

---

**RESEARCH**

# Seeking control in Modern Standard Arabic

Tali Arad Greshler<sup>1</sup>, Nurit Melnik<sup>2</sup> and Shuly Wintner<sup>1</sup>

<sup>1</sup> University of Haifa, 199 Aba Khoushy Ave., 3498838 Haifa, IL

<sup>2</sup> The Open University of Israel, 1 University Rd., 4353701 Ra'anana, IL

Corresponding author: Nurit Melnik ([nuritme@openu.ac.il](mailto:nuritme@openu.ac.il))

---

Modern Standard Arabic (MSA) has several embedded clause constructions, some of which resemble control in English (and other languages). However, these constructions exhibit some notable differences. Chief among them is the fact that the embedded verb carries agreement features that can indicate both coreference and disjoint reference between a matrix argument and the subject of the complement clause. Through a corpus-based investigation, informed by previous insights regarding the distinction between control and no control, we found no evidence of obligatory control predicates in MSA; these findings contradict accepted generalizations (and predictions) proposed by state-of-the-art theories of control. Nevertheless, although no obligatory control predicates were found, the backward pattern, where the single expressed subject occurs in the embedded clause, revealed morphosyntactic reflexes of the control vs. no control distinction. Coreference between the expressed embedded subject and the unexpressed matrix subject was found to be restricted to a set of predicates. The existence of backward control and its relation to the backward raising construction, also found in MSA, are especially relevant for current debates regarding the theory of control. We propose an analysis that ties together control, raising and restructuring.

---

**Keywords:** control; raising; restructuring; agreement; corpus; Modern Standard Arabic

---

## 1 Introduction

Does Modern Standard Arabic (MSA) have obligatory control predicates? MSA has several embedded clause constructions, some of which resemble control in English (and other languages). However, these constructions exhibit some notable differences. Chief among them is the fact that the embedded verb carries agreement features that can indicate the agreement properties of its understood subject.

We distinguish in this paper between obligatory control (OC) and no control (NC). OC generally refers to a situation whereby an unexpressed subject of a complement clause is obligatorily identified with (or controlled by) a matrix argument (subject or object). In some languages this relation also applies to a reversed situation, where the unexpressed subject is in the matrix clause, and its obligatory controller is the subject of the complement clause. Both cases, referred to in the literature as “forward control” and “backward control”, respectively, are considered here as OC. NC, on the other hand, refers to a situation whereby the reference of an unexpressed subject is not dependent on the reference of another argument.

The first goal of this paper is to investigate whether all verbs in these MSA constructions are NC predicates, which allow for both coreference and disjoint reference, or whether there are OC predicates which enforce coreference between the subject of the embedded clause and a matrix argument. In order to determine whether OC predicates exist in the language we conducted a thorough corpus-based search of such constructions.

This empirical investigation was informed by previous insights regarding the distinction between OC and NC predicates in MSA and in Modern Greek and by more general typological predictions. Surprisingly, we found no evidence of OC predicates in MSA; our findings contradict accepted generalizations (and predictions) proposed by state-of-the-art theories of control.

The second goal of the paper is to propose a formal analysis of the control-like MSA constructions. Under the assumption that there is no OC in MSA, a straightforward account is to propose one structure for all cases, namely, a no-control structure. There is, however one pattern which challenges this account: the backward pattern, where the matrix clause lacks an overt subject and an overt subject is found in the embedded clause. We find that an agreement alternation exhibited by this pattern correlates with the OC/NC distinction. From a theoretical perspective, the existence of backward control in MSA throws light on the relation between control, restructuring and raising, in this language as well as across languages.

The structure of the paper is as follows. We begin Section 2 by briefly reviewing some basic properties of MSA that are relevant to the current study and proceed to discuss in more depth *?an* clauses, which are the ones that resemble control constructions. In Section 3 we review previous proposals that aim to distinguish between OC and NC predicates. In Section 4 we present corpus findings suggesting that predicates which are typically OC predicates in other languages, are NC predicates in MSA. Section 5 begins by discussing different aspects related to a formal analysis of MSA *?an* clauses and continues with crucial corpus findings which reveal the syntactic reflexes of the OC/NC distinction in the backward pattern. We subsequently discuss the implications of this construction on the theoretical debate regarding control phenomena, examining how it sheds light on different analyses of *control* (PRO-based and Movement), *obviation* and *restructuring*. Finally, our analysis is presented in Section 6, where we identify predicates that license backward control as restructuring predicates and explain how this characterization, when incorporated into an analysis inspired by the movement analysis of control, can explain the MSA complex data.

## 2 Background

Modern Standard Arabic (MSA) is the shared language of the Arab world, but it is a written language, which is spoken only in formal scripted contexts and learned as a second language in school. The first language of MSA speakers is a regional dialect, which is spoken but rarely written. This makes linguistic analysis of MSA challenging: it is hard (though not impossible) to obtain “native” speaker judgments; and corpus-based approaches, our main methodology herein, can be hampered by the influences of authors’ native dialects on their MSA production. Still, given the large amount of data available for MSA, and the fact that many speakers are highly competent in the language, corpus analysis augmented by near-native judgments provides a solid framework for in-depth investigation.

### 2.1 Word order and agreement in Modern Standard Arabic

MSA is a *pro*-drop language whose unmarked word order is verb–subject–object (VSO), yet subject–verb–object (SVO) order is also available. While the two word orders are possible, each is associated with a different agreement pattern. Post-verbal subjects trigger partial agreement (PA) on the verb, which only involves gender and person, while the number feature of VSO verbs is invariably singular (1a). Conversely, pre-verbal subjects trigger full agreement (FA) on the verb (1b).<sup>1</sup>

<sup>1</sup> The syntactic structure of VSO and SVO Arabic clauses with their subject–verb agreement asymmetries has been thoroughly discussed in the literature (Fassi Fehri 1993; Mohammad 2000; Aoun et al. 2010; Alotaibi & Borsley 2013; Wurmbrand & Haddad 2016, among others).

- (1) a. katabat t<sup>ʕ</sup>-t<sup>ʕ</sup>aalibaat-u maqaal-an.  
wrote.3SF the-students.PF-NOM article-ACC
- b. ?at<sup>ʕ</sup>-t<sup>ʕ</sup>aalibaat-u katabna maqaal-an.  
the-students.PF-NOM wrote.3PF article-ACC  
'The female students wrote an article.'

When pronominal subjects are dropped the verb exhibits full agreement.

- (2) katabat maqaal-an.  
wrote.3SF article-ACC  
'She wrote an article.' (Not: 'They wrote an article.')

The FA/PA distinction, which is determined by the position of the subject relative to the verb, is only discernable with plural human subjects (as in (1)). Plural inanimate subjects always trigger singular–feminine agreement (3).

- (3) ?al-kutub-u l-qadiimat-u suriqat.  
the-books-NOM the-old.SF-NOM were.stolen.3SF  
'The old books were stolen.'

## 2.2 Complement clauses

MSA has two types of embedded clauses, introduced by two principal particles: *?an* and *?anna*. Consider (4a) and (4b).<sup>2</sup>

- (4) a. haawala muhammad-un [?an yaktuba maqaal-an].  
tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ article-ACC  
'Muhammad tried to write an article.'
- b. ballaya-nii muhammad-un [?anna l-baahiθ-a  
informed.3SM-to me Muhammad-NOM(M) that the-researcher-ACC  
sa-yaktubu maqaal-an].  
will-write.3SM.IND article-ACC  
'Muhammad informed me that the researcher would write an article.'

The two types of embedded clauses differ in three main respects.<sup>3</sup> First, different types of predicates typically select for each clause type. *?an* clauses are embedded as complements of predicates that express some attitude towards the event described in the embedded clause. These clauses are in the focus of this paper. *?anna* clauses, on the other hand, are embedded as complements of cognition/perception predicates (e.g., *ra?aa* 'see') or utterance predicates (e.g., *s<sup>ʕ</sup>arraħa* 'declare'), and describe factual events. Second, the two types of clauses demonstrate different word orders; while in *?an* clauses the verb appears clause-initially, in *?anna* clauses the subject appears clause-initially and bears accusative Case.<sup>4</sup> Third, in *?an* clauses the verb appears in the subjunctive mood, while in *?anna* clauses the verb appears in the indicative mood (perfect or imperfect).<sup>5</sup>

<sup>2</sup> *?anna* is a complementizer. However, the syntactic category of *?an* is subject to debate and is identified as either a functional head, a marker, or a complementizer. Thus, *?anna* is glossed as 'that', while *?an* is glossed as 'AN', without committing to a particular analysis. See Habib (2009) for a discussion of the syntactic category of *?an*.

<sup>3</sup> See Badawi et al. (2004) and Ryding (2005) for a detailed description of *?an* and *?anna* clauses, and Habib (2009) for a comparison between them.

<sup>4</sup> *?anna* also introduces clauses with non-verbal predicates.

<sup>5</sup> Arabic imperfect verbs inflect for three moods: **Indicative** (*marfuuʕ*, also called "Independent"), **Jussive** (*mazzuuʕ*, also called "Apocopated"), and **Subjunctive** (*manʕuub*, also called "Dependent"). For a comprehensive description of the three forms see Badawi et al. (2004: Section 3.10.2), and Ryding (2005: Section 34).

### 2.3 *?an* clauses

*?an* clauses are selected as complement clauses by a particular set of verbs.<sup>6</sup> Alternatively, the same verbs can take as complements NPs headed by the verbal-noun (*masʿdar*) counterpart of the subjunctive verb (e.g., (4a) and (5)). For this reason, when *?an* introduces clauses that can be replaced by verbal-noun phrases, it is called *?an ?al-masʿdariyya* ‘the verbal noun *?an*’. We will focus in this paper on verbal *?an* clauses.

- (5)    *ħaawala*    *muħammad-un*    *kitaabat-a*    *l-maqaal-i*.  
       tried.3SM    Muhammad-NOM(M)    writing-ACC    article-GEN  
       ‘Muhammad tried writing an article.’

Typically, *?an* clauses appear with no overt subject, yet their unexpressed subject is construed as an argument of the matrix verb. These cases are similar to familiar control constructions in English (and other languages), yet unlike English, the agreement marking on the subjunctive verb reveals the agreement properties of the intended subject. For example, in (6a) the subjunctive verb *yaktuba* ‘write’ agrees with the matrix subject, Muhammad, which is its understood subject. On the other hand, in (6b), the subjunctive verb *taktuba* ‘write’ agrees with Hind, the feminine complement of the matrix verb *?aqnaʿa* ‘convince’, similarly to an object control construction.

- (6)    a.    *ħaawala*    *muħammad-un*    [*?an yaktuba*    *maqaal-an*].  
       tried.3SM    Muhammad-NOM(M)    AN    write.3SM.SBJ    article-ACC  
       ‘Muhammad tried to write an article.’  
       b.    *?aqnaʿa*    *muħammad-un*    *hind-an*    [*?an taktuba*  
       convinced.3SM    Muhammad-NOM(M)    Hind-ACC(F)    AN    write.3SF.SBJ  
       *maqaal-an*].  
       article-ACC  
       ‘Muhammad convinced Hind to write an article.’

There are strict adjacency conditions with respect to the linear position of *?an* and the subjunctive verb. The only element which can intervene is negation ((7b) & (7c)). Note that in sentence (7c) the *?an* and negation are contracted into one orthographic word.

- (7)    a.    \**ħaawala*    *muħammad-un*    [*?an l-yawm-a yaktuba*    *maqaal-an*].  
       tried.3SM    Muhammad-NOM(M)    AN    today-ACC    write.3SM.SBJ    article-ACC  
       b.    *ħaawala*    *muħammad-un*    [*?an laa yaktuba*    *maqaal-an*].  
       tried.3SM    Muhammad-NOM(M)    AN    not    write.3SM.SBJ    article-ACC  
       c.    *ħaawala*    *muħammad-un*    [*?al-laa yaktuba*    *maqaal-an*].  
       tried.3SM    Muhammad-NOM(M)    AN-not    write.3SM.SBJ    article-ACC  
       ‘Muhammad tried not to write an article.’

Finally, when *?an* clauses are coordinated *?an* can either take scope over the coordination (8a) or precede each subjunctive verb separately (8b).

<sup>6</sup> *?an* clauses can also function as subject clauses and as predicates. Additionally, there are other kinds of *?an* which are not followed by a subjunctive imperfect form: *?an ?al-muʿassira* ‘explanatory *?an*’, which introduces direct speech and is followed by the imperative form, *?an ?al-muxaffafa* ‘lightened *?an*’, which introduces negative nominal clauses containing *laysa* ‘not be’ or *laa* ‘not’, and cases in which the event in the embedded clause is factual and completed, in which the verb that follows *?an* occurs in the perfect form. See Badawi et al. (2004: 588–604) for a full description of the distribution of *?an*.

- (8) a. *ħaawala muħammad-un [ʔan yaktuba maqaal-an*  
 tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ article-ACC  
*wa-yasiira].*  
 and-go.3SM.SBJ
- b. *ħaawala muħammad-un [ʔan yaktuba maqaal-an wa-ʔan*  
 tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ article-ACC and-AN  
*yasiira].*  
 go.3SM.SBJ  
 ‘Muhammad tried to write an article and go.’

### 2.3.1 Agreement

In the aforementioned examples the understood subject of the embedded subjunctive verb is construed as either the matrix subject (6a) or the matrix object (6b), and consequently they receive a “control” interpretation, parallel to the interpretation we find in English control clauses containing an infinitive form. Nevertheless, the understood subject of *ʔan* clauses does not necessarily corefer with a matrix argument, and consequently, the subjunctive verb may not exhibit agreement with the matrix subject (and, in turn, with the matrix verb). Consider (9).

- (9) *ħaawala muħammad-un [ʔan taktuba maqaal-an].*  
 tried.3SM Muhammad-NOM(M) AN write.3SF.SBJ article-ACC  
 ‘Muhammad tried that she would write an article.’

The matrix verb bears third-person-singular-masculine (3SM) agreement, while the embedded subjunctive verb bears third-person-singular-feminine (3SF) agreement. Therefore, coreference between the subject of the embedded clause and the matrix subject is impossible. The understood subject of the complement clause is not mentioned in the sentence, yet it is salient in the discourse.

Moreover, in cases in which the embedded verb and the matrix verb bear the same agreement features, coreference is not obligatory. Thus, (6a), repeated here as (10a), and (10b) are actually ambiguous; the understood subject can be the matrix subject or someone else.

- (10) a. *ħaawala muħammad-un<sub>i</sub> [ʔan yaktuba<sub>i/j</sub> maqaal-an].*  
 tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ article-ACC  
 ‘Muhammad<sub>i</sub> tried that he<sub>i/j</sub> would write an article.’
- b. *ħaawala<sub>i</sub> [ʔan yaktuba<sub>i/j</sub> maqaal-an].*  
 tried.3SM AN write.3SM.SBJ article-ACC  
 ‘He<sub>i</sub> tried that he<sub>i/j</sub> would write an article.’

### 2.3.2 Embedded subject

MSA *ʔan* clauses diverge even further from English infinitival control clauses in that they can contain overt subjects. Consider, for example, sentence (11), which is similar to (9), yet its embedded subject is expressed.

- (11) *ħaawala muħammad-un [ʔan taktuba hind-un maqaal-an].*  
 tried.3SM Muhammad-NOM(M) AN write.3SF.SBJ Hind-NOM(F) article-ACC  
 ‘Muhammad tried that Hind would write an article.’

With two overt subjects with distinct agreement properties, there is obviously no coreference between the embedded subject and the matrix subject.

An additional configuration, which we will refer to as a *backward pattern*, is one where only the embedded subject is overt (12). In this case, similarly to (10a), its *forward pattern* counterpart, when the subjunctive verb and the matrix verb agree the sentence is ambiguous (12a); coreference of the two subjects is possible, but not obligatory. In (12b), where there is no agreement between the two predicates, there must be two distinct referents.

- (12) a.  $\text{haawala}_{i/j}$  [ $?an$   $yaktuba$   $\text{muhammad-un}_i$   $\text{maqaal-an}$ ].  
 tried.3SM AN write.3SM.SBJ Muhammad-NOM(M) article-ACC  
 ‘Muhammad<sub>i</sub> tried that he<sub>i</sub> would write an article.’  
 ‘He<sub>j</sub> tried that Muhammad<sub>i</sub> would write an article.’
- b.  $\text{haawalat}_j$  [ $?an$   $yaktuba$   $\text{muhammad-un}_i$   $\text{maqaal-an}$ ].  
 tried.3SF AN write.3SM.SBJ Muhammad-NOM(M) article-ACC  
 ‘She tried that Muhammad would write an article.’

