Exhaustive Control as Raising: The case of Wolof

Martina Martinović
McGill University

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Abstract

In this paper I present arguments in favor of Grano's (2012, 2015) claim that Exhaustive Control (EC) and Partial Control (PC) are derived via different mechanisms. I investigate the Niger-Congo language Wolof, where control exists with both cross-linguistically typical EC predicates and with typical PC predicates, but it is always only Exhaustive. Interestingly, two other characteristics of typical EC (but not PC) verbs—that they are also restructuring verbs, and that they are exclusively monotransitive (i.e. that they do not take nominal complements)—are also true of all control verbs in Wolof. This confirms a correlation between EC, restructuring, and monotransitivity argued for by Cinque (2004, 2006) and Grano (2012, 2015), which lead them to propose that EC verbs are functional heads in the inflectional layer, meaning that such constructions involve only one subject. I however argue that this bundle of properties cannot be a simple consequence of monoclausal syntax, as typical PC verbs, which Grano claims are lexical, also appear to be lexical verbs in Wolof, yet exhibit all other properties of EC verbs. I therefore propose that the raising analysis must be available in bi-clausal constructions as well. More generally, this argues that at least one type of control is derived via movement, and does not involve a PRO (Hornstein 1999 et seq.).

1 Introduction

Control predicates have been shown to fall into two categories, each characterized by a contrasting set of properties. One of the main issues in the literature on infinitival complements concerns the split between those control constructions that are transparent with respect to some clause-bound processes, and those that are not. The former have been termed *restructuring* constructions, and the class of core restructuring verbs—modals, aspectual, and motion verbs—has been shown to be largely stabile cross-linguistically (Rizzi 1978; Wurmbrand 2001). A well known restructuring diagnostic is the ability of clitics that are arguments of the embedded infinitive to climb into the matrix clause, as illustrated in the Italian examples in (1), with the restructuring verb *want*. The verb *detest*, on the other hand, does not allow clitic climbing, shown in (2) (examples from Cardinaletti and Shlonsky 2004).

(1) *Restructuring*

a. Vorrei [andar**ci** con Maria]
would.want.1SG [go.there with Maria]
'I would want to go there with Maria.'

b. **Ci** vorrei [andare con Maria].

(2) *Non-restructuring*

a. Detesterei [andar**ci** con Maria].
would.detest.1SG [go.there with Maria]
'I would detest to go there with Maria.'

b. ***Ci** detesterei [andare con Maria].

Most accounts of restructuring treat restructuring constructions as monoclausal (e.g. Cinque 2004; Grano 2012, 2015), or as either monoclausal or involving a severely reduced (e.g. VP-sized) infinitival complement, depending on the predicate (e.g. Wurmbrand 2001). Structures as in (2) are generally considered to be biclausal, with a CP-sized infinitival complement.

The second property distinguishing the two classes of predicates has to do with the identity of the embedded subject position in control constructions, and how this relates to two types of control: *Exhaustive Control* (EC), as in (3a), in which the controller exhaustively determines the referent of the controlled position, and *Partial Control* (PC), where the controlled position is interpreted as a proper superset of the controller, exemplified in (3b) (Wurmbrand 1998; Landau 1999, et seq.). Wurmbrand (1998) first observed that EC predicates are also restructuring predicates, and that PC predicates generally do not restructure.

(3) a. Frodo_1 tried [e_1 to take the ring to Mordor (*together)]. EC
b. Frodo_1 promised [e_{1+} to take the ring to Mordor (together)]. PC

The third way in which EC/restructuring predicates differ from PC/non-restructuring predicates is that the former do not support finite complementation, while the latter do:

(4) a. *Frodo tried [that he carried/should carry the ring to Mordor].
b. Frodo decided [that he should carry the ring to Mordor].

And finally, already Kayne (1989) notes that restructuring predicates are exclusively monotransitive, leading Cinque (2004) to propose that EC/restructuring constructions are monoclausal, with those control predicates being functional instead of lexical verbs.

The two sets of predicates and their properties are summarized below.

	allow PC	*don't restructure*	*can take NP objects*	*allow finite complements*
Set 1	*	*	*	*
Set 2	✓	✓	✓	✓

Table 1: Two sets of control predicates cross-linguistically

Against this backdrop, this paper investigates infinitival complements in the Niger-Congo language Wolof. The first puzzle that Wolof presents us with is that all control predicates exhibit only EC, and that they all restructure, as evidenced by clitic climbing, allowed from all control constructions. (5a) illustrates clitic climbing with the typical restructuring/EC verb *jéem* 'try', and (5b) with *taamu* 'prefer', which is usually a PC/non-restructuring predicate.[1]

[1]Unless otherwise noted, all Wolof data were collected by the author during primary fieldwork in Saint-Louis and Ndombo, Senegal. The bulk of the data on control come from two 6-week long trips, in 2018 and 2019. All of the data were collected from five speakers; parts of the data were additionally checked with another three speakers.

(5) *Clitics climb in all control constructions in Wolof*

a. Jéem-na=a=**ko** jënd.
try-C=1SG=3SG.OBJ buy
'I tried to buy it.'

b. Taamu-na=a=**ko** naan suba si.
prefer-C=1SG=3SG.OBJ drink morning the.SG
'I prefer to drink it in the morning.'

Clitic climbing is obligatory with typical restructuring verbs, and optional with non-restructuring ones, meaning that there is still a difference between the two sets of predicates in Wolof.

The third property of EC/restructuring verbs, that they are only monotransitive predicates, is also the property of all obligatory control verbs in Wolof. Verbs that also take NP complements, as in (6), can embed non-finite complements, but they must have overt subjects, and do not exhibit obligatory control.

(6) *Ditransitive verbs do not allow control*

Daf-a=$\emptyset_1$ ñaan jàngalekat=am$_2$ [mu$_{1/2/3}$ dem teel].
do-C=3SG ask teacher=POSS.3SG [1SG leave early]
'S/he$_1$ asked her/his teacher$_2$ that s/he$_{1/2/3}$ leave early.'

The final property that cross-linguistically distinguishes EC/restructuring and PC/non-restructuring verbs, the ability to embed finite complements, behaves as expected in Wolof: verbs that are usually PC/non-restructuring support finite complementation in Wolof, the others do not.

