Backward control in Modern Standard Arabic

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Abstract

This paper is the third in a series of papers dedicated to the investigation of subjunctive complement clauses in Modern Standard Arabic. It began with Arad Greshler et al.'s (2016) search for obligatory control predicates in the language and continued with Arad Greshler et al.'s (2017) empirical and theoretical investigation of the backward control construction. In this paper we show that Arad Greshler et al.'s (2017) findings and ultimate analysis, which is cast in a transformational framework, can be straightforwardly formalized using the existing principles and tools of HPSG. Our proposed analysis accounts for all the patterns attested with subjunctive complement clauses in Modern Standard Arabic, including instances of control and no-control.

1 Introduction

Subjunctive complement clauses in Modern Standard Arabic (MSA) are used in contexts where English (and other languages) uses the infinitives. However, unlike English infinitivals, subjunctives in MSA exhibit agreement. Moreover, they alternate between control interpretations, where the matrix subject and the embedded subject share reference, and no-control interpretations, where they have disjoint reference. A corpus-based investigation conducted by Arad Greshler et al. (2016) (henceforth AHMW) revealed that there are no obligatory control (OC) predicates in MSA. Consequently, they propose a uniform *pro*-drop based analysis of control and no-control. The analysis accounts for all patterns, except one – backward control – which exhibits a surprising agreement pattern. AHMW explain the discrepancy by suggesting that this construction may involve extra-grammatical factors.

Arad Greshler et al. (2017) propose an alternative account of the backward control construction, which builds on new corpus findings regarding the types of predicates which are licensed in this construction. They propose that these predicates can optionally form complex predicates with the embedded subjunctives. When this occurs, the complex predicate exhibits the regular agreement patterns associated with VSO and SVO clauses in MSA.

The focus of Arad Greshler et al. (2017) is mostly on the implications of this construction in the context of the current debate in the transformational literature regarding the theory of control (e.g., Hornstein, 1999; Landau, 2007). Consequently, they propose a possible formalization of their account in a transformational framework. The current paper takes the previous research further by proposing an HPSG analysis of the data. We show that the insights of Arad Greshler et al. (2017) can be straightforwardly formalized using the existing principles and tools of HPSG to account for all the patterns attested with subjunctive complement clauses in MSA.

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2 Background

Modern Standard Arabic is a *pro*-drop language whose unmarked word order is VSO, yet SVO order is also available. The two word orders differ in their agreement patterns. VSO clauses exhibit partial subject–verb agreement, where the verb agrees with its subject in gender and person, yet its number is invariably singular (1a). SVO clauses, on the other hand, exhibit full subject–verb agreement and therefore the verb bears plural agreement when it has a plural subject (1b). The full/partial agreement distinction is only discernable with plural human subjects. Plural inanimate subjects always trigger singular-feminine agreement.

(1) a. qaraʔat t$^{\text{ʕ}}$-t$^{\text{ʕ}}$aalibaat-u l-kitaab-a.
read.3SF the-students.PF-NOM the-book-ACC
'The female students read the book.'

b. ʔat$^{\text{ʕ}}$-t$^{\text{ʕ}}$aalibaat-u qaraʔna l-kitaab-a.
the-students.PF-NOM read.3PF the-book-ACC
'The female students read the book.'

Pro-dropped subjects trigger full agreement on the verb, as demonstrated in (2).

(2) qaraʔat l-kitaab-a.
read.3SF the-book-ACC
'She read the book.' (Not: 'They read the book.')

MSA subjunctive complement clauses are preceded by the particle *ʔan* and are obligatorily verb-initial. They typically resemble complements of control constructions in English (and other languages), where an unexpressed subject is controlled by a matrix argument. However, the agreement marking on the subjunctive verb reveals the agreement properties of the intended subject. In (3a) the subjunctive *yaktuba* '*write*' exhibits 3SM agreement. Consequently, the understood embedded subject can be construed as the matrix subject (*control*) or as a different singular–masculine referent (*no-control*). The control and no-control interpretations are also possible in the backward pattern illustrated in (3b), where the subject appears in the embedded clause.

(3) a. ħaawala muħammad-un [ʔan yaktuba maqaal-an].
tried.3SM Muhammad-NOM(M) AN write.3SM.SBJ article-ACC
'Muhammad tried to write an article.'
'Muhammad$_i$ tried that he$_j$ would write an article.'

b. ħaawala [ʔan yaktuba muħammad-un maqaal-an].
tried.3SM(M) AN write.3SM.SBJ Muhammad-NOM(M) article-ACC
'Muhammad tried to write an article.'
'He tried that Muhammad would write an article.'

