### On Greenberg's Universal 20 and the Semitic DP<sup>1</sup>

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One of the programmatic goals of Kayne's (1994) antisymmetry theory is that of accounting for the many left-right asymmetries found in natural languages. In Cinque (1996), I suggested that in addition to the left-right asymmetries which Kayne discusses, another could be seen to follow elegantly from antisymmetry: that embodied in Greenberg's Universal 20.

After briefly reviewing that proposal, I will examine certain generalizations presented in a recent analysis of Standard Arabic DPs (Fassi Fehri 1998a,b;1999), suggesting that in that language (and Semitic more generally), differently from the received opinion, DPs involve successive internal XP-raisings, rather than N-raising (to D), with consequences also for the proper analysis of the so-called Construct State.

Greenberg's (1966: 87) Universal 20 reads:

(1) "When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite."

In other words, to the left of the N only one ordering is possible (cf.(2)), while to its right both the same ordering, ((3)a), or its mirror-image, ((3)b), are possible:

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(2)a Dem > Num > A > N
b *A > Num > Dem > N
(3)a N> Dem > Num > A
b N > A > Num > Dem
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How can we make sense of this left-right asymmetry? Capitalizing on the necessary merge of specifiers to the left of a head, due to the LCA, and on the two options open to leftward movements (head-movement and XP-movement), the pattern in (2) and (3) appears to follow if we take the order of the specifiers to be rigidly Dem > Num > A, as shown in (4):

 $(4) \left[ {_{XP}X} \right. \left[ {_{YP}}\textbf{Dem} \left. \left[ {_{YP}Y} \right. ... \left[ {_{WP}}\textbf{Num} \right. \left[ {_{WP}W} \right. ... \left[ {_{ZP}}\textbf{AdjP} \left. \left[ {_{ZP}Z} \right. \left[ {_{NP}N} \right. \right] \right] \right] \right] \right] \right] \right]$ 

If N remains in situ (or moves to a head below the lowest adjective), we have (2)a (Dem > Num > A > N). If N raises as a head to X, we have (3)a (N > Dem > Num > A). If N raises as part of NP, in a "roll-up" fashion, to a Spec,KP in between Num and Adj; then KP raises to a Spec,JP in between Dem and Num; then JP raises to a Spec,XP to the left of Dem, then we get (3)b, the mirror image of the "base generated" sequence (I ignore here the stopping of N or NP in intermediate positions, for which see Cinque 1996).

Given this scenario, if the "roll-up" movement is local and successive, like head-movement (and N-raising to X cannot be followed by "roll-up" movements of the remnant), there is no way of

<sup>&</sup>lt;sup>1</sup> This text reproduces (with few additions and modifications) the handout of a paper presented at the "Workshop on the Antisymmetry of Syntax", held in Cortona on May 15-17 2000. I wish to thank Abdelkader Fassi Fehri for his judgments and comments on the original handout.

<sup>&</sup>lt;sup>2</sup> Shlonsky (2000), on the basis of a rich array of Hebrew and dialectal Arabic facts, has arrived at virtually identical conclusions about the syntactic derivation of Semitic DPs, except for the analysis of the Construct State. A similar roll-up derivation is also proposed in Sichel (2000), to derive the inverse order of Adjective Phrases in Hebrew.

generating (2)b. Fassi Fehri (1998a,b;1999) shows that Standard Arabic (but, apparently, the same, slightly parametrized, holds in the other Semitic languages) conforms to Greenberg's universal, in that it is N A Num Dem (cf. (5)), as well as Dem N A Num (cf. (6)a) and Dem Num N A (cf. (6)b), where the obligatory post-nominal APs are themselves in an order which is the mirror image of the English/Italian order (cf.(7)):