Properties of control predicates in Wolof are summarized in the table below. We can see that the two sets of predicates differ along one dimension—whether they allow finite complements or not—but behave uniformly with respect to all other properties.

	allow PC	*don't restructure*	*can take NP objects*	*allow finite complements*
Set 1	*	*	*	*
Set 2	*	*	*	✓

Table 2: Two sets of control predicates in Wolof

I argue here that Wolof gives further evidence for the correlation between EC, restructuring, and monotransitivity. Specifically, I argue that Wolof supports theories according to which EC and PC are derived via different mechanisms. This mixed approach to control is advocated by Grano (2012, 2015), who, following Cinque (2004, 2006), proposes that EC involves monoclausal constructions, with control predicates actually being functional verbs in the inflectional layer of the clausal spine. These constructions consequently have only one subject, and trivially involve raising, since the subject moves from its base-generation position to the structural subject position. PC structures, on the other hand, are biclausal in Grano's view: those predicates embed CP complements which contain PRO subjects, and can also embed complements with non-controlled subjects.

Control constructions in Wolof give support for the split between the two different paths to control, as only one exists in Wolof: Exhaustive Control. Crucially, EC goes hand in

hand with restructuring and monotransitivity, suggesting that they are all the consequence of one and the same syntactic mechanism. I propose that the Cinque/Grano approach to EC as raising can explain this bundle of properties. Unlike Cinque/Grano, I propose that raising-to-subject occurs not only in mono-clausal constructions, but also in bi-clausal ones. This will explain the two differences between typical restructuring verbs and verbs that cross-linguistically do not restructure, one being that clitic climbing is obligatory with the former, and optional with the latter, and the other being that non-restructuring verbs can also embed finite complements. More generally, this supports the view that at least one type of control is derived by movement (e.g. The Movement Theory of Control; Hornstein 1999 et seq.).

This paper is organized as follows. Section 2 illustrates the properties of control in Wolof: §2.1 discusses the difference between finite and non-finite clauses, §2.2 shows that Wolof has only Exhaustive Control, and §2.3 that all control constructions in Wolof restructure. In section 3, I argue that the properties of control in Wolof can be explained by the raising analysis of Exhaustive Control. Section 4 concludes.

2 Control in Wolof

In this section, I give the necessary background on Wolof clause structure, and then discuss the properties of non-finite complements. I show that Wolof has only Exhaustive Control, and that all control constructions restructure.

2.1 Non-finite clauses in Wolof

Wolof is an SVO language with several left-peripheral positions for focused and topicalized elements. All finite indicative clauses in Wolof contain *sentence particles*, which have been argued to all be hosted by one high head (Sigma in Dunigan 1994, C in Martinović 2015, 2017, to appear). Examples of several clause-types with different sentence particles are given in (7).

(7) *Wolof clause types*

a. Xale yi lekk-**na**=ñu gato bi.
child the.PL eat-C=3PL cake the.SG
'The children ate the cake.' **Neutral affirmative**

b. Xale yi **da**=ñu lekk gato bi.
child the.PL do.C=3PL eat cake the.SG
'The children ATE the cake.' **Predicate focus**

c. Gato bi **la**=ñu lekk.
cake the.SG C=3PL eat
'It's the cake that they ate.' **Exhaustive Identification**

The notion of *finiteness* in Wolof, as is the case in primarily aspectual languages, is not tied to tense. Tenseless clauses in Wolof receive temporal interpretation: eventive verbs are interpreted as past tense, as in (8), and stative verbs as present tense, shown in (9). Clauses receive independent temporal interpretation only in clauses with overt sentence particles.

Smaller clauses that seem to be no bigger than a vP (Zribi-Hertz and Diagne 2002), as in (10), can occur unembedded in running narratives, but they must receive their temporal interpretation from context.[2] The presence of a sentence particle is also obligatory for the clause to contain negation (Njie 1978, 1982).

(8) Lekk na=∅ tàngal.
eat C=3SG candy
'S/he ate candy.'/#'She's eating candy.'

(9) Baax na=∅.
be.good C=3SG
'It's good.'/#'It was good.'

(10) Mu lekk tàngal.
3SG eat candy
'S/he ate/eats/will eat/... candy.'

Sentence particles therefore seem to be the only morpho-syntactic correlate of what we might call *finiteness*. In this paper, I use the term *non-finite* for clauses that do not have overt sentence particles, without committing to any particular notion of finiteness.

Non-finite complement clauses come in two forms. One occurs in obligatory control constructions and does not have an overt subject, as in (11a). The other, illustrated in (11b), has an overt subject and, as I will show, does not pass tests for obligatory control, even if an argument from the matrix clause is co-referential with the subject of the embedded clause. An overt subject in the complement clause is obligatory whenever the matrix verb has a DP complement.

(11) *Non-finite complement clauses*

a. Jéem na=nu$_1$ [__$_{1/*2}$ may miskin yi xaalis].
try C=1PL [give poor the.PL money]
'We tried to give money to the poor.'

b. Ñaan na=∅$_1$ yaay-am$_2$ [mu$_{1/2/3}$ may xale yi tangal].
ask C=3SG mother.3SG.POSS [3SG give child the.PL candy]
'S/he$_1$ asked his/her mother$_2$ that s/he $_{1/2/3}$ give candy to the children.'

Some authors call complement clauses as in (11b) *subjunctive* (e.g. Torrence 2005, 2012), however, they do not have some common properties of subjunctive mood. Subjunctives in many languages are selected by particular groups of verbs: desideratives, directives, permissive, emotives. While many of these verbs do select for complement clauses with obligatory overt subject pronouns in Wolof, only those verbs that also take a DP object do so. Another typical property of subjunctives is that an overt pronominal subject triggers subject obviation, which does not obligatorily occur in ditransitives in Wolof, as can be seen from (11b). The main reason for distinguishing these clauses from what we typically call a subjunctive has to do with the fact that they do not appear to have a CP-layer, which is important for our purposes. Other non-indicative moods in Wolof are CPs: they have overt sentence

[2]For accounts of default temporal interpretation of tenseless clauses in Wolof, see Bochnak and Martinović 2019, who base their analysis on Smith and Erbaugh 2005; Smith et al. 2007; Mucha 2013.

particles in at least some forms, and crucially, they allow negation, as illustrated in optative and imperative clauses in (12) and (13).

(12) a. Na Omar lekk gato.
C Omar eat cake
'Let Omar eat cake.'

b. Lekk-al gato!
eat-2SG.IMP cake
'Eat cake!'