In addition, embedded subjunctives may exhibit agreement properties distinct from the matrix predicate. In (4) the embedded subject is optional but control is impossible due to the agreement mismatch (matrix 3SM and embedded 3SF).

(4) ħaawala muħammad-un [ʔan taktuba (hind-un)
tried.3SM Muhammad-NOM(M) AN write.3SF-SBJ (Hind-NOM(F))
maqaal-an].
article-ACC
'Muhammad tried that Hind/she would write an article.'

3 Subjunctive reference patterns in MSA

AHMW conducted a corpus-based investigation with the goal of finding whether all *ʔan*-clause selecting predicates allow for both control and no-control between the two subjects, or whether there are OC predicates. They used the 115-million-token sample of the *arTenTen* corpus of Arabic (Arts et al., 2014), which has been tokenized, lemmatized and part-of-speech tagged with MADA (Habash & Rambow, 2005; Habash et al., 2009) and installed in the Sketch Engine (Kilgarriff et al., 2004).

The corpus investigation led AHMW to conclude that there are no OC predicates in MSA. They found evidence for control and no-control with various types of predicates: volitionals, implicatives, manipulatives, modals, and aspectuals. These findings echo Habib (2009), who claims that there are no "real" control predicates in MSA. They do constitute, however, counterexamples to the generalization made by Landau (2013, p.106), who predicts that "[t]here cannot be a language where modal, aspectual and implicative verbs or evaluative adjectives allow an uncontrolled complement subject", provided that the embedded predicate exhibit morphological agreement.

Under the assumption that there is no OC in MSA, AHMW argue for one structure for all cases, namely, a no-control structure (Figure 1).[1] Constructions with *ʔan* complement clauses are structures with two independent subjects. The omission of a subject in either clause is due to the *pro*-drop property of MSA; each of the clauses, the matrix clause and the embedded clause, can either have an overt subject or a *pro*-dropped subject. There are no constraints on the agreement relations between the two predicates, and therefore they do not need to match. What resembles subject control is in actuality co-indexation at the semantico-pragmatic level.

One pattern proved problematic for this analysis. The simple example of the backward pattern in (3b) masks a more complex agreement pattern which is only discernable with plural human subjects, for which agreement varies depending on

[1]Note that the NP/$pro_{[nom]}$ node is an abbreviated notation to indicate the possibility of either using a lexical NP or *pro*-dropped subject and does not imply the existence of empty categories in syntax.

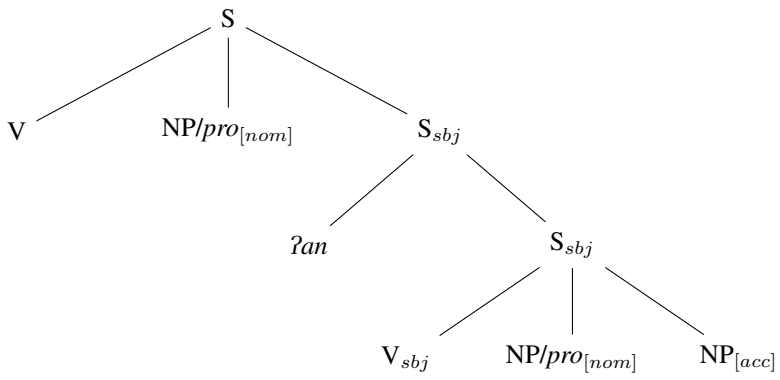

Figure 1: A no-control analysis

the position of the subject relative to the verb. AHMW found that when the embedded subject is both human and plural the matrix verb exhibits partial agreement (i.e., only in gender and person) with the subject (5).

(5) ħaawalat [ʔan taktuba l-banaat-u maqaal-an].
tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
'The girls tried to write an article.'

This is unexpected under the *pro*-drop analysis. *Pro* subjects are assumed to trigger full agreement on their predicates. If so then it is not clear how a 3SF *pro* matrix subject can co-refers with the plural embedded subject.

AHMW conclude that there is no evidence for the existence of OC predicates in MSA. A one-structure *pro*-drop analysis accounts for most of the data, with the exception of the agreement pattern attested in the backward construction (5). They suggest that the use of partial agreement in this pattern is motivated by analogy to the partial subject–verb agreement found in simple VSO clauses, and that the integration of this construction into the theory requires some additional assumptions, which may involve extra-grammatical factors, possibly related to the non-native status of MSA.[2]

4 The distribution of backward control

An alternative account of the backward control construction illustrated in (5) is proposed by Arad Greshler et al. (2017). They begin by conducting more focused corpus investigations of the backward pattern. First, they consider whether it is indeed the case that there are no instances of full agreement when the subject is expressed in the embedded clause. Moreover, they extend the range of predicates

[2]MSA is the literary standard of the Arab world, but it is acquired in school. The mother tongue of its speakers is some regional dialect of Arabic.

examined by AHMW to investigate whether all predicates are compatible with backward control.

