a language without an overt D. If D is where 3rd person is encoded in the usual case, this could help explain why the Dinka pattern is so uncommon. (Although it is worth noting that at least Nupe also lacks articles.)

[43] One question that arises here is whether we should expect to find a plain feminine or plural pronoun in these constructions instead. There are a couple of options for ruling this out. We could stipulate that the insertion rules for German pronouns, unlike the *wh*-pronouns, make reference to PersP, therefore banning them from pronoun copying configurations in general. Another option is that *wh*-copying requires the realization of operator morphology, for example if we take to need to realize this morphology to function as the phonological requirement in the sense of Landau's (2006) P-Recoverability.



Suppose now that languages vary as to whether PersP is a phase or not.[44] In a language in which PersP is phasal, partial deletion applies in pronouns too. As a result, only the NumP component of a pronoun survives in multiple copy spell-out, yielding an absence of person features (126).

(126) *Structure of pronoun with PersP deletion:*



This means that pronouns will behave like nouns for the purposes of pronoun copying. In Dinka, this means that they will trigger *ké*-copying if plural and no copying if singular. In a language like Nupe or Finnish, the result is an absence of person matching across the board. If PersP is not phasal, no partial deletion occurs and copied pronouns must express all the features of the pronominal copy. I take this to be the case in Seereer, Yoruba, and languages with clitic doubling like Greek and Bulgarian. In this way, the view that pronoun copying results from partial deletion explains the existence of asymmetries and gaps in many such patterns.

One question is whether we can find independent differences between pronouns in these languages that support the phasal distinction I posit. I want to suggest that suppletion patterns might be one such difference. Moskal (2015) shows that pronouns and nouns differ crosslinguistically in the suppletion patterns they allow. Pronouns commonly supplete both for plural and case, as in the Latvian examples in (127).

(127) *Latvian pronouns supplete for plural and case:*

1st	SG	PL
NOM	es	mēs
DAT/ACC	man/mani	mums/mūs

2nd	SG	PL
NOM	tu	jūs
DAT/ACC	tev/tevi	jums/jūs

(Mathaissen 1997, cited in Moskal, to appear:2)

In contrast, nouns supplete only for number for the most part. In Dinka, for example, the plurals

[44] Alternatively, one could imagine an approach in which PersP represents a root in some languages, introduced by *n*. In such languages, pronouns would be structurally fully parallel to other DPs.

for *mòc* ('man') and *tìik* ('woman') are suppletive (128).

(128) *Dinka nouns may supplete for number:*

SG	PL	
mòc	rɔ̈ɔ̈ɔ̈r	'man'
tìik	diäär	'woman'

Moskal (2015) presents an account of this difference between pronouns and lexical DPs that makes crucial use of the idea that the *n*P phase is missing a pronouns. To be precise, she proposes that, because *n* is a phase head, Case features end up not sufficiently local to the NP root to trigger suppletion (see also Embick 2010, Bobaljik 2012).

In the context of the variation I posited above in how person is encoded in pronouns, this makes the prediction that, in languages with phasal PersP (or number-matching languages), pronouns should behave like nouns with regard to suppletion. In other words, pronouns should fail to supplete for case. This prediction seems to be borne out at least in the sample of languages considered here. In Dinka, pronouns only supplete for number and, like other nouns, mark case only by differences in tonal contour. Nupe lacks case marking and so vacuously satisfies this prediction. Finnish is also compatible with this prediction, because its pronouns are non-suppletive, as evident in the paradigms for 1st and 2nd person pronouns given in (129).

(129) *Finnish pronouns do not supplete for case:*

	1SG	2SG
NOM	minä	sinä
GEN	minu-n	sinu-n
ACC	minu-t	sinu-t
PART	minu-a	sinu-a
ADESS	minu-lla	sinu-lla
ILLAT	minu-un	sinu-un

(Eliseev 1993:100)

In contrast, there is suppletion for case with both Greek and Bulgarian pronouns, although Seereer and Yoruba both also lack case. Suppletion could then potentially serve as an independent diagnostic for the phasal distinction proposed above.[45]

To sum up briefly, I argued that partial spell-out derives the key properties of pronoun copying, in a way that makes sense of its distribution and the asymmetries and gaps that accompany it. The analysis defended here crucially requires that movement leave copies with internal structure, as in the Copy Theory of Movement (Chomsky 1995 et seq.) and that number and person are introduced in separate functional projection in the DP (e.g. Carstens 1991; Ritter 1991; Kramer 2009, and others). Pronoun copying then provides a novel source of evidence for these approaches.

5.4 On the absence of copying at Spec-CP

Before concluding this paper, I will examine the question of why pronoun copying is absent at the CP edge in Dinka. *Ké*-copying offers evidence for successive-cyclic movement through the

[45] We might also expect this distinction to correlate with the admissibility of DPs like *us linguists*, for which it has been suggested that the pronoun is serving as a determiner. Dinka, however, appears to allows such constructions.