(13) a. Bu(l) ñu lekk gato.
C.OPT.NEG 3PL eat cake
'May they not eat cake.'

b. Bul lekk ceeb!
C.IMP.NEG.2SG eat cake
'Don't eat cake!'

There is no evidence that the head hosting the sentence particles and Mood are separate positions in Wolof. Therefore, it would be expected that subjunctive mood also involves a CP-layer. Non-finite complements as in (11b), however, do not have an overt sentence particle, and crucially, they cannot contain negation. Negation is a verbal suffix in Wolof, and NegP has been argued to be in a high position in the clause, above the TP (Torrence 2005, 2012; Martinović 2015, 2019). No clause without an overt sentence particle can contain negation (Njie 1978); the only way to express this meaning in infinitives is with the verbs *bañ* 'refuse' or *ñakk* 'lack'. This is illustrated for infinitives in control constructions in (14), and for infinitives in non-control constructions in (15).

(14) *Control infinitives cannot contain negation*

a. *Jéem na=a$_1$ [__$_1$ lekk-ul gato bi].
try C=1SG [eat-NEG cake the.SG]
intended: 'I tried to not eat the cake.'

b. Jéem na=a$_1$ [__$_1$ bañ [__$_1$ lekk gato bi]].
try C=1SG [refuse [eat-NEG cake the.SG]]
'I tried to not eat the cake.'

(15) *Non-control infinitives cannot contain negation*

a. *Ñaan na=a xale yi$_1$ [ñu$_1$ lekk-ul tangal].
ask C=1SG child the.PL [3PL eat-NEG candy]
intended: *'I asked the children not to eat candy.'*

b. Ñaan na=a xale yi$_1$ [ñu$_1$ bañ [__$_1$ lekk tangal]].
ask C=1SG child the.PL [3PL refuse [eat candy]
'I asked the children not to eat candy.'
(lit. 'I asked the children to refuse to eat candy.')

The ban on negation is straightforwardly accounted for if the presence of negation is tied to the presence of C, and all non-finite structures are smaller than a CP.

Structures without an overt subject pronoun in the non-finite complement pass the standard control tests. Co-reference between the understood subject of the non-finite verb and the subject of the matrix verb is obligatory, and the structure has sloppy reading under ellipsis: (16) can only mean that Magatte's husband tried to leave early himself, not that he tried for Magatte to leave early.

(16) *Only sloppy reading under ellipsis*
Magatt$_1$ jéem na=∅ __$_{1/*2}$ dem teel, jëkër-am itam.
Magatte try C=3SG leave early, husband-POSS.3SG also
'Magatte tried to leave early, her husband did too.'

In contrast, an overt subject pronoun in non-finite complements is not obligatorily co-indexed with a matrix argument. In (17), *mu* can be co-indexed with the matrix subject, object, or with some contextually salient antecedent. Such structures can have strict reading under ellipsis: in addition to the sloppy reading, (17) can mean that Demba asked Moussa that the referent of *mu*, whoever it is, leave early.

(17) *Strict or sloppy reading under ellipsis*
Daf-a=∅$_1$ ñaan Musaa$_2$ mu$_{1/2/3}$ dem teel, Demba itam.
do-C=3SG ask Moussa 3SG leave early, Demba also
'S/he$_1$ asked Moussa$_2$ that s/he$_{1/2/3}$ leave early, and Demba did too.'

Obligatory control in Wolof is therefore exclusively possible with monotransitive verbs.

2.2 Wolof has only Exhaustive Control

It was first noted by Wurmbrand (1998) that the class of restructuring predicates is (i) cross-linguistically fairly stabile, and (ii) overlaps with the the class of Exhaustive Control predicates. Table 3 is a condensed version of Table 2.1 in Grano 2015 (p.16), showing the empirical relationship between EC and restructuring, based on Wurmbrand 2001 and Landau 2000 et.seq.[3]

EC	ASPECTUAL	begin, continue, stop, ...	*Restructuring*
	MODAL	can, may, must, need, ...	
	IMPLICATIVE	forget, fail, dare, ...	
PC	DESIDERATIVE	want, intend	*Non-restructuring*
		refuse, prefer, decide, plan, offer, propose, ...	
	FACTIVE	regret, admit, ...	
	PROPOSITIONAL	claim, believe, tell, ...	

Table 3: Correlation between Exhaustive Control and Restructuring

The overlap between EC and restructuring, and the fact that restructuring predicates are exclusively monotransitive (Kayne 1989), has led Cinque (2004) to propose that restructuring verbs are functional heads in the inflectional layer of the clause, and that restructuring is epiphenomenal, resulting from the monoclausality of such structures. This essentially means that all restructuring verbs are raising verbs in the trivial sense. Grano (2012, 2015) agrees with this, and proposes that, while EC verbs are functional verbs, PC verbs are lexical verbs that take clausal (CP) complements containing a PRO. According to this view, PC is simply

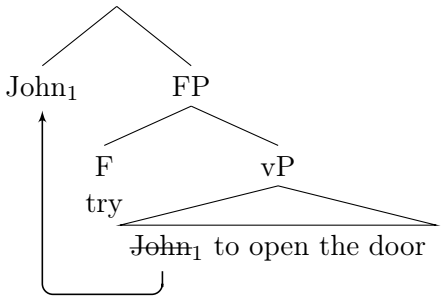
[3]The verb *want, intend* has mixed properties, in that it is a PC verb, but also typically restructures. This will not be relevant here; see Grano 2012, 2015 for a possible analysis.

a property of PRO. This also accounts for the fact that non-restructuring/PC verbs can embed finite clauses, whereas restructuring/EC predicates cannot, as shown in (18).

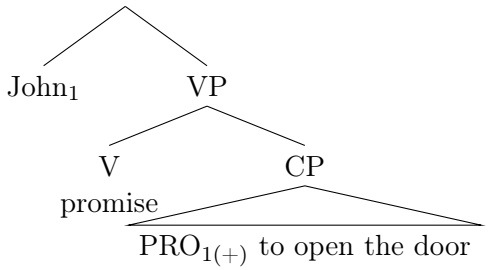
(18) a. I prefer [that Moussa leave early].
b. *I started [that Moussa leave early].

(19) and (20) illustrate Grano's analysis of EC and PC, respectively (p.5).

