GAPS AND RESUMPTIVE PRONOUNS IN MODERN STANDARD ARABIC

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1.Introduction

Unlike English but like many other languages, Modern Standard Arabic has unbounded dependencies which sometimes involve a gap and sometimes involve a resumptive pronoun. The facts are quite complex, but it is not too difficult to provide an analysis within HPSG.

2.The data

Like most languages Arabic does not allow a gap in prepositional object position. However, it allows a resumptive clitic in this position. We have the following contrast:

(1) a. *ʔayy-i   dʒaamiʕat-in   ðahaba   Aħmad-u   ʔila ___?
        which-GEN   university-GEN   went.3SM   Ahmad-NOM   to
        'Which university did Ahmad go to?'
    b. ʔayy-u   dʒaamiʕat-in   ðahaba   Aħmad-u   ʔilai-**ha**?
       which-NOM   university-GEN   went.3SM   Ahmad-NOM   to-it

Here and subsequently we mark gaps by '___' and place resumptive clitics in bold. Not surprisingly, it is possible to express the same meaning with a PP filler:

(2) [PP ʔila ʔayy-i   dʒaamiʕat-in]   ðahaba   Aħmad-u?
        to which-GEN   university-GEN   went.3SM   Ahmad-NOM
    'To which university did Ahmad go?'

Possessor position is similar. Here too a gap is impossible, but a resumptive clitic is fine:

(3) a. *ʔayy-i   muʔallif-in   garaʔa   Aħmad-u   kitaab-a ___?
        which-GEN   author-GEN   read.3SM   Ahmad-NOM   book-ACC
        "Which author's book has Ahmad read?"
    b. ʔayy-u   muʔallif-in   garaʔa   Aħmad-u   kitaab-a-**hu**?
       which-NOM   author-GEN   read.3SM   Ahmad-NOM   book-ACC-his

It is also possible to express this meaning with a complex NP containing a possessor as a filler:

(4) [NP kitaab-a   ʔayy-i   muʔallif-in] garaʔa   ___   Ahmad-u?
        book-ACC   which-GEN   author-GEN   read.3SM   Ahmad-NOM
    'Which author's book has Ahmad read?'

Following in essence Miller and Sag (1997), we assume that clitics are affixes realizing an otherwise unexpressed pronominal argument, which we will refer to as a pro, and not just the result of some superficial cliticization process. Strictly speaking then, it is the pro that is the resumptive element. The prepositional object and possessor positions both bear genitive case, as (2) and (4) show. However, the filler in (1b) and (3b) is nominative. We will see that a filler associated with a resumptive clitic is always nominative.

Turning to object position, we find that it allows either a gap or a resumptive clitic in *wh*-questions:

(5) a. ʔayy-a   T-tullaab-i   gaabala   l-gaaʔid-u   __?
       which-ACC   the-students-GEN   met.3SM   the-leader-NOM
       'Which of the students has the leader met?'
   b. ʔayy-u   T-tullaab-i   gaabala-**hum**   l-gaaʔid-u?
       which-NOM   the-students-GEN   met.3SM-them   the-leader-NOM

The filler is accusative with a gap (as one would expect) and nominative with a resumptive clitic. Notice that the clitic in (5b) is not adjacent to the object position. This argues that it is not the result of a superficial cliticization process. We have the same situation in relatives with a definite antecedent, as the following show:

(6) a. qaabaltu   r-rajul-a   llaðii   ʔarifu   ___
       met.1SM   the-man-ACC   that   knew.1SM
       'I met the man that I knew.'
   b. qaabaltu   r-rajul-a   llaðii   ʔarifu-**hu**
       met.1sm   the-man-ACC   that   knew.1SM-him
       'I met the man that I knew.'

In contrast, relatives with an indefinite antecedent only allow a resumptive in object position:

(7) a. *gaabaltu   rajul-an   [ʔaʕrifu __]?
        met.1SM   man-ACC   knew.1SM
       'I met a man that I knew'
   b. gaabaltu   rajul-an   [ʔaʕrifu-**hu**]?
       met.1SM   man-ACC   knew.1SM-him

Notice that there is no filler in these clauses.

Next we consider subject position. It is often assumed that Arabic has both postverbal and preverbal subjects (Mohammad 2000), and that they differ with respect to agreement, the former triggering only person and gender agreement and the latter triggering number agreement as well.

