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1. Aims

Mehri is one of a cluster of closely-related Semitic languages spoken in Oman and Yemen, known as Modern South Arabian (MSA). The present contribution has two interrelated aims:
  i.   to report on the order of noun phrase constituents (adjectives, numerals and demonstratives) in Mehri and ask why certain logically-possible orders of these constituents are judged ungrammatical.
  ii. to provide a tentative answer to (i), anchored in Cinque's (2005) interpretation of Greenberg's (1963) Universal 20.

2. The order of nominal modifiers in the Mehri extended noun phrase

Attributive adjectives follow nouns in Mehri (' X >> Y' means that X precedes Y).[1]

N(oun) >> A(djective)
(1)   a. hóh   łí:nǝk   a-báyt   a-k'ǝnnǝt.
          I   saw   the-house   the-small.FS

      b. *hóh   łí:nǝk   a-k'ǝnnǝt   a-báyt.
          I   saw   the-small.FS the-house
          'I saw the small house.'

(2)   a. hóh   hǝbǝnáyk   báyt   gǝ́ddǝt.
          I   built   house   beautiful.FS

      b. hóh   hǝbǝnáyk   *gǝ́ddǝt   báyt.
          I   built   beautiful.FS house
          'I built a beautiful house.'

When we look at the order of nouns and numerals, the following picture emerges: The numerals 'one' and 'two' - henceforth $Num_{=1,2}$ - follow N, as in the examples in (3) and (4), while the numerals from 3 and above - henceforth $Num_{\geq 3}$ - precede N, as illustrated in (5) and (6).

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[1] The Mehri definite determiner is subject to complex and not well understood allophony and is apparently sometimes optional. See the descriptions in Rubin (2010:68-69) and in Watson (2012, sec.2.3.5)).

N >> Num$_{=1,2}$

(3)   a. ɬí:nək   báyt   t'áyt.
          I saw house one.F

      b. *ɬí:nək t'áyt   báyt.
          I saw   one.F house
          'I saw one house.'

(4)   a. ɬí:nək   ʁəyú:g-i θró:h.
          I saw men-DU two.M

      b. *ɬí:nək θró:h   ʁəyú:g-i.
          I saw   two.M   men-DU
          'I saw two men.'

Num$_{\geq 3}$ >> N

(5)   a. ɬí:nək ɬhəlí:θ   byú:t
          I saw three.F house.PL

      b. *ɬí:nək byú:t   ɬhəlí:θ
          I saw house.PL three.F
          'I saw three houses.'

(6)   a. ɬí:nək   rəbú:t   ʁəyú:g
          I saw four   men

      b. *ɬí:nək a-ʁəyú:g (a-)rəbú:t
          I saw   the-men (the-)four
          'I saw the four men.'

Putting together N >> A and Num$_{\geq 3}$ >> N predicts the order Num$_{\geq 3}$ >> N >> A, validated by (7).

Num$_{\geq 3}$ >> N >> A

(7)   a. ɬí:nək   rəbó:t ʁəyú:g   k'ənyawn.
          I saw four   men   small.M.PL

      b. ɬə́tmək   ɬá:θayt k'əló:mət ʕá:fər
          I bought three pens   red.PL

As for the combination of Num$_{=1,2}$ and A, both of which follow the noun obligatorily, there are, a priori, two options, compatible with the initial position of N, (8a) and (8b).

(8)   a.   (N >>) Num$_{=1,2}$ >> Adj
      b.   (N >>) Adj >> Num$_{=1,2}$

As shown in (9), only (8a) is possible.

N > Num=1,2 >> Adj

(9) a. ʁáyg   t'á:t'   k'ənnawn
       man   one   small

    b. *ʁáyg k'ənnawn t'á:t'

In section 3, I argue that this is not an arbitrary fact about Mehri; (9b) is excluded by general principles.

(10) summarizes the orders presented till now.

(10) a.   Num≥3 >> N >> Adj
     b.   N >> Num=1,2 >> Adj

Consider, now, the position of demonstratives, exemplified in (11) for both proximate (PROX) and distal (DIS) forms.

N >> Dem

(11) a.   hóh ɬí:nək a-báyt   ðəyk.
        I saw   the-house   DEM.DIS.FS
        'I saw   that house.'

    b.   a-báyt   ðí:məh.
           the-house   DEM.PROX.FS
           'this house'

    c.   a-ʁáyg   ðó:məh.
           the-man   DEM.PROX.MS
           'this man'

Watson (2012: sec. 3.1.6), however, notes that "demonstrative attributes may also, but less commonly, precede the head noun", and cites (12).

(12) lyo:mah   harmayt.
     DEM.PROX.PL   trees
     'these trees'

We can incorporate this observation as an optional alternative order and state (13), where the parentheses indicate optionality.

