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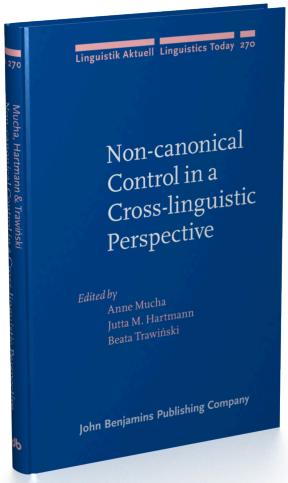

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Backward control, long distance agree, nominative case and TP/CP transparency

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In this paper, we revisit the evidence that what has been analyzed as Backward Control in Greek is just another instance of Long Distance Agree. Through the formation of such long distance chains, Greek allows non-local assignment of nominative. We further argue that long distance chains come in two versions, obligatory ones and optional ones; the former involve uninterpretable T in the embedded clause, while the latter involve the formation of a chain between matrix T and embedded T with interpretable features across a CP phase boundary, which can be suspended. We finally attempt an explanation for the observation that [+Perfective] Aspect may disallow long distance chain formation in Greek.

1. Aims and goals

In this paper, we address backward dependencies in Greek, which are present in control and raising environments. We suggest that these instantiate Long Distance Agree (LDA) dependencies of the type in (1).

(1) $[\ T\varphi_k\ [_{TP/CP}\ T\varphi_k\ DP\varphi_k\ ]]$

In (1), a nominative subject DP in an embedded clause agrees in phi-features with both the matrix and the embedded predicate. While in earlier work, (1) was taken to instantiate Backward Control in the case of control predicates and LDA in the case of raising, in this paper we propose that both control and raising environments are amenable to an LDA analysis. As LDA is also instantiated across a CP boundary in Greek (unlike pro-drop languages in Romance), long distance dependencies in this language reveal the signature property of null-subject languages (NSLs) in (2), as argued for in Alexiadou & Anagnostopoulou (forthcoming), cf. Holmberg (2005):

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(2) NSLs have T with interpretable φ-features which are not deleted after checking and valuation, thus being able to form Long Distance chains via Agree. (cf. Ura 1994)

After establishing this picture, we turn to a discussion of the domains and the conditions that allow and disallow the formation of such LD chains.

The paper is structured as follows. In Section 2, we offer an overview of Control and Raising in Greek. In Section 3, we turn to a formal analysis of LDA. In Section 4, we discuss the conditions under which LDA can be disrupted. In Section 5, we conclude our discussion.

2. Control and raising in Greek

In this section, we will provide an overview of control and raising phenomena in Greek. We will show that unlike what has been previously proposed in the literature, Greek does not exhibit Backward Control. Rather Backward Control is a sub-case of LDA.

As has been discussed extensively in the literature, Greek lacks infinitives and has Obligatory (Forward) Control (OFC) (see Iatridou 1993; Terzi 1992; Tsoulas 1993; Varlokosta 1994; Philippaki & Catsimali 1999; Spyropoulos 2007; Kapetagianni & Seely 2007; Roussou 2009) and Obligatory (Forward) Raising (OFR) in subjunctives introduced by the particle *na*, (Alexiadou &Anagnostopoulou 1999).

OFC subjunctives are found as complements of verbs such as *ksero* 'know how', *tolmo* 'dare', *herome* 'be happy', *ksehno* 'forget', *matheno* 'learn', *dokimazo* 'try' and aspectual verbs, such as *arhizo* 'start/begin', *sinehizo* 'continue'. Non-OC subjunctives are found with e.g. volitional/future-referring predicates. OFR subjunctives are found as complements of aspectual verbs.

In addition, Alexiadou, Anagnostopoulou, Iordăchioaia & Marchis (henceforth AAIM) (2010) argued that Greek has Backward Control (BC): embedded nominatives found in control constructions are vP internal with a deleted copy in the matrix clause. AAIM (2012) provided evidence that Greek does not actually have backward raising (BR): embedded nominatives in raising constructions involve LDA, meaning that there is no deleted copy in the matrix clause.

In this paper, we use the terminology forward and backward in the spirit of Polinsky & Potsdam's (P&P) (2006) typology of Control and Raising in Table 1. P&P argued that under the Copy and Delete theory of movement and the Movement theory of control, Hornstein (1999), control and raising constructions should be analyzed as involving copying of the moved constituent with subsequent deletion of one of the two copies. Depending on which copy is deleted, this gives rise to forward control and raising structures or backward control and raising structures:

Table 1. Typology of Raising and control in P&P (2006)

Higher copy pronounced	Lower copy pronounced	Structure
√	*	Forward Control/Raising
*	√	Backward Control/Raising

A characteristic of Greek, which lacks infinitives, is that in both OFC and OFR environments the embedded verb, similarly to the matrix verb, shows agreement in number and person with the matrix subject, as shown in (3)–(4) for OFC and OFR respectively:

(3) O Petros/ego kser-i/-o na koliba-i/-o.
Peter.NOM /I know.3SG/know.1SG SUBJ swim.3SG/.1SG
'Peter knows how to swim/I know how to swim.'

(4) I porta arhiz-i na skuriaz-i.
The door begin.3SG SUBJ rust.3SG
'The door begins to rust.'

A second property that characterizes both environments is that morphological and semantic Tense is absent from the embedded clause. Evidence for this comes from the fact that it is not possible to vary the verbal form of the embedded verb (Iatridou 1993) or modify it by a temporal adverb (Varlokosta 1994). The latter property is illustrated in (5–6) for OFC and OFR respectively.

(5) *O Petros kseri **simera** na kolibai **avrio**.
Peter.NOM know.3SG today SUBJ swim.3SG tomorrow
'Peter knows today who to swim tomorrow.'

(6) *I porta arhizi **simera** na skuriazi **avrio**.
The door begin.3SG today SUBJ rust.3SG tomorrow
'The door begins today to rust tomorrow.'