(19) *Exhaustive Control*



(20) *Partial Control*



I argue here that Grano's proposal that there are two strategies for control, one resulting in EC and the other in PC, is correct. I stay agnostic as to what the strategy for PC is, but I argue in this paper that the raising analysis can explain that all control in Wolof is Exhaustive Control, and that only monotransitive verbs participate in control. The fact that all control involves restructuring is also, albeit indirectly, the consequence of raising analysis: raising is possible from all embedded infinitives in Wolof because they are smaller than the CP, which I argue is also responsible for restructuring.

Looking back at Table 3, Wolof behaves as expected in one way: PC/non-restructuring predicates, which can in other languages take finite complements, can also do so in Wolof. The class of prototypical restructuring/EC predicates cannot. The first puzzle that Wolof presents us with is that all control predicates exhibit only EC. Second, all control in Wolof involves restructuring. Table 4 illustrates this. Factive and propositional verbs, which are cross-linguistically stabile PC verbs, take only finite complements in Wolof.

EC	ASPECTUAL	begin, continue, stop, ...	*Restructuring*
	MODAL	can, may, must, need, ...	
	IMPLICATIVE	forget, fail, dare, ...	
	DESIDERATIVE	want, intend	
		refuse, prefer, decide, plan, ...	
Finite	FACTIVE	regret, admit, ...	*N/A*
	PROPOSITIONAL	claim, believe, tell, ...	

Table 4: Correlation between Exhaustive Control and restructuring in Wolof

These facts underscore the link between EC and restructuring and point to a causal relationship between the two phenomena, confirming that the intuition that one syntactic process is behind both effects, as a Cinque/Grano-style analysis predicts, is on the right track.

In this subsection I discuss the absence of PC in Wolof. Restructuring is discussed in §2.3.

Partial Control is a subtype of obligatory control, where the controller and controllee are mismatched for semantic number (Landau 2000), so that the controller is singular and the embedded predicate collective. The contrast between EC and PC predicates in such contexts is illustrated in (21) and (22) (examples from Landau 2013, p.157).

(21) *Exhaustive Control*
We thought that...
a. *John$_1$ managed [$\_\_{}_{1+}$ to gather at 6].
b. *The chair$_1$ began [$\_\_{}_{1+}$ meeting without a concrete agenda].
c. *Mary$_1$ is able [$\_\_{}_{1+}$ to apply together for a grant].
d. *It was rude of the chair$_1$ [$\_\_{}_{1+}$ to disperse so abruptly].

(22) *Partial Control*
We thought that...
a. The chair$_1$ [$\_\_{}_{1+}$ preferred to gather at 6].
b. Bill$_1$ regretted [$\_\_{}_{1+}$ meeting without a concrete agenda].
c. Mary$_1$ wondered [$\_\_{}_{1+}$ whether to apply together for a grant].
d. It was humiliating to the chair$_1$ [$\_\_{}_{1+}$ to disperse so abruptly].

Examples as in (22) are ungrammatical in Wolof, as illustrated in (23), and (24). (23a)-(23b) show that the use of *ñoomi neen* 'together' requires a plural subject. In languages like English, the understood subject of the non-finite complement of a verb such as *want* can be semantically plural. This is not the case with the verb *bëgg* in Wolof, shown in (23c). Similarly, the collective predicate *daje* 'meet' in (24) requires a plural subject. (24c) shows that this cannot be the understood subject of the non-finite complement of the predicate *fasyeene* 'decide'.

(23) a. Fanta ak Binta laj na=ñu ndimbal ñoomi neen.
Fanta and Binta ask C=3PL assistance together
'Fanta and Binta asked for a stipend together.'
b. *Fanta laj na=∅ ndimbal ñoomi neen.
Fanta ask C=3SG assistance together
c. *Fanta bëgg na=$\emptyset_1$ [$\_\_{}_{1+}$ laj ndimbal ñoomi neen].
Fanta want C=3SG [__ ask stipend together]
intended:'Fanta wanted to ask for a stipend together.'

(24) a. Borom-dëkk ak waa-kaw gi daje na=ñu ci juróom benn waxtu.
chief-village and villagers the meet C=3PL at five one hour
'The village chief and the villagers met at 6 o'clock.'
b. *Borom-dëkk daje na=∅ ci juróom benn waxtu.
chief-village meet C=3SG at five one hour
c. *Borom-dëkk fasyeene na=$\emptyset_1$ [$\_\_{}_{1+}$ daje ci juróom benn waxtu].
chief-village decide C=3SG [__ meet at five one o'clock]
intended:'The village chief decided to meet at 6 o'clock.'

The intended meaning in (23) and (24) can only be achieved if the subject of the non-finite complement is overt. Such examples, however, do not involve control, as discussed in §2.1. Coindexation between the matrix and embedded subjects is not obligatory in (25), and strict reading under ellipsis is possible.

(25) Musaa$_1$ fasyeene na=∅ ñu$_{1+/2}$ dem teel ñoomi neen, man itam.
Moussa decide C=3SG 3PL leave early together, 1SG also
'Moussa decided that they leave early together, and I did too.'

The Cinque/Grano analysis of EC and restructuring does not directly link the two phenomena; both are seen as a consequence of monoclausality. If, however, the two phenomena are related in a more direct way—for example, if they are the result of one and the same syntactic process—then we predict that they should always go hand-in-hand. This is exactly what we see in Wolof: the class of predicates that are cross-linguistically not EC/restructuring exhibit both those properties in Wolof. This is a strong argument for the correlation between EC and restructuring. I shall argue that these phenomena are not exclusively the result of monoclausality, but that they also arise in bi-clausal structures that allow both raising and restructuring, due to the reduced size of non-finite complements.

2.3 Restructuring in Wolof

A well-known indicator of restructuring is the phenomenon of *Clitic Climbing* (CC), whereby clitics move from inside the infinitival complement to the matrix clause, as in the Polish example in (26) (Bondaruk 2004, 154).

(26) *Clitic climbing in Polish*
Marek **ją**$_i$ zdecydował się przeczytać t$_i$.
Mark it decided REFL read.INF
'Mark decided to read it.'

It has been observed that CC is blocked in the presence of an embedded CP (e.g. Wurmbrand 2001; Bondaruk 2004; Marušič 2005; Dotlačil 2007). Since CC is possible in all control constructions in Wolof, this is another argument for a reduced structure of all infinitives in this language.

