

## A new pattern of CP transparency: implications for the analysis of Backward Control

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**1. Synopsis.** In this paper, we re-evaluate the evidence for the existence of Backward Control (BC) in Greek, Romanian and Spanish (Alexiadou, Anagnostopoulou, Iordachioaia & Marchis [AAIM] 2010, Alboiu 2007, Moreno & al. 2011). We argue that BC in these languages does not provide evidence for the Movement Theory of Control. Based on novel data, assessed experimentally, we argue that BC in Greek is a side-effect of the availability of an agreement chain between a null main subject and an overt embedded subject in all types of subjunctives (*na*-clauses) and to a certain extent, in indicatives (*that*-clauses). While backward coreference is allowed in both types of clauses, with VSO and VOS embedded orders, embedded SVO orders in indicatives lead to a robust Principle C effect. We propose that what has been analysed as BC actually reflects  $\phi$ -agreement between matrix T, embedded T and the overt S(subject), licit only if the S doesn't intervene between the two T heads, (1a):

(1) a. [ T $\phi_k$  [TP/CP T $\phi_k$  DP $\phi_k$  ]] b. \* [ T $\phi_k$  [TP/CP DP $\phi_k$  T $\phi_k$ ]]

The novel observation in (1) sheds light on the comparative investigation of the Greek and the Spanish type of BC. While the latter reduces to restructuring (Ordonez 2009, Herbeck 2013), the former relies on  $\phi$ -feature sharing under Agree. We will then address the implications of our analysis for the typology of complex predicate formation and CP-transparency.

**2. Background.** Greek control is instantiated in subjunctive complement clauses, as the language lacks infinitives. There are two main types of subjunctive complements (Iatridou 1988/93, Varlokosta 1994, Terzi 1992, Tsoulas 1993, Spyropoulos 2007, Roussou, 2009): Obligatory Control (OC) and non-OC ones (NOC) (*Controlled-subjunctives* and *Free-subjunctives*; Landau 2004). AAIM (2010) argued that all OC verbs allow BC in Greek. The subject can appear in several positions and agrees with both verbs in person and number:

(2) [(*O Janis*) emathe (o *Janis*) [na pezi (o **Janis**) kithara (o *Janis*)]]  
John-nom learned-3sg John-nom subj play-3sg John-nom guitar John-nom  
'Janis learned to play the guitar'

The pattern in which the subject in the complement clause precedes the object (boldfaced in (2)) qualifies as BC on the basis of robust evidence pointing to an unpronounced thematic subject in the matrix clause and a truly embedded overt subject (AAIM 2010).

**3. Experimental study.** Greek monolingual speakers were asked to evaluate the availability of backward co-reference in *na*-subjunctives and indicative *that*-clauses in two separate questionnaires. We included VSO and VOS orders for *na*-clauses (SVO orders are unavailable in subjunctives) and SVO, VSO and VOS orders in *that*-clauses. The first questionnaire was run on 74 adults, Greek monolingual native speakers testing the conditions of OC and NOC configurations of *na*-clauses. The second questionnaire was run on 54 adults, a subset of the participants in Questionnaire 1 and investigated the availability of co-reference across a CP boundary (*that*-clause). Our results demonstrate obligatory backward co-reference with OC verbs. A significant number of speakers (up to 50% for VSO and up to 68% for VOS orders) allow co-reference with NOC verbs, which also permit disjointness, just like Forward Control (FC) configurations. Significantly, we found comparable data with finite clauses, i.e. a considerable amount of speakers allow backward coreference in [pro-V-that-VSO/VOS] sequences (up to 43% and 69% for VSO and VOS respectively), while they only accept the disjoint reading in [pro-V-that-SVO] sequences (at a rate of 86% to 99%) which points to a robust Principle C effect, as shown in (3). Preliminary investigation shows that Romanian subjunctives behave like Greek in both contexts.