Interestingly, as has been pointed out in the literature, similar properties characterize BC and LDA environments, suggesting that there is no formal difference between the two types of configurations, other than the difference in the thematic properties of the main verb. In what follows, we discuss this evidence in turn.

2.1 BC

In environments that AAIM (2010) classified as BC ones in the spirit of Table 1, the subject DP can appear in a number of positions, as shown in (7). As was the case in OFC, the subject agrees with both the embedded and the matrix verb in person and number:

(7) (O **Janis**) emathe (o **Janis**) na pezi (o **Janis**)
John.NOM learned.3SG John.NOM SUBJ play.3SG John.NOM
kithara (o **Janis**)
guitar John.NOM
'Janis learned to play the guitar.'

The pattern in which the subject DP is in the complement clause preceding the object, i.e. the pronunciation of the third copy, qualifies as a BC construction on the basis of P&P's (2006) criteria. Examples such as the one in (7) are biclausal constructions (contra Roussou 2009), as can be shown on the basis of evidence from event modification, among other arguments. What is shown in (8) is that depending on the high or low attachment of the modifier, either the high event can be modified or the embedded event (high attachment vs. low attachment). Note that this test differs from the one employed by Varlokosta (1994) involving temporal adverbs to diagnose the presence of Tense in the embedded clause. The modifiers in (8) are event modifiers and strictly diagnose the presence of two independent events:

(8) a. Pali ksehase na klidosi o Janis tin porta tris fores.
Again forgot.3SG SUBJ lock.3SG John.NOM the door three times
'Once again John forgot to lock the door three times.'
b. Ksehase na klidosi o Janis tin porta tris fores
forgot.3SG SUBJ lock.3SG John.NOM the door three times
afto to mina.
this month
'John forgot to lock the door three times this month.'

More recently, Tsakali, Alexiadou and Anagnostopoulou (TAA) (2017) provided several reasons to doubt that the phenomenon under discussion presents a genuine instance of BC understood as a movement process followed by the pronunciation of the lower copy. TAA conclude that it rather is a further instance of LDA. First, they point out that there is no sharp contrast between OC and NOC verbs. This is illustrated in (9) with an NOC verb, namely 'decide', which, unlike its English counterpart, is an NOC verb in Greek. (9) shows that it patterns like its OC counterpart 'learn' in (7) in all relevant respects (subject placement, backward coreference interpretation when the subject occurs vP internally in the embedded clause). This is significant as the backward dependency observed is not restricted to BC contexts, which have been argued to be cases of OC, but is also found with NOC:

(9) (O **Janis**) apofasise (o **Janis**) na mathi (o **Janis**)
John.NOM decided.3SG John.NOM SUBJ learn.3SG John.NOM
kithara (o **Janis**)
guitar John.NOM
'Janis decided to learn the guitar.'

Second, and more significantly, the availability of backward coreference in embedded VSO constructions is also found with indicative clauses in Greek, introduced by the complemenizer *oti* 'that'. This is shown in (10), where the embedded subject in a that-clause can be interpreted as co-referent to the matrix subject:

(10) Elpizi oti tha kerdisi o Tsipras tis ekloges
Hope.3SG that FUT win.3SG the Tsipras.NOM the elections.ACC
'Tsipras hopes that he will win the elections./ He/she hopes that Tsipras will win the elections.'

TAA further argue that the environments under discussion are non-restructuring contexts with a main clause null thematic subject and an embedded DP subject which is truly vP internal: (i) BC is found with all control verbs in Greek, not just with a small class (the restructuring class), unlike Spanish. (ii) There is no clitic climbing in Greek, presenting evidence that this language lacks restructuring (see Terzi 1992 and others for discussion). (iii) No argument may intervene between finite verbs and infinitives with a postverbal subject in Spanish, a fact that is explained by Ordóñez (2018) as a result of how the verbal complex is created. According to Ordóñez, in order for such a complex to be built, the infinitival TP must move and be adjacent to the matrix verb. The ungrammatical Spanish example in (11), taken from Ordóñez (2018: 54), is due to the fact that an argument intervenes between the matrix verb and the infinitive, blocking the formation of the verbal complex. This is not the case in Greek, (12) where no comparable locality effect is caused by an IO intervener in the matrix clause:

(11) *?les prometió a los familiares [darles el jurado la libertad
to them-promised to the family members to give the jury liberty
a los prisioneros]
to the prisoners.

(12) iposhethikan tis Marias na dosun i dikastes amnistia
promised.3PL Maria.GEN SUBJ give.3PL the judges.NOM amnesty.ACC
sto filakismeno andra tis
to the imprisoned husband hers
'The judges promised Mary to give amnesty to her imprisoned husband.'

Further evidence that we are not dealing with restructuring contexts comes from a comparison between Greek and Bosnian/Croatian/Serbian. As mentioned, Greek has a Mood element, namely, *na,* which is taken to realize MoodP (Philippaki-Warburton & Veloudis 1984; Philippaki-Warburton 1990; Terzi 1992; Rivero 1994). In addition, the language has obligatory V-to-T movement, see e.g. Philippaki-Warburton (1990); Alexiadou & Anagnostopoulou (1998) among others. As a result, *na* in Mood and V in T are adjacent and nothing may intervene between them, except for the negation head *min*, see (13), and object clitics, see (14). Greek negation is relatively high, see Philippaki-Warburton (1990) and Rivero (1994) among many others, which means that the Mood particle *na* is even higher than Neg, in a MoodP close to the left periphery. In particular, as shown in (14), clitics precede the embedded V; as clitics target T, under standard assumptions, and *na* is its standard position, namely Mood, we must conclude that V must reside in T:

(13) kserun [na **min** malonun i daskali tus mathites]
know.3PL [SUBJ NEG scold.3PL the teachers the students.ACC]
'The teachers knew how to scold the students.'