- (5)a s-suhuf-u l-jadiidat-u t-talaat-u haadihi (*N A Num Dem*) the-**newspapers**-nom the-**new**-nom the-**three**-nom **these** 'These three new newspapers'
  - b \*s-suhuf-u haadihi t-talaat-u l-jadiidat-u (\*N Dem Num A) the-newspapers-nom these three new newspapers' the-three-nom the-new-nom
- (6)a haadihi s-suhuf-u l-jadiidat-u t-talaat-u (*Dem N A Num*) these the-newspapers-nom the-new-nom the-three-nom 'These three new newspapers'
  - b ? haadihi t-talaat-u s-suhuf-i/in l-jadiidat-u (*Dem Num N A*) **these** the-**three**-nom the-**newspapers**-gen the-**new**-nom 'These three new newspapers'
- (7)a l-hujuum-u l-?amiriikiyy-u l-wahšiyy-u l-baliid-u l-muhtamal-u the-**attack**-nom the-**American**-nom the-**savage**-nom the-**stupid-**nom the-**probable**-nom 'The probable stupid savage American attack'
  - b šaay-un siiniiy-un ?axdar-u jayyid-un  $(NAP_3AP_2AP_1)$  tea-nom Chinese-nom green-nom excellent-nom 'An excellent green Chinese tea'  $(AP_1AP_2AP_3N)$

These important observations suggest that the N raises as part of a larger XP, *obligatorily* around the APs, reversing their base order, <sup>3</sup> and *optionally* around the higher specifiers Num and Dem, and the still higher (head) Q (cf. (8)):

- (8)a l-kutub-u l-xadra?-u t-talaatat-u kull-u-haa (*N A Num Q*) the-**books**-nom the-**green**-nom the-**three**-nom **all**-nom-them 'All the three green books'
  - b kull-u l-kutub-i l-xadra?-i t-talaatat-i (*Q N A Num*) all-nom-them the-books-gen the-green-gen the-three-gen 'All the three green books'

the-beautiful mother Paul 'Paul's beautiful mother'

b ix-xih missier Karla

the-old father Karla 'Karla's old father'

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<sup>&</sup>lt;sup>3</sup> But in Maltese APs can apparently also be prenominal (if preceded by a determiner). Cf. Fabri (1993,54), cited in Duffield (1995,302):

<sup>(</sup>i)a is-sabiha omm Pawlu

If there is a Construct State genitive, it is right adjacent to the N and precedes the APs (which are in the usual mirror-image order):

- (9)a hujuum-u l-hukuumat-i l-wahšiyy-u l-baliid-u l-muhtamal-u **attack**-nom the-**government**-gen the-**savage**-nom the-**stupid-**nom the-**probable-** nom 'The government's probable stupid savage attack'
  - b kutub-u l-'aqqad-i l-xadra?-u t-talaatat-u kull-u-haa books-nom al-Aqqad-gen the-green-nom the-three-nom all-nom-them 'All of al-Aqqad's three green books'

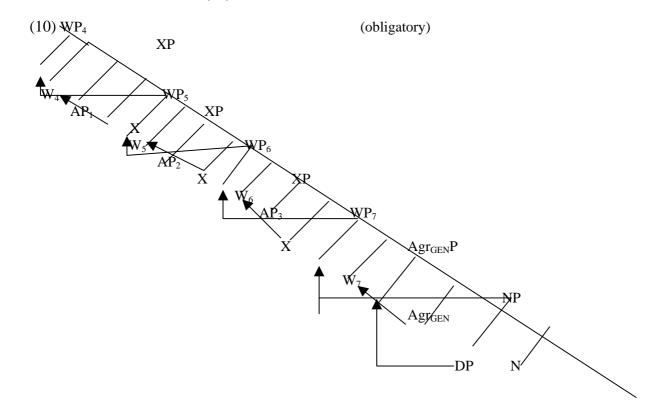
Fassi Fehri, adopting the standard N-raising to D analysis, assumes, in addition to N-movement, a separate movement of the possessor and separate movements of the APs (the latter motivated by the need to reverse their order). But his findings follow in a simple and unified fashion from successive leftward movements of larger and larger XPs: first of the (remnant) NP around the genitive possessor (yielding the Construct State); then, of the larger phrase containing the Construct State around the next higher specifier, and so on. The otherwise curious conspiracy of three different types of movements can be dispensed with.

Let's consider how.