Wolof has Wackernagel-like clitics that obligatorily move to the highest functional head in the extended projection of the verb (Dunigan 1994; Martinović 2020). In finite clauses, this is always immediately following the position of the sentence particle. Examples of clitics in various finite clauses is given in (27).

(27) *Clitics in Wolof finite clauses*
a. (Xale yi) lekk-na=**ñu=ko=fi**.
child the.PL eat-C=3PL=3SG.OBJ=LOC
"The children/they ate it there."
b. (Xale yi) lekk-ul-∅=**ñu=ko=fi**.
child the.PL eat-NEG-C=3PL=3SG.OBJ=LOC
"The children/they didn't eat it there."

c. (Xale yi) da=**ñu=ko=fi** lekk.
child the.PL do.C=3PL=3SG.OBJ=LOC eat
"It's that the children/they ate it there."

d. Demb la=**ñu=ko=fi** lekk.
yesterday C=3PL=3SG.OBJ=LOC eat
"It's yesterday that they ate it there."

In typical restructuring constructions, clitics obligatorily climb to the matrix C.[4] This is considered to be either the consequence of monoclausality of such structures (e.g. Cinque 2004; Grano 2012, 2015), or of the fact that the complement of restructuring verbs is not clausal, but smaller (e.g. Wurmbrand 2001 et seq.).

(28) *Modals*
War na=ñu=**leen** [jox xaalis __].
must C=1PL=3PL.OBJ [give money __]
'We must give them money.'

(29) *Aspectual verbs*
Tàmbali na=a=**ko** [tabax __].
begin C=1SG=3SG.OBJ [build __]
'I began building it.'

(30) *Implicatives*
Sàggane na=a=**leen** [indil tangal __].
neglect C=1SG=3PL.OBJ [bring candy __]
'I neglected to bring them candy.'

Clitics in Wolof can climb in all control constructions. This climbing is not obligatory with desideratives, unlike with modals, aspectual and implicative verbs, suggesting that there is some sort of a boundary in control constructions with desideratives that clitics are sensitive to, which is not there with typical restructuring predicates.

(31) Faatu fas yeene na=∅=(**ko**) [togg=(**ko**)].
Fatou decide C=3SG=3SG.OBJ [cook=3SG.OBJ]

[4]There is a small caveat to this claim: clitics are less likely to climb if the non-finite clause contains the morpheme *di*, which is in finite clauses an imperfective auxiliary. Clitics can attach to *di* instead of climbing to the matrix C, as in (i).

(i) War na=ñu [di=ko jox xaalis].
must C=3G [*di*=3SG.OBJ give money]
'We must give them money.'

The function of *di* in infinitival clauses is not clear to me yet, however, it does not apper to be anything like a complementizer. This is confirmed by non-finite clauses with obligatory embedded subject pronouns, where *di* occurs after, and not before the subject. In certain non-finite clauses which can exhibit tense-concord, the tense morpheme *oon* appears suffixed onto *di*, indicating it is an auxiliary-like element. Whether clitics climb over *di* seems to at least partially a phonological matter: mono-morphemic clitics (e.g. *ko*) climb over it easier than the bi-morphemic clitic *leen*. I have nothing to say about this here. Crucially, when *di* is not there, clitics obligatorily climb in typical restructuring constructions.

'Fatou decided to cook it.'

(32) Taamu na=a=(**ko**) [naan=(**ko**) suba si].
prefer C=1SG=3SG.OBJ [drink=3SG.OBJ morning the.SG]
'I prefer to drink it in the morning.'

(33) Yakaar na=a=(**fa**) [dellusi=(**fa**) léegi].
hope C=1SG=LCL [return=LCL soon]
'I hope to return there soon.'

I propose that the difference in the obligatoriness of CC stems from the fact that control constructions with desideratives are bi-clausal. Clitic climbing can still occur, because the non-finite complement is smaller than the CP.

Evidence often given for the fact that PC predicates are bi-clausal comes from the fact that (i) PC verbs support finite complementation, and (ii) PC verbs admit overt embedded subjects. This is also the case in Wolof. First, desiderative verbs generally allow both finite and non-finite complementation, whereas typical EC verbs do not. The contrast is illustrated in (34)-(35).

(34) *Modals cannot take finite complements*

a. War na=a [bàyyi tox].
must C=1SG [quit smoke]
'I must quit smoking.'

b. *War na=a [ni di-na=a bàyyi tox].
must C=1SG [that IPFV-C=1SG quit smoke]

(35) *Desideratives can take finite complements*

a. Fas yeene na=a [bàyyi tox].
decide C=1SG [quit smoke]
'I decided to quit smoking.'

b. Fas yeene na=a [ni di-na=a bàyyi tox].
decide C=1SG [that IPFV-C=1SG quit smoke]
'I decided that I will quit smoking.'

Second, desiderative verbs allow complements with overt non-controlled subjects; typical EC verbs do not.

(36) *No overt subject in a complement of an aspectual verb*

a. Magatt tàmbali na=∅ [jàng téere bi].
Magatte begin C=3SG [read book the.SG
'Magatte began reading the book.'

b. *Magatt tàmbali na=∅ [ma jàng téere bi].
Magatte begin C=3SG [1SG read book the.SG].
**'Magatte began that I read a book.'*

(37) *Overt subject in a complement of a desiderative verb*

a. Mbaye taamu na=∅ [dem teel].
Mbaye prefer C=3SG [leave early]
'Mbaye preferred to leave early.'

b. Mbaye taamu na=∅ [ma dem teel].
Mbaye prefer C=3SG [1SG leave early]
'Mbaye preferred that I leave early.'

If *taamu* 'prefer' can take a clausal complement, it means that it must be a lexical verb. Were restructuring exclusively the consequence of monoclausality, as Cinque and Grano would have it, we would have to allow desiderative verbs to be both functional and lexical verbs in Wolof. If, on the other hand, restructuring is a more gradient property, and can be the result of the reduced size of the infinitival complement (Wurmbrand 2001 et seq.), then we expect to find it in some bi-clausal constructions as well, as long as the infinitives are small enough to be transparent to whatever restructuring process occurs in the language. This is in line with Wurmbrand (2001, 2004), who argues that restructuring predicates can be either functional or lexical verbs. I believe that Wolof gives support for this view.