(14) kser**un** [na tus malo**nun i daskali**]
know.**3PL** [SUBJ CL.ACC scold.**3PL the teachers**]
'The teachers knew how to scold them.'

This is unlike the Bosnian/Croatian/Serbian (BCS) data discussed in Todorović & Wurmbrand (2020), which provide evidence for two positions for *da,* the corresponding mood particle in BCS, a high one in T/Mood and a low one in *v* diagnosed via low adverb placement. The relevant facts are illustrated in (15). Todorović and Wurmbrand's argumentation is as follows: *da* spells out [+FINITE] on a clausal head (C, T, *v*), if no other feature of that head overtly expresses finiteness. In (15), we see three types of complements, which differ with respect to the relative word order of *da* and the adverb modifying the embedded verb, tenseless complements, future complements and propositional complements. Tenseless complements, as in (15a) do not involve a *semantically* active Tense, according to Todorović and Wurmbrand (2020). These complements exhibit only one word order, suggesting a low *da*, i.e. *da* on v, the authors argue. By contrast, as Todorović & Wurmbrand (2020) show, complements of *decide* are ambiguous in that they can involve a [+FINITE] feature on T as well, and thus allow both word order orders, see (15b). Finally, propositional complements only allow a higher *da*, which spells out a [+FINITE] feature on C, see (15c).

(15) a. Počelisu {?*da} brže {✓da} stižu.
started.PL.MASC are {?*DA} quicker {✓DA} arrive.3.PL.PRES.IMPFV
'They started to arrive quicker.'

b. Odlučilisu {✓da} brže {✓da} hodaju
decided.PL.MASC are {✓DA} quicker {✓DA} walk.PRES.3.PL.PFV
'They decided to walk quicker.'

c. Kazalisu {✓da} brže {*da} stižu
said.PL.MASC are {✓DA} quicker {*DA} arrive.3.PL.PRES.IMPFV
'They said they are coming quicker.'

As already mentioned, in Greek no adverb can intervene between the modal particle and the verb, thus the only possible neutral word order is one in which the adverb appears in final position. The adverb can appear preceding the modal marker, but in this case, it is focussed and it is moved above MoodP. Thus, we must assume that these embedded clauses contain a syntactically active T layer for the purposes of V-movement. In Section 4, we will further substantiate the point that a semantically null Tense in Greek may have a morphological realization and, as the data in (14) show, it is syntactically active.

Summarizing this sub-section, what has been analyzed as BC is a more general phenomenon, not limited to OC/ restructuring environments, but rather involving the possibility that two agreeing T heads can be interpreted as coreferential, i.e. it can be analyzed as an instance of LDA.

2.2 LDA

Let us now turn to canonical LDA structures involving raising predicates. In raising contexts, AAIM (2012) argue that the subject DP remains in the embedded clause. These also involve biclausal structures, as can be seen by the event modification test, illustrated in (16), showing that each clause introduces an independent event, cf. (8) above:

(16) a. Afti tin xronia arxisa [na pirovolo **dio fores** me to
This the year started.1SG SUBJ shoot.1SG two times with the
oplo mu]
gun my
'This year I started to shoot my gun two times (in a row).'

b. Aftin tin xronia arxisa **dio fores** [na pirovolo me to
This the year started.1SG two times [SUBJ shoot.1SG with the
oplo mu
gun my]
'This year there were two times that I started shooting with my gun.'

An argument from scope shows that there is no copy of the subject in the matrix clause. When the subject modified by *only* occurs in the embedded clause, it is

interpreted below *stop*, see (17b), suggesting that it has not raised to the matrix clause. This contrasts with the preverbal subject where *only* has wide scope, see (17a). This is evidence that (17b) is an instance of LDA and does not involve covert raising of the subject DP:

(17) a. mono i Maria stamatise na perni kakus vathmus.
only Mary stopped SUBJ get.3SG bad grades
'It is only Maria who stopped getting bad grades.' ONLY > STOP

b. stamatise na perni mono i Maria kakus vathmus.
stopped SUBJ get.3SG only Maria bad grades
'It stopped being the case that only Maria got bad grades.' STOP > ONLY

Having shown that LDA is a feature of Greek backward dependencies, in the next section we will turn to an analysis thereof.

3. An analysis of LDA

In this section, we will turn to an analysis of LDA. We will first point out how Greek LDA differs from other well-described cases, as in e.g. Hindi. We will then turn to the basic ingredients of our analysis that capitalizes on the fact that Greek is a null-subject language, in which T does not need to enter Agree in order to license its phi-features and adopts Pesetsky & Torrego's (2007) separation between interpretability and valuation of features.

In Section 2, we concluded that our configurations are examples of LDA: a characteristic of LDA across languages is that agreement between a matrix verb and a nominative subject happens across what seems to be a clausal boundary, see Börjesson & Müller (2019) for a recent discussion of typologically diverse cases of LDA. In Greek, unlike varieties of Hindi discussed in Bhatt (2005), embedded as well as matrix verbal agreement is obligatory. As already mentioned, in all obligatory LDA environments the matrix and the embedded verb agree with the embedded nominative obligatorily, as illustrated in (18)–(19) involving a raising and a control predicate respectively:

(18) Stamati**san**/*Stamatise [na malo**nun i daskali** tus mathites]
stopped.**3PL**/stopped.3SG [SUBJ scold.**3PL** **the teachers** the students]
'The teachers stopped scolding the students.' [AAIM 2012: 36)]

(19) Kser**un**/*Kseri [na ebne**un** **i daskali** tus mathites]
know.**3PL**/know.3SG [SUBJ inspire.**3PL** **the teachers** the students]
'The teachers know how to inspire the students.' [cf. AAIM 2010]

Second, unlike in e.g. Hindi, LDA takes place across a finite clause boundary, cf. (10) above, suggesting that the size of the embedded complement is not reduced. As we have seen, none of the relevant environments involve restructuring. Thus, while LDA as a general phenomenon is undoubtedly a challenge since it appears to be non-local,[1] it is an even greater challenge in Greek, as its presence take place across finite embedded clauses, as in (10).To address this, we will build on and expand the analysis put forth in Alexiadou & Anagnostopoulou (forthcoming), which we briefly summarize below.