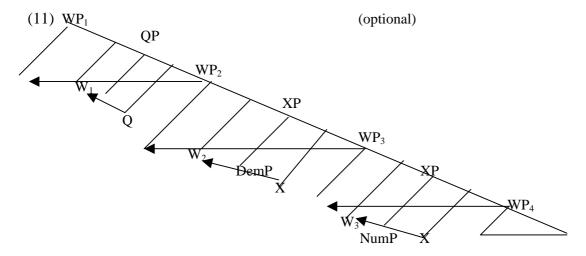
Following Siloni (1994, chapter 2), I take the argument DP to raise to the Spec of an immediately dominating  $Agr_{GEN}P$ , where it is assigned (structural) Genitive (cf. also Fassi Fehri 1993,220). In line with Kayne (1998), I assume  $Agr_{GEN}$  raises to a head W, thereby activating Spec,WP, which attracts the remnant NP (the complement of the raised  $Agr_{GEN}$  head). This is the core of the Construct State: [wP [NP N]  $Agr_{GEN}+W$  [Agr\_GENP DP t t ]].

The analogous raising of the next head, X, to  $W_6$  activates Spec,WP<sub>6</sub>, which attracts the complement of the raised head X, WP<sub>7</sub>, yielding the order N DP<sub>GEN</sub> AP<sub>3</sub>. The subsequent headraising to WP<sub>5</sub>, and attraction of WP<sub>6</sub> to Spec,WP<sub>5</sub> yields the order N DP<sub>GEN</sub> AP<sub>3</sub> AP<sub>2</sub>.

Finally, the entirely similar head-raising to WP<sub>4</sub>, and attraction of WP<sub>5</sub> to Spec,WP<sub>4</sub> yields the order N DP<sub>GEN</sub> AP<sub>3</sub> AP<sub>2</sub> AP<sub>1</sub>, which is the exact mirror-image of the base order. The derivation is shown in (10):



Above the projections hosting the APs, head-raising and attraction to Spec of WP are apparently optional:<sup>4</sup>

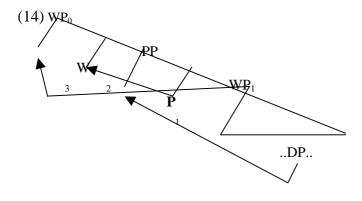


Depending on whether just WP<sub>4</sub> raises to Spec,WP<sub>3</sub>, or WP<sub>4</sub> to Spec,WP<sub>3</sub>, WP<sub>3</sub> to Spec WP<sub>2</sub>, etc., one gets the different possibilities of (12), all attested in Standard Arabic (cf. again Fassi Fehri 1998a,b, 1999):

 $(12)a \ Q \ Dem \ Num \ \textbf{N} \ A_3 \ A_2 \ A_1 \\ b \ Q \ Dem \ \textbf{N} \ A_3 \ A_2 \ A_1 \ Num \\ c \ Q \ \textbf{N} \ A_3 \ A_2 \ A_1 \ Num \ Dem \\ d \ \textbf{N} \ A_3 \ A_2 \ A_1 \ Num \ Dem \ Q$ 

As prepositional complements, when present, are DP-final (cf. (13)), I will assume, following Kayne (2000), that the preposition is generated above the containing DP, attracts to its Spec its complement DP, and raises to W, W attracting the remnant to its Spec. Cf. (14):

(13)a muhaarabat-u l-hukuumat-i l-muntadarat-u li-l-irtiSaa?-i fighting-nom the-government-gen the-expected-nom of-the-corruption 'The expected fighting of the corruption by the government'



<sup>&</sup>lt;sup>4</sup> When a Construct State Genitive is also present, demonstratives cannot be prenominal in Modern Standard Arabic (Fassi Fehri 1998a,30). They can, however, in Maltese (Fabri 1996,233), where APs can also precede the Construct State (cf. fn.2):

That (fsg) sister Paul 'that sister of Paul's'

<sup>(</sup>i) Dik oht Pawlu

This analysis calls into question the traditional analysis of the Construct State as N-raising-to-D (cf. Ritter 1987, and subsequent works) as it reanalyses it as local (remnant) NP movement to Spec, AGRgen+W (followed by possible further roll-up movements).<sup>5</sup>

Independent evidence that XP-raising rather than N-raising to the left of the genitive DP is involved in the Construct State in Arabic comes from the possibility of coordinating two headnouns. See (15):

(15) tatwiir-u wa tahdit-u l-lugat-i d-daa?im-aa-ni development-nom and modernization-nom the-language-gen the-constant-dual-nom 'The constant development and modernization of the language'

If no coordination of  $X^{\circ}s$  is possible, but only of XPs (Kayne 1994, 59ff), (15) indicates that the apparent head-noun of the Construct State is actually (at least) a NP (the marking of dual number on the adjective rules out the possibility that (15) involves the coordination of one elliptical and one full Construct State DP, each containing a single head-noun).