It is, however, impossible to have identical R-expressions as coreferring subjects in both positions (13).<sup>7</sup>

- (13) \* $\text{haawala}$   $\text{muhammad-un}_i$  [ $?an$   $yaktuba$   $\text{muhammad-un}_i$   $\text{maqaal-an}$ ].  
 tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ Muhammad-NOM(M)  
 article-ACC  
 Intended: ‘Muhammad<sub>i</sub> tried that Muhammad<sub>i</sub> would write an article.’

One additional construction in which *?an* clauses appear is the impersonal construction illustrated in (14). The 3SM agreement on the matrix predicate is default agreement.

- (14)  $yazibu$  [ $?an$   $taktuba$   $\text{hind-un}$   $\text{maqaal-an}$ ].  
 have-to.3SM AN write.3SF.SBJ Hind-NOM(F) article-ACC  
 ‘It is necessary that Hind would write an article.’

In sum, subjunctive *?an* clauses in MSA differ from infinitival control clauses in English and other languages in four principal respects: (i) MSA *?an* clauses contain a finite subjunctive verb form; (ii) the subjunctive bears agreement features; (iii) the subject of the *?an* clause does not necessarily corefer with an argument of the matrix predicate; (iv) the *?an* clause can involve an overt embedded subject. Note that (iii) and (iv) are independent of each other; there can be an embedded subject in the *?an* clause or not, and this subject can corefer with the matrix subject or not. Nevertheless, there cannot be two identical coreferring R-expression subjects.

### 3 Distinguishing between obligatory control and no-control predicates

In the previous section we presented the different patterns in which the verb *haawala* ‘try’ can appear, and noted the similarities and differences between the MSA construction and the English infinitival control construction. Most significantly, we saw that unlike control predicates, the verb does not impose any restrictions on the reference of the subject of its complement clause. This raises the question whether this is characteristic of all *?an*-clause-taking predicates or whether some predicates are more restrictive in that they enforce coreference between a matrix argument and an embedded subject.

We begin by reviewing studies that address the distinction between OC and NC predicates, specifically in MSA and Modern Greek, and more generally, from a typological perspective. Building on these studies we form predictions regarding the types of predicates

<sup>7</sup> Coreferring subjects are possible when the embedded subject is a contrastive focus. See (65).

that potentially require coreference. Subsequently, in Section 4, we present empirical evidence, collected by corpus searches, which put these predictions to the test.

### 3.1 Obligatory control and no control in MSA

Examples similar to the introductory examples in (6)–(12) are found in reference grammars of MSA (Cantarino 1976; Badawi et al. 2004; Ryding 2005). Yet in none of these sources do the authors explicitly distinguish between OC and NC predicates. Nevertheless, this question is addressed from a functionalist perspective by Persson (2002) and from a generative linguistics perspective in a study by Habib (2009).

In a corpus-based study of sentential complements in MSA, Persson (2002) investigates the correlation between the semantics of the selecting predicate and the type of reference relation that holds between the subject of the *?an* clause and a matrix argument (subject or object). She distinguishes between *?an* clauses which she describes as clauses in which the embedded subject is deleted under coreference, and *?an* clauses with an overt embedded subject that does not share its reference with a matrix argument. The selecting predicates are semantically classified as *manipulative*, *cognitive*, or *utterance* predicates. *Modality* predicates are excluded from this study, since Persson assumes that they obligatorily require the complement clause subject to be coreferent with the matrix subject.<sup>8</sup>

Table 1 presents the distribution of the *?an* clauses in Persson’s corpus by predicate type and reference relation (control and no control). Manipulative predicates which select *?an* clauses prefer to appear with clauses whose unexpressed subject is coreferential with a matrix clause argument (90%) but may also appear with *?an* clauses in which the subject is independent. On the other hand, cognitive predicates (mainly desiderative, but also commentative and fearing predicates) show a strong tendency to occur with non-coreference *?an* clauses. Utterance predicates rarely appear with *?an* clauses, selecting *?anna* clause complements instead (cf. (4b)).

A different hypothesis with regards to control restrictions in MSA is made by Habib (2009), who claims that there is no obligatory control with *?an* clauses. As examples she gives sentences which are similar to (10a) (ambiguous with matrix subject), (12a) (ambiguous with embedded subject), and (11) (different matrix and embedded subjects). Consequently, she assumes that there are no OC predicates in MSA.

### 3.2 Control and no control in Modern Greek

Modern Greek (MG) is a language that shares a number of syntactic properties with MSA. Like MSA, MG is a *pro*-drop language. Moreover, although the unmarked word order in MG is SVO, it also allows for post-verbal subjects. The subjunctive *na*-clauses found in

**Table 1:** Distribution of semantic types & *?an*-clause types.

	Control <i>?an</i>	No control <i>?an</i>	Total
Manipulative ( <i>force, allow, signal,...</i> )	120	14	134
Cognitive ( <i>see, hear, forget,...</i> )	2	30	32
Utterance ( <i>say, claim,...</i> )	0	1	1
Total	122	45	167

<sup>8</sup> We show in Section 4 that this assumption is not borne out by the data.

MG are remarkably similar to MSA *?an* clauses. There are two different types of clausal complements in MG: *oti* clauses (15a) and *na* clauses (15b).

(15) *Modern Greek*

- a. O Yannis pistevi [oti to sipiti ine/itan oreo].  
the Yanis.NOM.S believes.3S that the house.NOM.S is/was.3S beautiful  
'Yannis believes that the house is/was beautiful.'
- b. O Kostas matheni [na odhiji].  
the Kostas learn.3S PRT drive.3S  
'Kostas is learning (how) to drive.'

The distinctions between the two types of complement clauses are reminiscent of that of *?an* and *?anna* clauses in MSA. The mood of *oti*-complements is always indicative, and their tense is variable. *Na*-complements, on the other hand, have subjunctive mood and invariable present tense. Furthermore, *oti*-complements can be separated from the verb by different elements; *na* must be adjacent to its selecting verb, with only the possibility of a negative element intervening.<sup>9</sup>

Roussou (2009) distinguishes between the verb types which select for each complement clause. Following is the set of predicate types which take *na* complements. Of those, the first three types can only take *na*-complements, whereas the rest can also appear with other types of complement clauses (e.g., *oti* clauses).

- i. Modals (*must, can, may,...*)
- ii. Aspectuals (*start, stop,...*)
- iii. Volitionals (*want, desire,...*)
- iv. Perception (*see, hear,...*)
- v. Mental perception (*remember, forget,...*)
- vi. Psych verbs (*be pleased, be sorry,...*)
- vii. Epistemic predicates (*believe, think,...*)
- viii. Verbs of saying (*say, order,...*)
- ix. Verbs of knowing (*know, learn,...*)

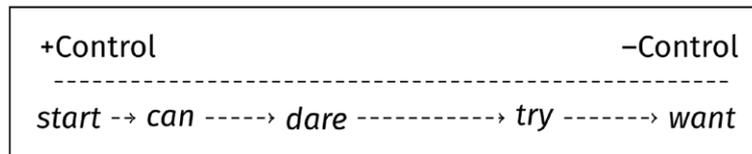
Similarly to MSA, MG (and other Balkan languages) uses *na*-clauses in contexts where Romance and Germanic languages use the infinitive. Unlike the infinitive, the subjunctive predicate in a *na*-clause is a finite form, which fully agrees (in person and number) with its understood subject. Some predicates, such as *matheno* 'learn', select *controlled subjunctives* (C-subjunctives, or OC), which require the understood subject to be coreferential with the matrix subject (16a), while others such as *thelo* 'want' select *free subjunctives* (F-subjunctives, or NC) which are not controlled, and allow for both a coreferential interpretation and a non-coreferential one (16b).<sup>10</sup>

(16) *Modern Greek*

- a. O Kostas matheni [na odhiji].  
the Kostas learn.3S PRT drive.3S  
'Kostas is learning (how) to drive.'
- b. O Kostas theli [na odhiji].  
the Kostas want.3S PRT drive.3S  
'Kostas wants (him) to drive.'

<sup>9</sup> *Na*-clauses select the negator *min*, while all other clauses appear with *dhen* (Roussou 2009: 1820).

<sup>10</sup> The terms *C-subjunctives* and *F-subjunctives* originate in Landau (2004).



**Figure 1:** The control continuum (Roussou 2009).

Roussou (2009) claims that of the predicate types listed above, modals and aspectuals enforce obligatory coreference of the subject of their *na*-complements. As for the volitionals, Roussou notes that the category is rather vague, and is interpreted differently by different researchers. She extends the category to encompass all “future-referring” predicates. Within this group, she finds that verbs like *dare*, *be willing*, and *intend*, as well as verbs of permission such as *allow*, *encourage*, and *prevent*, enforce coreference with a matrix argument. Roussou notes that the type of so-called volitionals that require coreference have an implicit root (dynamic) modal reading, which is associated with ability or permission (or lack thereof). Other volitionals such as *want*, *try* and *manage* strongly favor coreference, but also allow disjoint reference.

Roussou (2009: 1828) proposes with regard to Modern Greek that “there seems to be a continuum, which has aspectuals and then modals on the one end and volitionals (and epistemics) on the other. In between, we may find predicates like *tolmo* ‘dare’, *prospatho* ‘try’, which may be closer to one or the other end. This in-between zone can be further subject to individual speakers’ preferences, thus allowing for the existence of a ‘grey zone’, as far as control in MG is concerned”. Roussou’s proposed continuum is shown in Figure 1.

In comparing the class of control predicates in MG with that of English, Roussou notes that the presence of agreement marking on the embedded verb in MG, but not in English, accounts for the smaller number of control predicates in Greek.

### 3.3 Obligatory control and no-control predicates

The distinction between OC and NC is discussed by Landau in a series of papers (Landau 2000, 2004: et seq.). Landau distinguishes between OC, NC, and non-obligatory control (NOC). OC and NC occur in complement clauses, while NOC occurs in subject and adjunct clauses. Landau argues that OC and NOC clauses host a PRO subject, and NC clauses host a *pro*/DP subject. PRO in OC is interpreted as a bound variable, which is co-indexed with a co-dependent of the matrix clause. PRO in NOC is logophoric or topic-bound. He proposes that the key to distinguishing between OC and NC is found in two dimensions according to which complement clauses can be classified: semantic tense [T] and overt morphological agreement [Agr].

The tense specification of complement clauses depends on whether or not their tense is anaphoric to the tense of the matrix clause. Thus, when the complement clause is semantically *tensed* the matrix and embedded events can be temporally mismatched (17a), but when the complement clause is *untensed* they must match (17b).

- (17) a. Last night, Tom planned to help us today. → complement is [+T]  
 b. \*Last night, Tom managed to help us today. → complement is [-T]

Based on this characterization, Landau categorizes the types of predicates which select tensed or untensed complement clauses.

- (18) *Predicates which select untensed [-T] complements*
- Implicatives (*dare, manage, remember,...*)
  - Aspectuals (*start, stop,...*)
  - Modals (*have, need, may,...*)
  - Evaluative adjectives (*rude, silly,...*)
- (19) *Predicates which select tensed [+T] complements*
- Factives (*glad, sad, like,...*)
  - Propositional (*believe, think, claim,...*)
  - Desideratives (*want, plan, prefer, hope,...*)
  - Interrogatives (*wonder, ask, find out,...*)

In a more recent paper, Landau (2015) argues that the [+/-T] classification stems from a deeper distinction between attitude and non-attitude contexts. The same classification remains, yet in his new theory, the predicates in the [+T] category are characterized instead as attitudinal, while those in [-T] as non-attitudinal. The temporal properties, he claims, are by-products of (non-)attitude contexts. Attitude domains are evaluated according to the epistemic state of the participant in the reported situation, and not to the actual world. Thus, the temporal mismatch in (17a) with the desiderative predicate *plan* is accounted for by the fact that the predicate is attitudinal: Tom can have an attitude about an event in a different time period. Conversely, the non-attitudinal implicative *manage* in (17b) is simultaneous with the embedded event and is therefore incompatible with temporally mismatched modifiers.<sup>11</sup>

The combination of the agreement [Agr] parameter and the semantic category of the predicate (regardless of whether it is stated in terms of tense [T] or attitude) produces four different options, which interact with control. According to Landau's (2015) *OC-NC Generalization*, [+Agr] blocks control in attitude (formerly [+T]) complements, but not in non-attitude (formerly [-T]) complements Table 2.

One implication of this generalization is that in languages such as MSA, where the complement clause exhibits overt morphological agreement, non-attitude predicates will enforce obligatory control. Indeed, as Landau (2013: 106) predicts: "There cannot be a language where modal, aspectual and implicative verbs or evaluative adjectives allow an uncontrolled complement subject". We show in Section 4.1 that this prediction is not borne out by MSA corpus data.

### 3.4 Interim summary

The picture that emerges from the studies presented so far is that the distinction between OC and NC predicates is directly linked to their semantic properties. Persson (2002), Roussou (2009) and Landau (2000) all identify modality predicates as typically OC predicates. Roussou (2009) describes a continuum ranging from aspectuals and modals on the one side, to volitionals and epistemics on the other. In between she identifies a "grey zone",

**Table 2:** The OC-NC Generalization (Landau 2015).

	<b>+T/attitude</b>	<b>-T/non-attitude</b>
+Agr	NC	OC
-Agr	OC	OC

<sup>11</sup> The new theory, of course, involves more than a simple re-labeling of the categories, and has theoretical and empirical implications, which are outside the scope of this paper. The reader is referred to (Landau 2015) for details.

which is subject to individual speakers' preferences. Landau (2000), on the other hand, proposes a categorical bifurcation between two types of predicates, based on the semantic (in)dependence of the tense of their complement clause, as well as the manifestation of morphological agreement on its predicate. Based on these studies, we would predict that if there were OC predicates in MSA they would belong to the modals and aspectuals, and possibly the implicatives. These predictions notwithstanding, we should note that Habib (2009) denies the existence of obligatory (subject) control in MSA.

#### 4 A corpus study of control in MSA

In order to determine whether OC predicates exist in MSA we conducted a corpus study, which focused on a number of predicates discussed by Landau (2000) and Roussou (2009). The corpus that we used to investigate the use of *?an* clauses in contemporary MSA is the 115-million token sample of *arTenTen*, a web-crawled Arabic corpus specifically created in order to serve as a useful tool for linguistic research (Arts et al. 2014). This sample has been tokenized, lemmatized and morphologically analyzed and disambiguated with MADA (Habash & Rambow 2005; Habash et al. 2009) and installed in the Sketch Engine (Kilgarriff et al. 2004). As mentioned above (Section 2), MSA is not a natively spoken language, and its users are all native speakers of a wide variety of dialects. Nevertheless, it has emerged as a lingua franca of the Arab world, and the corpus we use represents a well defined language, especially when restricted to the journalistic register and domain, which is our focus in this work.

The morphological tagging of the corpus provides a way of defining queries which target particular person, number and gender features, as well as Case and mood. Consequently, we were able to retrieve instances where the matrix predicate and the embedded predicate match in their gender and person agreement, as well as those where there is a mismatch. Furthermore, we could control for the existence or lack of a possible subject (i.e., agreeing nominative noun) following the predicates. Nevertheless, the search results are not exhaustive. There are numerous instances of erroneous morphological tags, which contributed to false positive results as well as false negatives. Moreover, we decided to favor precision over recall, and limited the distance between the predicates. Consequently, instances with longer NP subjects or intervening adverbials were not retrieved. These limitations notwithstanding, in what follows we provide examples of coreference and disjoint reference for a representative set of predicates. Due to the non-exhaustive nature of the searches we do not present quantitative data with regard to the distribution of coreference and disjoint reference. We do, however, note whether we found dozens of similar examples or whether there were only several examples of a particular pattern.

##### 4.1 Corpus findings

We conducted corpus searches using representatives from Roussou's (2009) continuum and from Landau's (2000) semantic categories. Following are the verbs listed in increasing order by their likelihood to enforce coreference, according to Roussou: the volitional verb *?araada* 'want', the implicatives *ħaawala* 'try' and *zaru?a* 'dare', the modal *takmakkana* 'be able', and the aspectual *kaada* 'almost'. The corpus search revealed evidence for both coreference and disjoint reference with all these verbs, as well as with two manipulative predicates, *?aqna?a* 'convince' and *samaħa* 'allow'. In what follows we present corpus-based examples of coreference and disjoint reference with each of the aforementioned predicates.

###### 4.1.1 Volitionals

We start at the right end of Roussou's continuum. Volitionals are predicted by Roussou (2009) and by Landau (2000) to be NC predicates. Consider the volitional *?araada* 'want' in (20).

- (20) a. *ʔaraada* [*ʔan yaʔmala diraasat-an*].  
 wanted.3SM AN do.3SM.SBJ study-ACC  
 ‘He wanted to conduct a study.’
- b. *ʔaraada* [*ʔan yakuuna r-radd-u watʔaniyy-an*].  
 wanted.3SM AN be.3SM.SBJ the-reaction-NOM(M) national-ACC  
 ‘He wanted the reaction to be national.’