We will assume that DP Raising to Spec, TP is not obligatory in Greek as V-movement satisfies the EPP, as argued for extensively in Alexiadou & Anagnostopoulou (1998). In our structures, V-movement to T takes place in both the matrix and the embedded clause. This leads to the configuration in (20) for Greek obligatory LDA environments: the idea is that these instantiate an obligatory relationship between a matrix T and nominative across an embedded T, manifested as agreement between one nominative DP and many fully agreeing T heads. Such a configuration is supposed not to be available cross-linguistically in Baker (2008) but see Baker (2015).

(20) $[_{TP1}\text{Tns}_{\text{-}\varphi k}\ [_{MoodP}\text{na}\ [_{TPu}\text{Tns}_{\text{-}\varphi k}\ldots\ldots\ [_{vP}\text{NOM}_{\varphi k}]]]]$

Alexiadou and Anagnostopoulou (forthcoming) adopt from Pesetsky & Torrego (2007) the idea that interpretability and valuation are separate. They propose that pro-drop languages have Tense (Tns) with interpretable but unvalued φ-features, i.e. Tns has iφ [ ]. The φ-features of Tns may receive a value in one of two ways: either by entering Agree with an overt DP subject which has valued φ-features, or, when an overt DP subject is not present, by a Topic (Frascarelli 2007) which values the φ-features of a null subject pro in spec,VoiceP. Crucially, because Tns has interpretable φ-features, these do not delete after valuation by their local subject and can continue to participate in further Agree relationships, following Ura (1994). This is what happens in (20). An agreement operation copying the phi-features of the DP onto the embedded Tns leads to the valuation of Tns's φ-features.

Assuming that only DPs bearing nominative are accessible for agreement in Greek, i.e. Agreement is case discriminating and possible only with nominative arguments (Bobaljik 2008; Preminger 2014), this will force agreement between the nominative DP and the lower T in configurations like (20). Once its φ-features are valued, the lower Tns in (20) will further value the phi-features of the matrix Tns by copying its features onto the higher Tns through the formation of an agreement

1. A variety of approaches have been proposed to deal with this issue, recently summarized in Börjesson & Müller (2019).

chain with it. This is possible because the φ-features of Tns are interpretable and do not delete after valuation. This derivation is summarized in (21):[2]

(21) a. [$_{TP}$ Tns$_{\text{-iφ}}$[ ]……. [$_{vP}$ NOM$_{3PL}$]]]]
Agree with NOM and valuation →
b. [$_{TP}$Tns$_{\text{-iφ}}$ [3PL]……. [$_{vP}$ NOM$_{3PL}$]]]]
Merge with high Tns→
c. [$_{TP1}$ Tns$_{\text{-iφ}}$[ ][$_{MoodP}$ na [$_{TP}$ Tns$_{\text{-iφ}}$ [3PL][$_{vP}$ NOM$_{3PL}$]]]]
Agree with embedded T/ valuation →
d. [$_{TP1}$ Tns$_{\text{-iφ}}$[3PL][$_{MoodP}$ na [$_{TP}$ Tns$_{\text{-iφ}}$[3PL][$_{vP}$ NOM$_{3PL}$]]]]

We need to furthermore distinguish between the cases of obligatory LDA (Long distance Raising and OC environments showing backward control) and optional LDA in embedded *that* clauses, as shown in (22a), as well as in embedded non OC subjunctives, as in (22b). The difference between the two types of environments correlates with the absence vs. presence of embedded semantic Tense. When semantic Tense is absent, LDA, i.e. the formation of an Agree chain of the type illustrated in (20), is obligatory. That-clauses and embedded non-OC subjunctives, however, clearly have independent Tense, as shown in (22):

(22) a. Elpizi simera oti tha kerdisi o Tsipras tis ekloges
Hope.3SG today that FUT win.3SG the Tsipras.NOM the elections.ACC
sto mellon
in the future
'Tsipras hopes today that he will win the elections in the future.'
'He/she hopes today that Tsipras will win the elections in the future.'
b. Elpizi simera na kerdisi o Tsipras tis ekloges
Hope.3SG today SUBJ win.3SG the Tsipras.NOM the elections.ACC
sto mellon
in the future
'Tsipras hopes today that he will win the elections in the future.'
'He/she hopes today that Tsipras will win the elections in the future.'

2. An alternative analysis is suggested by an anonymous reviewer. The reviewer suggests that, since matrix T does not bear an uninterpretable feature, LDA can be taken to be based on upward Agree, i.e. the trigger would be [uΓ] on the DP (abstract NOM Case). [uΓ] first links with embedded T (which bears [uΓ], however), and then with matrix T, which can license both chain links. The reviewer furthermore points out that this analysis would be very close to the Pesetsky & Torrego's (2007) view of Agree. It seems to us that this analysis works fine for the obligatory LDA cases, but it is less clear whether it can be employed for optional LDA in NOC and finite-clause contexts.

Unlike in OC and raising subjunctives, in (22) LDA established across an uncontroversial phase head, namely C (this is particularly evident in (22a), but it is arguably true also in (22b)).