(13) a.   N >> Dem
     (b.   Dem >> N)

Now, let us ask whether the demonstrative precedes or follows the adjective. Here, there is no optionality.

Dem >> Adj

(14) a. ɬí:nək   a-báyt   ðəyk   a-ydənó:t
            I saw   *the-house*   DEM.DIS.FS   *the-new.FS*
            'I saw that new house.'

        b. ɬí:nək   a-bó:b   ðó:məh   a-k'ənnawn
            I saw   *the-door*   DEM.PROX.MS *the-small.MS*
            'I saw this small door.'

        c. *ɬí:nək a-báyt   a-ydənó:t   ðəyk
            I saw   *the-house* *the-new.FS*   DEM.DIS.FS
            'I saw that new house.'

As with (9b), we should ask whether Dem >> Adj in (14) is an accidental fact about Mehri or whether it is the expression of some underlying principle; see section 3.

Dem and Num$_{=1,2}$ are ordered with respect to each other, as in (15). [2]

N >> Dem >> Num$_{=1,2}$

(15) a-k'əló:mət əlyó:məh   θró:h
       the-pens   DEM.PROX.P *two*
       'these two pens'

Now, If N >> Dem >> Num$_{=1,2}$, (15), and N >> Num$_{=1,2}$ >> Adj, (9), we predict N >>Dem >> Num$_{=1,2}$ >> Adj.

N >> Dem >> Num$_{=1,2}$ >> Adj

(16) a-k'əló:mət əlyó:məh   θró:h ʕá:fər
       the-pens   DEM.PROX.P *two*   *red.P*
       'those two red pens'

Let us turn to the position of Dem relative to Num$_{\geq 3}$. Given Num$_{\geq 3}$ >> N, (5), and N >> Dem, (11), we expect Num$_{\geq 3}$ >> N >> Dem (or Num$_{\geq 3}$ >> N >> Dem >> Adj, with an adjective.) This expectation is not borne out, however.

(17) *rəbó:t ʁəyú:g əlyó:məh   ɬyéx
       four   *men*   DEM.PROX.P *old*
       'those four old men'

What we actually get is Dem >> Num$_{\geq 3}$ >> N > Adj.

Dem >> Num$_{\geq 3}$ >> N >> Adj

(18) əlyó:məh rəbó:t ʁəyú:g ɬyéx
       DEM.P   *four*   *men*   *old*

What is surprising here, and unexpected, is that instead of following the noun, the demonstrative must precede the noun *when the noun is itself preceded by Num$_{\geq 3}$.*

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[2] The fact that Watson transcribes 'these' as *lyo:mah* (in (12)), rather than as (my) *əlyó:məh* ((15) and elsewhere) can be ignored for the purposes of this report.

(19) Dem generally follows N except when N is preceded by **Num$_{\geq 3}$,** in which case Dem must also precede **Num$_{\geq 3}$**.

This pattern is corroborated by the Jibbali data in (20), elicited by Julien Dufour (personal communication).

(20) a. śɔ́tēmk   iḵɔ́n   śaġt̲ét dufútərt enīṣún.
           I bought those three   books   small
           'I bought those three small books.'

      b. śɔ́tēmk   iḵɔ́n   arbəʕɔ́t ēḳəlĩ̴t aferétɛ (mən swīsərɛ).
          I bought those four   pens   red   (from Switzerland)
          'I bought those four red Swiss pens.'

Compare the prenominal position of the demonstrative in (20) in Jibbali with its post-nominal placement in (21), in the presence of a post-nominal Num$_{=1,2}$.

(21) śɔ́tēmk   ḳəlɛ́m iḵɔ́n   t̲rɔ́h   enīṣún.
      I bought pens   those two   small
      'I bought these two small pens.'

Recall Watson's observation and data in (12), which suggest that the position of the demonstrative relative to the noun (as opposed to that of the adjective or that of the numerals) is not rigidly fixed in the language and an alternative order is possible. Watson's observation is strengthened by comparative data from Jibbali. Consider Dufour's field note examples in (22), where both Dem >> N and N >> Dem are attested, an optionality that suggests to Rubin (2014: sec. 3.4) the influence of Arabic.

(22) a. śɔ́tēmk   iḵɔ́n   dufútərt
           I bought those   books

      b. śɔ́tēmk   dufútərt iḵɔ́n
          I bought books   those

With some idealization, we might restate (19) as follows.

(23) Dem either follows or precedes N except when N is preceded by Num$_{\geq 3}$, in which case Dem must also precede Num$_{\geq 3}$.