In (20a) the subject of the embedded predicate corefers with the subject of the matrix predicate; the same person is both the “wanter” and the “conductor” of the study. In (20b), on the other hand, the embedded clause involves an overt subject, *r-radd-u* ‘the reaction’, whose reference is distinct from that of the matrix subject. Our corpus searches revealed dozens of examples of disjoint reference with the predicate *ʔaraada* ‘want’.

#### 4.1.2 Implicatives

Moving left on Roussou’s continuum, we found dozens of examples of disjoint reference with the predicate *ħaawala* ‘try’, indicating that it is indeed an NC predicate. While the matrix and embedded verbs share a subject in (21a), in (21b) the matrix verb bears 3PM agreement whereas the embedded verb bears 3SF agreement and has an overt subject. Clearly, the two subjects do not share a reference.

- (21) a. *ħaawala r-raʒul-u* [*ʔan yatakallama maʔa-na*].  
 tried.3SM the-man-NOM AN speak.3SM.SBJ with-us  
 ‘The man tried to speak with us.’
- b. *liḏaalika ħaawaaluu* [*ʔan tanhadʕa l-zamaahiir-u*  
 So tried.3PM AN assume.3SF.SBJ the-public-NOM  
*bi-masʔuuliyat-i-ha*].  
 in-responsibility-GEN-her  
 ‘So they tried to have the public assume its responsibility.’

The implicative ‘dare’ is closer to the left end of Roussou’s (2009) continuum and is classified in Landau’s (2000) categorization as selecting for untensed complement clauses. Thus, the prediction is that it will enforce coreference, or in other words, be an OC predicate. However, as (22b) shows, this is not the case. MSA *zaruʔa* ‘dare’ allows disjointness; the verb ‘be’ in (22b) has its own overt subject, ‘her opinion’, and does not match in agreement with the matrix predicate, ‘dare’. Admittedly, the disjoint reference example presented here is the only one we were able to find with this predicate. Note, however, that *zaruʔa* ‘dare’ in itself is an infrequent verb (12.93 per million instances), with substantially fewer attestations of it followed by an *ʔan* clause (1.36 per million).

- (22) a. *laa yaʒruʔu raʒul-un* [*ʔan yaquula l-ħaqqiqat-a fi l-zawaaʒ-i*].  
 not dare.3SM man-NOM AN say.3SM.SBJ the-truth-ACC in the-marriage-GEN  
 ‘No man dares to say the truth in the marriage.’
- b. *lan taʒruʔa* [*ʔan yakuuna raʔy-u-haa ʔayr-a*  
 never dare.3SF AN be.3SM.SBJ opinion-NOM-her(M) not-ACC  
*musaanid-in li-lmayrib-i*].  
 supportive-GEN to-Morocco-GEN  
 ‘She will never dare that her opinion would be non-supportive of Morocco.’

#### 4.1.3 Manipulatives

Tri-valent manipulatives do not appear in Roussou’s continuum, yet Persson (2002) identifies them as the ones which generally impose a coreference restriction. Obtaining exhaustive results with predicates from this class was even more complex than obtaining

them with “subject-control” predicates. However, here too we find evidence of both types of reference relations, with several instances of disjoint reference. (23b) is a disjoint reference example of the predicate *ʔaqnaʔa* ‘convince’, and (24b) is a similar example with the predicate *samaħa* ‘allow’.

- (23) a. wa-fi l-masaaʔ-i kaanat malaak qad ʔaqnaʔat  
and-in the-evening-GEN was.3SF Malak(F) already convinced.3SF  
waalid-a-haa [ʔan yaʔmura saaʔiq-a-hu l-xaasʕsʕ-a  
father-ACC-her AN order.3SM.SBJ driver-ACC-his the-private-ACC  
bi-ʔiisʕaal-I buuzaa ʔila qaryat-i-hi].  
in-delivering Buja to village-GEN-his  
‘And in the evening, Malak had already convinced her father to order his private driver to deliver Buja to his village.’
- b. ʔaqnaʔnaa-hum [ʔan yuʕayyina huwa l-hukuumat-a].  
convinced.1P-them AN appoint.3SM.SBJ he.NOM the-government-ACC  
‘We convinced them that he would appoint the government.’
- (24) a. iḏaa lam nasmaħu li-l-ʔameriikaan-i [ʔan yamurruu min ʔaraaʕii  
if not allow.1P to-the-Americans-GEN AN pass.3PM.SBJ from territory  
t-turkiyya]...  
the-Turkish  
‘If we don’t allow the Americans to pass from Turkish territory...’
- b. fa-mawqif-u-hu l-ʔiʔtimaaʕiyy-u laa yasmaħu lahu [ʔan  
and-status-NOM-his(M) the-social-NOM not allow.3SM to.him AN  
yakuuna bnu-hu fii haaḏa l-makaan-i].  
be.3SM.SBJ son.NOM-his in this the-place-GEN  
‘And his social status does not allow him that his son will be in this place.’

#### 4.1.4 Modals

Modals like ‘can’ are close to the left (OC) end of Roussou’s (2009) continuum and are classified as selecting for untensed complement clauses by Landau (2000). The prediction is therefore that they would enforce coreference. This prediction, however, does not hold. We found some instances of the predicate *tamakkana* ‘be able’ in which the embedded subject does not corefer with the matrix subject. One such case is (25b) where the matrix subject is a *pro*-dropped first-person-plural subject while the embedded subject is the singular-masculine noun phrase *tʕifl-un mustatasix-un* ‘cloned baby’.

- (25) a. wa-tamakkana ʔabuu bilaal [ʔan yanḏʕura min fathat-in  
and-was.able.3SM Abu Billal AN see.3SM.SBJ from opening-GEN  
dʕayyiqat-in zidaan].  
narrow-GEN very  
‘And Abu Billal was able to see from a very narrow opening.’
- b. ʔiḏa kaḏḏafna zuhuud-a-na fa-sa-natamakkana min [ʔan  
if intensify.1P efforts-ACC-our then-will-be.able.1P from AN  
yakuuna laday-na tʕifl-un mustansax-un xilaala ʕaam  
be.3SM.SBJ with-us baby.3SM-NOM cloned.3SM-NOM within year  
aw ʕaamayni].  
or two.years  
‘If we intensify our efforts we will be able to have a cloned baby within a year or two years.’

#### 4.1.5 Aspectuals

Aspectuals are another class of predicates that are predicted by Roussou (2009) and Landau (2000) to enforce coreference. Most aspectual verbs in MSA do not take an *?an*-clause complement. There are, however, two approximative aspectuals which do: *?awfaka* ‘about to’ and *kaada* ‘almost’.<sup>12</sup> (26a) is a coreference corpus example of *kaada* ‘almost’. Importantly, (26b) is one of several disjoint-reference corpus examples of *kaada* ‘almost’, which indicates that it is a NC predicate, contrary to the predictions of Roussou and Landau. Our corpus searches did not reveal any results of disjoint reference with *?awfaka* ‘about to’, so it might be the case that *?awfaka* ‘about to’ is a raising predicate (see discussion in Section 5.4.2). Note, however, that the use of *?awfaka* ‘about to’ is very infrequent (6.23 per million instances in general and 2.17 per million followed by an *?an* clause), and is less frequent than the use of *kaada* ‘almost’ (105.09 per million instances in general and 15.14 per million followed by an *?an* clause). Thus, it could be the case that *?awfaka* ‘about to’ does allow disjoint reference but this use is extremely rare.

- (26) a. kaadat        [?an tasqut<sup>a</sup>        ?alaa l-?ard<sup>f</sup>-i].  
 almost.3SF AN fall.3SF.SBJ on the-ground-GEN  
 ‘She almost fell on the ground.’
- b. hadamuu        sanawaat min l-zihaad-i        hatta kaaduu        [?an  
 destroyed.3PM years of the-Jihad until almost.3PM AN  
 tatahawwala haðihi t-tazribat-u        ?ila mi?wal-in haddaam-in].  
 turn.3SF.SBJ this the-experiment-NOM to tool-GEN destruction-GEN  
 ‘They destroyed years of the Jihad until they almost had this experiment  
 turn into a tool of destruction.’

All but one of the *?an*-clause selecting predicates that were investigated in our corpus study turned out to be NC predicates, since instances of disjoint reference with them were attested. Importantly, we found disjoint reference examples of modals and aspectuals, which were predicted to enforce coreference.

Interestingly, in many disjoint reference examples (e.g., (22b), (24b), (25b)) a pronominal clitic appears on the embedded subject (a possessive clitic) or on the embedded verb or preposition (an object clitic) and refers back to the matrix argument. For example, in (25b) the clitic in the preposition phrase *laday-na* ‘with-us’ refers to the unexpressed plural first person matrix subject. This coreference creates cohesion between the two events denoted by the two clauses. Nevertheless, it is not obligatorily present (cf. (20b), (21b), (23b), and (2b)).

An additional component of Landau’s (2000) proposal is the relationship between the OC/NC distinction and semantic tense. Landau predicts that given [+Agr], as is the case with MSA *?an*-clauses, [+T] implies NC, and [–T] implies OC. The diagnostic which teases tensed complements apart from untensed ones, namely modification with temporally mismatched adverbs, is not applicable to corpus searches. Consequently, we consulted a highly competent speaker of MSA, who provided grammaticality judgments.<sup>13</sup> We constructed test sentences by adding temporally mismatched adverbials to corpus examples. Our consultant’s judgements concurred with the [+ /–T] classification, as he did not accept temporal mismatches with predicates which are identified as selecting untensed complements. Nevertheless, this was not found to correlate with the OC/NC distinction. Consider, for example, (22b), repeated here as (27a) and its modified counterpart (27b).

<sup>12</sup> These predicates belong to the class of verbs of approximation discussed in Section 5.4.2.

<sup>13</sup> Recall that MSA is not a native language of any speaker; yet highly competent speakers abound.

- (27) a. lan tagru?a [ʔan yakuuna raʔy-u-haa ʔayr-a  
 never dare.3SF AN be.3SM.SBJ opinion-NOM-her(M) not-ACC  
 musaanid-in li-lmayrib-i].  
 supportive-GEN to-Morocco-GEN  
 ‘She will never dare that her opinion would be non-supportive of Morocco.’
- b. \*maa zaraʔat ʔamsi [ʔan yakuuna raʔy-u-haa ʔayr-a  
 not dared.3SF yesterday AN be.3SM.SBJ opinion-NOM-her(M) not-ACC  
 musaanid-in li-lmayrib-i ʔadan].  
 supportive-GEN to-Morocco-GEN tomorrow  
 Intended: ‘She didn’t dare yesterday that her opinion would be  
 non-supportive of Morocco tomorrow.’

Although the implicative *zaruʔa* ‘dare’ allows for disjoint reference, temporal anaphoricity obtains. Thus, contrary to Landau’s (2000) generalization, the lack of independent tense (alongside the existence of overt morphological agreement) does not necessarily imply obligatory control.

## 4.2 Summary

The goal of this section was to investigate whether there exist *ʔan*-clause-taking predicates which impose OC. Building on insights from previous research on the MSA phenomenon, on a related construction in Modern Greek, and on cross-linguistic distinctions between OC and NC, we identified a class of candidate predicates. Corpus searches of the usage patterns of a representative set of predicates revealed instances of disjoint reference for all the predicates investigated, except one: *ʔawfaka* ‘about to’. While it is indeed possible that this verb is in fact an OC predicate, possibly the only one in MSA, we conjecture that it is either a raising predicate or that due to its relatively low frequency the lack of instances of disjointness is coincidental. Consequently, in the following sections, where we discuss and present a formal analysis of this construction, we ignore this lacuna.

## 5 Discussion

### 5.1 Obligatory control, no control, and obviation

For languages which do have OC predicates alongside NC predicates it is natural to assume that each is associated with a distinct syntactic structure. Indeed, Landau (2004) proposes an analysis of the two types of constructions in Modern Greek, as part of his investigation of the phenomenon of finite control and its theoretical implications. These constructions, according to his analysis, differ in the types of complement clause each predicate selects. Controlled subjunctives (C-subjunctives) are clauses with PRO subjects, while free subjunctives (F-subjunctives) are clauses with *pro* subjects. The structural difference between the complement clauses correlates with the tensed/untensed distinction proposed by Landau; with overt agreement in the complement clause, complement clauses with PRO subjects have anaphoric (or “empty”) tense, while the tense of those with *pro* subjects is dependent on or constrained by the matrix tense, but not necessarily identical to it.

Roussou (2009) proposes a different account. Unlike Landau, she does not attribute the difference between the two constructions to the structure of the complement clause. On the contrary, she assumes that the *na*-clause is identical across the two constructions. In her account the *na* particle is a nominal locative element, which introduces a variable and creates an open predicate. The difference between OC and NC is in the combination of the embedding predicate and its complement. OC predicates trigger clause-union, which creates, by composition, a single-event interpretation of the events denoted by the matrix and embedded predicates (which also accounts for the tense identity). In this case, the

variable introduced by *na* can only be bound by a matrix argument. Conversely, the NC construction does not involve clause-union and the variable has free reference.

Regardless of whether languages have OC and NC predicates, like MG, or whether they only have NC predicates, as we are claiming is the case with MSA, one issue which requires further examination is the case of coreference with an NC predicate. Consider for example the MG sentence in (16b), repeated here as (28), with its coreference interpretation. What is the syntactic structure of such sentences?

- (28) *Modern Greek*  
 O Kostas theli na odhiji.  
 the Kostas want.3S PRT drive.3S  
 ‘Kostas wants to drive.’

There are (at least) three different types of answers to this issue. Habib (2009), in her analysis of MSA as having only NC predicates, considers coreference as a special case of NC, one where the freely referring unexpressed embedded subject happens to share its reference with the matrix subject. This entails that there are no syntactic reflexes to the fact that coreference does occur. Sentences such as (28) have one syntactic structure with different interpretations, dependent on semantico-pragmatic constraints.

A different approach is taken by Terzi (1992), who compares NC in MG with obviation phenomena in Romance and Slavic languages. Obviative languages impose a constraint against coreference between a matrix subject and an unexpressed subject of a subordinate clause. Thus, for example, the referent of the unexpressed embedded subject in Spanish (29) can refer to anything (3rd person-singular) *but* the referent of the matrix subject.

- (29) *Spanish*  
 Juan<sub>i</sub> quiere que venga<sub>·i/j</sub>.  
 Juan wants that come.3S.SBJ  
 ‘Juan wants that he will come.’

Terzi (1992) proposes that despite surface appearances MG does impose subject obviation, but that its presence is masked by the co-existence of an alternative structure. NC is restricted to disjoint reference, that is, the unexpressed embedded subject cannot corefer with the matrix subject. The coreference interpretation is licensed by a control construction. Thus, the combination of NC predicates with their complement clause is licensed by two distinct constructions – control and no control with obviation – depending on the reference pattern.

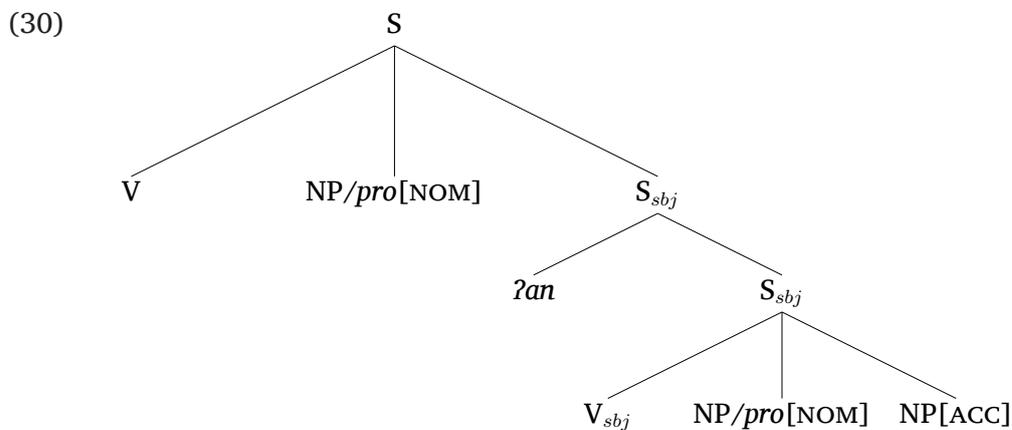
The proposal that MG exhibits obviation is not trivial. Obviation is associated with languages in which there is “subjunctive-infinitive rivalry”, or, in other words, where the infinitive competes with the subjunctive (Farkas 1992). Thus, in Spanish, for example, alongside the subjunctive complement clause illustrated in (29) there are infinitival clauses, which exhibit control behavior. The Balkan languages (including Romanian), however, lack infinitives. Consequently, with no subjunctive-infinitive rivalry, no obviation effects are found (Dobrovie-Sorin 2001). For this reason, MG, a Balkan language with no infinitives, is not an immediate candidate for obviation.