(8) gaabala   T-tullaab-u   Aħmad-a
     met.3SM   the-students- NOM   Ahmad-ACC
     'The students met Ahmad'
(9) T-tullaab-u   gaabaluu   Aħmad-a
     the-students- NOM   met.3PM   Ahmad-ACC
     'The students met Ahmad'

However, what are often viewed as preverbal subjects are required to be definite (Fassi Fehri 1993):

(10) l-ʔawlaad-u   jaaʔuu
     the-children-NOM   came.3PM
     'The children came'
(11) *ʔawlaad-un   jaaʔuu
      children-NOM   came.3PM
     'Children came'

This suggests that they are really topics associated with a null subject of some kind, and hence that the only real subjects are post-verbal (Aoun *et al* 2010). Assuming this is right, we need to ask why we have full agreement in examples like (9). One would expect a gap to have the same properties as the associated filler and to trigger agreement in the same way. This suggests that the null subject is not a gap but a resumptive pro. There is evidence that a pro subject triggers full agreement. Consider the following null subject sentences:

(12) a. laqad gaabala Aħmad-a
   indeed met.3SM Ahmad-ACC
   'He met Ahmad.'
  b. laqad gaabaluu Aħmad-a
   indeed met.3PM Ahmad-ACC
   'They met Ahmad.'

These can only have the meanings indicated. Assuming that they have a pro subject, this means that we have full agreement with a pro subject. Hence, if we assume that (9) also has a pro subject, we expect full agreement. It seems, then, that only a resumptive pro and not a gap is possible in subject position.

 There are also certain non-nominal gaps. Firstly, there are PP gaps with verbs:

(13) ʔilaʔayy-i ʤaamiʕat-in ðahaba Aliy-un ___?
   to which-GEN university-GEN went.3SM Ali-NOM
   'Which university did Ali go to?'

Secondly, there are PP gaps with adjectives:

(14) min maðaa kana Ahmad-u khaʔif-an ___?
   from what was Ahmad-NOM afraid-ACC
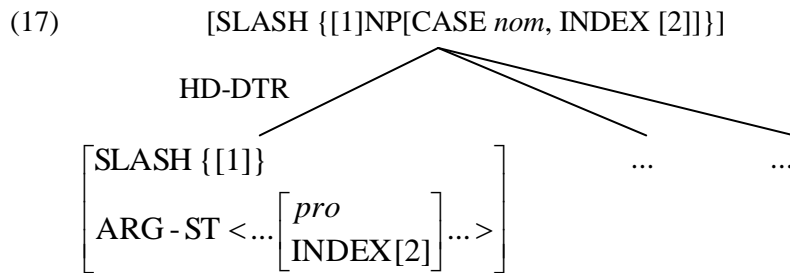   'Of what was Ahmad afraid?'

Finally, there are adverbial gaps:

(15) mataa ðahaba Aliy-un ʔila l-ʤaamiʕat-i ___?
   when went.3SM Ali-Nom to the-university-GEN
   'When did Ali go to the university?'

3. Towards an analysis

In Arabic, as in some other languages, there is evidence from coordination that resumptive pros involve the same SLASH mechanism as gaps. It is possible to have a gap in one conjunct and a resumptive clitic in the other, as the following illustrates:
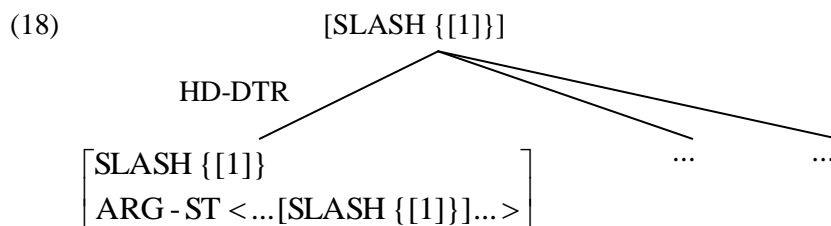
(16) man gaabalta ___ wa taħaddaƟta ʔilai-**hi**?
   who met.2SM and talked.2SM to-him
   'Who did you meet and talk to?'

Such examples are unsurprising if both gaps and resumptives are realizations of SLASH but are a major complication if resumptives involve a different feature as in Vaillette (2000). However, resumptive pros appear in the same positions as non-resumptive pros – subject position and positions associated with a clitic. This suggests that they are the same element. If we assume a head-driven approach to SLASH, we can propose that a resumptive pro is a pro argument which is coindexed with NP[CASE *nom*] in the SLASH value of a word. In other words, we can propose structures of the following form, where *pro* is a subtype of *synsem*:

(17)　　　　　　　　[SLASH {[1]NP[CASE *nom*, INDEX [2]]}]

$$
\text{HD-DTR}
\begin{bmatrix}
\text{SLASH } \{[1]\} \\
\text{ARG-ST} < \dots \begin{bmatrix} pro \\ \text{INDEX}[2] \end{bmatrix} \dots >
\end{bmatrix}
\quad \dots \quad \dots
$$

The fact that the pro is coindexed with the SLASH value means that it has the same number and gender. Crucially, however, it doesn't require it to have the same case. Hence, the fact that examples like (1b) and (3b) have pro in a genitive position is not a problem, and nor is the fact that an example like (5b) has a pro in an accusative position.