We thus need to explain why Agree of the type seen in (20) is obligatory in the absence of an embedded semantic Tns and optional when semantic Tns is present, as in (22). In order to account for this difference, we will appeal to the interpretability of the T features of embedded Tns. Specifically, we propose that in OC and obligatory raising environments, embedded Tns bears [uT] features which need to be valued by the [iT] features of the matrix T in order to be interpreted. This forces the establishment of an Agree relationship between matrix and embedded Tns, leading to an obligatory LDA configuration. On the other hand, in environments like (22) embedded Tns bears interpretable Tense features [iT]. In the latter case, the formation of a chain between embedded and matrix T is optional. Agree can still be triggered by the unvalued φ-features of the matrix T and, if it happens, the result is an LDA dependency of the type illustrated in (20)/(21). If it does not happen, matrix T has its φ-features valued by matrix pro (and a Topic associated with it), resulting in a non-coreferent reading.[3]

We will furthermore assume that an Agree relationship can be established between embedded T and matrix T across a CP boundary in Greek, i.e. C is not an intervener for Agree. This is possible because matrix T and embedded CP enter into an Agree relation. Following Rackowski & Richards (2005), we assume that PIC/intervention effects are obviated if a higher head first agrees with *the entire phase* and then continues on to agree with an element *inside* the phase.[4] These authors use this principle to account for A-bar long-distance *wh*-extraction in Tagalog. Halpert (2016) makes use of this to explain hyper-raising in Zulu.[5]

(23) [$T\varphi_k$ [$_{TP/CP}$ $T\varphi_k$ $DP\varphi_k$]]

3. Notice that our analysis permits both upward probing Agree (in the case of an embedded [uT] entering Agree with a matrix [iT] and when a Topic values the unvalued φ-features of pro in spec,VoiceP) and downward probing Agree (in the case of valuation of the φ-features of embedded T by an overt NOM subject, when a matrix T bearing unvalued φ-features enters Agree with an embedded T the φ-features of which have been valued, and when the matrix T enters Agree with pro valued by a Topic).

4. As correctly noted by an anonymous reviewer, this view actually involves some look-ahead or at least does not work within a strict derivational model. We can circumvent this, however, by adopting Wurmbrand's (2014) system, according to which phase-suspension in Greek happens via selection. See our discussion below in the main text.

5. Note that we do not follow Halpert (2016) in taking the relevant CPs in Greek to be nominal. As we mentioned in footnote 4, and in our discussion in the main text, we follow Wurmbrand (2014) in taking phase-suspension in Greek to happen via selection.

Matrix T-agrees with the CP and then with embedded T, which agrees with the vP internal subject. This leads to *Phase Suspension*, which happens via selection of C by matrix V (Wurmbrand 2014). Phase can be suspended, according to Wurmbrand, if the value of the head of the complement is determined by the selecting verb; when this happens, then the complement does not constitute a phase. Crucially, there is extensive evidence for Greek, discussed in Roussou (2010), that the type of complementizer in the complement clause is determined by the matrix verb, as shown in (24).

(24) a. Ksero oti/*an o Janis elise to provlima.
know.1SG that/if the John solved.3SG the problem
'I know that/*if John solved the problem.'

b. Anarotjeme an/*oti o Janis elis to provlima.
wonder.1SG if/that the John solved.3SG the problem
'I wonder if/*that John solved the problem.'

c. Xerome pu/*oti o Janis elise to provlima.
am-glad that the John solved.3SG the problem
'I'm glad that John solved the problem.'

d. Thelo na/*oti liso to provlima.
want.1SG SUBJ/that solve.1SG the problem
'I want to/*that (I) solve the problem.'

Roussou shows when all three *oti, na,*and *pu* can occur, they differ in interpretation; for instance, in (25) *pu* is factive.

(25) Thimame oti/pu dhjavaze poli.
remember.1SG that read.3SG much
'I remember that he used to read a lot/I remember him reading a lot.'

Following Wurmbrand (2014), we assume that verbs that impose a value selection restriction on their complements are lexically specified with an uninterpretable valued feature encoding the specific value. For instance, in Greek subjunctive taking verbs like *know* are specified for *u*F: *subjunctive*. Crucially, the uninterpretable feature of the selecting verb becomes dependent on a specific complement.

The final ingredient we need to appeal to is the no Activity Condition (Nevins 2004; Carstens & Diercks 2013). We already mentioned that reviving Ura (1994), (2), and building on Alexiadou & Anagnostopoulou (1998) and Barbosa (2019), we adopt the view that NSLs have T with interpretable φ-features [iφ] which remain active after checking and valuation, thus licensing LD chains via Agree across a phase head. This means that NSLs that have phase-suspension permit Hyper-Raising. Crucially then LDA in Greek involves agreement chains that are made possible due to the NS status of the language and phase suspension of the embedded CP.

Let us now turn to some cases of LDA disruption.

4. LDA disrupted

In this section, we turn to a preliminary discussion of three conditions under which LD chains are disrupted in Greek, which will lead us to scrutinize the role of verbal morphology in the language. A first environment where this happens is when another agreement chain intervenes. Greek entirely lacks the counterpart of constructions like *The children are likely to win,* as shown in (26),which display obligatory agreement in gender and number between the matrix subject and the adjective, disrupting the agreement chain (in person and number) between the matrix and the embedded T, as depicted in (27):

(26) *Ta pedhia ine pithana na kerdisun.
the children are likely SUBJ win.3PL
Intended: 'The children are likely to win.'

(27) *[DP$\varphi_{person/number/gender}$ T$\varphi_{person/number}$ **Adj$\varphi_{gender/number}$**[TP T$\varphi_{person/number}$]]

Second, LDA only takes place when the chain between the matrix and the embedded T is not disrupted by a preverbal subject DP. When a preverbal subject occurs in *that*-clauses, a clear Principle C effect arises (TAA 2017).

(28) Elpizo/-i oti o Tsipras de tha kerdisi tis ekloges.
Hope.3SG that the Tsipras.NOM NEG FUT win.3SG the elections.ACC
'I hope that Tsipras will not win the elections/ He/she hopes that Tsipras will not win the elections.'

