An HPSG Approach to Free Relatives in Arabic[1]

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Summary. Modern Standard Arabic has two types of free relatives. One, introduced by the complementizer *ʔallaði*, looks just like a relative clause. The other, introduced by the elements *man* and *maa*, which also appear to be complementizers, does not look like a relative clause. Both types can be analysed as NPs consisting just of a CP. In *ʔallaði* free relatives, the NP and the value of SLASH can be coindexed via the value of MOD on the CP. In *man* and *maa* free relatives, the NP and the value of SLASH must be coindexed directly.

Keywords: Arabic, free relative clauses, *ʔallaði* free relatives, *man / maa* free relatives.

1. Introduction

Free relative constructions in Modern Standard Arabic (henceforth, MSA) involve two types: *ʔallaði* free relatives, which looks just a like a relative clauses, and *man / maa* free relatives, which looks rather different. There has been a limited amount discussion of free relatives within HPSG framework. Kim (2001), Lee (2001) and Wright & Kathol (2002) have proposed an HPSG analysis for free relatives in English. Müller (2002) has discussed free relatives in German and Borsley (2008) discusses free relatives in Welsh among other unbounded dependency constructions. The central question in these proposals is whether the initial *wh*-phrase is treated as the head, as the filler or as both. However, Arabic free relatives are introduced by a complementizer and not by a *wh*-phrase and hence are unlike those that the literature has focused on. In this paper, I will propose a unary-branching approach for Arabic free relatives which is somewhat like Müller's (2002) approach for German free relatives. However, the analysis developed here will be different form Müller's analysis since the properties of Arabic free relatives are different from those of German free relatives and many other languages.

2. Some basic data

Free relatives in MSA are unbounded dependency constructions which involve both gaps and resumptive clitics and involve three different free relative markers *ʔallaði*, *man* and *maa*. I gloss them as 'free relative markers' (FRM) pending discussion of their syntactic status. Free relatives in MSA can appear in the full set of NP positions. The following examples show that they can appear in subject position as in (1a) and (2a), in object position as in (1b) and (2b), in the prepositional object position as in (3a) and in possessor position as in (3b).

(1) a. jaaʔa [*llaði* faaza ___ fi l-musabaqat-i.]
came. 3.M.SG FRM.M.SG won.3.M.SG in the-competition-gen
'The one that won the competition came.'
b. raʔaytu [llati yuħib-**haa** Ali.]
saw.1.SG FRM.F.SG like.3.M.SG-3.F.SG Ali
'I saw the one (female) that Ali likes.'

(2) a. ħadaθaa [*maa* ʔaxšaa-**hu**.]
happened.3.M.SG FRM fear.1.SG-3.M.SG .
'The thing which I fear happened

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b. šahadtu [*maa* ħadaθa ___ l-baariħata.]
witnessed.1.SG FRM happened.3.M.SG yesterday
'I witnessed what happened.'

(3) a. taħdaθtu maʕa [*man* taħdaθta mʕa-**hu**.]
spoke.1.SG with FRM spoke.2.M.SG with-3.M.SG
'I spoke with the one that / who you spoke with.'
b. ʔimtalaktu qalba [man ʔuħib__.]
posessed.1.SG heart FRM love.1.SG
'I possessed the heart of the one who I love.'

The markers *man* and *maa* are invariant but *ʔallaði* is inflected for number, gender and sometimes for case as the following table illustrates.

	Masculine	Feminine
Singular	*ʔallaði*	*ʔallati*
Dual- NOM	*ʔallaðaani*	*ʔallataani*
Dual- ACC/GEN	*ʔallaðayni*	*ʔallatayni*
Plural	*ʔallaðiina*	*ʔallaati-allawaati*

Table 1: Forms of ʔallaði

This might suggest that *ʔallaði* is a kind of *wh*-pronoun. However, I will argue in section 3 that the free relative markers: *ʔallaði*, *man* and *maa* are complementizers and not a kind of *wh*-pronouns.