With regards to agreement, contrary to AHMW, Arad Greshler et al. (2017) found instances of full agreement on the matrix predicate. However, unlike a similar raising construction discussed by Wurmbrand & Haddad (2016), whose matrix predicates alternate between full and partial agreement with no change in meaning, the difference in the agreement marking was found to affect the interpretation of the two variations. When the embedded subject is plural and human and the matrix predicate exhibits partial agreement with it the sentence is ambiguous (6a). The unexpressed matrix subject can be construed as the embedded subject (control) or as a singular-feminine referent (no-control). When the matrix predicate is plural, there is only one no-control interpretation (6b).

(6) a. ħaawalat$_{i/j}$ [ʔan taktuba l-banaat-u$_i$ maqaal-an].
tried.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
'The girls tried to write an article.'
'She$_j$ tried that the girls$_i$ would write an article.'

b. ħaawalna$_{*i/j}$ [ʔan taktuba l-banaat-u$_i$ maqaal-an].
tried.3PF AN write.3SF.SBJ the-girls-NOM article-ACC
'They$_j$ tried that the girls$_i$ would write an article.'
Not: 'The girls tried to write an article.'

The control interpretation licensed by the backward pattern in (6a) was found to occur only with a subset of the *ʔan*-clause-taking predicates in MSA, which we will refer to as 'backward control predicates' (BC predicates). A corpus investigation limited to cases with plural animate subjects revealed instances of backward control with volitionals, implicatives, modals and aspectuals. No instances of backward control were found with the following predicates: *qarrara* '*decide*', *xaʃiya* '*fear*', *rafadˁa* '*refuse*', *tarradada* '*hesitate*', and *ʔiqtaraħa* '*propose*'. With these predicates, structures such as the one illustrated with a BC predicate in (6a) are unambiguous, with only a disjoint reference reading available (7).

(7) qarrarat$_{*i/j}$ [ʔan taktuba l-banaat-u$_i$ maqaal-an].
decided.3SF AN write.3SF.SBJ the-girls-NOM article-ACC
'She decided that the girls would write an article.'
Not: 'The girls decided to write an article.'

Unlike the backward pattern, the agreement patterns in the forward pattern are straightforward. The type of agreement exhibited by the matrix predicate depends on its position relative to its subject: partial agreement with post-verbal subjects (8a) and full agreement with pre-verbal subject (8b). The embedded predicate invariably exhibits full agreement with its construed subject. Moreover, the two interpretations (control/no-control) are always possible, regardless of the predicate type.

(8) a. ħaawalat l-banaat-u$_i$ [ʔan yaktubna$_{i/j}$ maqaal-an].
decided.3SF the-girls-NOM AN write.3PF.SBJ article-ACC

b. l-banaat-u$_i$ ħaawalna [ʔan yaktubna$_{i/j}$ maqaal-an].
the-girls-NOM decided.3PF AN write.3PF.SBJ article-ACC

'The girls tried to write an article.'
'The girls$_j$ tried that they$_i$ would write an article.'

A similar phenomenon is found in Modern Greek (MG), a language which shares a number of syntactic properties with MSA. Subjunctive complement clauses in MG fall into two categories: controlled-subjunctives (C-subjunctives), which enforce control between the matrix and embedded subject, and free-subjunctives (F-subjunctives), which, like in MSA, allow for both control and no-control. Also similarly to MSA, in both types of constructions the subject can be expressed either in the matrix clause or the embedded clause, yet the backward pattern with F-subjunctives is more restricted.

With C-subjunctives a control interpretation is the only option regardless of the position of the subject. With F-subjunctives, on the other hand, the forward pattern in (9a) is ambiguous between control and no-control, but in the backward pattern (9b) the embedded subject cannot be controlled by the matrix subject (Alexiadou et al., 2010, ex. 39). This is similar to the MSA data in (6b).

(9) a. o Janis$_i$ elpizi [na fai pro$_{i/j}$ to tiri].
John-NOM hopes subj eats pro the cheese
'John hopes to eat the cheese.'
'John$_i$ hopes that he$_j$ will eat the cheese.'

b. pro$_{*i/j}$ elpizi [na fai o Janis$_i$ to tiri].
pro hopes subj eats John-NOM the cheese
'He hopes that John will eat the cheese.'
Not: 'John hopes to eat the cheese.'