This leads to the conclusion that Agree between T heads can happen as long as no DP subject intervenes between them, as illustrated in (29), for reasons that remain to be understood:

(29) a. [Tφ_k [TP/CP Tφ_k DPφ_k]]
b. *[Tφ_k [TP/CP DPφ_k Tφ_k]]

Potentially, there is a third condition governing obligatory vs. optional LDA reducible to phase-hood. We have argued on the basis of clitic placement and the position of the Mood subjunctive marker that null Tense in Greek does not imply the absence of the TP layer, contra Wurmbrand (2014).We have also presented evidence that obligatory LDA phenomena in subjunctives take place when the embedded Tense is simultaneous with the matrix Tense and cannot be modified by an independent temporal adverb. Interestingly, this happens when the embedded verb carries imperfective morphology. By contrast, when embedded T is non-simultaneous with matrix T, agreement between a nominative DP and the matrix verb may be disrupted (coreference is in many cases possible, but optional, as we have seen): this happens whenever an embedded T is perfective e.g. *figi* (future irrealis subjunctives,

also implicatives and factives) or when it can be inflected for Tense showing the [+/−Past] distinction, e.g. *efige* in (30) which is marked for past tense and bears perfective aspect.

(30) o Petros elpizi na figi/efige i Maria.
Peter.NOM hopes SUBJ go.3SG/left.3SG Mary.NOM
'Peter hopes to leave/Peter hopes that Mary left.'

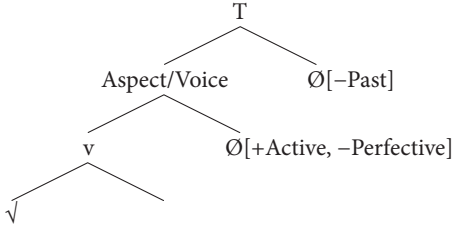
Thus, the accurate condition forcing obligatory LDA should also make reference to null Tense and null Aspect morphology. Importantly, Greek verbal morphology shows an interesting correlation between the presence of obligatory LDA and the absence of an exponent for Aspect. Christopoulos & Petrosino (2018) examine Greek verbal morphology in detail with a different aim in mind, but it is important for our discussion to look at their arguments. Consider the paradigm of the verb *idrio* 'found' in the active Voice, discussed in their paper (note that stress shift for [+Past] is marked only for 1SG in Table 2, the rest of the paradigm behaves alike):

Table 2. Verb paradigm of the verb *idrio* in the active Voice

ACT	**−Perfective**		**Perfective**	
PN	**−Past**	**Past**	**−Past**	**Past**
1.SG	**idrí-o**	**ídri-a**	idrí-**s**-**o**	**ídri-s-a**
2.SG	idri-is	idri-es	idri-s-is	idri-s-es
3.SG	idri-i	idri-e	idri-s-i	idri-s-i
1.PL	idri-ume	idri-ame	idri-s-ume	idri-s-ame
2.PL	idri-ete	idri-ate	idri-s-ete	idri-s-ate
3.PL	idri-un	idri-ane	idri-s-un	idri-s-an

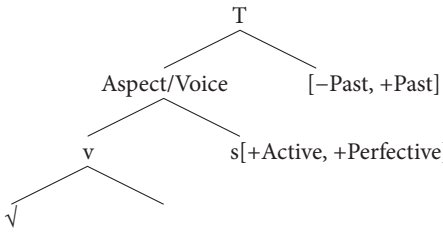
As the authors point out and is clear from Table 2, while [+Perfective] has an exponent, **-s-**, [−Perfective] does not. As [+Past] triggers stress shift, we take this to suggest that it has morpho-phonological exponence (and see Spyropoulos & Revithiadou 2008; van Oostendoorp 2012). This leads to the observation that obligatory LDA happens only in the presence of [−Perfective], [−Past], i.e. in the absence of an exponent for both Aspect and Tense, as shown in the structure in (31):

(31)



By contrast, LDA is not obligatory in the context of [+Perfective]:

(32)



What is so special about perfective aspect? Building on Todorović & Wurmbrand (2020), we consider the licensing of perfective Aspect morphology in Greek as a tool determining the layers of structure that are present in the embedded complement. Giannakidou (2009) proposed a treatment of perfective Aspect, according to which, when the verb is inflected for [+Perfective] a higher T projection must be present to license it. In other words, her analysis suggests that [+Perfective] must be associated with some temporal projections. This can be either overt Tense marking or modal particles, e.g. *na*, that is given a semantic function similar to that of Tense. While the details of her analysis are not crucial, the point that in perfective contexts there is semantic Tense is important for our purposes: if semantic Tense is always present in perfective contexts, then these contain a semantically active embedded T, unlike the situation with their [−Perfective] counterparts, where T is semantically inactive. This correlates with our analysis in the previous section, where we argued that in OC and obligatory raising environments, embedded Tns bears [uT] features which need to be valued by the [iT] features of the matrix T in order to be interpreted. This forces the establishment of an Agree relationship between matrix and embedded Tns, leading to an obligatory LDA configuration.

A final observation that we would like to make here relates to the morpho-phonological difference between (31) and (32) with respect to Aspect exponence. Embick (2010) has proposed the operation of *pruning* that may delete nodes with Ø-exponence in morpho-phonology. If he is right, we must assume that pruning applies after the linearization of the hierarchical structure in (31) following Vocabulary Insertion. After its application, the embedded clause contains just a vP at PF, i.e. T-Aspect/Voice and v are all spelled-out on the same head, creating the illusion of a restructuring environment. This is a representation quite similar to analyses of restructuring in terms of structure removal (as put forth in Müller 2017) or exfoliation (Pesetsky 2016). Crucially, however, the relevant parts of the structure are removed only at PF, as they are syntactically active. In Section 2, we presented extensive evidence that in Greek this is not a restructuring context based on a comparison of Greek with Spanish and Bosnian/Croatian/Serbian (BCS). Specifically, the presence of e.g. clitics on embedded T as well as the placement

of the modal particle in Greek point to the conclusion that the embedded TP is present in the syntax in contrast to BCS (and English). By contrast, the presence of an exponence for [+Perfective] in (32) blocks *pruning* and creates a distinct morpho-phonological domain (cf. Merchant 2015). If this is correct, this leads to an interesting correlation between a distinct morphological realization for Aspect and the presence of a semantically T head in (32), which do not require LDA. We leave this for further research.