The XP-raising analysis of the Semitic DP just sketched derives naturally many of the characteristic properties of Construct States. See the Appendix.

This analysis, if correct, calls into question N-to-D raising not only for Semitic, but also for Celtic and Romance, as successive raisings of the remnant NP from Spec,WP to Spec ,WP (with no pied piping of the containing WP) could be involved, giving the illusion of N-raising.

The general pattern of the Celtic DP is the one given in (16) (cf. Rouveret 1994, chapter 3; Duffield 1995, chapter 5):

#### (16) Q NUM A<sub>1</sub> N A<sub>2</sub> A<sub>3</sub> GEN/DEM (P DP)

As opposed to Semitic, in the Irish Construct State the head-noun can (in fact, must – Duffield 1995,290) be separated from the Genitive DP by the lower APs, if present.<sup>7</sup>

This suggests that the (remnant) NP, after being attracted to the Spec of AGRgen+W (as in Semitic), continues alone from Spec to Spec, without pied piping WP (obligatorily to the Spec of a W above the lower APs). This is supported by the fact that the serialization of the APs corresponds to the direct one of English, not to the inverse one of Semitic (Sproat and Shih 1991,586f; Duffield 1995,295ff).<sup>8</sup>

(i) tarku yawman nafsi-ka... leaving one day self-your 'Leaving yourself...'

(i)a guth laidir an tsagairt

voice strong the priest-GEN 'the priest's powerful voice'

b \*guth an tsagairt laidir voice the priest-GEN strong 'the priest's powerful voice'

<sup>&</sup>lt;sup>5</sup> The examples in fn.2, with their D-AP N DP<sub>GEN</sub> order, exclude (at least for Maltese) that N raises to D (and, in our reinterpretation of the Construct State, that the Construct State phrase raises to (or above) Spec,DP.

<sup>&</sup>lt;sup>6</sup> Another indication that the constituent preceding the Construct State Genitive is larger than a N comes from Bohas and Al-Qaadirii's (1998) observation (reported in Kihm 1999; Benmamoun 2000,165f) that what look like adjuncts to the head N can intervene between it and the genitive when the head N is a deverbal noun (this marked construction is however not accepted by everybody – Fassi Fehri p.c.):

<sup>&</sup>lt;sup>7</sup> Cf. (i)a vs. (i)b (cf. (35a-b) of Duffield 1995,290):

The same situation holds in Welsh (Rouveret 1994,209ff.).

Romance, which conforms to the minimally different pattern of (17) (cf. Cinque 1994), can be taken to differ from Celtic in not having an active  $AGR_{GEN}$  licensing a structural Genitive DP, thus requiring the insertion of a Preposition above the DP to license the subject DP (Central and Eastern Romance also differ from Celtic in not allowing a demonstrative to remain in the low "deictic" demonstrative position immediately above the NP – cf. Brugè 1996, Brugè and Giusti 1996):  $^{10}$ 

### (17) Q DEM NUM $A_1 < N > A_2 < N > A_3 P DP$

As a matter of fact, Romanian, among the Romance languages, provides independent evidence for XP-raising (to Spec,DP) rather than N-raising (to D). The first piece of evidence comes from the possibility of such cases as (18)a, where an entire phrase (an AP) is found to the left of the determiner; the second from coordination facts entirely parallel to the Semitic fact noted above (cf. (18)b, and especially (18)c,d, provided by Giuliana Giusti and Carmen Dobrovie Sorin)<sup>11</sup>:

### (18)a Foarte frumosul portret

very beautiful-the painting 'the very beautiful painting'

b Sotul si sotia precauti nu fac mai mult de un copil husband-the (sing) and wife-the (sing) careful (pl) not make more than a child

c Directorul si presedintele nou

The new(sing) director and president (one individual)

d Directorul si presedintele noi

The new(pl) director and president (two individuals)

<sup>8</sup> Cf., for example:

(i)a cupan mor Sasanach (Irish – Sproat and Shih 1991,587) cup big English 'a big English cup' b an seanchapall mor bui (Irish – Duffield 1995,296) the oldhorse big yellow 'the big yellow horse'

<sup>9</sup> (i) cwpan mawr gwyrdd Sieineaidd (Welsh – Rouveret 1994,213) cup big green chinese 'a big green chinese cup'

<sup>10</sup> The main parametric difference between Celtic/Romance and Semitic appears then to be whether the content of Spec,WP raises alone or pied-pipes WP (which recalls Koopman and Szabolcsi's 1998 derivation of "inverted" and "English" orders of restructuring verbs in Hungarian).