Alexiadou et al. (2010) propose a *pro*-drop analysis for F-subjunctives, similar in spirit to the one proposed by AHMW. Consequently, they attribute the impossibility of coreference in (9b) to Principle C. The embedded referential subject, *Janis*, cannot be bound by the matrix *pro* subject. The fact that there is no Principle C effect in the case of C-subjunctives is taken by Alexiadou et al. (2010) as evidence that control with these predicates does not involve a *pro*-dropped subject.

The similarity between MSA and MG is even greater when the types of predicates which are licensed by the different constructions are considered. Landau (2004) argues that the predicates which select C-subjunctives in MG belong to a category of predicates which cross-linguistically select *semantically untensed* complements, and include the implicatives, aspectuals, modals, and evaluative adjectives. Predicates which select F-subjunctives, on the other hand, are those which select *semantically tensed* complements (factives, propositional, desiderative, and interrogatives). Arad Greshler et al.'s (2017) corpus investigations reveal that the

predicates which are licensed in backward control in MSA belong to the same category as those which select C-subjunctives in MG. Thus, although contrary to Landau's (2013) prediction AHMW found that they are not OC predicates, the association between this category and backward control in MSA cannot be coincidental.

5 Complex predicates and control

Complex predicates is a term that is used to describe a situation whereby two (or more) predicates function as a unit in a monoclausal structure. This is also referred to as 'restructuring' in the context of infinitival complements in Germanic and Romance languages (Wurmbrand, 2001). Roussou (2009) proposes a conceptually similar analysis for subjunctive complements in MG which she refers to as 'clause-union'. She argues that since C-subjunctives lack semantic tense they do not constitute an independent event. Consequently, they trigger clause-union with their selecting predicate and "event composition leads to composition of argument structure as well" (Roussou, 2009, p.1827). F-subjunctives, on the other hand, do not trigger clause-union. A similar proposal is made by Grano (2015).

Arad Greshler et al. (2017) list a number of properties exhibited by backward control in MSA which motivate a complex-predicate analysis. First, the predicates which are licensed in this construction belong to the same category as those which select C-subjunctives in MG. Similarly to the MG predicates, the embedded clauses of these predicates cannot be temporally modified independently from the matrix clause. Having only one tense associated with a construction suggests a monoclausal structure. Second, there are strict adjacency conditions with respect to the linear position of the selecting predicate, *ʔan*, and the subjunctive. Finally, by proposing that the backward control construction has a monoclausal structure the partial agreement on the matrix predicate (as well as the embedded predicate) is expected since the two predicates precede their (shared) subject.

Arad Greshler et al. (2017) propose a possible formalization of their analysis in a transformation-based framework. Their point of departure is Habib's (2009) no-control analysis, which they adapt to account for backward control. In this particular framework, restructuring (or complex predicate formation) is derived by head-to-head movement and incorporation. In their analysis backward control is derived by the BC predicate "attracting" the subjunctive verbal complex, which then moves and incorporates with it. In the following section we adopt the conceptual insights of Arad Greshler et al. (2017) and formalize them within the HPSG framework.

6 Analysis

We propose that all *ʔan*-clause-taking predicates in MSA are lexically specified as verbs which take subjunctive clauses as complements. An additional lexical rule

relates BC predicates, which constitute a subset of these verbs, to verbs which combine with subjunctive verbs to form complex predicates. With the two alternations, we are in a position to account for all the patterns attested with *ʔan* complement clauses.

Let us begin with the more general case, which applies to all *ʔan*-clause-taking predicates. As an example, consider the abbreviated description of the lexical entry of the verb *ħaawala* '*try*' in (10).

(10)
$$\left[\begin{array}{l} \text{CAT} \mid \text{VAL} \left[\begin{array}{l} \text{SUBJ} \left\langle \boxed{1}\text{NP}\ \boxed{2} \right\rangle \\ \text{COMPS} \left\langle \text{V} \left[\begin{array}{l} \text{MARKING } \textit{sbj} \\ \text{CAT} \mid \text{VAL} \left[\begin{array}{l} \text{SUBJ} \langle\rangle \\ \text{COMPS} \langle\rangle \end{array}\right] \\ \text{CONT } \boxed{3} \end{array}\right] \right\rangle \end{array}\right] \\ \text{CONT} \left[\begin{array}{l} \textit{try-rel} \\ \text{ACT } \boxed{2} \\ \text{SOA-REL } \boxed{3} \end{array}\right] \end{array}\right]$$

The embedding verb *ħaawala* '*try*' selects an NP as subject and a *sbj*-marked fully saturated clause as complement. The fully instantiated semantic relation denoted by the embedded clause (tagged 3) is projected as a semantic argument in the relation denoted by the embedding predicate. Importantly, each verb select for its own syntactic arguments.