Additional arguments against Terzi’s (1992) analysis are given by Landau (2004), who invokes a number of diagnostics for distinguishing between *pro* and PRO. More specifically, he bases his argument on Varlokosta’s (1993) observation that coreference constructions with NC predicates allow a strict reading under VP-ellipsis and *de re* interpretation, suggesting that the unexpressed embedded subject is a *pro*, and not a PRO, which only allows a sloppy reading and a *de se* interpretation. Restricting coreference to a control

configuration, as Terzi does, would not be compatible with these findings. Consequently, Landau proposes that sentences such as (28) are structurally ambiguous; they are licensed by two different constructions, a control configuration with a PRO subject and a *pro*-structure with accidental coreference. The existence of obviation in MG is thus ruled out.

## 5.2 First attempt: Only no control in MSA

The question regarding the possible analyses of NC predicates such as the MG *thelo* ‘want’ carries over to the analysis of *?an* complement clauses in MSA. Barring evidence for a syntactic distinction between the two interpretations, a straightforward account is to propose one NC structure for all cases. As is illustrated in the schematic representation in (30), the matrix verb combines with its subject (lexical NP or *pro*) and with its *?an*-clause complement. This complement clause is preceded by a complementizer/marker *?an*. The clause itself is in a VSO configuration and is headed by a subjunctive verb. Its subject is either a lexical NP or *pro*.



Thus, regardless of how clauses, clausal complements and *pro*-drop in MSA are analyzed in a particular framework, sentences with *?an* complement clauses are structures with two independent subjects (but see below). There are no constraints on the agreement relations between the two predicates, and therefore they do not need to match. Consequently, what can be construed as subject control is in actuality just a case where the two subjects have identical agreement features and reference, and one of them, either the matrix subject in the backward pattern, or the embedded subject in the forward pattern (or both) is *pro*-dropped. This is similar in spirit to the analysis proposed by Habib (2009) for all *?an* clauses in MSA, and by Roussou (2009) for F-subjunctives in Modern Greek, which is also a *pro*-drop language.

The NC analysis, which builds on the *pro*-drop phenomenon of MSA, can account for most of the patterns exhibited by *?an*-clause-taking predicates. There is, however, one pattern that poses a challenge to this straightforward analysis – the backward pattern with the embedded subject illustrated in (12a) and repeated here as (31).

- (31) ħaawala<sub>i/j</sub> [ʔan yaktuba muħammad-un<sub>i</sub> maqaal-an].  
 tried.3SM AN write.3SM.SBJ Muhammad-NOM(M) article-ACC  
 ‘Muhammad tried to write an article.’  
 ‘He<sub>j</sub> tried that Muhammad<sub>i</sub> would write article.’

This simple example masks a more complex agreement pattern which is only discernable with plural human subjects, for which agreement varies depending on the position of the subject relative to the verb.

Consider the minimal pair in (32), which differ only with respect to the agreement marking on the matrix predicate. As expected in VS clauses, in both (32a) and (32b) the embedded predicate *taktuba* ‘write.3SF’ exhibits partial agreement with its post-verbal plural subject, *l-banaat-u* ‘the girls’ and accordingly bears 3SF agreement. The matrix predicate *ħaawala* ‘try’, on the other hand, is singular in (32a) and plural in (32b). The difference in the agreement marking on the matrix predicate correlates with a difference in the interpretation of the two sentences.

- (32) a.  $\text{ħaawalat}_{i/j}$  [ $\text{ʔan taktuba}$   $\text{l-banaat-u}_i$   $\text{maqaal-an}$ ].  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘The girls tried to write an article.’  
 ‘She tried that the girls would write an article.’
- b.  $\text{ħaawalna}_{i/j}$  [ $\text{ʔan taktuba}$   $\text{l-banaat-u}_i$   $\text{maqaal-an}$ ].  
 tried.3PF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘They<sub>j</sub> tried that the girls<sub>i</sub> would write an article.’  
 Not: ‘The girls tried to write an article.’

Sentence (32a) is ambiguous. The understood subject of the matrix clause can either be construed as the embedded subject or as a different singular-feminine unexpressed subject. Sentence (32b), with its plural-marked matrix predicate, can only have a disjoint reference interpretation, where the understood subject of the matrix clause is a plural-feminine referent distinct from the embedded subject. A coreference reading requires the matrix predicate to exhibit partial agreement with the embedded subject, as is the case with simple VS clauses.

The backward patterns exhibited in (32) provide counter-evidence to the NC analysis proposed above, which assigns an identical structure to coreference and disjoint reference, and attributes the distinction to semantico-pragmatic constraints. If coreference and disjoint reference share the same syntactic structure it is not clear what accounts for the absence of a coreference reading in (32b). If coreference is simply co-indexation in the semantico-pragmatic level, what bars the co-indexation between the subject of *ħaawalna* ‘tried’ and the subject of *taktuba* ‘write’? Considering the ambiguity of (32a), the absence of the coreference reading in (32b) is even more intriguing. If the two subjects can be co-indexed in (32a), why is co-indexation not possible in (32b)?

Moreover, these data are problematic for an analysis which builds on *pro*-drop. Assuming that predicates of *pro*-dropped subjects always exhibit full agreement with the unexpressed subject (see (2)), the analysis proposed above would predict (i) an unambiguous disjoint reference reading of (32a) with a singular-feminine *pro*-dropped subject (the second reading provided above), and (ii) an ambiguous reading of (32b), where the *pro*-dropped subject can either corefer with the embedded subject or refer to a different contextually retrieved subject (*they*). The two predictions are not borne out by the data as (i) (32a) has a coreference reading where *l-banaat* ‘the girls’ is construed as the subject of *ħaawala* ‘try’ although it exhibits singular agreement, which means that it cannot have a plural *pro*-dropped subject, and (ii) (32b) does not have a coreference reading where *l-banaat* ‘the girls’ is construed as the subject of *ħaawalna* ‘tried’ although it exhibits plural agreement, which means that it can have a plural *pro*-dropped subject.

A difference in interpretation between the forward pattern and the backward pattern is also found with F-subjunctives in Greek (Alexiadou et al. 2010). While the forward pattern in (33a) is ambiguous between coreference and disjoint reference, the backward pattern in (33b) can only have a disjoint interpretation.

- (33) *Modern Greek* (Alexiadou et al. 2010: 39)
- a. O Janis<sub>i</sub> elpizi pro<sub>i/j</sub> na fai to tiri.  
 John-NOM hopes pro subj eats the cheese  
 ‘John<sub>i</sub> hopes that he<sub>i/j</sub> will eat the cheese.’
- b. Pro<sub>\*i/j</sub> elpizi na fai o Janis<sub>i</sub> to tiri.  
 pro hopes subj eats John-NOM the cheese  
 ‘He hopes that John will eat the cheese.’

Alexiadou et al. (2010) explain that the impossibility of coreference in (33b) is due to Principle C. The embedded referential subject, *Janis*, cannot be bound by the matrix *pro* subject. Coreference with F-subjunctives then is possible only in the forward pattern. With C-subjunctives, on the other hand, a coreference reading is the only option, and it is available in both the forward pattern and the backward pattern (34). The fact that there is no Principle C effect in this case is taken by Alexiadou et al. (2010) as evidence for a movement analysis of control.<sup>14</sup>

- (34) *Modern Greek*
- a. O Janis emathe na pezi kithara.  
 John-NOM learned.3S subj play.3S guitar
- b. Emathe na pezi o Janis kithara.  
 learned.3S subj play.3S John-NOM guitar  
 ‘John learned to play the guitar.’

Returning to MSA, given the NC analysis we proposed in (30) above, the same explanation can be applied to account for the ungrammaticality of the coreference reading of the MSA example in (32b), namely a Principle C violation. However, unlike MG, MSA does provide a way of expressing coreference with an embedded subject (32a), yet this interpretation cannot be accounted for by the NC analysis proposed above. Thus, the backward pattern suggests that one structure cannot capture all interpretations, and that the OC/NC distinction does have syntactic reflexes. In the following section we probe deeper into the backward pattern by first conducting a corpus-based study of this construction.

### 5.3 Backward patterns: A corpus study

Our corpus study of the backward pattern focused on two issues: (i) the types of predicates which occur in this construction and (ii) its agreement patterns. The following examples illustrate instances of the backward pattern with *?araada* ‘want’ (35), *haawala* ‘try’ (36), *zaru?a* ‘dare’ (37), *nasiya* ‘forget’ (38), *?istat<sup>aa</sup>ʕa* ‘be able’ (39), and *tamakkana* ‘be able’ (40). The embedded subjects appear in boldface.

It should be noted that in all the example sentences below the shared subject is followed by additional VP-internal material. Thus, for example, in (35) the embedded verb has two complements: one is realized as a clitic on the embedded verb (*yagʕalu-hu* ‘make.3SM.SBJ-it’) and the other, the NP *haqiiqat-an* ‘reality’ follows the subject, and is in turn followed by a PP adjunct whose scope is the embedded clause. The existence of VP-internal material after the subject constitutes evidence against an alternative extraposition analysis, which would place the subject in a matrix position to the right of the embedded clause.

<sup>14</sup> More about this in Section 5.4.1

### 5.3.1 Volitionals

- (35) wa-laakinna haaða maa yuriidu [ʔan yaʒʒala-hu **l-baahiθuuna**  
and-but this what want.3SM AN make.3SM.SBJ-it the-researchers.PM.NOM  
ħaqiiqat-an bi-musaaʔadat-i t-taqniyaat-i l-ʒadiidat-i].  
reality-ACC with-help-GEN the-technologies-GEN the-new-GEN  
'But this is what the researchers want to turn into reality with the help of new  
technologies.'

### 5.3.2 Implicatives

- (36) bal yuħaawilu [ʔan yaʔxuða **baʔd<sup>ʕ</sup>-u-hum** duuna  
moreover try.3SM AN follow.3SM.SBJ some-NOM-of.them without  
baʔd<sup>ʕ</sup>-in bi-t-tartiib-i].  
some-GEN in-the-order-GEN  
'Moreover, some of them (without the others) try to follow the order.'
- (37) lam yaʒruʔ [ʔan yas<sup>ʕ</sup>ifa-hum **ʔaħad-un** bi-l-ʔirhaab-i].  
not dare.3SM AN describe.3SM.SBJ-them one-NOM in-the-terror-GEN  
'No one dared to describe them as terror.'
- (38) la yansa [ʔan yuʔakkida **ħaaʔulaaʔi** ʒala ħirs<sup>ʕ</sup>-i  
not forget.3SM AN emphasize.3SM.SBJ those on keenness-GEN  
ʔaʔd<sup>ʕ</sup>aaʔ-i l-maʒlis-i l-ʒudud-i ʒala tanfiið<sup>ʕ</sup>-i  
members-GEN the-council-GEN the-new-GEN on implementation-GEN  
tawʒiiħaat-i r-raʔiis-i].  
directives-GEN the-president-GEN  
'Those (people) do not forget to emphasize the keenness of the new members of  
the council to implement the directives of the president.'

### 5.3.3 Modals

- (39) wa-hunaaka t<sup>ʕ</sup>uruq-un ʔuxra ʒadiidat-un yastat<sup>ʕ</sup>iif<sup>ʕ</sup>u [ʔan yasluka-ha  
there ways-NOM other many-NOM be.able.3SM AN use.3SM.SBJ-it  
**l-muħaamuuna** li-yaxdumuu l-ʒumħuur-a].  
the-laywyers.PM.NOM to-serve.3PM the-public-ACC  
'There are many other ways that lawyers can use to serve the public.'
- (40) ʔinnama tatamakkana [ʔan tatadaxxala **muʔassasat-un** fii  
only be.able.3SF AND intervene.3SF.SBJ institution.SF-NOM in  
ħadm-i l-muʔassasat-i l-ʔuxra], ʔið<sup>ʕ</sup>a tuyayyiru l-ʔiʒtimaaʔ-a  
destruction-GEN the-institution-GEN the-other if change.3SF the-society-ACC  
tayyyir-an ʒað<sup>ʕ</sup>riyy-an.  
change-ACC radical-ACC  
'An institution is able to intervene in the demolition of another institution, only  
if it changes the society radically.'

### 5.3.4 Aspectuals

- (41) wa-binaaʔan ʒala haaða yakaadu [ʔan yattafiqa **ħaaʔulaaʔi**  
and-based on this almost.3SM AN agree.3SM.SBJ these  
**l-baahiθuuna** ʒala ʔan l-nið<sup>ʕ</sup>aam l-fidiraali...]  
the-researchers on that the-system the-federal  
'And based on this, these researchers almost agree that the federal system...'

While instances of the coreferring backward pattern were retrieved for the verb categories listed above, we found that the distribution of this pattern is restricted to a particular set of predicates. Corpus searches of the backward pattern with the following *?an*-clause-taking predicates were unsuccessful: *qarrara* ‘decide’, *xafa* ‘fear’, *rafad<sup>fa</sup>* ‘refuse’, *tarradada* ‘hesitate’, *taħammala* ‘tolerate’ and *?iqtaraha* ‘propose’. One exception is the following example, with the verb *rafad<sup>fa</sup>* ‘refuse’.

- (42) taðakkaruu           ?anna ?ahl-a           t<sup>ʕ</sup>-t<sup>ʕ</sup>a?if-i d<sup>ʕ</sup>arrabuu r-rasuul-a  
remember.3PM.IMP that people-ACC Taif-GEN beat.3PM the-Prophet-ACC  
wa-?ahaanuu-hu       wa-maʕa ðaalika rafad<sup>fa</sup>       [?an yuhallika-hum  
and-insulted.3PM-him and-with that refused.3SM AN destroy.3SM.SBJ-them  
**?alla!!!!!!]**  
Allah  
‘Remember that the people of Taif beat the Prophet and insulted him yet Allah  
refused to destroy them!!!!!’

With respect to the correlation between the agreement marking on the matrix predicate and the reference pattern, our corpus findings conform with the generalization stated in (32). When the embedded subject is plural and human and the matrix predicate exhibits PA with it, the unexpressed matrix subject is construed as the embedded subject ((35), (36), (38), (39) & (41)). Conversely, when the matrix predicate is plural, the unexpressed subject is construed as a plural human referent, distinct from the embedded subject. This pattern is found with all *?an*-clause-taking predicates. For instance, compare example (35), where the matrix predicate *?araada* ‘want’ exhibits PA with the plural embedded subject and reference is shared, with (43), where the matrix predicate exhibits FA with the plural embedded subject and there is disjoint reference.

- (43) laa yuriiduuna [?an yufsida           **l-mutaʕas<sup>s</sup>ʕibuuna** maa banaa-hu  
no want.3PM AN spoil.3SM.SBJ the-fanatics.PM.NOM what built.3SM-it  
l-masʕuuluuna       ?ila ĥadd-i l-?aan].  
the-administrators to limit today  
‘They don’t want the fanatics to ruin what the administrators have built so far.’

Predicates which were found to be incompatible with the backward coreference pattern do appear in the FA pattern. Following are examples with *taħammala* ‘tolerate’ (44) and *xafa* ‘fear’ (45). In both cases, although the number–gender agreement marking on the matrix predicate is the same as the number–gender properties of the embedded subject the understood matrix subject cannot be construed as the embedded subject.

- (44) lam yataħammaluu [?an yansifa           **l-ʕazaa?iriyyuuna**       ħulm-a  
not tolerate.3PM AN ruin.3SM.SBJ the-Algerians.PM.NOM dream-ACC  
l-mis<sup>ʕ</sup>riyyiina       fi ð-ðihaab-i ?ilaa l-muundiaal].  
the-Egyptians-GEN in the-going to the-FIFA World Cup  
‘They did not tolerate (the fact) that the Algerians will ruin the dream of the  
Egyptians to go to the FIFA World Cup.’
- (45) wa-yaxʕawna [?an yantafiʕa           **l-masiħiyyuuna**  
and-fear.3PM AN benefit.3SM.SBJ the-Christians.PM.NOM  
**l-dimuqraat<sup>ʕ</sup>iyyuuna** mina l-?iqti<sup>s</sup>ʕaad-i       l-ħuulandii].  
the-Democrats.PM.NOM from the-economy-GEN the-Dutch  
‘They fear that the Christian Democrats will benefit from the Dutch economy.’

### 5.3.5 Summary

Instances of the backward pattern attested in the corpus reveal important facts with regard to its distribution and its agreement variation. As for its distribution, our findings suggest that the backward coreference pattern is limited to a set of *?an*-clause-taking predicates, which we will refer to as “backward control predicates” (BC predicates). More specifically, we found instances of backward control with volitionals, implicatives, modals and aspectuals. With these predicates sentences such as the one given in (46) are ambiguous between coreference and disjoint reference.