5. Conclusions

In this paper, we first revisited the evidence that what has been analyzed as BC in Greek is in fact just another instance of LDA. By focusing on the domains and the conditions that allow/disallow the formation of LD chains even across CP boundaries, we argued that Greek allows non-local assignment of nominative case. We further argued that LD chains come in two versions, obligatory ones and optional ones, and that the former involve uninterpretable T in the embedded clause, while the latter are permitted because the formation of a chain between matrix T and embedded T is allowed to cross a CP phase boundary, which can be suspended. We suggested that this is due to (2):

(2) NSLs have T with interpretable φ-features which are not deleted after checking and valuation, thus being able to form Long Distance chains via Agree (cf. Ura 1994).

We studied the conditions under which LD chains can be disrupted. We noted that [+Perfective] and [+Past] may disallow LD formation in Greek, and we suggested that in perfective contexts there is semantic Tense: as semantic Tense is present in perfective contexts, these contain a semantically active embedded T, unlike their [−Perfective] counterparts, where T is semantically inactive leading to obligatory LDA.

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References

Alexiadou, Artemis & Anagnostopoulou, Elena. 1998. Parametrizing Agr: Word order, V- movement and EPP-checking. *Natural Language and Linguistic Theory* 16: 491–539. https://doi.org/10.1023/A:1006090432389

Alexiadou, Artemis & Anagnostopoulou, Elena. 1999. Raising without infinitives and the nature of Agreement. In *Proceedings of the 18th West Coast Conference on Formal Linguistics*, Sonya Bird, Andrew Carnie, Jason D. Haugen & Peter Norquest (eds), 14–26. Somerville MA: Cascadilla Press.

Alexiadou, Artemis & Anagnostopoulou, Elena. Forthcoming. Rethinking the nature of nominative case. In *Syntactic Structure and its Consequences III. Inside Syntax*, András Bárány, Theresa Biberauer, Jamie Douglas & Sten Vikner (eds). Berlin: Language Science Press.

Alexiadou, Artemis, Anagnostopoulou, Elena, Iordăchioaia, Gianina & Marchis, Mihaela. 2010. No objection to Backward Control. In *Movement Theory of Control* [Linguistik Aktuell/ Linguistics Today 154], Norbert Hornstein & Masha Polinsky (eds), 89–118. Amsterdam: John Benjamins. https://doi.org/10.1075/la.154.04ale

Alexiadou, Artemis, Anagnostopoulou, Elena, Iordachioaia, Gianina & Marchis, Mihaela. 2012. In support of Long Distance Agree. In *Local Modeling of Non-local Dependencies in Syntax*, Artemis Alexiadou, Gereon Müller & Tibor Kiss (eds), 85–110. Tübingen: Niemeyer. https://doi.org/10.1515/9783110294774

Baker, Mark. 2008. *The Syntax of Agreement and Concord*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511619830

Baker, Mark. 2015. *Case. Its Principles and Parameters*. Cambridge: CUP. https://doi.org/10.1017/CBO9781107295186

Barbosa, Pilar. 2019. pro as a minimal nP. Towards a unified approach to pro-drop. *Linguistic Inquiry* 50: 487–526. https://doi.org/10.1162/ling_a_00312

Bhatt, Rajesh. 2005. Long distance agreement in Hindi-Urdu. *Natural Language and Linguistic Theory* 23: 757–807. https://doi.org/10.1007/s11049-004-4136-0

Bobaljik, Jonathan David. 2008. Where's phi? Agreement as a post-syntactic operation. In *Phi Theory: Phi-features across Modules and Interfaces*, Daniel Harbour, David Adger & Susana Béjar (eds), 295–328. Oxford: OUP.

Börjesson, Kristin & Müller, Gereon. 2019. Long Distance Agreement and locality: A reprojection approach. In *Agree to Agree: Agreement in the Minimalist Programme*, Peter Smith, Johannes Mursell & Katharina Hartmann (eds), 225–265. Berlin: Language Science Press.

Carstens, Vicki & Diercks, Michael. 2013. Parameterizing case and activity: Hyper-raising in Bantu. In *Proceedings of NELS 40*, Seda Kan, Claire Moore-Cantwell & Robert Staubs (eds), 99–118. Amherst MA: GLSA.

Christopoulos, Christos & Petrosino, Roberto. 2018. Conditioning Greek root allomorphy without spans. In *Proceedings of the 35th West Coast Conference on Formal Linguistics*, Wm. G. Bennett, Lindsay Hracs & Dennis Ryan Storoshenko (eds), 151–160. Somerville MA: Cascadilla Proceedings Project.

Embick, David. 2010. *Localism and Globalism in Morphology and Phonology*. Cambridge MA: The MIT Press. https://doi.org/10.7551/mitpress/9780262014229.001.0001

Frascarelli, Mara. 2007. Subjects, topics and the interpretation of referential pro: An interface approach to the linking of (null) pronouns. *Natural Language & Linguistic Theory* 25(4): 691–734. https://doi.org/10.1007/s11049-007-9025-x

Giannakidou, Anastasia. 2009. On the temporal properties of mood: The subjunctive revisited. *Lingua* 119: 1883–1908. https://doi.org/10.1016/j.lingua.2008.11.007

Halpert, Claire. 2016. Raising parameters. In *Proceedings of the 33rd West Coast Conference on Formal Linguistics*, Kyeong-min Kim, Pocholo Umbal, Trevor Block, Queenie Chan, Tanie Chen, Kelli Finney, Mara Katz, Sophie Nickel-Thompson & Lisa Shorten (eds), 186–195. Somerville MA: Cascadilla Proceedings Project.