<sup>11</sup> The fact that when two Ns (cf.(17)b), or two adjectives (cf. (i) below), are coordinated both carry the definite article indicates that the article is a definiteness marker formed in the lexicon rather than picked up in the syntax (if that were the case it should appear only on the second of the two coordinated elements – but that is not the case):

(i) Frumosul si marele portret al lui Ion Beautiful-the and big-the painting of J. 'Ion's beautiful and big painting' **APPENDIX:** THE MAIN PROPERTIES OF THE CONSTRUCT STATE (cf. Fassi Fehri 1993, Borer 1999, Shlonsky 2000) AND THEIR RELATION TO THE ABOVE ANALYSIS

### 1) Inseparability of the "head noun" + genitive DP (e.g., no adjective can intervene between them)

- a) (daxal-tu) daar-a r-rajul-i l-waasi'at-a (entered-I) house-acc the-man-gen the-large-acc '(I entered) the man's large house'
- b) \*...daar-a **l-waasi'at-a** r-rajul-i ...house-acc the-large-acc the-man-gen '...the man's large house'

The strict adjacency follows from attraction of the genitive DP to Spec,  $AGR_{GEN}$ , raising of  $AGR_{GEN}$  to W, and attraction of the remnant NP to Spec, WP (cf. (10)).

# 2) Adjectival modification of the "head noun" follows the rightmost genitive DP (and it may modify any of the nouns if featurally non-distinct)

(Hebrew) *delet beit morat ha-kite ha-yafa* (Borer 1999,45) door-f house-m teacher-f the-class-f the-beautiful-f

- a) 'the door of the house of the teacher of the beautiful class'
- b) 'the door of the house of the beautiful teacher of the class'
- c) 'the beautiful door of the house of the teacher of the class'

This follows from the fact that the AP can be internal to the DP headed by *kite*, or that headed by *morat*, or that headed by *delet* (though not the one headed by *beit*, which is featurally distinct), and the fact that in either case it ends up in final position by being crossed over by the NPs *kite*, *morat ha-kite*, *delet beit morat ha-kite*, respectively.

#### 3) If more than one noun is modified by an adjective, the configuration is nested: N<sub>1</sub> N<sub>2</sub> A<sub>2</sub> A<sub>1</sub>

This also follows directly from the 'base-structure' [ $_{DP1}$  AP $_1$  [ $_{DP2}$  AP $_2$  [ $_{NP2}$  N $_2$ ]] [ $_{NP1}$  N $_1$ ]] by NP $_2$  crossing over AP $_2$  ([ $_{DP1}$  AP $_1$  [ $_{DP2}$  [ $_{NP2}$  N $_2$ ] AP $_2$  t] [ $_{NP1}$  N $_1$ ]], NP $_1$  crossing over the genitive DP $_2$  to Spec,WP ([ $_{DP1}$  AP $_1$  [ $_{NP1}$  N $_1$ ] [ $_{DP2}$  [ $_{NP2}$  N $_2$ ] AP $_2$  t] t]), and WP crossing over AP $_1$ , to yield: [ $_{DP1}$  [ $_{NP1}$  N $_1$ ] [ $_{DP2}$  [ $_{NP2}$  N $_2$ ] AP $_2$  t] t AP $_1$  t].

## 4) "(In)definitness spreading" (the definiteness value of the head depends on that of the genitive)

- a)...daar-a r-rajul-i l-waasi'at-a house-acc the-man-gen the-large-acc 'the/\*a large house of the man'
- b) ...daar-a rajul-i-n waasi'at-a house-acc man-gen large-acc 'a/\*the large house of a man'

This property may follow from feature sharing. The (in)definiteness feature of the DP in Spec,  $AGR_{GEN}$  is shared under Spec/head agreement with  $AGR_{GEN}$ . When  $AGR_{GEN}$  raises to W, it enters another Spec/head agreement relation with Spec, WP (hence can transmit its (in)definiteness feature to the remnant NP raised to Spec, WP).