- (46) *ħaawalat* [*?an taktuba l-banaat-u maqaal-an*].  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘The girls tried to write an article.’  
 ‘She tried that the girls would write an article.’

Conversely, no attestations of the backward control construction were found with the following verbs: *qarrara* ‘decide’, *xafa* ‘fear’, *rafad<sup>a</sup>* ‘refuse’, *tarradada* ‘hesitate’, *tahammala* ‘tolerate’ and *?iqtaraha* ‘propose’. With these predicates, structures such as the one illustrated with a BC predicate in (46) are unambiguous, with only a disjoint reference reading available (47). A similar situation occurs with F-subjunctives in Greek (see (33) above).

- (47) *qararrat* [*?an taktuba l-banaat-u maqaal-an*].  
 decided.3SF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘She decided that the girls would write an article.’

The classification of verbs into BC predicates and predicates which do not allow backward control echoes Landau’s (2000) distinction between predicates which select tensed and untensed complement. With the exception of *want*, all BC predicates belong to the untensed ([–T]) category, while the remaining predicates are identified by Landau as belonging to the [+T] category (see Section 3.3). This observation will become relevant when we propose our analysis in Section 6.

An additional aspect, of course, is the agreement patterns exhibited by the matrix predicate in the backward pattern. The correlation between PA/FA in the matrix clause and the OC/NC distinction is supported by the corpus data. This is precisely the type of evidence that motivates an analysis which introduces a syntactic distinction between the coreference and disjoint reference interpretations. Consequently, we will assume that the NC analysis proposed in Section 5.2 (30) accounts for the forward patterns, as well as the disjoint reference (FA) backward pattern, and turn to an analysis of the backward control construction.

## 5.4 Backward control

In what follows we discuss two alternative approaches to the analysis of the MSA backward control construction. First, we examine whether the backward control construction can shed light on the debate regarding control theory. More specifically, we consider whether, assuming the Movement Theory of Control (Hornstein 1999), Wurmbrand & Haddad’s (2016) analysis of raising in MSA can be applied to backward control. Subsequently, in light of the differences between the two constructions and our findings regarding the distribution of the backward control construction, we propose an alternative analysis, which associates the backward coreference pattern in MSA with *restructuring*.

### 5.4.1 Overview

The phenomenon of backward control plays an important role in the debate regarding the analysis of control, which, broadly speaking, centers around two opposing approaches:

the PRO-based approach (e.g., Landau 2000 and subsequent work) and the Movement Theory of Control (MTC; e.g., Hornstein 1999; Boeckx & Hornstein 2004).

The PRO-based approach to control originates in the theory of Government and Binding (Chomsky 1981: and subsequent work), in which raising and control are given distinct analyses. In both cases the complement clause is an infinitival clause with a thematic yet case-less subject position. Raising is viewed as movement of the embedded subject to receive case in the matrix subject position, while control involves a silent anaphoric pronominal PRO subject which is bound by a local c-commanding antecedent and which does not require case.

- (48) a. Bill<sub>i</sub> appeared [<sub>t<sub>i</sub></sub> to leave]. (raising)  
 b. Bill<sub>i</sub> tried [PRO<sub>i</sub> to leave]. (control)

One motivation for the PRO-based analysis of control is the theta criterion, according to which every argument must receive a unique theta role and every theta role must be assigned to a unique argument. Since subjects of control predicates appear to be interpreted in two distinct theta roles, assigned by the matrix predicate and the embedded predicate, the theory assumes that there are two syntactic arguments, the overt matrix subject and the embedded phonologically empty PRO, and each is assigned its own theta role.

Assuming the PRO-based analysis, the structure of backward control should be as illustrated in (49).

- (49) PRO<sub>i</sub> tried [Bill<sub>i</sub> to leave].

Yet this structure is problematic for a number of reasons. First, the anaphoric PRO in the matrix position cannot be bound by the embedded subject with which it is co-indexed. Conversely, the R-expression *Bill* is bound by the pronominal PRO, while according to Principle C it should be free. Moreover, the embedded subject *Bill* appears in what is considered a case-less position. An additional related challenge is posed by languages such as MG, where the subject of OC predicates can appear either in the matrix position or in the embedded clause (see (34)). It is not clear how a DP can occur in the same position as PRO (and vice versa), where PRO is specifically defined to be incompatible with DPs.

Other approaches within the Minimalist Program argue for an alternative analysis (Hornstein 1999; Boeckx & Hornstein 2004). According to these approaches, the elimination of D-structure in the Minimalist Program made it unnecessary to maintain the theta criterion; arguments can now bear more than one theta role. Furthermore, the ban on movement into theta positions was eliminated. With these two changes in place, Hornstein (1999) argues that the PRO-based analysis of control is not necessary, and propose a movement analysis for both raising and control.

Consider the following representations of the derivation of subject control (50a) and subject raising (50b).

- (50) a. [<sub>IP</sub> Bill [<sub>VP</sub> Bill tried [<sub>IP</sub> Bill to [<sub>VP</sub> Bill leave ]]]] (control)  
 b. [<sub>IP</sub> Bill [<sub>VP</sub> appeared [<sub>IP</sub> Bill to [<sub>VP</sub> Bill leave ]]]] (raising)

In both cases subjects originate in the embedded [Spec VP] position, where they receive a theta role. From there they first move to [Spec IP] to check the D-feature of the lower IP. At this point the derivations diverge. With control predicates the subject moves to matrix [Spec VP] to check the external theta role of the matrix verb, and then it moves to [Spec IP] to check the D-feature of the IP and its own Case. Raising predicates do not assign a

theta role to the subject, so the subject skips the higher [Spec VP] position and moves directly to [Spec IP].

The MTC provides a straightforward way to account for the phenomenon of backward control. In fact, this is taken by Landau (2007: 309) to be “perhaps the most interesting contribution of the reductionist camp to the debate on the nature of OC”. The movement theory assumes a chain of subject copies, which begins in the embedded clause and ends in a matrix subject position. Although in the English examples in (50) the spelled out copies occupy the highest subject position, this is not necessarily the only option.

Polinsky & Potsdam (2002), for example, argue that the backward control construction in Tsez, a Nakh-Dagestanian language, is best analyzed by adopting the MTC. They propose that this construction is derived similarly to the English derivation illustrated in (50a) except that in Tsez backward control the subject is not only introduced but also spelled out in the embedded clause, and its subsequent movement to matrix position takes place covertly. They provide evidence for the existence of an unpronounced copy in the matrix position, which includes phenomena such as subject–verb agreement in the matrix clause and the licensing of matrix depictives and reflexives, which require a c-commanding antecedent.

Backward control in Tsez occurs only with two aspectual predicates, *-oqa* ‘begin’ and *-iča* ‘continue’, which are ambiguous between raising predicates and control predicates.<sup>15</sup> Furthermore, the two predicates can only appear in a backward control construction, while other OC predicates in Tsez are restricted to forward control. The rarity of backward control in general, and its limited distribution in Tsez, lead Landau (2007) to question its significance as counter-evidence to the PRO-based approach.

Alexiadou et al. (2010) counter Landau’s skepticism by providing more and better evidence of backward control from Greek and Romanian. The main difference between backward control in Tsez and backward control in Greek/Romanian is that in the latter it is optional, freely alternating with forward control (see (34) above). This additional evidence suggests that the phenomenon of backward control is not rare as it is in Tsez. Similarly to Polinsky & Potsdam (2002), Alexiadou et al. (2010) propose a movement analysis for MG backward control, where copies of the subject occupy different positions in a movement chain. However, unlike the situation in the Tsez, in Greek/Romanian the subject can be spelled out either in the embedded clause or in the matrix clause.

Contrary to the attempt to unify raising and control, Alexiadou et al. (2010, 2012) propose a different analysis for MG raising constructions with embedded subjects. These constructions, they argue, are not instances of “real” backward raising. Rather, the embedded subject does not move out of the embedded clause, but engages in long-distance agreement relations with the matrix predicate.<sup>16</sup> Nevertheless, “real” backward raising is argued by Wurmbrand & Haddad (2016) to be found in Standard Arabic. Thus, it is tempting to examine whether their analysis can be applied to the case of backward control.

#### 5.4.2 Backward control and backward raising in MSA

Wurmbrand & Haddad (2016) (henceforth W&H) explore the different syntactic patterns in which a class of Standard Arabic predicates referred to as *ʔafʔaal ʔal-muqaaraba*

<sup>15</sup> The two constructions differ with respect to the case assigned to the subject. Using standard diagnostics for distinguishing between raising and control (i.e., agentive adverbials, animate subjects, and imperatives) Polinsky & Potsdam (2002) show that absolutive subjects are associated with the raising construction, while syntactic subjects of control constructions appear in the ergative case.

<sup>16</sup> The authors provide evidence for the lack of a silent matrix subject in the raising construction and the occurrence of one in backward control by conducting diagnostics similar to the ones conducted by Polinsky & Potsdam (2002) (i.e., agreement with quirky subjects, negative concord, depictives and reflexives).

‘verbs of appropinquation’ occur.<sup>17</sup> This class encompasses three semantic types: verbs of proximity, verbs of hope, and verbs of inception (Wright 2007). Following Haddad (2012), W&H classify them as raising verbs.<sup>18</sup>

W&H identify four different patterns in which verbs of appropinquation can occur. These patterns are illustrated in (51a)–(51d).<sup>19</sup>

- (51) a.  $\text{ʔawʔakat}$   $\text{t}^{\text{f}}\text{-t}^{\text{f}}\text{aalibaat-u}$   $[(\text{ʔan}) \text{yanʔahna}]$ .  
 were.about.to.3SF the-students.PF-NOM (AN) succeed.3PF.SBJ
- b.  $\text{ʔat}^{\text{f}}\text{-t}^{\text{f}}\text{aalibaat-u}$   $\text{ʔawʔakna}$   $[(\text{ʔan}) \text{yanʔahna}]$ .  
 the-students.PF-NOM were.about.to.3PF (AN) succeed.3PF.SBJ
- c.  $\text{ʔawʔaka}$   $[(\text{ʔan}) \text{tanʔaħa}$   $\text{t}^{\text{f}}\text{-t}^{\text{f}}\text{aalibaat-u}]$ .  
 were.about.to.3SM (AN) succeed.3SF.SBJ the-students.PF-NOM
- d.  $\text{ʔawʔakat}/\text{ʔawʔakna}$   $[(\text{ʔan}) \text{tanʔaħa}$   
 were.about.to.3SF/were.about.to.3PF (AN) succeed.3SF.SBJ  
 $\text{t}^{\text{f}}\text{-t}^{\text{f}}\text{aalibaat-u}]$ .  
 the-students.PF-NOM  
 ‘The female students were about to succeed.’

The resemblance between these patterns and the ones in the focus of this paper is clear. The first two patterns are similar to what we referred to here as the “forward patterns”. Agreement between the matrix predicate and its subject depends on their relative position (FA with a pre-verbal subject and PA with a post-verbal subject) and the embedded predicate exhibits full agreement with the matrix subject. The default agreement pattern in (51c) resembles the impersonal construction illustrated in (14) with the verb *wāzaba* ‘have to’. The crucial pattern for our purposes is the backward pattern shown in (51d).

W&H claim that the backward pattern, where the only expressed subject is found in the embedded clause, is unique only to verbs of appropinquation, and is not found with other raising predicates or control predicates. This generalization is refuted by our corpus data, which show that the backward pattern is not unique to this particular class of predicates and, moreover, that it is compatible with various control predicates such as *ħaawala* ‘try’ in (52).

- (52)  $\text{liqaaʔ}$   $\text{c-caadiq l-mahdi}$   $\text{huwa l-waraqat-u}$   $\text{l-ʔaxiirat-u}$   $\text{ll-atii yuħaawilu}$   
 meeting Sadiq al-Mahdi is the-card-NOM the-last-NOM that try.3SM  
 $[(\text{ʔan}) \text{yalʔaba-ha}$   $\text{l-nið}^{\text{f}}\text{aam-u}$   $\text{l-ʔaan}]$ .  
 AN play.3SM.SBJ-it the-regime.SM-NOM now  
 ‘The meeting with Sadiq al-Mahdi is the last card that the regime is trying to play now.’

A key difference between the backward pattern in (51d) and our backward pattern is the agreement marking on the matrix predicate. Verbs of appropinquation, according to W&H, as well as to other sources they cite (e.g., Al-Ghalayini 2003), may appear with either partial or full agreement. In fact, the FA option is the only one accepted by traditional grammar and Arab grammarians. However, the authors acknowledge that although the FA case

<sup>17</sup> Wurmbrand & Haddad (2016) discuss Standard Arabic in its prescriptive form; we address Modern Standard Arabic in its contemporary use.

<sup>18</sup> Haddad (2012) applies the following diagnostics which distinguish between control and raising: selectional restrictions, idiom chunks, and equivalence under passive.

<sup>19</sup> Note that the data which W&H discuss include cases where the complement clause is preceded by *ʔan* and those where the particle is missing. The presence or absence of *ʔan* depends on the selectional restrictions of the matrix predicate, yet according to W&H this does not affect the distribution.

is the one that conforms with prescriptive grammar, they were not able to find naturalistic instances of this structure in contemporary newspapers.<sup>20</sup> They did find instances of the second pattern, where the matrix verb exhibits PA with the embedded subject. Nevertheless, the analysis that they propose assumes that the two agreement patterns are possible.

Crucially, with our predicates the FA/PA agreement alternation is manifested in the corpus only as a correlate to the OC/NC distinction described and illustrated by (32) above. The matrix verb exhibits plural marking (which can only occur with FA) when its understood subject is plural, animate and *distinct* from the embedded subject. Backward control is only possible when the matrix predicate exhibits PA with the embedded subject. A raising-like analysis of backward control which is based on W&H's analysis would need to account for the difference in agreement patterns exhibited by backward raising and backward control.

#### 5.4.3 A movement analysis of backward control

The analysis which W&H propose for the verbs of appropinquation is based on Haddad (2012) and on the notion of opacity domains (phases) and cyclic spell-out (Wurmbrand 2013; Alexiadou et al. 2014). An illustrative sketch of the analysis is given in (53).

$$(53) \quad [_{TP} \text{SUBJ4 T } [_{vP = \text{Phase}} \text{SUBJ3 } [_{TP = \text{Phase}} \text{SUBJ2 T } [_{vP = \text{Phase}} \text{SUBJ1} \sim ]]]]$$

According to this analysis, the subject originates in SUBJ1, its base position within the lowest vP, and raises cyclically (through the different numbered position), creating a chain of copies. At PF one copy is spelled out (or pronounced). The position of the spelled out copy, as well as that of the silent copies, has morphosyntactic reflexes, namely agreement marking on the predicates involved.

The analysis captures the full symmetry which W&H assume for the verbs of appropinquation: for each forward patterns there exists a parallel backward pattern. Let us illustrate this symmetry by considering the derivations proposed for the patterns shown in ((51a), (51b) & (51d)). We will disregard the default-agreement pattern in (51c), which is not relevant for our purposes.<sup>21</sup> The derivations are sketched in (54) (PA stands for “partial agreement”, FA for “full agreement”, DEF for “default agreement”, SUBJ for a spelled-out copy, ~~SUBJ~~ for a silent copy, V1 for the matrix verb, V2 for the embedded verb, and  $\gg$  for linear precedence):

- (54) a. V1PA  $\gg$  SUBJ3  $\gg$  V2FA  $\gg$  ~~SUBJ1~~ (51a)  
 b. V1PA  $\gg$  ~~SUBJ3~~  $\gg$  V2FA  $\gg$  SUBJ1 (51d)  
 c. SUBJ4  $\gg$  V1FA  $\gg$  V2FA  $\gg$  ~~SUBJ1~~ (51b)  
 d. ~~SUBJ4~~  $\gg$  V1FA  $\gg$  V2FA  $\gg$  SUBJ1 (51d)

Pattern (54a) sketches the derivation of the forward raising pattern exemplified by (51a). The subject raises from SUBJ1, its embedded position, where it leaves a copy, to the matrix [Spec vP] position, SUBJ3, where it is spelled out. The matrix verb moves to matrix T. The relative positions of the subject and matrix predicate account for the PA. The parallel backward pattern (54b) is derived in a similar fashion, with one difference: the spelled out copy is in the embedded position SUBJ1, and the silent copy in position SUBJ3. The PA on the matrix predicate is due to its agreement with the silent copy that follows it. The next two patterns follow the same principle. A pre-verbal matrix copy of the subject in SUBJ4 triggers FA on the matrix predicate regardless of whether it is overt, as in (54c), or covert, as in (54d).

<sup>20</sup> An anonymous reviewer notes that writers of MSA would have no trouble with an FA matrix clause with a raising verb of appropinquation and a coreference reading would be the only available one.