(23), along with the impossible orders in (9b) and (14c), appear to be completely arbitrary; facts that the Mehri-speaking child must somehow memorize. Since the language does countenance some optionality in word orders (e.g., in the ordering of Dem and N), it is mysterious why (9b) or (14c) should not also be optional, or why the language incorporates the rather strange condition (23).

In what follows, I try to show that these facts are not arbitrary in the sense that they can be given a principled account, rooted in typological generalizations and derivable from principles of Universal Grammar.

3. Cinque (2005) and its application to word order in the Mehri Noun Phrase

Consider Cinque's (2005) rephrasing and re-conceptualization of Greenberg's (1963) Universal 20.

(24) **Greenberg's (1963) U(niversal) 20** (from Cinque (2005))
    a. In prenominal position, the order of demonstrative, numeral and adjective, (or any subset thereof), conforms to the order Dem >> Num >> A,
    b. in post-nominal position the order of the same elements, (or any subset thereof), conforms either to the order
      i. Dem >> Num >> A
    or to the order
      ii. A >> Num >> Dem.

Cinque (2005) argues that the universal base order of NP-internal constituents is Dem >> Num >> Adj >> N. He adopts Kayne's (1994) argument to the effect that linear precedence entails c-command: If X precedes Y, then X c-commands Y, and proposes that the external merge of A, Num and Dem yields the structure in (25a).

(25) a.   b.
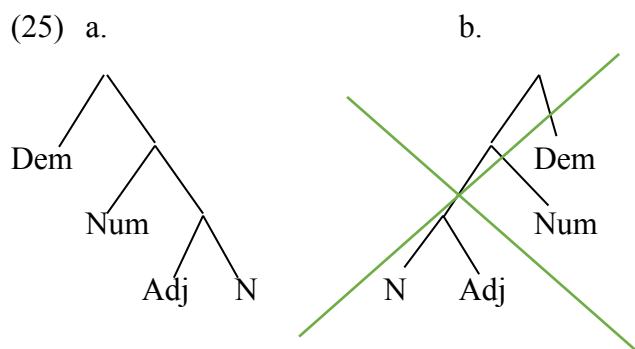
If no further movement (internal merge) takes place, Cinque argues, the base order emerges, as in the English 'these three enormous cars', which conforms to the first part of U20, (24a).

To derive the order (24b(i)), N is moved stepwise.[3] French illustrates movement of N only above the adjective:

(26) Dem Num N Adj :   ces trois voitures énormes
                            these three cars enormous

If N is moved above Num, we derive Dem >> N >> Num >> Adj, as in the following Lebanese Arabic example from Ouwayda and Shlonsky (2017).

(27) Dem N Num Adj   ho:l l-mhands-i:n   t-tle:te   s-seːbˤ-i:n
                               these the-engineer-PL the-three the-former-PL

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[3] Cinque takes (practically) all movement within the extended Noun Phrase to be phrasal. Thus, movement of N is, for him, actually movement of the phrase containing it. The relevant syntactic computations in the present contribution are expressed as movement of heads but readers should keep in mind that this is merely an expositional shortcut and bears no theoretical significance. I also put aside the labels of the various phrases and the landing position of N; see the cited literature for discussion.

Lebanese Arabic also instantiates the movement of N above Dem.

(28)   N Dem Num Adj

l-mhands-i:n   ho:l   t-tle:te   s-se:bˤ-i:n
the-engineer-PL these the-three the-former-PL

To get (24b(ii)), Cinque argues, N also moves up stepwise but it pied-pipes all the material below it, giving rise to the mirror-image order of post-nominal modifiers, as in (29).

(29)   a.   Dem [N Adj] Num
       b.   [[N Adj] Num] Dem

(29a) is possible in Lebanese Arabic and (29b) has been documented in Standard Arabic by Fassi Fehri (1999), (see also Cinque (2000), Shlonsky (2004; 2012)).

(30)   a.   ho:l   l-mhands-i:n   s-se:bˤ-i:n   t-tle:te   Lebanese Arabic
            these the-engineer-PL   the-former-PL   the-three

       b.   ṣ   ṣuħuf   -u   l-   ʒadi:dat -u   θ-   θalaaθ -u   ha:ð-ihi Standard Arabic
            DET newspapers NOM DET new   NOM DET three   NOM these-F

There are thus two devices for deriving post-nominal modification in Cinque's system: Either the noun moves alone or it moves and pied-pipes the material in its c-command domain. Cinque argues that these are the only two devices available in Universal Grammar. He predicts that of the 24 possible word orders combining the four elements noun, adjective, numeral and demonstrative, only those that can be derived by means of these devices should be available. This prediction is largely confirmed by the available typological evidence (but see Dryer (2018)).