*v*P edge, just as *wh*-copying and pronoun copying in Seereer offer evidence for successive-cyclic movement to the edge of CP. One question that arises from the perspective of successive cyclicity is whether we should expect to find languages in which there is pronoun copying both at the CP edge and the *v*P edge. This issue is particularly relevant for Dinka, in which CP and *v*P show highly parallel behavior (see Van Urk and Richards 2015). If the V2 property of *v* is responsible for *ké*-copying, the V2 property of C might be expected to have the same effect. However, *ké*-copying in Spec-CP is ungrammatical (130).

(130) *No ké-copying at Spec-CP:*

Yè **kɔ̂ɔc-kò** [$_{CP}$ yù̱u̱kù̱ ké luêeel [$_{CP}$ è̱ **(*ké)** càm cuî̱in]]?
be **people-which** HAB.1PL 3PL say.NF C **3PL** eat food
'Which people do we say are eating food?'

In this section, I suggest that the absence of *ké*-copying at C is caused by the fact that C hosts φ-agreement with the nominal that moves through its edge. This is an independent difference between C and *v*. I propose that this φ-agreement prefix may serve to satisfy the phonological requirement associated with the V2 property of C, in the same way that *ké*-copying satisfies it for *v*. In support of this, I point out that the distribution of the subject resumption is also tied to φ-agreement.

Dinka C hosts φ-agreement with the nominal that moves to it. We find this both with final and intermediate steps of successive-cyclic movement, as evident in the examples of long-distance relativization and topicalization in (131a–b).

(131) *φ-agreement at C with terminal and intermediate movement:*

a. Yè kɔ̂ɔc-kò [$_{CP}$ **é̱-kè**-yá ké tàak [$_{CP}$ è̱ ___
be people.CS1-which **PST-PL**-HAB.2SG 3PL think.NF C
é̱-kè-cíi Áyèn ké gâam gàlàm]]?
PST-PL-PRF.OV Ayen.GEN 3PL give.NF pen
'Which people did (s)he think that Ayen had given a pen to?'

b. Rɔ̀o̱o̱r **áa**-yù̱u̱kù̱ ké tàak [$_{CP}$ ___ **é̱-kè**-cíi Áyèn ké tî̱iŋ].
men **3P**-HAB.1PL 3PL think.NF **PST-PL**-PRF.OV Ayen.GEN 3PL see.NF
'The men, we think Ayen has seen.'

The presence of this agreement is an independent difference between the edge of the clause and the edge of the verb phrase, where no overt agreement is ever found. I suggest then that this φ-agreement prefix can serve to satisfy the phonological requirement imposed by the V2 property of an intermediate C in the same way that *ké*-copying does at *v*. Importantly, it is just the presence of a prefix that has to satisfy V2 here, because the actual form of the prefix is often null (as in the present tense in (131)). In support of the idea that φ-agreement interacts with an EPP or V2 property in this fashion, it is worth considering the parallel between Dinka pronoun copying and the Nupe, Vata, and Swedish subject resumption pattern discussed previously. In all three languages, a resumptive pronoun must appear in subject position with certain instances of extraction. If this is caused by the EPP property of Spec-TP, we can take these patterns to be driven by a similar phonological requirement as *ké*-copying. Observe that all three languages lack subject-verb agreement. This makes sense if pronoun copying is only necessary when φ-agreement cannot satisfy the EPP requirement of a functional head.

The above discussion suggests that there are likely Dinka-internal reasons why *ké*-copying is only necessary at the CP edge. However, it is worth noting that we have not seen any reason to think it is not possible for a language to display multiple copy spell-out at both the CP and *v*P edge. At the same time, in the model of multiple copy spell-out advocated here, we can see why such a system would be rare. Such a system is only possible if both the CP and *v*P edge display something like the EPP property, and such languages are not at all common. It should be clear, for instance, why we do not expect to find pronoun copying at the edge of the verb phrase in a language like Seereer or German: neither has an obvious EPP position at the edge of *v*P.

6 Concluding remarks

This paper argues that pronoun copying is the counterpart to verb copying for movement of DPs, based on Dinka *ké*-copying as well as a variety of other pronoun copying constructions. I demonstrated that pronoun copying tolerates asymmetries and gaps, which provide crucial evidence for a partial spell-out approach. If correct, then the syntax of gaps is not as opaque as sometimes thought. As with verb copying, the internal structure of gaps becomes transparent in a range of syntactic contexts and offers direct insight into the structure of DPs, providing evidence that all displacement of DPs involves the formation of copies with an articulated internal structure, as in the Copy Theory of Movement (Chomsky 1995 et seq.). Also, *ké*-copying functions as an additional argument for successive-cyclic derivations, because it provides evidence for a step of intermediate movement through the *v*P edge (Chomsky 1986 et seq.). Finally, the approach to pronoun copying defended here shows that person and number are introduced in separate projections within a DP, because they can be separated in copying constructions.

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