The combination of such predicates with their arguments is licensed by a no-control construction, similar to the one proposed by AHMW (see sketch in Figure 1). The analysis of the forward pattern in (8a) is illustrated in Figure 2. In this pattern the matrix predicate combines with its subject and clausal complement in a *head-subj-comp-phrase* phrase type. The complement clause is headed by a subjunctive verb *yaktubna* '*write*', which combines with the subjunctive marker *ʔan* to produce a *head-marker* phrase. The marked subjunctive combines with its complement in a *head-comp-phrase* configuration. Its subject, however, is not realized syntactically, since it is *pro*-dropped. The analysis of *pro*-drop adopted here builds on the disassociation between ARG-ST and VALENCE; the least oblique argument in ARG-ST is not mapped to a VALENCE slot, yet remains in ARG-ST as a personal pronoun *ppro* and contributes its 3PF index features to the semantic relation denoted by the verb (Ginzburg & Sag, 2000).

The no-control construction in Figure 2 does not impose constraints on the agreement relations between the two predicates, and therefore they do not need to match. When their agreement properties are compatible a control interpretation is possible but not obligatory. What resembles subject control is in actuality co-indexation at the semantico-pragmatic level. Thus, the two readings of example (8a), namely control and no-control, are licensed by the same structure.

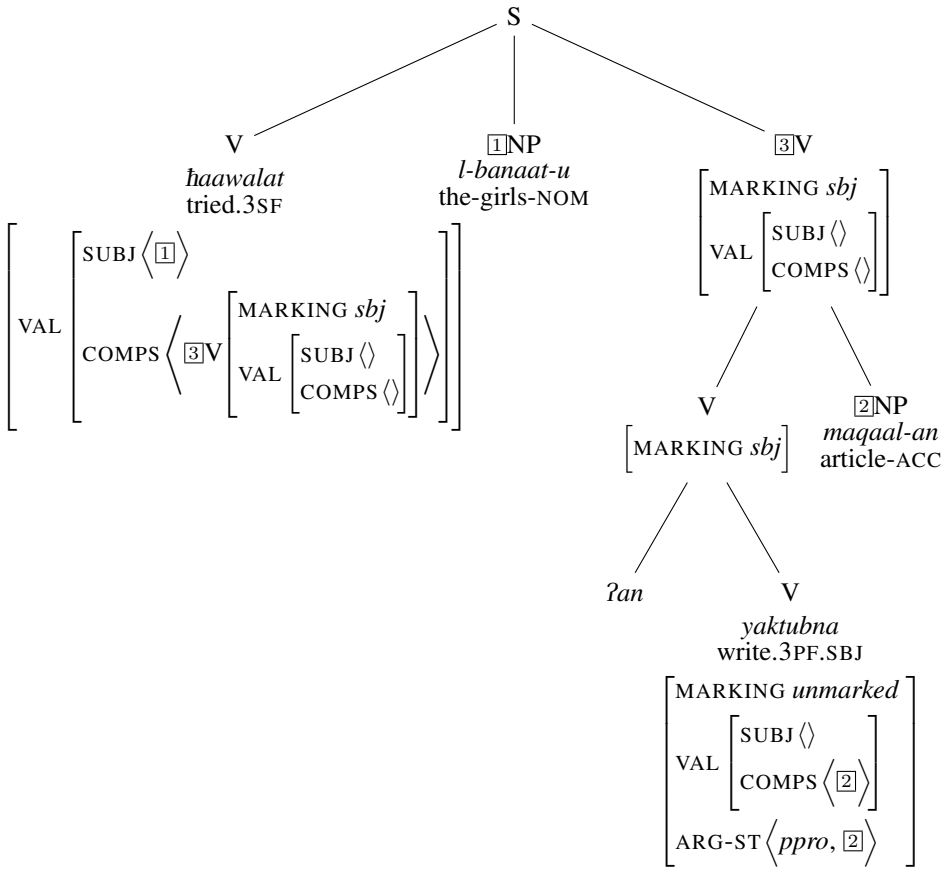

Figure 2: No control - the forward pattern

This is not the case with the backward pattern. Although, similarly to the forward pattern in (8a), the backward pattern in (6a) is ambiguous, we propose that each reading in the backward pattern is associated with a distinct syntactic structure. The no-control interpretation is licensed by the no-control structure in its backward pattern realization (Figure 3).