The various forms of the relative marker *ʔallaði* and its various forms also appear in ordinary relative clauses modifying an NP. In fact, there are two types of restrictive relative clauses: restrictive relatives with a definite relativized antecedent (definite relatives) as in (4a) and restrictive relatives with an indefinite relativized antecedent (indefinite relatives) [2] as in (4b). (see. Aoun et al., 2010; Alqurashi and Borsley, 2012). The markers *man* and *maa* do not appear in relative clauses. The following examples illustrate.

(4) a. raʔaytu l-fatat-a [llati ʔuħib-**ha**.]
saw.1.SG the-girl-ACC RM.F.SG like.1.SG-3.F.SG
'I saw the girl that I like'
b. raʔaytu fatatt-an [ʔuħib-**ha**.]
saw.1.SG girl-ACC like.1.SG-3.F.SG
'I saw a girl that I like'

(5) *raʔaytu l-fatat-a [man ʔuħib-**ha**.]
saw.1.SG the-girl-ACC FRM.F.SG like.1.SG-3.F.SG
'I saw the girl who I like.'

(6) *šahadtu l-šayʔ-a [maa ħadaθa.]
witnessed.1.SG the-thing-ACC FRM happened.3.M.SG
'I witnessed the thing which happened.'

The feminine masculine form *ʔallati* in (4a) agrees with the antecedent *l-fatat-a* and with the clitic *ha* in number and gender. In free relatives the relative markers *ʔallaði* and its various forms, *man* and *maa* agree in number and gender with the cilitic or the gap inside the relative clause. This can be identified either by the verb inside the relative clause where a gap is involved or by the cilitic where a resumptive cilitic is involved as shown in (1-3) above.

There is a semantic difference between the three free relative markers *ʔallaði* , *man* and *maa*. *Man* and *maa* have certain restrictions in their reference. The former is used in free relative clauses that refer to animate entities whereas the latter is used in free relative clauses that refer to

[2] The indefinite relatives are bare clauses modifying an indefinite antecedent in which *ʔallaði* does not appear. (see Alqurashi and Borsley, 2012).

inanimate entities. *ʔallaði*, on the hand, can be associated with both animate and inanimate entities and hence it can replace *man* and *maa*.

A further matter that we should consider here is whether Arabic free relatives can be extraposed like German, for example, (see Müller 2002). A first glance at the Arabic free relative example in (7) below might suggest that they can be extraposed. The free relative clause in the following example appears in final position although it is understood to be in subject position.

(7) jaaʔa ʔila l-lbayti [*llaði* ušbihhu ʔaba-**hu**.]
came.3.M.SG to the-house-GEN FRM.M.SG looks like.3.M.SG father-3.M.SG
'The boy that looks like his father came to the house.'

In fact, it seems that what we have here is not extraposition, but rather an example of a complex subject occupying a non canonical position. This is supported by the fact that Arabic free relatives look like ordinary relative clause modifying nominal which can appear in the same position.

(8) jaaʔa ʔila l-lbayti [l-walad-u *llaði* ušbihhu ʔaba-**hu**.]
came.3.M.SG to the-house-GEN the-boy-NOM RM.M.SG looks like.3.M.SG father-3.M.SG
'The boy that looks like his father came to the house.'

Moreover, Arabic relative clauses cannot be extraposed as the following example illustrates:

(9) *jaaʔa [l-walad-u] ʔila l-lbayti [*llaði* ušbihhu ʔaba-**hu**.]
came.3.M.SG the-boy-NOM to the-house-GEN RM.M.SG looks like.3.M.SG father-3.M.SG
'The boy that looks like his father came to the house.'

If restrictive relatives cannot be extraposed as shown in (9), then we can conclude that Arabic free relative behave the same with regard to extraposition.

3. The syntactic status of *ʔallaði, man* and *maa*

I argue that the free relative markers: *ʔallaði*, *man* and *maa* are complementizers and not a kind of *wh*-pronoun. This position is supported by the fact that these markers cannot be a part of a larger clause-initial constituent. However, due to the matching effects, it would be difficult to examine whether they can be a part of a clause-initial PP. Therefore, the only way to reveal the syntactic status of these markers is to examine whether they can be a possessor within a clause-initial NP, as one would expect if they were pronouns. The following ungrammatical examples in (10) show that this is not possible. Their grammatical counterparts are shown in (11).