With this in mind, consider the derivation of Mehri NPs. To obtain the N >> Adj order, Adj is merged above N and N moves over it, as schematized in (32a-c).

(31)   a. **Merge N**   b. **Merge Adj**   c. **Move N**
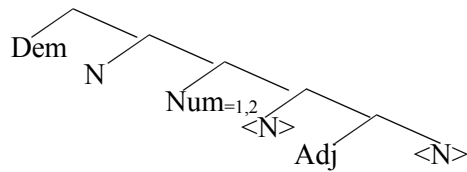
N >> Num$_{=1,2}$ >> Adj is derived by merging Num$_{=1,2}$ on top of (31c), as in (31d) and moving N above it, as depicted in (31e):

       d. **Merge Num$_{=1,2}$**   e. **Move N**
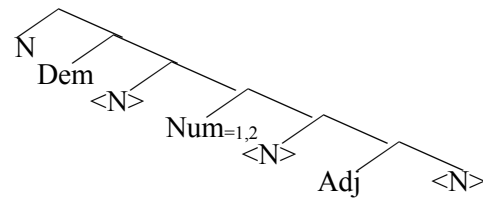
To obtain N >> Dem >> Num$_{=1,2}$ >> Adj, Dem is externally merged on top of (31e), as in (31f), and N moves above it, as in (31g). The optional order Dem >> N (viz. (13b)) comes about if the movement step in (31g) does not take place. Hence, optionality in word order is

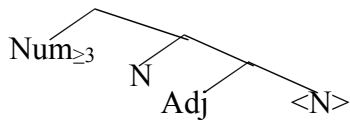expressed as the optionality of a syntactic movement operation.

f. **Merge Dem**

```
      Dem
         N
           Num=1,2
              <N>
                Adj      <N>
```

g. **Move N**

```
   N
     Dem
        <N>
          Num=1,2
             <N>
               Adj      <N>
```

Now let us consider the derivation of NPs with $Num_{\geq 3}$ instead of $Num_{=1,2}$. Like $Num_{=1,2}$, $Num_{\geq 3}$ is merged on top of (31c), but here, N *does not* move above it.[4] Consequently, the numeral surfaces to the left of the noun, see (31d').

d'. **Merge Num$_{\geq 3}$**

```
   Num≥3
        N
          Adj      <N>
```

e'. **N *does not* move**

Dem is now merged, as in (31f').

f'. **Merge Dem**

```
   Dem
      Num≥3
          N
           Adj      <N>
```
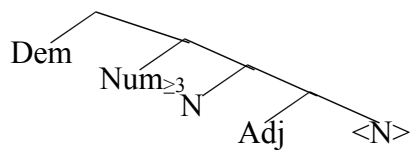
Since N does not move above $Num_{\geq 3}$, (31e'), and since, by hypothesis, movement of N must be stepwise, it follows that N cannot surface to the left of Dem. We hence derive (19) (and therefore part of (23).)

(32)   If $Num_{\geq 3} \gg N$, then $Dem \gg Num_{\geq 3} \gg N$.

4. Conclusion

Starting out with the (universal) base structure $Dem \gg Num \gg A \gg N$, Mehri-speaking children must determine, on the basis of only positive evidence, whether N (or rather NP, see note 3) moves and whether it moves alone or pied-pipes other material. They must determine

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[4] Since $Num_{=1,2}$ and $Num_{\geq 3}$ do not co-occur, one cannot determine if they are merged in the same position or in different positions. The relevant difference between the two types of numeral modifiers is that $Num_{\geq 3}$ forces N to move over it while $Num_{=1,2}$ prohibits such movement. This difference is a formal property familiar from the behavior of other functional elements, however it is stated.

whether movement is total (i.e., all the way to up, above Dem) or partial and whether movement is obligatory or optional.

Specifically, the acquisition of Mehri involves setting these parameters such that the following empirical generalizations hold:

(33) a. N must move over Adj.
      b. N must move above $\text{Num}_{=1,2}$.
      c. N may not move above $\text{Num}_{\geq 3}$.
      d. N may move above Dem.
      e. N is not a pied-piper.

The prohibited orders in (9b) and (14c), namely N >> Adj >> $\text{Num}_{=1,2}$ and N >> Adj >> Dem, respectively, are underivable in the proposed system. (9b) would require the adjective to move above $\text{Num}_{=1,2}$ but as Cinque (2005) argues, modifiers cannot move alone in the extended noun phrase. (9b) might also be derived by moving N over Adj and then pied-piping the material in N's c-command domain over $\text{Num}_{=1,2}$. Pied-piping of this sort is unavailable in Mehri, probably as a parametric choice. (14c) is likewise ruled out: Adj cannot move alone above Dem and N cannot pied-pipe it.

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