### 5) The "head noun" cannot be directly modified by a determiner

(daxal-tu) (\***d-**)daar-a r-rajul-i l-waasi'at-a (entered-I) (the-)house-acc the-man-gen the-large-acc '(I entered) the man's large house'

This property may be related to the preceding. If the (in)definiteness feature is already visible through Spec/head agreement with the (in)definiteness feature of the genitive, it need not (hence, by economy, cannot) be realized. This is more natural if the definite article in Semitic is "a base-generated feature on the head N", as proposed in Borer (1989). For a prosodic approach to the question, see Siloni (2000, sect.4).

### 6) The non prepositional nature of the genitive

As opposed to the so-called Free State, the Construct State genitive is not introduced by a preposition (Arabic *li*-, etc., Hebrew *Sel*). This follows from the "structural" nature of the genitive assigned in Spec,AGR<sub>GEN</sub>P. The "structural" nature of the genitive in the Construct State is shown by its occurrence in ECM contexts:

- (i) dann-u r-rajul-i dakiyy-an xata?un (Arabic, Fassi Fehri 1993,220) believing-nom the-man-gen clever-acc error-nom (Literally: the man's believing clever (is) an error)

  'Believing that the man is clever is an error'
- (ii) meci'at ha-ne'eSam 'aSem vs.\*ha-meci'a Sel ha-ne'eSam 'aSem (Hebrew, Siloni 1997,41) finding the-accused guilty the-finding of the-accused guilty

#### 7) The obligatoriness of the genitive (more clearly visible in Hebrew)

V. (Hebrew) Beit \*(more) ('a house (of a teacher)') vs Bayit (Sel mora) ('a house (of a teacher)'). This follows from the fact that the Construct State is dependent on the presence of  $AGR_{GEN}$ , which attracts the remnant NP to its Spec (assigning to it structural Genitive Case).

# 8) The "head noun" cannot bear main stress (in Hebrew it may have a phonetic shape different from that of the Free State)

Following Siloni (1997,43), "[t]his may be conceived as some phonetic reflex of the presence of AGR<sub>GEN</sub> features on the noun" (to be checked in Spec,AGR<sub>GEN</sub>P). For more recent discussion of the prosodic nature of Case checking, see Siloni (2000).

- 9) A thematic restriction (Borer 1996,41; Siloni 1994, 1997, 96ff; Shlonsky 2000, sect.8) When more than one genitive argument is present (one representing the theme, the other the agent or the possessor) the genitive member of the Construct must be the theme (examples from Shlonsky 2000):
  - a) tmunat ha xamanyot Sel vangox picture the sunflowers of Van Gogh
  - b) \*tmunat vangox Sel xamanyot picture Van Gogh of the flowers

If the theme is not genitive, the genitive member of the Construct can be an agent or a possessor (examples from Siloni 2000):

- c) mixtavey ha xayal le-imo letters the-soldier to-mother-his
- d) harisat ha-cava et ha-ir destruction the army *acc* the-city

If only one genitive can be assigned within a DP (cf. Cinque 1995), then the second genitive must be assigned within a reduced relative clause. When both a theme and an agent (or a possessor) are present, only the latter can be generated in a reduced relative clause, as themes (complements more generally) cannot (cf. \*A student which is of physics; \*A letter which is to his mother). 12

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saw-I picture-acc Zayd-gen of-Hind-gen

But in this language the preposition introducing the second genitive is non-distinct from Dative (cf.

<sup>&</sup>lt;sup>12</sup> At first sight, no such restriction holds in Arabic. See (i) from Fassi Fehri (1993,249):

<sup>(</sup>i) Saahad-tu suurat-a zayd-in li-hind-in

<sup>&#</sup>x27;I saw Zayd's picture of Hind'

<sup>(</sup>ii), from Fassi Fehri 1993,248). (i) thus instantiates the same case as Hebrew c) above:

<sup>(</sup>ii) baa a li-r-rajul-i kitaab-an sold-3.s.m to-the-man book-acc 'He sold a book to the man'

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