To summarize, all control predicates in Wolof are EC predicates, and all control constructions allow clitic climbing. In the following section, I discuss the Cinque/Grano raising analysis of Exhaustive Control, and propose that Wolof offers evidence for it. Specifically, the raising analysis can explain why ditransitive verbs (i.e. verbs that take DP complements in addition to the infinitive) disallow control.

3 Exhaustive control as raising

Kayne (1989) notes that restructuring verbs are exclusively monotransitive verbs. Cinque (2004) and Grano (2012, 2015) take this as an argument for treating restructuring verbs as functional verbs, and EC constructions as monoclausal, which trivially involve subject raising. We have, however, seen that desiderative verbs in Wolof do behave like lexical verbs in that they can take a clausal complement with a non-controlled subject, while still restructuring and allowing only EC when they involve control. Additionally, clitic climbing in Wolof is optional with desiderative verbs, unlike with typical restructuring verbs, where it is obligatory. This suggests that there is a difference between typical restructuring and non-restructuring verbs in Wolof.

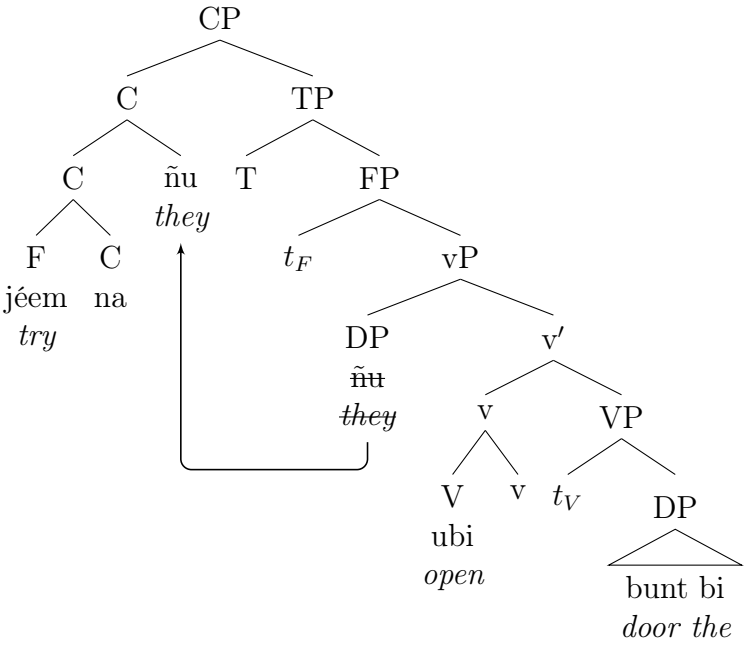
I assume that the Cinque/Grano approach is correct in that one strategy for establishing control is raising, and that raising also results in EC. In that case, raising must be involved in all control constructions in Wolof. I show that this can also explain the absence of either subject or object control in the presence of a matrix object, and the obligatory occurrence of an embedded subject pronoun in such constructions. We will first look at the details of the raising analysis for monotransitive control predicates, and then show how we can explain the behavior of ditransitive predicates.

3.1 Monotransitives

I assume with Cinque and Grano that typical restructuring verbs are functional verbs and that such structures are monoclausal, as in (38). In the sentence-type in (38a), the highest verb in the clause, the functional verb *jéem* 'try', raises to C. This is in line with the behavior of aspectual auxiliaries in Wolof. There is only one subject, in this case the pronominal clitic *ñu* 'they', which raises to C as all pronominal clitics do (see Dunigan 1994; Russell 2006; Martinović 2015, 2020, to appear). I skip any other possible position where the subject may move to between Spec,vP and C (e.g. Spec,TP) for simplicity.[5]

(38) a. Jéem-na=ñu ubi bunt bi.
try-C=3PL open door the.SG
'They tried to open the door.'

b.



A monoclausal analysis of typical restructuring verbs explains why they cannot embed clauses with non-controlled subjects, and the obligatoriness of clitic climbing. For an analysis of subject orientation of control verbs see Grano (2012, 2015), who proposes that this is due to them containing a dependent variable as part of their meaning, which must be bound by the subject. I stay agnostic as to the exact mechanism by which this happens.

We have seen that desiderative verbs differ from typical restructuring verbs in several ways: they can embed finite CPs, they can embed non-finite complements with overt non-controlled subjects, and clitic climbing is optional with them. I therefore propose that desideratives are lexical verbs, but that their complements are always smaller than a CP, and that raising out of them is possible. Recall that there is evidence for a reduced size of all infinitives: they cannot contain negation, which has been argued to be in a high position in

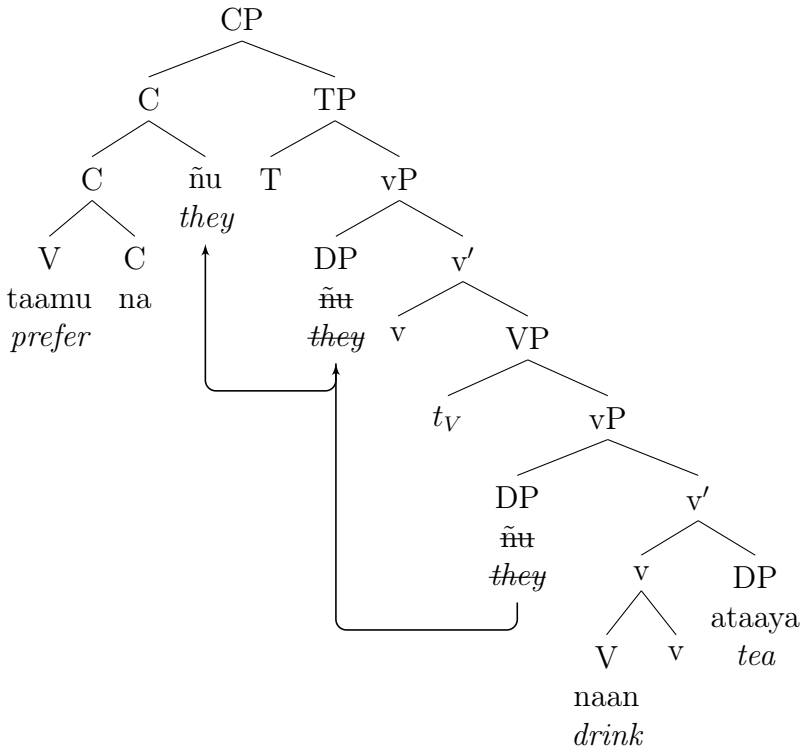
[5]The clause-type in (38a) allows only pronominal clause-internal subjects; non-pronominal subjects can only occur in the left periphery. For extensive arguments that the subject clitic in these clauses is a pronoun, and not agreement, see Martinović 2015, 2017, to appear.