(3) pro<sub>k</sub> emathe oti \*o **Petros<sub>k</sub>** kerdise <sup>ok</sup>o **Petros<sub>k</sub>** to lahio <sup>ok</sup>o **Petros<sub>k</sub>**  
learned-3sg that **Peter-nom** won-3sg **Peter-nom** the lottery **Peter-nom**  
'He/she learned that Peter won the lottery/ Peter learned that he won the lottery'

**4. BC as Agreement.** To explain the contrast in (3), we propose that backward coreference in Greek/Romanian is possible in a configuration like (1a) and impossible in a configuration like (1b). In these languages, agreement chains may include C, a phase head, which is transparent (cf. Martins and Nunes 2005, Carstens and Diercks 2013, Halpert 2016, i.a.), as evidenced by raising-to-object constructions across *that*-complements in (4), similarly to *na*-clauses discussed in Kontzoglou & Papangeli (2007:120, ex. 19), (*PP has matrix reading*):

- (4) o Petros            perimene            \*i Sofia/ti Sofia            me laxtara  
 the Peter-nom    expected-3sg        \*the Sofia-nom/the Sofia-acc    with desire  
 oti tha dhecti        tin protasi ghamu  
 that will accept-3sg the proposal-acc wedding-gen  
 ‘It is with desire that Peter expected Sofia to accept the wedding proposal.’

As depicted in (1), the embedded preverbal subject in (3) interrupts agreement between the matrix and the embedded T, resulting in a Principle C effect. On the other hand, the embedded postverbal subject in (3) (both under VSO and VOS) does not interrupt the formation of such a chain between the  $\phi$ -features of matrix and embedded T, and itself forms a local chain with the  $\phi$ -features on the embedded T, ending up also agreeing with matrix T, by transitivity. Crucially, the SVO vs. VSO/VOS asymmetry leads us to conclude that backward coreference in (3) involves agreement **and not** actual movement from the embedded to the matrix subject position and spell-out of the lower copy. The movement approach offers no obvious account for this asymmetry. We extend this analysis to OC and NOC subjunctives, which necessarily involve *na-VSO/VOS* orders, and never permit *na-SVO* strings. We conclude that Greek (and Romanian) BC does not involve Control-as-Movement, contra AAIM (2010), and unlike e.g. Polinsky & Potsdam’s (2007) approach to BC in Tsez.

**5. Restructuring BC vs. Agree BC.** Recently, Ordonez (2009) and Herbeck (2013) have argued that BC in Spanish (and Catalan) is contingent on complex-predicate formation (restructuring), and thus only apparent. (5) illustrates the result of the proposed derivation of embedded infinitives in Spanish, which is reached via the following steps: (i) Movement of *querer* ‘to want’ above VP, (ii) Movement of the TP above ‘want’, (iii) Object-scrambling out of TP + movement of the main subject ‘Juan’ to its licensing position above the scrambled object, (iv) Movement of the VP containing *comprar* ‘to buy’ above the licensing position of subject, and (v) Movement of TP ‘querer’ to Spec CP and final Spell Out:

- (5) [CP [TP **querer<sub>i</sub>** [VP t [VP **comprar t<sub>i</sub>**]]] Juan el libro [CP PRO t<sub>i</sub> ]]]]

Infinitival wh-islands, where BC and FC behave differently support (5). Ordonez explains the ungrammaticality of (6a) as scrambling out of non-tensed CPs being blocked by filled CPs.

- (6) a. \*?No sabe si contestar Juan las cartas.      b. Juan no sabe si contestar Juan las cartas  
 Not know whether to answer Juan the letters

Derivation (5) cannot be applied to Greek, for the following reasons: **i)** No blocking of the type in (6) is observed in Greek, as shown in (7):

- (7) de kseri            pos na apandisi            o Janis            ta gramata  
 not know-3sg how subj answer-3sg John-nom the letters-acc

**ii)** In Spanish, but not in Greek, nothing can intervene between finite verbs and VS infinitives:

- (8) \*?les prometió a los familiares [darles el jurado la libertad a los prisioneros]  
 to them-promised to the family members to give the jury liberty to the prisoners.  
 (9) iposhethikan tis Marias na dosun      i dikastes amnistia sto filakismeno andra tis  
 promised Maria-gen subj give-3pl the judges amnesty to the prisoner husband hers

**iii)** There is no clitic climbing in Greek (Terzi 1992 and others). **iv)** Greek BC occurs with all control verbs, not just a small class (the restructuring class in Spanish). **v)** The obviation of Principle C effects in embedded VSO is also found with finite clauses, unlike restructuring. Again Romanian behaves similarly to Greek. We will address the question why Greek (and Romanian) lack restructuring, which we will attribute to the lack of infinitives and relate this to the typology of complex predicate formation (Wurmbrand 2015 and subsequent work).

**6. On CP-transparency.** Finally, we address the typology of CP-transparency. We propose that  $\varphi$ - and discourse-features are located on T in Greek (cf. Miyagawa 2010, 2016), allowing for raising and agreement across a CP-boundary.