　　　Where a head has an argument which is either a gap or a constituent containing a gap or resumptive pro, we will have structures of the following form:

(18)　　　　　　　　　　[SLASH {[1]}]

$$
\text{HD-DTR}
\begin{bmatrix}
\text{SLASH } \{[1]\} \\
\text{ARG-ST} < \dots [\text{SLASH } \{[1]\}] \dots >
\end{bmatrix}
\quad \dots \quad \dots
$$

Where the argument is a gap it will be of type *gap*, and where it is a constituent containing a gap or resumptive pro it will be of type *canon*(*ical*). Such structures conform to the SLASH Amalgamation Principle, but structures of the form in (17) violate the Principle. It is appropriate for languages which just have gaps, but something more complex is required here.

　　　Firstly we need a constraint to ensure that a word with a non-empty SLASH value has an argument which is either a coindexed pro or a gap or constituent containing a gap or pro. The following constraint does this:

(19)
$$
\begin{bmatrix}
word \\
\text{SLASH } \{[1][\text{INDEX}[2]]\}
\end{bmatrix}
\Rightarrow [\text{ARG-ST} < \dots [pro[\text{INDEX [2]}]] \vee [\text{SLASH } \{[1]\}] \dots >]
$$

We also need a constraint to ensure that a head with a slashed argument is itself slashed in normal circumstances.

(20)　[ARG-ST < … [SLASH ([1]}] …>] ⇒ / [SLASH {[1]}]

We do not need a parallel constraint for pros because pros need not be resumptive and hence need not be coindexed with a SLASH value. We do, however, need a constraint to ensure that the SLASH value with which a resumptive pro is coindexed is nominative. The following constraint does this:

(21)
$$
\begin{bmatrix}
word \\
\text{SLASH } \{[1][\text{INDEX}[2]]\} \\
\text{ARG-ST} < \dots [pro[\text{INDEX}[2]]]\dots >
\end{bmatrix}
\Rightarrow [1] = [\text{CASE } nom]
$$

　　　We also need to restrict the distribution of gaps. One might suggest that nominal gaps must be accusative. This would exclude gaps from prepositional object, possessor and subject positions. However, we do find nominative gaps in examples like the following:

(22) ʔayy-u   rajul-in   Ali-un ___?
      which-NOM   man-GEN   Ali-NOM
      'Which man is Ali?'

We assume that such examples involve a phonologically empty form of the copula with a gap as its complement. It seems, then, that an example like (22) has a complement gap which is nominative. Hence, nominative gaps are acceptable if they are complement gaps. There is also one accusative position in which a gap is not possible. This is the position following complementizer *ʔanna*, normally occupied by a subject, which is illustrated in (23).

(23) ħasiba   Aħmad-u   ʔanna l-ʔawlaad-a   ðahabuu.
      thought.3SM   Ahmad-NOM   that   the-boys-ACC   left.3PM
      'Ahmad thought the boys had left'

Only a resumptive and not a gap is possible in this position, as the following show:

(24) a. ʔayy-u   l-ʔawlaad-i   ħasiba   Aħmad-u   ʔanna-**hum** ðahabuu
           which-NOM   the-boys- NOM thought.3SM   Ahmad-NOM   that-they   left.3PM
           'Which boys did Ahmad think had left?'
      b.*ʔayy-a   l-ʔawlaad-i   ħasiba   Aħmad-u   ʔanna ___ ðahabuu
           which-ACC   the-boys-GEN thought.3SM Ahmad-NOM   that   left.3PM

Instead of using case to restrict gaps, we propose to restrict them to being complements of a verb or adjective with the following constraint:

(25)

$$[1][gap] \; \Rightarrow \; \begin{bmatrix} \text{HEAD } verb \vee adj \\ \text{ARG - ST} <[]> \oplus <...[1]...> \end{bmatrix}$$

This will include adverbial gaps if we assume that adverbials are extra members of ARG-ST lists (Ginzburg and Sag 2000: 168, fn.2).

We noted earlier that while definite relatives allow both a gap and a resumptive clitic in indefinite relatives only allow the latter in this position. To account for this contrast we can simply say that the former are [SLASH {NP}] with no case restriction while the latter are [SLASH {NP[CASE *nom*]}]. This will mean that they can only contain a resumptive clitic.

A final question arises with examples like (16). On the face of it we will have [SLASH {NP[CASE *acc*]}] in the first conjunct because the gap is accusative and [SLASH {NP[CASE *nom*]}] in the second conjunct because of the resumptive pro. However, following Levine, Hukari and Calcagno (2000), we can assume a type *nom&acc*, which is a subtype of both *nom* and *acc* and propose that *man* and the associated SLASH value are [CASE *nom&acc*]. This satisfies both the accusative requirement stemming from the gap and the nominative requirement stemming from the resumptive pro and constraint in (21).

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