<sup>21</sup> See Wurmbrand & Haddad (2016) for a detailed discussion and analysis of all patterns.

The alternating agreement in the backward pattern is a crucial factor in Wurmbrand & Haddad's (2016) analysis since it provides evidence for the structural effects of the position of the silent copy in the matrix clause. This, according to Polinsky & Potsdam (2006), is a necessary condition for "real" backward raising, as opposed to cases of long-distance agreement between the matrix and the embedded predicates, as is argued to occur in Modern Greek (Alexiadou et al. 2012).

With BC predicates, however, only the first three derivations in (54) are possible. The pattern in (54d), where the subject is expressed in the lower clause while the matrix predicate exhibits FA, is ungrammatical. Assuming, as this approach does, that the forward pattern is derived by the embedded subject moving to a matrix subject position, it is not clear why the two positions, SUBJ3 and SUBJ4, are available for overt subjects while only the former can host silent copies. Why is it that with raising predicates subjects can covertly raise to [Spec TP] and trigger FA but not with BC predicates? This is indeed problematic for a straightforward application of a movement analysis to control in MSA.

One way to salvage the analysis is to propose that of the four derivations licensed for the raising verbs of appropinquation, only one, namely (54b), applies to BC predicates. This would account for the only configuration that is not accounted for by the NC analysis (PA agreement implies a 3SF *pro* which cannot be coindexed with a plural subject). Thus, when BC predicates are used as control predicates they are obligatorily spelled out in the embedded clause and they raise covertly only to the post-verbal matrix position. This, in fact, is precisely the type of analysis which Polinsky & Potsdam (2002) propose for obligatory backward control in Tsez.

Let us consider how this applies to the sentence in (55), which is ambiguous between a disjoint reference and a coreference interpretation.

- (55) *ħaawalat* [*?an taktuba l-banaat-u maqaal-an*].  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
- a. *ħaawalat + pro<sub>j</sub>* [*?an taktuba l-banaat-u<sub>i</sub> maqaal-an*].  
 'She tried that the girls would write an article.'
- b. *ħaawalat l-banaat-u<sub>i</sub>* [*?an taktuba l-banaat-u<sub>i</sub> maqaal-an*].  
 'The girls tried to write an article.'

As proposed in Section 5.2, the disjoint reference interpretation is licensed by the NC structure in (30); the embedded subject and the *pro*-dropped matrix subject have distinct indices (55a). The coreference interpretation in (55b), on the other hand, is an instance of backward control. This structure resembles the raising structure in (54b), and, as such, can be assumed to be derived in a similar fashion. The subject is spelled out in the embedded clause, and raises covertly to the post-verbal matrix position SUBJ3 (but, crucially, not to SUBJ4), where it triggers PA on the predicate, and, unlike raising predicates, receives a theta role. Non-BC predicates do not have this option, and consequently, a sentence similar to (55) but with a non-BC predicate would not be licensed in a movement construction and will only receive a disjoint reference interpretation (56).

- (56) *qararrat* [*?an taktuba l-banaat-u maqaal-an*].  
 decided.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
- a. *qararrat + pro<sub>j</sub>* [*?an taktuba l-banaat-u<sub>i</sub> maqaal-an*].  
 'She decided that the girls would write an article.'
- b. \**qararrat l-banaat-u<sub>i</sub>* [*?an taktuba l-banaat-u<sub>i</sub> maqaal-an*].  
 'The girls decided to write an article.'

Although the aforementioned analysis may be technically feasible, assuming that covert movement of the subject to position SUBJ4 is prevented, it does not seem likely that a language would only exhibit backward control, a construction which is typologically rare, without allowing for the more unmarked forward control, especially when such a construction is available for raising predicates. Recall that in Tsez, most control predicates appear only in forward control, and backward control is restricted to only two aspectuals. An additional shortcoming of the proposed movement-based analysis is that it does not account for the fact that backward control is restricted to only a subset of the MSA control-like predicates, and moreover – that those predicates are the ones identified by Landau (2000) as predicates which select for untensed complements. Consequently, in what follows we will explore a different approach which builds on this characterization of BC predicates.

### 5.5 A restructuring analysis of backward control

#### 5.5.1 Backward control predicates

Our corpus investigations of the backward pattern revealed that only a subset of the predicates which select *?an* clauses can appear in the backward control construction. We refer to this set as BC predicates. In what follows we consider an alternative analysis of backward control that is motivated by the observation that the distinction between BC predicates and non-BC predicates is not arbitrary. Consider the two categories presented in Table 3.

With the exception of *?araada* ‘want’, all the verbs which appear in the left column are categorized by Landau (2000) as predicates which select untensed ([–T]) complements, or in a later formulation (Landau 2015) – *non-attitudinal* predicates. The right column includes predicates which select tensed [+T] complements, or *attitudinal* predicates (see Section 3.3).<sup>22</sup> This categorization plays an important role in a number of syntactic phenomena across languages.

In languages with non-agreeing (infinitival) complement clauses, Landau (2000) claims, the two predicate categories coincide with the distinction between two types of obligatory control: exhaustive control (EC) and partial control (PC). In a nutshell, EC predicates impose a stricter relation between the controller and the unexpressed subject, while with PC predicates the reference of the unexpressed subject *includes* the controller, but is not limited to it. For example, the understood plural subject of *meet* in (57) can be bound by

**Table 3:** Predicates and backward coreference.

Backward-control predicates		Non-backward-control predicates
Volitionals:	<i>?araada</i> ‘want’	<i>qarrara</i> ‘decide’
Implicatives:	<i>zaru?a</i> ‘dare’ <i>?aawala</i> ‘try’ <i>nasiya</i> ‘forget’	<i>xafa</i> ‘fear’ <i>rafad’a</i> ‘refuse’ <i>tarradada</i> ‘hesitate’
Modals:	<i>?istat’aa?a</i> ‘be able’ <i>tamakkana</i> ‘be able’	<i>?iqtaraha</i> ‘propose’
Aspectuals:	<i>kaada</i> ‘almost’	

<sup>22</sup> The volitional *want* is found to be a robust exception to this generalization cross-linguistically (see e.g., Hacquard 2006; Grano 2015).

a singular subject when the matrix predicate is the attitude predicate *agree*, but not when it is the non-attitude *condescend*.<sup>23</sup>

- (57) a. James<sub>i</sub> agreed [PRO<sub>i+</sub> to meet] thanks to our pressures.  
 b. \*James<sub>i</sub> condescended [PRO<sub>i+</sub> to meet] thanks to our pressures.

Recall that in languages where the complement clause exhibits overt morphological agreement, Landau (2000) predicts that the two categories, [-T] and [+T], would be associated with OC and NC, respectively. This prediction is found to be the case in the Balkan languages. As Landau (2004) shows, predicates which select C-subjunctives belong to the [-T] category, while those which select F-subjunctives belong to the [+T] category. In MSA, however, this prediction was found not to hold. As was shown in Section 4.1, non-attitudinal ([-T]) predicates are found in no-control constructions. Nevertheless, our corpus investigation revealed that Landau's classification does capture the distinction between BC predicates and non-BC predicates in MSA (see Table 4 for a summary).

These correlations are certainly suggestive and most likely play a role in the licensing of backward control in MSA. Nevertheless, as was mentioned in Section 5.4.1, backward control constitutes a real problem for the PRO-based framework, which Landau assumes. Moreover, an attempt to adopt an alternative theory of control, namely the MTC, and to apply W&H's movement analysis of raising in Standard Arabic to the backward control construction, resulted in a somewhat questionable ad-hoc account.

### 5.5.2 Restructuring and its challenges

The same predicates which we found to be compatible with backward control belong to a class of verbs identified in many languages as *restructuring verbs* (Wurmbrand 2001). Broadly speaking, restructuring, which is also referred to as "clause union", "coherence", and "complex predication", describes a situation whereby two (or more) predicates function as a unit with respect to grammatical features such as argument structure, word order, agreement, or case. Consequently, what can be viewed as a subordinate clause does not constitute a boundary for processes which are restricted to apply within a clause. The resulting structure, then, is monoclausal.

A number of properties exhibited by MSA backward control motivate a restructuring analysis. First, as mentioned, the predicates which are licensed in this construction belong to the class of restructuring verbs. Second, under some approaches, restructuring creates a monoclausal structure which has one argument structure, and, more specifically, one subject, which is shared by the two predicates. Under such an approach the partial agreement on the matrix predicate (as well as the embedded predicate) is expected since the two predicates precede their (shared) subject. Third, there are strict adjacency conditions with respect to the linear position of the selecting predicate, *?an*, and the subjunctive, which suggest that these components form a unit. Furthermore, the agreement properties exhibited by the two predicates are identical in this construction. A final motivation for

**Table 4:** Correlation between tense/attitude and control types across constructions.

Agr	Construction	[-T]/non-attitude	[+T]/attitude
+Agr	Sbj. comp. in MG	C-subjunctives	F-subjunctives
	Sbj. comp. in MSA	backward control	no backward control
-Agr	Inf. comp. in English	exhaustive control	partial control

<sup>23</sup> The existence of partial control is one of Landau's main arguments against the MTC (Landau 2003).

a restructuring analysis is the observation that the embedded clauses of these predicates cannot be temporally modified independently from the matrix clause (see discussion around example (27)). Having only one (semantic) tense associated with a construction is, too, compatible with restructuring as well as with a monoclausal structure.

Nevertheless, the MSA control construction does not share a number of key properties associated with the restructuring phenomena discussed by Wurmbrand (2001) mostly with regards to Germanic and Romance languages. First, a typical restructuring construction is often characterized as a matrix verb selecting as a complement a less-than-full infinitival clause (usually a VP) lacking a subject. MSA *?an* clauses are headed by subjunctive verbs, which are inflected for subject agreement and mood, and, crucially, the complement in backward control does include a subject. Moreover, different types of phenomena that are often associated with restructuring, such as clitic climbing in Italian and Spanish and long passive/long object movement in German, do not occur in MSA. This leads Habib (2009) to reject a restructuring analysis. In a similar vein, Alexiadou et al. (2010) argue that backward control in Greek and Romanian is not an instance of restructuring by showing that two separate negations as well as independent event modifiers are possible for each predicate.

While the Romance/Germanic restructuring analysis may not be adequate for MSA (and also for Greek and Romanian) other proposals, similar in spirit, exist in the literature, where a different formalization of the main idea of “clause union” or “complex predication” is applied. Herbeck (2014) and Ordóñez (2017) invoke complex predication as an alternative account of what appears to be backward control in Spanish. In their accounts DP subjects which appear to be inside embedded control infinitives actually occupy a matrix [Spec *v*P] position. The verbal material that precedes the subject is a verbal complex which is formed by (head or remnant) movement to higher projections. Both accounts link the occurrence of this construction with occurrence of VSO clauses in the language. In addition, as mentioned in Section 5.1, Roussou (2009) proposes a clause-union analysis for OC in Modern Greek. Under her analysis, the complements of OC predicates lack semantic tense, and for this reason clause union is triggered, which in turn requires the variable introduced by the complement to be bound by a matrix argument. One shortcoming of her proposal is that it is not clear how it could handle backward control, where the subject is located in the embedded clause and is not bound by an overt matrix argument.

Grano (2015) takes Roussou’s (2009) restructuring account of OC further and proposes a hybrid raising/restructuring approach. Following Landau’s (2000) observation that the PC/EC distinction is tied to the tensed/untensed distinction, Grano (2015) proposes that PC involves a bi-clausal structure with an embedded (possibly partially) bound PRO subject. EC, on the other hand, has a monoclausal structure; the control predicate realizes a functional head and the complement is a *v*P projection (rather than a clausal CP complement).<sup>24</sup> In lieu of Roussou’s (2009) bound variable solution, Grano proposes that the subject in EC constructions is base-generated in the embedded clause and raises to a matrix subject position.

Essentially, Grano’s (2015) hybrid approach combines the PRO-based analysis of control for PC with a movement analysis of control for EC. However, Grano’s movement analysis is different from the movement analysis that we considered in the previous section in that it builds on the semantic distinction between PC and EC predicates and restricts movement to a restructuring configuration which is licensed only with restructuring verbs.

<sup>24</sup> Grano (2015) adopts Cinque’s (2006) approach to restructuring according to which restructuring verbs realize functional heads. However, see Wurmbrand (2004) for arguments for the need for two types of restructuring configurations: functional and lexical.

Moreover, Grano argues that the distinct analyses which he proposes for PC and EC are “in harmony” with the control patterns of Greek subjunctives. The same predicates which allow PC in languages such as English are those which select F-subjunctives in Greek. EC predicates, on the other hand, are those which in Greek select C-subjunctives. The association of C-subjunctives with restructuring and movement makes it possible to account for backward control, which is found only with C-subjunctives. Thus, the advantage of the MTC approach with regards to accounting for backward control is exploited, but in a principled fashion.

The similarity between MG and MSA extends beyond the shared typological properties that we first noted in Section 3.2. The bifurcation of the MG predicates into C-subjunctives and F-subjunctives mirrors the classification of BC predicates and non-BC predicates in MSA. Moreover, the constraint against backward coreference with F-subjunctives is also found in MSA when the matrix predicate exhibits FA (see discussion around examples (33) & (32)). This phenomenon lends support to the no-control analysis which is proposed for both languages. In addition, in the backward pattern, control is obligatory in MG with C-subjunctives and is possible in MSA only with BC predicates exhibiting PA. In what follows we build on these similarities and propose an account that is inspired by Grano’s (2015)’s hybrid approach and his analysis of C-subjunctives in MG, which combines restructuring and subject raising.

## 6 The analysis

### 6.1 Overview

Most aspects of the embedded *?an* clause construction are perfectly regular and predictable from the grammar of MSA. Subject–verb agreement between overt matrix subjects and the matrix verb is as expected: FA with pre-verbal subjects and PA with post-verbal subjects. The agreement marking on the embedded verb is subject to purely local constraints: regardless of the reference relationship the embedded subject is engaged in, the verb exhibits PA when the subject is expressed and FA when it is not. Only one component of this construction is puzzling: when the matrix subject is not expressed, the matrix verb does not exhibit invariable full agreement.

The challenge, then, is to explain the puzzle posed by the backward control construction illustrated in (32) above. More concretely, the questions that we must answer are (i) why is the configuration in (58a) ungrammatical with control predicates and (ii) what licenses the configuration in (58b).

- (58) a. \*VFA<sub>i</sub> [AN VPA NP<sub>i</sub>[NOM]]  
 b. VPA<sub>i</sub> [AN VPA NP<sub>i</sub>[NOM]]

Following the insights of traditional Arab grammarians, we assume that fully inflected verbs in MSA are verbs whose subject requirement is fulfilled by an incorporated pronominal, or, in other words, whose subject is *pro*-dropped. Consequently, a plural or dual verb necessarily has a *pro*-dropped subject. Singular verbs are ambiguous between fully inflected forms with singular incorporated pronominal subjects, and partially inflected forms, which are the ones that appear preceding a lexical subject in an unmarked simple clause. Under the assumption that fully inflected forms indicate a *pro*-dropped subject, the ungrammaticality of (58a) can be explained by appealing to Principle C; the embedded subject, as a referring expression cannot be bound by the phonologically empty *pro*. A similar account is given by Alexiadou et al. (2010) to the parallel Greek construction.<sup>25</sup>

<sup>25</sup> See discussion in Section 5.2.

As for the configuration in (58b), we propose that the partial agreement on the matrix verb in the backward pattern indicates that the subject of this verb is perceived to be the embedded subject, which follows it. This entails that the backward control construction involves a single subject which is shared by the two predicates and consequently realized only once in the embedded clause. We propose that this is achieved by restructuring: the matrix predicate and the embedded predicate form a complex predicate which “inherits” the argument structure of the embedded predicate.

## 6.2 A possible formalization

Habib (2009), in her study of *?an* complement clauses in MSA, rejects restructuring as a possible analysis on the grounds that they do not exhibit long object movement and the embedded verb can assign accusative case. Adopting Wurmbrand’s (2001) typology, Habib proposes that *?an* complement clauses are *reduced non-restructuring clauses* (i.e., TPs, or “something between VP and CP”) as opposed to *?anna* complement clauses, which she argues are *full non-restructuring clauses* (CPs). There are, however, more inclusive conceptualizations of restructuring (e.g., Roussou 2009; Grano 2015) according to which a TP or a *vP* can restructure. Moreover, in a more recent paper Wurmbrand (2015) proposes that restructuring complements are larger than VP and include (at least) a voice projection. We will adopt these views and show how Habib’s proposal can be adapted to account for our findings regarding backward control.