The embedded subjunctive predicate *taktuba* '*write*' combines with the particle *ʔan* to produce a *head-marker* phrase. The marked subjunctive then combines with its subject and complement in a *head-subj-comp-phrase* configuration. This clause satisfies the COMPS requirement of the embedding predicate *ħaawala* '*try*', and thus their combination is licensed by a *head-comp-phrase* phrase type. Similarly to the embedded verb in the forward pattern (Figure 2), the *pro*-dropped subject of the matrix verb is not realized syntactically, yet it appears as the least oblique item on the ARG-ST list. With no SUBJ requirements to fulfill, the combination of the matrix verb with its complement produces a fully saturated (independent) clause.

The only interpretation that is possible for the structure in Figure 3 is one with two distinct subjects: the 3PF embedded subject *l-banaat-u* '*the-girls*' and a 3SF

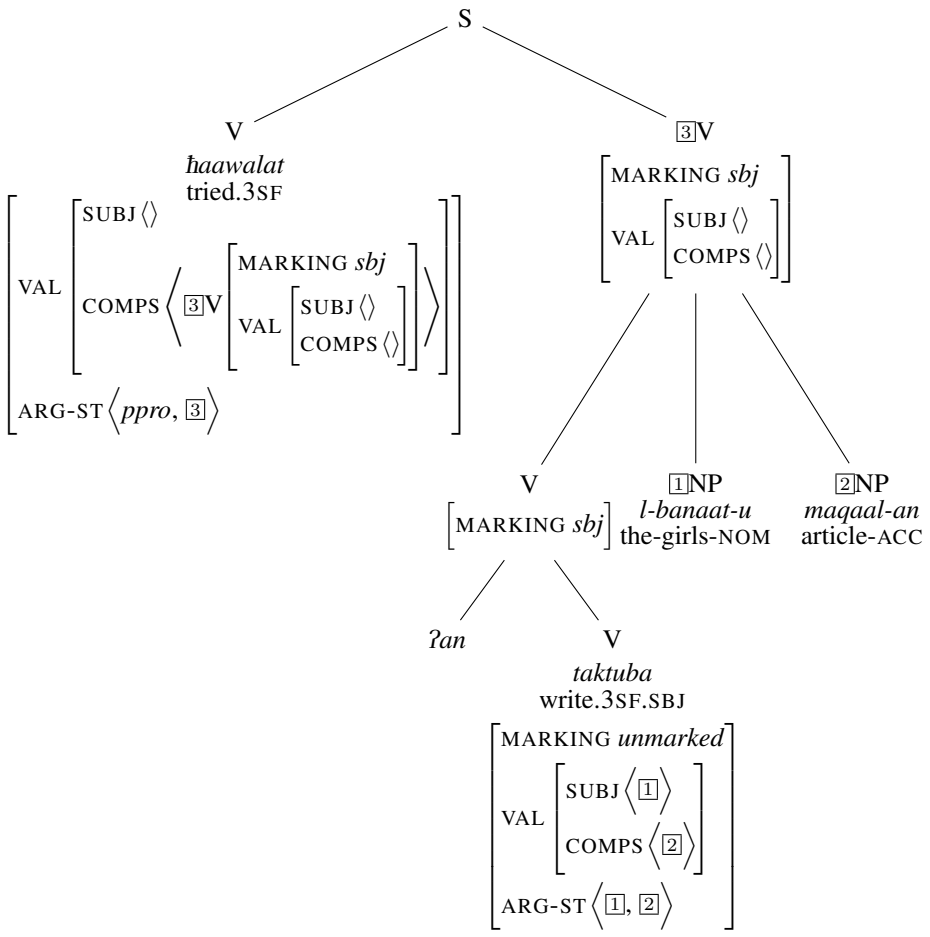

Figure 3: No control - the backward pattern

pronoun, as is determined by the agreement marking on the matrix verb. However, as was illustrated by (6b), when the agreement properties of the embedded subject and the matrix verb match a control interpretation is still not licensed. Following Alexiadou et al. (2010), we explain the unavailability of the coreference reading in (6b) by invoking Principle C, which bars a nonpronominal from being co-indexed with an o-commanding expression. In the HPSG binding theory, as it is formulated in Pollard & Sag (1994, sec. 6.8.3), o-command relations are defined recursively: the least oblique element of the matrix verb's ARG-ST list o-commands all the rest of the list's elements, as well as all the elements in their respective ARG-ST list. Thus, in Figure 3, *ppro*, the least oblique element of the ARG-ST of *ħaawalat* '*tried*', o-commands the two elements in the ARG-ST of the complement clause, namely *l-banaat-u* '*the-girls*' and *maqaal-an* '*article*'. Principle C, then, prevents the co-indexation of a *pro*-dropped matrix subject with the embedded subject.