(10) a.*ʔaʕrifu [$_{NP}$ ʔbu llati maat.]
know.1.SG father FRM.F.SG died.3.M.SG
'I know the one whose father died.'
b. *ʔaʕrifu [$_{NP}$ ʔbu man maat.]
know.1.SG father FRM. died.3.M.SG
'I know the one whose father died.'
c.*ħadaθaa [$_{NP}$ ʕawaqiba *maa* ʔaxšaa.]
happened.3.M.SG consequences FRM fear.1.SG
'The thing whose consequences I fear happened.'

(11) a. ʔaʕrifu [llati maat ʔbu-**ha**.]
know.1.SG FRM.F.SG died.3.M.SG father-3.F.SG
'I know the one whose father died.'
b. ʔaʕrifu [man maat ʔbu-**ha**].
know.1.SG FRM.F.SG died.3.M.SG father- 3.F.SG

'I know the one whose father died.'
c. ħadaθaa [*maa* ʔaxšaa ʕawaqiba-**hu**].
happened.3.M.SG FRM fear.1.SG consequences-3.M.SG
'The thing whose consequences I fear happened.'

Further evidence supporting the argument that *ʔallaði* is a complementizer comes from relative clauses. As noted above, *ʔallaði* can also appear in ordinary relative clauses modifying an NP in which *ʔallaði* agrees with the antecedent and with the gap in number and gender. However, when case is involved, *ʔallaði* bears the case of the antecedent and not that of the gap or the RP in the relativized position.

(12) a. raʔaytu l-waladayni [llaðayni qaabala-**humaa** l-malik-u]
saw.1.SG the-boy-DUAL.ACC that.M.DUAL.ACC met.3.M.SG-them.DUAL the-king-NOM
'I saw the two boys whom the king met.'
b. jaaʔa l-waladaani [llaðaani qaabala-**humaa** l-malik-u]
came.3.M.SG the-boy-DUAL.NOM that.M.DUAL.NOM met.3.M.SG-them.DUAL the-king-NOM
'The two boys whom the king met came.'

In addition, *ʔallaði* in ordinary relatives cannot be part of a clause-initial PP as shown by the ungrammatical example in (13a).

(13) a.* r-rajul-u [[$_{PP}$ maʕ llaði] takallamta]
the-man-NOM with RM.M.SG talked.2.M.SG
'*The man with that you talked.'
b. r-rajul-u [llaði takallamta maʕ-**hu**]
the-man- NOM RM.M.SG talked.2.M.SG with-him
'The man that you talked with.'

Wh-interrogative pronouns, on the other hand, behave differently from *ʔallaði*, *man* and *maa* with respect to pied piping. The following examples show that they can be part of a complex clause initial phrase.

(14) a. [$_{PP}$ maʕa man] takallamta ?
with whom talked.2.MSG
'With whom did you talk?'
b. [$_{NP}$ ʔom man] maatat?
mother whose died.3.FSG
'Whose mother died?'

At this stage, we can conclude on the basis of the above discussion that *ʔallaði* is a complementizer. As for *man* and *maa*, the examples in (10 b,c) suggest that they are not a kind of *wh*-pronouns, but it is worth considering the possibility that they are nouns. However, I argue that *man* and *maa* cannot be treated like nouns for the following reasons. First, they are invariant in form and in particular that they are not inflected for Case as discussed above. Second, they cannot be modified by adjectives. Finally, nouns don't take a bare clause as a complement, but only a clause introduced by a complementizer as in (15), whereas *man* and *maa* take a bare clause as a complement.

(15) a. ʔal-ħaqiqat-u ʔanna Ahmad-an yuħibu Hind-an
the-fact that Ahmad-ACC love. 3.M.SG Hind- ACC
'The fact is that Ahmad loves Hind.
b. wajadtu l-kitab-a [llaði tuħib-**hu** Salwa]
found.1.SG the book-ACC that. M.SG like.1.SG–it Salwa
'I found the book that Salwa likes.'