Our point of departure is Habib’s (2009) NC analysis. As an example, consider the derivation of (59a) schematized in (59b) (Habib’s (1)). *?an* under her analysis is not a complementizer (like *?anna*) but rather a functional element which selects for a verb in the subjunctive mood. It resides in the head T position of a TP. The embedded subjunctive verb raises to *v* and incorporates with it, and the whole complex raises and incorporates with *?an* in T.

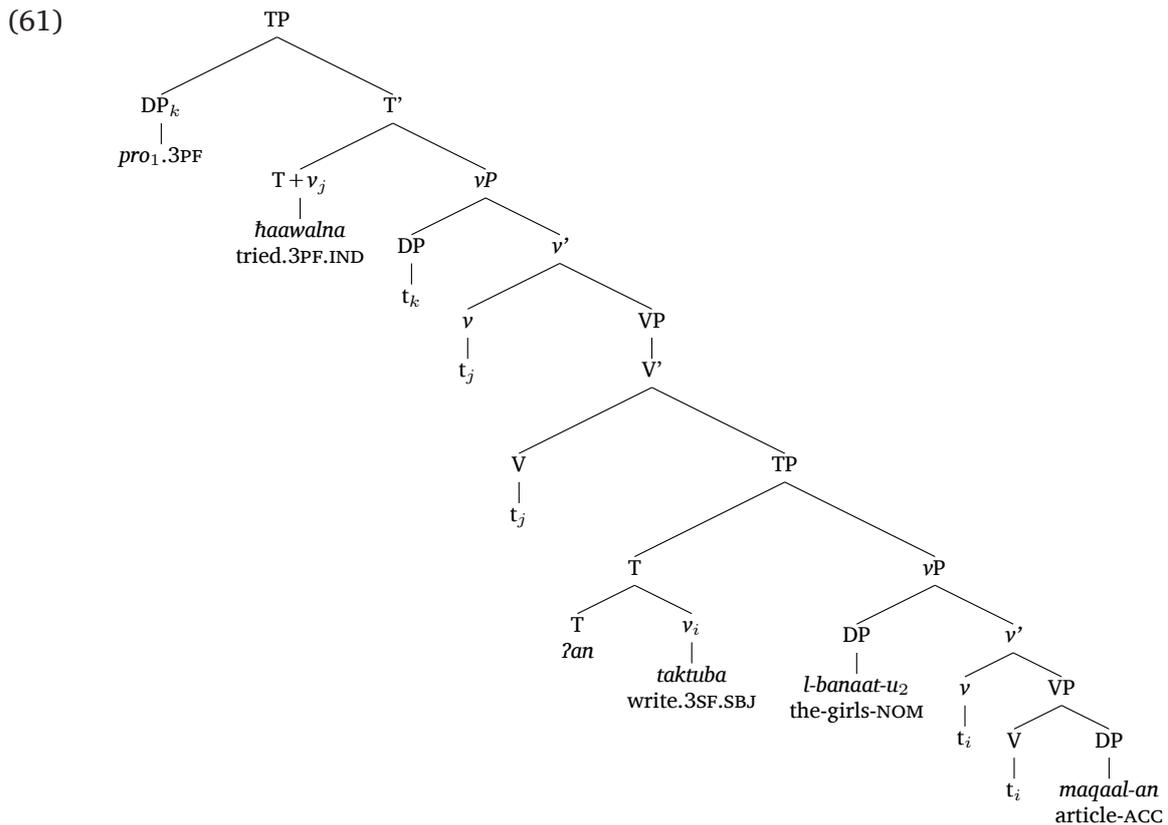
- (59) a. yuriidu            [?an ya?kula        raami t-tufaḥat-a].  
wants.3SM.IND AN eat.3SM.SBJ Rami the-apple-ACC  
‘He wants Rami to eat the apple.’
- b. [<sub>VP</sub> [<sub>V</sub> yuriidu [<sub>TP</sub> [<sub>T</sub> ?an + ya?kula<sub>i</sub> [<sub>vP</sub> raami [<sub>V</sub> t<sub>i</sub> [<sub>VP</sub> [<sub>V</sub> t<sub>i</sub> [<sub>DP</sub> t-tufaḥat-a  
]]]]]]]]]]

Let us continue by considering the minimal pair in (32), which illustrates the FA and PA variants of the backward pattern. First we focus on the FA version repeated here as (60), with its one possible disjoint interpretation.

- (60) ḥaawalna ?an taktuba        l-banaat-u        maqaal-an.  
tried.3PF AN write.3SF.SBJ the-girls-NOM article-ACC
- a. ḥaawalna + *pro*<sub>j</sub> [*?an* taktuba        l-banaat-u<sub>i</sub>        maqaal-an].  
tried.3PF AN write.3SF.SBJ the-girls-NOM article-ACC  
‘They<sub>j</sub> tried that the girls<sub>i</sub> would write an article.’
- b. \*ḥaawalna + *pro*<sub>i</sub> [*?an* taktuba        l-banaat-u<sub>i</sub>        maqaal-an].  
tried.3PF AN write.3SF.SBJ the-girls-NOM article-ACC  
Intended: ‘The girls tried to write an article.’

The derivation in (59b) sketches the analysis at the matrix VP level, where the matrix verb occupies head position. In the syntactic tree presented in (61) we extend the derivation

above this level to a full (TP) clause and illustrate how it applies to the disjoint reading in (60a). To derive the verb-initial order of the matrix clause the verb raises from matrix V to T, and the *pro* subject occupies the [Spec TP] position (see Aoun et al. 2010: among others). With regards to reference, the referent of the matrix *pro* subject is necessarily distinct from that of the embedded subject *l-banaat* ‘the girls’ due to Principle C. Note that the raising counterpart of (60) is grammatical since [Spec TP] in this construction is occupied by a covert copy of the overt embedded subject, and not a binding *pro*.



We now turn to the second backward pattern, namely the one in which the matrix predicate exhibits PA with the embedded subject. The PA version of (32) is repeated here as (62).

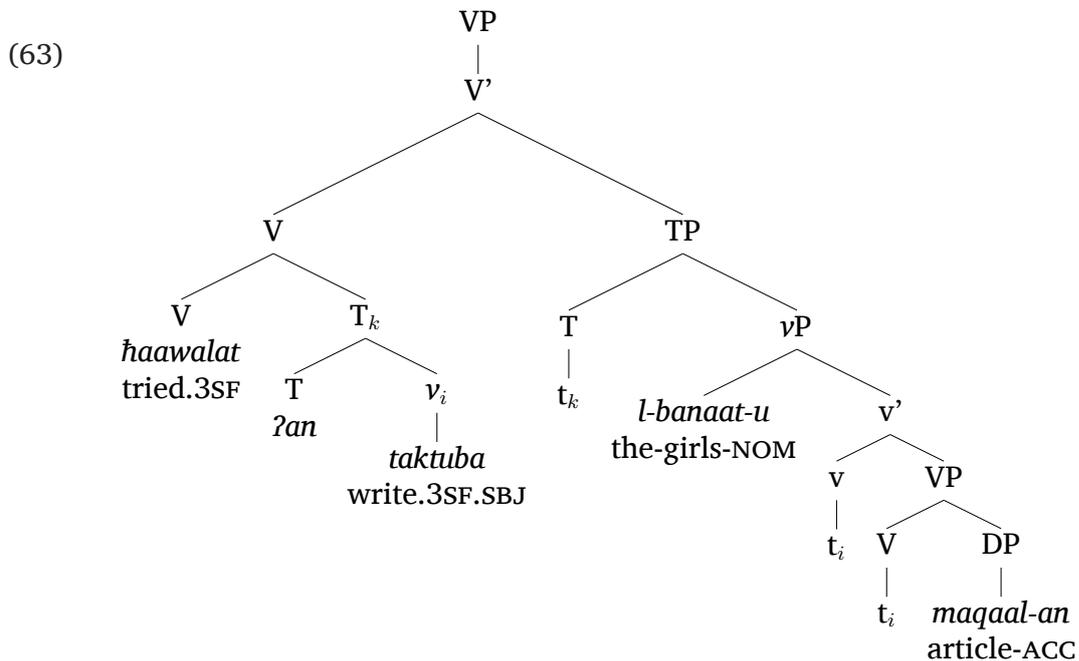
- (62) *haawalat ?an taktuba l-banaat-u maqaal-an.*  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
- a. *haawalat +pro<sub>j</sub> [?an taktuba l-banaat-u<sub>i</sub> maqaal-an].*  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘She<sub>j</sub> tried that the girls<sub>i</sub> would write an article.’ (no control)
  - b. *{haawalat<sub>i</sub> ?an taktuba<sub>i</sub>} l-banaat-u<sub>i</sub> maqaal-an.*  
 tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC  
 ‘The girls tried to write an article.’ (restructuring)

The disjoint reading in (62a) is associated with a 3SF *pro*-dropped matrix subject, which cannot be coindexed with the plural feminine embedded subject due to number mismatch.

This interpretation is licensed by a structure that is similar to the one shown in (61), the only difference being that in the case of (62a) the matrix predicate and its associated *pro* are singular, rather than plural.

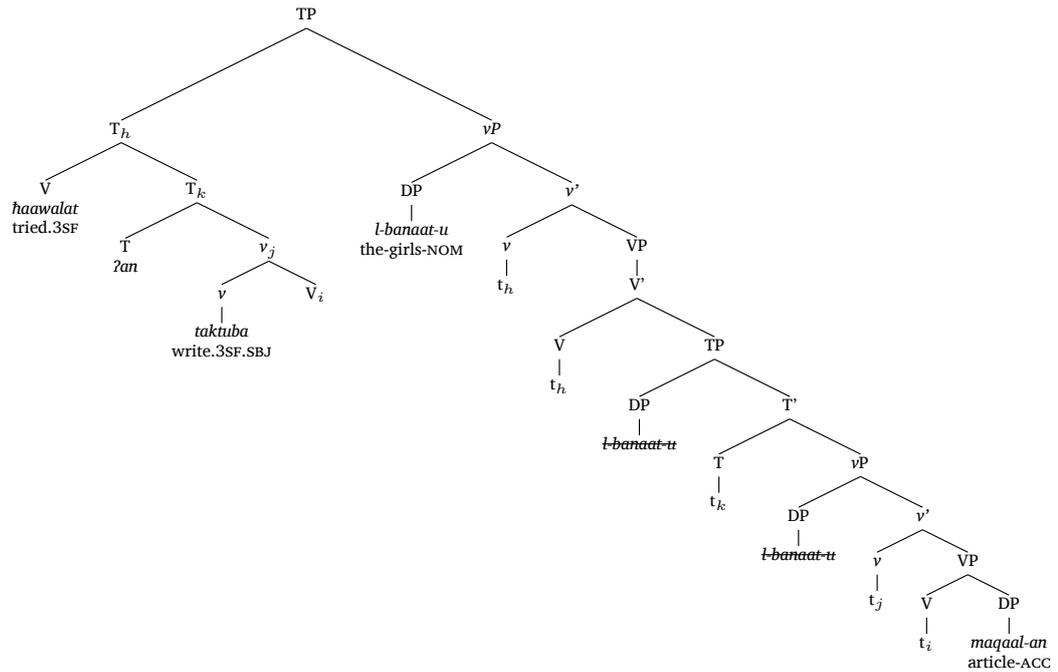
The analysis diverges from the one proposed by Habib (2009) when the coreference reading in (62b) is considered. This backward control configuration, we suggest, is licensed by restructuring. The matrix predicate and the embedded predicate form a complex predicate (indicated in (62b) by curly brackets) which renders the structure monoclausal, with the embedded subject acting as the sole subject of the complex predicate. We propose that this option is restricted to BC predicates, which, as mentioned, belong to the class of restructuring verbs in various languages. The property which sets them apart from other control-like predicates is that they can “attract” the verbal complex in the embedded T, thus forming a verbal complex which “inherits” the argument structure from the embedded predicate.

One way to formalize this derivation in Habib’s (2009) system is illustrated by the syntactic tree in (63). The first step in the derivation is identical to the one illustrated in (61): the embedded subjunctive moves from V to incorporate with *v*, and then to T, where it incorporates with *?an*. The next step is optional and restricted to BC predicates. The *?an* + subjunctive cluster moves further to the matrix V position, where it incorporates with the BC predicate to form a complex predicate. At this point the complex predicate is a single syntactic unit, made up of a finite verb and a subjunctive verb, both marked with 3SF agreement, and the functional element *?an*.



With restructuring in place, the derivation continues (see the tree in (64)). The complex predicate raises to the matrix T position, similarly to the V-to-T movement assumed in the NC construction. Then, in the spirit of Grano’s (2015) raising/restructuring approach, the embedded subject raises to the matrix [Spec vP] position, where it is assigned an external theta role and where it is spelled out. The full derivation of the backward control structure in (62b) is presented in (64).

(64)



The question that we need to consider now is how to analyze the forward coreference pattern, where we found no evidence of syntactic reflexes of the OC/NC distinction. Recall that in Section 5.1 three alternative answers were discussed: (i) no control, (ii) obviation, and (iii) ambiguity (control/no control).

Let us begin with obviation. Terzi (1992) proposed for MG that the NC analysis is subject to obviation, and therefore only disjoint reference is allowed. A coreference interpretation, where the matrix subject and the understood embedded subject share reference, is licensed only by a control structure. Landau (2004) argues against this proposal by presenting syntactic diagnostics that suggest that the embedded subject can be a *pro*, thus ruling out a control-only analysis of coreference.

Evidence against an obviation analysis for MSA is found in corpus examples such as the one in (65), where an embedded pronominal subject *huwa* ‘he’ shares its reference with a lexical matrix subject *l-ʔadiib* ‘the writer’.<sup>26</sup>

- (65) ʔinna l-ʔadiib-a laa yastatʕiiʕu [ʔan yuqarrira **huwa**  
 that the-writer.SM-ACC not be.able.3SM AN decide.3SM.SBJ he.NOM  
 bi-nafsihi ʔanna n-nasʕsʕ-a sa-yakuuna fii-hi].  
 by-himself that the-text will-be.3SM in-it  
 ‘The writer cannot decide by himself that the text would be in it.’

Although the selecting predicate *ʔistʕaafa* ‘be able’ is a BC predicate, this sentence cannot be licensed by our proposed restructuring construction since it involves two overt subjects. Thus, the obviation option must be rejected and accordingly, the no-control analysis must apply to the coreference pattern.

With obviation ruled out, the two remaining options are either to restrict restructuring to backward control, or to assume that the forward coreference pattern is syntactically ambiguous between no control and restructuring. In what follows we tentatively assume

<sup>26</sup> We thank an anonymous reviewer for suggesting this.

the latter, and show how a raising/restructuring analysis of the subject-initial forward pattern emerges naturally from our proposed analysis of backward control.<sup>27</sup>

Restructuring in effect takes a number of predicates and forms one syntactic unit which can function similarly to a simple V in a VSO clause. This is the case in (64), where instead of a simple V, a complex {VV} occupies the T position, while its subject is found in its post-verbal subject position. If so, we can assume that complex predicates can also appear in SVO clauses. There is, however, no consensus regarding the analysis of SVO clauses (see Aoun et al. 2010 for discussion). We will assume the analysis mentioned by Habib (2009), according to which SVO clauses are derived by the subject raising from the matrix [Spec vP] to [Spec TP] and triggering full agreement on the predicate in a Spec-Head relation.<sup>28</sup> Consequently, we suggest that a complex predicate, undergoing a similar derivation, would surface with FA marking on both of its verbal components.

To illustrate this proposal let us return to our example sentence in its forward pattern variant. If we assume that restructuring is found in both backward and forward control, the coreference interpretation of (66) is syntactically ambiguous. It is licensed by the no-control structure (66a), which is available for all *?an*-clause selecting predicates, and by restructuring (66b), which is licensed only with BC predicates.

- (66) *?al-banaat-u haawalna ?an yaktubna maqaal-an.*  
 the-girls-NOM tried.3PF AN write.3PF.SBJ article-ACC  
 ‘The girls tried to write an article.’
- a. *?al-banaat-u<sub>i</sub> haawalna [?an yaktubna + pro<sub>i</sub> maqaal-an]* (no control)  
 b. *?al-banaat-u {haawalna ?an yaktubna} maqaal-ana* (restructuring)

This is not the case with the alternative forward pattern illustrated by (67a), where the matrix clause is verb-initial. The two predicates have mismatched agreement and the subject intervenes between them, thus indicating that no restructuring took place. Consequently, this pattern can only be licensed by the NC structure (67b).