The no-control construction can account for all the attested patterns but one:

backward control. Recall that AHMW attribute the licensing of the control reading of (8a) to extra grammatical factors. We assume, following Arad Greshler et al.'s (2017), that the backward control reading is licensed by a complex predicate. We follow previous HPSG analyses of complex predicates that have been used to account for phenomena in diverse languages (e.g., Hinrichs & Nakazawa, 1990; Abeillé et al., 1998; Monachesi, 1998; Müller, 2002, among others) and propose a similar analysis for backward control in MSA.

In addition to the no-control lexical types, which are described in (10), BC predicates can also optionally combine with marked subjunctive verbs (not clauses) to form a complex predicate. Consider the abbreviated description in (11) of the verb *ħaawala* '*try*' in its BC instantiation.

(11)
$$\left[\begin{array}{l}\text{CAT}\left[\begin{array}{l}\text{HEAD}\,|\,\text{AGR}\ \boxed{3}\\ \text{VAL}\left[\begin{array}{l}\text{SUBJ}\left\langle \boxed{1}\text{NP}\ \boxed{4}\right\rangle\\ \text{COMPS}\left\langle \text{V}\left[\begin{array}{l}\text{MARKING}\ \textit{sbj}\\ \text{CAT}\left[\begin{array}{l}\text{HEAD}\,|\,\text{AGR}\ \boxed{3}\\ \text{VAL}\left[\begin{array}{l}\text{SUBJ}\left\langle \boxed{1}\right\rangle\\ \text{COMPS}\ \boxed{2}\end{array}\right]\end{array}\right]\\ \text{CONT}\ \boxed{5}\left[\text{ACT}\ \boxed{4}\right]\end{array}\right]\right\rangle \oplus \boxed{2}\end{array}\right]\end{array}\right]\\ \text{CONT}\left[\begin{array}{l}\textit{try-rel}\\ \text{ACT}\ \boxed{4}\\ \text{SOA-REL}\ \boxed{5}\end{array}\right]\end{array}\right]$$

The embedding BC predicate selects as its complement a marked subjunctive verb with matching agreement properties. Moreover it "inherits" the SUBJ requirement of the subjunctive and also appends the subjunctive's COMPS list to its own. The referential index of the inherited subject, tagged [4], is structure-shared with the values of the semantic arguments in the relations denoted by each of the predicates, as is expected in a control construction. More concretely, the syntactic subject of the embedding predicate assumes the ACTOR role in *try-rel*, the semantic relation denoted by this predicate, as well as the semantic role assigned to it by the semantic relation denoted by the embedded verb. This captures the control-like interpretation of the backward pattern.

Figure 4 illustrates the analysis of the control reading of the backward pattern in (6a). In this construction, similarly to the no-control construction, the embedded subjunctive predicate *taktuba* '*write*' combines with the particle *ʔan* to produce a marked *head-marker* phrase. This phrase, tagged [4], is selected as complement by the matrix predicate, which, in turn, inherits the SUBJ requirement of the subjunctive ([1]) and concatenates the member of it COMPS list ([2]) to its own list.