Wolof, and tied to the presence of C. I here assume that this complement is the size of a vP, for simplicity, but it could be larger. For example, Wurmbrand (2001) et seq. argues that infinitives which can contain a future tense adverbial (e.g.*I prefer [to drink tea tomorrow]*) must be as big as TPs, in order for the feature associated with the future to be hosted. The exact size of the infinitive is not relevant for our purposes, all that matters is that it is smaller than a CP.

(39) illustrates the derivation of a control clause with the desiderative verb *taamu* 'prefer'. I propose that this is a raising construction: the subject of *naan* 'drink' raises from the embedded vP to Spec,vP of the matrix clause (and ultimately to C, as all clitics).

(39) a. Taamu-na=ñu naan ataaya.
prefer-C=3PL drink tea
'They prefer to drink tea.'

b.

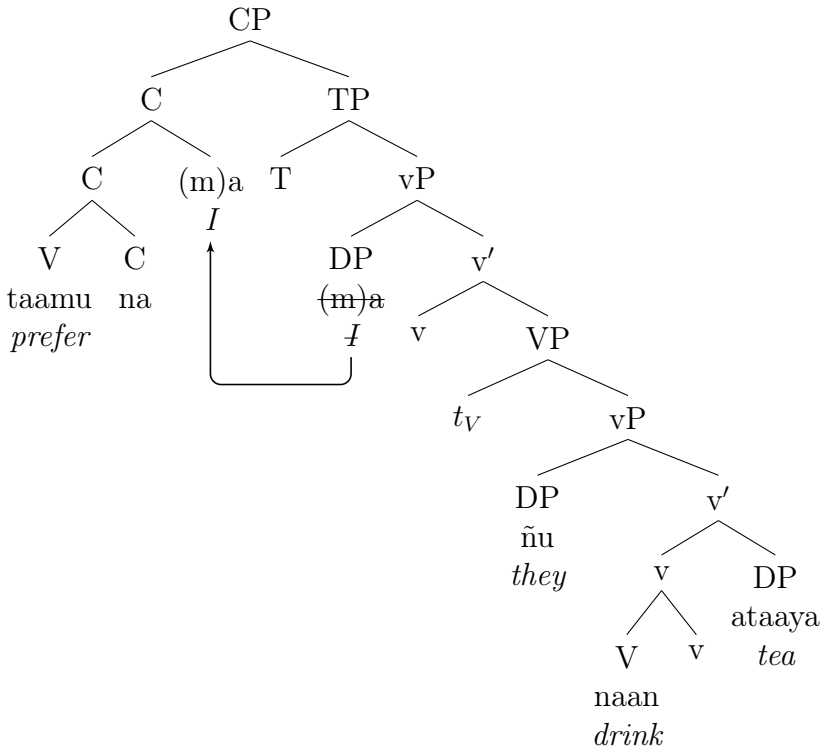


This proposal involves movement into a θ-position, which has been independently argued for (e.g. Bošković 1994, 1997; Lasnik 1995; Bošković and Takahashi 1998). Just as with the analysis of subject orientation in restructuring verbs, I stay agnostic as to the exact mechanism, and note that, ideally, we would want the same account for subject orientation in all control verbs, both those that are functional verbs, and those that I argue are lexical verbs.

Another option with lexical control verbs is External Merge of a subject into Spec,vP, as in (40). This derives the fact that desiderative predicates can embed infinitives with non-controlled subjects.

(40) a. Taamu-na=a ñu naan ataya.
prefer-C=1SG 3PL drink tea
'I prefer for them to drink tea.'

b.



Constructions with desiderative verbs then are always bi-clausal. This may also explain the optionality of clitic climbing in such structures, as opposed to in constructions with typical restructuring verbs, which I argued are monoclausal. This paper is not about clitic climbing, so I leave the issue of how exactly clitic climbing is constrained to be resolved elsewhere.

One last point to make here is that obviation is forced in constructions as in (40) – the matrix and the embedded subject cannot be coreferential if the embedded subject is overt, i.e. in the absence of control. This is the case only with monotransitive verbs, when control is also possible. I return to this observation in the next subsection.

We now turn to structures where control is not possible, which, I believe, provide support for the raising analysis of Exhaustive Control.

3.2 Ditransitives

All ditransitive predicates in Wolof embed complements with overt subjects, even when those subjects are co-indexed with an argument in the matrix clause. With a verb like *yey* 'convince' in (41), the embedded subject pronoun can be co-indexed either with the matrix object, or it can have a contextually salient referent. The verb *ñaan* 'ask' in (42) takes a complement with a subject that can be co-indexed with the matrix subject, object, or a contextually salient referent.

(41) Da=ma yey sama xarit$_1$ [*(**mu**$_{1,2}$) dem].
do.C=1SG convince POSS.1SG friend [3SG leave]
'I convinced my friend$_1$ that he$_{1,2}$ leave.'

(42) Daf-a=$\emptyset_1$ ñaan Musaa$_2$ [*(**mu**$_{1,2,3}$) dem].
do-C=3SG ask Moussa [3SG leave]
'He$_1$ asked Moussa$_2$ that he$_{1,2,3}$ leave.'

(41) and (42) do not involve obligatory control. First, the embedded subject pronoun is not obligatorily co-indexed with a matrix argument, though it can be. Second, as in all other structures with overt embedded subjects, (42) allows strict reading under ellipsis when the matrix and embedded subjects are co-indexed. The strict/sloppy reading is not possible to check when the matrix object is co-indexed with the embedded subject, as Wolof does not have stripping,[6] but given that co-indexation is not obligatory, I assume here that those are also not instances of obligatory control for verbs like *ñaan* 'ask'.

I have found one apparent obligatory object control verbs, *aaye* 'prevent' in (43), for which it is difficult to get anything but co-reference between the matrix object and the embedded subject pronoun.

(43) Da=ma aaye samay wayjur$_1$ ñu$_{1/*2}$ may xale yi tàngal.
do.C=1SG prevent my.PL parents 3PL give child the.PL candy
'I prevented my parents from giving candy to the children.'