- (67) a. *haawalat l-banaat-u ?an yaktubna maqaal-an].*  
 tried.3SM the-girls-NOM AN write.3PF.SBJ article-ACC  
 ‘The girls tried to write an article.’  
 ‘The girls tried that they would write an article.’
- b. *haawalat l-banaat-u<sub>i</sub> [?an yaktubna + pro<sub>i/j</sub> maqaal-an]* (no control)

To summarize, the starting point of this proposed formalization is Habib’s (2009) no-control analysis of MSA *?an* clauses, including her assumptions regarding the derivation of VSO and SVO clauses. The one phenomenon which her analysis is missing, namely backward control, is accounted for by the introduction of an additional mechanism, which is available only to a particular subset of predicates, namely BC predicates. BC predicates can “attract” the heads of their selected complement clauses to raise and incorporate with them to form a complex predicate. This complex predicate, then, functions similarly to a simple predicate; in VSO clauses it exhibits partial agreement with its subject, while in SVO clauses there is full subject–verb agreement.

<sup>27</sup> This assumption is not unorthodox. Wurmbbrand (2001) argues that lexical restructuring is optional and that predicates can either combine with a control or restructuring infinitive. Also, as mentioned in Section 5.1, Landau (2004) proposes that similar constructions in MG are structurally ambiguous.

<sup>28</sup> The debate regarding the derivation of SVO clauses in Arabic is orthogonal to the phenomena discussed here. We adopt this analysis in order to illustrate the implications of our restructuring analysis.

### 6.3 Open issues

The proposed analysis accounts for all the different reference and agreement patterns exhibited by MSA *?an* clauses. Nevertheless, it introduces a number of open issues which need to be addressed. First, as discussed in Section 5.5.2, although MSA does not exhibit the prototypical properties of (Romance/Germanic) restructuring, such an analysis is motivated by a number of properties which do suggest restructuring. More empirical evidence regarding the monoclausal structure of backward control (and possibly forward control) would further support (or weaken) our restructuring proposal. Grano (2015), for example, employs diagnostics involving inverse scope, the licensing of negative polarity items and the interpretation of antecedent-contained deletion (ACD) to distinguish between restructuring and non-restructuring constructions. Similarly, Polinsky & Potsdam (2002) provide evidence for covert subject raising in Tsez by examining whether constructions which require c-commanding antecedents are licensed when the subject is spelled out in the embedded clause. Such diagnostics, when applicable to MSA, can be used to test our hypothesis regarding backward control and also answer the question regarding the optional occurrence of restructuring in the forward pattern.

Our analysis made use of incorporation as a mechanism for deriving restructuring. Nevertheless in our proposed formalization we appealed to the notion of incorporation at the conceptual level, without fleshing out the mechanism behind the process. A similar approach to restructuring, yet fully couched in a theoretical framework, is proposed independently by Wurmbrand (2015). This approach, Wurmbrand argues, combines the insights of the *complex head* approaches, to which our proposal belongs, with the advantages of the competing *VP-complementation* approaches. More specifically, in this approach, which extends to a variety of typologically distinct languages, restructuring is formalized as the incorporation of the embedded *v* into the matrix *V*, with the embedded *V* remaining in the complement clause. Although the two approaches are similar in spirit our analysis is not straightforwardly adaptable to Wurmbrand's (2015) system. The two predicates in MSA do seem to form one inseparable syntactic unit (or complex head). Corpus searches did not reveal instances of the backward coreference pattern with material intervening between the matrix predicate and *?an*. Consequently, we proposed that their functioning as one unit accounts for the agreement patterns which they exhibit. This is not immediately transferable to Wurmbrand's (2015) system, where incorporation is of a more abstract nature.

Finally, the proposed analysis focused only on the reference relationships between the matrix subject and the embedded subject. However, as was mentioned regarding (6b) and illustrated in (23) and (24), control and no control are also found between embedded subjects and matrix objects, albeit only with a forward pattern, where the missing argument is in the embedded clause. Consequently, the same question can be asked in this context: is there a syntactic distinction between the two interpretations? The type of argumentation that was used here to support the proposed analysis does not apply in this case, since the matrix object does not trigger agreement on the matrix predicate. We have not found other evidence for a syntactic distinction. These issues remain open for future work.

## 7 Conclusion

So, is control a part of the grammar of Modern Standard Arabic? The search for predicates which enforce coreference between the subject of an embedded subjunctive clause and a matrix argument was unsuccessful. A corpus investigation of likely candidates retrieved instances of disjoint reference for all candidates (with one exception, but see discussion in Section 4.1). These findings contradict generalizations and predictions regarding the

correlation between semantic tense, agreement and control. In a sufficiently large corpus, even modals and aspectual predicates, which were predicted to exhibit control behavior, were found to allow for free reference (or no control).

Nevertheless, although no obligatory control predicates were found in MSA, the backward pattern, where the single expressed subject occurs in the embedded clause, revealed morphosyntactic reflexes of the control vs. no control distinction. Furthermore, coreference between the expressed embedded subject and the unexpressed matrix subject was found to be restricted to a set of predicates which we referred to here as *backward control (BC) predicates*. Thus, we concluded that a single no-control structure can capture all the patterns and interpretations attested except one: backward control.

The phenomenon of backward control plays an important role in the debate regarding the analysis of control, which, broadly speaking, centers around two opposing approaches: the PRO-based approach and the Movement Theory of Control (MTC). While backward control is especially challenging for the PRO-based approach, the MTC provides a straightforward way to account for it. Assuming the MTC, according to which control and raising are derived in similar fashions, we first attempted to adapt Wurmbrand & Haddad's (2016) movement analysis of forward and backward raising in MSA to backward control. The difference between backward control and backward raising with regards to the agreement exhibited by the matrix predicate rendered a unified analysis of both constructions somewhat questionable and ad-hoc.

A different approach emanated from the similarity between BC predicates in MSA, obligatory-control predicates in Modern Greek, and restructuring verbs in Romance and Germanic languages. More specifically, we proposed that BC predicates in MSA can optionally restructure with the embedded subjunctive and form a complex predicate which denotes a single event and has one argument structure. With one argument structure the single subject is construed as the subject of both predicates, thus giving rise to the control (or coreference) interpretation and accounting for the agreement marking on the matrix predicate. We sketched a formalization of this analysis, avoiding as much as possible theory-specific notions and details. Our analysis, therefore, sheds new light not only on the specific MSA constructions we focused on, but on more fundamental questions of control, raising, and restructuring in natural languages.

## Abbreviations

1/2/3 = person, S/P = singular/plural, F/M = feminine/masculine, ACC = accusative, GEN = genitive, NOM = nominative, IND = indicative, SBJ = subjunctive, FA = full agreement, PA = partial agreement, BC = backward control, OC = obligatory control, NC = no control, [Spec  $\nu$ P], [Spec VP], [Spec IP], [Spec TP] = specifier position of  $\nu$ P, VP, IP, and TP, respectively

## Acknowledgements

This research was supported by the Israel Science Foundation (grant no 505/11). We are extremely grateful to Livnat Herzig Sheinfux for her continuous support, and to Abdelnaser Jabarin for expert judgements and much advice on the intricacies of MSA. We are grateful to three Glossa anonymous reviewers for many helpful and constructive comments; we are especially indebted to one of them, whose detailed, constructive suggestions transformed this paper and significantly improved it. All remaining errors and misconceptions are, of course, our own.

## Competing Interests

The authors have no competing interests to declare.

## References

- Alexiadou, Artemis, Elena Anagnostopoulou, Gianina Iordachioaia & Mihaela Marchis. 2010. No objections to backward control. In Maria Polinsky & Norbert Hornstein (eds.), *Movement theory of control*, 89–117. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/la.154.04ale>
- Alexiadou, Artemis, Elena Anagnostopoulou, Gianina Iordachioaia & Mihaela Marchis. 2012. In support of long distance agree. In Gereon Müller, Artemis Alexiadou & Tibor Kiss (eds.), *Local modeling of non-local dependencies*, 55–81. Tübingen: Niemeyer. DOI: <https://doi.org/10.1515/9783110294774.85>
- Alexiadou, Artemis, Elena Anagnostopoulou & Susi Wurmbrand. 2014. Movement vs. long distance agree in raising: Disappearing phases and feature valuation. In *Proceedings of the North Eastern Linguistics Society annual meeting* 43. 1–12.
- Al-Ghalayini, Mustafa. 2003. *za:miʃ l-duru:s l-ʃarabijja* [The collection of Arabic lessons] 2. Beirut: Dar Al-Kotob Al-ilmiyah.
- Alotaibi, Mansour & Robert D. Borsley. 2013. Gaps and resumptive pronouns in Modern Standard Arabic. In Stefan Müller (ed.), *Proceedings of the 20th international conference on HPSG*, 6–26. Stanford: CSLI Publications.
- Aoun, Joseph E., Elabbas Benmamoun & Lina Choueiri. 2010. *The syntax of Arabic*. Cambridge University Press.
- Arts, Tressy, Yonatan Belinkov, Nizar Habash, Adam Kilgarriff & Vit Suchomel. 2014. arTenTen: Arabic corpus and word sketches. *Journal of King Saud University – Computer and Information Sciences* 26(4). 357–371. <http://www.sciencedirect.com/science/article/pii/S1319157814000330>. DOI: <https://doi.org/10.1016/j.jksuci.2014.06.009>
- Badawi, El Said, Michael Carter & Adrian Gully. 2004. *Modern written Arabic: A comprehensive grammar*. Routledge.
- Boeckx, Cedric & Norbert Hornstein. 2004. Movement under control. *Linguistic Inquiry* 35(3). 431–452. DOI: <https://doi.org/10.1162/0024389041402625>
- Cantarino, Vicente. 1976. *Syntax of modern Arabic prose* 3. Bloomington: Indiana University Press.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Cinque, Guglielmo. 2006. *Restructuring and functional heads: The cartography of syntactic structures*. Oxford: Oxford University Press.
- Dobrovie-Sorin, Carmen. 2001. Head-to-head merge in Balkan subjunctives and locality. In María Luisa Rivero & Angela Ralli (eds.), *Comparative syntax of Balkan languages*, 44–73. Oxford: Oxford University Press.
- Farkas, Donka. 1992. On obviation. In Ivan A. Sag & Anna Szabolcsi (eds.), *Lexical matters*, 85–109. Stanford University: CSLI.
- Fassi Fehri, Abdelkader. 1993. *Issues in the structure of Arabic clauses and words*. Dordrecht: Kluwer.
- Grano, Thomas. 2015. *Control and restructuring*. Oxford: Oxford University Press. (Oxford Studies in Theoretical Linguistics series). DOI: <https://doi.org/10.1093/acprof:oso/9780198703921.001.0001>
- Habash, Nizar & Owen Rambow. 2005. Arabic tokenization, part-of-speech tagging and morphological disambiguation in one fell swoop. In *Proceedings of the 43rd annual meeting of the association for computational linguistics (ACL'05)*, 573–580. Ann Arbor,

- MI: Association for Computational Linguistics. <http://www.aclweb.org/anthology/P/P05/P05-1071>.
- Habash, Nizar, Owen Rambow & Ryan Roth. 2009. MADA + TOKAN: A toolkit for Arabic tokenization, diacritization, morphological disambiguation, POS tagging, stemming and lemmatization. In Khalid Choukri & Bente Maegaard (eds.), *Proceedings of the second international conference on Arabic language resources and tools*. The MEDAR Consortium.
- Habib, Rania. 2009. The syntax of the Standard Arabic *ʔan* and *ʔanna*. In Kleantes K. Grohmann & Phoebos Panagiotidis (eds.), *Selected papers from the 2006 Cyprus syntaxfest*, 159–194.
- Hacquard, Valentine. 2006. *Aspects of modality*. Cambridge, MA: Massachusetts Institute of Technology dissertation.
- Haddad, Youssef A. 2012. Raising in Standard Arabic: Backward, forward, and none. In Reem Bassiouney & E. Graham Katz (eds.), *Arabic language and linguistics*, 61–78. Washington, DC: Georgetown University Press.
- Herbeck, Peter. 2014. (Backward) control and clitic climbing. In Kate Bellamy, Martin Kohlberger & Eleanor Dutton (eds.), *ConSOLE XXI: Proceedings of the 21st conference of the student organization of linguistics in Europe*, 123–145.
- Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30(1). 69–96. DOI: <https://doi.org/10.1162/002438999553968>
- Kilgarriff, Adam, Pavel Rychly, Pavel Smrz & David Tugwell. 2004. The Sketch Engine. In *Proceedings of EURALEX*, 105–116.
- Landau, Idan. 2000. *Elements of control: Structure and meaning in infinitival constructions*. Dordrecht: Kluwer Academic Publishers. DOI: <https://doi.org/10.1007/978-94-011-3943-4>
- Landau, Idan. 2003. Movement out of control. *Linguistic Inquiry* 34(3). 471–498. DOI: <https://doi.org/10.1162/002438903322247560>
- Landau, Idan. 2004. The scale of finiteness and the calculus of control. *Natural Language and Linguistic Theory* 22(4). 811–877. DOI: <https://doi.org/10.1007/s11049-004-4265-5>
- Landau, Idan. 2007. Movement-resistant aspects of control. In William D. Davies & Stanley Dubinsky (eds.), *New horizons in the analysis of control and raising*, 293–325. Springer. DOI: [https://doi.org/10.1007/978-1-4020-6176-9\\_14](https://doi.org/10.1007/978-1-4020-6176-9_14)
- Landau, Idan. 2013. *Control in generative grammar: A research companion*. Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9781139061858>
- Landau, Idan. 2015. *A two-tiered theory of control*. Cambridge, MA: MIT Press. DOI: <https://doi.org/10.7551/mitpress/9780262028851.001.0001>
- Mohammad, Mohammad A. 2000. *Word order, agreement, and pronominalization in Standard and Palestinian Arabic*. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/cilt.181>
- Ordóñez, Francisco. 2017. Verbal complex formation and overt subjects in infinitivals in Spanish. Unpublished Ms.
- Persson, Maria. 2002. *Sentential object complements in Modern Standard Arabic 2*. (Studia Orientalia Lundensia. Nova Series). Stockholm: Almqvist & Wiksell.
- Polinsky, Maria & Eric Potsdam. 2002. Backward control. *Linguistic Inquiry* 33(2). 245–282. DOI: <https://doi.org/10.1162/002438902317406713>
- Polinsky, Maria & Eric Potsdam. 2006. Expanding the scope of control and raising. *Syntax* 9(2). 171–192. DOI: <https://doi.org/10.1111/j.1467-9612.2006.00090.x>
- Roussou, Anna. 2009. In the mood for control. *Lingua* 119(12). 1811–1836. DOI: <https://doi.org/10.1016/j.lingua.2008.11.010>

- Ryding, Karin C. 2005. *A reference grammar of Modern Standard Arabic*. Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9780511486975>
- Terzi, Arhonto. 1992. *PRO in finite clauses: A study of the inflectional heads of the Balkan languages*. New York, NY: City University of New York dissertation.
- Varlokosta, Spyridoula. 1993. Control in Modern Greek. In *University of Maryland working papers in linguistics* 1. 144–163. College Park, MD: University of Maryland, Linguistics Department.
- Wright, William. 2007. *A grammar of the Arabic language*. New York: Simon Wallenberg.
- Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin: Mouton de Gruyter.
- Wurmbrand, Susi. 2004. Two types of restructuring—lexical vs. functional. *Lingua* 114(8). 991–1014. DOI: [https://doi.org/10.1016/S0024-3841\(03\)00102-5](https://doi.org/10.1016/S0024-3841(03)00102-5)
- Wurmbrand, Susi. 2013. QR and selection: Covert evidence for phasehood. In Stefan Keine & Shayne Sloggett (eds.), *Proceedings of the North Eastern Linguistics Society annual meeting* 42. 619–632. Amherst, MA: University of Massachusetts.
- Wurmbrand, Susi. 2015. Complex predicate formation via voice incorporation. In Léa Nash & Pollet Samvelian (eds.), *Approaches to complex predicates*, 248–290. Leiden: Brill. DOI: [https://doi.org/10.1163/9789004307094\\_010](https://doi.org/10.1163/9789004307094_010)
- Wurmbrand, Susi & Youssef A. Haddad. 2016. Cyclic spell-out derived agreement in Arabic raising constructions. In Youssef A. Haddad & Eric Potsdam (eds.), *Perspectives on Arabic linguistics XXVIII: Papers from the annual symposium on Arabic linguistics, Gainesville, Florida, 2014*, 193–228. Amsterdam/Philadelphia: John Benjamins Publishing Company. DOI: <https://doi.org/10.1075/sal.4.09wur>

**How to cite this article:** Arad Greshler, Tali, Nurit Melnik and Shuly Wintner. 2017. Seeking control in Modern Standard Arabic. *Glossa: a journal of general linguistics* 2(1): 90.1–41, DOI: <https://doi.org/10.5334/gjgl.295>

**Submitted:** 14 November 2016    **Accepted:** 15 May 2017    **Published:** 09 October 2017

**Copyright:** © 2017 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.

 *Glossa: a journal of general linguistics* is a peer-reviewed open access journal published by Ubiquity Press.

OPEN ACCESS 