Holmberg, Anders. 2005. Is there a little Pro? Evidence from Finnish. *Linguistic Inquiry* 36: 533–564. https://doi.org/10.1162/002438905774464322

Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30: 69–96. https://doi.org/10.1162/002438999553968

Iatridou, Sabine. 1993. On nominative case assignment and a few related things. *MIT Working Papers in Linguistics* 19: 175–198.

Kapetangianni, Konstantia & Seely, T. Daniel. 2007. Control in Modern Greek: It's another good move. In *New Horizons in the Analysis of Control and Raising*, William Davies & Stanley Dubinsky (eds), 133–157. Dordrecht: Springer. https://doi.org/10.1007/978-1-4020-6176-9_6

Merchant, Jason. 2015. How much context is enough? Two cases of span-conditioned allomorphy. *Linguistic Inquiry* 46: 273–303. https://doi.org/10.1162/LING_a_00182

Müller, Gereon. 2017. Structure removal: An argument for feature-driven Merge. *Glossa* 2(1). https://doi.org/10.5334/gjgl.193

Nevins, Andrew. 2004. Derivations without the activity condition. In *Perspectives on Phases* [MIT Working Papers in Linguistics 49], Martha McGinnis & Norvin Richards (eds), 287–310. Cambridge MA: MIT.

van Oostendorp, Mark. 2012. Stress as a proclitic in Modern Greek. *Lingua* 122: 1165–1181. https://doi.org/10.1016/j.lingua.2012.05.006

Ordóñez, Francisco. 2018. Verbal complex formation and overt subjects in infinitivals in Spanish. In *Language, Syntax, and the Natural Sciences*, Ángel Gallego & Roger Martin (eds), 34–57. Cambridge: CUP. https://doi.org/10.1017/9781316591529.003

Pesetsky, David. 2016. *Exfoliation: Towards a derivational theory of clause size*. Ms, MIT.

Pesetsky, David & Torrego, Esther. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and Clausal Architecture* [Linguistik Aktuell/Linguistics Today 101], Simin Karimi, Vida Samiian & Wendy K. Wilkins (eds), 262–294. Amsterdam: John Benjamins. https://doi.org/10.1075/la.101.14pes

Philippaki-Warburton, Irene. 1990. The analysis of the verb group in Modern Greek. *Studies in Greek Linguistics* 11: 119–138.

Philippaki-Warburton, Irene & Veloudis, Janis. 1984. The subjunctive in complement clauses. *Studies in Greek Linguistics* 5: 87–104.

Philippaki, Irene & Catsimali, Georgia. 1999. On control in Greek. *Studies in Greek Syntax*, Artemis Alexiadou, Geoffrey Horrocks & Melita Stavrou (eds), 153–168. Dordrecht: Kluwer.

Polinsky, Masha & Potsdam, Eric. 2006. Expanding the scope of control and raising. *Syntax* 9(2): 171–192. https://doi.org/10.1111/j.1467-9612.2006.00090.x

Preminger, Omer. 2014. *Agreement and its Failures*. Cambridge MA: The MIT Press. https://doi.org/10.7551/mitpress/9780262027403.001.0001

Rackowski, Andrea & Richards, Norvin. 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry* 36: 565–599. https://doi.org/10.1162/002438905774464368

Rivero, Maria. 1994. The structure of the clause and V-movement in the languages of the Balkans. *Natural Language and Linguistic Theory* 12: 63–120. https://doi.org/10.1007/BF00992746

Roussou, Anna. 2009. In the mood for Control. *Lingua* 119: 1811–1836. https://doi.org/10.1016/j.lingua.2008.11.010

Roussou, Anna. 2010. Selecting complementizers. *Lingua* 120: 582–603. https://doi.org/10.1016/j.lingua.2008.08.006

Spyropoulos, Vasilis. 2007. Finiteness and control in Greek. In *New Horizons in the Analysis of Control and Raising*, William Davies & Stanley Dubinsky (eds), 159–183. Dordrecht: Springer. https://doi.org/10.1007/978-1-4020-6176-9_7

Spyropoulos, Vasilis & Revithiadou, Anthi. 2008. The morphology of past in Greek. Paper presented at the 29th Annual Meeting of Greek Linguistics, Thessaloniki.

Terzi, Arhonto. 1992. PRO in Finite Clauses: A Study of the Inflectional Heads of the Balkan Languages. PhD dissertation, CUNY.

Todorović, Neda & Wurmbrand, Susi. 2020. Finiteness across domains. In *Current Developments in Slavic Linguistics – Twenty Years After*, Teodora Radeva-Bork & Peter Kosta (eds), 47–66. Bern: Peter Lang.

Tsakali, Vina, Anagnostopoulou, Elena & Alexiadou, Artemis. 2017. A new pattern of CP transparency: Implications for the analysis of Backward Control. Talk presented at the GLOW 40, Leiden.

Tsoulas, George. 1993. Remarks on the structure and the interpretation of na-clauses. *Studies in Greek Linguistics* 14: 191–206.

Ura, Hiroyuki. 1994. *Varieties of Raising and the Feature-based Bare Phrase Structure Theory* [MIT Working Papers in Linguistics 7]. Cambridge MA: MIT.

Varlokosta, Spyridoula. 1994. Issues on Modern Greek Sentential Complementation. PhD dissertation, University of Maryland.

Wurmbrand, Susi. 2014. The Merge condition: A syntactic approach to selection. In *Minimalism and Beyond. Radicalizing the Interfaces* [Language Faculty and Beyond 11], Peter Kosta, Steven Franks, Teodora Radev-Bork & Lilia Schürcks (eds), 139–177. Amsterdam: John Benjamins. https://doi.org/10.1075/lfab.11.06wur