The question that might arise here is whether *man* and *maa* are indefinite nouns like the antecedent in indefinite relatives which takes a bare clause as its complement. We can exclude this by arguing that the clause following *man* and *maa* cannot be a relative clause given that the latter is optional after the noun it modifies whereas the former is obligatory.

Therefore, I conclude that *ʔallaði* , *man* and *maa* are relative complementizers. *man* and *maa* appears only in free relatives whereas *ʔallaði* appears in both ordinary relative clauses and free relatives. *ʔallaði* , *man* and *maa* do not appear in clausal complements.

4. Analysis

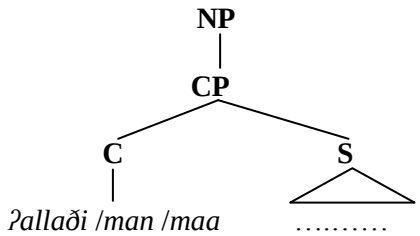
Before we begin to develop an analysis, we should note that there is evidence that the distribution of gaps and resumptive clitics are similar elements. I will assume that both are realizations of SLASH on the grounds that they behave in the same way with respect to the Coordinate Structure Constraint of Ross (1967)**,** as shown in (16)**,** in which there is a gap in the first conjunct and a resumptive pronoun in the second. Thus, there is no need to utilize a separate RESUMP feature as in Vaillette (2000).

(16) jaaʔat llati ʔuħibu__ wa ʔaħras ʕalay-**ha**.
came.3.F.SG that-f.sg love.1m.sg and care.1m.sg about-3.F.SG
'The girl that I love and care about'

Within Minimalism the obvious analysis for Arabic free relatives treats them as restrictive relative clauses with an empty head. (Alqurashi, in preparation).[3] However, someone might propose similar analysis within HPSG in which free relatives are treated like restrictive relative clauses but with a phonologically empty nominal head. In fact, there are various objections to such an approach. First, it is not clear how one could insure that this nominal constituent does not appear without a relative clause. In other words, if we allow an empty element modified by a relative clause in various positions (e.g. subject, object ...etc), it would be very difficult to prevent this empty element appearing without a relative clause in those positions. We cannot assume, on the other hand, that this empty nominal selects for a clause because it is usually the relative clause that selects the nominal constituent they modify. Second, an analysis of this kind is not plausible for *man* and *maa* free relatives because *man* and *maa* do not appear in relative clauses. Our goal here is to make the analysis of *ʔallaði* free relatives as similar as possible to that of *man* and *maa* free relatives.

If we reject the empty head analysis, the obvious analysis within HPSG would be to assume that free relatives in Arabic are NPs which have only one daughter which is a clause.

(17)