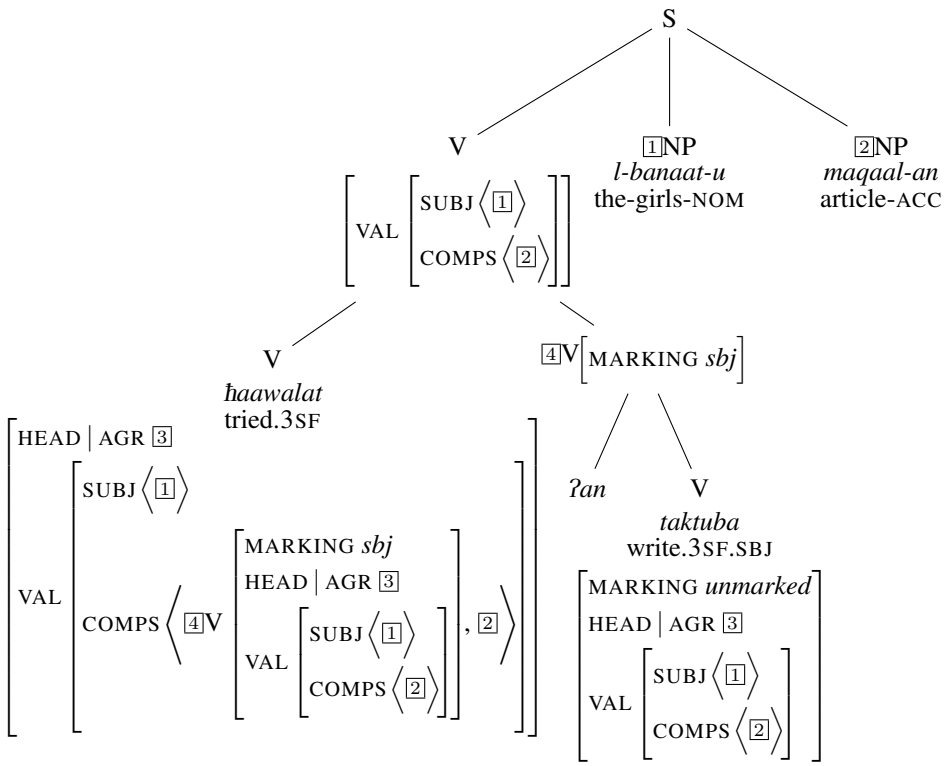

Figure 4: Backward control

The combination of the embedding verb with the marked subjunctive verb forms one inseparable syntactic unit (or complex head) with valence specifications that are identical to that of the embedded predicate.[3] As such, it can function similarly to a simple predicate. In Figure 4 it combines with its subject and complement to form a *head-subj-comp-phrase* phrase type, which is the unmarked option in MSA. The verbal complex in this case precedes its (shared) subject and consequently exhibits partial agreement with it.

An alternative clausal configuration in MSA is the marked SVO clause. This option, too, is available for complex predicates. An example sentence is given in (8b) above. To account for SVO structures in MSA we adopt Alotaibi & Borsley's (2013) proposal, which echoes the analysis proposed by traditional Arab grammarians. Under this account, in SVO structures what looks like a pre-verbal subject is in fact a topic which is associated with *pro* subject resumptive pronoun. The occurrence of a *pro* subject accounts for the full agreement exhibited by the verb.

Similarly to the simple SVO clause illustrated in (1b), in (8b) the verbal complex exhibits full agreement with the pre-verbal subject. Consequently, the forward

[3]The inseparability of this complex is supported by corpus searches which did not reveal instances of the backward coreference pattern with material intervening between the matrix predicate and *ʔan*.

pattern with the pre-verbal subject is compatible with both the complex-predicate analysis and the no-control. This, however, is not the case with the forward pattern in (8a), where the post-verbal matrix subject intervenes between the matrix verb and the *ʔan* complex, and the two verbs exhibit distinct agreement marking. This pattern can only be licensed by the no-control construction (Figure 3).

7 Conclusion

In this paper we proposed an HPSG analysis of subjunctive complement clauses in Modern Standard Arabic, with a special focus on one construction: backward control. This paper is the third in a series of papers dedicated to this topic. Initially, Arad Greshler et al. (2016) proposed a straightforward *pro*-drop based analysis of subjunctive complement clauses, which accounted for all the attested patterns except for backward control. In a subsequent paper Arad Greshler et al. (2017) reveal that only a subset of the verbs which take subjunctive clauses is licensed in the backward control construction. Moreoever, they find that this particular set of verbs has been associated cross-linguistically with biclausal-like structures which exhibit monoclausal properties. Consequently, they propose that alongside the *pro*-drop based construction MSA employs an additional mechanism – complex predication – which accounts for what was considered an exceptional agreement pattern by Arad Greshler et al. (2016).

The formal analysis proposed by Arad Greshler et al. (2017) is cast in a transformational framework and contributes to a theory-internal debate regarding the theory of control (e.g., Hornstein, 1999; Landau, 2007). In this paper, however, we show that abstracting away from the transformational mechanisms, the conceptual insights of Arad Greshler et al. (2017) can be straightforwardly formalized using the existing principles and tools of HPSG. Building on the HPSG analyses of *pro*-drop (Ginzburg & Sag, 2000), Binding Theory (Pollard & Sag, 1994) and complex predication (Hinrichs & Nakazawa, 1990) we account for all the patterns attested with subjunctive complement clauses in MSA, including instances of control and no-control.

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