Obligatory co-indexation here would imply that in this specific context the subject pronoun in the embedded infinitival clause must be controlled, whereas pronouns in all other contexts (including some other apparent object control verbs, like *yey* 'convince') cannot be controlled. This issue requires further investigation, and I leave it asside for the movement.

A movement analysis of EC straightforwardly explains why only monotransitive predicates in Wolof involve control, whereas ditransitives only allow embedded infinitives with overt, non-controlled, subjects. Raising to subject over an object in (42) is excluded by Minimality (e.g. Minimal Link Condition, Chomsky 1995). Raising to object, even if it exists (as convincingly argued by Postal (1974)), seems to be quite rare cross-linguistically, therefore to argue that Wolof does not allow it does not appear to be a big leap.

Note also that obviation is not obligatory in these structures, where control is never possible, whereas it is obligatory in structures that can either involve control or not. With a monotransitive desiderative verb like *taamu* 'prefer', as in (44a), an overt embedded subject cannot be co-indexed with the matrix subject. This is a structure in which control is possible. With a ditransitive verb such as *ñaan* 'ask', the embedded subject can be co-indexed with a matrix argument, in the case of (44b) either the subject or the object. These are structures where there is no control.

(44) a. Taamu na=$\emptyset_1$ [mu$_{*1/2}$ naan ataaya].
prefer C=3SG [(3SG) drink tea]

[6]Another possible way to check for strict/sloppy reading may be in sluicing constructions, which in Wolof appear to be derived from pseudoclefts, by deleting the wh-clause (Martinović 2015). I have not yet had the opportunity to test strict/sloppy reading in sluicing with control constructions.

'S/he$_1$ prefers that s/he$_{*1/2}$ drink tea.'

b. Ñaan-na=∅$_1$=ko$_2$ [mu$_{1/2/3}$ dem].
ask-C=3SG=1SG.OBJ [1SG leave]
'She$_1$ asked her/him$_2$ that s/he$_{1/2/3}$ leave.'

Farkas (1992) notes that obviation is found in languages in which there is a *subjunctive-infinitive rivalry*, and is not found if this rivalry does not exist. This is consistent with the situation in Wolof: in structures in which both control and no control are possible, the co-referential embedded subject must be controlled and obviation is obligatory. If control is not possible, then there is no obligatory obviation. This looks like an economy issue, and is treated as such by Hornstein and Martin (2001). They propose that obviation stems from violating "Move First" (Move over Merge; Shima 2000; Broekhuis and Klooster 2007; Chomsky 2013), which in this case means that subject raising is preferred over External Merge, and a pronoun can only be inserted if it is obviated. This explains why in (44a), where control (i.e. movement) is possible, the embedded subject must be obviated. In (44b) movement is not possible, therefore Move over Merge does not apply, and obviation is not forced.

Wolof then gives support for raising being the strategy that results in EC. What about the second strategy, the one that leads to PC? I here stay agnostic as to whether this strategy involves a PRO, or is the result of another (syntactic or maybe semantic) mechanism. In older theories, PRO was stipulated to be an idiosyncratic lexical item, with idiosyncratic properties. Recent theories of control that retain PRO consider it to be a type of a bound pronoun (e.g. Landau 2000 et seq.; Grano 2012, 2015). PRO is often viewed as part of the theoretical machinery used to account for the control phenomenon, and not a real syntactic object, and something that should therefore be dispensed with (Hornstein 1999 et seq; Culicover and Jackendoff 2006). If the empty subject in any of the control constructions in Wolof is a PRO, it has to be constrained in the following way:

1. An object cannot control a PRO.

2. A subject cannot control a PRO over an intervening object.

3. PRO in Wolof disallows Partial Control.

This would make the Wolof PRO essentially a different type of an empty element than the PRO that has been proposed for languages such as English. This seems like an undesirable result. Alternatively, one could say that, if PRO is a lexical item, Wolof does not have it, and this is an accidental lexical gap. I here leave the issue of Partial Control and PRO aside.

4 Conclusion

In this paper, I have argued in support of Grano's (2012, 2015) claim that the strategy for establishing Exhaustive Control differs from the strategy for establishing Partial Control, based on the properties of control constructions in the Niger-Congo language Wolof. Control in Wolof differs from control in the most commonly researched languages in several ways. First, Wolof exhibits only Exhaustive Control, both in cross-linguistically typical Exhaustive

Control predicates, and in those that usually allow Partial Control. Additionally, another property that goes hand-in-hand with Exhaustive Control, restructuring (Wurmbrand 1998), is also found in all control constructions in Wolof – both in those that cross-linguistically typically restructure, and in those that do not. This confirms that the two phenomena are correlated (Cinque 2004, 2006; Grano 2012, 2015). I have also proposed that a specific restriction on control predicates in Wolof, namely that they are only monotransitive verbs, can be understood under the Cinque/Grano approach to Exhaustive Control, which argues for a raising analysis of exhaustively controlled subjects. Cinque and Grano argue that all EC/restructuring configurations are monoclausal, and that EC/restructuring predicates are functional heads and not lexical verbs, making subject raising simply the result of monoclausality. If EC predicates are functional and not lexical verbs, the fact that they never take nominal complements also follows.

I here argue that subject raising must be available in bi-clausal control constructions as well, since typical PC/non-restructuring verbs, which Grano argues are lexical and not functional, also behave like lexical verbs in Wolof, in that they can embed finite clausal complements. A raising analysis can explain all properties of these predicates: that they exhibit only Exhaustive Control, that they allow clitic climbing, and that only monotransitive verbs in this category allow control. With ditransitives—verbs that, in addition to the infinitival complement, also select for a nominal complement—raising to subject over an intervening object is blocked by Minimality, and raising to object, if it exists (Postal 1974) appears to be cross-linguistically quite rare. Finally, the raising analysis of EC explains why all control constructions in Wolof involve restructuring: raising is possible only from reduced clausal complements, which also results in these complements being permeable to clitic climbing.

More generally, this preliminary exploration of control in an understudied language gives support to analyses which argue that (at least one type of) control is derived via movement (e.g. Hornstein 1999 et seq.) and invites a more rigorous investigation of the phenomenon of Partial Control. It may turn out that PC is not as common a phenomenon as research on mostly Indo-European languages leads us to believe. To the extent that PC is one of the stronger arguments for the existence of PRO, this should open the door to a more thorough rethinking of its role in the theory of grammar.

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