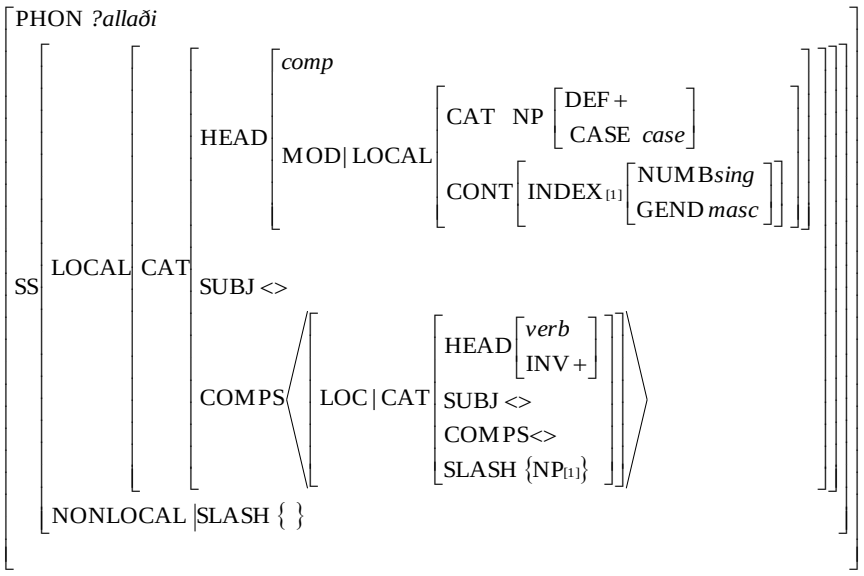


[3] There are few works that discussed Arabic restrictive relative clauses but not free relatives within transformational grammar such as Ouhalla (2004) and Aoun, Benmamoun and Choueri (2010). Aoun et al. (2010) dedicated a whole Chapter for Arabic restrictive relatives but they did not tackle the structure of restrictive relatives. They pointed out that 'this issue is a problematic one and is still under debate in the literature dealing with the topic of relativization' (p.189). Ouhalla (2004) developed an analysis of Arabic relative clauses which shares with Kayne's (1994) analysis an antisymmetric view of phrase structure. The main features of Ouhalla's analysis are (a) the idea that relatives are DPs and (b) the idea that they are originate in a prenominal position. Arabic free relatives, on the other hand, have been discussed by Fassi Fehri (1978) within transformational grammar, but he used an old version of transformational analysis which is not assumed any more.

As mentioned above, this is somewhat like Müller's (2002) unary projection approach for German free relatives. However, the analysis developed here is different in various respects from Müller's analysis since the facts related to Arabic free relatives are rather different. Arabic free relatives are introduced by a complementizer and not by a *wh*-phrase and hence we are not concerned with the question of whether the initial *wh*-phrase is treated as the head, as the filler or as both.

The differences between the complementizer *ʔallaði* and the complementizers *man* and *maa*, outlined above, suggests that they should be treated differently. Let us first consider *ʔallaði* free relatives. We can assume the complementizer *ʔallaði* has the lexical description in (18). The various different forms will have different values for the NUMBER and GENDER features and the CASE of the modified NP.

(18)



This indicates that *ʔallaði* takes a clausal complement which contains a gap or a resumptive pronoun and that the CP it heads modifies an NP coindexed with the SLASH value via the value of MOD. This entails that *ʔallaði* clause can modify an NP as is the case in ordinary relative clauses but it does not entails that it must do. The feature [INV(ERTED) +] indicates that free relative clauses are verb initial. The SLASH Amalgamation Constraint (Ginzburg and Sag, 2000), which a default constraint, requires a head to have by default a non empty SLASH value if its complement has a non empty SLASH value. This means that the head *ʔallaði* should by default have [SLASH {NP} because its complement (i.e. the relative clause) has [SLASH {NP}] unless there is no stipulation stating something else. However, the lexical entry above has a stipulation which ensures that *ʔallaði* has empty SLASH value. This will prevent the SLASH value of the internal clause from passing any further up the tree. This makes the treatment of *ʔallaði* similar to that of the English adjective *easy*. This adjective, which selects an infinitival complement missing an NP (i.e.it is [SLASH {NP}] as in (20), must have an empty SLASH value which is insured by a stipulation in its lexical description (see, e.g. Bouma, Malouf and Sag, 2001 for different approach).

(19) Kim is easy to impress ___.

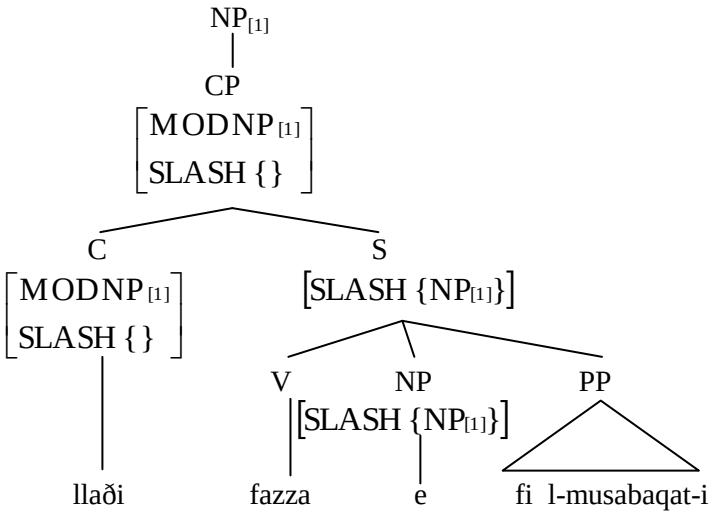
Now, we need a special phrasal type for *ʔallaði* free relatives which is subject to the following constraint:

(20) $\textit{ʔallaði -free-rel} \rightarrow \begin{bmatrix} \text{SS|CAT NP[CASE[1], INDEX[2]]} \\ \text{DTRS}\langle \text{CP[MOD NP[CASE[1], INDEX[2]]]} \rangle \end{bmatrix}$

This ensures that the *ʔallaði* free relative clause is coindexed with the value of MOD and hence has the same number and gender and also has the same CASE as *ʔallaði*. The feature [MOD NP] indicates that *ʔallaði* clauses can appear as relative clauses modifying certain NPs and not just as free relatives.

ʔallaði free relatives like the one in (1) above will have the following structure assuming that gaps are empty categories:

(21)



Since *man* and *maa* free relative clauses cannot appear as relative clauses modifying certain NPs, I assume that *man* and *maa* are specified as [MOD *none*] like other complementizers heading clauses which are not modifiers. Therefore, the dominating NP cannot be coindexed with the value of SLASH via the value of MOD, as in *ʔallaði* free relative, and the coindexing must be ensured in some other way. This can be achieved by assuming that CPs headed by *man* and *maa* have the same value for SLASH as their complement. In other words, the complementizers *man* and *maa* should not be specified as [SLASH { }]. Free relatives with *man* and *maa* can then be analysed as NPs whose only daughter is a clause but not a relative clause and they are subject to the following constraint:

(22) *man-maa-free-rel* $\rightarrow$

$$\begin{bmatrix} \text{SS} \mid \text{CAT NP[INDEX}\boxed{1}\text{, SLASH } \{\}] \\ \text{DTRS} \left\langle \text{CP} \begin{bmatrix} \text{MOD } \textit{none} \\ \text{SLASH } \{\text{NP[INDEX[1]]}\} \end{bmatrix} \right\rangle \end{bmatrix}$$

What important about this constraint is that it ensures that the NP is [SLASH { }]. This is not necessary in (18) above because the description for *ʔallaði* ensures that the CP is [SLASH {}].

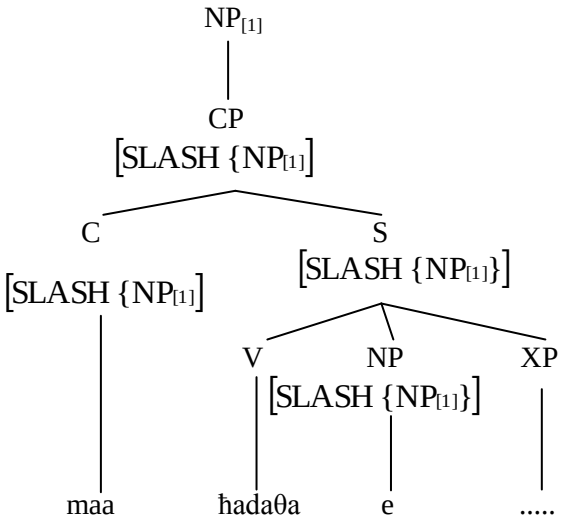
The complementizers *man* and *maa* can be assigned alexical description like the following:

(23)

$$\begin{bmatrix} \text{SS} \mid \text{LOCAL} \begin{bmatrix} \text{CATEGORY} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{comp} \\ \text{MOD } \textit{none} \end{bmatrix} \\ \text{SUBJ} \langle\rangle \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \\ \text{INV} + \end{bmatrix} \\ \text{SUBJ} \langle\rangle \\ \text{COMPS} \langle\rangle \\ \text{SLASH } \{\text{NP}_{[1]}\} \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

This will give a structure like the following:

(24)



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